SAR TEST REPORT

Test report No:	**EMC-FCC-A0001**
Type of Equipment:	**Handy terminal**
Model Name:	**HT-K10**
Applicant:	**TOSHIBA TEC CORPORATION**
FCCID:	**BJI-HTK10**
IC Number:	**1004C-HTK10**
Test standards:	**FCC OET Bulletin 6 supplement C** **IEEE 1528 ,2003** **IEC 62209 :2006/IEC62209-2 :2010** **RSS-102**
Max. SAR(1g)	**0.809 W/kg**
Test result:	**Complied**

In the configuration tested, the EUT complied with the standards specified above.

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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Date of receipt: 2013. 01. 24

Date of testing: 2013. 02.22 ~ 03. 29

Issued date: 2013. 04. 01

Tested by: Chang-won, Lee

Approved by: Chang-min, Kim

Contents

1. Applicant information

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Manufacturer:	TOSHIBA TEC CORPORATION
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2. Laboratory information

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FCC CAB.: 508785
VCCI Registration No. : C-1713, R-1606, T-258
Industry Canada Registration No. : 8035A-2
KOLAS NO.: 231

SITE MAP

3. Identification of Sample

Mode of Operation	802.11b/g/n, Bluetooth
Model Number	HT-K10
Serial Number	1226930030
Sample Version	Win CE 6.00 (kernel : 55.03)
Tx Freq.Range	2412 - 2462 (802.11b)
Rx Freq.Range	2412 - 2462 (802.11b)
Power	11.09 dBm(802.11b)
Traffic Channel	1, 6 and 11(802.11b)
Maximum AVG Conducted Power (Unit : dBm)	802.11b :11.09 802.11g :10.11 802.11n HT20 : 10.08 Bluetooth : 3.59
Antenna Manufacturer	KARAM SOLUTION CO., LTD
Antenna Dimensions	54 mm * 29 mm * 12 mm
Antenna Gain	2.42 dBi(WLAN) / 0.77 dBi(Bluetooth)
Normal Voltae	DC 3.7 V / 3300mAh, 2200mAh
Battery Type	Li-Ion Battery
Battery Name(Manufacturer)	BP06-00029B(Point Mobile Co., Ltd.) - 3300 mAh BP06-00028B(Point Mobile Co., Ltd.) - 2200 mAh

4.Test Result Summary

4.1 Body-Worn Configulation

Band & Mode	Tx Frequency	AVG Power	SAR (W/kg)	
			1g Body	Limit
802.11b – 1D	2412 ~ 2462 MHz	11.09 dBm	0.723	1.6
802.11b – 2D	2412 ~ 2462 MHz	11.09 dBm	0.809	
Bluetooth	2402 ~ 2480 MHz	3.59 dBm	N/A	
Simultaneous SAR per KDB 690783 D01:			0.889	

* Contain the results of the worst test SAR including battery.

5. Report Overview

This report details the results of testing carried out on the samples listed in section 3, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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6. Test Lab Declaration or comments

None

7. Applicant Declaration or Comments

None

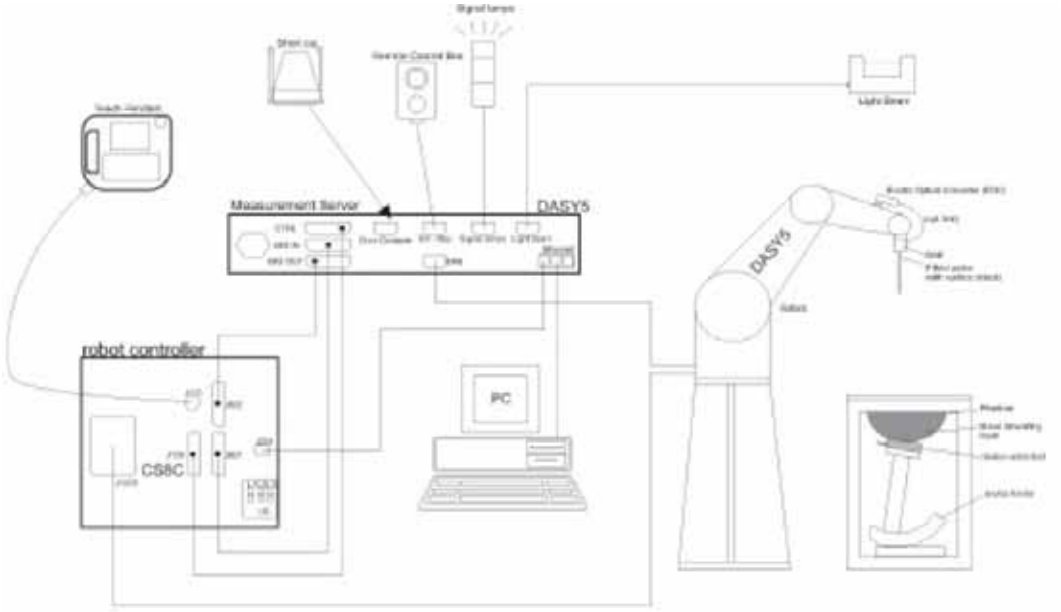
8. Measurement Uncertainty

Measurements and results are all in compliance with the standards listed in section 15 of this report. All measurements and results are recorded and maintained at the laboratory performing the tests and measurement uncertainties are taken into account when comparing measurements to pass / fail criteria.

Uncertainty of SAR equipments for measurement

a	b	c	d	e = f(d,k)	g	i = cxg/e	k
Uncertainty Component	Section in P1528	Tol (%)	Prob . Dist.	Div.	Ci (10g)	1g ui (%)	Vi (Veff)
Measurement System							
Probe calibration	E.2.1	6.30	N	1	1	6.30	∞
Axial isotropy	E.2.2	0.50	R	1.73	0.71	0.20	∞
hemispherical isotropy	E.2.2	2.60	R	1.73	0.71	1.06	∞
Boundary effect	E.2.3	0.80	R	1.73	1	0.46	∞
Linearity	E.2.4	0.60	R	1.73	1	0.35	∞
System detection limit	E.2.5	0.25	R	1.73	1	0.14	∞
Readout electronics	E.2.6	0.30	N	1	1	0.30	∞
Response time	E.2.7	0.00	R	1.73	1	0.00	∞
Integration time	E.2.8	2.60	R	1.73	1	1.50	∞
RF ambient Condition -Noise	E.6.1	3.00	R	1.73	1	1.73	∞
RF ambient Condition - reflections	E.6.1	3.00	R	1.73	1	1.73	∞
Probe positioning- mechanical tolerance	E.6.2	0.40	R	1.73	1	0.23	∞
Probe positioning- with respect to phantom	E.6.3	2.90	R	1.73	1	1.67	∞
Max. SAR evaluation	E.5.2	2.00	R	1.73	1	1.15	∞
Test Sample Related							
Test sample positioning	E.4.2	4.75	N	1	1	4.75	9
Device holder uncertainty	E.4.1	3.60	N	1	1	3.60	∞
Output power variation -SAR drift measurement	6.62	5.00	R	1.73	1	2.89	∞
Phantom and Setup							
Phantom uncertainty (shape and thickness tolerances)	E.3.1	6.10	R	1.73	1	3.52	∞
Liquid conductivity - deviation from target values	E.3.2	5.00	R	1.73	0.43	1.24	∞
Liquid conductivity - measurement uncertainty	E.3.2	0.46	N	1	0.43	0.20	5
Liquid permittivity - deviation from target values	E.3.3	5.00	R	1.73	0.49	1.41	∞
Liquid permittivity - measurement uncertainty	E.3.3	0.75	N	1	0.49	0.37	5
Combined standard uncertainty				RSS		10.66	244
Expanded uncertainty (95% CONFIDENCE INTERVAL)				K=2		21.33	

9. The SAR Measurement System



<SAR System Configuration>

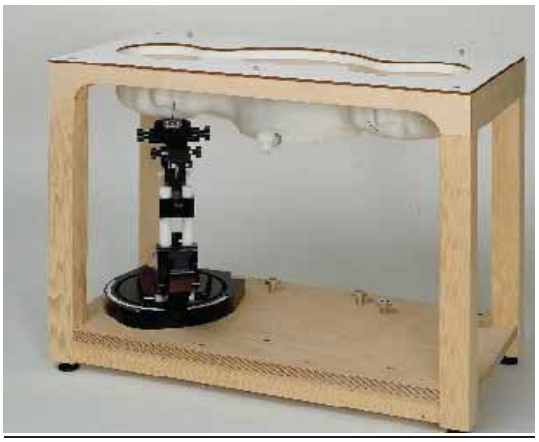
- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- Data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.
-

9.1 Isotropic E-field Probe EX3DV4

<EX3DV4 E-field Probe>

Construction	:	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g. DGBE).
Calibration	:	In air from 10 MHz to 6 GHz In brain simulating tissue (accuracy ± 6.3 %)
Frequency	:	10 MHz to > 6 GHz; Linearity: ±0.2 dB (30 MHz to 6 GHz)
Directivity	:	±0.2 dB in brain tissue (rotation around probe axis) ±0.4 dB in brain tissue (rotation normal to probe axis)
Dynamic Range	:	5 µW/g to >100 mW/g; Linearity: ±0.2 dB
Srfce. Detect	:	±0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Dimensions	:	Overall length: 337 mm Tip length: 9 mm Body diameter: 10 mm Tip diameter: 2.5 mm Distance from probe tip to dipole centers: 2 mm
Application	:	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing frequencies up to 6 GHz with precision of better 30%.

9.2 SAM Twin Phantom



<SAM Twin Phantom>

The SAM twin phantom is a fiberglass shell phantom with 2mm shell thickness (except the ear region where shell thickness increases to 6mm). It has three measurement areas:

• Left head

• Right head

• Flat phantom

A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. Free space scans of devices on the cover are possible.

On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

Phantom specification:

Description The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-2003, IEC 62209-1 and IEC 62209-2. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.

Shell Thickness 2 + 0.2 mm, Center ear point: 6 + 0.2 mm

Filling Volume Approx.25 liters

Dimensions Length: 1000 mm, Width: 500 mm, Height: 850 mm

9.3 Device Holder for Transmitters

<Device Holder for Transmitters>

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

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

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

10. Measurement for Tissue Simulant Liquid

The dielectric properties for this Tissue Simulant Liquids were measured by using the Agilent Model 85070D Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with Agilent E5070B Network Analyzer (9 kHz -3000 MHz). The Conductivity (σ) and Permittivity (ρ) are listed in Table 1.For the SAR measurement given in this report. The temperature variation of the Tissue Simulant Liquids was (22 ± 2) °C

Frequency (MHz)	Tissue Type	Limit/Measured	Permittivity (ρ)	Conductivity (σ)	Temp (°C)
2450	Body	Recommended Limit	52.7 ± 5 % (50.07~55.34)	1.95 ± 5 % (1.85~2.05)	22 ± 2
		Measured, 21-02, 2013	50.86	1.99	21.7
		Recommended Limit	52.7 ± 5 % (50.07~55.34)	1.95 ± 5 % (1.85~2.05)	22 ± 2
		Measured, 15-03, 2013	50.21	1.93	21.5
		Recommended Limit	52.7 ± 5 % (50.07~55.34)	1.95 ± 5 % (1.85~2.05)	22 ± 2
		Measured, 28-03, 2013	50.89	1.97	21.7

<Measurement result of Tissue electric parameters>

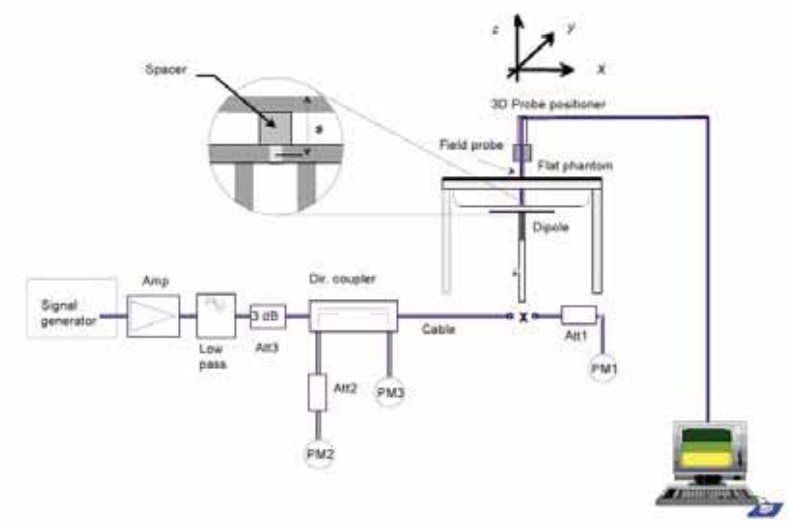
The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Ingredients (% by weight)	Frequency (㎒)									
	450		835		915		1900		2450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (NaCl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7
Dielectric Constant	43.5	56.7	41.5	55.2	42.0	56.8	40.0	53.3	39.2	52.7
Conductivity (S/m)	0.87	0.94	0.90	0.97	1.0	1.07	1.40	1.52	1.80	1.95

Salt: 99+% Pure Sodium Chloride Sugar: 98+% Pure Sucrose
Water: De-ionized, 16 M + 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

11. SAR System Validation

The microwave circuit arrangement for system verification is sketched below picture. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10 % from the target SAR values. These tests were done at 900/1800/1950/2450 MHz. The tests were conducted on the same days as the measurement of the EUT. The obtained results from the system accuracy verification are displayed in the table C-1 (A power level of 250 ㎽ was input to the dipole antenna). During the tests, the ambient temperature of the laboratory was in the range 22 °C, the relative humidity was in the range 60 % and the liquid depth above the ear reference points was above 15 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



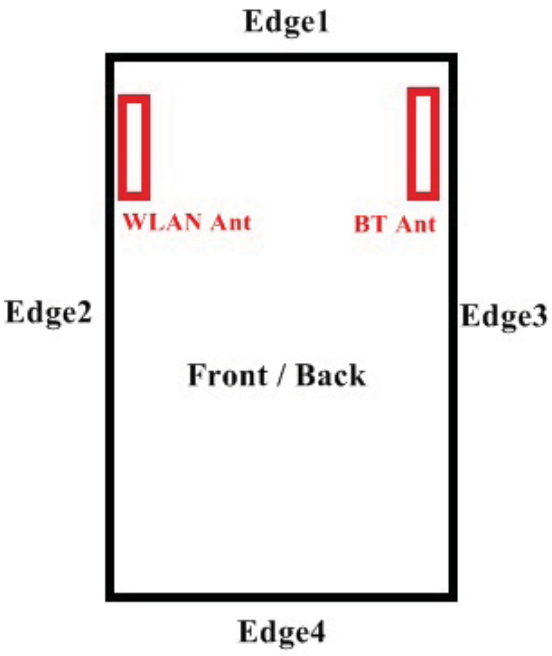
Validation Kit	Frequency (MHz)	Tissue Type	Limit/Measurement (Normalized to 1 W)		
				1 g	10 g
D2450V2	2450	Body	Recommended Limit	51.4 ± 10 % (46.26 ~ 56.54)	24.1 ± 10 % (21.69 ~ 26.51)
			Measured, 21-02, 2013	50.40(-1.95 %)	23.48(-2.57 %)
			Recommended Limit(Target)	52.4 ± 10 % (47.16 ~ 57.64)	24.4 ± 10 % (21.96 ~ 26.84)
			Measured, 21-02, 2013	50.40(-3.82 %)	23.48(-3.77 %)
			Recommended Limit	51.4 ± 10 % (46.26 ~ 56.54)	24.1 ± 10 % (21.69 ~ 26.51)
			Measured, 15-03, 2013	50.40(-1.95 %)	23.44(-2.74 %)
			Recommended Limit(Target)	52.4 ± 10 % (47.16 ~ 57.64)	24.4 ± 10 % (21.96 ~ 26.84)
			Measured, 15-03, 2013	50.40(-3.82 %)	23.44(-3.93 %)
			Recommended Limit	51.4 ± 10 % (46.26 ~ 56.54)	24.1 ± 10 % (21.69 ~ 26.51)
			Measured, 28-03, 2013	54.0(5.06%)	25.16(4.40%)
			Recommended Limit(Target)	52.4 ± 10 % (47.16 ~ 57.64)	24.4 ± 10 % (21.96 ~ 26.84)
			Measured, 28-03, 2013	54.0(3.05%)	25.16(3.11%)

<SAR System Validation Result>

12. Operation Configurations

For the 802.11b/g/n SAR tests, a communication link is set up with the test mode software for WiFi mode test. The Absolute Radio Frequency Channel Number is allocated to 1,6and 11 respectively in the case of 2450 MHz.During the test,at the each test frequency channel, theEUT is operated at the RF continuous emission mode.Each channel should be tested at the max power data rate.

802.11b/g/n operating modes are tested independently according to the service requirements in each frquency band. 802.11b/g/n modes are tested on channel 1,6,11; however,if output power reduction is necessary for channels 1 and/or 11 to meet restricted band requirements the highest output channel closest to each 13f these channels must be tested instead.



13. SAR Measurement Procedures

Step 1: Power Reference Measurement
The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The Minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the Distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scan
The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

Area Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When either the x or y dimension of the test device in the measurement plane is smaller than the above, the measurement resolution must be ≤ the corresponding x and y dimensions of the test device, with at least one measurement point on the test device.	

Step 3: Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures 7x7x9 (above 4.5 GHz) or 5x5x7 (below 3 GHz) points within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measument 10 MHz to 6 GHz v01

<table>
<tr><th colspan="3"></th><th>≤ 3 GHz</th><th>> 3 GHz</th></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>≤ 2 GHz: ≤ 8 mm
2 – 3 GHz: ≤ 5 mm</td><td>3 – 4 GHz: ≤ 5 mm
4 – 6 GHz: ≤ 4 mm</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{Zoom}(n)$</td><td>≤ 5 mm</td><td>3 – 4 GHz: ≤ 4 mm
4 – 5 GHz: ≤ 3 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface</td><td>≤ 4 mm</td><td>3 – 4 GHz: ≤ 3 mm
4 – 5 GHz: ≤ 2.5 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td>$\Delta z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">≤ 1.5·$\Delta z_{Zoom}(n-1)$</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3 – 4 GHz: ≥ 28 mm
4 – 5 GHz: ≥ 25 mm
5 – 6 GHz: ≥ 22 mm</td></tr>
</table>

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

Step 5: Z-Scan

The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a onedimensional grid. In order to get a reasonable extrapolation, the extrapolated distance should not be larger than the step size in Z-direction.

