

SAR TEST REPORT (15.407)

REPORT NO.: SA970104L02-1

MODEL NO.: WLI-UC-AG300N

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ISSUED: Oct. 02, 2008

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1. CERTIFICATION

PRODUCT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter

MODEL: WLI-UC-AG300N

BRAND: Buffalo

APPLICANT: Buffalo Inc.

TESTED: Sep. 25 ~ Sep. 26, 2008

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 2 (Section 2.1093)

FCC OET Bulletin 65, Supplement C (01-01)

RSS-102

IEEE 1528-2003

The above equipment (model: WLI-UC-AG300N) have been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter	
MODEL NO.	WLI-UC-AG300N	
FCC ID	FDI-09102079-0	
POWER SUPPLY	5Vdc from host equipment	
CLASSIFICATION	Portable device, production unit	
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS, 64QAM, 16QAM, QPSK, BPSK for OFDM	
RADIO TECHNOLOGY	DSSS, OFDM	
TRANSFER RATE	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps Draft 802.11n: up to 300.0Mbps	
FREQUENCY RANGE	2.4GHz: 2400 ~ 2483.5MHz 5.0GHz: 5150 ~ 5350MHz & 5470 ~ 5725MHz & 5725 ~ 5850MHz	
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, draft 802.11n (20MHz) 7 for draft 802.11n (40MHz) 5.0GHz: 5150 ~ 5350MHz: 8 for 802.11a, draft 802.11n (20MHz) 4 for draft 802.11n (40MHz) 5470 ~ 5725MHz: 11 for 802.11a, draft 802.11n (20MHz) 5 for draft 802.11n (40MHz) 5725 ~ 5850MHz: 5 for 802.11a, draft 802.11n (20MHz) 2 for draft 802.11n (40MHz)	
CHANNEL FREQUENCIES UNDER TEST AND ITS CONDUCTED OUTPUT POWER FOR 5GHz	802.11a	DRAFT 802.11n (20MHz)
	16.368mW / Ch40: 5200MHz	25.855mW / Ch40: 5200MHz
	16.293mW / Ch52: 5260MHz	25.706mW / Ch64: 5320MHz
	15.996mW / Ch100: 5500MHz	25.529mW / Ch100: 5500MHz
	15.352mW / Ch104: 5520MHz	25.463mW / Ch104: 5520MHz
	15.736mW / Ch116: 5580MHz	25.242mW / Ch116: 5580MHz
	16.218mW / Ch120: 5600MHz	25.736mW / Ch120: 5600MHz
	16.032mW / Ch124: 5620MHz	25.623mW / Ch124: 5620MHz
	15.863mW / Ch136: 5680MHz	25.559mW / Ch136: 5680MHz
	16.293mW / Ch140: 5700MHz	25.353mW / Ch140: 5700MHz

CHANNEL FREQUENCIES UNDER TEST AND ITS CONDUCTED OUTPUT POWER FOR 5GHz	DRAFT 802.11n (40MHz)	
	25.500mW / Ch46: 5230MHz	25.736mW / Ch118: 5590MHz
	25.618mW / Ch54: 5270MHz	25.944mW / Ch134: 5670MHz
	25.530mW / Ch102: 5510MHz	
AVERAGE SAR (1g)	0.772W/kg	
ANTENNA TYPE	2.4GHz: Printed antenna with -0.3dBi gain 5.0GHz: Printed antenna with 4.0dBi gain	
DATA CABLE	0.19 shielded USB cable without core	
I/O PORTS	USB	
ASSOCIATED DEVICES	NA	

NOTE:

- The EUT is an AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter. The functions of EUT listed as below:

	REFERENCE REPORT
WLAN 802.11b/g, draft 802.11n	SA970104L02
WLAN 802.11a, draft 802.11n (5725~5850 MHz)	
WLAN 802.11a, draft 802.11n (5150~5350MHz, 5470~5725 MHz)	SA970104L02-1

- The frequency bands used in this EUT are listed as follows:

Frequency Band (MHz)	2400~2483.5	5150~5350	5470 ~ 5725	5725~5850
802.11b	√	-	-	-
802.11g	√	-	-	-
802.11a	-	√	√	√
Draft 802.11n (20MHz)	√	√	√	√
Draft 802.11n (40MHz)	√	√	√	√

- The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11a	1TX
Draft 802.11n (20MHz)	2TX
Draft 802.11n (40MHz)	2TX

- The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

2.2 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to the specifications of the manufacturer, this product must comply with the requirements of the following standards:

FCC Part 2 (2.1093)

FCC OET Bulletin 65, Supplement C (01- 01)

RSS-102

IEEE 1528-2003

All test items have been performed and recorded as per the above standards.

2.3 GENERAL INFORMATION OF THE SAR SYSTEM

DASY4 (software 4.7 Build 53) consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY4 software defined. The DASY4 software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (ECO). The ECO performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC.

ET3DV6 ISOTROPIC E-FIELD PROBE (FREQUENCY BAND < 3GHz)

CONSTRUCTION	Symmetrical design with triangular core. Built-in optical fiber for surface detection system. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., glycolether).
FREQUENCY	10 MHz to 3 GHz; Linearity: ± 0.2 dB (30 MHz to 3 GHz)
DYNAMIC RANGE	5 μ W/g to > 100 mW/g; Linearity: ± 0.2 dB
OPTICAL SURFACE DETECTION	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
DIMENSIONS	Overall length: 330 mm (Tip Length: 16 mm) Tip diameter: 6.8 mm (Body diameter: 12 mm) Distance from probe tip to dipole centers: 2.7 mm
APPLICATION	General dosimetric measurements up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms (ET3DV6)

EX3DV3 ISOTROPIC E-FIELD PROBE (FREQUENCY BAND 5 ~ 6GHz)

DIMENSIONS

Overall length: 330 mm (Tip Length: 20 mm)
 Tip diameter: 2.5 mm (Body diameter: 12 mm)
 Distance from probe tip to dipole centers: 1.0 mm

APPLICATION

General dosimetric measurements range 5 ~ 6 GHz.
 Fast automatic scanning in arbitrary phantoms (EX3DV3)

NOTE

1. The Probe parameters have been calibrated by the SPEAG. Please reference "APPENDIX D" for the Calibration Certification Report.
2. For frequencies above 800 MHz, calibration in a rectangular wave-guide is used, because wave-guide size is manageable.
3. For frequencies below 800 MHz, temperature transfer calibration is used because the wave-guide size becomes relatively large.

TWIN SAM V4.0

CONSTRUCTION

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-2003, CENELEC EN 62209-1 and IEC 62209. 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 manually teaching three points with the robot.

SHELL THICKNESS

$2 \pm 0.2\text{mm}$

FILLING VOLUME

Approx. 25liters

DIMENSIONS

Height: 810mm; Length: 1000mm; Width: 500mm

SYSTEM VALIDATION KITS:

CONSTRUCTION	Symmetrical dipole with 1/4 balun enables measurement of feedpoint impedance with NWA matched for use near flat phantoms filled with brain simulating solutions. Includes distance holder and tripod adaptor
CALIBRATION	Calibrated SAR value for specified position and input power at the flat phantom in brain simulating solutions
FREQUENCY	5200, 5500, 5800 MHz
RETURN LOSS	> 20dB at specified validation position
POWER CAPABILITY	> 100W ($f < 1\text{GHz}$); > 40W ($f > 1\text{GHz}$)
OPTIONS	Dipoles for other frequencies or solutions and other calibration conditions upon request

DEVICE HOLDER FOR SAM TWIN PHANTOM

CONSTRUCTION	The device holder for the mobile phone device 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 is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon = 3$ and loss tangent $\delta = 0.02$. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered. The device holder for the portable device makes up of the polyethylene foam. The dielectric parameters of material close to the dielectric parameters of the air.
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DATA ACQUISITION ELECTRONICS

CONSTRUCTION

The data acquisition electronics (DAE3) consists of a highly sensitive electrometer grade preamplifier with auto-zeroing, a channel and gain-switching multiplex, 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 mechanical probe is mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection. The input impedance of the DAE3 box is 200M Ω ; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

2.4 GENERAL DESCRIPTION OF THE SPATIAL PEAK SAR EVALUATION

The DASY4 post-processing software (SEMCAD) automatically executes the following procedures to calculate the field units from the micro-volt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Norm _i , a _{i0} , a _{i1} , a _{i2}
	- Conversion factor	ConvF _i
	- Diode compression point	dcp _i
Device parameters:	- Frequency	F
	- Crest factor	Cf
Media parameters:	- Conductivity	σ
	- Density	ρ

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

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

V _i	=compensated signal of channel i	(i = x, y, z)
U _i	=input signal of channel I	(i = x, y, z)
Cf	=crest factor of exciting field	(DASY parameter)
dcp _i	=diode compression point	(DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

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

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

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

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

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

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

$$\text{SAR} = E_{\text{tot}}^2 \cdot \frac{\sigma}{\rho \cdot 1'000}$$

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

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid. The entire evaluation of the spatial peak values is performed within the Post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

1. The extraction of the measured data (grid and values) from the Zoom Scan
2. The calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. The generation of a high-resolution mesh within the measured volume
4. The interpolation of all measured values from the measurement grid to the high-resolution grid
5. The extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
6. The calculation of the averaged SAR within masses of 1g and 10g.

The probe is calibrated at the center of the dipole sensors that is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated. The angle between the probe axis and the surface normal line is less than 30 degree.

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extreme of the SAR distribution. The uncertainty on the locations of the extreme is less than 1/20 of the grid size. Only local maximum within -2dB of the global maximum are searched and passed for the Cube Scan measurement. In the Cube Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest measurement points to the inner phantom surface (the extrapolation distance). The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1g and 10g cubes, the extrapolation distance should not be larger than 5mm.

The maximum search is automatically performed after each area scan measurement. It is based on splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even with relatively large grid spacing. After the area scanning measurement, the probe is automatically moved to a position at the interpolated maximum. The following scan can directly use this position for reference, e.g., for a finer resolution grid or the cube evaluations. The 1g and 10g peak evaluations are only available for the predefined cube 7 x 7 x 7 scans. The routines are verified and optimized for the grid dimensions used in these cube measurements. The measured volume of 30 x 30 x 30mm contains about 30g of tissue. The first procedure is an extrapolation (incl. boundary correction) to get the points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume in a 1mm grid (42875 points). In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is moved around until the highest averaged SAR is found. If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

3. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	HP	nx6215	s/n:CND5390CMP	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA

NOTE: All power cords of the above support units are non shielded (1.8m).

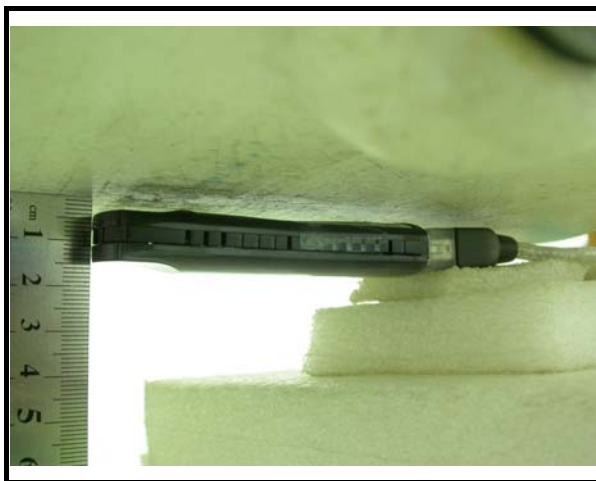
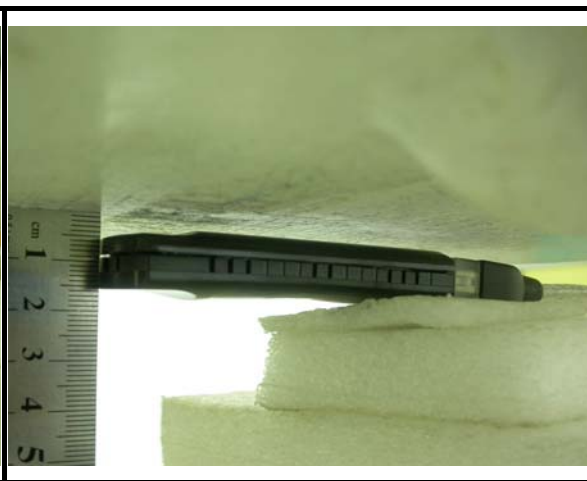
4. DESCRIPTION OF TEST MODES AND CONFIGURATIONS

4.1. DESCRIPTION OF ANTENNA LOCATION



4.2. DESCRIPTION OF ASSESSMENT POSITION

The following test configurations have been applied in this test report:

	
A: Bottom Position The bottom of the EUT face to the phantom with 5mm-separation distance.	B : Front Position The front of the EUT face to the phantom with 5mm-separation distance.
	
C: Right Edge Position The edge of the EUT face to the phantom with 5mm-separation distance.	D: Left Edge Position The edge of the EUT face to the phantom with 5mm-separation distance.

4.3. DESCRIPTION OF TEST MODE

ITEM	TEST MODE	MODULATION	ASSESSMENT POSTITION	TESTED CHANNEL
1	802.11a	BPSK	A	40, 52, 100, 104, 116, 120, 124, 136, 140
2	Draft 802.11n (20MHz)	BPSK	A	40, 64, 100, 104, 116, 120, 124, 136, 140
3	Draft 802.11n (40MHz)	BPSK	A	46, 54, 102, 118, 134
4	802.11a	BPSK	B	40, 52, 100, 104, 116, 120, 124, 136, 140
5	Draft 802.11n (20MHz)	BPSK	B	40, 64, 100, 104, 116, 120, 124, 136, 140
6	Draft 802.11n (40MHz)	BPSK	B	46, 54, 102, 118, 134
7	802.11a	BPSK	C	40, 52, 140
8	Draft 802.11n (20MHz)	BPSK	C	40, 64, 120
9	Draft 802.11n (40MHz)	BPSK	C	46, 54, 134
10	802.11a	BPSK	D	40, 52, 140
11	Draft 802.11n (20MHz)	BPSK	D	40, 64, 120
12	Draft 802.11n (40MHz)	BPSK	D	46, 54, 134

4.4. SUMMARY OF TEST RESULTS

COMMUNICATION MODE	802.11a	COMMUNICATION MODE	Draft 802.11n (20MHz)	COMMUNICATION MODE	Draft 802.11n (40MHz)
TEST MODE	1	TEST MODE	2	TEST MODE	3
MEASURED VALUE OF 1g SAR (W/kg)					
CHANNEL	ASSESSMENT POSITION (A)	CHANNEL	ASSESSMENT POSITION (A)	CHANNEL	ASSESSMENT POSITION (A)
40	0.644	40	0.772	46	0.747
52	0.650	64	0.638	54	0.674
100	0.534	100	0.769	102	0.564
104	0.488	104	0.639	118	0.468
116	0.502	116	0.622	134	0.506
120	0.613	120	0.472		
124	0.594	124	0.461		
136	0.513	136	0.447		
140	0.590	140	0.434		

