SAR Test Report

Product Name : IP-STB
Model No. : 3400, 3420
FCC ID : TC2-R1005

Applicant : Roku Inc.
Address : 12980 Saratoga Ave, Suite D Saratoga, CA 95070

Date of Receipt : 25/06/2012
Test Date : 18/09/2012~19/09/2012
Issued Date : 20/09/2012
Report No. : 126S063R-RF-US-P09V01
Report Version : V1.1

Test Report Certification

Issued Date: 20/09/2012
Report No: 126S063R-HP-US-P03V01

QuieTek

Product Name	:	IP-STB
Applicant	:	Roku Inc.
Address	:	12980 Saratoga Ave, Suite D Saratoga, CA 95070
Manufacturer	:	Ambit Mircosystems (Shanghai) LTD.
Address	:	1925, Nanle Road, Songjiang Export Processing Zone, Shanghai, China 201613
FCC ID	:	TC2-R1005
Model No.	:	3400, 3420
Brand Name	:	Roku
EUT Voltage	:	5V
Applicable Standard	:	FCC OET65 Supplement C June 2001 IEEE Std. 1528-2003, 47CFR § 2.1093
Test Result	:	Max. SAR Measurement (1g) 802.11b (2.4GHz): 1.020 W/kg 802.11a (5GHz): 0.727 W/kg
Performed Location	:	Suzhou EMC Laboratory No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392
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Approved By	:	Marlin Chen (Manager: Marlin Chen)

Laboratory Information

We, **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
Germany	**:**	**TUV Rheinland**
Norway	**:**	**Nemko, DNV**
USA	**:**	**FCC, NVLAP**
Japan	**:**	**VCCI**
China	**:**	**CNAS**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site :http://www.quietek.com/tw/ctg/cts/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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1. General Information

1.1. EUT Description

Product Name	IP-STB
FCC ID	TC2-R1005
Brand Name	Roku
Model No.	3400, 3420
Frequency Range	For 2.4GHz Band 802.11b/g/n(20MHz): 2412 - 2462 MHz 802.11n(40MHz): 2422 - 2452 MHz For 5.0GHz Band 802.11a/n(20MHz): 5180 - 5240 MHz, 5745 - 5825MHz 802.11n(40MHz): 5190 - 5230 MHz, 5755 - 5795 MHz
Channel Number	For 2.4GHz Band 802.11b/g/n(20MHz): 11 802.11n(40MHz): 7 For 5.0GHz Band 802.11n(20MHz): 9 802.11n(40MHz): 4
Type of Modulation	802.11b: DSSS
	802.11g/n: OFDM
Data Rate	802.11g: 6/9/12/18/24/36/48/54 Mbps
	802.11b: 1/2/5.5/11 Mbps
	802.11n: up to 300 Mbps
Device Category	Mobile
RF Exposure Environment	Uncontrolled
Antenna Delivery	2*Tx + 2*Rx
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List
Max. Output Power (Conducted)	802.11b: 16.91dBm 802.11g: 17.37dBm 802.11a: 16.25dBm 802.11n(20MHz): 16.34dBm 802.11n(40MHz): 17.07dBm

Note: 3400, 3420 has the same PCB board, and just has different housing colors, 3420 is black, while 3400 is purple.

For 2.4GHz Band

802.11b/g/n(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz	04	2427 MHz
05	2432 MHz	06	2437 MHz	07	2442 MHz	08	2447 MHz
09	2452 MHz	10	2457 MHz	11	2462 MHz	N/A	N/A
802.11n(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz	N/A	N/A

For 5.0GHz Band

802.11a/n(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz	48	5240 MHz
149	5745 MHz	153	5765 MHz	157	5785 MHz	161	5805 MHz
165	5825 MHz	N/A	N/A	N/A	N/A	N/A	N/A
802.11n(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	151	5755 MHz	159	5795 MHz

802.11a/b/g/n Antenna List

Antenna	Manufacturer	Model No.	Peak Gain
PIFA Antenna	Cortec Technology Inc.	N/A	2dBi for 2.4GHz and 5GHz

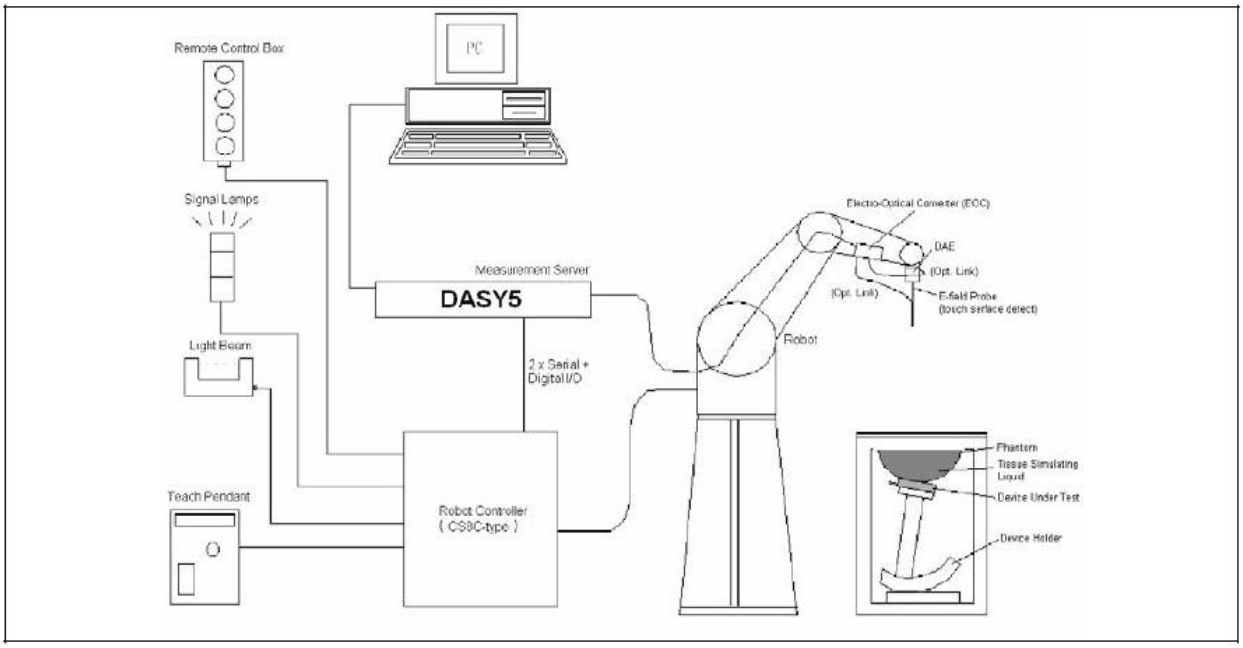
1.2. Test Environment

Ambient conditions in the laboratory:

Items	Required	Actual
Temperature (°C)	18-25	21.5± 2
Humidity (%RH)	30-70	52

2. SAR Measurement System

2.1. DASY5 System Description



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

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

2.1.1. Applications

Predefined procedures and evaluations for automated compliance testing with all worldwide standards, e.g., IEEE 1528, OET 65, IEC 62209-1, IEC 62209-2, EN 50360, EN 50383 and others.

2.1.2. Area Scans

Area scans are defined prior to the measurement process being executed with a user defined variable spacing between each measurement point (integral) allowing low uncertainty measurements to be conducted. Scans defined for FCC applications utilize a $10mm^2$ step integral, with 1mm interpolation used to locate the peak SAR area used for zoom scan assessments.

When an Area Scan has measured all reachable points, it computes the field maxima 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 1528-2003, EN 50361 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan).

2.1.3. Zoom Scan (Cube Scan Averaging)

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. A density of 1000 kg/m^3 is used to represent the head and body tissue density and not the phantom liquid density, in order to be consistent with the definition of the liquid dielectric properties, i.e. the side length of the 1 g cube is 10mm, with the side length of the 10 g cube 21,5mm.

The zoom scan integer steps can be user defined so as to reduce uncertainty, but normal practice for typical test applications utilize a physical step of 7x7x7 (5mmx5mmx5mm) providing a volume of 30mm in the X & Y axis, and 30mm in the Z axis.

2.1.4. Uncertainty of Inter-/Extrapolation and Averaging

In order to evaluate the uncertainty of the interpolation, extrapolation and averaged SAR calculation algorithms of the Postprocessor, DASY5 allows the generation of measurement grids which are artificially predefined by analytically based test functions. Therefore, the grids of area scans and zoom scans can be filled with uncertainty test data, according to the SAR benchmark functions of IEEE 1528.The three analytical functions shown in equations as below are used to describe the possible range of the expected SAR distributions for the tested handsets. The field gradients are covered by the spatially flat distribution f1, the spatially steep distribution f3 and f2 accounts for H-field cancellation on the phantom/tissue surface.

$$f_1(x,y,z) = Ae^{-\frac{z}{2a}}\cos^2\left(\frac{\pi}{2}\frac{\sqrt{x'^2+y'^2}}{5a}\right)$$

$$f_2(x,y,z) = Ae^{-\frac{z}{a}}\frac{a^2}{a^2+x'^2}\left(3-e^{-\frac{2z}{a}}\right)\cos^2\left(\frac{\pi}{2}\frac{y'}{3a}\right)$$

$$f_3(x,y,z) = A\frac{a^2}{\frac{a^2}{4}+x'^2+y'^2}\left(e^{-\frac{2z}{a}}+\frac{a^2}{2(a+2z)^2}\right)$$

2.2. DASY5 E-Field Probe

The SAR measurement is conducted with the dosimetric probe manufactured by SPEAG. The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency.

SPEAG conducts the probe calibration in compliance with international and national standards (e.g. IEEE 1528, EN 62209-1, IEC 62209, etc.) under ISO 17025. The calibration data are in Appendix D**.**

2.2.1. Isotropic E-Field Probe Specification

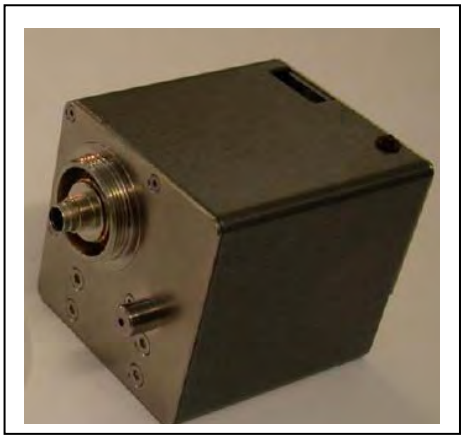
Model	EX3DV4	
Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Frequency	10 MHz to 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	
Dynamic Range	10 µW/g to 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)	
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm	
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.	

2.3. Boundary Detection Unit and Probe Mounting Device

The DASY probes use a precise connector and an additional holder for the probe, consisting of a plastic tube and a flexible silicon ring to center the probe. The connector at the DAE is flexibly mounted and held in the default position with magnets and springs. Two switching systems in the connector mount detect frontal and lateral probe collisions and trigger the necessary software response.

2.4. DATA Acquisition Electronics (DAE) and Measurement Server

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit.
Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.
The input impedance of the DAE4 is 200M Ohm; the inputs are symmetrical and floating. Common mode rejection is above 80dB.



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

2.5. Robot

The DASY5 system uses the high precision robots TX90 XL type out of the newer series from Stäubli SA (France). For the 6-axis controller DASY5 system, the CS8C robot controller version from Stäubli is used.
The XL robot series have many features that are important for our application:

- High precision (repeatability 0.02 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)
- 6-axis controller

2.6. Light Beam Unit

The light beam switch allows automatic "tooling" of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, such that the robot coordinates are valid for the probe tip.
The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.

2.7. Device Holder

The DASY5 device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation center for both scales is the ear reference point (EPR).
Thus the device needs no repositioning when changing the angles.
The DASY5 device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity εr =3 and loss tangent δ = 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.

2.8. 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

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

3. Tissue Simulating Liquid

3.1. The composition of the tissue simulating liquid

INGREDIENT (% Weight)	2450MHz Head	2450MHz Body	5800MHz Body
Water	46.7	73.2	75.68
Salt	0.00	0.04	0.43
Sugar	0.00	0.00	0.00
HEC	0.00	0.00	0.00
Preventol	0.00	0.00	0.00
DGBE	53.3	26.7	4.42
Triton X-100	0.00	0.00	19.47

3.2. Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using DASY5 Dielectric Probe Kit and Agilent Vector Network Analyzer E5071C

Body Tissue Simulant Measurement				
Frequency [MHz]	Description	Dielectric Parameters		Tissue Temp. [°C]
		ε_r	σ [s/m]	
2450MHz	Reference result ± 5% window	52.7 50.07 to 55.34	1.95 1.85 to 2.05	N/A
	18-09-2012	52.20	1.98	21.0
5200MHz	Reference result ± 5% window	49.0 46.55 to 51.45	5.30 5.04 to 5.57	N/A
	19-09-2012	48.94	5.15	21.0
5800MHz	Reference result ± 5% window	48.2 45.79 to 50.61	6.00 5.70 to 6.30	N/A
	19-09-2012	47.29	6.04	21.0

3.3. Tissue Dielectric Parameters for Head and Body Phantoms

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations described in Reference [12] and extrapolated according to the head parameters specified in P1528.

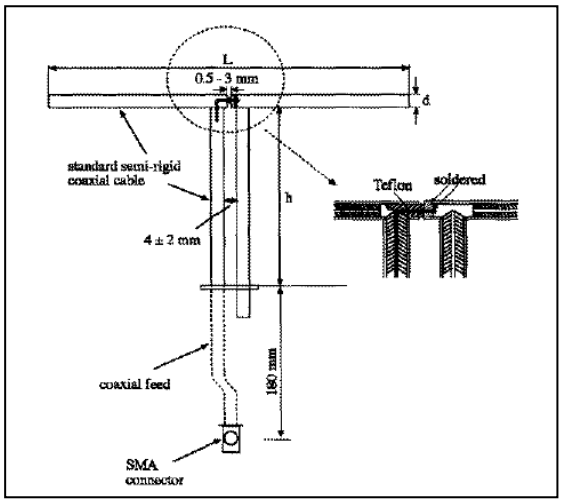
Target Frequency	Head		Body	
(MHz)	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	**52.7**	**1.95**
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	**48.2**	**6.00**

(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)

4. SAR Measurement Procedure

4.1. SAR System Validation

4.1.1. Validation Dipoles



The dipoles used is based on the IEEE-1528 standard, and is complied with mechanical and electrical specifications in line with the requirements of both IEEE and FCC Supplement C. the table below provides details for the mechanical and electrical specifications for the dipoles.

Frequency	L (mm)	h (mm)	d (mm)
2450MHz	53.5	30.4	3.6
5800MHz	20.6	14.2	3.6

4.1.2. Validation Result

System Performance Check at 2450MHz

Validation Dipole: D2450V2, SN: 839

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
2450 MHz	Reference result ± 10% window	48.7 43.83 to 53.57	22.8 20.52 to 25.08	N/A
	18-09-2012	48.8	22.16	21.0
Note: All SAR values are normalized to 1W forward power.				

System Performance Check at 5200MHz

Validation Dipole: D5GHzV2, SN: 1078

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
5200 MHz	Reference result ± 10% window	73.1 65.79 to 80.41	20.5 18.45 to 22.55	N/A
	19-09-2012	76.7	21.6	21.0
Note: All SAR values are normalized to 1W forward power.				

System Performance Check at 5800MHz

Validation Kit: D5GHzV2, SN: 1078

Frequency [MHz]	Description	SAR [w/kg] 1g	SAR [w/kg] 10g	Tissue Temp. [°C]
5800 MHz	Reference result ± 10% window	73.5 66.15 to 80.85	20.3 18.27 to 22.33	N/A
	19-09-2012	75.1	20.7	21.0
Note: All SAR values are normalized to 1W forward power.				

4.2. SAR Measurement Procedure

The DASY 5 calculates SAR using the following equation,

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

σ: represents the simulated tissue conductivity

ρ: represents the tissue density

The EUT is set to transmit at the required power in line with product specification, at each frequency relating to the LOW, MID, and HIGH channel settings.

Pre-scans are made on the device to establish the location for the transmitting antenna, using a large area scan in either air or tissue simulation fluid.

The EUT is placed against the Universal Phantom where the maximum area scan dimensions are larger than the physical size of the resonating antenna. When the scan size is not large enough to cover the peak SAR distribution, it is modified by either extending the area scan size in both the X and Y directions, or the device is shifted within the predefined area.

The area scan is then run to establish the peak SAR location (interpolated resolution set at $1mm^2$) which is then used to orient the center of the zoom scan. The zoom scan is then executed and the 1g and 10g averages are derived from the zoom scan volume (interpolated resolution set at $1mm^3$).

5. SAR Exposure Limits

SAR assessments have been made in line with the requirements of IEEE-1528, FCC Supplement C, and comply with ANSI/IEEE C95.1-1992 “Uncontrolled Environments” limits. These limits apply to a location which is deemed as “Uncontrolled Environment” which can be described as a situation where the general public may be exposed to an RF source with no prior knowledge or control over their exposure.