* Z Scan Report on Liquid Measure the height Annex A.4 Liquid Depth photo to replace

14. Test Equipment Information

SPEAG DASY5

Test Platform	SPEAG DASY5 System
Location	EMC Compliance Lab
Manufacture	SPEAG
Description	SAR Test System (Frequency range 300MHz-6GHz) 450, 835, 900, 1 800, 1 900, 1 950, 2 450, 5 000 frequency band
Software Reference	DASY5: V52.8 SEMCAD: V14.6.6

Hardware Reference				
Equipment	Model	Serial Number	Calibration Date	Due date of calibration
Robot	TX90XL Speag	F12/5L7FA1/A/01	N/A	N/A
Phantom	TwinSAM Phantom	1724	N/A	N/A
Phantom	TwinSAM Phantom	1728	N/A	N/A
Data Acquisition Unit (DAE)	DAE4	1342	2012-08-09	2013-08-08
Probes	ES3DV3	3302	2012-08-06	2013-08-05
Probes	EX3DV4	3865	2012-08-06	2013-08-05
Dipole Validation Kits	D300V3	1016	2012-07-24	2014-07-23
Dipole Validation Kits	D450V3	1080	2012-07-24	2014-07-23
Dipole Validation Kits	D850V2	1006	2012-08-07	2014-08-06
Dipole Validation Kits	D900V2	1d138	2012-08-07	2014-08-06
Dipole Validation Kits	D1750V2	1072	2012-07-19	2014-07-18
Dipole Validation Kits	D1900V2	5d160	2012-07-20	2014-07-19
Dipole Validation Kits	D2450V2	865	2012-07-24	2014-07-23
Dipole Validation Kits	D2600V2	1050	2012-07-24	2014-07-23
Dipole Validation Kits	D5GHzV2	1134	2012-07-27	2014-07-26
Network Analyzer	E5071B	MY42403524	2012-07-20	2013-07-19
Dual Directional Coupler	778D	16059	2012-09-21	2013-09-20
Dual Directional Coupler	772D	2839A00719	2012-09-21	2013-09-20
Signal Generator	SMT06	847054/012	2012-06-27	2013-06-26

Power Amplifier	GRF5039	1062	2012-07-20	2013-07-19
Power Amplifier	5057FE	1009	2012-08-07	2013-08-06
Power Amplifier	5190FE	1012	2012-09-21	2013-09-20
Dual Power Meter	E4419B	GB43312301	2012-07-10	2013-07-09
Power Sensor	8481H	3318A19674	2012-07-12	2013-07-11
Power Sensor	8481H	3318A19376	2012-07-12	2013-07-11
LP Filter	LA-30N	40058	2012-10-05	2013-10-05
WIDEBAND POWER SENSOR	NRP-Z81	100677	2012-05-04	2013-05-04

15. SAR Test Results

15.1 Targeted Power Reduction Levels

(802.11b)

CHANNEL	Channel frequency (MHz)	Conducted Power Output(dBm)		
		Detector	(dBm)	(W)
1	2412	PEAK	12.72	0.019
		AVG	11.07	0.013
6	2437	PEAK	12.94	0.020
		AVG	10.61	0.012
11	2462	PEAK	13.70	0.023
		AVG	11.09	0.013

(802.11g)

EUT	Handy terminal	MODEL		HT-K10
MODE	OFDM	ENVIRONMENTAL CONDITION		24℃, 43% R.H.
Input Power	120 Va.c., 60 Hz			
CHANNEL	Channel frequency (MHz)	Conducted Power Output(dBm)		
		Detector	(dBm)	(W)
1	2412	PEAK	16.89	0.049
		AVG	9.06	0.008
6	2437	PEAK	18.04	0.064
		AVG	10.11	0.010
11	2462	PEAK	17.17	0.052
		AVG	8.81	0.008

(802.11n)

EUT	Handy terminal	MODEL		HT-K10
MODE	OFDM	ENVIRONMENTAL CONDITION		24℃, 43% R.H.
Input Power	120 Va.c., 60 Hz			
CHANNEL	Channel frequency (MHz)	Conducted Power Output(dBm)		
		Detector	(dBm)	(W)
1	2412	PEAK	16.79	0.048
		AVG	9.19	0.008
6	2437	PEAK	18.10	0.065
		AVG	10.08	0.010
11	2462	PEAK	17.23	0.053
		AVG	9.00	0.008

<Note>

1. KDB 248227 - SAR is not required for 802.11g/HT20 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.

(Bluetooth)

Mode	Channel	Freq.(MHz)	Conducted Avg Power	
			(dBm)	(mW)
GFSK	0	2402	0.09	1.02
	39	2441	3.51	2.24
	78	2480	3.59	2.29
8DPSK	0	2402	1.62	1.45
	39	2441	2.36	1.72
	78	2480	1.62	1.45

<Note>

1. According to KDB 447498, Unlicensed transmitters When there is simultaneous transmission, Stand-alone SAR not required due to

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by: [(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] ·[√$f_{(GHz)}$] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,[16] where

$f_{(GHz)}$ is the RF channel transmit frequency in GHz Power and distance are rounded to the nearest mW and mm before calculation The result is rounded to one decimal place for comparison The test exclusions are applicable only when the minimum *test separation distance* is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum *test separation distance* is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

[(*2 mW*) / (*5 mm*)] ·[√2.48 GHz] = **0.63** ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR

15.2 Measurement of SAR average value

WLAN 2.4 GHz Body SAR(Battery 3300mAh) - 1D	**Ambient Temperature (°C)**	**22.1**
	Liquid Temperature (°C)	**21.7**
	Date	**2013-02-21~ 03-15**

EUT Position	Mode	Dist. (mm)	AVG Power (dBm)	Traffic Channel		1 g SAR (W/kg)	Note
				Frequency (MHz)	Channel		
Front	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.212	
Back	802.11b	0	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.090	2
		5	11.09	2462	11	0.082	3
Edge1	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.297	
Edge2	802.11b	5	11.07	2412	1	0.584	
			10.61	2437	6	0.538	
			11.09	2462	11	**0.723**	
Edge3	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.086	
Edge4	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.048	

<Note>

1. When the 1-g SAR for the mid-band channel, or the channel with the highest output power satisfy the following conditions,testing of the other channels in the band is not required. (Per KDB 447498)

=0.8 W/kg and transmission band =100 MHz
=0.6 W/kg and, 100 MHz < transmission bandwidth =200 MHz
=0.4 W/kg and transmission band > 200 MHz

2. With beltclip attached.

3. With hand-strap attached.

WLAN 2.4 GHz Body SAR(Battery 2200mAh) - 1D	Ambient Temperature (°C)	22.1
	Liquid Temperature (°C)	21.7
	Date	2013-02-21~ 03-15

EUT Position	Mode	Dist. (mm)	AVG Power (dBm)	Traffic Channel		1 g SAR (W/kg)	Note
				Frequency (MHz)	Channel		
Front	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.223	
Back	802.11b	0	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.065	2
		5	11.09	2462	11	0.090	3
Edge1	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.312	
Edge2	802.11b	5	11.07	2412	1	**0.549**	
			10.61	2437	6	0.436	
			11.09	2462	11	0.548	
Edge3	802.11b	5	11.07	2412	1	0.054	
			10.61	2437	6	0.059	
			11.09	2462	11	0.506	
Edge4	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.043	

<Note>

1. When the 1-g SAR for the mid-band channel, or the channel with the highest output power satisfy the following conditions,testing of the other channels in the band is not required. (Per KDB 447498)

=0.8 W/kg and transmission band =100 MHz
=0.6 W/kg and, 100 MHz < transmission bandwidth =200 MHz
=0.4 W/kg and transmission band > 200 MHz

2. With beltclip attached.

3. With hand-strap attached.

WLAN 2.4 GHz Body SAR(Battery 2200mAh) - 2D	Ambient Temperature (°C)	22.0
	Liquid Temperature (°C)	21.7
	Date	2013-03-28~ 03-29

EUT Position	Mode	Dist. (mm)	AVG Power (dBm)	Traffic Channel		1 g SAR (W/kg)	Note
				Frequency (MHz)	Channel		
Front	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.184	
Back	802.11b	0	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.0797	2
		5	11.09	2462	11	0.0647	3
Edge1	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.226	
Edge2	802.11b	5	11.07	2412	1	0.309	
			10.61	2437	6	0.495	
			11.09	2462	11	**0.809**	
			11.09	2462	11	0.796	
Edge3	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.0773	
Edge4	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.0389	

<Note>

1. When the 1-g SAR for the mid-band channel, or the channel with the highest output power satisfy the following conditions,testing of the other channels in the band is not required. (Per KDB 447498)

=0.8 W/kg and transmission band =100 MHz
=0.6 W/kg and, 100 MHz < transmission bandwidth =200 MHz
=0.4 W/kg and transmission band > 200 MHz

2. With beltclip attached.

3. With hand-strap attached.

WLAN 2.4 GHz Body SAR(Battery 3300mAh) - 2D	Ambient Temperature (°C)	22.0
	Liquid Temperature (°C)	21.7
	Date	2013-03-28~ 03-29

EUT Position	Mode	Dist. (mm)	AVG Power (dBm)	Traffic Channel		1 g SAR (W/kg)	Note
				Frequency (MHz)	Channel		
Front	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.129	
Back	802.11b	0	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.0584	2
		5	11.09	2462	11	0.0724	3
Edge1	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.244	
Edge2	802.11b	5	11.07	2412	1	0.375	
			10.61	2437	6	**0.433**	
			11.09	2462	11	0.405	
Edge3	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.0501	
Edge4	802.11b	5	11.07	2412	1		1
			10.61	2437	6		1
			11.09	2462	11	0.0494	

<Note>

1. When the 1-g SAR for the mid-band channel, or the channel with the highest output power satisfy the following conditions,testing of the other channels in the band is not required. (Per KDB 447498)

=0.8 W/kg and transmission band =100 MHz
=0.6 W/kg and, 100 MHz < transmission bandwidth =200 MHz
=0.4 W/kg and transmission band > 200 MHz

2. With beltclip attached.

3. With hand-strap attached.

15.3 Body SAR Simultaneous Transmission Analysis

Configuration	WLAN SAR (W/kg)	Estimated Bluetooth SAR (W/kg)	SAR (W/kg)
2D Scanner Edge2(2200mAh)	0.809	0. 084	0.889

The above tables represent a Bluetooth operating with 2.4 GHz WLAN.

*Bluetooth Estimated SAR

Frequency (MHz)	Maximum Allowed Power (dBm)`	Sparation Distance(Body) (mm)	Estimated SAR (W/kg)
2480	3.59	5	0.084

16. Validation Test Results

System Validation for 2 450 MHz- Body(21-02-2013)

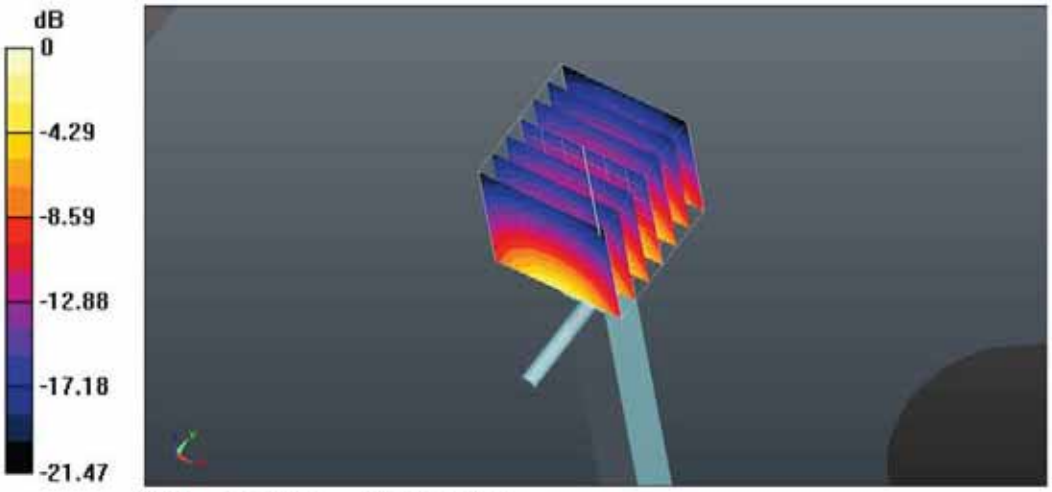
DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:865
Procedure Name: d=10mm, Pin=250 mW, dist=2.0mm (EX-Probe)

Communication System: cw1; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.996 S/m; ε_r = 50.861; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

Validation/d=10mm, Pin=250 mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7)
(7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98.859 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 25.6 W/kg
SAR(1 g) = 12.6 W/kg; SAR(10 g) = 5.87 W/kg
Maximum value of SAR (measured) = 19.1 W/kg



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

System Validation for 2 450 MHz- Body(15-03-2013)

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:865
Procedure Name: d=10mm, Pin=250 mW, dist=2.0mm (EX-Probe)

Communication System: cw1; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2450 MHz; σ = 1.926 S/m; ε_r = 50.214; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

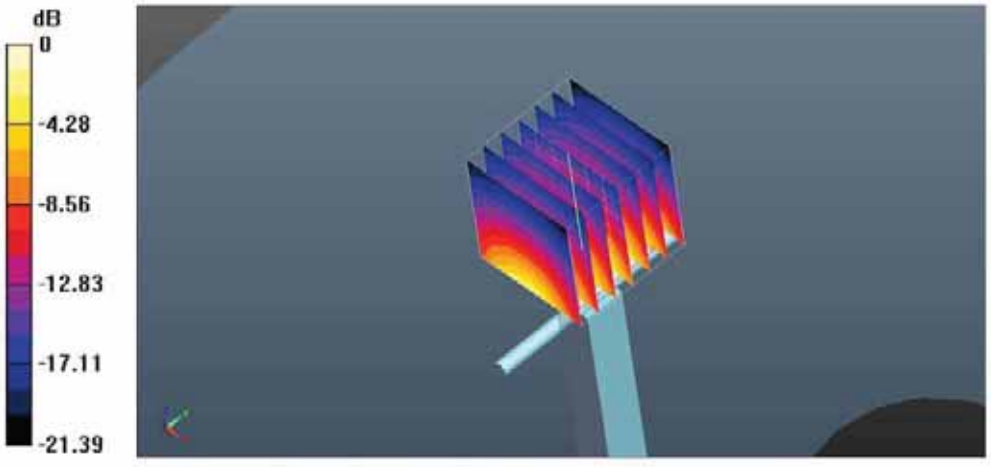
- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

Validation/d=10mm, Pin=250 mW, dist=2.0mm (EX-Probe)/Area Scan (7x7x1):
Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 15.2 W/kg

Validation/d=10mm, Pin=250 mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7)
(7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.3 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 25.7 W/kg
SAR(1 g) = 12.6 W/kg; SAR(10 g) = 5.86 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 19.2 W/kg



0 dB = 19.2 W/kg = 12.83 dBW/kg

System Validation for 2 450 MHz- Body(18-03-2013)

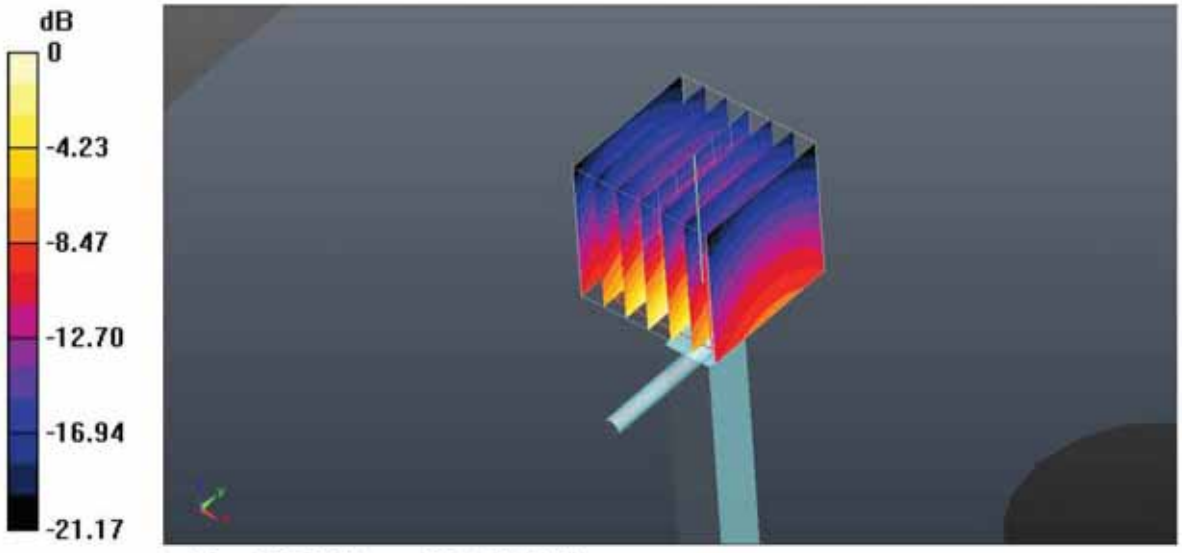
DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:865
Procedure Name: d=10mm, Pin=250 mW, dist=2.0mm (EX-Probe)

Communication System: cw1; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.965 S/m; ε_r = 50.886; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

Validation/d=10mm, Pin=250 mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7)
(7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 103.8 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 27.7 W/kg
SAR(1 g) = 13.5 W/kg; SAR(10 g) = 6.29 W/kg
Maximum value of SAR (measured) = 20.7 W/kg



0 dB = 20.7 W/kg = 13.16 dBW/kg

17. Test Results

17.1 WLAN 2.4 GHz_Battery 3300 mAh - 1D Scanner

2462_Front_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Front_gap 5mm

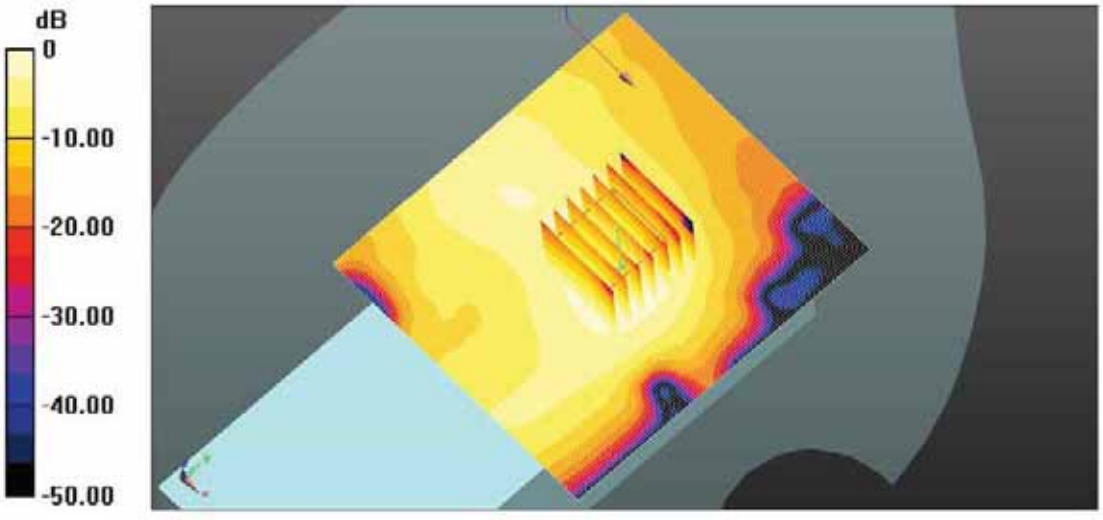
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2.01 S/m; ε_r = 50.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Front_gap 5mm_3300mAh/Area Scan (101x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.296 W/kg

2.4GHz/802.11b_2462_Front_gap 5mm_3300mAh/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.458 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.389 W/kg
SAR(1 g) = 0.212 W/kg; SAR(10 g) = 0.113 W/kg
Maximum value of SAR (measured) = 0.300 W/kg