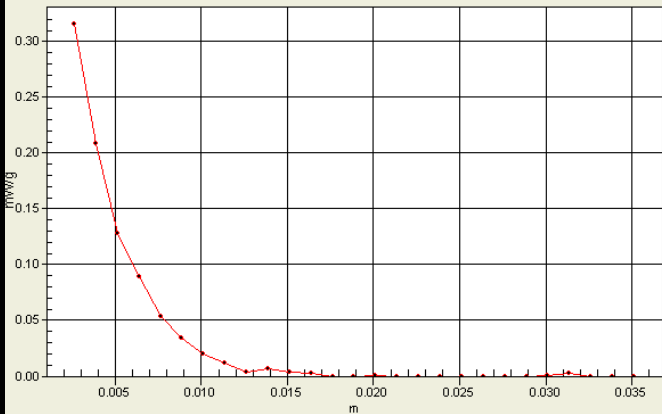
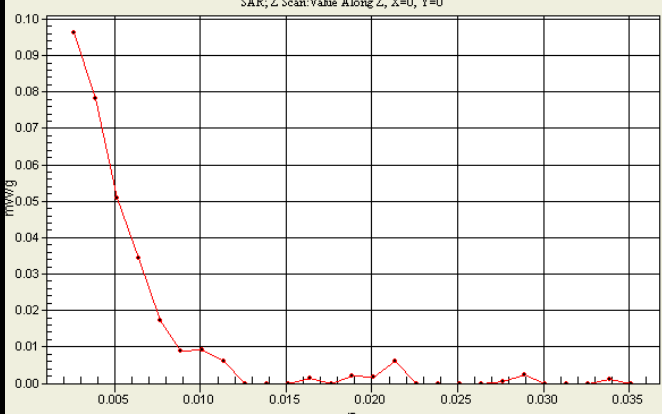
COMMUNICATION MODE	802.11a	COMMUNICATION MODE	Draft 802.11n (20MHz)	COMMUNICATION MODE	Draft 802.11n (46MHz)
TEST MODE	4	TEST MODE	5	TEST MODE	6
MEASURED VALUE OF 1g SAR (W/kg)					
CHANNEL	ASSESSMENT POSITION (B)	CHANNEL	ASSESSMENT POSITION (B)	CHANNEL	ASSESSMENT POSITION (B)
40	0.403	40	0.495	46	0.638
52	0.417	64	0.526	54	0.584
100	0.473	100	0.451	102	0.474
104	0.419	104	0.551	118	0.332
116	0.402	116	0.431	134	0.395
120	0.518	120	0.344		
124	0.393	124	0.332		
136	0.409	136	0.369		
140	0.363	140	0.353		

COMMUNICATION MODE	802.11a	COMMUNICATION MODE	Draft 802.11n (20MHz)	COMMUNICATION MODE	Draft 802.11n (46MHz)
TEST MODE	7	TEST MODE	8	TEST MODE	9
MEASURED VALUE OF 1g SAR (W/kg)					
CHANNEL	ASSESSMENT POSITION (C)	CHANNEL	ASSESSMENT POSITION (C)	CHANNEL	ASSESSMENT POSITION (C)
40	0.169	40	0.113	46	0.134
52	0.159	64	0.160	54	0.155
140	0.157	120	0.147	134	0.198

COMMUNICATION MODE	802.11a	COMMUNICATION MODE	Draft 802.11n (20MHz)	COMMUNICATION MODE	Draft 802.11n (46MHz)
TEST MODE	10	TEST MODE	11	TEST MODE	12
MEASURED VALUE OF 1g SAR (W/kg)					
CHANNEL	ASSESSMENT POSITION (D)	CHANNEL	ASSESSMENT POSITION (D)	CHANNEL	ASSESSMENT POSITION (D)
40	0.078	40	0.106	46	0.128
52	0.081	64	0.128	54	0.132
140	0.065	120	0.114	134	0.142

NOTE: The worst value has been marked by boldface.

Communication Mode: 802.11a Draft 802.11n (20MHz)
Frequency: 5200MHz

TEST POSITION	SAR VALUE (mW/g)	PLOT
INITIAL POSITION	0.317	SAR(x,y,z,f0) SAR, Z Scan: Value Along Z, X=0, Y=0 
5mm INCREMENTS FROM INITIAL POSITION	0.096	SAR(x,y,z,f0) SAR, Z Scan: Value Along Z, X=0, Y=0 

THE WORST POSITION FROM EVALUATED RESULT: Initial position.

5. TEST RESULTS

5.1 TEST PROCEDURES

The EUT plugged into the notebook. Use the software to control the EUT channel and transmission power. Then record the conducted power before the testing. Place the EUT to the specific test location. After the testing, must writing down the conducted power of the EUT into the report. The SAR value was calculated via the 3D spline interpolation algorithm that has been implemented in the software of DASY4 SAR measurement system manufactured and calibrated by SPEAG. According to the IEEE 1528 standards, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- Power reference measurement
- Verification of the power reference measurement
- Area scan
- Zoom scan
- Power reference measurement

The area scan was performed for the highest spatial SAR location. The zoom scan with 30mm x 30mm x 30mm volume was performed for SAR value averaged over 1g and 10g spatial volumes.

In the zoom scan, the distance between the measurement point at the probe sensor location (geometric center behind the probe tip) and the phantom surface is 4.0mm and maintained at a constant distance of ± 1.0 mm during a zoom scan to determine peak SAR locations. The distance is 4mm between the first measurement point and the bottom surface of the phantom. The secondary measurement point to the bottom surface of the phantom is with 9mm separation distance. The cube size is 7 x 7 x 7 points consist of 343 points and the grid space is 5mm.

The measurement time is 0.5s at each point of the zoom scan. The probe boundary effect compensation shall be applied during the SAR test. Because of the tip of the probe to the Phantom surface separated distances are longer than half a tip probe diameter.

In the area scan, the separation distance is 4mm between the each measurement point and the phantom surface. The scan size shall be included the transmission portion of the EUT. The measurement time is the same as the zoom scan. At last the reference power drift shall be less than $\pm 5\%$.

5.2 MEASURED SAR RESULTS

ENVIRONMENTAL CONDITION		Air Temperature : 23.8°C, Liquid Temperature : 22.7°C Humidity : 60%RH					
TESTED BY		Sam Onn			DATE		Sep. 25, 2008
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
40	5200.000	802.11a	16.368	16.198	-1.04	1	0.644
52	5260.000	802.11a	16.293	16.094	-1.22	1	0.650
100	5500.000	802.11a	15.996	15.751	-1.53	1	0.534
104	5520.000	802.11a	15.352	15.100	-1.64	1	0.488
116	5580.000	802.11a	15.736	15.456	-1.78	1	0.502
120	5600.000	802.11a	16.218	15.923	-1.82	1	0.613
124	5620.000	802.11a	16.032	15.723	-1.93	1	0.594
136	5680.000	802.11a	15.863	15.541	-2.03	1	0.513
140	5700.000	802.11a	16.293	15.943	-2.15	1	0.590

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, 1.6 W/kg, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION		Air Temperature : 23.8°C, Liquid Temperature : 22.7°C Humidity : 60%RH					
TESTED BY		Sam Onn			DATE		Sep. 25, 2008
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
40	5200.000	DRAFT 802.11n (20MHz)	25.855	25.496	-1.39	2	0.772
64	5320.000	DRAFT 802.11n (20MHz)	25.706	25.305	-1.56	2	0.638
100	5500.000	DRAFT 802.11n (20MHz)	25.529	25.110	-1.64	2	0.769
104	5520.000	DRAFT 802.11n (20MHz)	25.463	25.033	-1.69	2	0.639
116	5580.000	DRAFT 802.11n (20MHz)	25.242	24.808	-1.72	2	0.622
120	5600.000	DRAFT 802.11n (20MHz)	25.736	25.278	-1.78	2	0.472
124	5620.000	DRAFT 802.11n (20MHz)	25.623	25.152	-1.84	2	0.461
136	5680.000	DRAFT 802.11n (20MHz)	25.559	25.061	-1.95	2	0.447
140	5700.000	DRAFT 802.11n (20MHz)	25.353	24.826	-2.08	2	0.434

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, 1.6 W/kg, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION			Air Temperature : 23.8°C, Liquid Temperature : 22.7°C Humidity : 60%RH				
TESTED BY			Sam Onn		DATE		Sep. 25, 2008
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
46	5230.000	DRAFT 802.11n (40MHz)	25.500	25.319	-0.71	3	0.747
54	5270.000	DRAFT 802.11n (40MHz)	25.618	25.403	-0.84	3	0.674
102	5510.000	DRAFT 802.11n (40MHz)	25.530	25.270	-1.02	3	0.564
118	5590.000	DRAFT 802.11n (40MHz)	25.736	25.455	-1.09	3	0.468
134	5670.000	DRAFT 802.11n (40MHz)	25.944	25.651	-1.13	3	0.506

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, 1.6 W/kg, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION			Air Temperature : 23.8°C, Liquid Temperature : 22.7°C Humidity : 60%RH				
TESTED BY			Sam Onn		DATE		Sep. 25, 2008
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
40	5200.000	802.11a	16.368	16.252	-0.71	4	0.403
52	5260.000	802.11a	16.293	16.156	-0.84	4	0.417
100	5500.000	802.11a	15.996	15.849	-0.92	4	0.473
104	5520.000	802.11a	15.352	15.195	-1.02	4	0.419
116	5580.000	802.11a	15.736	15.564	-1.09	4	0.402
120	5600.000	802.11a	16.218	16.035	-1.13	4	0.518
124	5620.000	802.11a	16.032	15.839	-1.20	4	0.393
136	5680.000	802.11a	15.863	15.658	-1.29	4	0.409
140	5700.000	802.11a	16.293	16.071	-1.36	4	0.363

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, 1.6 W/kg, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION		Air Temperature : 23.8°C, Liquid Temperature : 22.7°C Humidity : 60%RH					
TESTED BY		Sam Onn			DATE		Sep. 25, 2008
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
40	5200.000	DRAFT 802.11n (20MHz)	25.855	25.503	-1.36	5	0.495
64	5320.000	DRAFT 802.11n (20MHz)	25.706	25.341	-1.42	5	0.526
100	5500.000	DRAFT 802.11n (20MHz)	25.529	25.136	-1.54	5	0.451
104	5520.000	DRAFT 802.11n (20MHz)	25.463	25.050	-1.62	5	0.551
116	5580.000	DRAFT 802.11n (20MHz)	25.242	24.810	-1.71	5	0.431
120	5600.000	DRAFT 802.11n (20MHz)	25.736	25.270	-1.81	5	0.344
124	5620.000	DRAFT 802.11n (20MHz)	25.623	25.136	-1.90	5	0.332
136	5680.000	DRAFT 802.11n (20MHz)	25.559	25.035	-2.05	5	0.369
140	5700.000	DRAFT 802.11n (20MHz)	25.353	24.813	-2.13	5	0.353

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, 1.6 W/kg, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION		Air Temperature : 23.8°C, Liquid Temperature : 22.7°C Humidity : 60%RH					
TESTED BY		Sam Onn			DATE		Sep. 25, 2008
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
46	5230.000	DRAFT 802.11n (40MHz)	25.500	25.151	-1.37	6	0.638
54	5270.000	DRAFT 802.11n (40MHz)	25.618	25.252	-1.43	6	0.584
102	5510.000	DRAFT 802.11n (40MHz)	25.530	25.142	-1.52	6	0.474
118	5590.000	DRAFT 802.11n (40MHz)	25.736	25.327	-1.59	6	0.332
134	5670.000	DRAFT 802.11n (40MHz)	25.944	25.521	-1.63	6	0.395
40	5200.000	802.11a	16.368	16.147	-1.35	7	0.169
52	5260.000	802.11a	16.293	16.056	-1.46	7	0.159
140	5700.000	802.11a	16.293	16.044	-1.53	7	0.157

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, 1.6 W/kg, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION			Air Temperature : 23.2C, Liquid Temperature : 22.5°C Humidity : 61%RH				
TESTED BY			Sam Onn		DATE		Sep. 26, 2008
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
40	5200.000	DRAFT 802.11n (20MHz)	25.855	25.459	-1.53	8	0.113
64	5320.000	DRAFT 802.11n (20MHz)	25.706	25.284	-1.64	8	0.160
120	5600.000	DRAFT 802.11n (20MHz)	25.736	25.278	-1.78	8	0.147
46	5230.000	DRAFT 802.11n (40MHz)	25.500	25.008	-1.93	9	0.134
54	5270.000	DRAFT 802.11n (40MHz)	25.618	25.098	-2.03	9	0.155
134	5670.000	DRAFT 802.11n (40MHz)	25.944	25.386	-2.15	9	0.198

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, 1.6 W/kg, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION			Air Temperature : 23.2°C, Liquid Temperature : 22.5°C Humidity : 61%RH				
TESTED BY			Sam Onn		DATE		Sep. 26, 2008
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
40	5200.000	802.11a	16.368	16.183	-1.13	10	0.078
52	5260.000	802.11a	16.293	16.093	-1.23	10	0.081
140	5700.000	802.11a	16.293	16.073	-1.35	10	0.065
40	5200.000	DRAFT 802.11n (20MHz)	25.855	25.609	-0.95	11	0.106
64	5320.000	DRAFT 802.11n (20MHz)	25.706	25.439	-1.04	11	0.128
120	5600.000	DRAFT 802.11n (20MHz)	25.736	25.445	-1.13	11	0.114
46	5230.000	DRAFT 802.11n (40MHz)	25.500	25.189	-1.22	12	0.128
54	5270.000	DRAFT 802.11n (40MHz)	25.618	25.272	-1.35	12	0.132
134	5670.000	DRAFT 802.11n (40MHz)	25.944	25.565	-1.46	12	0.142

NOTE:

1. Test configuration of each mode is described in section 3.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, 1.6 W/kg, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

5.3 SAR LIMITS

HUMAN EXPOSURE	SAR (W/kg)	
	(GENERAL POPULATION / UNCONTROLLED EXPOSURE ENVIRONMENT)	(OCCUPATIONAL / CONTROLLED EXPOSURE ENVIRONMENT)
Spatial Average (whole body)	0.08	0.4
Spatial Peak (averaged over 1 g)	1.6	8.0
Spatial Peak (hands / wrists / feet / ankles averaged over 10 g)	4.0	20.0

NOTE:

1. This limits accord to 47 CFR 2.1093 – Safety Limit.
2. The EUT property been complied with the partial body exposure limit under the general population environment.

5.4 RECIPES FOR TISSUE SIMULATING LIQUIDS

For the measurement of the field distribution inside the SAM phantom, the phantom must be filled with 25 liters of tissue simulation liquid.

The following ingredients are used :

- **WATER-** Deionized water (pure H₂O), resistivity ≥ 16 M - as basis for the liquid
- **SUGAR-** Refined sugar in crystals, as available in food shops - to reduce relative permittivity
- **SALT-** Pure NaCl - to increase conductivity
- **CELLULOSE-** Hydroxyethyl-cellulose, medium viscosity (75-125mPa.s, 2% in water, 20°C),
CAS # 54290 - to increase viscosity and to keep sugar in solution
- **PRESERVATIVE-** Preventol D-7 Bayer AG, D-51368 Leverkusen, CAS # 55965-84-9 - to prevent the spread of bacteria and molds
- **DGMBE-** Diethylenglycol-monobuthyl ether (DGMBE), Fluka Chemie GmbH, CAS # 112-34-5 - to reduce relative permittivity

THE INFORMATION FOR 5GHz SIMULATING LIQUID

The 5GHz liquids were purchased from SPEAG.