Limits for General Population/Uncontrolled Exposure (W/kg)

Type Exposure	Uncontrolled Environment Limit
Spatial Peak SAR (1g cube tissue for brain or body)	1.60 W/kg
Spatial Average SAR (whole body)	0.08 W/kg
Spatial Peak SAR (10g for hands, feet, ankles and wrist)	4.00 W/kg

6. Test Equipment List

Instrument	Manufacturer	Model No.	Serial No.	Cali. Due Date
Stäubli Robot TX60L	Stäubli	TX60L	F10/5C90A1/A/01	only once
Controller	Stäubli	SP1	S-0034	only once
Dipole Validation Kits	Speag	D2450V2	839	2013.02.23
Dipole Validation Kits	Speag	D5GHzV2	1078	2013.03.11
SAM Twin Phantom	Speag	SAM	TP-1561/1562	N/A
Device Holder	Speag	SD 000 H01 HA	N/A	N/A
Data Acquisition Electronic	Speag	DAE4	1220	2013.01.23
E-Field Probe	Speag	EX3DV4	3710	2013.03.12
SAR Software	Speag	DASY5	V5.2 Build 162	N/A
Power Amplifier	Mini-Circuit	ZHL-42	D051404-28	N/A
Directional Coupler	Agilent	778D	20160	N/A
Vector Network	Agilent	E5071C	MY48367267	2013.04.10
Signal Generator	Agilent	E4438C	MY49070163	2013.04.18
Power Meter	Anritsu	ML2495A	0905006	2013.01.12
Wide Bandwidth Sensor	Anritsu	MA2411B	0846014	2013.01.12

7. Measurement Uncertainty

DASY5 Uncertainty Measurement uncertainty for 300 MHz to 3 GHz averaged over 1 gram / 10 gram.								
Error Description	Uncert. value	Prob. Dist.	Div.	(ci) 1g	(ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(vi) veff
Measurement System								
Probe Calibration	±6.0%	N	1	1	1	±6.0%	±6.0%	∞
Axial Isotropy	±4.7%	R	√3	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	√3	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	√3	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	√3	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.4%	R	√3	1	1	±0.2%	±0.2%	∞
Probe Positioning	±2.9%	R	√3	1	1	±1.7%	±1.7%	∞
Max. SAR Eval.	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	√3	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom Uncertainty	±4.0%	R	√3	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (target)	±5.0%	R	√3	0.64	0.43	±1.8%	±1.2%	∞
Liquid Conductivity (meas.)	±2.5%	N	1	0.64	0.43	±1.6%	±1.1%	∞
Liquid Permittivity (target)	±5.0%	R	√3	0.6	0.49	±1.7%	±1.4%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.6	0.49	±1.5%	±1.2%	∞
Combined Std. Uncertainty						±11.0%	±10.8%	387
Expanded STD Uncertainty						±22.0%	±21.5%	

DASY5 Uncertainty Measurement uncertainty for 3 GHz to 6 GHz averaged over 1 gram / 10 gram.								
Error Description	Uncert. value	Prob. Dist.	Div.	(ci) 1g	(ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(vi) veff
Measurement System								
Probe Calibration	±6.55%	N	1	1	1	±6.55%	±6.55%	∞
Axial Isotropy	±4.7%	R	√3	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	√3	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±2.0%	R	√3	1	1	±1.2%	±1.2%	∞
Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	√3	1	1	±0.6%	±0.6%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	√3	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	√3	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	√3	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.8%	R	√3	1	1	±0.5%	±0.5%	∞
Probe Positioning	±9.9%	R	√3	1	1	±5.7%	±5.7%	∞
Max. SAR Eval.	±4.0%	R	√3	1	1	±2.3%	±2.3%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	√3	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom Uncertainty	±4.0%	R	√3	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (target)	±5.0%	R	√3	0.64	0.43	±1.8%	±1.2%	∞
Liquid Conductivity (meas.)	±2.5%	N	1	0.64	0.43	±1.6%	±1.1%	∞
Liquid Permittivity (target)	±5.0%	R	√3	0.6	0.49	±1.7%	±1.4%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.6	0.49	±1.5%	±1.2%	∞
Combined Std. Uncertainty						±12.8%	±12.6%	330
Expanded STD Uncertainty						±25.6%	±25.2%	

8. Conducted Power Measurement

1Tx Chain 0

Test Mode	Channel No.	Frequency (MHz)	Conducted Power (dBm)
802.11b	01	2412	16.48
	06	2437	16.45
	11	2462	16.20
802.11g	01	2412	14.83
	06	2437	16.52
	11	2462	14.38
802.11n(20MHz)	01	2412	14.57
	06	2437	15.63
	11	2462	13.10
802.11n(40MHz)	03	2422	13.45
	06	2437	15.15
	09	2452	12.94
802.11a	36	5180	9.55
	40	5200	9.56
	44	5220	9.58
	48	5240	9.48
	149	5745	15.42
	153	5765	15.26
	157	5785	15.32
	161	5805	15.28
	165	5825	15.85
802.11n(20MHz)	36	5180	9.12
	40	5200	9.22
	44	5220	9.02
	48	5240	9.07
	149	5745	12.12
	153	5765	12.04
	157	5785	12.42
	161	5805	12.30
	165	5825	12.62
802.11n(40MHz)	38	5190	10.24
	46	5230	9.92
	151	5755	13.03
	159	5795	13.19

1Tx Chain 1

Test Mode	Channel No.	Frequency (MHz)	Conducted Power (dBm)
802.11b	01	2412	16.91
	06	2437	16.50
	11	2462	16.74
802.11g	01	2412	13.97
	06	2437	17.37
	11	2462	14.75
802.11n(20MHz)	01	2412	13.41
	06	2437	16.12
	11	2462	13.13
802.11n(40MHz)	03	2422	13.94
	06	2437	16.01
	09	2452	13.96
802.11a	36	5180	10.05
	40	5200	9.62
	44	5220	9.59
	48	5240	9.55
	149	5745	15.64
	153	5765	15.35
	157	5785	15.87
	161	5805	15.60
	165	5825	16.25
802.11n(20MHz)	36	5180	9.41
	40	5200	9.57
	44	5220	9.33
	48	5240	9.16
	149	5745	12.93
	153	5765	12.72
	157	5785	13.17
	161	5805	13.11
	165	5825	13.59
802.11n(40MHz)	38	5190	10.63
	46	5230	10.34
	151	5755	13.70
	159	5795	13.84

2Tx Chain 0+1

Test Mode	Channel No.	Frequency (MHz)	Conducted Power (dBm)
802.11n(20MHz)	01	2412	15.36
	06	2437	16.34
	11	2462	15.06
	36	5180	9.09
	40	5200	8.88
	44	5220	8.87
	48	5240	8.71
	149	5745	15.13
	153	5765	15.05
	157	5785	15.06
	161	5805	15.04
	165	5825	15.49
802.11n(40MHz)	03	2422	14.29
	06	2437	17.07
	09	2452	15.58
	38	5190	9.43
	46	5230	9.67
	151	5755	16.13
	159	5795	16.43

Note : According to KDB 248227:

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

2, When the maximum average output channel in each frequency band is not included in the “default test channels”, the maximum channel should be tested instead of an adjacent ”default test channel”.

9. Test Procedures

9.1. Test position and configuration

SAR was performed with the device configured in the positions according to KDB 447498 D02 SAR Procedures for Dongle Xmtr v01 1, body SAR was performed with the device to phantom separation distance of 5mm. All USB orientations (A: Horizontal-Up, B: Horizontal-Down, C: Vertical-Front, D: Vertical-Back, and E: Tip) were evaluated with 15cm USB cable for extension. Please check the SAR test photos.

Other KDB files were referred for this device SAR evaluation: D01 Mobile Portable RF Exposure v04, 248227 802.11abg SAR and 388624 D02 Permit But Ask List v09R01.

9.2. SAR Test Results Summary

SAR MEASUREMENT							
Ambient Temperature (°C) : 21.5 ±2				Relative Humidity (%): 55			
Liquid Temperature (°C) : 21.0 ±2				Depth of Liquid (cm):>15			
Product: IP-STB							
Test Mode: 802.11b- 1Tx Chain 1							
Test Position Body	Antenna Position	Frequency		Separation Distance (cm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz				
Horizontal Up	Fixed	1	2412	0.5	0.03	0.319	1.6
Horizontal Down	Fixed	1	2412	0.5	-0.05	0.815	1.6
Horizontal Down	Fixed	6	2437	0.5	-0.14	0.795	1.6
Horizontal Down	Fixed	11	2462	0.5	-0.16	**1.020**	1.6
Vertical Front	Fixed	1	2412	0.5	-0.12	0.118	1.6
Vertical Back	Fixed	1	2412	0.5	-0.04	0.102	1.6
Tip	Fixed	1	2412	0.5	0.10	0.158	1.6
Test Mode: 802.11b- 1Tx Chain 0							
Horizontal Down	Fixed	1	2412	0.5	0.18	0.521	1.6
Test Mode: 802.11g- 1Tx Chain 1							
Horizontal Down	Fixed	1	2412	0.5	-0.17	0.378	1.6
Horizontal Down	Fixed	6	2437	0.5	-0.18	0.990	1.6
Horizontal Down	Fixed	11	2462	0.5	-0.09	0.671	1.6
Test Mode: 802.11n(20MHz)- 2Tx Chain 0+1							
Horizontal Down	Fixed	1	2412	0.5	-0.08	0.630	1.6
Horizontal Down	Fixed	6	2437	0.5	-0.14	1.010	1.6
Horizontal Down	Fixed	11	2462	0.5	-0.04	0.879	1.6
Test Mode: 802.11n(40MHz)- 2Tx Chain 0+1							
Horizontal Down	Fixed	1	2412	0.5	0.01	0.544	1.6
Horizontal Down	Fixed	6	2437	0.5	-0.15	1.000	1.6
Horizontal Down	Fixed	11	2462	0.5	-0.05	0.929	1.6

SAR MEASUREMENT							
Ambient Temperature (°C) : 21.5 ±2				Relative Humidity (%): 55			
Liquid Temperature (°C) : 21.0 ±2				Depth of Liquid (cm):>15			
Product: IP-STB							
Test Mode: 802.11a- 1Tx Chain 1							
Test Position Body	Antenna Position	Frequency		Separation Distance (cm)	Power Drift (<±0.2)	SAR 1g (W/kg)	Limit (W/kg)
		Channel	MHz				
Horizontal Up	Fixed	165	5825	0.5	0.14	0.220	1.6
Horizontal Down	Fixed	165	5825	0.5	0.10	**0.727**	1.6
Vertical Front	Fixed	165	5825	0.5	-0.10	0.165	1.6
Vertical Back	Fixed	165	5825	0.5	0.17	0.142	1.6
Tip	Fixed	165	5825	0.5	-0.05	0.251	1.6
Horizontal Down	Fixed	36	5180	0.5	0.10	0.151	1.6
Horizontal Down	Fixed	44	5220	0.5	0.19	0.179	1.6
Horizontal Down	Fixed	149	5745	0.5	-0.03	0.482	1.6
Horizontal Down	Fixed	157	5785	0.5	0.06	0.501	1.6
Test Mode: 802.11a- 1Tx Chain 0							
Horizontal Down	Fixed	165	5825	0.5	0.15	0.369	1.6
Test Mode: 802.11n(20MHz)- 1Tx Chain 1							
Horizontal Down	Fixed	40	5200	0.5	0.14	0.232	1.6
Horizontal Down	Fixed	44	5220	0.5	0.12	0.252	1.6
Test Mode: 802.11n(20MHz)- 2Tx Chain 0+1							
Horizontal Down	Fixed	149	5745	0.5	-0.17	0.267	1.6
Horizontal Down	Fixed	157	5785	0.5	0.12	0.290	1.6
Horizontal Down	Fixed	165	5825	0.5	0.10	0.302	1.6
Test Mode: 802.11n(40MHz)- 1Tx Chain 1							
Horizontal Down	Fixed	38	5190	0.5	0.15	0.189	1.6
Horizontal Down	Fixed	46	5230	0.5	0.10	0.201	1.6
Test Mode: 802.11n(40MHz)- 2Tx Chain 0+1							
Horizontal Down	Fixed	151	5755	0.5	-0.17	0.386	1.6

Test Mode: 802.11n(40MHz)- 2Tx Chain 0+1							
Horizontal Down	Fixed	159	5795	0.5	0.10	0.377	1.6

Appendix A. SAR System Validation Data

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

System Check Body 2450MHz

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2

Communication System: CW; Communication System Band: D2450(2450MHz); Duty Cycle: 1:1; Frequency: 2450 MHz; Medium parameters used: f = 2450 MHz; σ = 1.98 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3 ; Phantom section: Flat Section ; Input Power=250mW

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

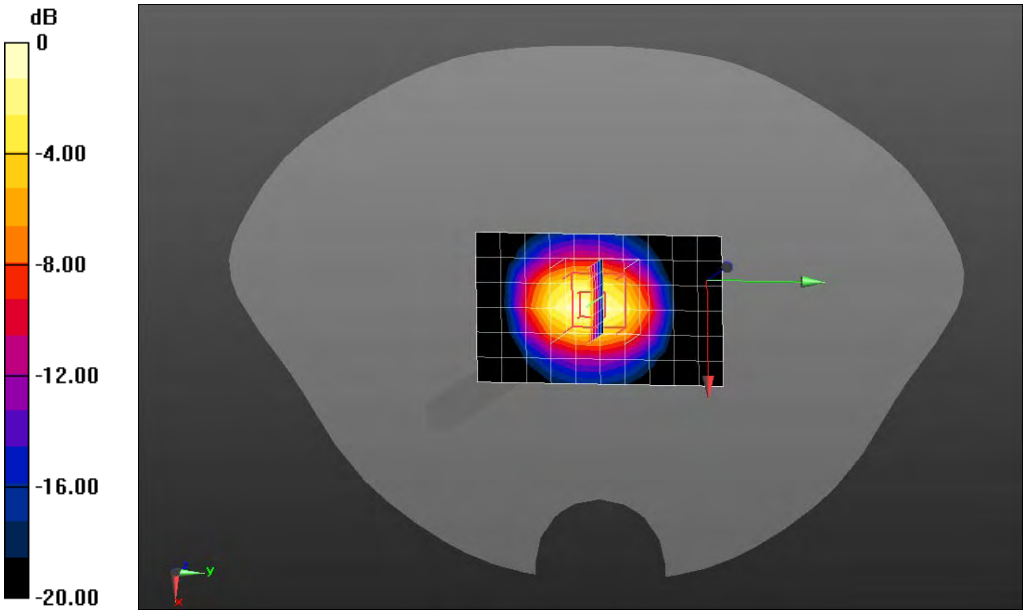
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/System Check Body 2450MHz/Area Scan (7x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 13.2 mW/g

Configuration/System Check Body 2450MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 81.523 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 25.756 mW/g

SAR(1 g) = 12.2 mW/g; SAR(10 g) = 5.54 mW/g Maximum value of SAR (measured) = 14.0 mW/g



0 dB = 14.0 mW/g = 22.92 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

System Check Body 5200MHz

DUT: Dipole D5GHzV2; Type: D5GHzV2

Communication System: CW; Communication System Band: 5GHz; Duty Cycle: 1:1; Frequency: 5200 MHz; Medium parameters used: f = 5200 MHz; σ = 5.15 mho/m; ε_r = 48.94; ρ = 1000 kg/m^3 ; Phantom section: Flat Section ; Input Power=100mW

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

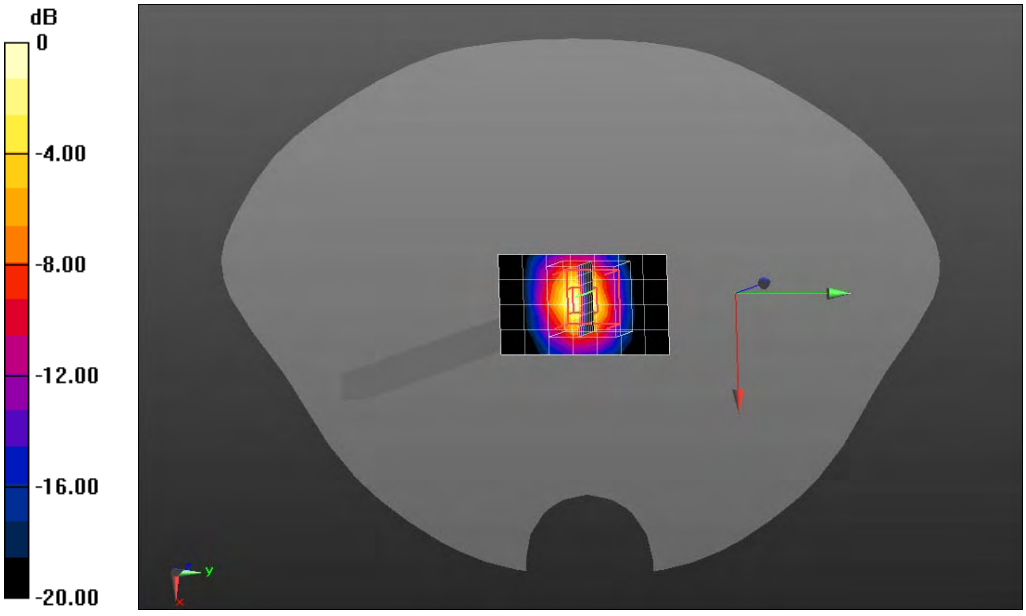
- Probe: EX3DV4 - SN3710; ConvF(4.2, 4.2, 4.2); Calibrated: 12/03/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/System Check Body 5200MHz/Area Scan (5x8x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 14.0 mW/g