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

2462_Back_belt clip_Touch

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Back_balt

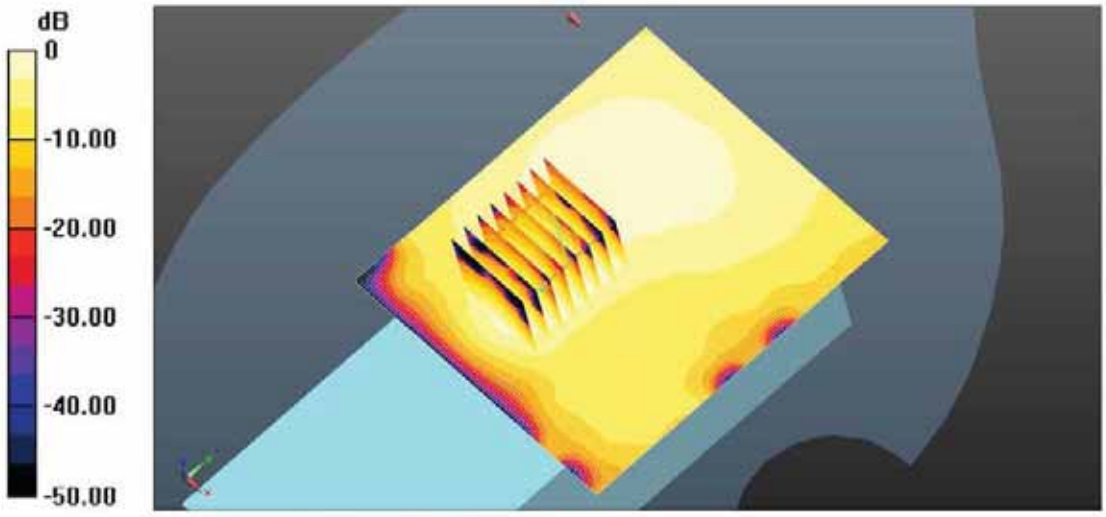
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2.01 S/m; ε_r = 50.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Back_beltclip_3300mAh/Area Scan (101x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.122 W/kg

2.4GHz/802.11b_2462_Back_beltclip_3300mAh/Zoom Scan (7x8x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.863 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.157 W/kg
SAR(1 g) = 0.090 W/kg; SAR(10 g) = 0.049 W/kg
Maximum value of SAR (measured) = 0.124 W/kg



0 dB = 0.124 W/kg = -9.07 dBW/kg

2462_Back_hand strap_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Back_strap

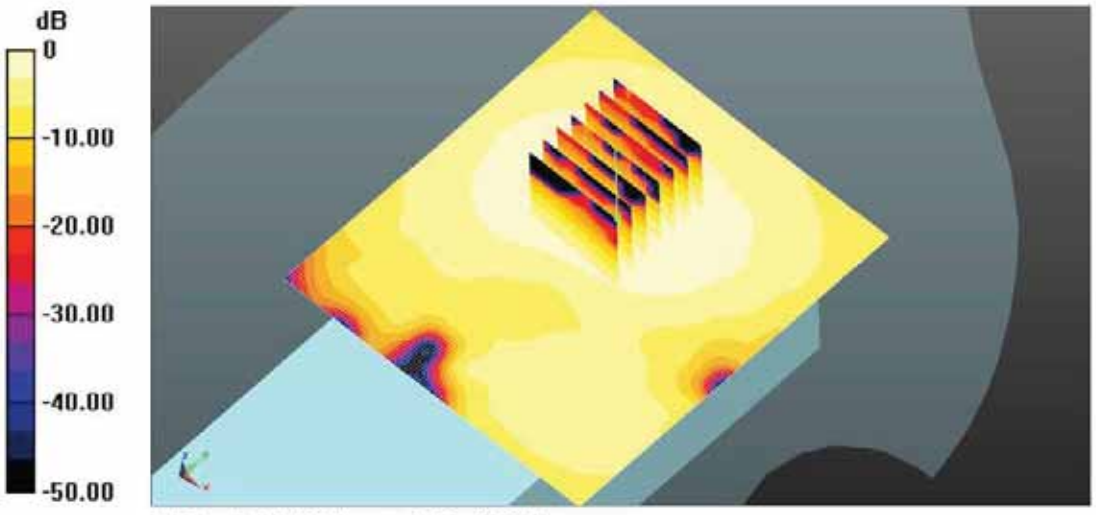
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2.01 S/m; ε_r = 50.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Back_strap_3300mAh/Area Scan (101x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.110 W/kg

2.4GHz/802.11b_2462_Back_strap_3300mAh/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.516 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.144 W/kg
SAR(1 g) = 0.082 W/kg; SAR(10 g) = 0.046 W/kg
Maximum value of SAR (measured) = 0.114 W/kg



0 dB = 0.114 W/kg = -9.43 dBW/kg

2462_Edge1_ gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge1_gap 5mm

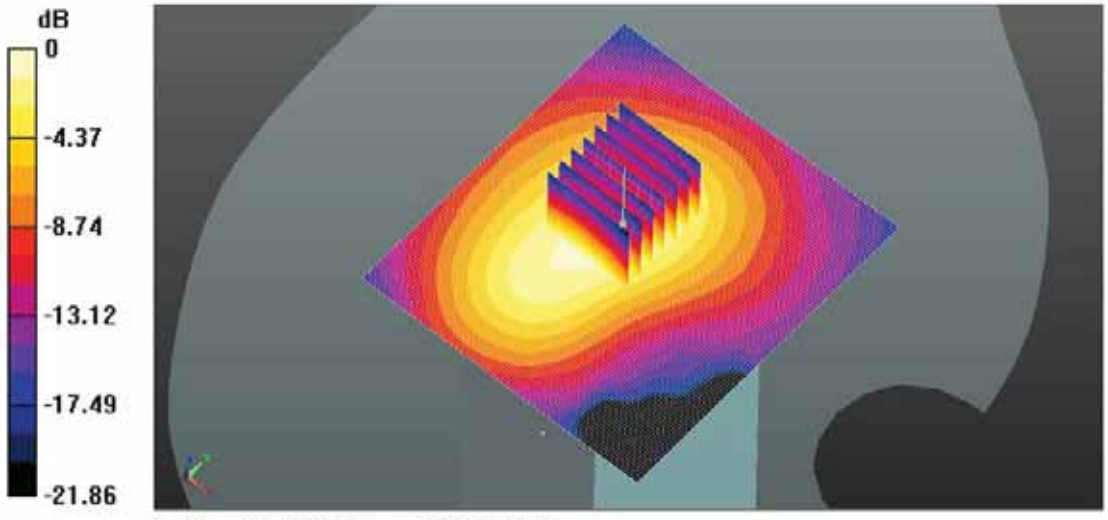
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2.01 S/m; ε_r = 50.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge1_gap 5mm_3300mAh/Area Scan (101x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.412 W/kg

2.4GHz/802.11b_2462_Edge1_gap 5mm_3300mAh/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.403 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.545 W/kg
SAR(1 g) = 0.297 W/kg; SAR(10 g) = 0.163 W/kg
Maximum value of SAR (measured) = 0.418 W/kg



0 dB = 0.418 W/kg = -3.79 dBW/kg

2462_Edge2_ gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge2_gap 5mm

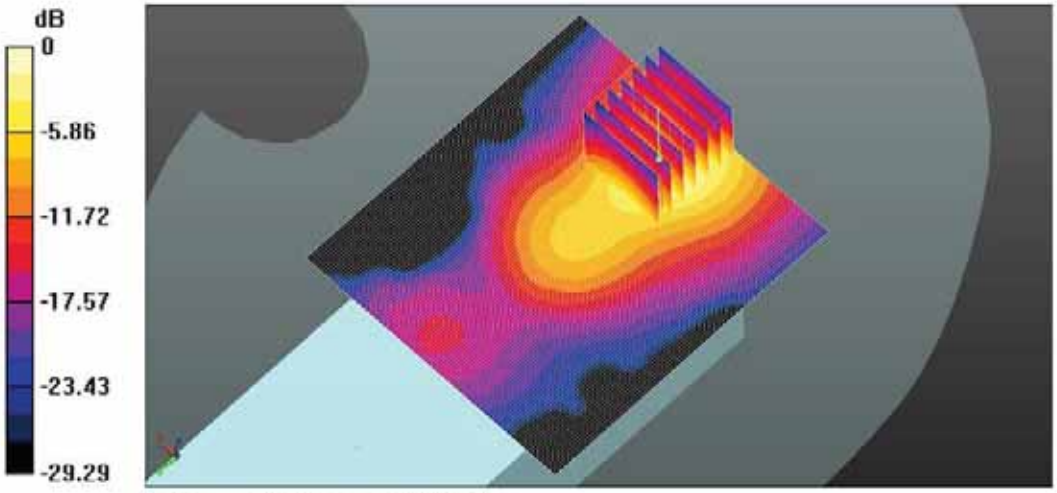
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2.01 S/m; ε_r = 50.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge2_gap 5mm_3300mAh/Area Scan (101x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.08 W/kg

2.4GHz/802.11b_2462_Edge2_gap 5mm_3300mAh/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.337 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 0.723 W/kg; SAR(10 g) = 0.328 W/kg
Maximum value of SAR (measured) = 1.12 W/kg



0 dB = 1.12 W/kg = 0.49 dBW/kg

2462_Edge3_ gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge3_gap 5mm

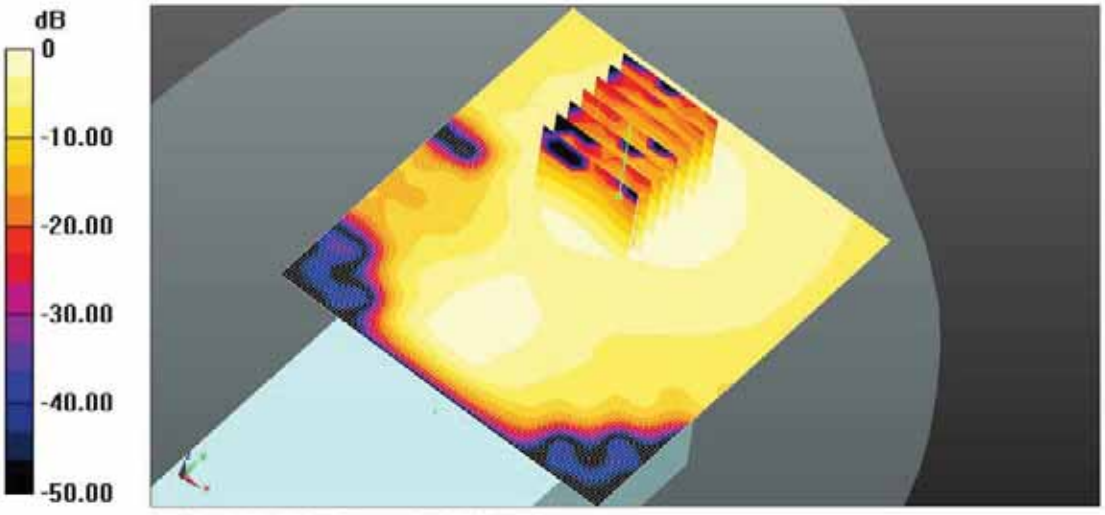
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2.01 S/m; ε_r = 50.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge3_gap 5mm_3300mAh/Area Scan (101x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.123 W/kg

2.4GHz/802.11b_2462_Edge3_gap 5mm_3300mAh/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.195 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.161 W/kg
SAR(1 g) = 0.086 W/kg; SAR(10 g) = 0.046 W/kg
Maximum value of SAR (measured) = 0.123 W/kg



0 dB = 0.123 W/kg = -9.10 dBW/kg

2462_Edge4_ gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge4_gap 5mm

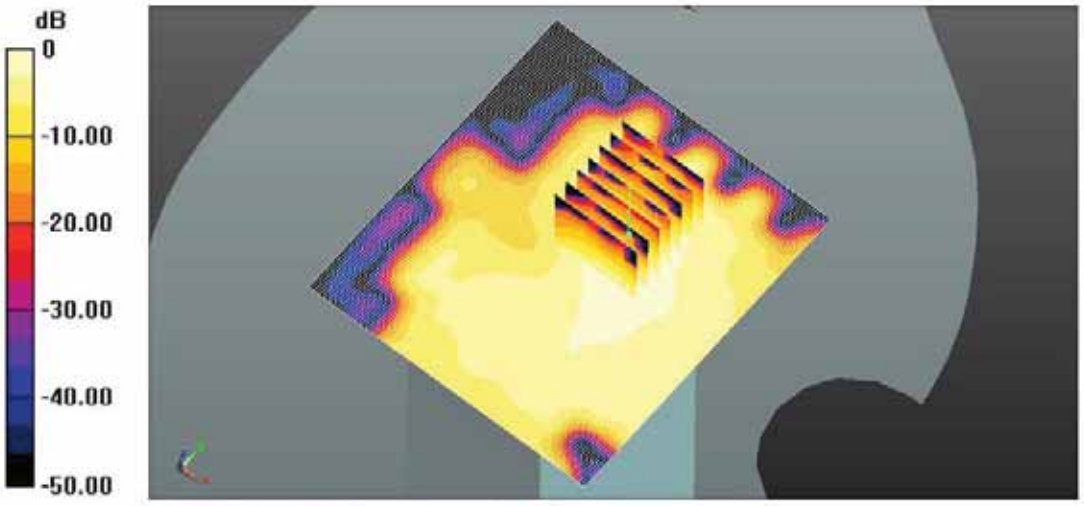
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2.01 S/m; ε_r = 50.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge4_gap 5mm_3300mAh/Area Scan (101x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0724 W/kg

2.4GHz/802.11b_2462_Edge4_gap 5mm_3300mAh/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.592 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.0920 W/kg
SAR(1 g) = 0.048 W/kg; SAR(10 g) = 0.024 W/kg
Maximum value of SAR (measured) = 0.0698 W/kg



0 dB = 0.0698 W/kg = -11.56 dBW/kg

2412_Edge2_ gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2412_Edge2_gap 5mm

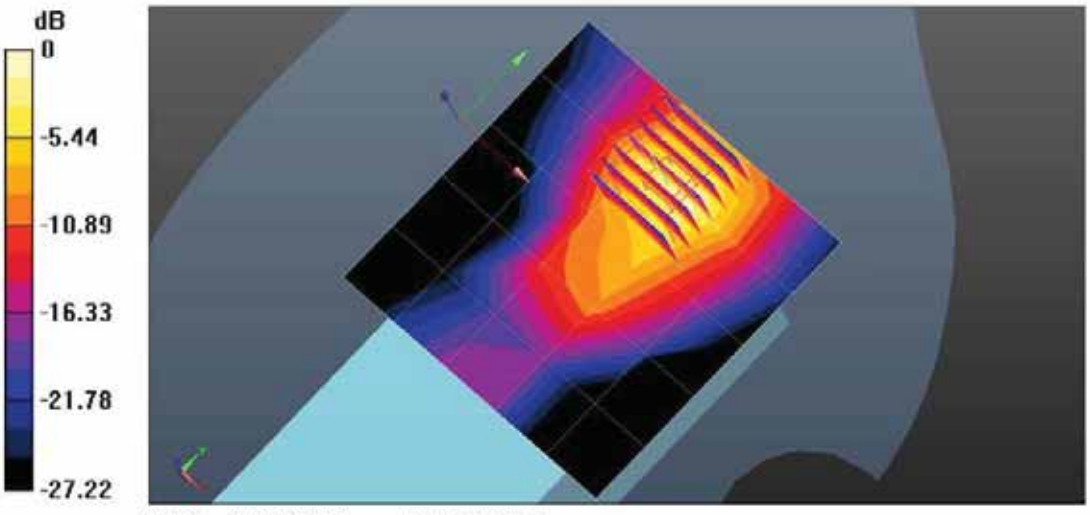
Communication System: 2.4GWLAN; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.88 S/m; ε_r = 50.321; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2412_Edge2_gap 5mm/Area Scan (6x6x1): Measurement grid:
dx=20mm, dy=20mm
Maximum value of SAR (measured) = 0.662 W/kg

2.4GHz/802.11b_2412_Edge2_gap 5mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.170 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.584 W/kg; SAR(10 g) = 0.261 W/kg
Maximum value of SAR (measured) = 0.909 W/kg



0 dB = 0.909 W/kg = -0.41 dBW/kg

2437_Edge2_ gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2437_Edge2_gap 5mm

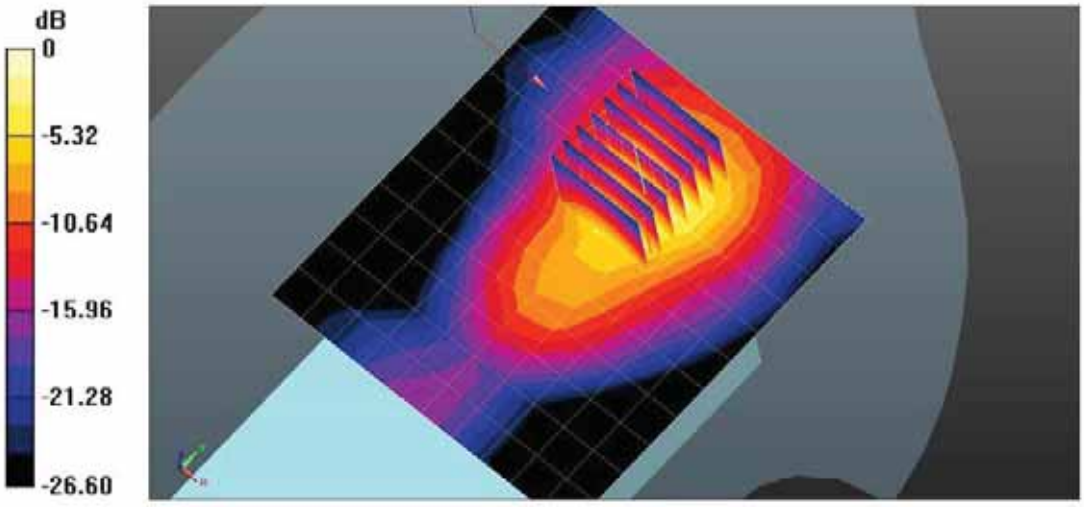
Communication System: 2.4GWLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.91 S/m; ε_r = 50.25; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2437_Edge2_gap 5mm/Area Scan (11x12x1): Measurement grid:
dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.799 W/kg

2.4GHz/802.11b_2437_Edge2_gap 5mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.051 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.538 W/kg; SAR(10 g) = 0.240 W/kg
Maximum value of SAR (measured) = 0.841 W/kg