Body liquid model: HSL 5800, P/N: SL AAH 5800 AA

Head liquid model: M 5800, P/N: SL AAM 580 AD

5GHz liquids contain the following ingredients:

Water 64 - 78%

Mineral Oil 11 - 18%

Emulsifiers 9 - 15%

Additives and Salt 2 - 3%

Testing the liquids using the Agilent Network Analyzer E8358A and Agilent Dielectric Probe Kit 85070D. The testing procedure is following as

1. Turn Network Analyzer on and allow at least 30min. warm up.
2. Mount dielectric probe kit so that interconnecting cable to Network Analyzer will not be moved during measurements or calibration.
3. Pour de-ionized water and measure water temperature ($\pm 1^\circ$).
4. Set water temperature in Agilent-Software (Calibration Setup).
5. Perform calibration.
6. Validate calibration with dielectric material of known properties (e.g. polished ceramic slab with $>8\text{mm}$ thickness $\epsilon' = 10.0$, $\epsilon'' = 0.0$). If measured parameters do not fit within tolerance, repeat calibration (± 0.2 for ϵ' : ± 0.1 for ϵ'').
7. Conductivity can be calculated from ϵ'' by $\sigma = \omega \epsilon_0 \epsilon'' = \epsilon'' f [\text{GHz}] / 18$.
8. Measure liquid shortly after calibration. Repeat calibration every hour.
9. Stir the liquid to be measured. Take a sample ($\sim 50\text{ml}$) with a syringe from the center of the liquid container.
10. Pour the liquid into a small glass flask. Hold the syringe at the bottom of the flask to avoid air bubbles.
11. Put the dielectric probe in the glass flask. Check that there are no air bubbles in front of the opening in the dielectric probe kit.
12. Perform measurements.
13. Adjust medium parameters in DASY4 for the frequencies necessary for the measurements ('Setup Config', select medium (e.g. Brain 900MHz) and press 'Option'-button.
14. Select the current medium for the frequency of the validation (e.g. Setup Medium Brain 900MHz).

FOR 5.0GHz BAND SIMULATING LIQUID

LIQUID TYPE		HSL-5800		MSL-5800	
SIMULATING LIQUID TEMP.		NA		22.7	
TEST DATE		NA		Sep. 25, 2008	
TESTED BY		NA		Sam Onn	
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	STANDARD VALUE	MEASUREMENT VALUE
5180	Permittivity (ε)	NA	NA	49.00	49.10
5190		NA	NA	49.00	49.00
5200		NA	NA	49.00	49.00
5230		NA	NA	49.00	48.90
5240		NA	NA	49.00	48.90
5260		NA	NA	48.90	48.90
5270		NA	NA	48.90	48.90
5300		NA	NA	48.90	48.80
5310		NA	NA	48.90	48.80
5320		NA	NA	48.90	48.80
5500		NA	NA	48.60	48.40
5510		NA	NA	48.60	48.40
5520		NA	NA	48.60	48.40
5580		NA	NA	48.50	48.20
5590		NA	NA	48.50	48.20
5600		NA	NA	48.50	48.20
5620		NA	NA	48.40	48.10
5670		NA	NA	48.40	48.10
5680		NA	NA	48.40	48.10
5700		NA	NA	48.30	48.00
Dielectric Parameters Required at 21°C					

LIQUID TYPE		HSL-5800		MSL-5800	
SIMULATING LIQUID TEMP.		NA		22.7	
TEST DATE		NA		Sep. 25, 2008	
TESTED BY		NA		Sam Onn	
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	STANDARD VALUE	MEASUREMENT VALUE
5180	Conductivity (σ) S/m	NA	NA	5.28	5.20
5190		NA	NA	5.29	5.22
5200		NA	NA	5.30	5.23
5230		NA	NA	5.33	5.28
5240		NA	NA	5.35	5.29
5260		NA	NA	5.37	5.33
5270		NA	NA	5.38	5.34
5300		NA	NA	5.42	5.38
5310		NA	NA	5.43	5.40
5320		NA	NA	5.44	5.41
5500		NA	NA	5.65	5.67
5510		NA	NA	5.66	5.69
5520		NA	NA	5.67	5.69
5580		NA	NA	5.74	5.78
5590		NA	NA	5.75	5.80
5600		NA	NA	5.77	5.81
5620		NA	NA	5.79	5.84
5670		NA	NA	5.85	5.92
5680		NA	NA	5.86	5.93
5700		NA	NA	5.88	5.96
Dielectric Parameters Required at 21°C					

LIQUID TYPE		HSL-5800		MSL-5800	
SIMULATING LIQUID TEMP.		NA		22.5	
TEST DATE		NA		Sep. 26, 2008	
TESTED BY		NA		Sam Onn	
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	STANDARD VALUE	MEASUREMENT VALUE
5180	Permittivity (ε)	NA	NA	49.00	49.90
5190		NA	NA	49.00	49.80
5200		NA	NA	49.00	49.80
5230		NA	NA	49.00	49.70
5240		NA	NA	49.00	49.70
5260		NA	NA	48.90	49.70
5270		NA	NA	48.90	49.70
5300		NA	NA	48.90	49.60
5310		NA	NA	48.90	49.60
5320		NA	NA	48.90	49.60
5500		NA	NA	48.60	49.20
5510		NA	NA	48.60	49.20
5520		NA	NA	48.60	49.20
5580		NA	NA	48.50	49.00
5590		NA	NA	48.50	49.00
5600		NA	NA	48.50	49.00
5620		NA	NA	48.40	48.90
5670		NA	NA	48.40	48.90
5680		NA	NA	48.40	48.90
5700		NA	NA	48.30	48.80
Dielectric Parameters Required at 21°C					

LIQUID TYPE		HSL-5800		MSL-5800	
SIMULATING LIQUID TEMP.		NA		22.5	
TEST DATE		NA		Sep. 26, 2008	
TESTED BY		NA		Sam Onn	
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	STANDARD VALUE	MEASUREMENT VALUE
5180	Conductivity (σ) S/m	NA	NA	5.28	5.24
5190		NA	NA	5.29	5.26
5200		NA	NA	5.30	5.27
5230		NA	NA	5.33	5.32
5240		NA	NA	5.35	5.33
5260		NA	NA	5.37	5.37
5270		NA	NA	5.38	5.38
5300		NA	NA	5.42	5.42
5310		NA	NA	5.43	5.44
5320		NA	NA	5.44	5.45
5500		NA	NA	5.65	5.71
5510		NA	NA	5.66	5.73
5520		NA	NA	5.67	5.73
5580		NA	NA	5.74	5.82
5590		NA	NA	5.75	5.84
5600		NA	NA	5.77	5.85
5620		NA	NA	5.79	5.88
5670		NA	NA	5.85	5.96
5680		NA	NA	5.86	5.97
5700		NA	NA	5.88	6.00
Dielectric Parameters Required at 21°C					

5.5 TEST EQUIPMENT FOR TISSUE PROPERTY

ITEM	NAME	BAND	TYPE	SERIES NO.	DATE OF CALIBRATION	CALIBRATED UNTIL
1	NETWORK ANALYZER	Agilent	E8358A	US41480538	Nov. 12, 2007	Nov. 11, 2008
2	DIELECTRIC PROBE	Agilent	85070D	US01440176	NA	NA

NOTE:

1. Before starting, all test equipment shall be warmed up for 30min.
2. The tolerance ($k=1$) specified by Agilent for general dielectric measurements, deriving from inaccuracies in the calibration data, analyzer drift, and random errors, are usually $\pm 2.5\%$ and $\pm 5\%$ for measured permittivity and conductivity, respectively. However, the tolerances for the conductivity is smaller for material with large loss tangents, i.e., less than $\pm 2.5\%$ ($k=1$). It can be substantially smaller if more accurate methods are applied.

6. SYSTEM VALIDATION

The system validation was performed in the flat phantom with equipment listed in the following table. Since the SAR value is calculated from the measured electric field, dielectric constant and conductivity of the body tissue, and the SAR is proportional to the square of the electric field. So, the SAR value will be also proportional to the RF power input to the system validation dipole under the same test environment. In our system validation test, 250mW RF input power was used.

6.1 TEST EQUIPMENT

ITEM	NAME	BAND	TYPE	SERIES NO.	DATE OF CALIBRATION	CALIBRATED UNTIL
1	SAM Phantom	S & P	QD000 P40 CA	TP-1150	NA	NA
2	Signal Generator	Anritsu	68247B	984703	May 27, 2008	May 26, 2009
3	E-Field Probe	Speaq	EX3DV6	3506	Mar. 21, 2008	Mar. 20, 2009
4	DAE	Speaq	DAE	579	Mar. 13, 2008	Mar. 12, 2009
5	Robot Positioner	Staubli Unimation	NA	NA	NA	NA
6	Validation Dipole	Speaq	D5GHzV2	1018	Apr. 22, 2008	Apr. 21, 2009

NOTE: Before starting the measurement, all test equipment shall be warmed up for 30min.

6.2 TEST PROCEDURE

Before the system performance check, we need only to tell the system which components (probe, medium, and device) are used for the system performance check; the system will take care of all parameters. The dipole must be placed beneath the flat section of the SAM Twin Phantom with the correct distance holder in place. The distance holder should touch the phantom surface with a light pressure at the reference marking (little cross) and be oriented parallel to the long side of the phantom. Accurate positioning is not necessary, since the system will search for the peak SAR location, except that the dipole arms should be parallel to the surface. The device holder for mobile phones can be left in place but should be rotated away from the dipole.

The "Power Reference Measurement" and "Power Drift Measurement" jobs are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the amplifier output power. If it is too high (above ± 0.1 dB), the system performance check should be repeated; some amplifiers have very high drift during warm-up. A stable amplifier gives drift results in the DASY system below ± 0.02 dB.

The "Surface Check" job tests the optical surface detection system of the DASY system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ± 0.1 mm). In that case it is better to abort the system performance check and stir the liquid. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within $\pm 30^\circ$.) However, varying breaking indices of different liquid compositions might also influence the distance. If the indicated difference varies from the actual setting, the probe parameter "optical surface

The "Area Scan" job measures the SAR above the dipole on a plane parallel to the surface. It is used to locate the approximate location of the peak SAR. The proposed scan uses large grid spacing for faster measurement; due to the symmetric field, the peak detection is reliable. If a finer graphic is desired, the grid spacing can be reduced. Grid spacing and orientation have no influence on the SAR result.

The "Zoom Scan" job measures the field in a volume around the peak SAR value assessed in the previous "Area Scan" job (for more information see the application note on SAR evaluation).

About the validation dipole positioning uncertainty, the constant and low loss dielectric spacer is used to establish the correct distance between the top surface of the dipole and the bottom surface of the phantom, the error component introduced by the uncertainty of the distance between the liquid (i.e., phantom shell) and the validation dipole in the DASY4 system is less than $\pm 0.1\text{mm}$.

$$SAR_{\text{tolerance}} [\%] = 100 \times \left(\frac{(a + d)^2}{a^2} - 1 \right)$$

As the closest distance is 10mm, the resulting tolerance $SAR_{\text{tolerance}} [\%]$ is $< 2\%$.

6.3 VALIDATION RESULTS

SYSTEM VALIDATION TEST IN THE MUSCLE SIMULATING LIQUID					
TEST FREQUENCY (MHz)	REQUIRED SAR (mW/g)	MEASURED SAR (mW/g)	DEVIATION (%)	SEPARATION DISTANCE	TEST DATE
MSL5200	7.99 (1g)	7.98	-0.13	10mm	Sep. 25, 2008
MSL5500	7.97 (1g)	7.95	-0.45	10mm	Sep. 25, 2008
MSL5200	7.99 (1g)	7.91	-1.00	10mm	Sep. 26, 2008
MSL5500	7.97 (1g)	7.88	-1.13	10mm	Sep. 26, 2008
TESTED BY	Sam Onn				

NOTE: Please see Appendix for the photo of system validation test.

6.4 SYSTEM VALIDATION UNCERTAINTIES (FOR 5.0GHz)

Error Description	Tolerance (±%)	Probability Distribution	Divisor	(C _i)		Standard Uncertainty (±%)		(v _i)
				(1g)	(10g)	(1g)	(10g)	
Measurement System								
Probe Calibration	6.6	Normal	1	1	1	4.8	6.6	∞
Axial Isotropy	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Hemispherical Isotropy	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Boundary effect	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
System Detection Limit	1.0	Rectangular	√3	1	1	0.6	0.6	∞
Readout Electronics	1.0	Normal	1	1	1	1.0	1.0	∞
Response Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
Integration Time	0.0	Rectangular	√3	1	1	0.0	0.0	∞
RF Ambient Conditions	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner	0.8	Rectangular	√3	1	1	0.5	0.5	∞
Probe positioning	5.7	Normal	1	1	1	5.7	5.7	∞
Algorithms for Max. SAR Evaluation	4.0	Rectangular	√3	1	1	2.3	2.3	∞
Dipole								
Dipole Axis to Liquid Distance	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Input power and SAR drift measurement	4.7	Rectangular	√3	1	1	2.7	2.7	∞
Phantom and Tissue Parameters								
Phantom Uncertainty	4.0	Rectangular	√3	1	1	2.3	2.3	∞
Liquid Conductivity (target)	5.0	Rectangular	√3	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measurement)	2.5	Normal	1	0.64	0.43	1.6	1.1	∞
Liquid Permittivity (target)	5.0	Rectangular	√3	0.60	0.49	1.7	1.4	∞
Liquid Permittivity (measurement)	2.5	Normal	1	0.60	0.49	1.5	1.2	∞
Combined Standard Uncertainty						11.3	11.1	∞
Coverage Factor for 95%						kp=2		
Expanded Uncertainty (K=2)						22.6	22.1	

Table 6.1

NOTE: 1. Table 6.1 Uncertainty of the system performance check in the 5-6GHz range. Probe calibration error reflects uncertainty of the EX3DV3 probe conversion factor at Calibration Frequency.
2. About the system validation uncertainty assessment, please reference the section 7.

7. MEASUREMENT SAR PROCEDURE UNCERTAINTIES

The assessment of spatial peak SAR of the hand handheld devices is according to IEEE 1528. All testing situation shall be met below these requirements.

- The system is used by an experienced engineer who follows the manual and the guidelines taught during the training provided by SPEAG.
- The probe has been calibrated within the requested period and the stated uncertainty for the relevant frequency bands does not exceed 4.8% ($k=1$).
- The validation dipole has been calibrated within the requested period and the system performance check has been successful.
- The DAE unit has been calibrated within the within the requested period.
- The minimum distance between the probe sensor and inner phantom shell is selected to be between 4 and 5mm.
- The operational mode of the DUT is CW, CDMA, FDMA or TDMA (GSM, DCS, PCS, IS136 and PDC) and the measurement/integration time per point is >500 ms.
- The dielectric parameters of the liquid have been assessed using Agilent 85070D dielectric probe kit or a more accurate method.
- The dielectric parameters are within 5% of the target values.
- The DUT has been positioned as described in section 3.

7.1. PROBE CALIBRATION UNCERTAINTY

SPEAG conducts the probe calibration in compliance with international and national standards (e.g. IEEE 1528, EN EN 62209-1, IEC 62209, etc.) under ISO17025. The uncertainties are stated on the calibration certificate. For the most relevant frequency bands, these values do not exceed 4.8% ($k=1$). If evaluations of other bands are performed for which the uncertainty exceeds these values, the uncertainty tables given in the summary have to be revised accordingly.

7.2. ISOTROPY UNCERTAINTY

The axial isotropy tolerance accounts for probe rotation around its axis while the hemispherical isotropy error includes all probe orientations and field polarizations. These parameters are assessed by SPEAG during initial calibration. In 2001, SPEAG further tightened its quality controls and warrants that the maximal deviation from axial isotropy is $\pm 0.20\text{dB}$, while the maximum deviation of hemispherical isotropy is $\pm 0.40\text{dB}$, corresponding to $\pm 4.7\%$ and $\pm 9.6\%$, respectively. A weighting factor of c_p equal to 0.5 can be applied, since the axis of the probe deviates less than 30 degrees from the normal surface orientation.