Configuration/System Check Body 5200MHz/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 41.966 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 28.911 mW/g

SAR(1 g) = 7.67 mW/g; SAR(10 g) = 2.16 mW/g Maximum value of SAR (measured) = 15.2 mW/g



0 dB = 15.2 mW/g = 23.64 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

System Check Body 5800MHz

DUT: Dipole D5GHzV2; Type: D5GHzV2

Communication System: CW; Communication System Band: 5GHz; Duty Cycle: 1:1; Frequency: 5800 MHz; Medium parameters used: f = 5800 MHz; σ = 6.04 mho/m; ε_r = 47.29; ρ = 1000 kg/m^3 ; Phantom section: Flat Section ; Input Power=100mW

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

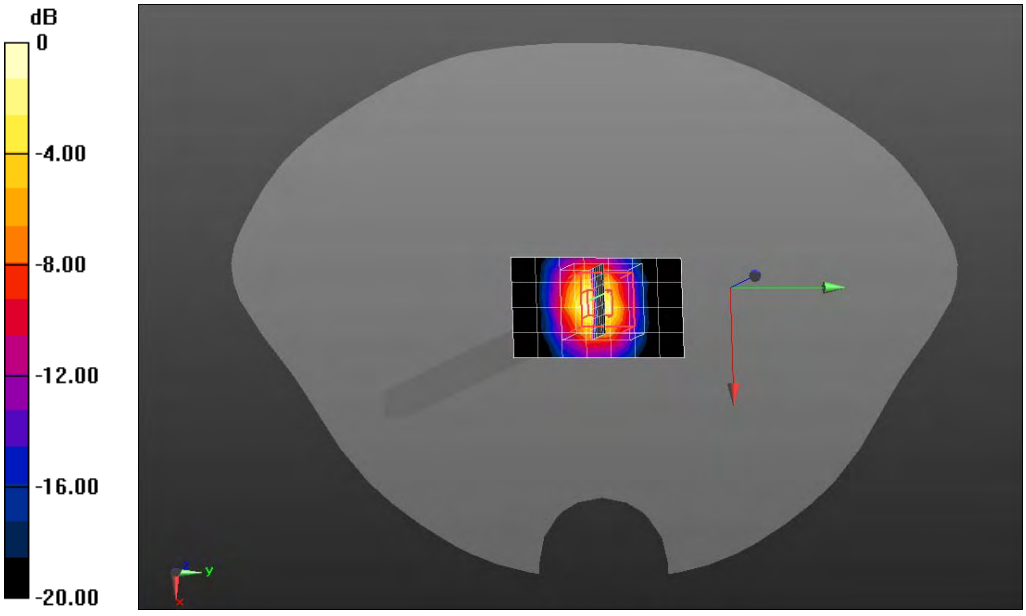
- Probe: EX3DV4 - SN3710; ConvF(3.89, 3.89, 3.89); Calibrated: 12/03/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/System Check Body 5800MHz/Area Scan (5x8x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 13.2 mW/g

Configuration/System Check Body 5800MHz/Zoom Scan (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 38.530 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 31.055 mW/g

SAR(1 g) = 7.51 mW/g; SAR(10 g) = 2.07 mW/g Maximum value of SAR (measured) = 15.1 mW/g



0 dB = 15.1 mW/g = 23.58 dB mW/g

Appendix B. SAR measurement Data

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11b Low-Horizontal Up-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2412 MHz; Medium parameters used: f = 2412 MHz; σ = 1.92 mho/m; ε_r = 52.38; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

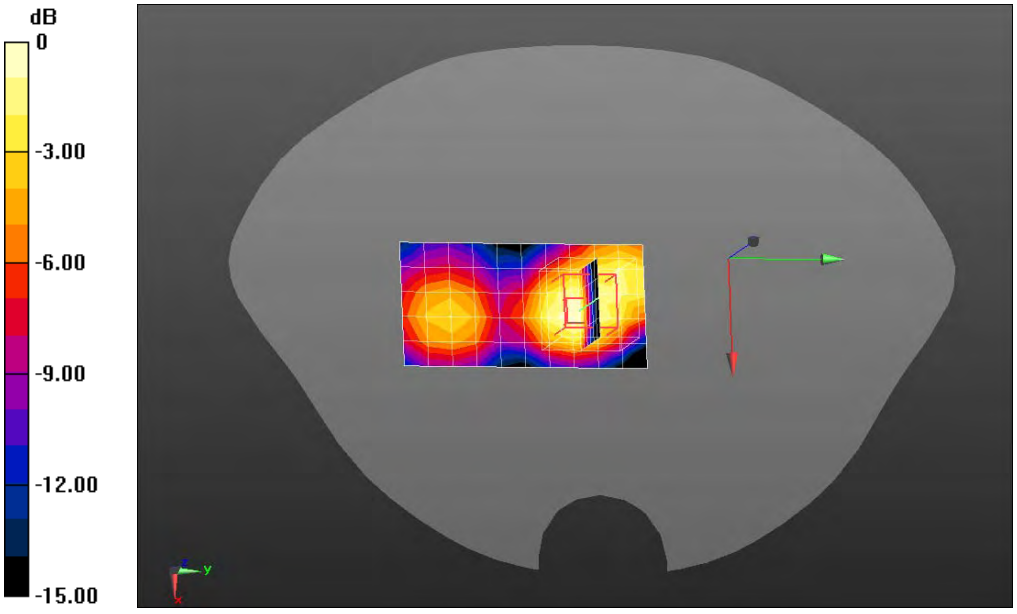
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11b Low-Horizontal Up/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.349 mW/g

Configuration/802.11b Low-Horizontal Up/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 12.425 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.602 mW/g

SAR(1 g) = 0.319 mW/g; SAR(10 g) = 0.161 mW/g Maximum value of SAR (measured) = 0.353 mW/g



0 dB = 0.353 mW/g = -9.04 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11b Low-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2412 MHz; Medium parameters used: f = 2412 MHz; σ = 1.92 mho/m; ε_r = 52.38; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

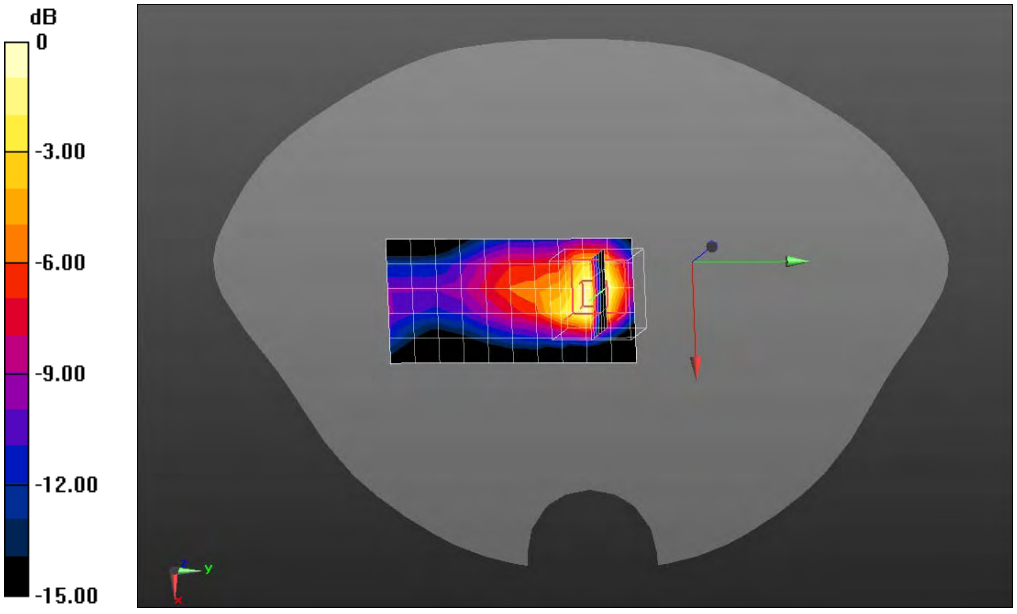
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11b Low-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.802 mW/g

Configuration/802.11b Low-Horizontal Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 21.368 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.865 mW/g

SAR(1 g) = 0.815 mW/g; SAR(10 g) = 0.354 mW/g Maximum value of SAR (measured) = 0.907 mW/g



0 dB = 0.907 mW/g = -0.85 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11b Mid-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2437 MHz; Medium parameters used: f = 2437 MHz; σ = 1.96 mho/m; ε_r = 52.24; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

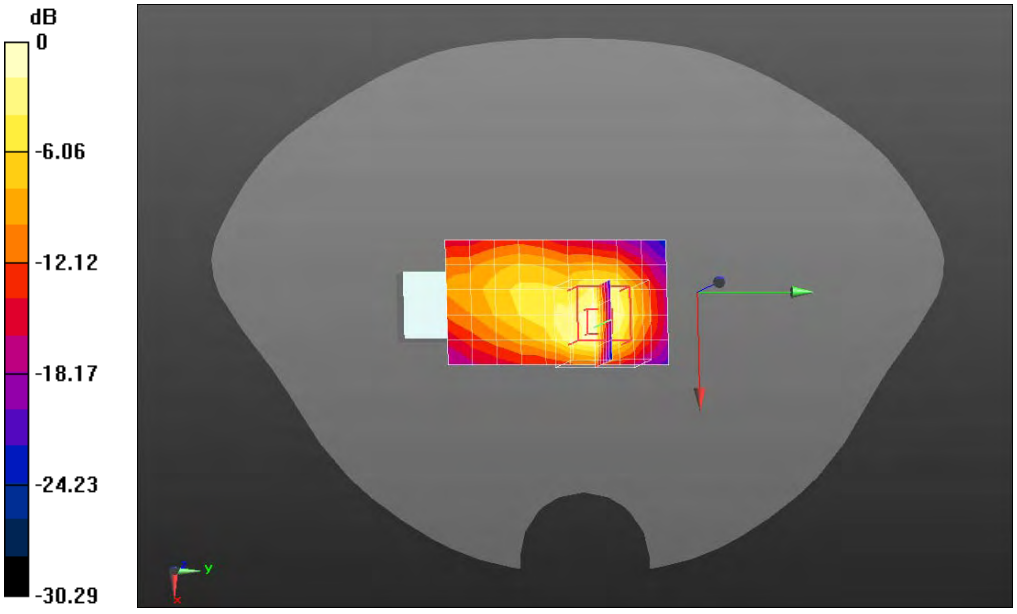
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11b Mid-Horizontal Down/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.816 mW/g

Configuration/802.11b Mid-Horizontal Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 14.543 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.841 mW/g

SAR(1 g) = 0.795 mW/g; SAR(10 g) = 0.340 mW/g Maximum value of SAR (measured) = 0.912 mW/g



0 dB = 0.912 mW/g = -0.80 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11b High-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2462 MHz; Medium parameters used: f = 2462 MHz; σ = 1.99 mho/m; ε_r = 52.18; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

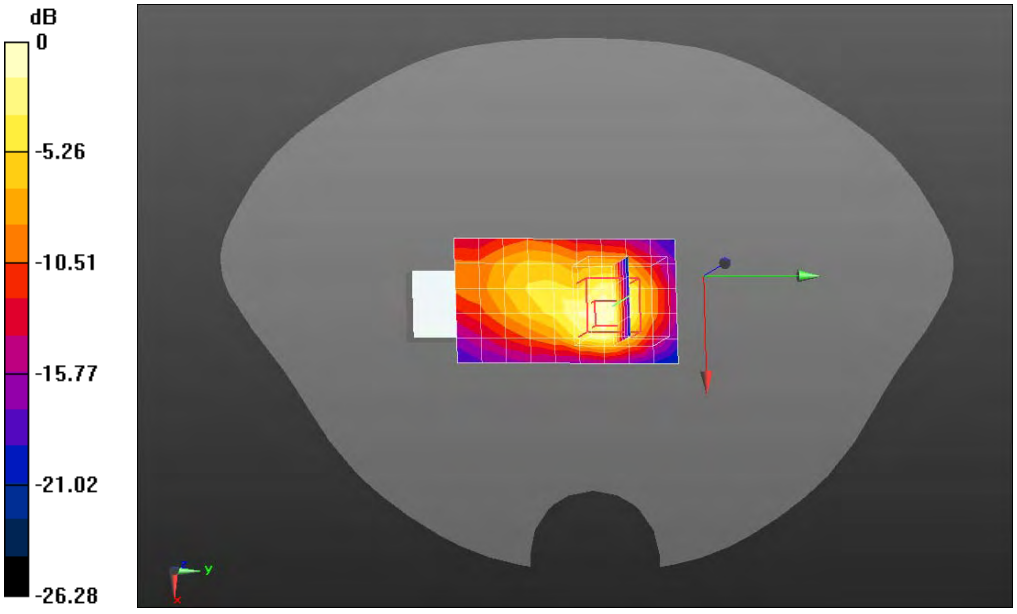
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11b High-Horizontal Down/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 1.15 mW/g

Configuration/802.11b High-Horizontal Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 17.714 V/m; Power Drift = -0.16 dB

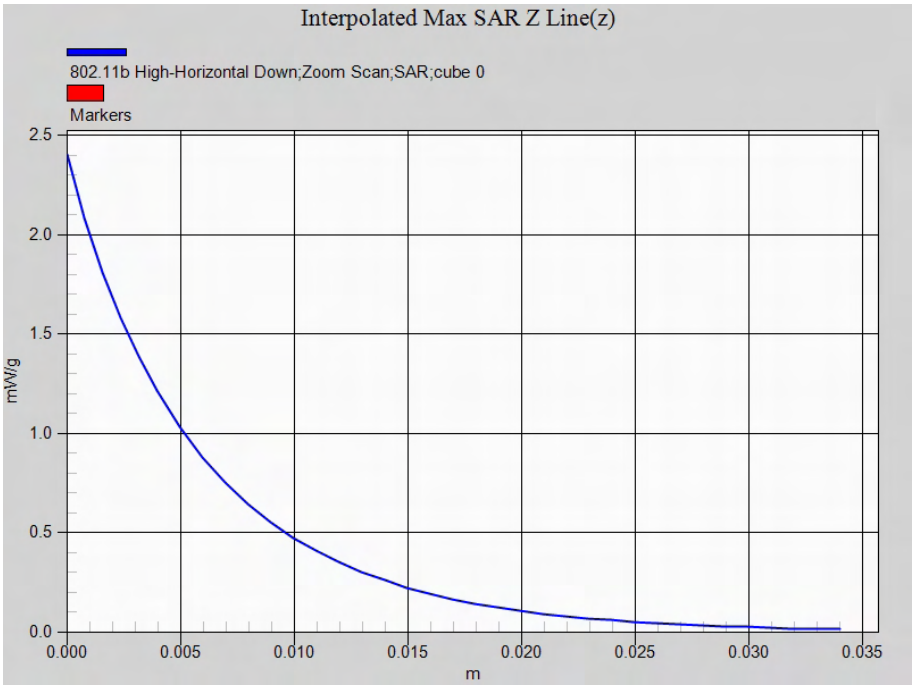
Peak SAR (extrapolated) = 2.407 mW/g

SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.428 mW/g Maximum value of SAR (measured) = 1.06 mW/g



0 dB = 1.06 mW/g = 0.51 dB mW/g

Z-Axis Plot


Interpolated Max SAR Z Line(z)
802.11b High-Horizontal Down;Zoom Scan;SAR;cube 0
Markers
mW/g
2.5
2.0
1.5
1.0
0.5
0.0
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
m

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11b Low-Vertical Front-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2412 MHz; Medium parameters used: f = 2412 MHz; σ = 1.92 mho/m; ε_r = 52.38; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

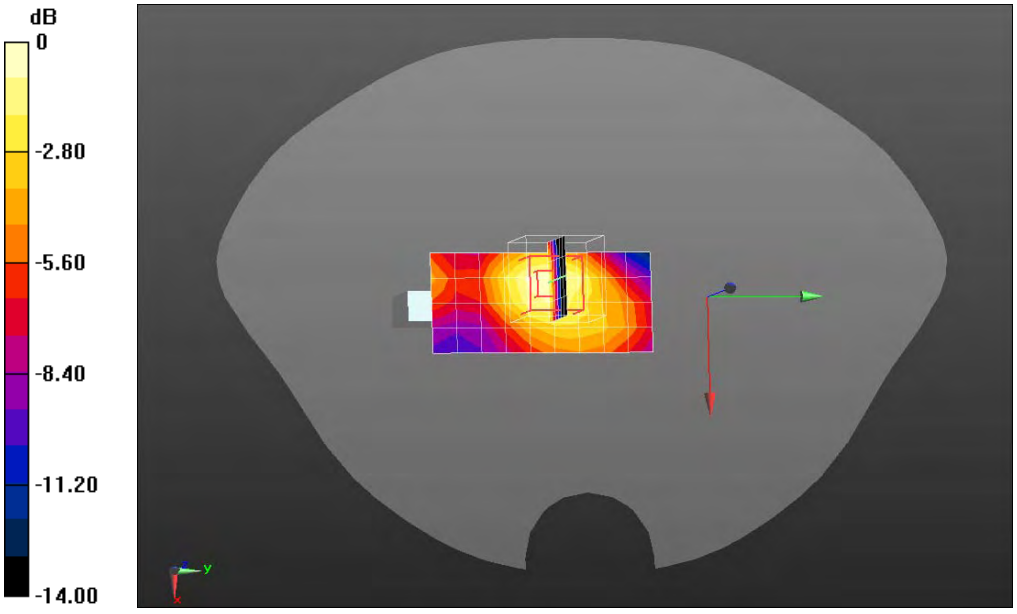
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11b Low-Vertical Front/Area Scan (5x10x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.128 mW/g