0 dB = 0.841 W/kg = -0.75 dBW/kg

17.2 WLAN 2.4 GHz_Battery 2200 mAh - 1D Scanner

2462_Front_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Front_gap 5mm

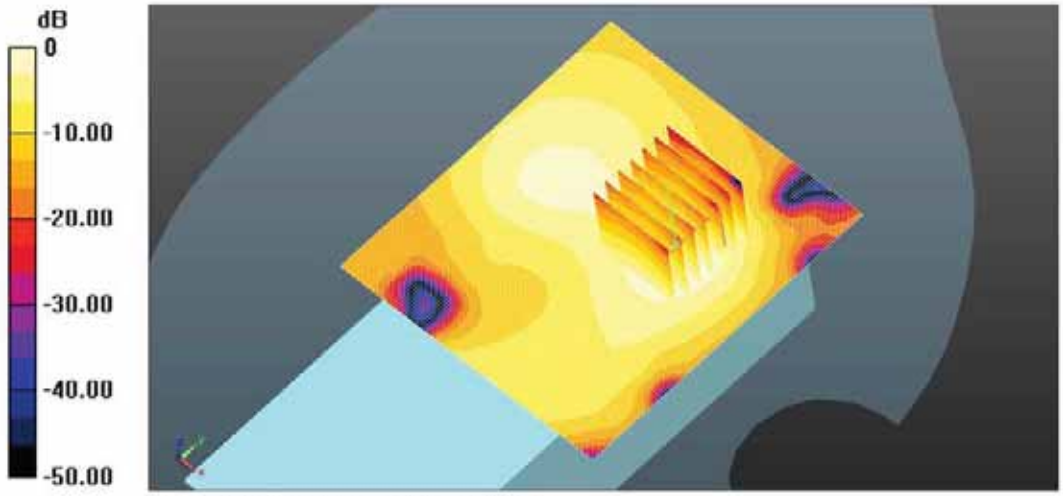
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2.01 S/m; ε_r = 50.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Front_gap 5mm_2200mAh/Area Scan (101x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.329 W/kg

2.4GHz/802.11b_2462_Front_gap 5mm_2200mAh/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.987 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.415 W/kg
SAR(1 g) = 0.223 W/kg; SAR(10 g) = 0.118 W/kg
Maximum value of SAR (measured) = 0.320 W/kg



0 dB = 0.320 W/kg = -4.95 dBW/kg

2462_Back_belt clip_Touch

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Back_balt

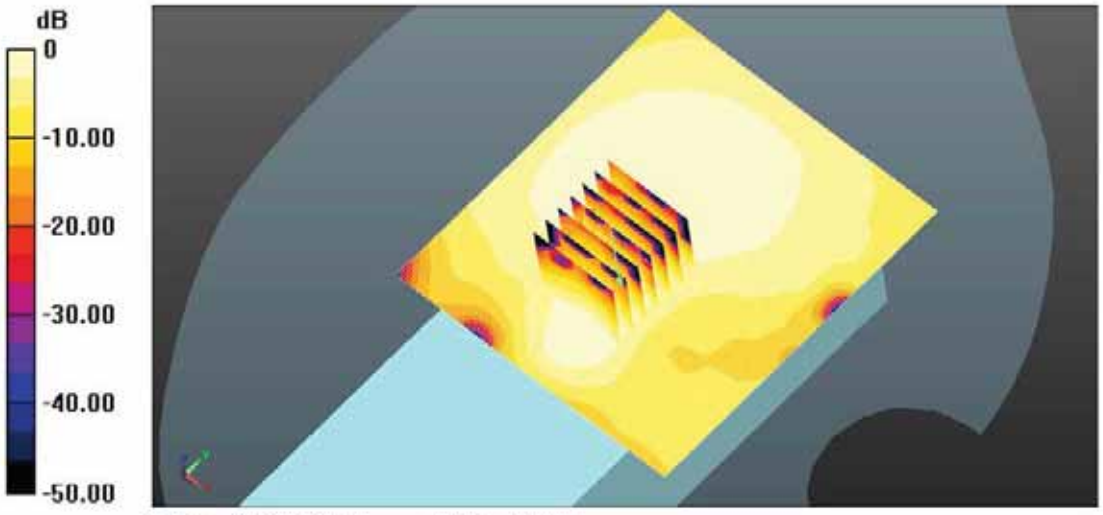
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2.01 S/m; ε_r = 50.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Back_beltclip_2200mAh/Area Scan (101x111x1):
Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0951 W/kg

2.4GHz/802.11b_2462_Back_beltclip_2200mAh/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.740 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.115 W/kg
SAR(1 g) = 0.065 W/kg; SAR(10 g) = 0.035 W/kg
Maximum value of SAR (measured) = 0.0922 W/kg



0 dB = 0.0922 W/kg = -10.35 dBW/kg

2462_Back_hand strap_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Back_strap

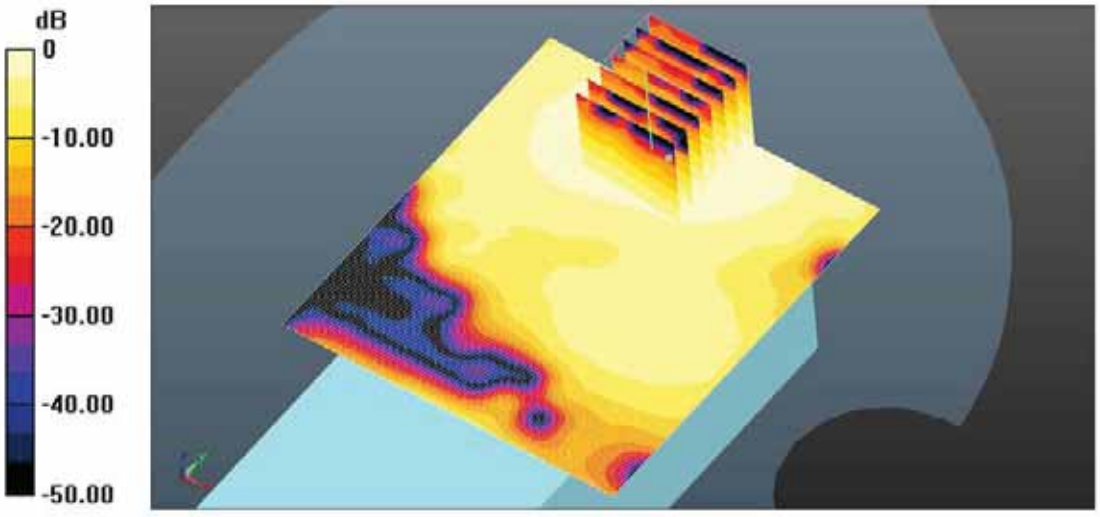
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2.01 S/m; ε_r = 50.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Back_strap_2200mAh/Area Scan (101x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.124 W/kg

2.4GHz/802.11b_2462_Back_strap_2200mAh/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.504 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.157 W/kg
SAR(1 g) = 0.090 W/kg; SAR(10 g) = 0.052 W/kg
Maximum value of SAR (measured) = 0.123 W/kg



0 dB = 0.123 W/kg = -9.10 dBW/kg

2462_Edge1_ gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge1_gap 5mm

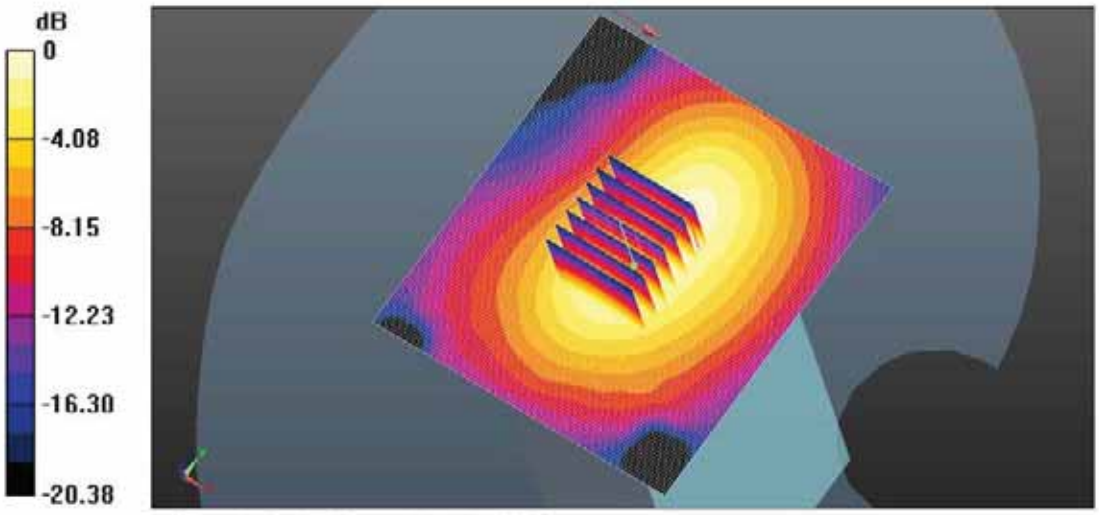
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2.01 S/m; ε_r = 50.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge1_gap 5mm_2200mAh/Area Scan (101x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.441 W/kg

2.4GHz/802.11b_2462_Edge1_gap 5mm_2200mAh/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.563 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.565 W/kg
SAR(1 g) = 0.312 W/kg; SAR(10 g) = 0.175 W/kg
Maximum value of SAR (measured) = 0.434 W/kg



0 dB = 0.434 W/kg = -3.63 dBW/kg

2462_Edge2_ gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge2_gap 5mm

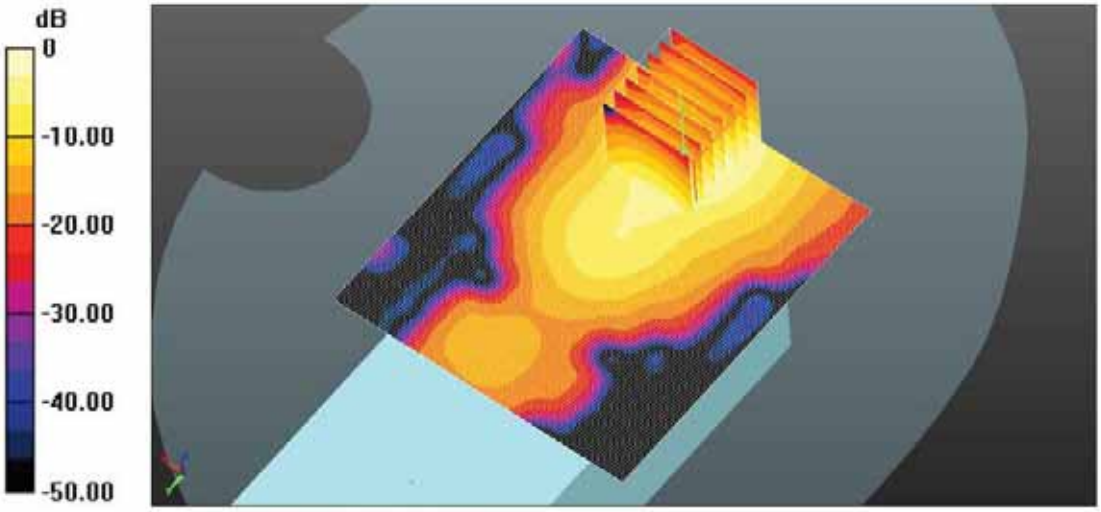
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2.01 S/m; ε_r = 50.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge2_gap 5mm_2200mAh/Area Scan (101x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.848 W/kg

2.4GHz/802.11b_2462_Edge2_gap 5mm_2200mAh/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.572 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.548 W/kg; SAR(10 g) = 0.247 W/kg
Maximum value of SAR (measured) = 0.852 W/kg



0 dB = 0.852 W/kg = -0.70 dBW/kg

2462_Edge3_ gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge3_gap 5mm

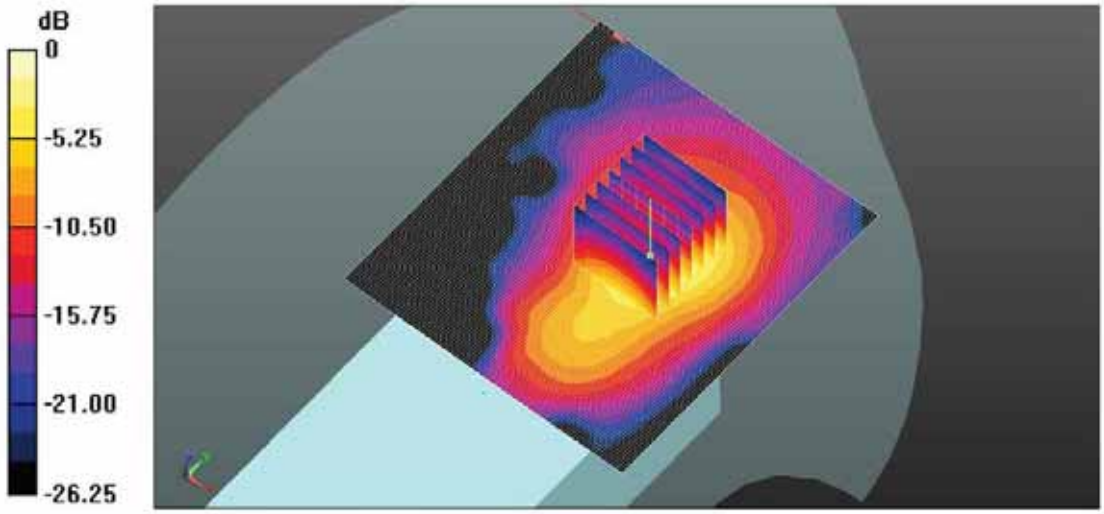
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2.01 S/m; ε_r = 50.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge3_gap 5mm_2200mAh/Area Scan (101x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.787 W/kg

2.4GHz/802.11b_2462_Edge3_gap 5mm_2200mAh/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.389 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.506 W/kg; SAR(10 g) = 0.230 W/kg
Maximum value of SAR (measured) = 0.784 W/kg



0 dB = 0.784 W/kg = -1.06 dBW/kg

2462_Edge4_ gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge4_gap 5mm

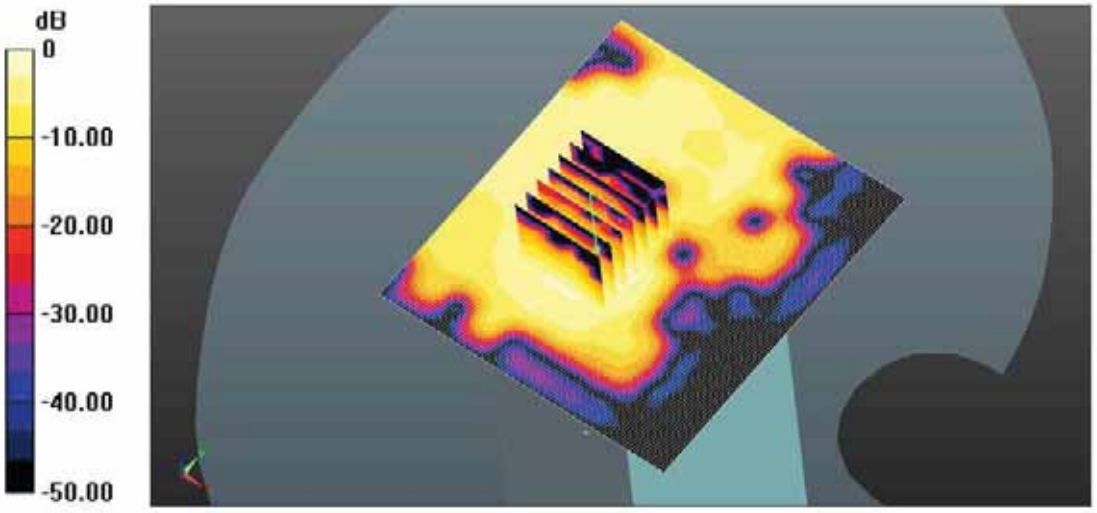
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2.01 S/m; ε_r = 50.823; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM with SN1728; Type: QD000P40CC; Serial: TP:1728
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge4_gap 5mm_2200mAh/Area Scan (101x111x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0656 W/kg

2.4GHz/802.11b_2462_Edge4_gap 5mm_2200mAh/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.818 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.131 W/kg
SAR(1 g) = 0.043 W/kg; SAR(10 g) = 0.021 W/kg
Maximum value of SAR (measured) = 0.0645 W/kg



0 dB = 0.0645 W/kg = -11.90 dBW/kg

2412_Edge2_ gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2412_Edge2_gap 5mm

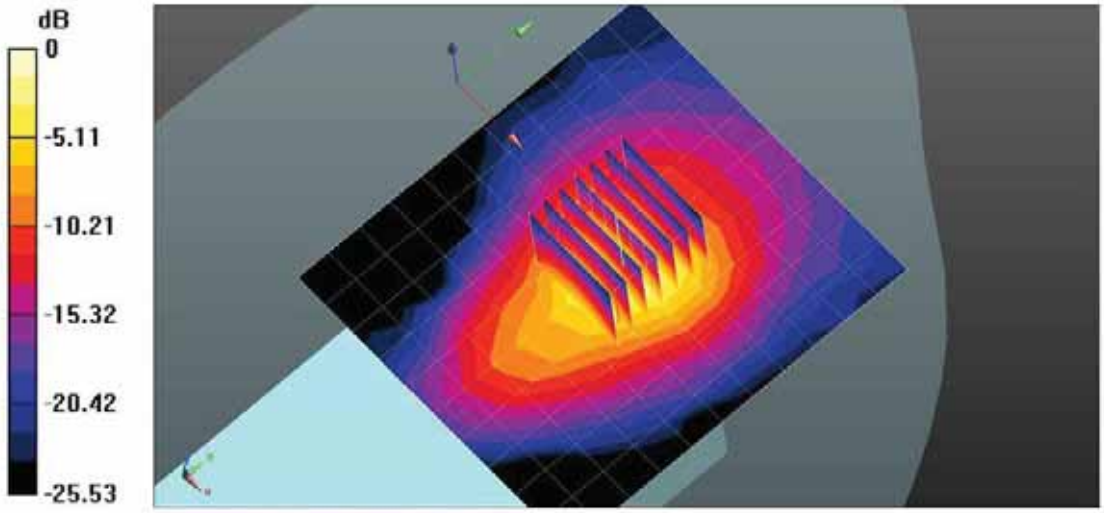
Communication System: 2.4GWLAN; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.88 S/m; ε_r = 50.321; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2412_Edge2_gap 5mm/Area Scan (11x12x1): Measurement grid:
dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.820 W/kg

2.4GHz/802.11b_2412_Edge2_gap 5mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.808 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.549 W/kg; SAR(10 g) = 0.247 W/kg
Maximum value of SAR (measured) = 0.849 W/kg



0 dB = 0.849 W/kg = -0.71 dBW/kg

2437_Edge2_ gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2437_Edge2_gap 5mm

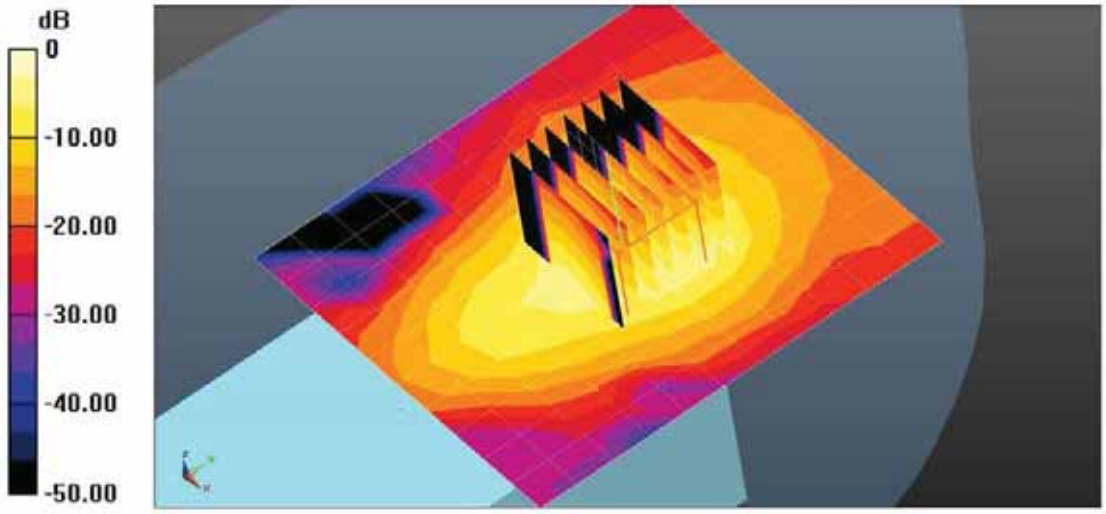
Communication System: 2.4GWLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.91 S/m; ε_r = 50.25; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2437_Edge2_gap 5mm/Area Scan (11x12x1): Measurement grid:
dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.772 W/kg