7.3. BOUNDARY EFFECT UNCERTAINTY

The effect can be estimated according to the following error approximation formula

$$SAR_{tolerance}[\%] = SAR_{be}[\%] \times \frac{(d_{be} + d_{step})^2}{2d_{step}} e^{\frac{d_{be}}{\delta/2}}$$

$$d_{be} + d_{step} < 10\text{mm}$$

The parameter d_{be} is the distance in mm between the surface and the closest measurement point used in the averaging process; d_{step} is the separation distance in mm between the first and second measurement points; δ is the minimum penetration depth in mm within the head tissue equivalent liquids (i.e., $\delta = 13.95\text{mm}$ at 3GHz); SAR_{be} is the deviation between the measured SAR value at the distance d_{be} from the boundary and the wave-guide analytical value SAR_{ref} . DASY4 applies a boundary effect compensation algorithm according to IEEE 1528, which is possible since the axis of the probe never deviates more than 30 degrees from the normal surface orientation. $SAR_{be}[\%]$ is assessed during the calibration process and SPEAG warrants that the uncertainty at distances larger than 4mm is always less than 1%. In summary, the worst case boundary effect SAR tolerance[%] for scanning distances larger than 4mm is $< \pm 0.8\%$.

7.4. PROBE LINEARITY UNCERTAINTY

Field probe linearity uncertainty includes errors from the assessment and compensation of the diode compression effects for CW and pulsed signals with known duty cycles. This error is assessed using the procedure described in IEEE 1528. For SPEAG field probes, the measured difference between CW and pulsed signals, with pulse frequencies between 10Hz and 1kHz and duty cycles between 1 and 100, is $< \pm 0.20\text{dB}$ ($< \pm 4.7\%$).

7.5. READOUT ELECTRONICS UNCERTAINTY

All uncertainties related to the probe readout electronics (DAE unit), including the gain and linearity of the instrumentation amplifier, its loading effect on the probe, and accuracy of the signal conversion algorithm, have been assessed accordingly to IEEE 1528. The combination (root-sum-square RSS method) of these components results in an overall maximum error of $\pm 1.0\%$.

7.6. RESPONSE TIME UNCERTAINTY

The time response of the field probes is assessed by exposing the probe to a well-controlled electric field producing SAR larger than 2.0W/kg at the tissue medium surface. The signal response time is evaluated as the time required by the system to reach 90% of the expected final value after an on/of switch of the power source. Analytically, it can be expressed as:

$$SAR_{\text{tolerance}} [\%] = 100 \times \left(\frac{T_m}{T_m + \tau e^{-T_m/\tau}} - 1 \right)$$

where T_m is 500 ms, i.e., the time between measurement samples, and τ the time constant. The response time τ of SPEAG's probes is $< 5\text{ms}$. In the current implementation, DASY4 waits longer than 100 ms after having reached the grid point before starting a measurement, i.e., the response time uncertainty is negligible.

7.7. INTEGRATION TIME UNCERTAINTY

If the device under test does not emit a CW signal, the integration time applied to measure the electric field at a specific point may introduce additional uncertainties due to the discretization and can be assessed as follows

$$SAR_{tolerance} [\%] = 100 \times \sum_{all\ sub-frames} \frac{t_{frame}}{t_{integration}} \frac{slot_{idle}}{slot_{total}}$$

The tolerances for the different systems are given in Table 7.1, whereby the worst-case $SAR_{tolerance}$ is 2.6%.

System	$SAR_{tolerance} \%$
CW	0
CDMA*	0
WCDMA*	0
FDMA	0
IS-136	2.6
PDC	2.6
GSM/DCS/PCS	1.7
DECT	1.9
Worst-Case	2.6

TABLE 7.1

7.8. PROBE POSITIONER MECHANICAL TOLERANCE

The mechanical tolerance of the field probe positioner can introduce probe positioning uncertainties. The resulting SAR uncertainty is assessed by comparing the SAR obtained according to the specifications of the probe positioner with respect to the actual position defined by the geometric center of the probe sensors. The tolerance is determined as:

$$SAR_{tolerance} [\%] = 100 \times \frac{d_{ph}}{\delta/2}$$

The specified repeatability of the RX robot family used in DASY4 systems is $\pm 25\mu\text{m}$. The absolute accuracy for short distance movements is better than $\pm 0.1\text{mm}$, i.e., the $SAR_{tolerance} [\%]$ is better than 1.5% (rectangular).

7.9. PROBE POSITIONING

The probe positioning procedures affect the tolerance of the separation distance between the probe tip and the phantom surface as:

$$SAR_{tolerance} [\%] = 100 \times \frac{d_{ph}}{\delta/2}$$

where d_{ph} is the maximum deviation of the distance between the probe tip and the phantom surface. The optical surface detection has a precision of better than 0.2mm , resulting in an $SAR_{tolerance} [\%]$ of $< 2.9\%$ (rectangular distribution). Since the mechanical detection provides better accuracy, 2.9% is a worst-case figure for DASY4 system.

7.10. PHANTOM UNCERTAINTY

The SAR measurement uncertainty due to SPEAG phantom shell production tolerances has been evaluated using

$$SAR_{tolerance} [\%] \cong 100 \times \frac{2d}{a}, \quad d \ll a$$

For a maximum deviation d of the inner and outer shell of the phantom from that specified in the CAD file of $\pm 0.2\text{mm}$, and a 10mm spacing a between source and tissue liquid, the calculated phantom uncertainty is $\pm 4.0\%$.

7.11.DASY4 UNCERTAINTY BUDGET (FOR 5 ~ 6GHz)

Error Description	Tolerance (±%)	Probability Distribution	Divisor	(C _i)		Standard Uncertainty (±%)		(v _i)
				(1g)	(10g)	(1g)	(10g)	
Measurement System								
Probe Calibration	6.8	Normal	1	1	1	6.8	6.8	∞
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	3.9	3.9	∞
Boundary effect	2.0	Rectangular	√3	1	1	1.2	1.2	∞
Linearity	4.7	Rectangular	√3	1	1	2.7	2.7	∞
System Detection Limit	1.0	Rectangular	√3	1	1	0.6	0.6	∞
Readout Electronics	1.0	Normal	1	1	1	1.0	1.0	∞
Response Time	0.8	Rectangular	√3	1	1	0.5	0.5	∞
Integration Time	2.6	Rectangular	√3	1	1	1.5	1.5	∞
RF Ambient Conditions	3.0	Rectangular	√3	1	1	1.7	1.7	∞
Probe Positioner	0.8	Rectangular	√3	1	1	0.5	0.5	∞
Probe positioning	5.7	Normal	1	1	1	5.7	5.7	∞
Algorithms for Max. SAR Evaluation	4.0	Rectangular	√3	1	1	2.3	2.3	∞
Test EUT Related								
Device Positioning	2.9	Normal	1	1	1	2.9	2.9	145
Device Holder	3.6	Normal	1	1	1	3.6	3.6	5
Power Drift	5.0	Rectangular	√3	1	1	2.9	2.9	∞
Phantom and Tissue Parameters								
Phantom Uncertainty	4.0	Rectangular	√3	1	1	2.3	2.3	∞
Liquid Conductivity (target)	5.0	Rectangular	√3	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measurement)	2.5	Normal	1	0.64	0.43	1.6	1.1	∞
Liquid Permittivity (target)	5.0	Rectangular	√3	0.60	0.49	1.7	1.4	∞
Liquid Permittivity (measurement)	2.5	Normal	1	0.60	0.49	1.5	1.2	∞
Combined Standard Uncertainty						12.8	12.7	330
Expanded STD Uncertainty						25.7	25.3	

TABLE 7.3

The table 7.3: Worst-Case uncertainty budget for DASY4 valid for the frequency range 5 ~ 6 GHz. Probe calibration error reflects uncertainty of the narrow-bandwidth EX3DV3 probe conversion factor (±50 MHz).

8. INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC, UL
GERMANY	TUV Rheinland
JAPAN	VCCI
NORWAY	NEMKO
CANADA	INDUSTRY CANADA , CSA
R.O.C.	TAF, BSMI, NCC
NETHERLANDS	Telefication
SINGAPORE	GOST-ASIA (MOU)
RUSSIA	CERTIS (MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site:

www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

--END--

APPENDIX A: TEST DATA

Liquid Level Photo

MSL 5800MHz D=153mm



Date/Time: 2008/9/25 01:48:56

Test Laboratory: Advance Data Technology

11a-Ch40-M01

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5200 MHz

Communication System: 802.11a ; Frequency: 5200 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
 Medium: MSL5800 Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 5.23 \text{ mho/m}$; $\epsilon_r = 49$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
 Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(4.17, 4.17, 4.17) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 40/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.865 mW/g

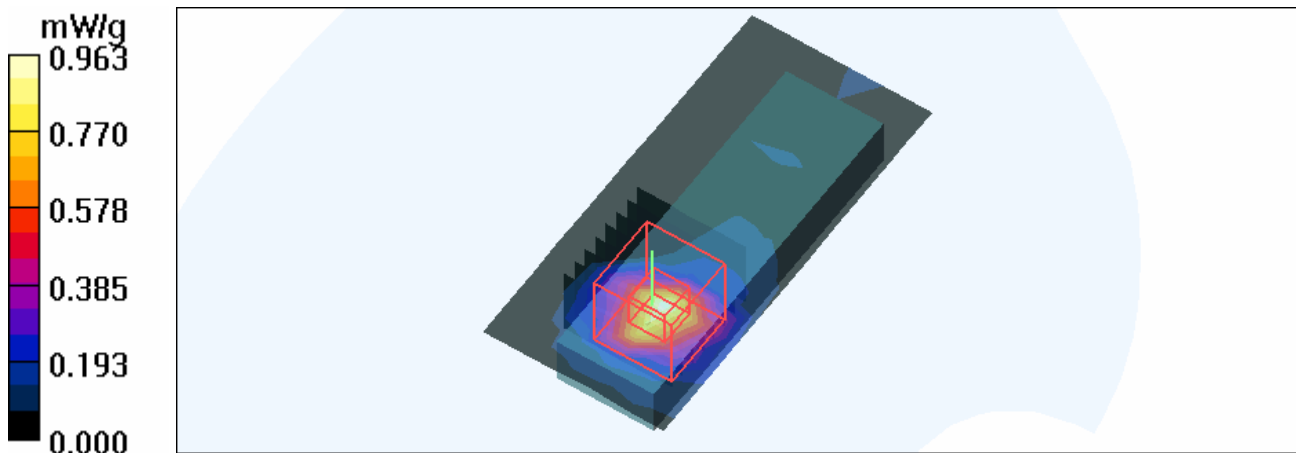
Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 12.6 V/m

Peak SAR (extrapolated) = 2.76 W/kg

SAR(1 g) = 0.644 mW/g; SAR(10 g) = 0.210 mW/g

Maximum value of SAR (measured) = 0.963 mW/g



Date/Time: 2008/9/25 02:13:38

Test Laboratory: Advance Data Technology

11a-Ch52-M01

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5260 MHz

Communication System: 802.11a ; Frequency: 5260 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: $f = 5260$ MHz; $\sigma = 5.33$ mho/m; $\epsilon_r = 48.9$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.87, 3.87, 3.87) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 52/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.905 mW/g

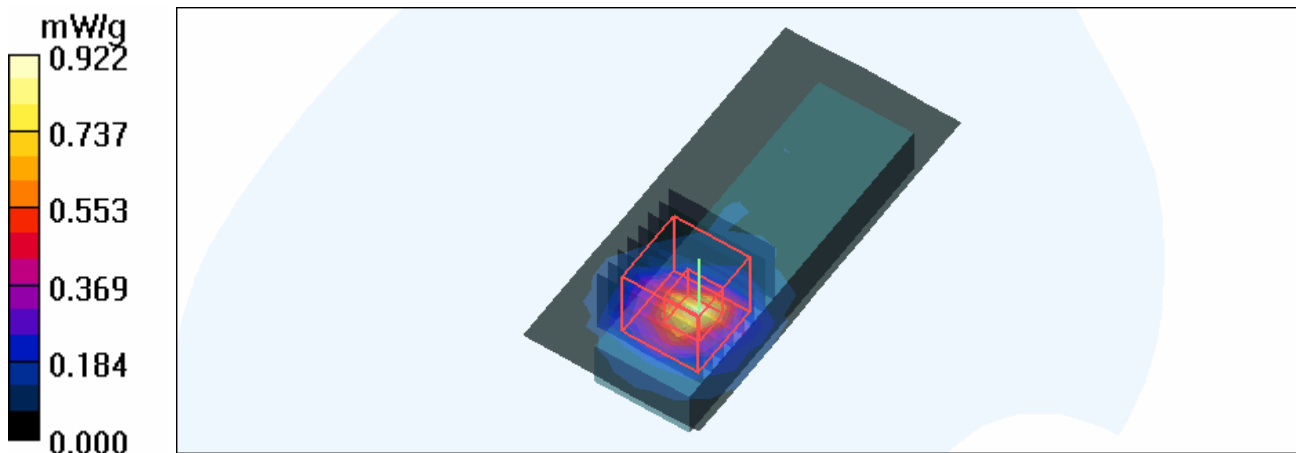
Mid Channel 52/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 12.7 V/m

Peak SAR (extrapolated) = 2.78 W/kg

SAR(1 g) = 0.650 mW/g; SAR(10 g) = 0.210 mW/g

Maximum value of SAR (measured) = 0.922 mW/g



Date/Time: 2008/9/25 02:37:40

Test Laboratory: Advance Data Technology

11a-Ch100-M01

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5500 MHz

Communication System: 802.11a ; Frequency: 5500 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
 Medium: MSL5800 Medium parameters used: $f = 5500 \text{ MHz}$; $\sigma = 5.67 \text{ mho/m}$; $\epsilon_r = 48.4$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
 Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.72, 3.72, 3.72) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 100/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.651 mW/g

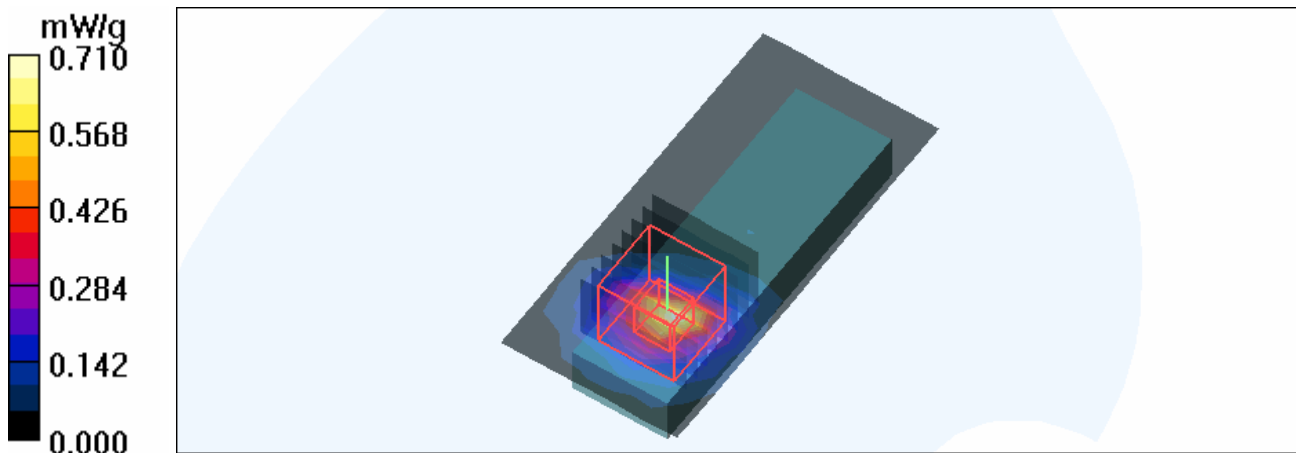
Mid Channel 100/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 11.4 V/m