Configuration/802.11b Low-Vertical Front/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 6.205 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.236 mW/g

SAR(1 g) = 0.118 mW/g; SAR(10 g) = 0.060 mW/g Maximum value of SAR (measured) = 0.132 mW/g



0 dB = 0.132 mW/g = -17.59 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11b Low-Vertical Back-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2412 MHz; Medium parameters used: f = 2412 MHz; σ = 1.92 mho/m; ε_r = 52.38; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

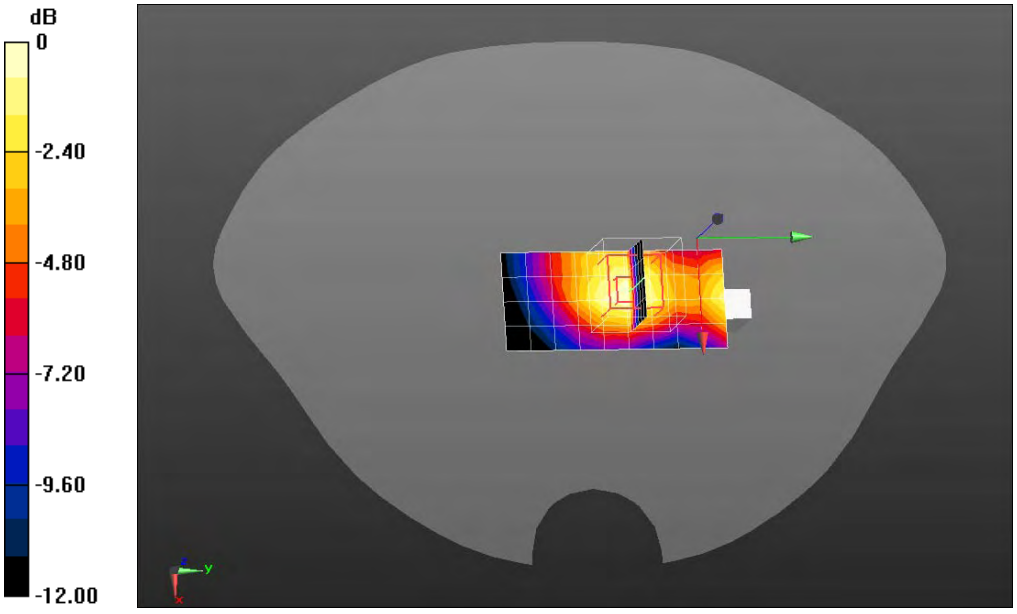
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11b Low-Vertical Back/Area Scan (5x10x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.116 mW/g

Configuration/802.11b Low-Vertical Back/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 5.754 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.202 mW/g

SAR(1 g) = 0.102 mW/g; SAR(10 g) = 0.051 mW/g Maximum value of SAR (measured) = 0.116 mW/g



0 dB = 0.116 mW/g = -18.71 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11b Low-Tip-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2412 MHz; Medium parameters used: f = 2412 MHz; σ = 1.92 mho/m; ε_r = 52.38; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

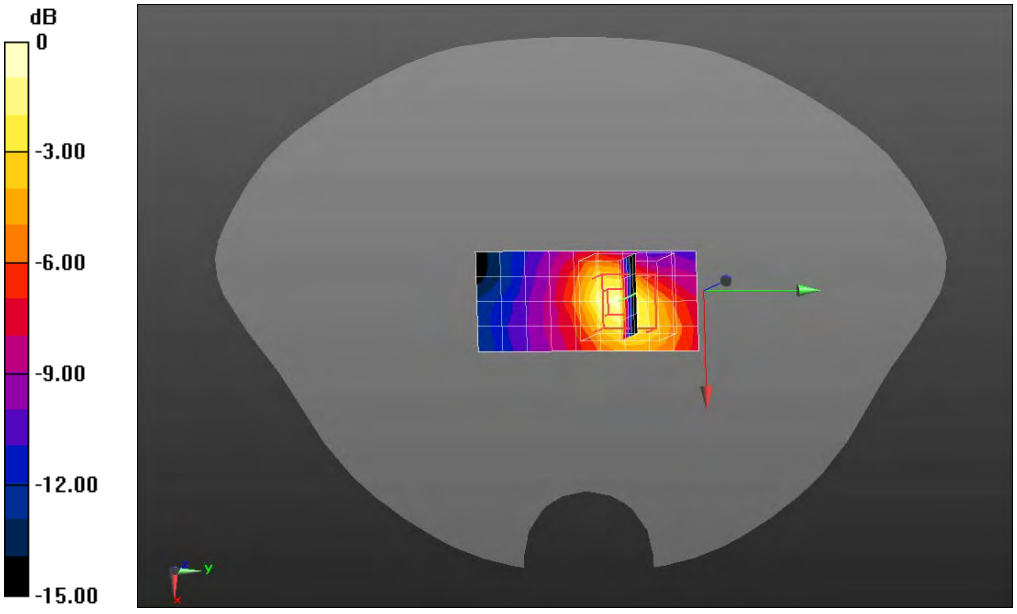
Configuration/802.11b Low-Tip/Area Scan (5x10x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.168 mW/g

Configuration/802.11b Low-Tip/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 6.398 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.341 mW/g

SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.073 mW/g Maximum value of SAR (measured) = 0.181 mW/g



0 dB = 0.181 mW/g = -14.85 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11b Low-Horizontal Down-1TX Chain 0

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11b; Duty Cycle: 1:1; Frequency: 2412 MHz; Medium parameters used: f = 2412 MHz; σ = 1.92 mho/m; ε_r = 52.38; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

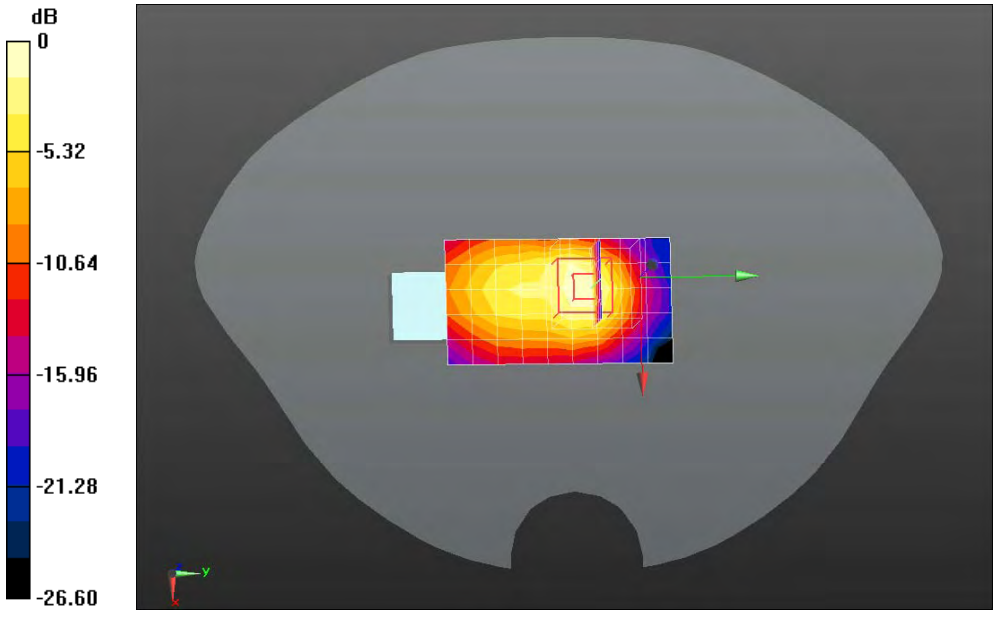
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11b Low-Horizontal Down/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.528 mW/g

Configuration/802.11b Low-Horizontal Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 14.315 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 1.160 mW/g

SAR(1 g) = 0.521 mW/g; SAR(10 g) = 0.238 mW/g Maximum value of SAR (measured) = 0.573 mW/g



0 dB = 0.573 mW/g = -4.84 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11g Low-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11g; Duty Cycle: 1:1; Frequency: 2412 MHz; Medium parameters used: f = 2412 MHz; σ = 1.92 mho/m; ε_r = 52.38; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

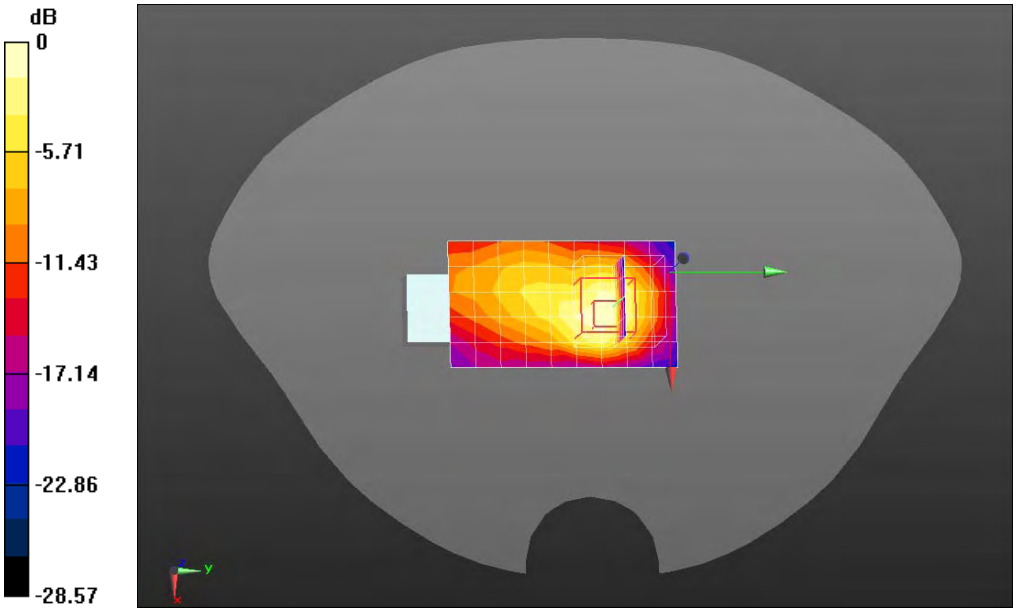
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11g Low-Horizontal Down/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.434 mW/g

Configuration/802.11g Low-Horizontal Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 11.329 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.867 mW/g

SAR(1 g) = 0.378 mW/g; SAR(10 g) = 0.162 mW/g Maximum value of SAR (measured) = 0.401 mW/g



0 dB = 0.401 mW/g = -7.94 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11g Mid-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11g; Duty Cycle: 1:1; Frequency: 2437 MHz; Medium parameters used: f = 2437 MHz; σ = 1.96 mho/m; ε_r = 52.24; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

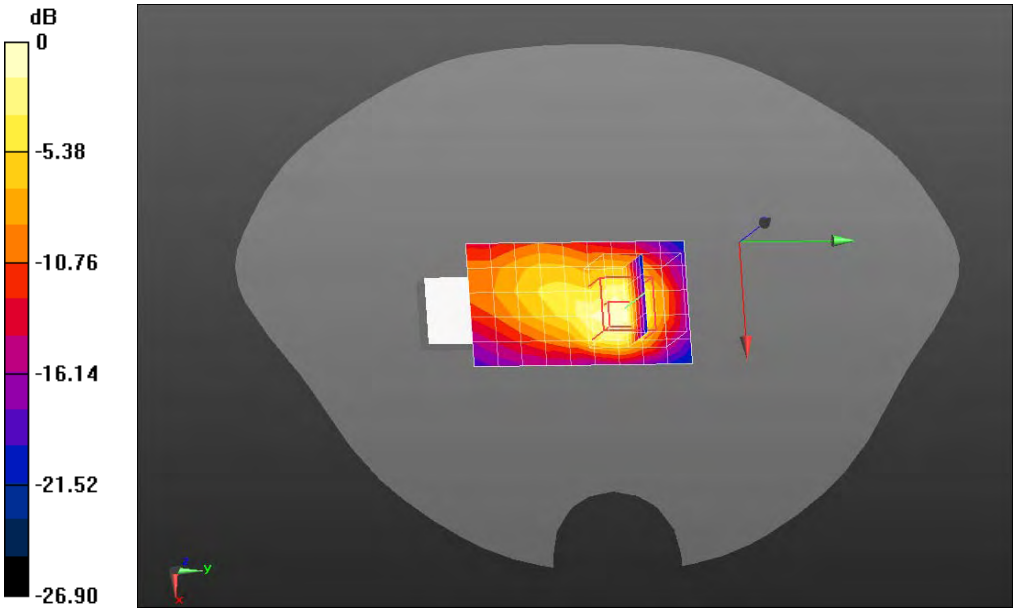
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11g Mid-Horizontal Down/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 1.11 mW/g

Configuration/802.11g Mid-Horizontal Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 17.913 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 2.328 mW/g

SAR(1 g) = 0.990 mW/g; SAR(10 g) = 0.419 mW/g Maximum value of SAR (measured) = 1.04 mW/g



0 dB = 1.04 mW/g = 0.34 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11g High-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11g; Duty Cycle: 1:1; Frequency: 2462 MHz; Medium parameters used: f = 2462 MHz; σ = 1.99 mho/m; ε_r = 52.18; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

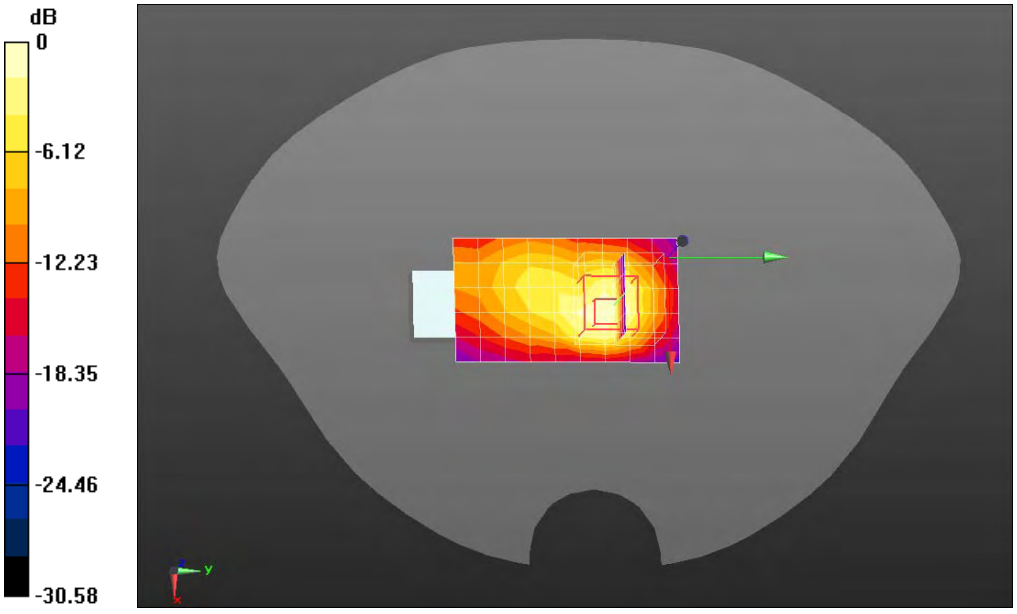
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11g High-Horizontal Down/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.755 mW/g

Configuration/802.11g High-Horizontal Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 14.166 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.591 mW/g

SAR(1 g) = 0.671 mW/g; SAR(10 g) = 0.280 mW/g Maximum value of SAR (measured) = 0.699 mW/g



0 dB = 0.699 mW/g = -3.11 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11n(20MHz) Low-Horizontal Down-2TX Chain 0+1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11n(20MHz); Duty Cycle: 1:1; Frequency: 2412 MHz; Medium parameters used: f = 2412 MHz; σ = 1.92 mho/m; ε_r = 52.38; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