2.4GHz/802.11b_2437_Edge2_gap 5mm/Zoom Scan (8x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.623 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.436 W/kg; SAR(10 g) = 0.177 W/kg
Maximum value of SAR (measured) = 0.722 W/kg



0 dB = 0.722 W/kg = -1.41 dBW/kg

2412_Edge3_ gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2412_Edge3_gap 5mm

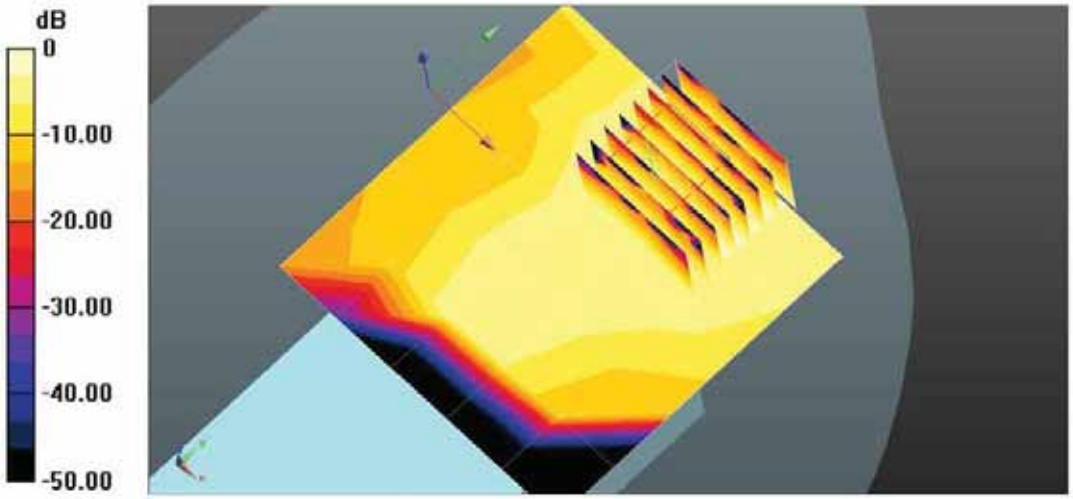
Communication System: 2.4GWLAN; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.88 S/m; ε_r = 50.321; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2412_Edge3_gap 5mm/Area Scan (6x6x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (measured) = 0.0684 W/kg

2.4GHz/802.11b_2412_Edge3_gap 5mm/Zoom Scan (9x8x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.113 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.283 W/kg
SAR(1 g) = 0.054 W/kg; SAR(10 g) = 0.029 W/kg
Maximum value of SAR (measured) = 0.0778 W/kg



0 dB = 0.0778 W/kg = -11.09 dBW/kg

2437_Edge3_ gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2437_Edge3_gap 5mm

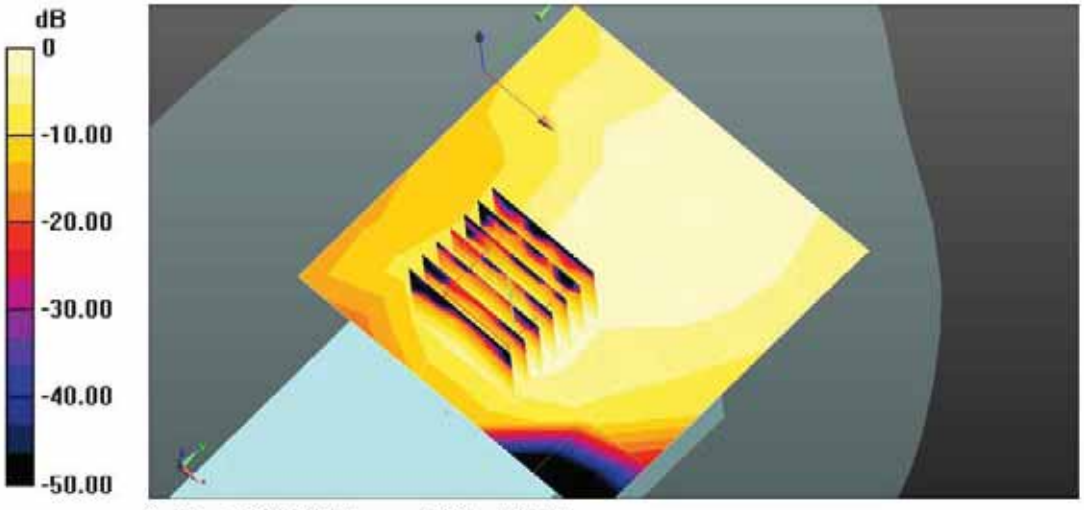
Communication System: 2.4GWLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2437 MHz; σ = 1.91 S/m; ε_r = 50.25; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2437_Edge3_gap 5mm/Area Scan (6x6x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (measured) = 0.0903 W/kg

2.4GHz/802.11b_2437_Edge3_gap 5mm/Zoom Scan (8x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.682 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.107 W/kg
SAR(1 g) = 0.059 W/kg; SAR(10 g) = 0.031 W/kg
Maximum value of SAR (measured) = 0.0830 W/kg



0 dB = 0.0830 W/kg = -10.81 dBW/kg

17.3 WLAN 2.4 GHz_Battery 3300 mAh - 2D Scanner

2462_Front_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Front_gap 5mm

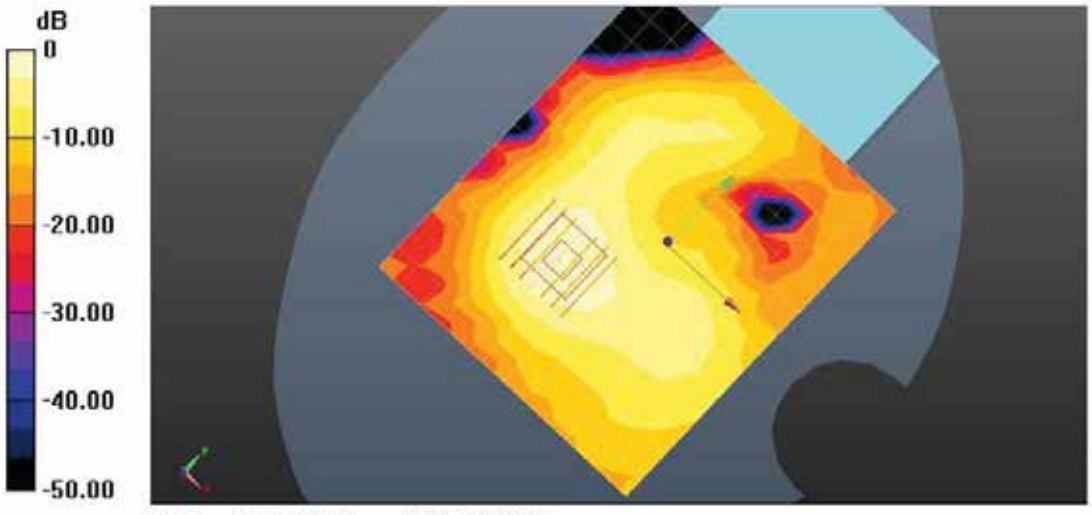
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Front_gap 5mm_3300mAh - 2D Scanner/Area Scan (13x15x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.172 W/kg

2.4GHz/802.11b_2462_Front_gap 5mm_3300mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.324 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.240 W/kg
SAR(1 g) = 0.129 W/kg; SAR(10 g) = 0.070 W/kg
Maximum value of SAR (measured) = 0.184 W/kg



0 dB = 0.184 W/kg = -7.35 dBW/kg

2462_Back_belt cplip_Touch

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Back_gap 5mm

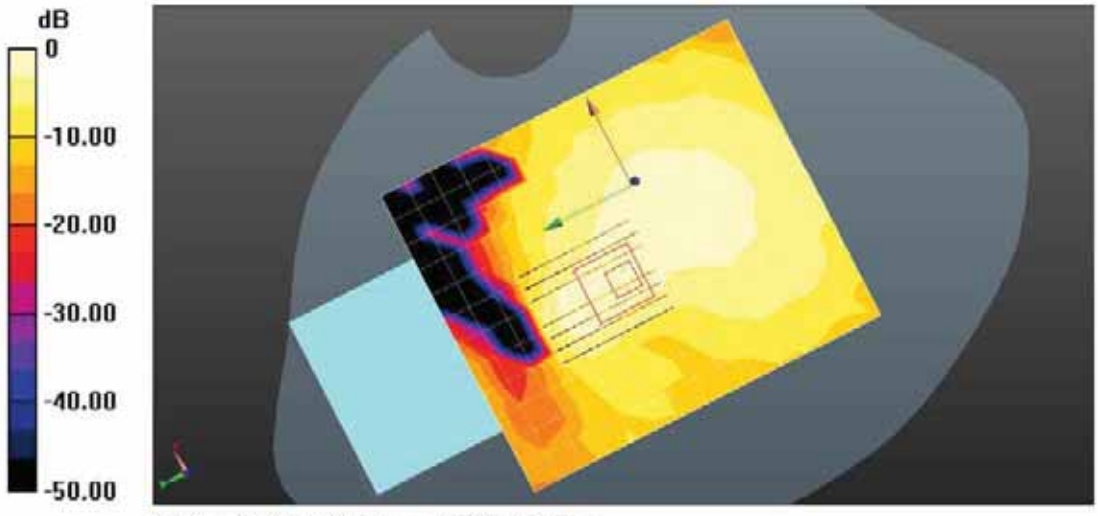
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Back_belt_3300mAh - 2D Scanner/Area Scan (13x15x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.0754 W/kg

2.4GHz/802.11b_2462_Back_belt_3300mAh - 2D Scanner/Zoom Scan (8x10x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.784 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 0.104 W/kg
SAR(1 g) = 0.058 W/kg; SAR(10 g) = 0.031 W/kg
Maximum value of SAR (measured) = 0.0814 W/kg



0 dB = 0.0814 W/kg = -10.89 dBW/kg

2462_Back_han strap_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Back_gap 5mm

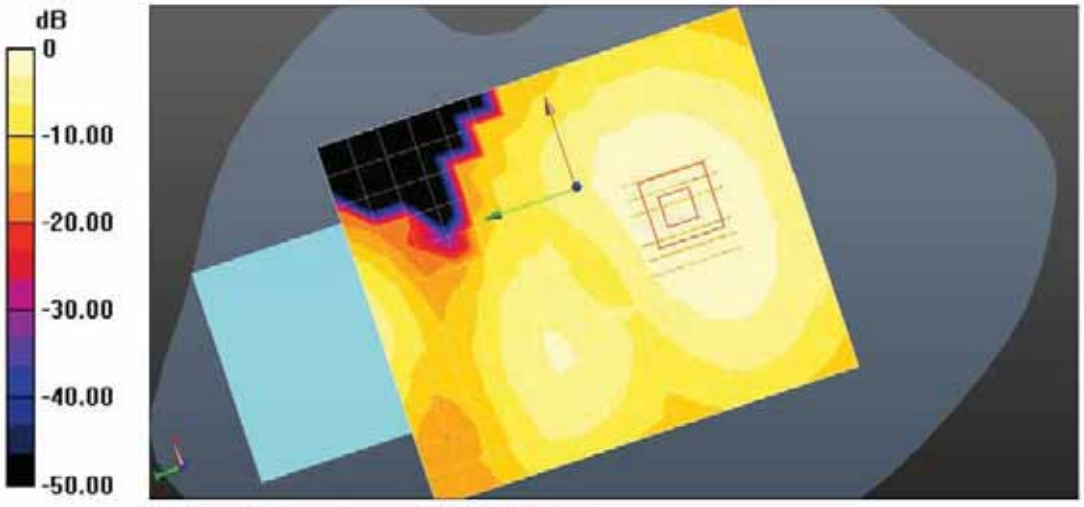
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Back_strap_gap 5mm_3300mAh - 2D Scanner/Area Scan (13x15x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.0973 W/kg

2.4GHz/802.11b_2462_Back_strap_gap 5mm_3300mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.056 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.128 W/kg
SAR(1 g) = 0.072 W/kg; SAR(10 g) = 0.041 W/kg
Maximum value of SAR (measured) = 0.0984 W/kg



0 dB = 0.0984 W/kg = -10.07 dBW/kg

2462_Edge1_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge1_gap 5mm

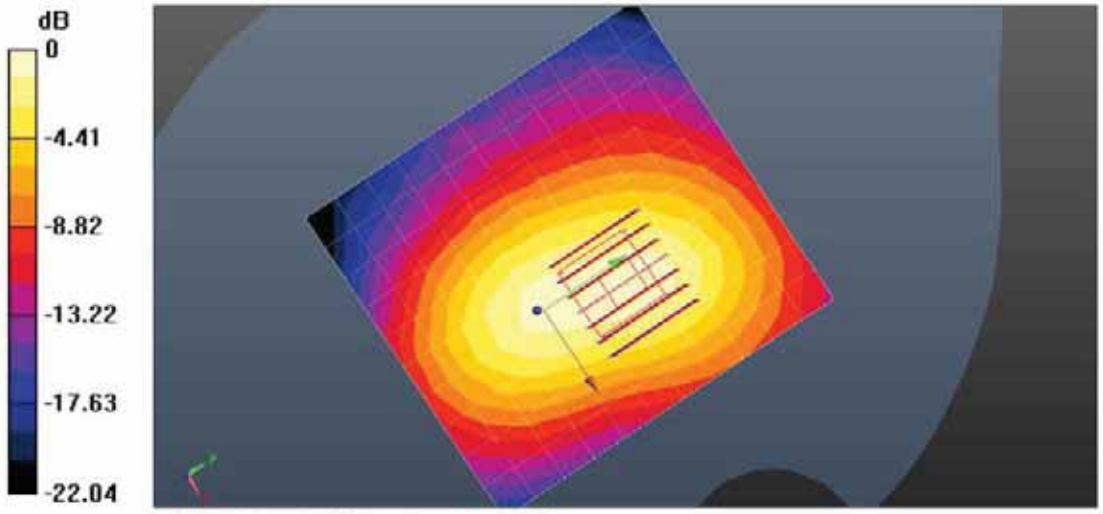
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge1_gap 5mm_3300mAh - 2D Scanner/Area Scan (11x12x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.324 W/kg

2.4GHz/802.11b_2462_Edge1_gap 5mm_3300mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.822 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.452 W/kg
SAR(1 g) = 0.244 W/kg; SAR(10 g) = 0.136 W/kg
Maximum value of SAR (measured) = 0.344 W/kg



0 dB = 0.344 W/kg = -4.63 dBW/kg

2462_Edge2_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge2_gap 5mm

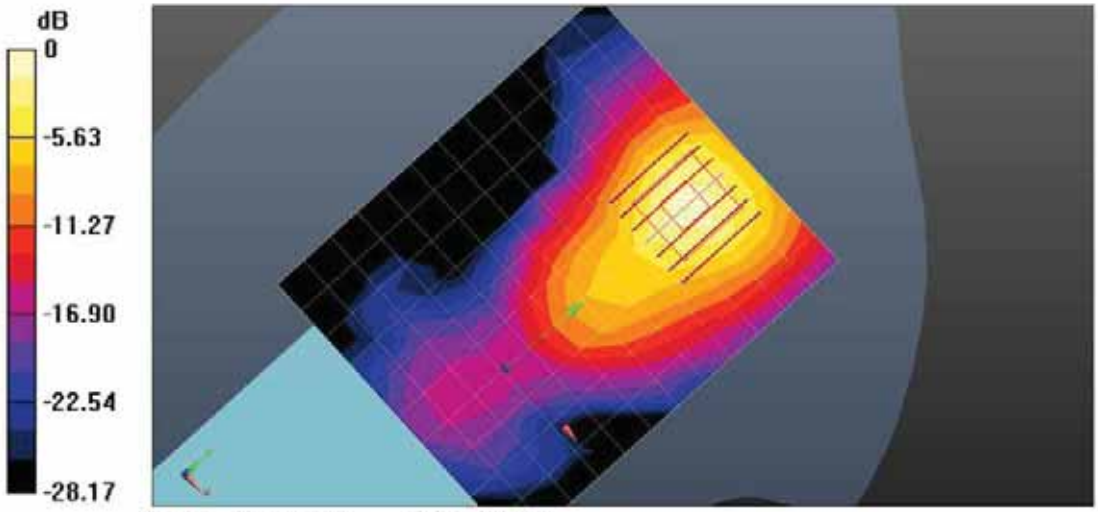
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge2_gap 5mm_3300mAh - 2D Scanner/Area Scan (11x13x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.632 W/kg

2.4GHz/802.11b_2462_Edge2_gap 5mm_3300mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.561 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.846 W/kg
SAR(1 g) = 0.405 W/kg; SAR(10 g) = 0.185 W/kg
Maximum value of SAR (measured) = 0.621 W/kg



0 dB = 0.621 W/kg = -2.07 dBW/kg

2462_Edge3_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge3_gap 5mm

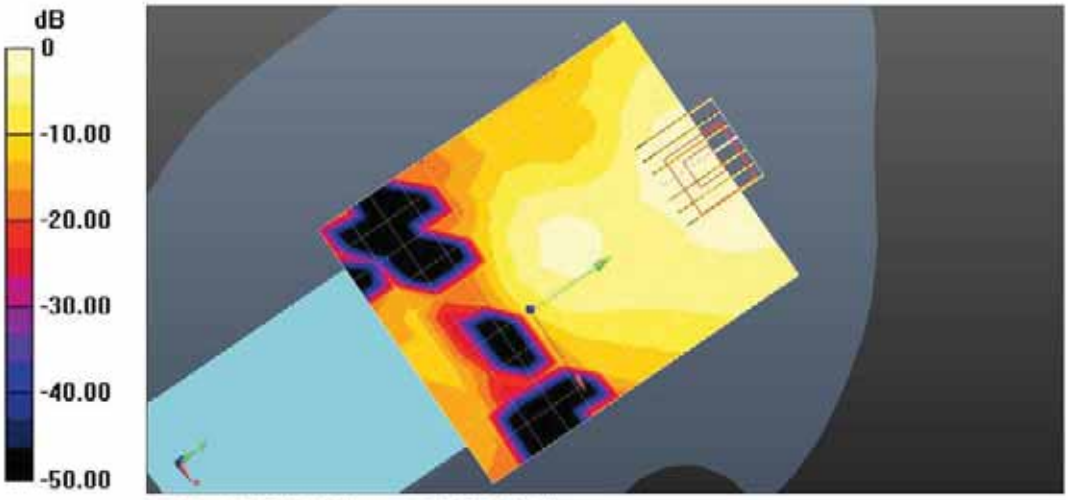
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge3_gap 5mm_3300mAh - 2D Scanner/Area Scan (11x13x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.0708 W/kg