Peak SAR (extrapolated) = 2.75 W/kg

SAR(1 g) = 0.534 mW/g; SAR(10 g) = 0.169 mW/g

Maximum value of SAR (measured) = 0.710 mW/g



Date/Time: 2008/9/25 03:00:04

Test Laboratory: Advance Data Technology

11a-Ch104-M01

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5520 MHz

Communication System: 802.11a ; Frequency: 5520 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
 Medium: MSL5800 Medium parameters used: $f = 5520 \text{ MHz}$; $\sigma = 5.69 \text{ mho/m}$; $\epsilon_r = 48.4$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
 Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.72, 3.72, 3.72) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 104/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.592 mW/g

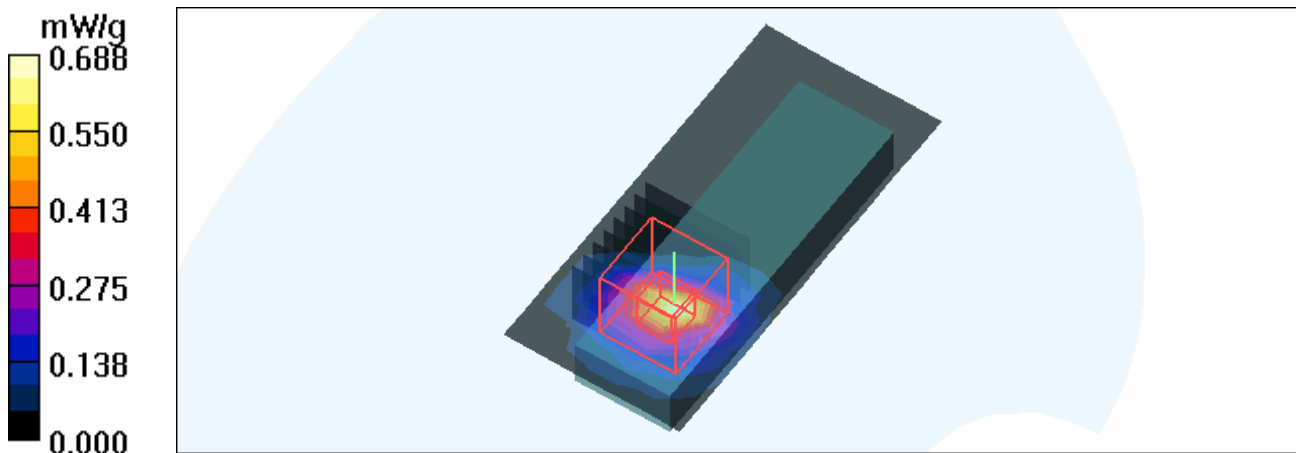
Mid Channel 104/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 10.6 V/m

Peak SAR (extrapolated) = 2.78 W/kg

SAR(1 g) = 0.488 mW/g; SAR(10 g) = 0.157 mW/g

Maximum value of SAR (measured) = 0.688 mW/g



Date/Time: 2008/9/25 03:23:31

Test Laboratory: Advance Data Technology

11a-Ch116-M01

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5580 MHz

Communication System: 802.11a ; Frequency: 5580 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
 Medium: MSL5800 Medium parameters used: $f = 5580 \text{ MHz}$; $\sigma = 5.78 \text{ mho/m}$; $\epsilon_r = 48.2$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
 Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 116/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.502 mW/g

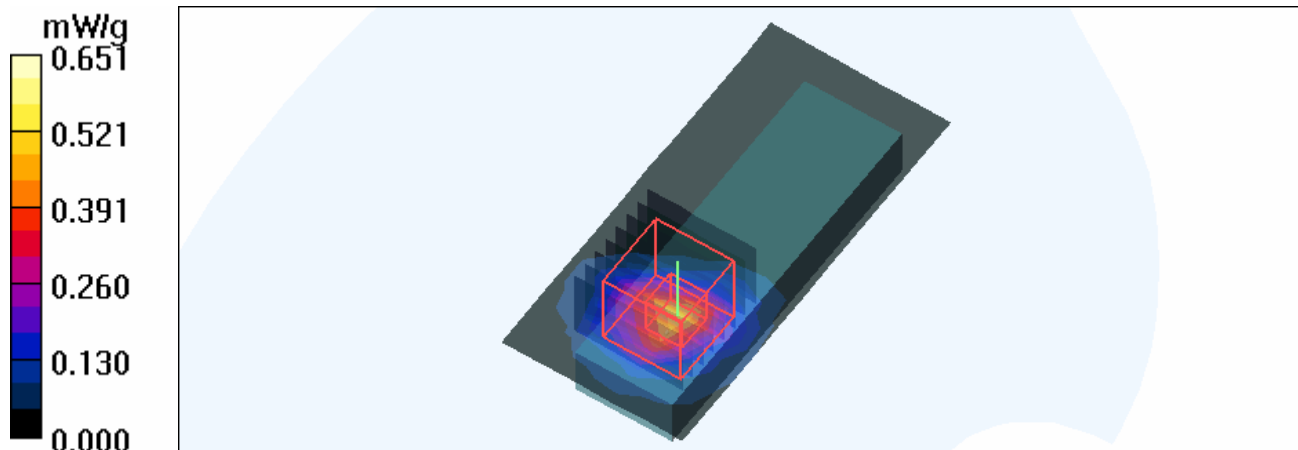
Mid Channel 116/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 10.9 V/m

Peak SAR (extrapolated) = 3.71 W/kg

SAR(1 g) = 0.502 mW/g; SAR(10 g) = 0.154 mW/g

Maximum value of SAR (measured) = 0.651 mW/g



Date/Time: 2008/9/25 03:47:26

Test Laboratory: Advance Data Technology

11a-Ch120-M01

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5600 MHz

Communication System: 802.11a ; Frequency: 5600 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.81$ mho/m; $\epsilon_r = 48.2$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 120/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

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

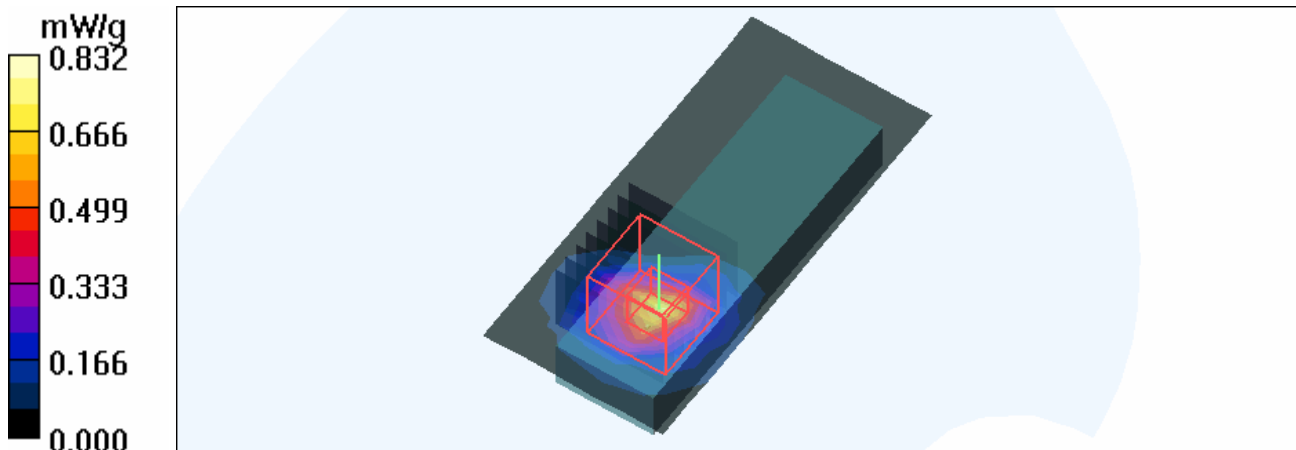
Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 12.0 V/m

Peak SAR (extrapolated) = 3.26 W/kg

SAR(1 g) = 0.613 mW/g; SAR(10 g) = 0.192 mW/g

Maximum value of SAR (measured) = 0.832 mW/g



Date/Time: 2008/9/25 04:12:29

Test Laboratory: Advance Data Technology

11a-Ch124-M01

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5620 MHz

Communication System: 802.11a ; Frequency: 5620 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: $f = 5620 \text{ MHz}$; $\sigma = 5.84 \text{ mho/m}$; $\epsilon_r = 48.1$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 124/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.804 mW/g

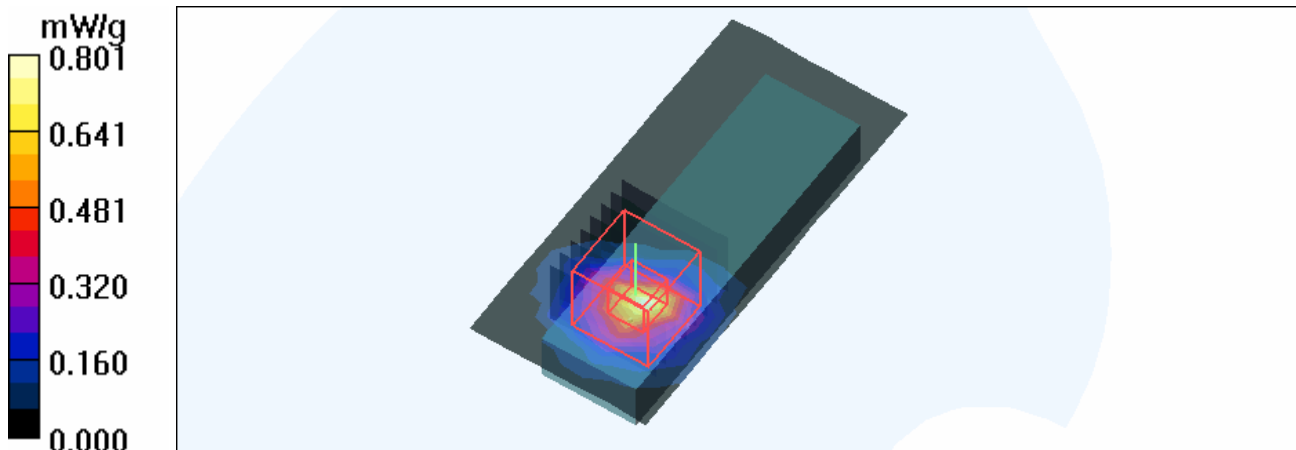
Mid Channel 124/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 12.4 V/m

Peak SAR (extrapolated) = 3.49 W/kg

SAR(1 g) = 0.594 mW/g; SAR(10 g) = 0.177 mW/g

Maximum value of SAR (measured) = 0.801 mW/g



Date/Time: 2008/9/25 04:36:11

Test Laboratory: Advance Data Technology

11a-Ch136-M01

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5680 MHz

Communication System: 802.11a ; Frequency: 5680 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: $f = 5680$ MHz; $\sigma = 5.93$ mho/m; $\epsilon_r = 48.1$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 136/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.713 mW/g

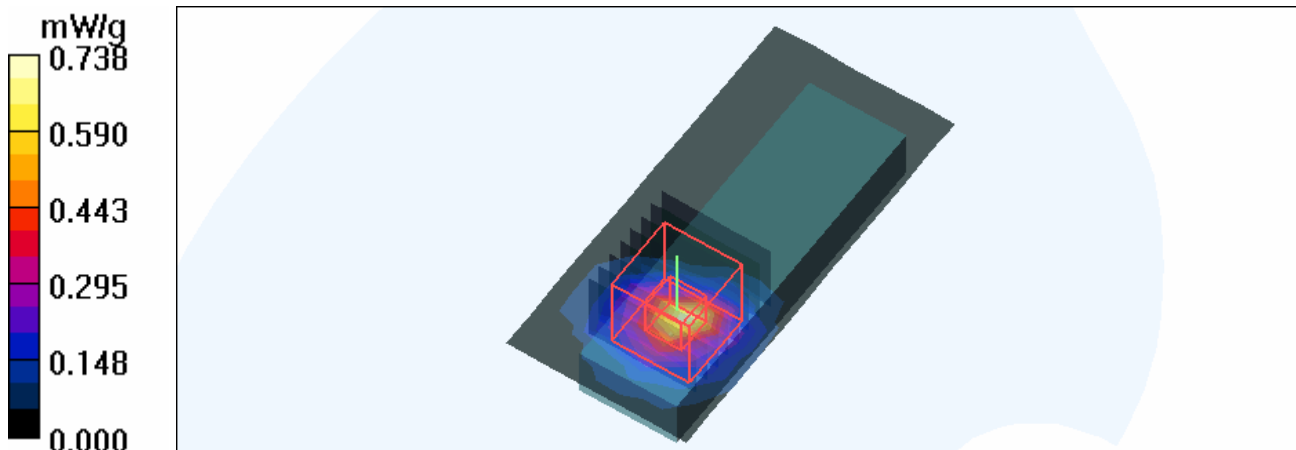
Mid Channel 136/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 10.3 V/m

Peak SAR (extrapolated) = 2.61 W/kg

SAR(1 g) = 0.513 mW/g; SAR(10 g) = 0.158 mW/g

Maximum value of SAR (measured) = 0.738 mW/g



Date/Time: 2008/9/25 04:59:10

Test Laboratory: Advance Data Technology

11a-Ch140-M01

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5700 MHz

Communication System: 802.11a ; Frequency: 5700 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
 Medium: MSL5800 Medium parameters used: $f = 5700 \text{ MHz}$; $\sigma = 5.96 \text{ mho/m}$; $\epsilon_r = 48$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
 Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 140/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.686 mW/g

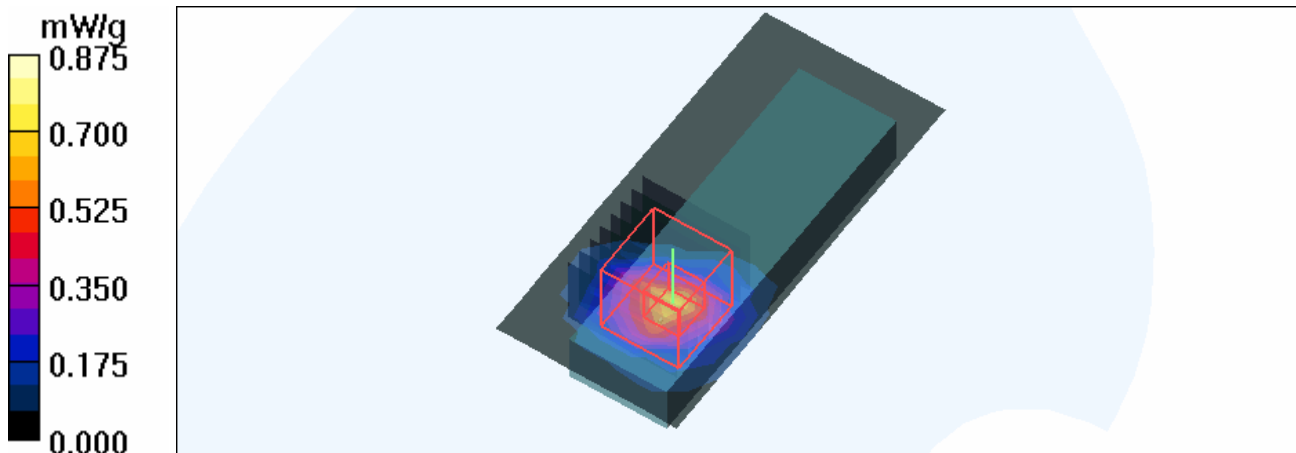
Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 11.6 V/m