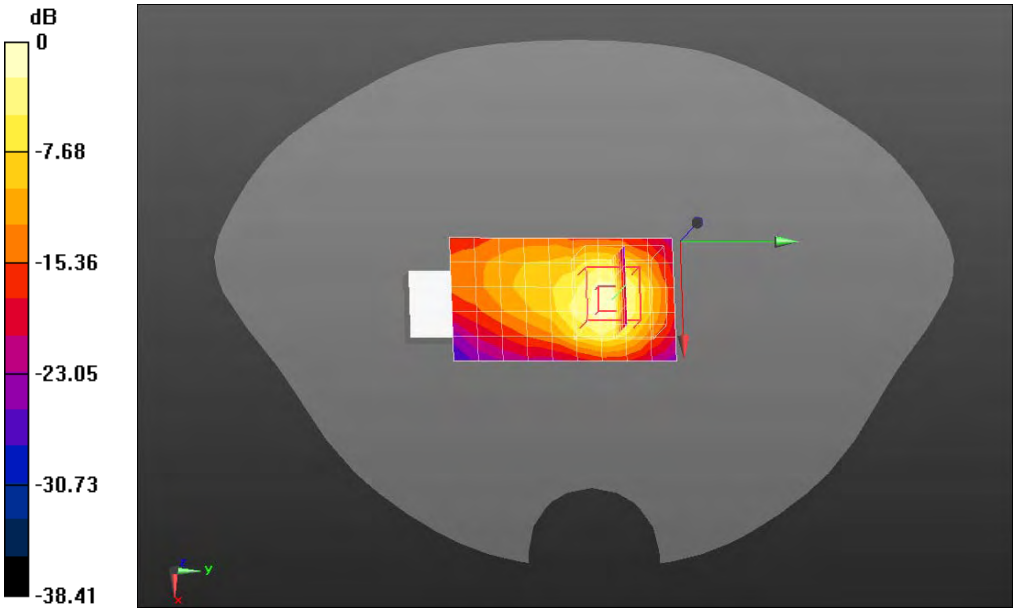
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(20MHz) Low-Horizontal Down/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.633 mW/g

Configuration/802.11n(20MHz) Low-Horizontal Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 14.426 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.480 mW/g

SAR(1 g) = 0.630 mW/g; SAR(10 g) = 0.262 mW/g Maximum value of SAR (measured) = 0.726 mW/g



0 dB = 0.726 mW/g = -2.78 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11n(20MHz) Mid-Horizontal Down-2TX Chain 0+1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11n(20MHz); Duty Cycle: 1:1; Frequency: 2437 MHz; Medium parameters used: f = 2437 MHz; σ = 1.96 mho/m; ε_r = 52.24; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

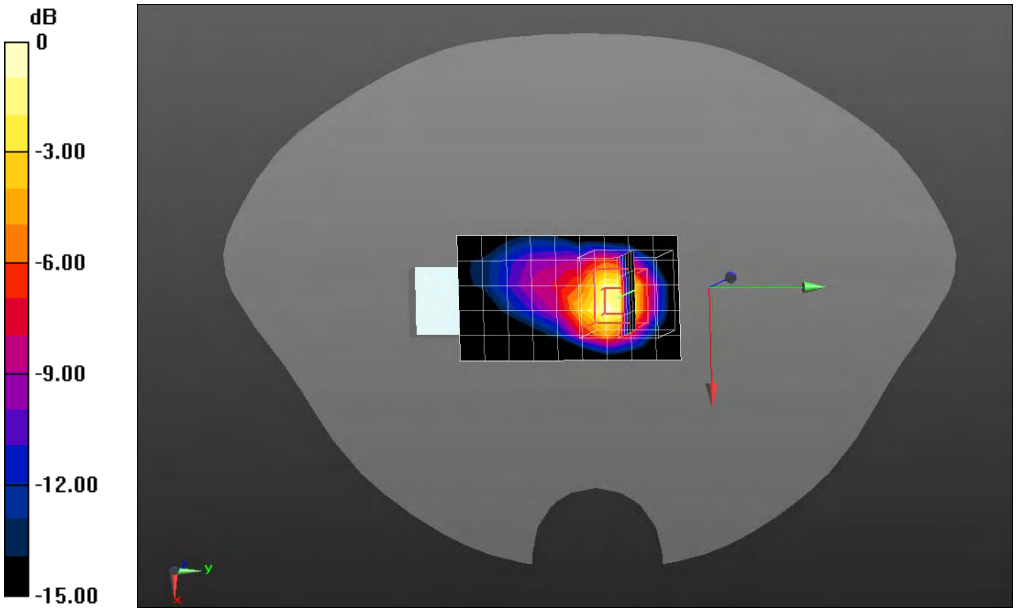
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(20MHz) Mid-Horizontal Down/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 1.06 mW/g

Configuration/802.11n(20MHz) Mid-Horizontal Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 17.926 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 2.414 mW/g

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.415 mW/g Maximum value of SAR (measured) = 1.15 mW/g



0 dB = 1.15 mW/g = 1.21 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11n(20MHz) High-Horizontal Down-2TX Chain 0+1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11n(20MHz); Duty Cycle: 1:1; Frequency: 2462 MHz; Medium parameters used: f = 2462 MHz; σ = 1.99 mho/m; ε_r = 52.18; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

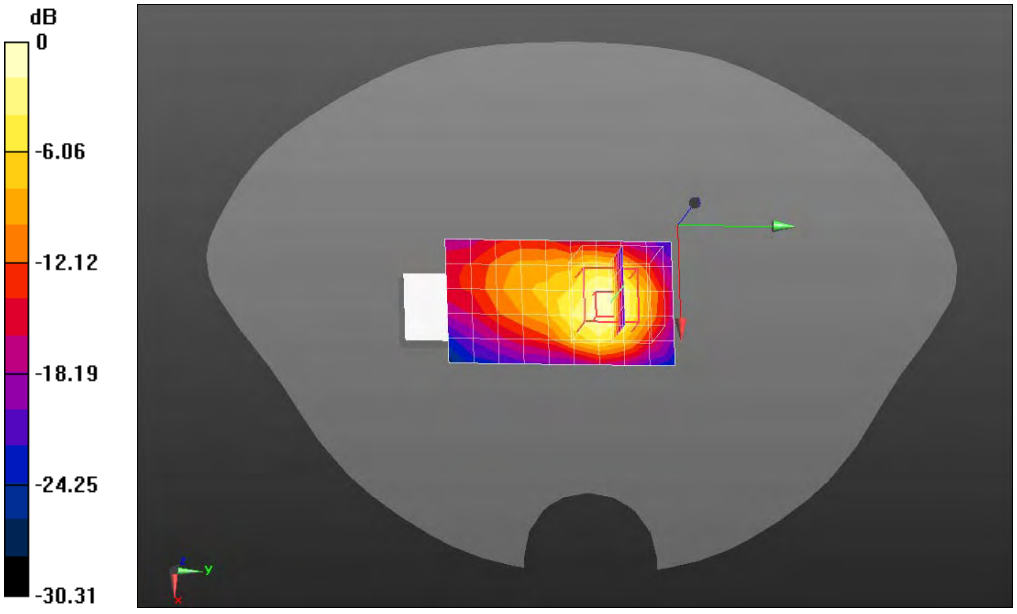
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(20MHz) High-Horizontal Down/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.899 mW/g

Configuration/802.11n(20MHz) High-Horizontal Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 16.350 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 2.111 mW/g

SAR(1 g) = 0.879 mW/g; SAR(10 g) = 0.365 mW/g Maximum value of SAR (measured) = 1.00 mW/g



0 dB = 1.00 mW/g = 0.00 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11n(40MHz) Low-Horizontal Down-2TX Chain 0+1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11n(40MHz); Duty Cycle: 1:1; Frequency: 2422 MHz; Medium parameters used: f = 2422 MHz; σ = 1.93 mho/m; ε_r = 52.34; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

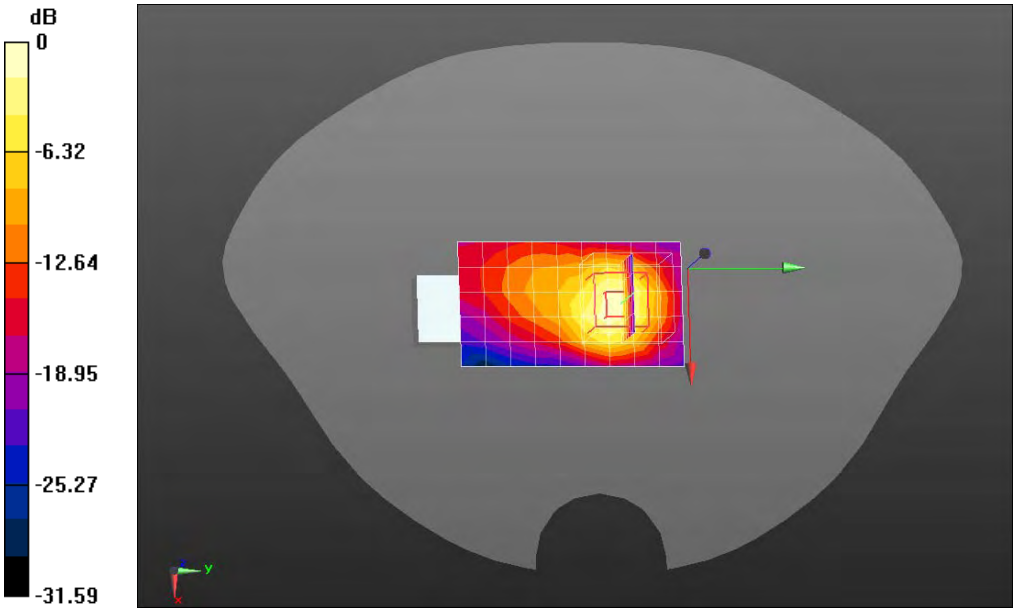
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(40MHz) Low-Horizontal Down/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.563 mW/g

Configuration/802.11n(40MHz) Low-Horizontal Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 13.231 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.293 mW/g

SAR(1 g) = 0.544 mW/g; SAR(10 g) = 0.224 mW/g Maximum value of SAR (measured) = 0.626 mW/g



0 dB = 0.626 mW/g = -4.07 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11n(40MHz) Mid-Horizontal Down-2TX Chain 0+1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11n(40MHz); Duty Cycle: 1:1; Frequency: 2437 MHz; Medium parameters used: f = 2437 MHz; σ = 1.96 mho/m; ε_r = 52.24; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

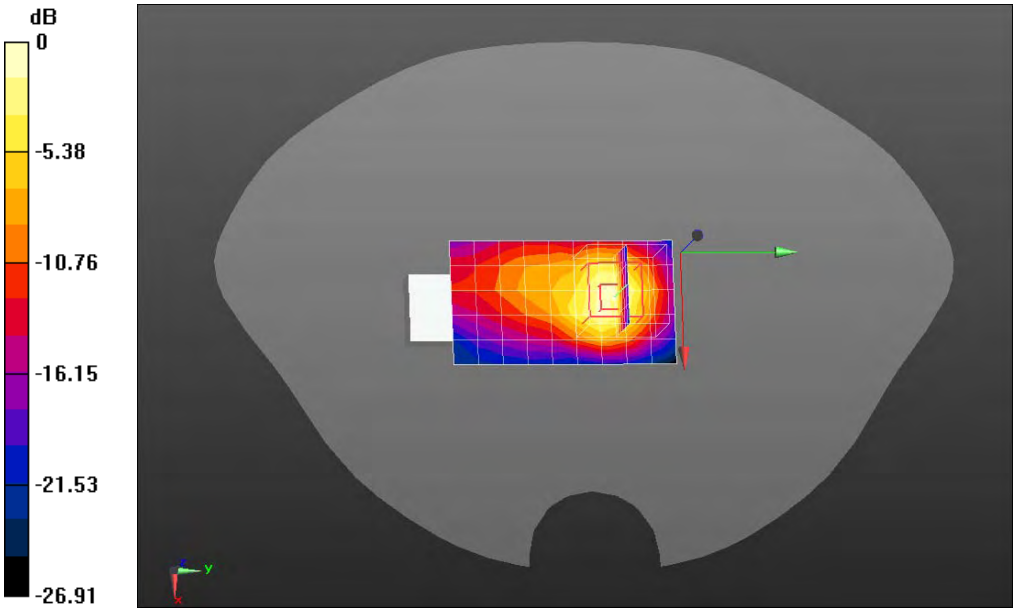
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(40MHz) Mid-Horizontal Down/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.936 mW/g

Configuration/802.11n(40MHz) Mid-Horizontal Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 18.108 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 2.276 mW/g

SAR(1 g) = 1 mW/g; SAR(10 g) = 0.426 mW/g Maximum value of SAR (measured) = 1.14 mW/g



0 dB = 1.14 mW/g = 1.14 dB mW/g

Date/Time: 18-09-2012

Test Laboratory: QuieTek Lab

802.11n(40MHz) High-Horizontal Down-2TX Chain 0+1

DUT: IP-STB; Type: 3400

Communication System: Wi-Fi; Communication System Band: 802.11n(40MHz); Duty Cycle: 1:1; Frequency: 2452 MHz; Medium parameters used: f = 2452 MHz; σ = 1.98 mho/m; ε_r = 52.19; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

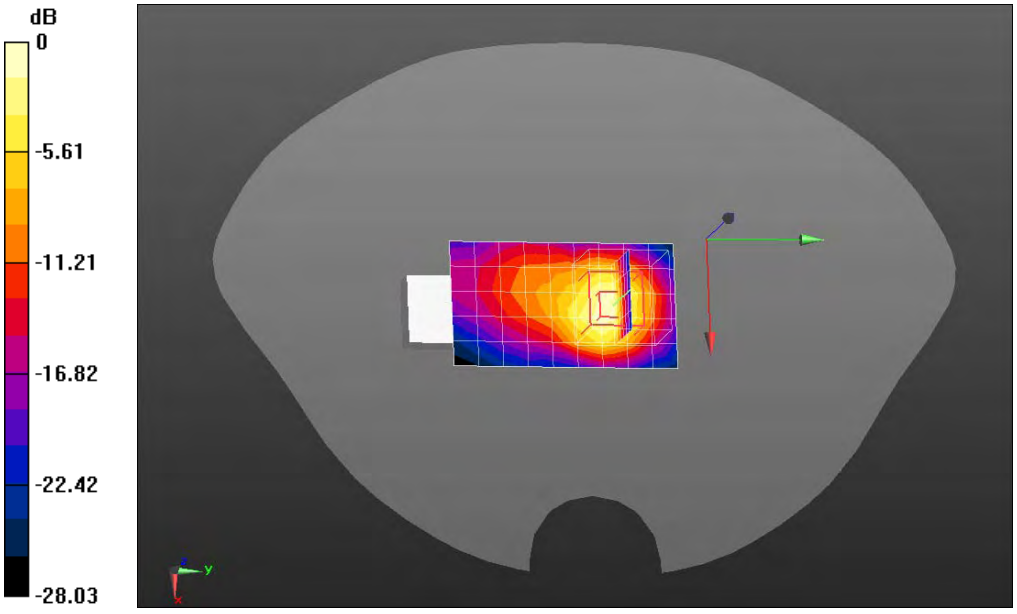
- Probe: EX3DV4 - SN3710; ConvF(6.98, 6.98, 6.98); Calibrated: 12/03/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM1; Type: SAM; Serial: TP1561
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(40MHz) High-Horizontal Down/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.944 mW/g

Configuration/802.11n(40MHz) High-Horizontal Down/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm, Reference Value = 16.970 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 2.242 mW/g

SAR(1 g) = 0.929 mW/g; SAR(10 g) = 0.381 mW/g Maximum value of SAR (measured) = 1.06 mW/g



0 dB = 1.06 mW/g = 0.51 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11a 5825MHz-Horizontal Up-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5825 MHz; Medium parameters used: f = 5825 MHz; σ = 6.08 mho/m; ε_r = 47.23; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

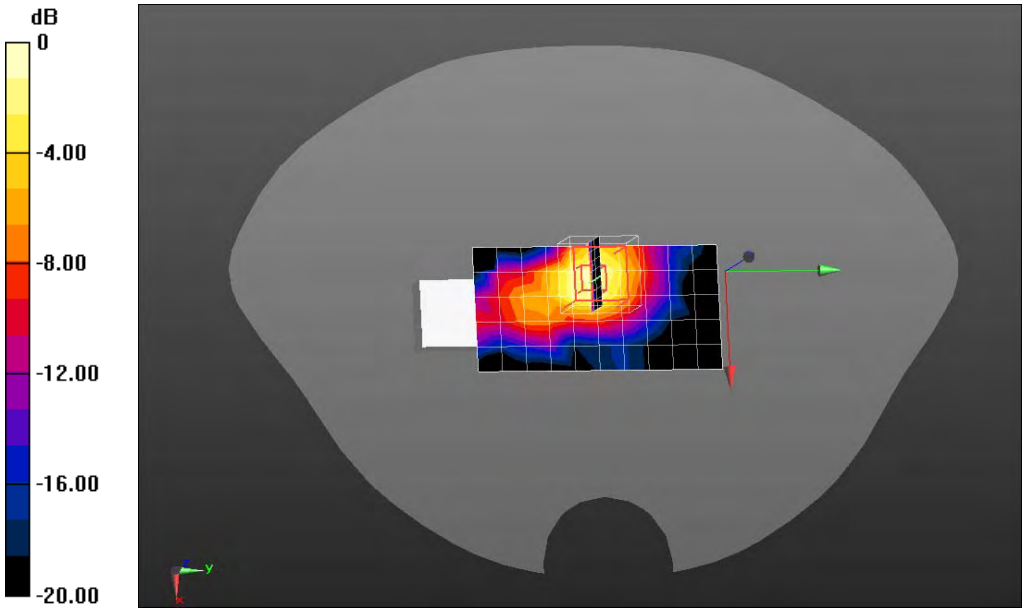
- Probe: EX3DV4 - SN3710; ConvF(3.97, 3.97, 3.97); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11a 5825MHz-Horizontal Up/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.416 mW/g