2.4GHz/802.11b_2462_Edge3_gap 5mm_3300mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.328 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.0990 W/kg
SAR(1 g) = 0.050 W/kg; SAR(10 g) = 0.028 W/kg
Maximum value of SAR (measured) = 0.0730 W/kg



0 dB = 0.0730 W/kg = -11.37 dBW/kg

2462_Edge4_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge4_gap 5mm

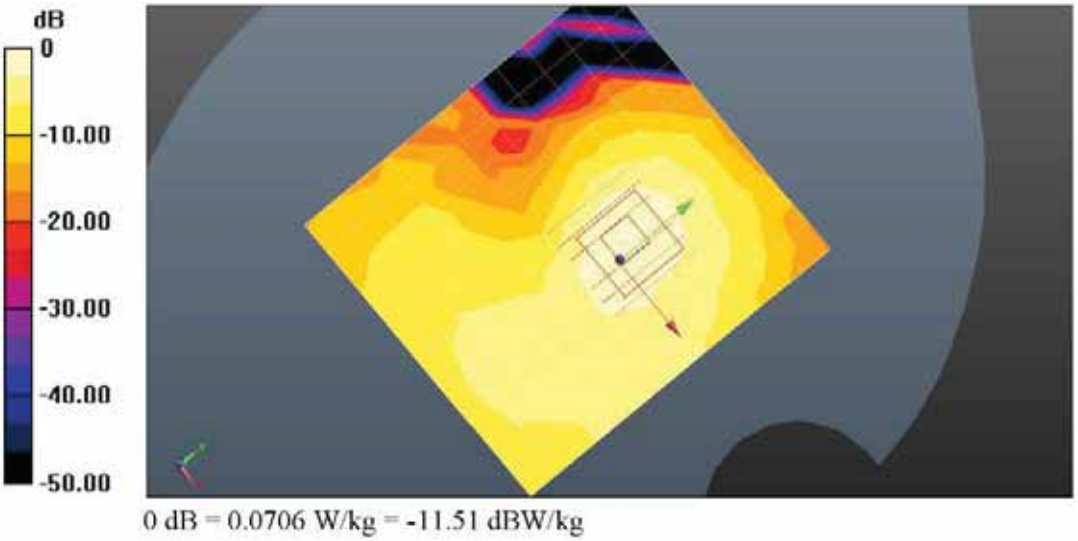
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge4_gap 5mm_3300mAh - 2D Scanner/Area Scan (11x12x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.0697 W/kg

2.4GHz/802.11b_2462_Edge4_gap 5mm_3300mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.212 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.0950 W/kg
SAR(1 g) = 0.049 W/kg; SAR(10 g) = 0.025 W/kg
Maximum value of SAR (measured) = 0.0706 W/kg



0 dB = 0.0706 W/kg = -11.51 dBW/kg

2412 _Edge2_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2412_Edge2_gap 5mm

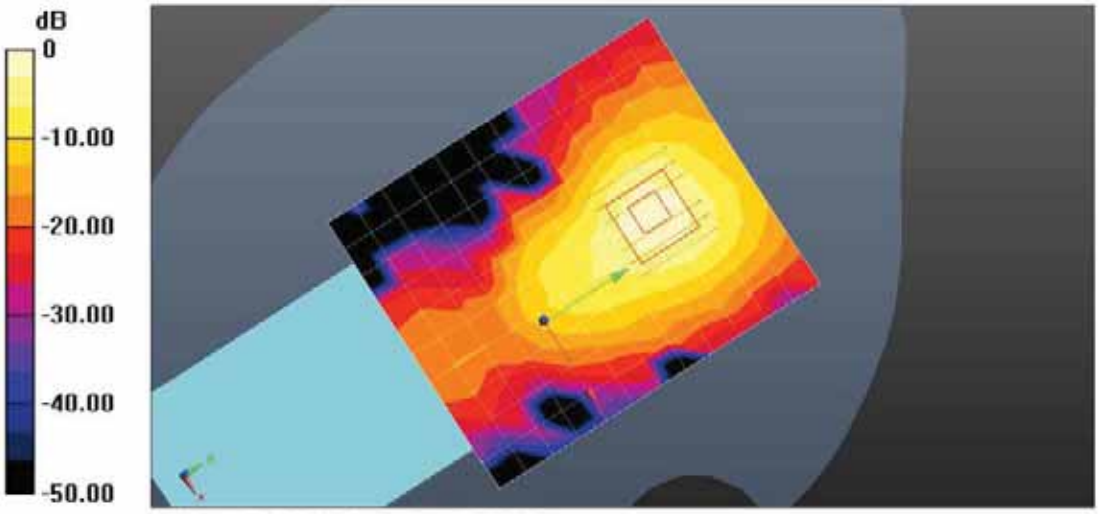
Communication System: 2.4GWLAN; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.912 S/m; ε_r = 50.941; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2412_Edge2_gap 5mm_3300mAh - 2D Scanner/Area Scan (11x13x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.535 W/kg

2.4GHz/802.11b_2412_Edge2_gap 5mm_3300mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.556 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.783 W/kg
SAR(1 g) = 0.375 W/kg; SAR(10 g) = 0.171 W/kg
Maximum value of SAR (measured) = 0.573 W/kg



0 dB = 0.573 W/kg = -2.42 dBW/kg

2437 _Edge2_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2437_Edge2_gap 5mm

Communication System: 2.4GWLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.954 S/m; ε_r = 50.888; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

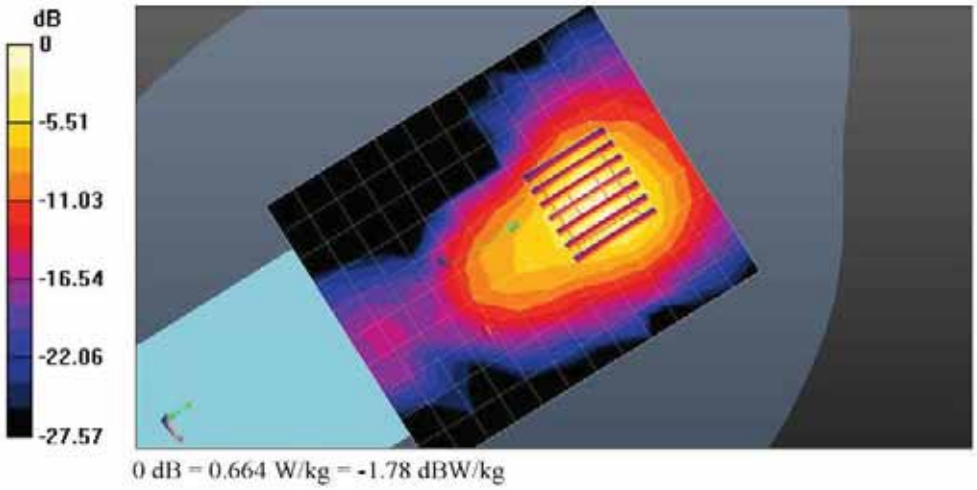
- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2437_Edge2_gap 5mm_3300mAh - 2D Scanner/Area Scan (11x13x1):
Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.623 W/kg

2.4GHz/802.11b_2437_Edge2_gap 5mm_3300mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.079 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.907 W/kg
SAR(1 g) = 0.433 W/kg; SAR(10 g) = 0.197 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.664 W/kg



0 dB = 0.664 W/kg = -1.78 dBW/kg

17.4 WLAN 2.4 GHz_Battery 2200 mAh - 2D Scanner

2462_Front_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Front_gap 5mm

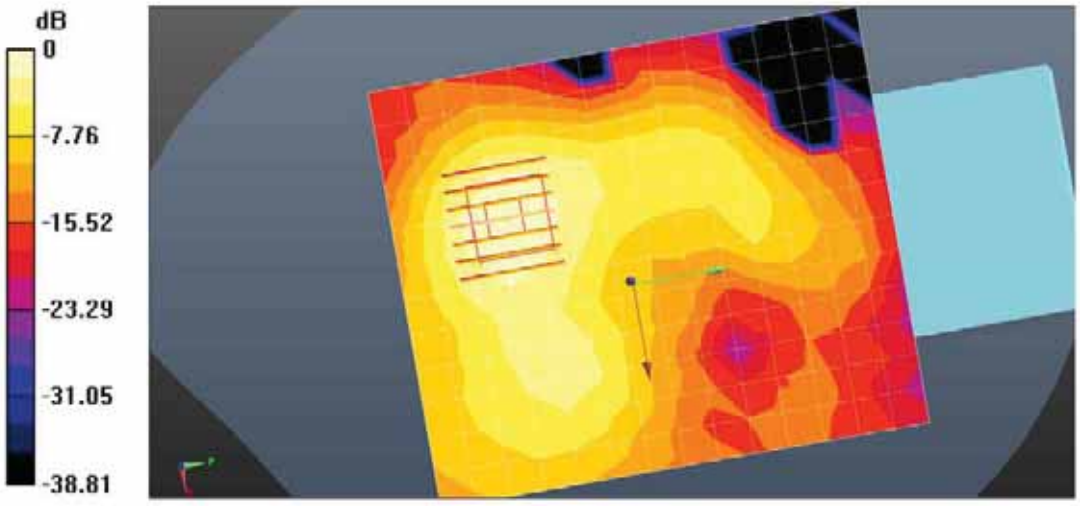
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Front_gap 5mm_2200mAh - 2D Scanner/Area Scan (13x15x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.243 W/kg

2.4GHz/802.11b_2462_Front_gap 5mm_2200mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.994 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.337 W/kg
SAR(1 g) = 0.184 W/kg; SAR(10 g) = 0.099 W/kg
Maximum value of SAR (measured) = 0.260 W/kg



0 dB = 0.260 W/kg = -5.85 dBW/kg

2462_Back_belt cplip_Touch

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Back_gap 5mm

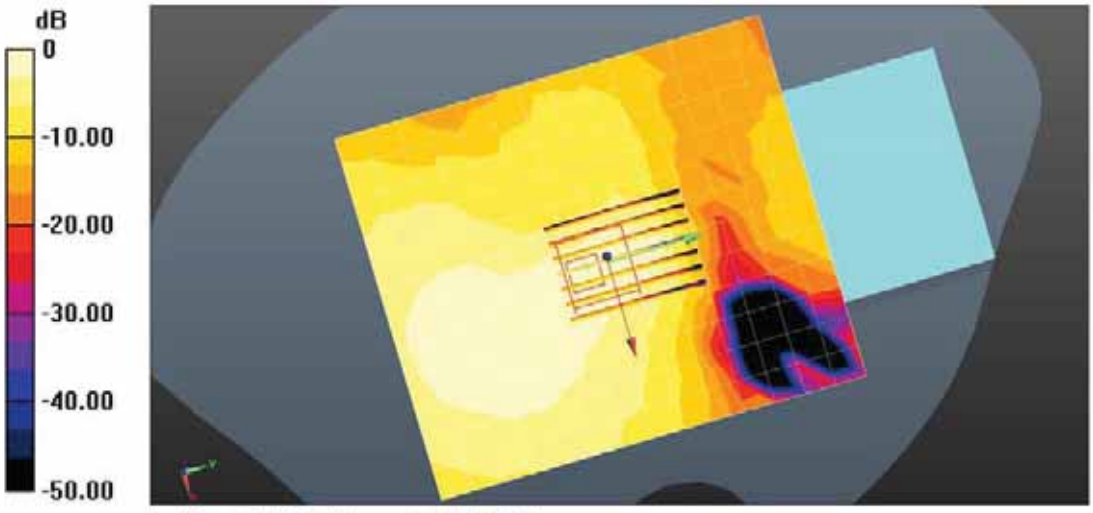
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Back_belt_2200mAh - 2D Scanner/Area Scan (13x15x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.106 W/kg

2.4GHz/802.11b_2462_Back_belt_2200mAh - 2D Scanner/Zoom Scan (7x10x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.015 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.136 W/kg
SAR(1 g) = 0.080 W/kg; SAR(10 g) = 0.043 W/kg
Maximum value of SAR (measured) = 0.109 W/kg



0 dB = 0.109 W/kg = -9.63 dBW/kg

2462_Back_han strap_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Back_gap 5mm

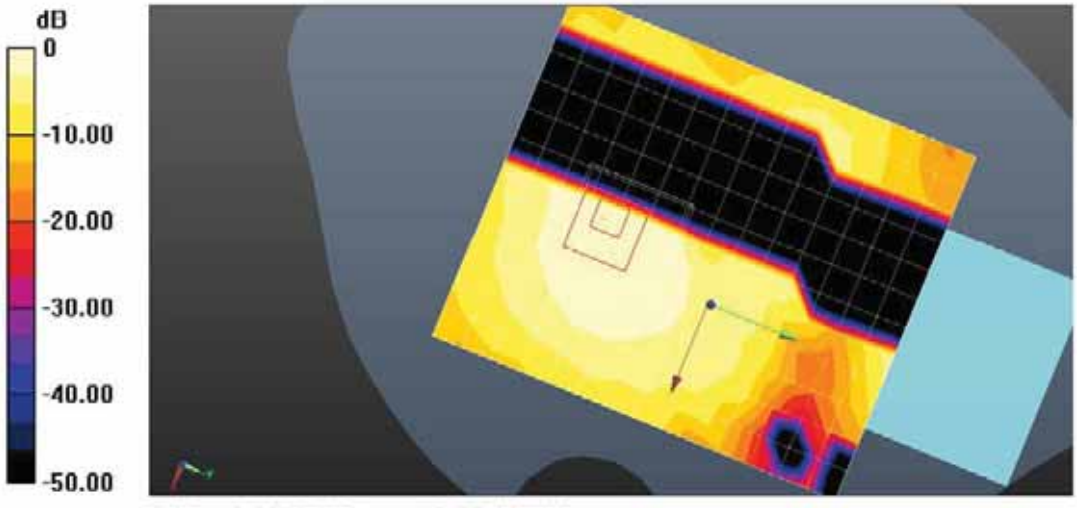
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Back_strap_gap 5mm_2200mAh - 2D Scanner/Area Scan (13x15x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.0973 W/kg

2.4GHz/802.11b_2462_Back_strap_gap 5mm_2200mAh - 2D Scanner/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.600 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.116 W/kg
SAR(1 g) = 0.065 W/kg; SAR(10 g) = 0.037 W/kg
Maximum value of SAR (measured) = 0.0899 W/kg



0 dB = 0.0899 W/kg = -10.46 dBW/kg

2462_Edge1_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge1_gap 5mm

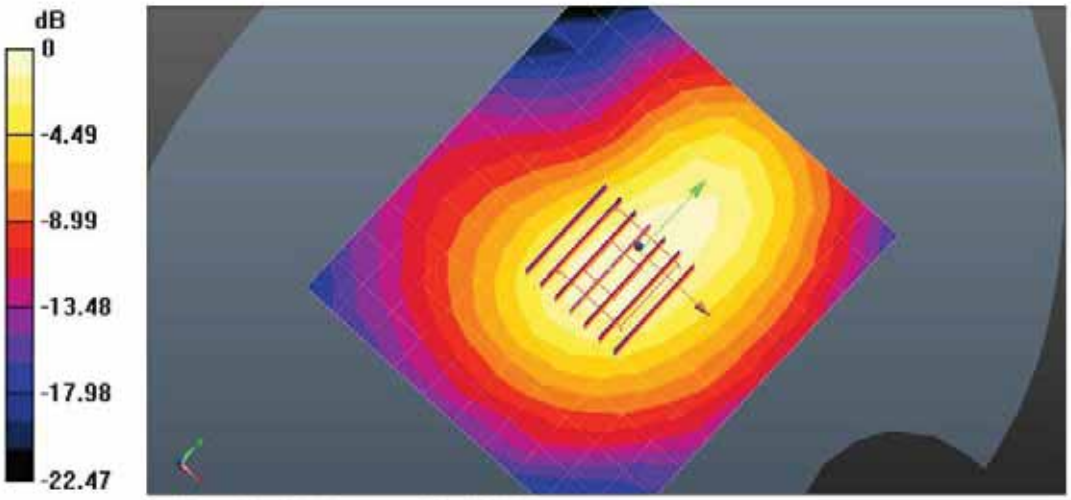
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge1_gap 5mm_2200mAh - 2D Scanner/Area Scan (11x12x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.303 W/kg

2.4GHz/802.11b_2462_Edge1_gap 5mm_2200mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.872 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.415 W/kg
SAR(1 g) = 0.226 W/kg; SAR(10 g) = 0.126 W/kg
Maximum value of SAR (measured) = 0.318 W/kg



0 dB = 0.318 W/kg = -4.98 dBW/kg

2462_Edge2_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge2_gap 5mm

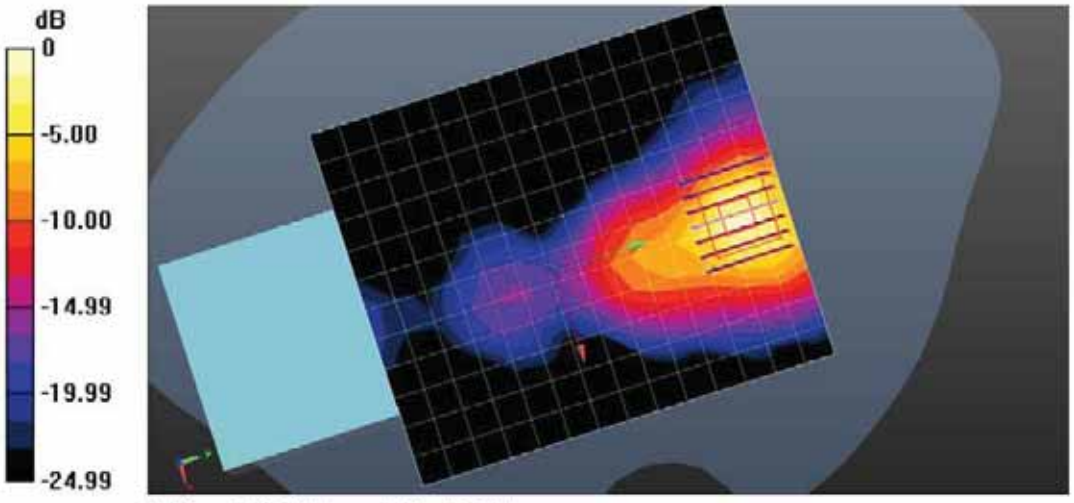
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge2_gap 5mm_2200mAh - 2D Scanner/Area Scan (13x15x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.10 W/kg

2.4GHz/802.11b_2462_Edge2_gap 5mm_2200mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.855 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.76 W/kg
SAR(1 g) = 0.809 W/kg; SAR(10 g) = 0.354 W/kg
Maximum value of SAR (measured) = 1.29 W/kg