Peak SAR (extrapolated) = 3.13 W/kg

SAR(1 g) = 0.590 mW/g; SAR(10 g) = 0.190 mW/g

Maximum value of SAR (measured) = 0.875 mW/g



Date/Time: 2008/9/25 05:46:37

Test Laboratory: Advance Data Technology

11an 20M-Ch40-M02

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5200 MHz

Communication System: 11n 5G span20 ; Frequency: 5200 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5200$ MHz; $\sigma = 5.23$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(4.17, 4.17, 4.17) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 40/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.891 mW/g

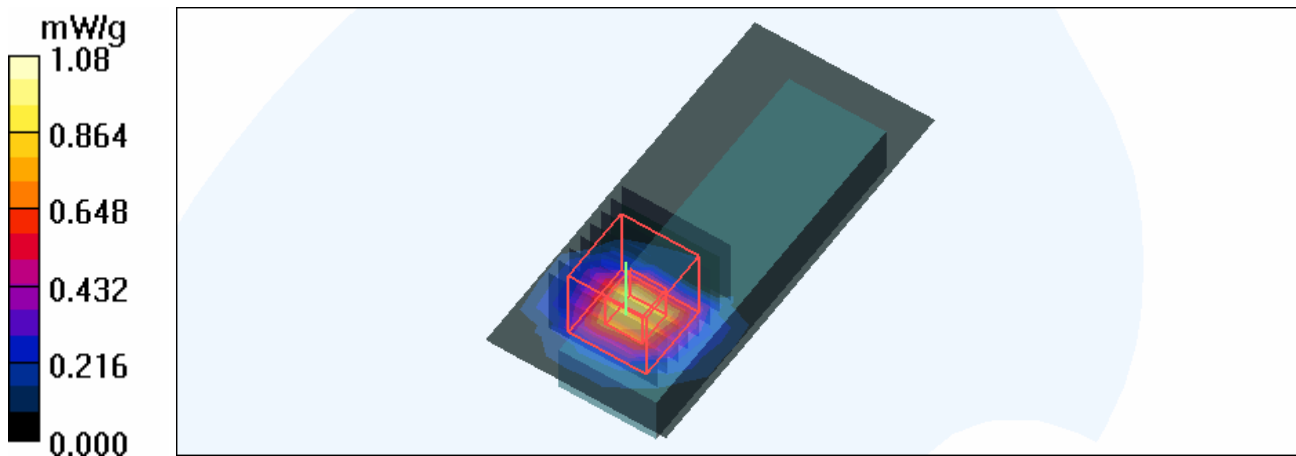
Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

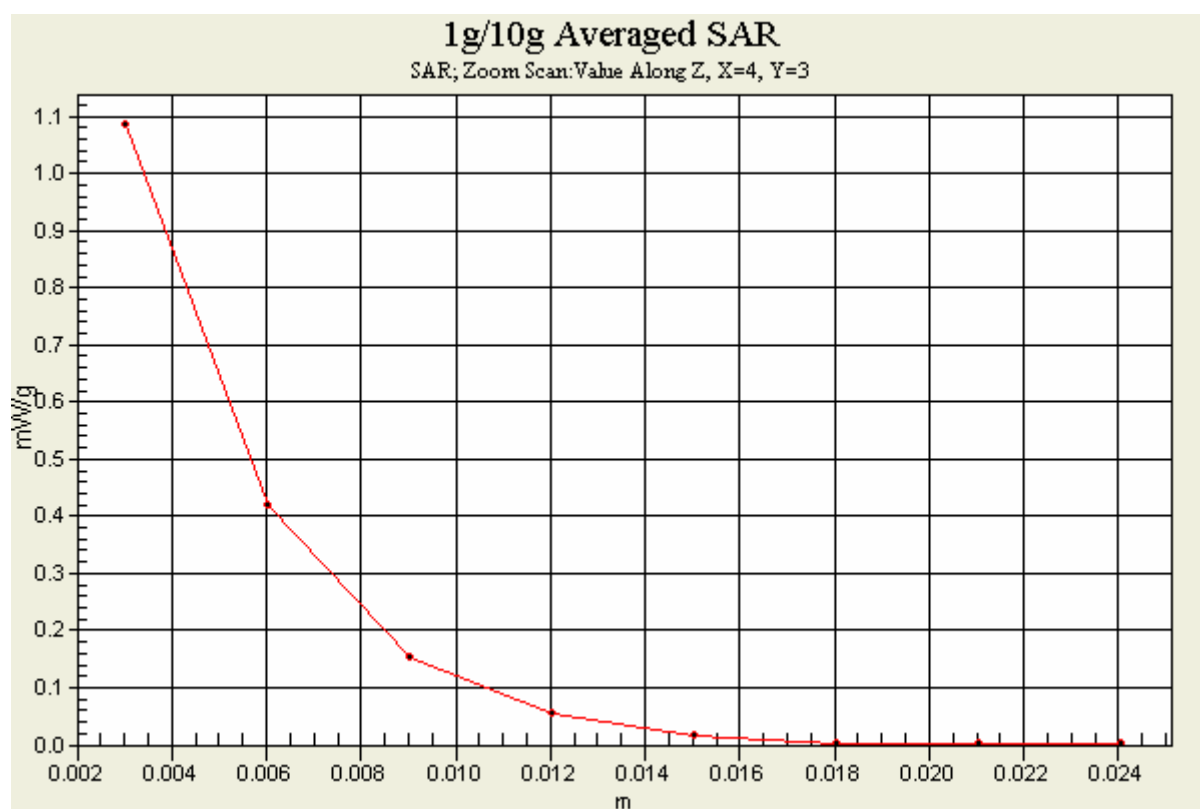
Reference Value = 13.6 V/m

Peak SAR (extrapolated) = 2.88 W/kg

SAR(1 g) = 0.772 mW/g; SAR(10 g) = 0.248 mW/g

Maximum value of SAR (measured) = 1.08 mW/g





Date/Time: 2008/9/25 06:10:39

Test Laboratory: Advance Data Technology

11an 20M-Ch64-M02

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5320 MHz

Communication System: 11n 5G span20 ; Frequency: 5320 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5320$ MHz; $\sigma = 5.41$ mho/m; $\epsilon_r = 48.8$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.87, 3.87, 3.87) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 64/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.879 mW/g

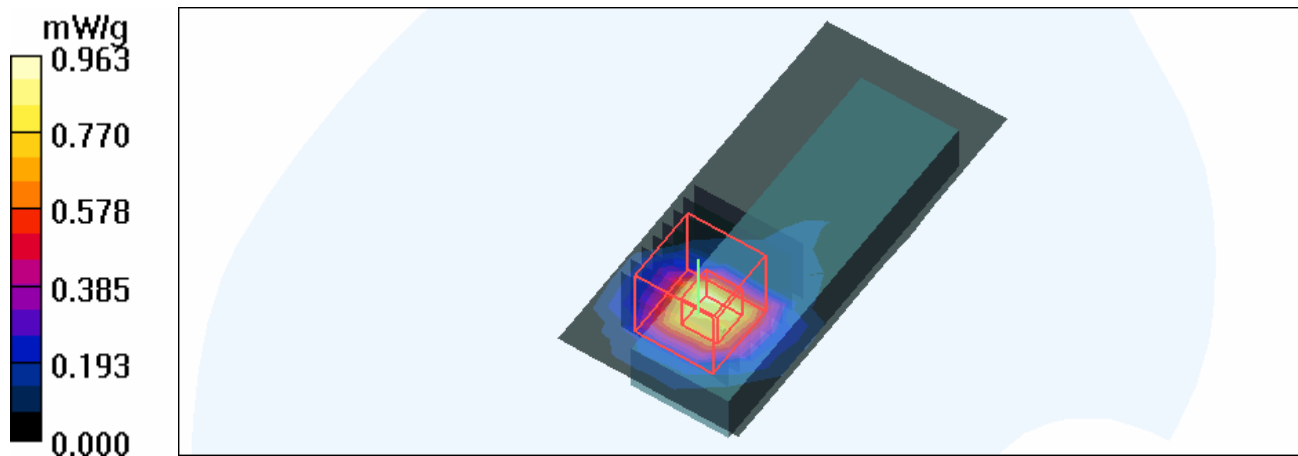
Mid Channel 64/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 14.7 V/m

Peak SAR (extrapolated) = 2.31 W/kg

SAR(1 g) = 0.638 mW/g; SAR(10 g) = 0.205 mW/g

Maximum value of SAR (measured) = 0.963 mW/g



Date/Time: 2008/9/25 06:34:50

Test Laboratory: Advance Data Technology

11an 20M-Ch100-M02

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5500 MHz

Communication System: 11n 5G span20 ; Frequency: 5500 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5500$ MHz; $\sigma = 5.67$ mho/m; $\epsilon_r = 48.4$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.72, 3.72, 3.72) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 40/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.819 mW/g

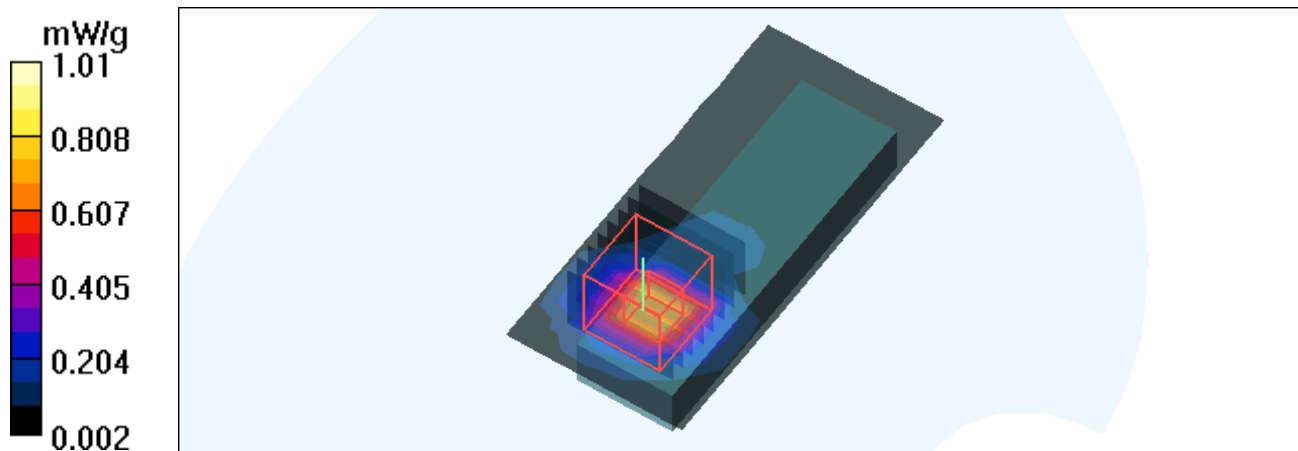
Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 14.0 V/m

Peak SAR (extrapolated) = 2.85 W/kg

SAR(1 g) = 0.769 mW/g; SAR(10 g) = 0.244 mW/g

Maximum value of SAR (measured) = 1.01 mW/g



Date/Time: 2008/9/25 06:57:36

Test Laboratory: Advance Data Technology

11an 20M-Ch104-M02

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5520 MHz

Communication System: 11n 5G span20 ; Frequency: 5520 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5520 \text{ MHz}$; $\sigma = 5.69 \text{ mho/m}$; $\epsilon_r = 48.4$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.72, 3.72, 3.72) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 104/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.771 mW/g

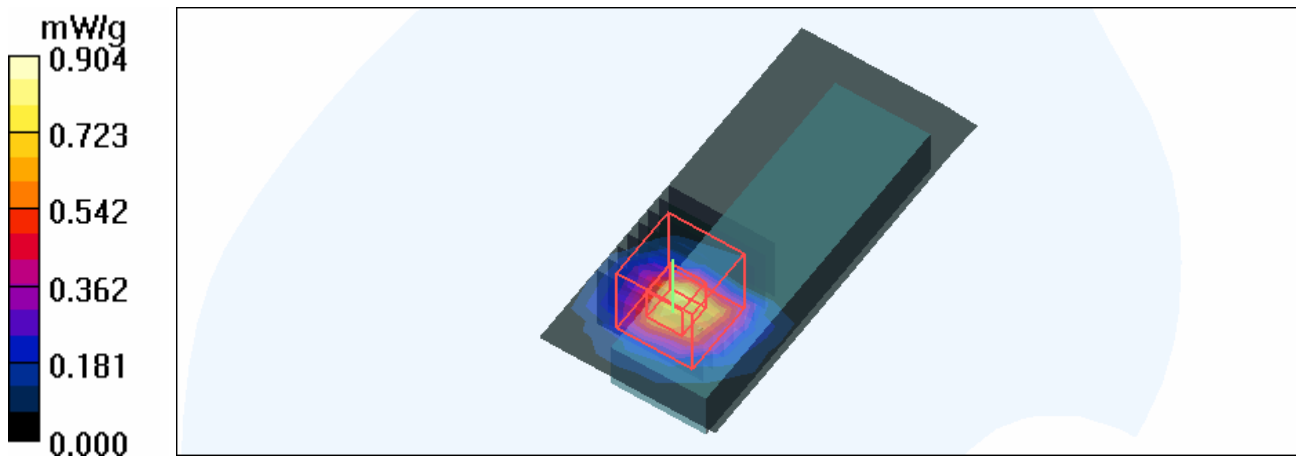
Mid Channel 104/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 11.1 V/m

Peak SAR (extrapolated) = 2.83 W/kg

SAR(1 g) = 0.639 mW/g; SAR(10 g) = 0.208 mW/g

Maximum value of SAR (measured) = 0.904 mW/g



Date/Time: 2008/9/25 07:19:16

Test Laboratory: Advance Data Technology

11an 20M-Ch116-M02

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5580 MHz

Communication System: 11n 5G span20 ; Frequency: 5580 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5580$ MHz; $\sigma = 5.78$ mho/m; $\epsilon_r = 48.2$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 116/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.765 mW/g

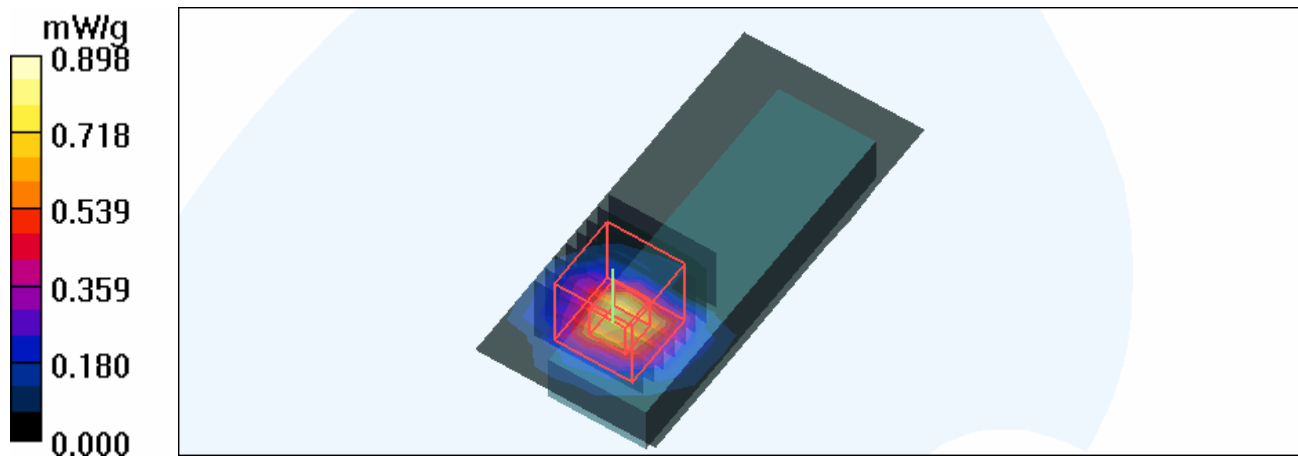
Mid Channel 116/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 12.6 V/m