Configuration/802.11a 5825MHz-Horizontal Up/Zoom Scan (8x8x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 3.997 V/m; Power Drift = 0.74 dB

Peak SAR (extrapolated) = 0.840 mW/g

SAR(1 g) = 0.220 mW/g; SAR(10 g) = 0.074 mW/g Maximum value of SAR (measured) = 0.457 mW/g



0 dB = 0.457 mW/g = -6.80 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11a 5825MHz-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5825 MHz; Medium parameters used: f = 5825 MHz; σ = 6.08 mho/m; ε_r = 47.23; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

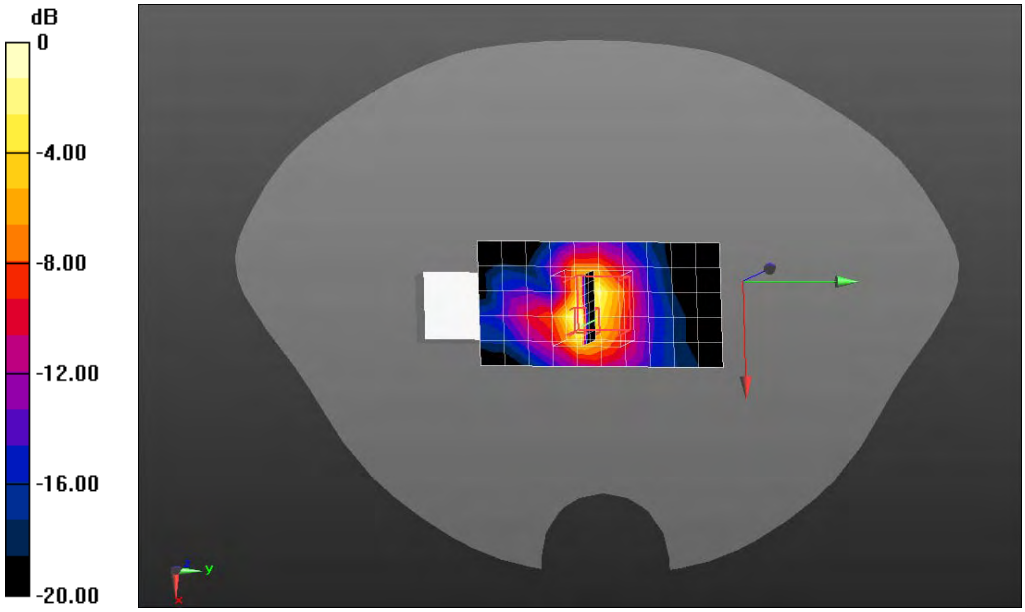
- Probe: EX3DV4 - SN3710; ConvF(3.97, 3.97, 3.97); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11a 5825MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 1.42 mW/g

Configuration/802.11a 5825MHz-Horizontal Down/Zoom Scan (8x8x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 9.093 V/m; Power Drift = 0.10 dB

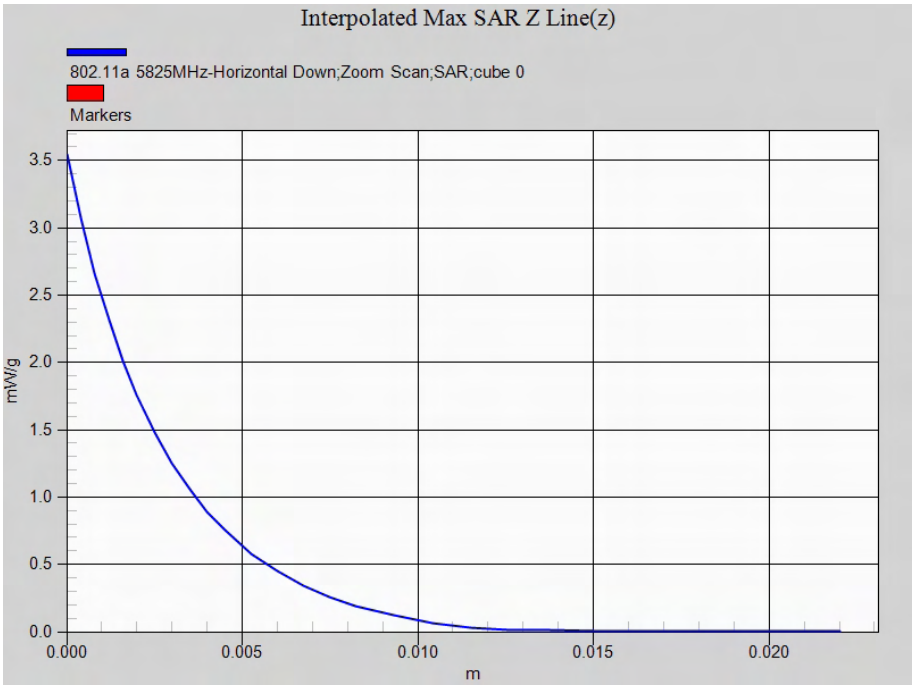
Peak SAR (extrapolated) = 3.549 mW/g

SAR(1 g) = 0.727 mW/g; SAR(10 g) = 0.205 mW/g Maximum value of SAR (measured) = 1.65 mW/g



0 dB = 1.65 mW/g = 4.35 dB mW/g

Z-Axis Plot


Interpolated Max SAR Z Line(z)
802.11a 5825MHz-Horizontal Down;Zoom Scan;SAR;cube 0
Markers
mW/g
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.000
0.005
0.010
0.015
0.020
m

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11a 5825MHz-Vertical Front-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5825 MHz; Medium parameters used: f = 5825 MHz; σ = 6.08 mho/m; ε_r = 47.23; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

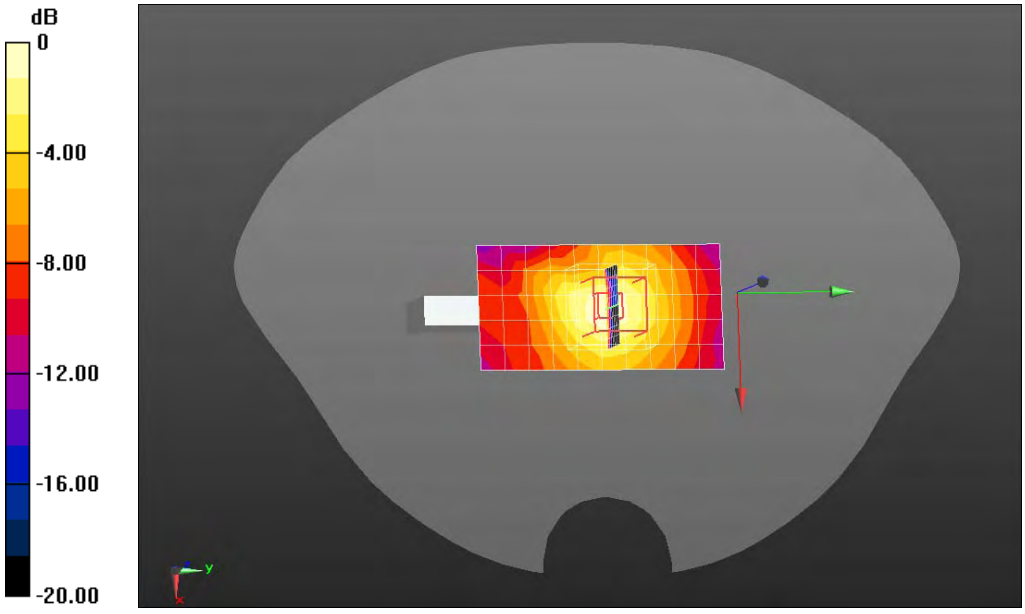
- Probe: EX3DV4 - SN3710; ConvF(3.97, 3.97, 3.97); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11a 5825MHz-Vertical Front/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.306 mW/g

Configuration/802.11a 5825MHz-Vertical Front/Zoom Scan (9x9x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 5.508 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.616 mW/g

SAR(1 g) = 0.165 mW/g; SAR(10 g) = 0.063 mW/g Maximum value of SAR (measured) = 0.329 mW/g



0 dB = 0.329 mW/g = -9.66 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11a 5825MHz-Vertical Back-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5825 MHz; Medium parameters used: f = 5825 MHz; σ = 6.08 mho/m; ε_r = 47.23; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

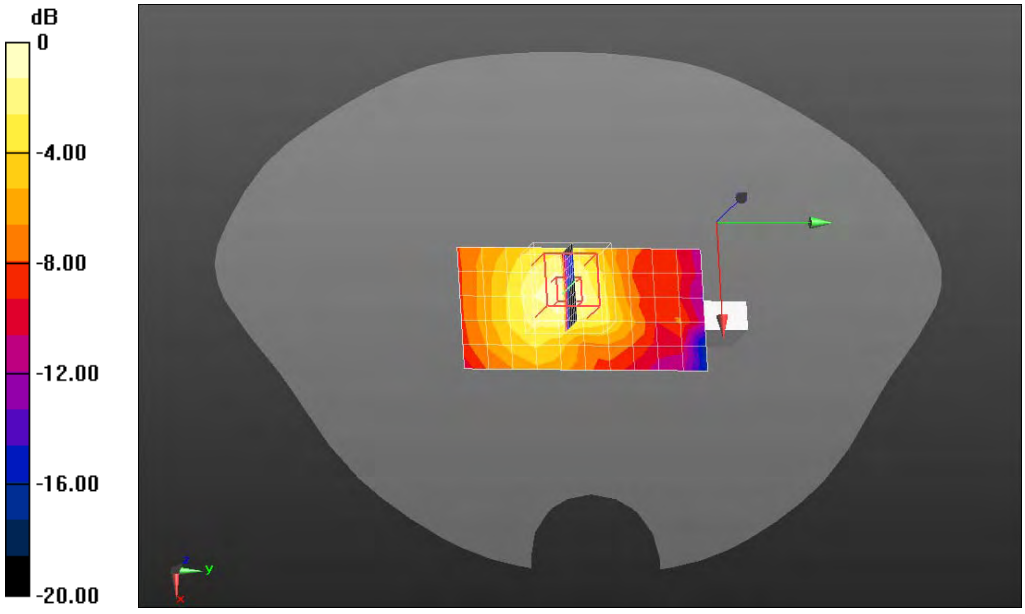
- Probe: EX3DV4 - SN3710; ConvF(3.97, 3.97, 3.97); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11a 5825MHz-Vertical Back/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.274 mW/g

Configuration/802.11a 5825MHz-Vertical Back/Zoom Scan (9x9x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 4.265 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.596 mW/g

SAR(1 g) = 0.142 mW/g; SAR(10 g) = 0.056 mW/g Maximum value of SAR (measured) = 0.280 mW/g



0 dB = 0.280 mW/g = -11.06 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11a 5825MHz-Tip Mode-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5825 MHz; Medium parameters used: f = 5825 MHz; σ = 6.08 mho/m; ε_r = 47.23; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

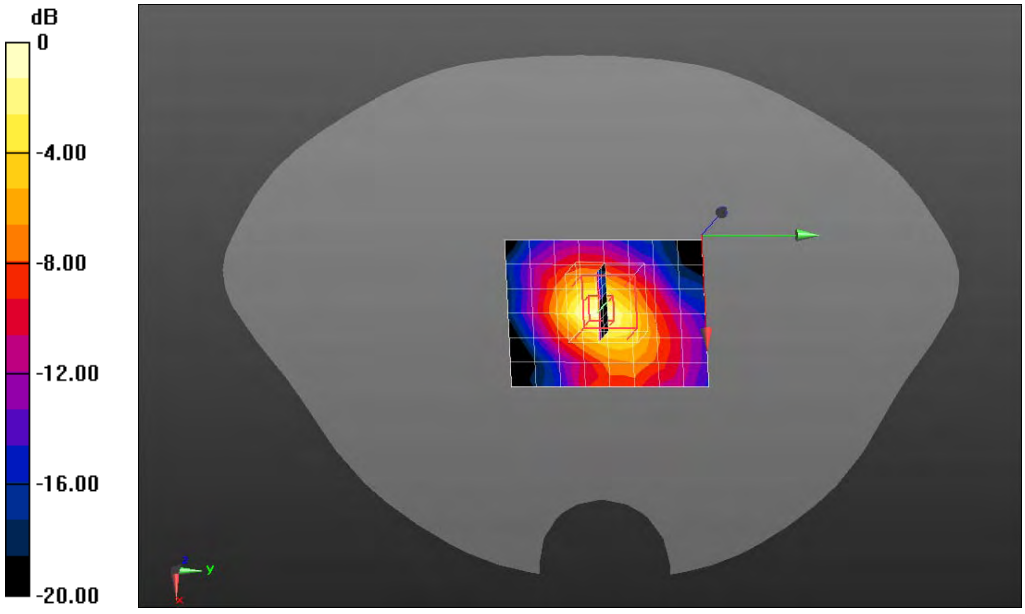
- Probe: EX3DV4 - SN3710; ConvF(3.97, 3.97, 3.97); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11a 5825MHz-Tip Mode/Area Scan (7x9x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (measured) = 0.484 mW/g

Configuration/802.11a 5825MHz-Tip Mode/Zoom Scan (8x8x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 7.020 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.050 mW/g

SAR(1 g) = 0.251 mW/g; SAR(10 g) = 0.081 mW/g Maximum value of SAR (measured) = 0.548 mW/g



0 dB = 0.548 mW/g = -5.22 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11a 5180MHz-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5180 MHz; Medium parameters used: f = 5180 MHz; σ = 5.12 mho/m; ε_r = 49.02; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

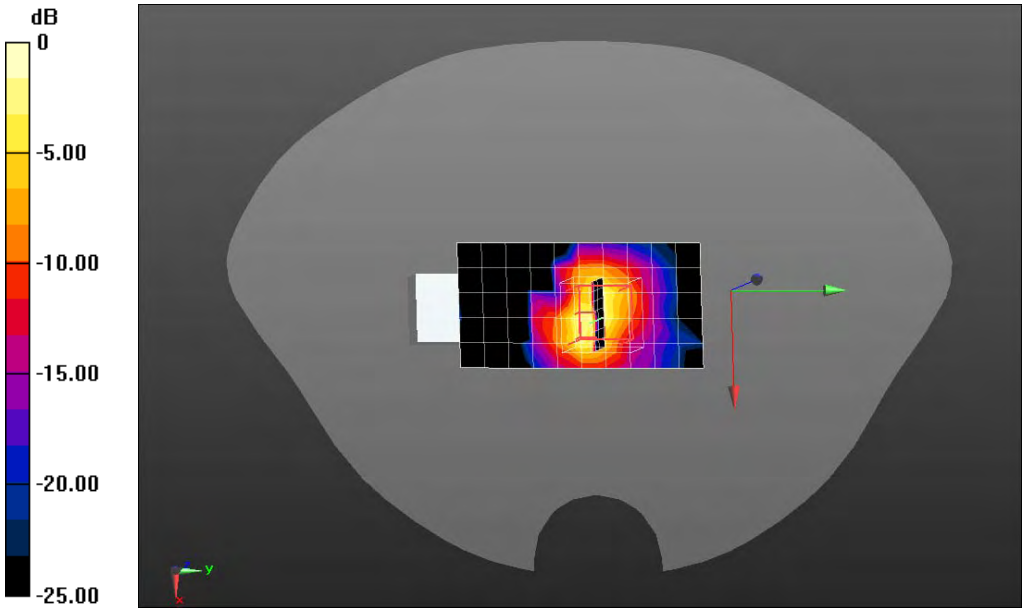
- Probe: EX3DV4 - SN3710; ConvF(4.13, 4.13, 4.13); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11a 5180MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.229 mW/g

Configuration/802.11a 5180MHz-Horizontal Down/Zoom Scan (8x8x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 4.081 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.596 mW/g

SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.040 mW/g Maximum value of SAR (measured) = 0.329 mW/g



0 dB = 0.329 mW/g = -9.66 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11a 5220MHz-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5220 MHz; Medium parameters used: f = 5220 MHz; σ = 5.18 mho/m; ε_r = 48.89; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