0 dB = 1.29 W/kg = 1.11 dBW/kg

2462_Edge3_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge3_gap 5mm

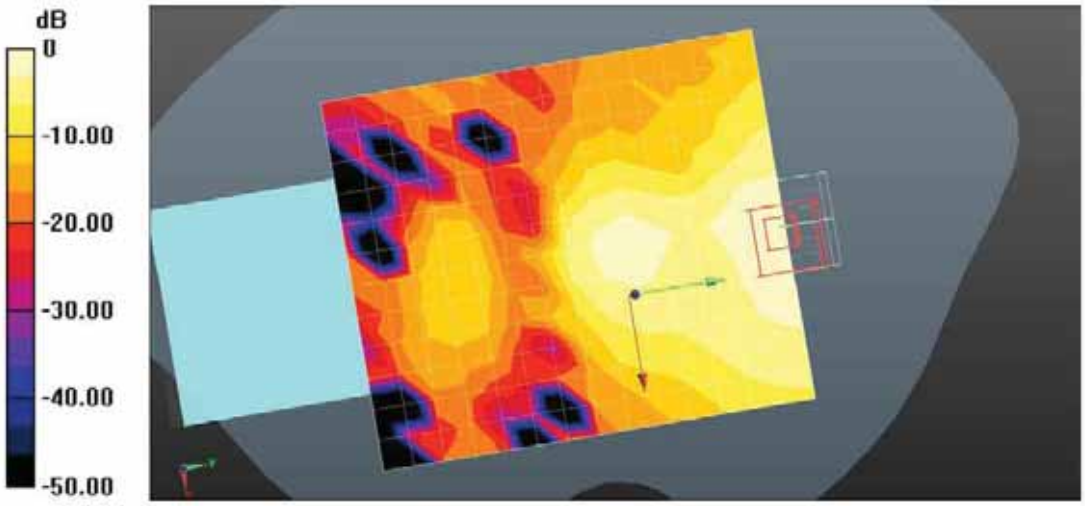
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge3_gap 5mm_2200mAh - 2D Scanner/Area Scan (13x15x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.103 W/kg

2.4GHz/802.11b_2462_Edge3_gap 5mm_2200mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.088 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.147 W/kg
SAR(1 g) = 0.077 W/kg; SAR(10 g) = 0.043 W/kg
Maximum value of SAR (measured) = 0.112 W/kg



0 dB = 0.112 W/kg = -9.51 dBW/kg

2462_Edge4_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge4_gap 5mm

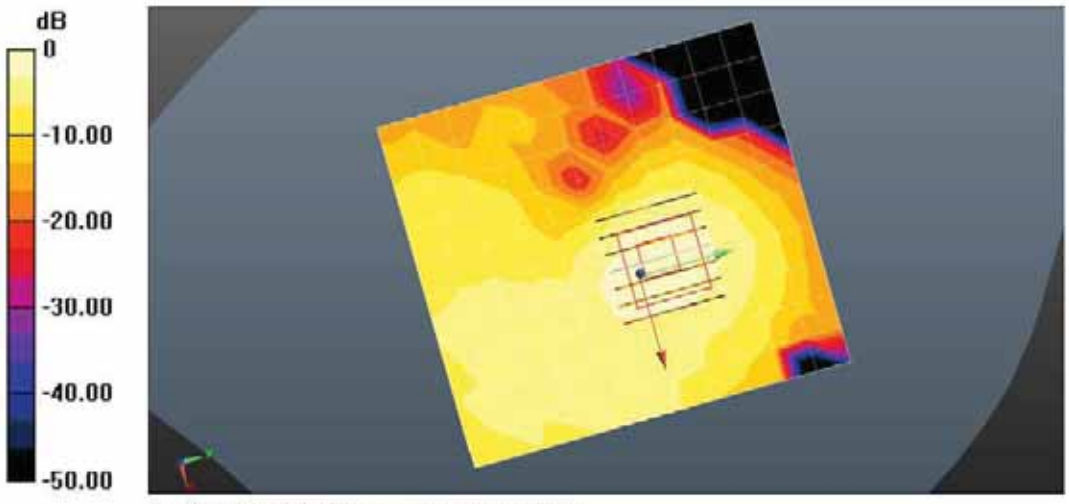
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge4_gap 5mm_2200mAh - 2D Scanner/Area Scan (11x12x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.0549 W/kg

2.4GHz/802.11b_2462_Edge4_gap 5mm_2200mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.813 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.0770 W/kg
SAR(1 g) = 0.039 W/kg; SAR(10 g) = 0.019 W/kg
Maximum value of SAR (measured) = 0.0570 W/kg



0 dB = 0.0570 W/kg = -12.44 dBW/kg

2412 _Edge2_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2412_Edge2_gap 5mm

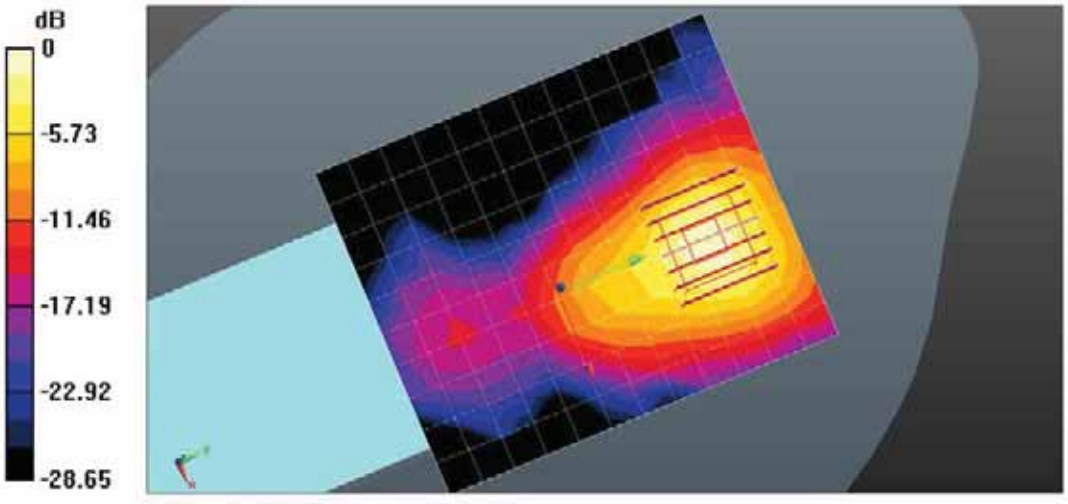
Communication System: 2.4GWLAN; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.912 S/m; ε_r = 50.941; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2412_Edge2_gap 5mm_2200mAh - 2D Scanner/Area Scan (11x13x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.422 W/kg

2.4GHz/802.11b_2412_Edge2_gap 5mm_2200mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.411 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.637 W/kg
SAR(1 g) = 0.309 W/kg; SAR(10 g) = 0.143 W/kg
Maximum value of SAR (measured) = 0.472 W/kg



0 dB = 0.472 W/kg = -3.26 dBW/kg

2437 _Edge2_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2437_Edge2_gap 5mm

Communication System: 2.4GWLAN; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.954 S/m; ε_r = 50.888; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

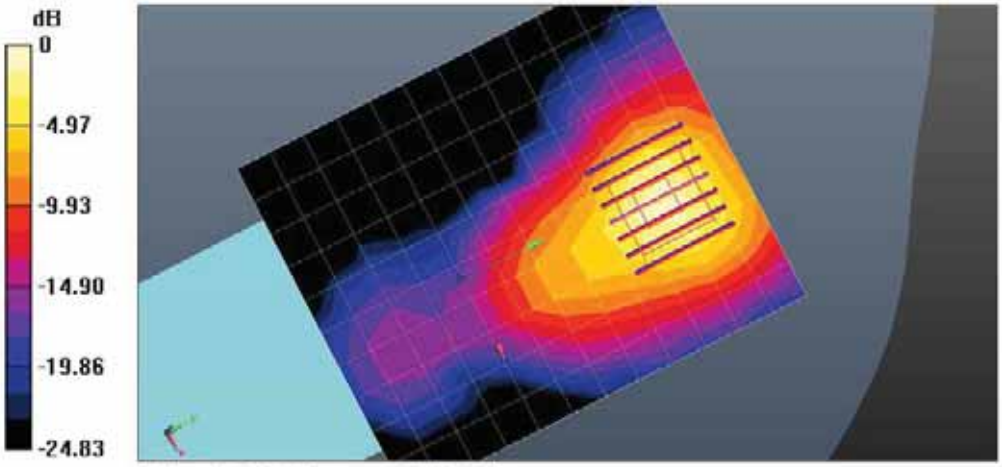
- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2437_Edge2_gap 5mm_2200mAh - 2D Scanner/Area Scan (11x13x1):
Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.702 W/kg

2.4GHz/802.11b_2437_Edge2_gap 5mm_2200mAh - 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.695 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.495 W/kg; SAR(10 g) = 0.230 W/kg

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.758 W/kg



0 dB = 0.758 W/kg = -1.20 dBW/kg

2462 _Edge2_gap 5 mm

DUT: HT-K10; Type: Handy terminal; Serial: N/A
Procedure Name: 802.11b_2462_Edge2_gap 5mm

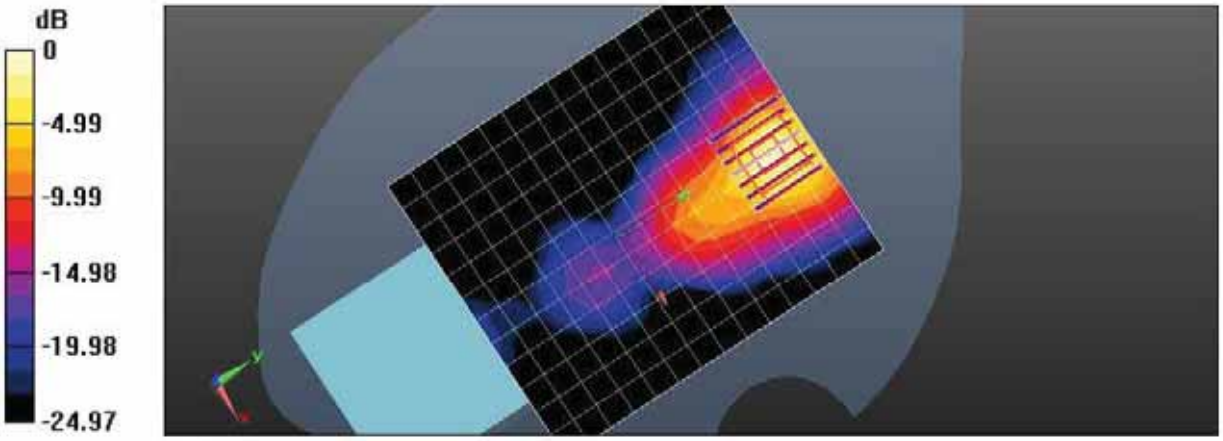
Communication System: 2.4GWLAN; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.973 S/m; ε_r = 50.897; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3865; ConvF(7.47, 7.47, 7.47); Calibrated: 06.08.2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1342; Calibrated: 09.08.2012
- Phantom: SAM twin SN1724; Type: QD000P40CD; Serial: TP:1724
- Measurement SW: DASY52, Version 52.8 (4); SEMCAD X Version 14.6.8 (7028)

2.4GHz/802.11b_2462_Edge2_gap 5mm_2200mAh – 2D Scanner/Area Scan (13x15x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.08 W/kg

2.4GHz/802.11b_2462_Edge2_gap 5mm_2200mAh – 2D Scanner/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.832 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.73 W/kg
SAR(1 g) = 0.796 W/kg; SAR(10 g) = 0.348 W/kg
Maximum value of SAR (measured) = 1.26 W/kg



0 dB = 1.26 W/kg = 1.00 dBW/kg

Annex A. Photographs

Annex A.1 EUT

Front View

Back View

Right side View

Left Side View

Top side View

Bottom Side View

Appendix. Battery Photographs

Battery 3300 mAh

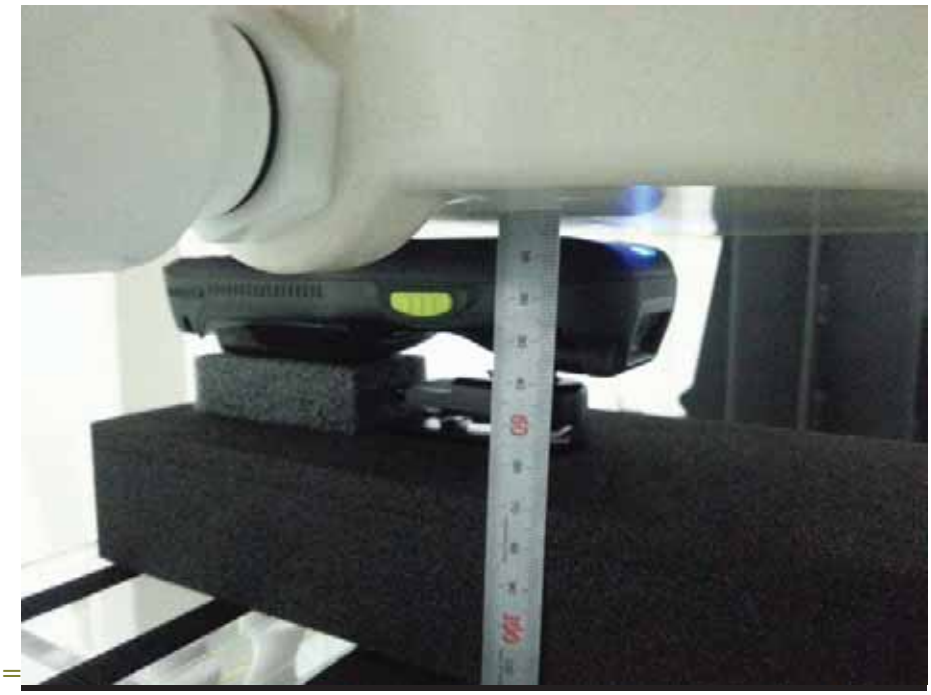
Battery 2200 mAh

Annex A.2 Photographs of Test Setup

Photograph of the SAR measurement System

Annex A.3 Test Position

(a) Body_Front_gap 5 mm



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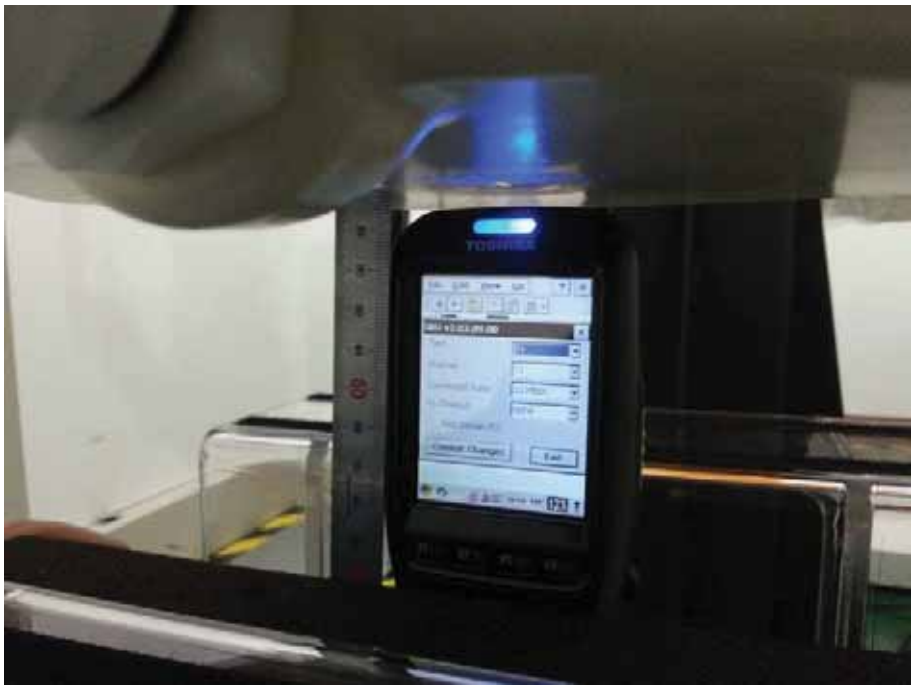
(b) Body_Back_belt clip

(c) Body_Back_hand strap gap 5 mm

(d) Body_Edge1_gap 5 mm

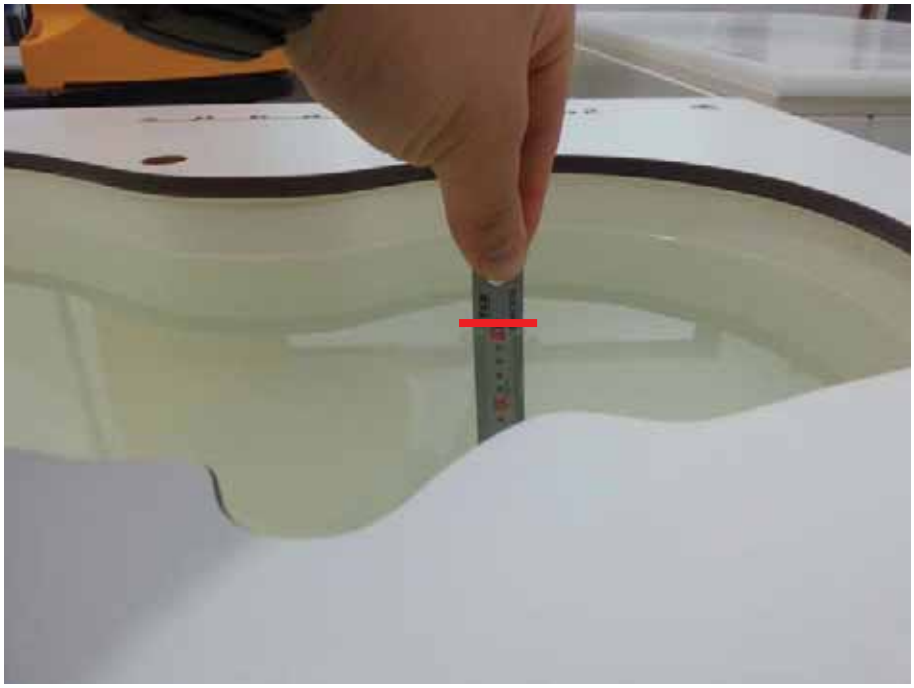


(e) Body_Edge2_gap 5 mm

(f) Body_Edge3_gap 5 mm

(g) Body_Edge4_gap 5 mm

Annex A.4 Liquid Depth



Body 2450 MHz

Annex B. Calibration certificate

Annex C.1 Probe Calibration certificate

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

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

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

Accreditation No.: SCS 108

Client EMC Compliance (Dymstec)

Certificate No: EX3-3865_Aug12

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3865

Calibration procedure(s) QA CAL-01.v8, QA CAL-12.v7, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: August 6, 2012

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 660	20-Jun-12 (No. DAE4-660_Jun12)	Jun-13
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: August 6, 2012

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: EX3-3865_Aug12 Page 1 of 11

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

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

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

Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003

b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z:* A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe EX3DV4

SN:3865

Manufactured: February 2, 2012
Calibrated: August 6, 2012

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3865

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (μV/(V/m)^2)^A	0.42	0.37	0.41	± 10.1 %
DCP (mV)^B	96.8	100.4	96.9	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc^E (k=2)
0	CW	0.00	X	0.00	0.00	1.00	148.0	±4.4 %
			Y	0.00	0.00	1.00	133.9	
			Z	0.00	0.00	1.00	145.8	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

A The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
B Numerical linearization parameter: uncertainty not required.
E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3865