Peak SAR (extrapolated) = 2.28 W/kg

SAR(1 g) = 0.622 mW/g; SAR(10 g) = 0.199 mW/g

Maximum value of SAR (measured) = 0.898 mW/g



Date/Time: 2008/9/25 07:42:33

Test Laboratory: Advance Data Technology

11an 20M-Ch120-M02

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5600 MHz

Communication System: 11n 5G span20 ; Frequency: 5600 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.81$ mho/m; $\epsilon_r = 48.2$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 120/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.570 mW/g

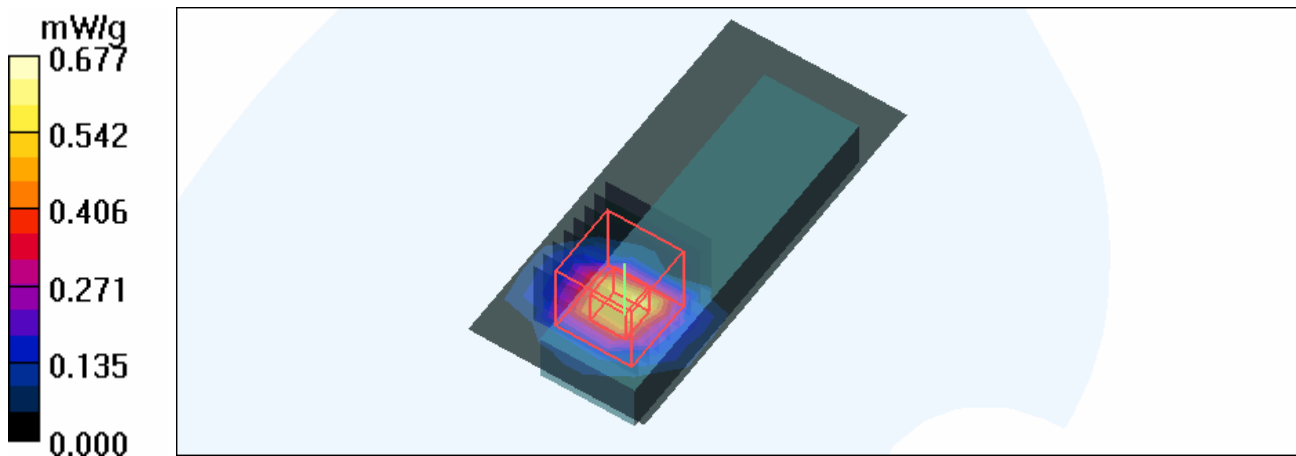
Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 10.4 V/m

Peak SAR (extrapolated) = 1.68 W/kg

SAR(1 g) = 0.472 mW/g; SAR(10 g) = 0.149 mW/g

Maximum value of SAR (measured) = 0.677 mW/g



Date/Time: 2008/9/25 08:06:52

Test Laboratory: Advance Data Technology

11an 20M-Ch124-M02

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5620 MHz

Communication System: 11n 5G span20 ; Frequency: 5620 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5620$ MHz; $\sigma = 5.84$ mho/m; $\epsilon_r = 48.1$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 124/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.566 mW/g

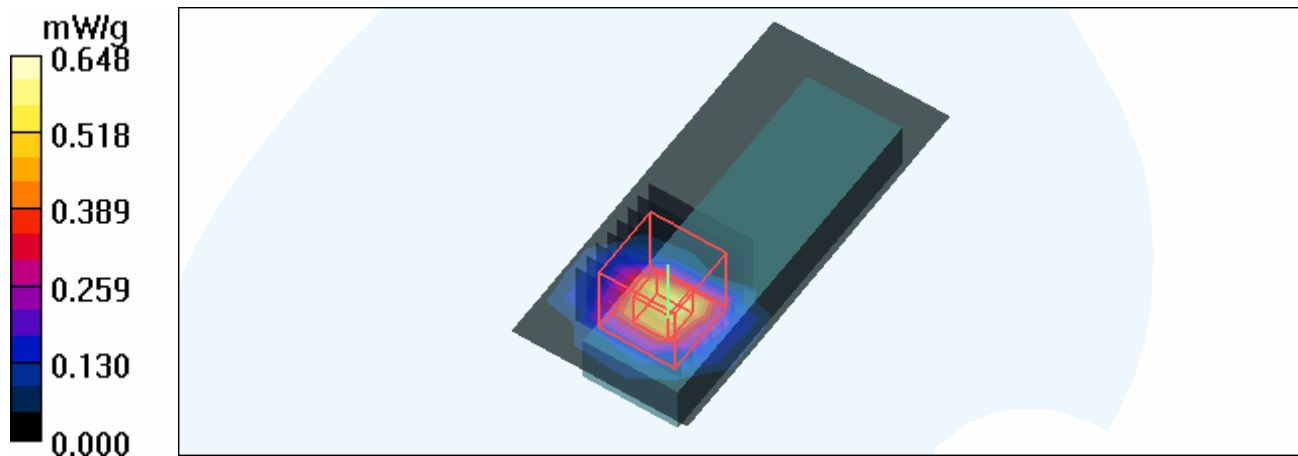
Mid Channel 124/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 10.6 V/m

Peak SAR (extrapolated) = 1.67 W/kg

SAR(1 g) = 0.461 mW/g; SAR(10 g) = 0.145 mW/g

Maximum value of SAR (measured) = 0.648 mW/g



Date/Time: 2008/9/25 08:29:58

Test Laboratory: Advance Data Technology

11an 20M-Ch136-M02

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5680 MHz

Communication System: 11n 5G span20 ; Frequency: 5680 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5680$ MHz; $\sigma = 5.93$ mho/m; $\epsilon_r = 48.1$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 136/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.558 mW/g

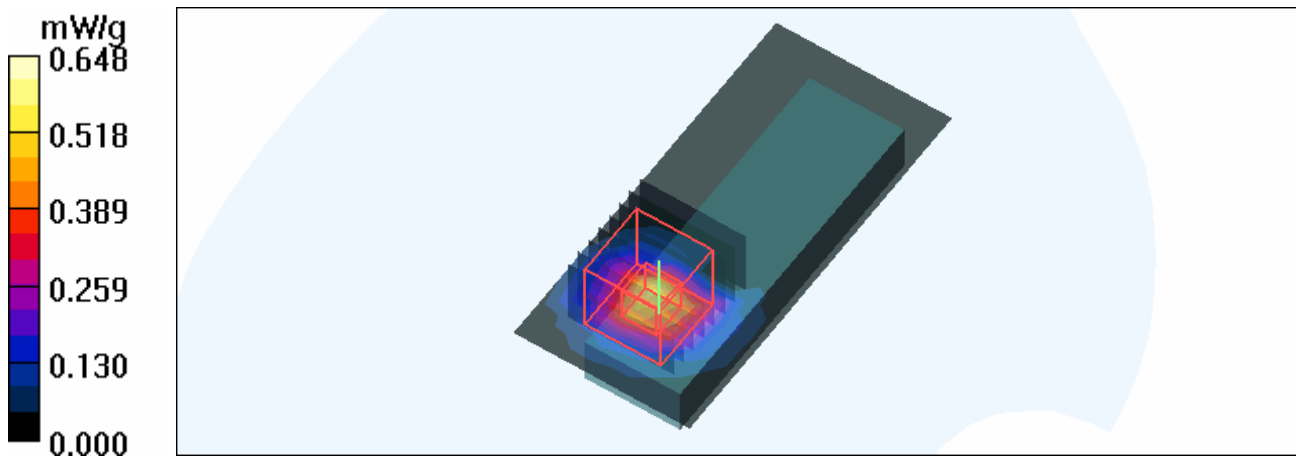
Mid Channel 136/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 10.4 V/m

Peak SAR (extrapolated) = 1.76 W/kg

SAR(1 g) = 0.447 mW/g; SAR(10 g) = 0.144 mW/g

Maximum value of SAR (measured) = 0.648 mW/g



Date/Time: 2008/9/25 08:53:44

Test Laboratory: Advance Data Technology

11an 20M-Ch140-M02

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5700 MHz

Communication System: 11n 5G span20 ; Frequency: 5700 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5700$ MHz; $\sigma = 5.96$ mho/m; $\epsilon_r = 48$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 140/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.531 mW/g

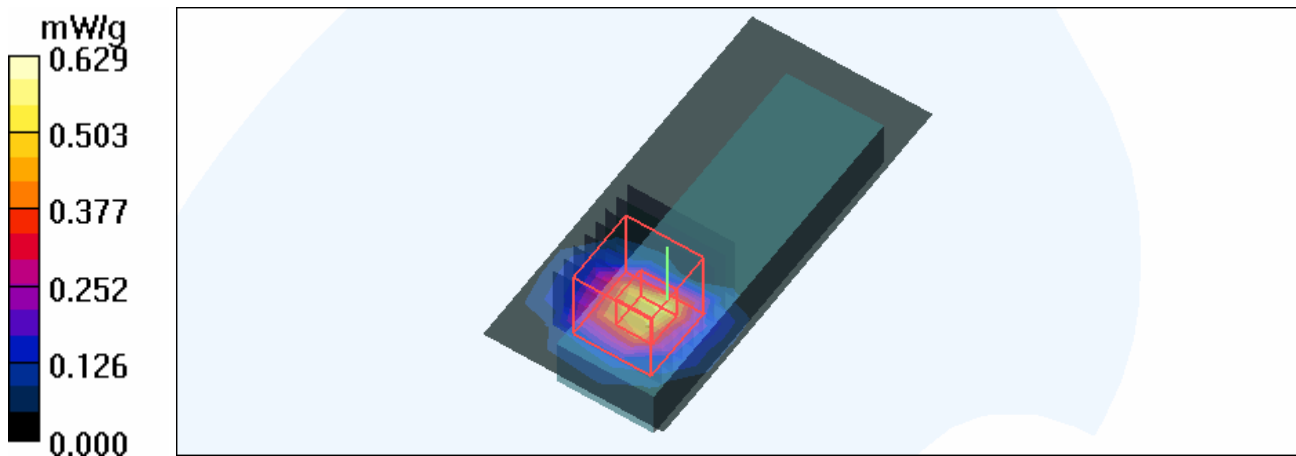
Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 10.3 V/m

Peak SAR (extrapolated) = 2.32 W/kg

SAR(1 g) = 0.434 mW/g; SAR(10 g) = 0.137 mW/g

Maximum value of SAR (measured) = 0.629 mW/g



Date/Time: 2008/9/25 09:40:43

Test Laboratory: Advance Data Technology

11an 40M-Ch46-M03

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5230 MHz

Communication System: 11n 5G span40 ; Frequency: 5230 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5230 \text{ MHz}$; $\sigma = 5.28 \text{ mho/m}$; $\epsilon_r = 48.9$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(4.17, 4.17, 4.17) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 46/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.841 mW/g

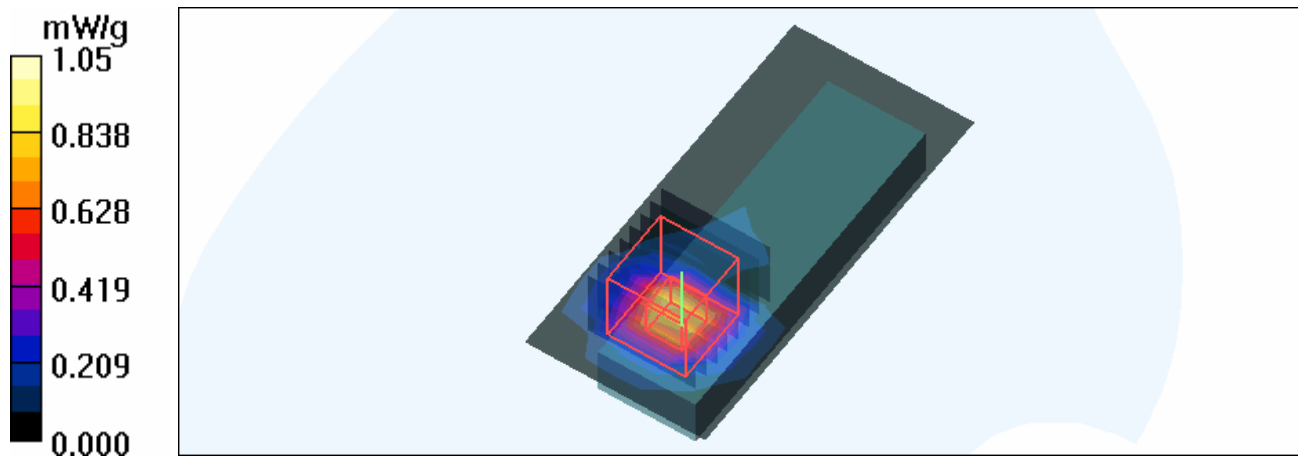
Mid Channel 46/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 14.2 V/m

Peak SAR (extrapolated) = 2.61 W/kg

SAR(1 g) = 0.747 mW/g; SAR(10 g) = 0.239 mW/g

Maximum value of SAR (measured) = 1.05 mW/g



Date/Time: 2008/9/25 10:05:50

Test Laboratory: Advance Data Technology

11an 40M-Ch54-M03

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5270 MHz

Communication System: 11n 5G span40 ; Frequency: 5270 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5270$ MHz; $\sigma = 5.34$ mho/m; $\epsilon_r = 48.9$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.87, 3.87, 3.87) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 54/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.781 mW/g

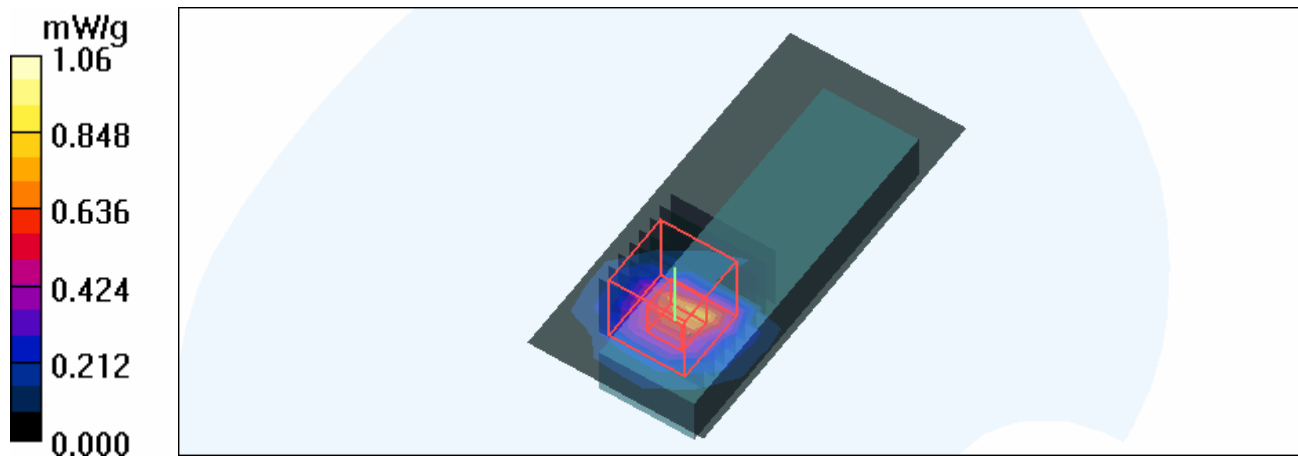
Mid Channel 54/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 13.3 V/m