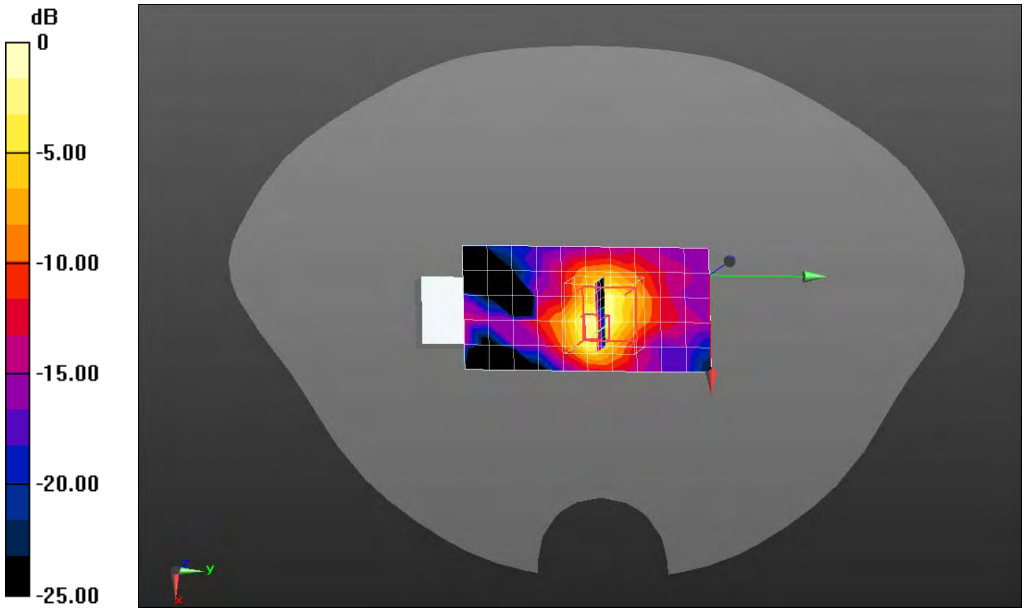
- Probe: EX3DV4 - SN3710; ConvF(4.13, 4.13, 4.13); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11a 5220MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.282 mW/g

Configuration/802.11a 5220MHz-Horizontal Down/Zoom Scan (8x8x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 4.658 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 1.491 mW/g

SAR(1 g) = 0.179 mW/g; SAR(10 g) = 0.049 mW/g Maximum value of SAR (measured) = 0.389 mW/g



0 dB = 0.389 mW/g = -8.20 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11a 5745MHz-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5745 MHz; Medium parameters used: f = 5745 MHz; σ = 5.95 mho/m; ε_r = 47.44; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

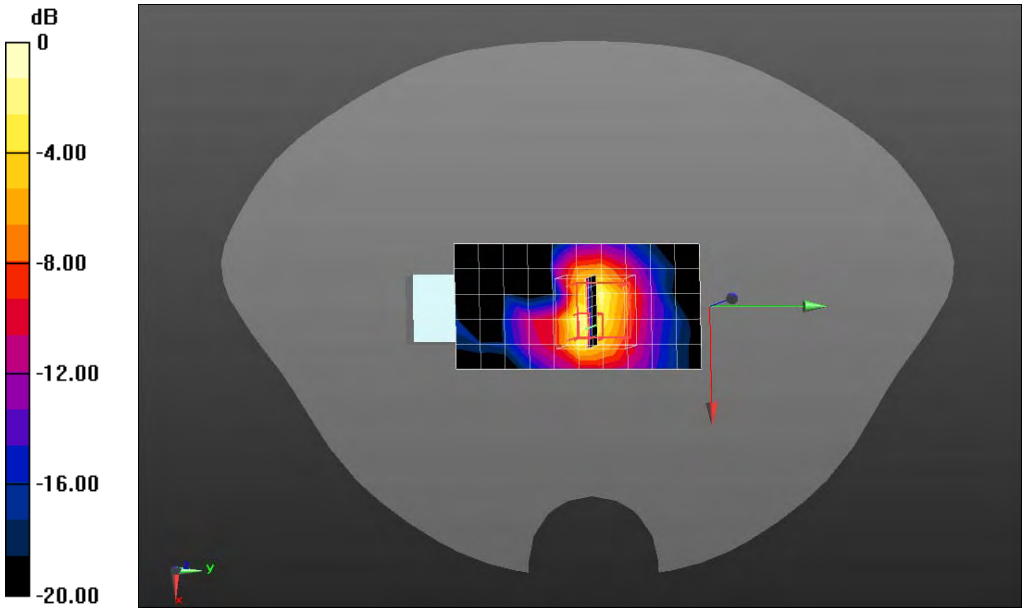
- Probe: EX3DV4 - SN3710; ConvF(3.97, 3.97, 3.97); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11a 5745MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.817 mW/g

Configuration/802.11a 5745MHz-Horizontal Down/Zoom Scan (8x8x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 7.645 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 2.183 mW/g

SAR(1 g) = 0.482 mW/g; SAR(10 g) = 0.147 mW/g Maximum value of SAR (measured) = 1.11 mW/g



0 dB = 1.11 mW/g = 0.91 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11a 5785MHz-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5785 MHz; Medium parameters used: f = 5785 MHz; σ = 6.01 mho/m; ε_r = 47.34; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

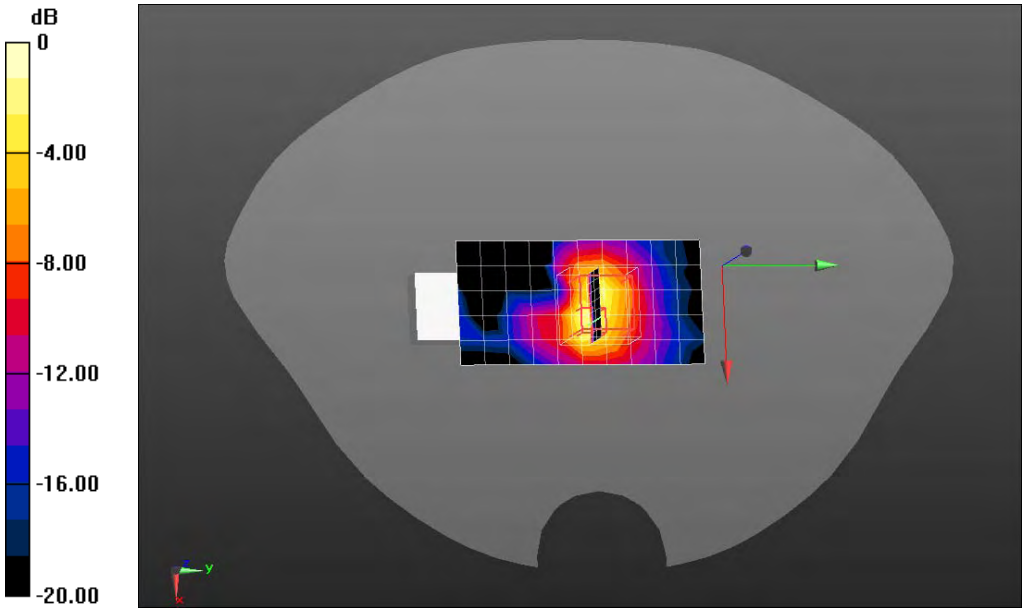
- Probe: EX3DV4 - SN3710; ConvF(3.97, 3.97, 3.97); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11a 5785MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.826 mW/g

Configuration/802.11a 5785MHz-Horizontal Down/Zoom Scan (8x8x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 7.579 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 2.263 mW/g

SAR(1 g) = 0.501 mW/g; SAR(10 g) = 0.147 mW/g Maximum value of SAR (measured) = 1.18 mW/g



0 dB = 1.18 mW/g = 1.44 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11a 5825MHz-Horizontal Down-1TX Chain 0

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5825 MHz; Medium parameters used: f = 5825 MHz; σ = 6.08 mho/m; ε_r = 47.23; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

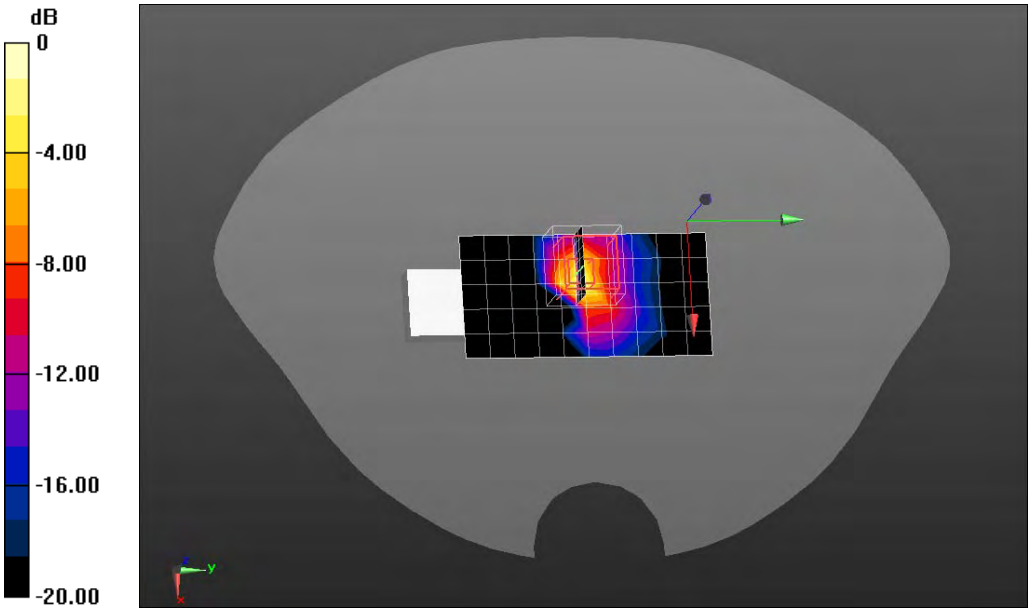
- Probe: EX3DV4 - SN3710; ConvF(3.97, 3.97, 3.97); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11a 5825MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.665 mW/g

Configuration/802.11a 5825MHz-Horizontal Down/Zoom Scan (8x8x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 4.593 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.760 mW/g

SAR(1 g) = 0.369 mW/g; SAR(10 g) = 0.080 mW/g Maximum value of SAR (measured) = 0.977 mW/g



0 dB = 0.977 mW/g = -0.20 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11n(20MHz) 5200MHz-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5200 MHz; Medium parameters used: f = 5200 MHz; σ = 5.15 mho/m; ε_r = 48.94; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

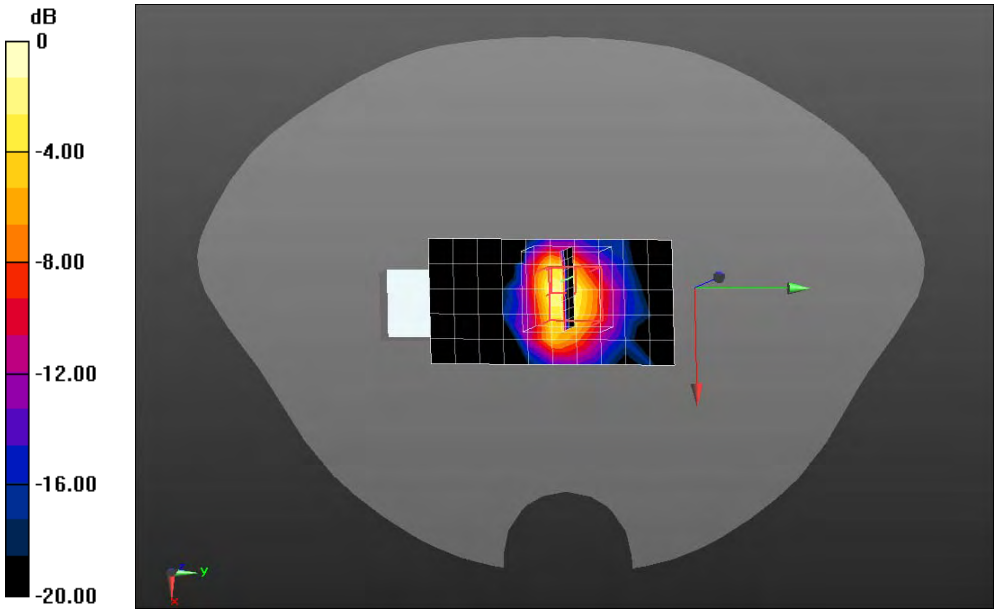
- Probe: EX3DV4 - SN3710; ConvF(4.13, 4.13, 4.13); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(20MHz) 5200MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.412 mW/g

Configuration/802.11n(20MHz) 5200MHz-Horizontal Down/Zoom Scan (9x9x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 5.513 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.928 mW/g

SAR(1 g) = 0.232 mW/g; SAR(10 g) = 0.069 mW/g Maximum value of SAR (measured) = 0.532 mW/g



0 dB = 0.532 mW/g = -5.48 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11n(20MHz) 5220MHz-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5220 MHz; Medium parameters used: f = 5220 MHz; σ = 5.18 mho/m; ε_r = 48.89; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

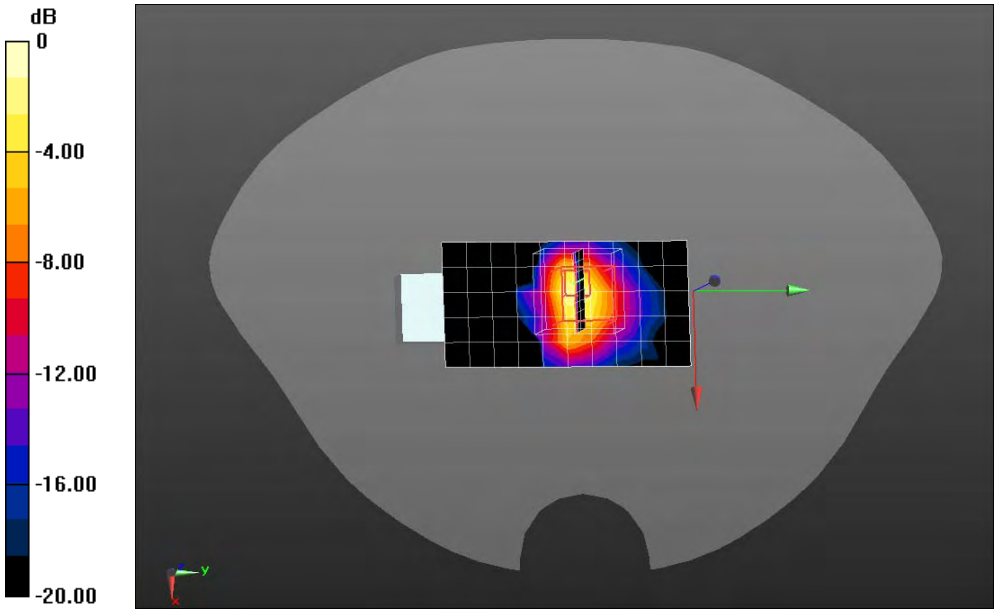
- Probe: EX3DV4 - SN3710; ConvF(4.13, 4.13, 4.13); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(20MHz) 5220MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.445 mW/g

Configuration/802.11n(20MHz) 5220MHz-Horizontal Down/Zoom Scan (9x9x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 5.642 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.004 mW/g

SAR(1 g) = 0.252 mW/g; SAR(10 g) = 0.070 mW/g Maximum value of SAR (measured) = 0.586 mW/g



0 dB = 0.586 mW/g = -4.64 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11n(20MHz) 5745MHz-Horizontal Down-2TX Chain 0+1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5745 MHz; Medium parameters used: f = 5745 MHz; σ = 5.95 mho/m; ε_r = 47.44; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

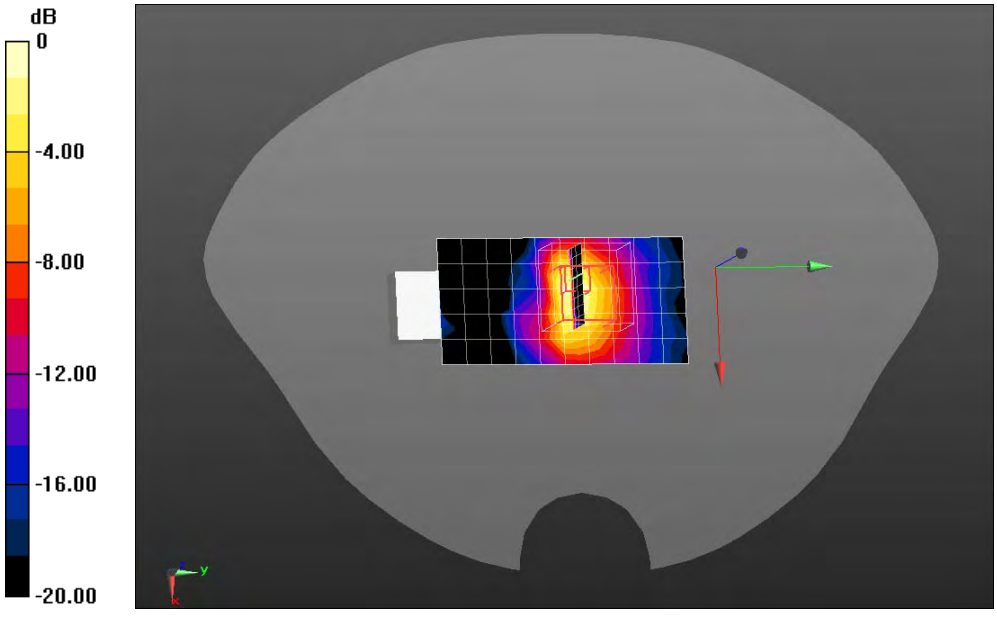
- Probe: EX3DV4 - SN3710; ConvF(3.97, 3.97, 3.97); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(20MHz) 5745MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.557 mW/g

Configuration/802.11n(20MHz) 5745MHz-Horizontal Down/Zoom Scan (9x9x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 6.427 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 2.711 mW/g