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	43.5	0.87	10.58	10.58	10.58	0.11	1.00	± 13.4 %
850	41.5	0.92	9.83	9.83	9.83	0.40	0.81	± 12.0 %
900	41.5	0.97	9.81	9.81	9.81	0.80	0.50	± 12.0 %
1750'	40.1	1.37	8.69	8.69	8.69	0.39	0.79	± 12.0 %
1900	40.0	1.40	8.34	8.34	8.34	0.27	1.00	± 12.0 %
2450	39.2	1.80	7.42	7.42	7.42	0.33	0.83	± 12.0 %
2600	39.0	1.96	7.28	7.28	7.28	0.32	0.89	± 12.0 %
5200	36.0	4.66	4.54	4.54	4.54	0.40	1.80	± 13.1 %
5300	35.9	4.76	4.33	4.33	4.33	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.37	4.37	4.37	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.09	4.09	4.09	0.50	1.80	± 13.1 %
5800	35.3	5.27	4.25	4.25	4.25	0.48	1.80	± 13.1 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3865

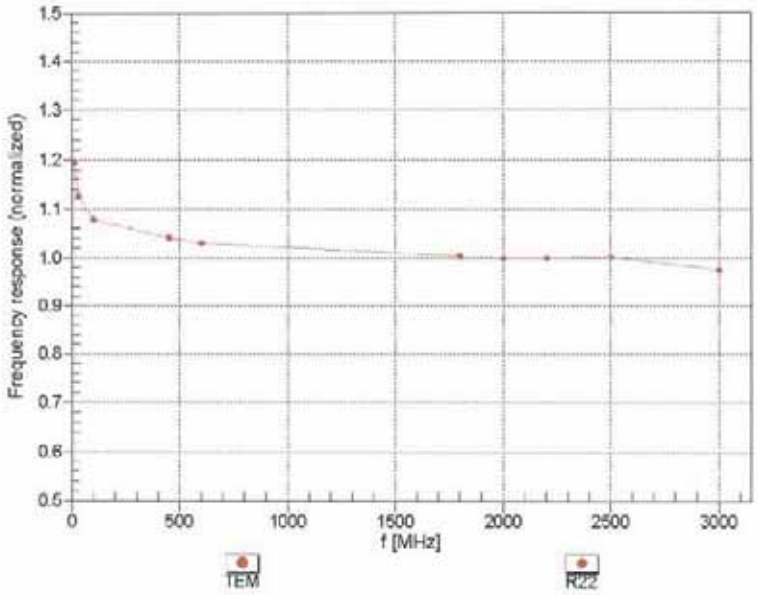
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	56.7	0.94	11.32	11.32	11.32	0.04	1.00	± 13.4 %
850	55.2	0.99	9.84	9.84	9.84	0.24	1.13	± 12.0 %
900	55.0	1.05	10.00	10.00	10.00	0.56	0.73	± 12.0 %
1750	53.4	1.49	8.22	8.22	8.22	0.42	0.79	± 12.0 %
1900	53.3	1.52	7.87	7.87	7.87	0.28	0.93	± 12.0 %
2450	52.7	1.95	7.47	7.47	7.47	0.55	0.63	± 12.0 %
2600	52.5	2.16	7.20	7.20	7.20	0.80	0.50	± 12.0 %
5200	49.0	5.30	4.28	4.28	4.28	0.50	1.90	± 13.1 %
5300	48.9	5.42	4.16	4.16	4.16	0.50	1.80	± 13.1 %
5500	48.6	5.65	3.89	3.89	3.89	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.74	3.74	3.74	0.50	1.90	± 13.1 %
5800	48.2	6.00	3.87	3.87	3.87	0.60	1.90	± 13.1 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

EX3DV4- SN:3865 August 6, 2012

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

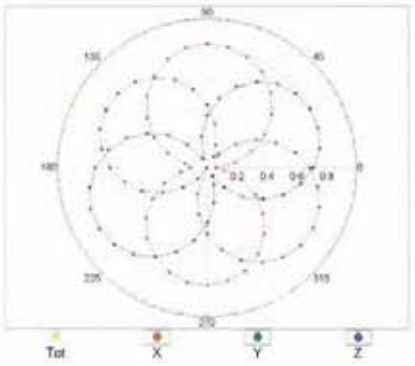


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

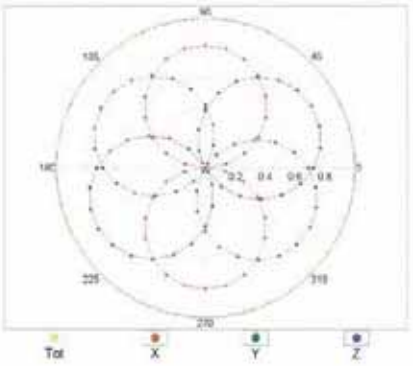
EX3DV4- SN:3865 August 6, 2012

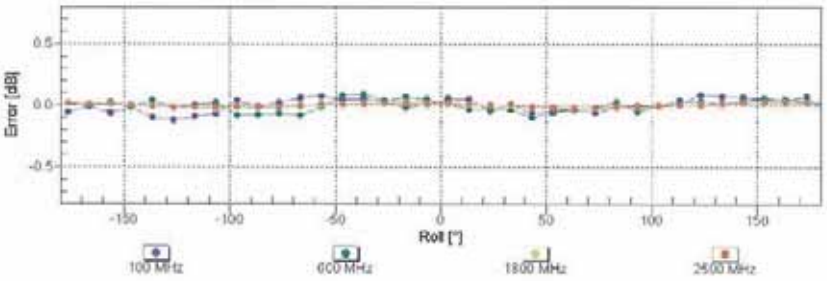
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



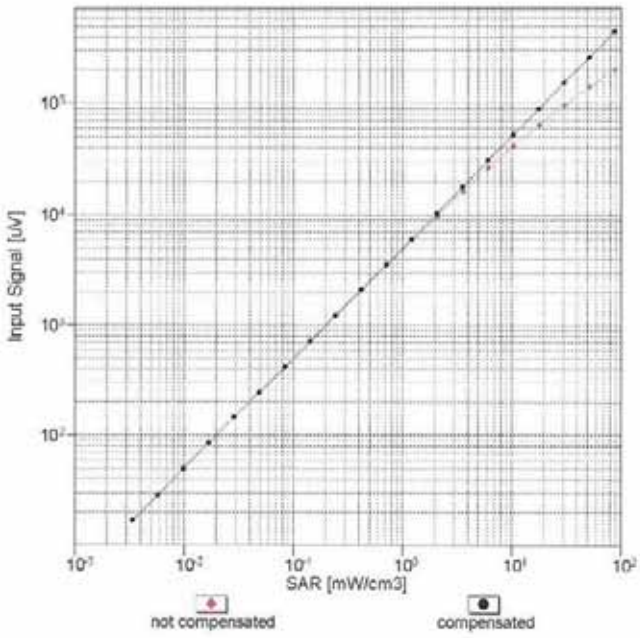
f=1800 MHz,R22

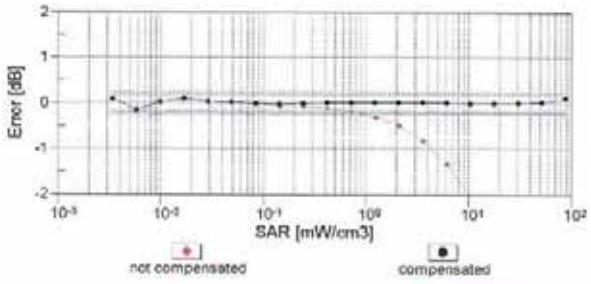




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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



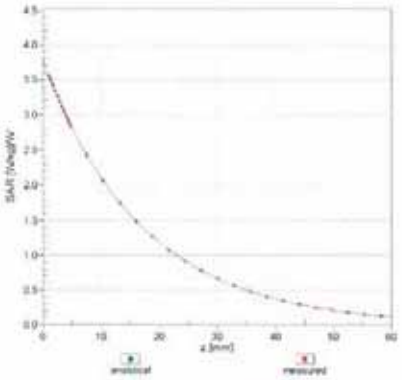


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

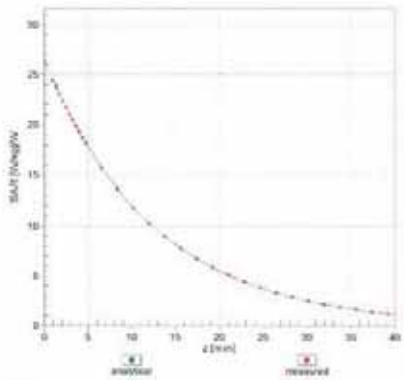
EX3DV4- SN:3865 August 6, 2012

Conversion Factor Assessment

f = 900 MHz,WGLS R9 (H_convF)

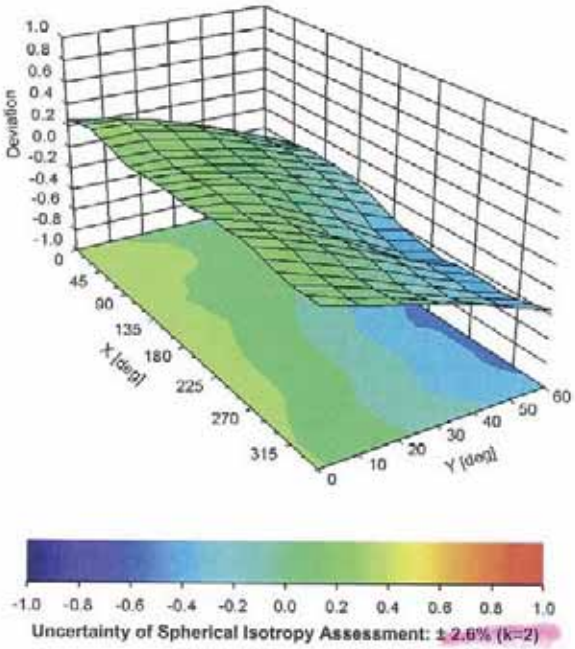


f = 1750 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Certificate No: EX3-3865_Aug12 Page 10 of 11

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3865

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	23.3
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

Annex C.2 DAE Calibration certification

Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Client: EMC Compliance (Dymstec)

Certificate No: DAE4-1342_Aug12

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 1342
Calibration procedure(s)	QA CAL-06.v25 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	August 09, 2012

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-11 (No:11450)	Sep-12
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V2.1	SE UWS 053 AA 1001	05-Jan-12 (in house check)	In house check: Jan-13

	Name	Function	Signature
Calibrated by:	Dominique Steffen	Technician	
Approved by:	Fin Bomholt	R&D Director	

Issued: August 9, 2012

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Certificate No: DAE4-1342_Aug12 Page 1 of 5

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Accreditation No.: SCS 108

Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1μV, full range = -100...+300 mV
Low Range: 1LSB = 61nV, full range = -1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.068 ± 0.1% (k=2)	404.221 ± 0.1% (k=2)	404.185 ± 0.1% (k=2)
Low Range	3.97165 ± 0.7% (k=2)	3.97700 ± 0.7% (k=2)	3.97828 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	39 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199994.19	-3.38	-0.00
Channel X	+ Input	20002.85	2.10	0.01
Channel X	- Input	-19997.54	2.99	-0.01
Channel Y	+ Input	199994.26	-4.01	-0.00
Channel Y	+ Input	19999.03	-1.80	-0.01
Channel Y	- Input	-19999.76	0.80	-0.00
Channel Z	+ Input	199994.53	-3.34	-0.00
Channel Z	+ Input	20001.39	0.65	0.00
Channel Z	- Input	-20000.17	0.46	-0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2000.70	-0.29	-0.01
Channel X	+ Input	203.04	1.76	0.87
Channel X	- Input	-198.27	0.13	-0.07
Channel Y	+ Input	2000.52	-0.45	-0.02
Channel Y	+ Input	200.80	-0.60	-0.30
Channel Y	- Input	-198.25	0.15	-0.08
Channel Z	+ Input	2001.59	0.79	0.04
Channel Z	+ Input	200.48	-0.88	-0.44
Channel Z	- Input	-199.91	-1.46	0.73

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	11.40	8.89
	- 200	-8.28	-10.71
Channel Y	200	0.31	0.56
	- 200	-2.01	-1.85
Channel Z	200	0.89	0.24
	- 200	-2.35	-2.54

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	4.43	-2.81
Channel Y	200	9.22	-	6.44
Channel Z	200	9.83	7.45	-

4. **AD-Converter Values with inputs shorted**

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15940	14522
Channel Y	16478	15329
Channel Z	15678	15080

5. **Input Offset Measurement**

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	-0.72	-2.09	0.89	0.61
Channel Y	0.17	-1.07	1.62	0.51
Channel Z	-0.94	-3.01	0.26	0.56

6. **Input Offset Current**

Nominal Input circuitry offset current on all channels: <25fA

7. **Input Resistance** (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. **Low Battery Alarm Voltage** (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. **Power Consumption** (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

Annex C.3 Dipole Calibration certification

D2450V2

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

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Accreditation No.: SCS 108

Client EMC Compliance (Dymstec) Certificate No: D2450V2-895_Jul12

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 895
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	July 24, 2012

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	27-Jun-12 (No. DAE4-601_Jun12)	Jun-13

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

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

Issued: July 24, 2012

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Certificate No: D2450V2-895_Jul12 Page 1 of 8

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.9 ± 6 %	1.85 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.6 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**53.6 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.31 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**25.0 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.4 ± 6 %	2.01 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.1 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**51.4 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.10 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**24.1 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.2 Ω + 2.0 jΩ
Return Loss	- 25.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	51.4 Ω + 3.2 jΩ
Return Loss	- 29.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.158 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	June 19, 2012

DASY5 Validation Report for Head TSL

Date: 24.07.2012

Test Laboratory: SPEAG, Zurich, Switzerland

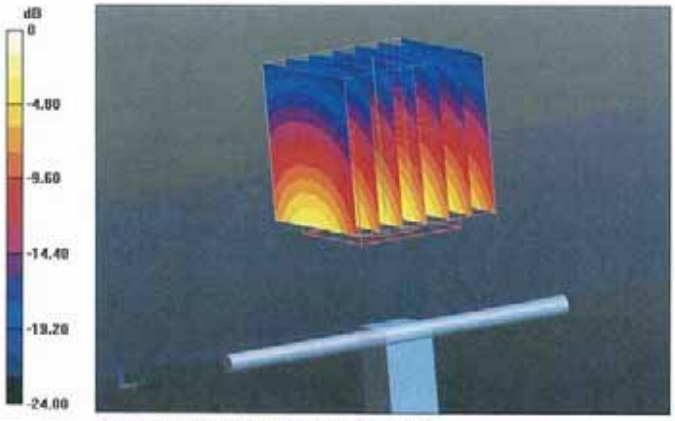
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 895

Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.85 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

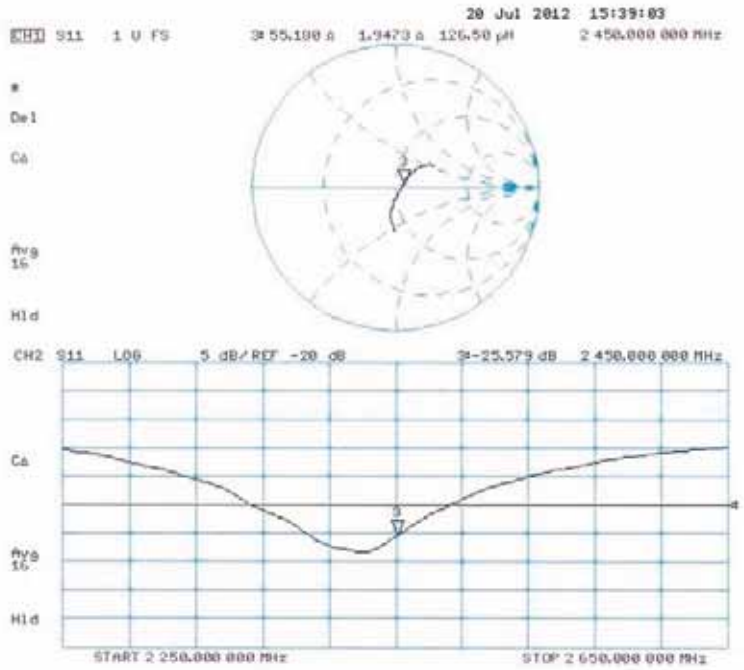
- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.2 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 27.939 mW/g
SAR(1 g) = 13.6 mW/g; SAR(10 g) = 6.31 mW/g
Maximum value of SAR (measured) = 17.6 mW/g



0 dB = 17.6 mW/g = 24.91 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 23.07.2012

Test Laboratory: SPEAG, Zurich, Switzerland

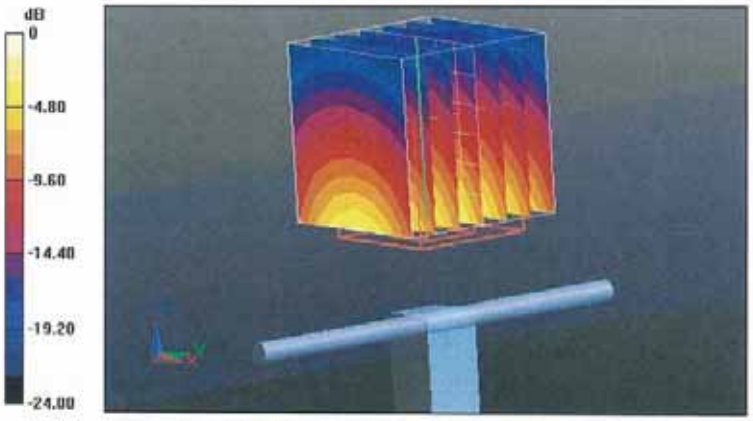
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 895

Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.01 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.214 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 26.902 mW/g
SAR(1 g) = 13.1 mW/g; SAR(10 g) = 6.1 mW/g
Maximum value of SAR (measured) = 17.3 mW/g



0 dB = 17.3 mW/g = 24.76 dB mW/g

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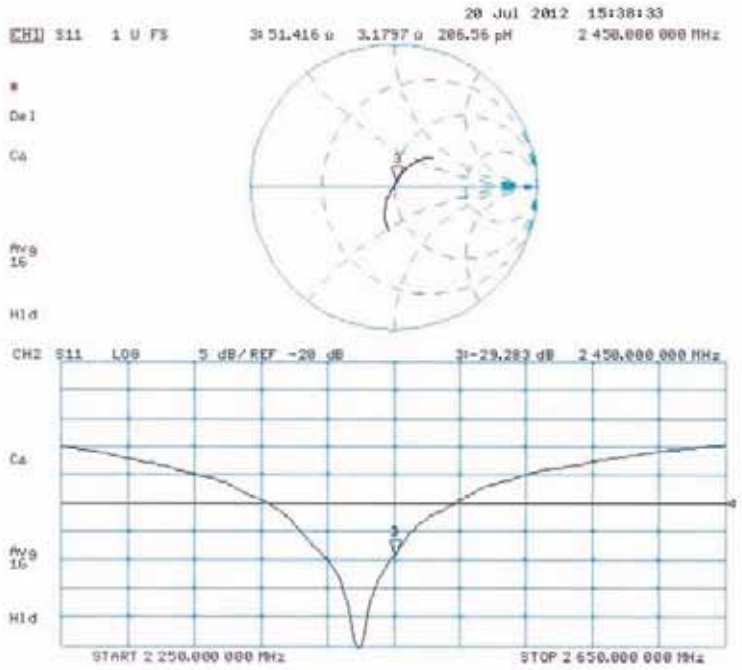
Impedance Measurement Plot for Body TSL



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