SAR(1 g) = 0.267 mW/g; SAR(10 g) = 0.086 mW/g Maximum value of SAR (measured) = 0.689 mW/g



0 dB = 0.689 mW/g = -3.24 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11n(20MHz) 5785MHz-Horizontal Down-2TX Chain 0+1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5785 MHz; Medium parameters used: f = 5785 MHz; σ = 6.01 mho/m; ε_r = 47.34; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

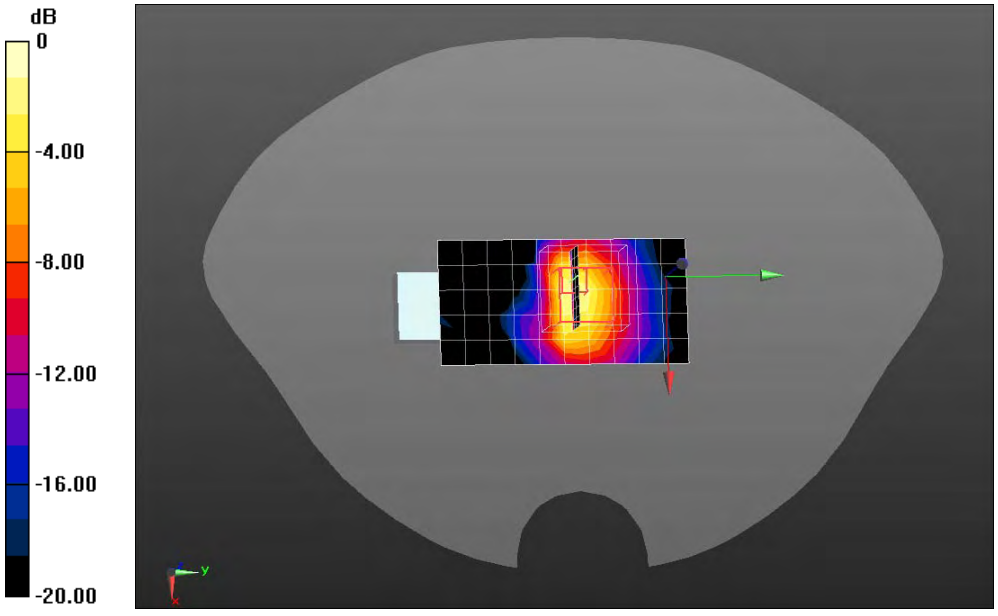
- Probe: EX3DV4 - SN3710; ConvF(3.97, 3.97, 3.97); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(20MHz) 5785MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.520 mW/g

Configuration/802.11n(20MHz) 5785MHz-Horizontal Down/Zoom Scan (9x9x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 6.039 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.256 mW/g

SAR(1 g) = 0.290 mW/g; SAR(10 g) = 0.092 mW/g Maximum value of SAR (measured) = 0.692 mW/g



0 dB = 0.692 mW/g = -3.20 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11n(20MHz) 5825MHz-Horizontal Down-2TX Chain 0+1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5825 MHz; Medium parameters used: f = 5825 MHz; σ = 6.08 mho/m; ε_r = 47.23; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

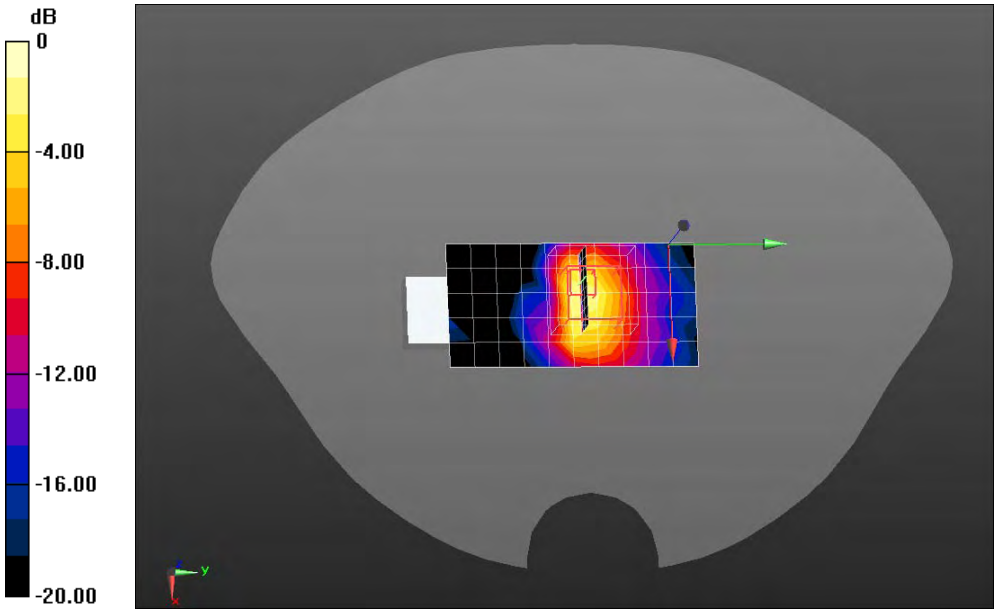
- Probe: EX3DV4 - SN3710; ConvF(3.97, 3.97, 3.97); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(20MHz) 5825MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.564 mW/g

Configuration/802.11n(20MHz) 5825MHz-Horizontal Down/Zoom Scan (9x9x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 6.116 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 1.313 mW/g

SAR(1 g) = 0.302 mW/g; SAR(10 g) = 0.094 mW/g Maximum value of SAR (measured) = 0.739 mW/g



0 dB = 0.739 mW/g = -2.63 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11n(40MHz) 5190MHz-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5190 MHz; Medium parameters used: f = 5190 MHz; σ = 5.13 mho/m; ε_r = 49.98; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

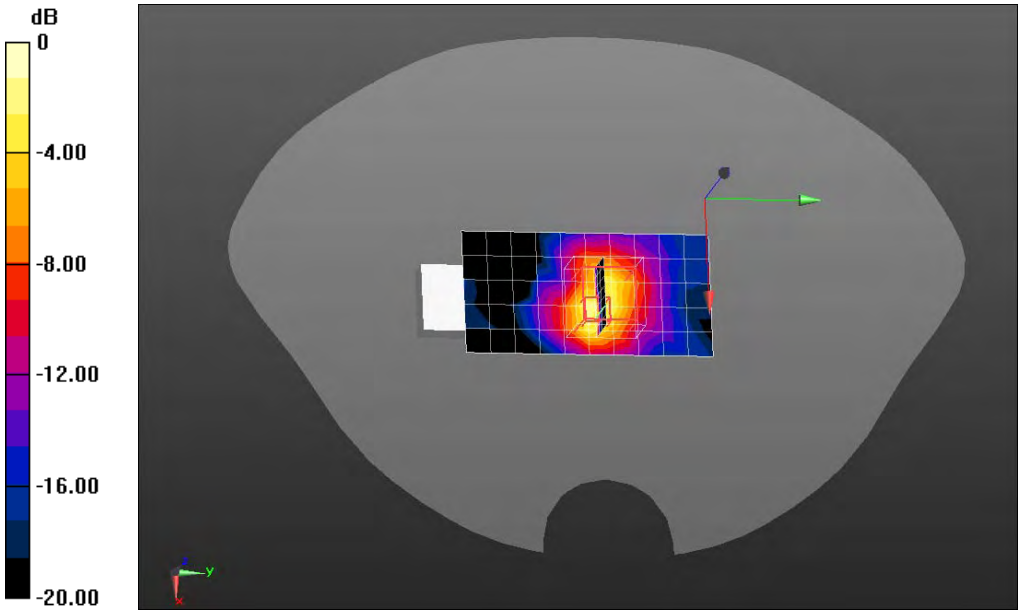
- Probe: EX3DV4 - SN3710; ConvF(4.13, 4.13, 4.13); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(40MHz) 5190MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.300 mW/g

Configuration/802.11n(40MHz) 5190MHz-Horizontal Down/Zoom Scan (8x8x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 4.621 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.741 mW/g

SAR(1 g) = 0.189 mW/g; SAR(10 g) = 0.051 mW/g Maximum value of SAR (measured) = 0.422 mW/g



0 dB = 0.422 mW/g = -7.49 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11n(40MHz) 5230MHz-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5230 MHz; Medium parameters used: f = 5230 MHz; σ = 5.19 mho/m; ε_r = 48.87; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

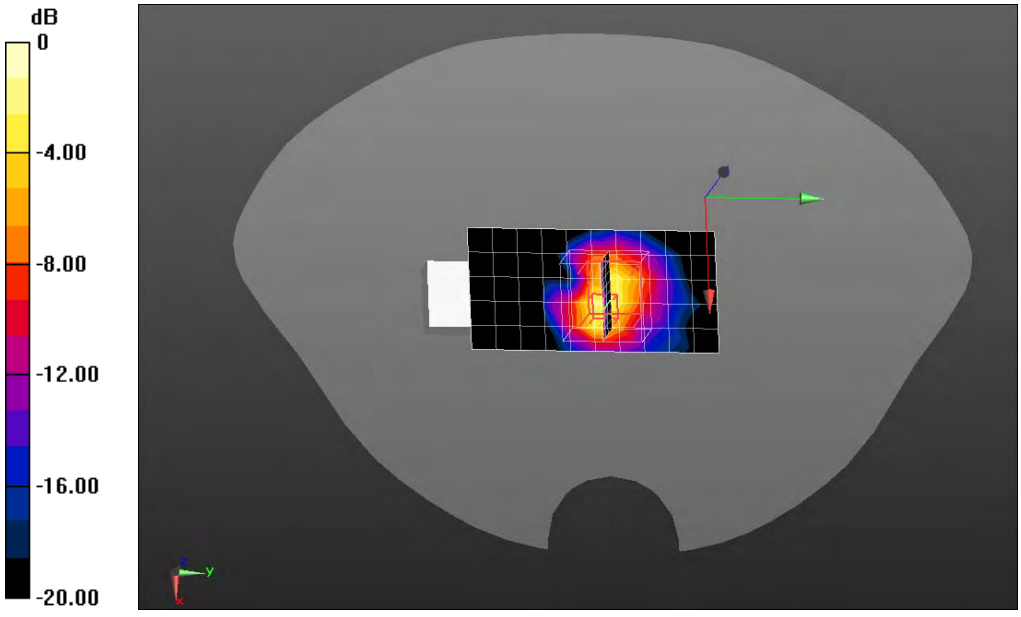
- Probe: EX3DV4 - SN3710; ConvF(4.13, 4.13, 4.13); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(40MHz) 5230MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.294 mW/g

Configuration/802.11n(40MHz) 5230MHz-Horizontal Down/Zoom Scan (9x9x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 4.406 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.792 mW/g

SAR(1 g) = 0.201 mW/g; SAR(10 g) = 0.055 mW/g Maximum value of SAR (measured) = 0.461 mW/g



0 dB = 0.461 mW/g = -6.73 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11n(40MHz) 5755MHz-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1; Frequency: 5755 MHz; Medium parameters used: f = 5755 MHz; σ = 5.97 mho/m; ε_r = 47.41; ρ = 1000 kg/m^3 ; Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

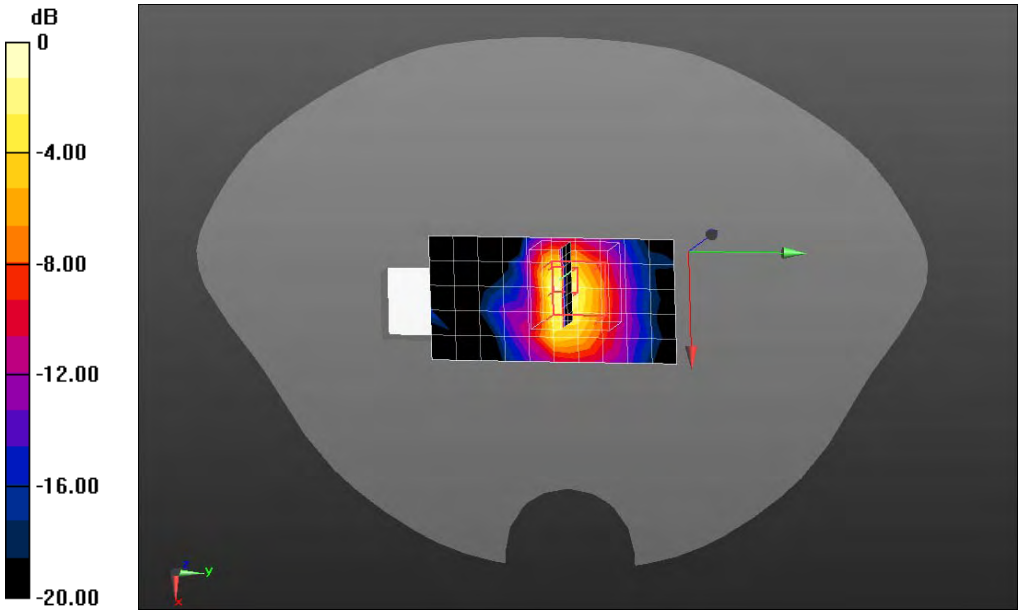
- Probe: EX3DV4 - SN3710; ConvF(3.97, 3.97, 3.97); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(40MHz) 5755MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.711 mW/g

Configuration/802.11n(40MHz) 5755MHz-Horizontal Down/Zoom Scan (9x9x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 7.318 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 2.624 mW/g

SAR(1 g) = 0.386 mW/g; SAR(10 g) = 0.124 mW/g Maximum value of SAR (measured) = 0.905 mW/g



0 dB = 0.905 mW/g = -0.87 dB mW/g

Date/Time: 19-09-2012

Test Laboratory: QuieTek Lab

802.11n(40MHz) 5795MHz-Horizontal Down-1TX Chain 1

DUT: IP-STB; Type: 3400

Communication System: CW; Communication System Band: 5GHz(5000.0-6000.0MHz); Duty Cycle: 1:1;

Frequency: 5795 MHz; Medium parameters used: f = 5795 MHz; σ = 6.03 mho/m; ε_r = 47.3; ρ = 1000 kg/m^3 ;

Phantom section: Flat Section

Ambient temperature (℃): 21.5, Liquid temperature (℃): 21.0

DASY5 Configuration:

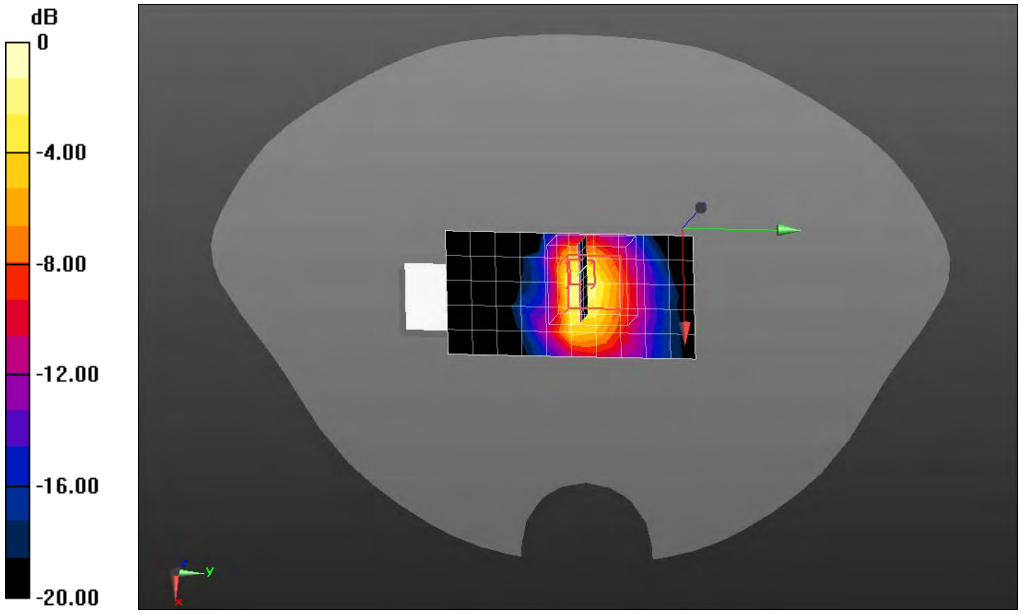
- Probe: EX3DV4 - SN3710; ConvF(3.97, 3.97, 3.97); Calibrated: 05/03/2010;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1220; Calibrated: 23/01/2012
- Phantom: SAM2; Type: SAM; Serial: TP1562
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/802.11n(40MHz) 5795MHz-Horizontal Down/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm, Maximum value of SAR (measured) = 0.667 mW/g

Configuration/802.11n(40MHz) 5795MHz-Horizontal Down/Zoom Scan (9x9x5)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm, Reference Value = 6.691 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 2.217 mW/g

SAR(1 g) = 0.377 mW/g; SAR(10 g) = 0.118 mW/g Maximum value of SAR (measured) = 0.896 mW/g



0 dB = 0.896 mW/g = -0.95 dB mW/g

Appendix C. Test Setup Photographs & EUT Photographs

Appendix D. Probe Calibration Data

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 Quietek-CN (Auden)

Certificate No: EX3-3710_Mar12

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3710

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: March 12, 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	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 13, 2012

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

Certificate No: EX3-3710_Mar12 Page 1 of 11