Peak SAR (extrapolated) = 2.24 W/kg

SAR(1 g) = 0.674 mW/g; SAR(10 g) = 0.218 mW/g

Maximum value of SAR (measured) = 1.06 mW/g



Date/Time: 2008/9/25 10:28:25

Test Laboratory: Advance Data Technology

11an 40M-Ch102-M03

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5510 MHz

Communication System: 11n 5G span40 ; Frequency: 5510 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used : $f = 5510$ MHz; $\sigma = 5.69$ mho/m; $\epsilon_r = 48.4$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.72, 3.72, 3.72) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 102/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.658 mW/g

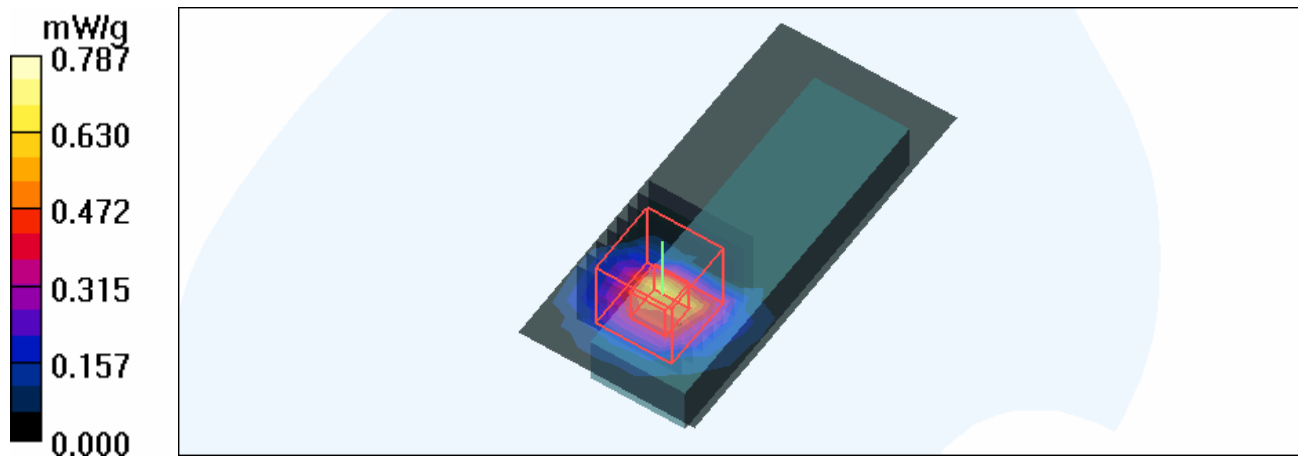
Mid Channel 102/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 11.2 V/m

Peak SAR (extrapolated) = 2.63 W/kg

SAR(1 g) = 0.564 mW/g; SAR(10 g) = 0.175 mW/g

Maximum value of SAR (measured) = 0.787 mW/g



Date/Time: 2008/9/25 10:53:58

Test Laboratory: Advance Data Technology

11an 40M-Ch118-M03

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5590 MHz

Communication System: 11n 5G span40 ; Frequency: 5590 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5590 \text{ MHz}$; $\sigma = 5.8 \text{ mho/m}$; $\epsilon_r = 48.2$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 118/Area Scan (6x11x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.551 mW/g

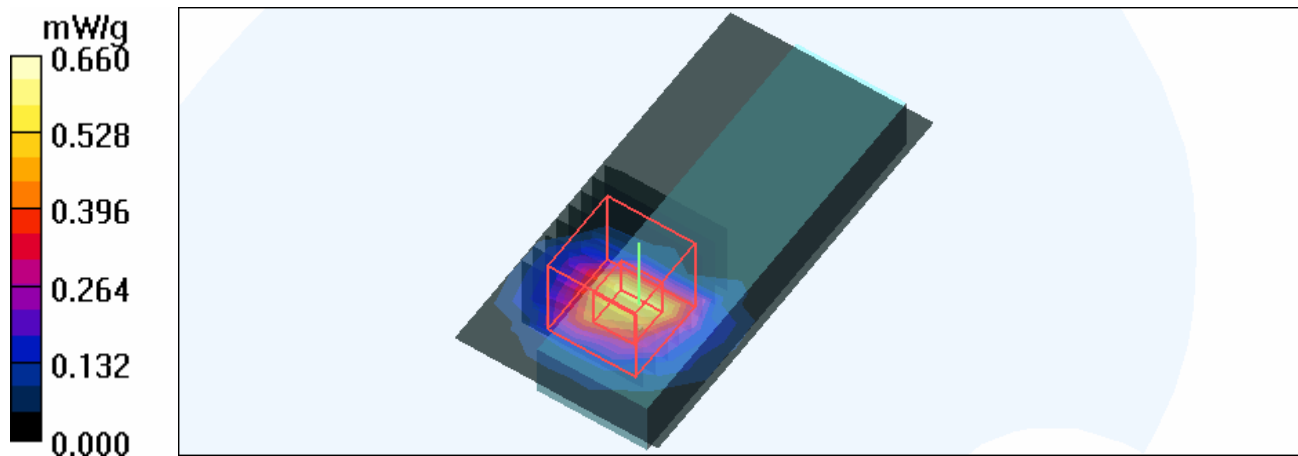
Mid Channel 118/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 10.5 V/m

Peak SAR (extrapolated) = 1.94 W/kg

SAR(1 g) = 0.468 mW/g; SAR(10 g) = 0.148 mW/g

Maximum value of SAR (measured) = 0.660 mW/g



Date/Time: 2008/9/25 11:16:11

Test Laboratory: Advance Data Technology

11an 40M-Ch134-M03

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5670 MHz

Communication System: 11n 5G span40 ; Frequency: 5670 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5670$ MHz; $\sigma = 5.92$ mho/m; $\epsilon_r = 48.1$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 134/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.604 mW/g

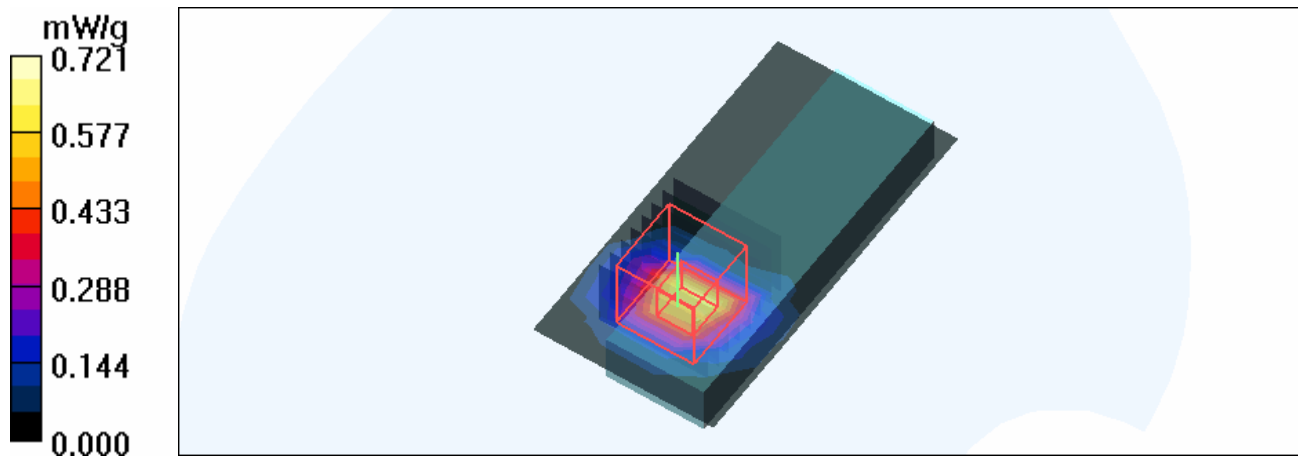
Mid Channel 134/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 10.9 V/m

Peak SAR (extrapolated) = 1.91 W/kg

SAR(1 g) = 0.506 mW/g; SAR(10 g) = 0.158 mW/g

Maximum value of SAR (measured) = 0.721 mW/g



Date/Time: 2008/9/25 11:40:17

Test Laboratory: Advance Data Technology

11a-Ch40-M04

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5200 MHz

Communication System: 802.11a ; Frequency: 5200 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
 Medium: MSL5800 Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 5.23 \text{ mho/m}$; $\epsilon_r = 49$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)
 Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(4.17, 4.17, 4.17) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 40/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.591 mW/g

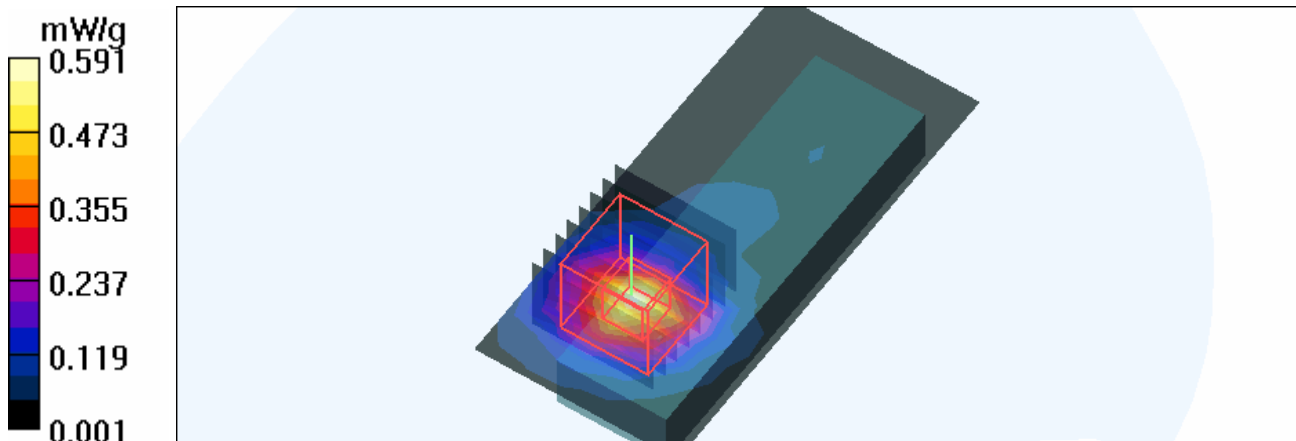
Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 9.54 V/m

Peak SAR (extrapolated) = 1.31 W/kg

SAR(1 g) = 0.403 mW/g; SAR(10 g) = 0.134 mW/g

Maximum value of SAR (measured) = 0.588 mW/g



Date/Time: 2008/9/25 12:05:19

Test Laboratory: Advance Data Technology

11a-Ch52-M04

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5260 MHz

Communication System: 802.11a ; Frequency: 5260 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: $f = 5260 \text{ MHz}$; $\sigma = 5.33 \text{ mho/m}$; $\epsilon_r = 48.9$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)
Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.87, 3.87, 3.87) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 52/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.614 mW/g

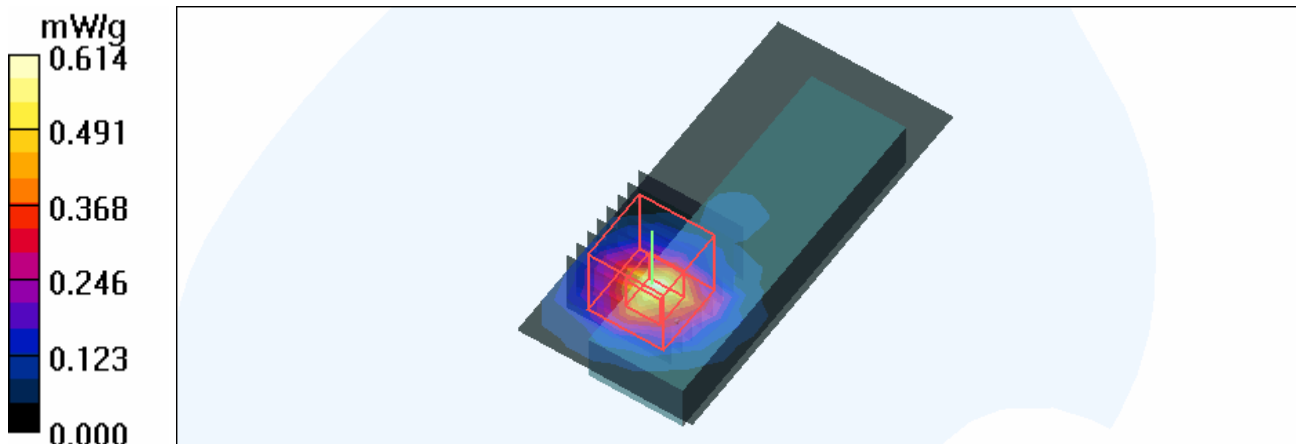
Mid Channel 52/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 10.2 V/m

Peak SAR (extrapolated) = 1.31 W/kg

SAR(1 g) = 0.417 mW/g; SAR(10 g) = 0.142 mW/g

Maximum value of SAR (measured) = 0.609 mW/g



Date/Time: 2008/9/25 12:47:30

Test Laboratory: Advance Data Technology

11a-Ch100-M04

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5500 MHz

Communication System: 802.11a ; Frequency: 5500 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: $f = 5500$ MHz; $\sigma = 5.67$ mho/m; $\epsilon_r = 48.4$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)
Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.72, 3.72, 3.72) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 100/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.667 mW/g

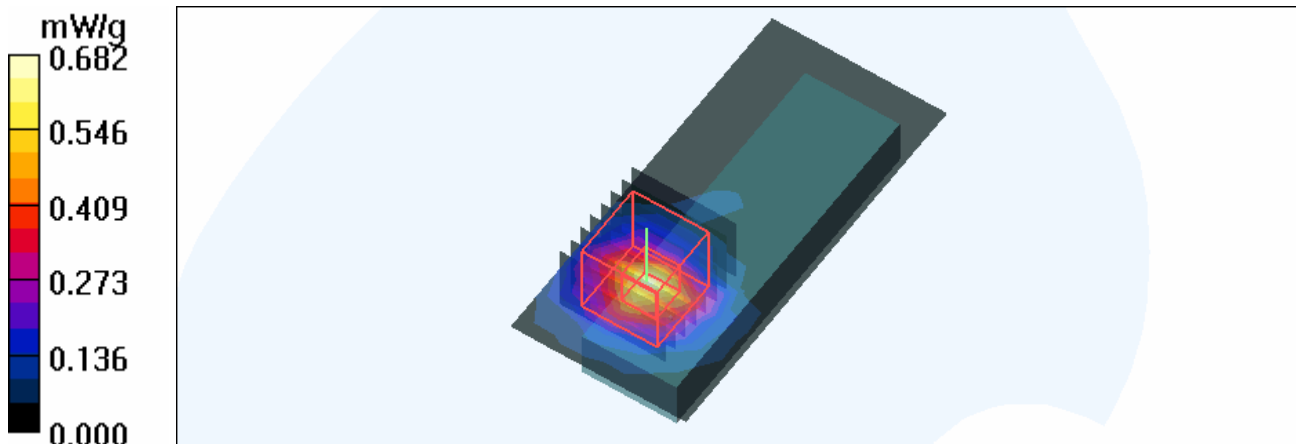
Mid Channel 100/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 11.5 V/m

Peak SAR (extrapolated) = 1.78 W/kg

SAR(1 g) = 0.473 mW/g; SAR(10 g) = 0.162 mW/g

Maximum value of SAR (measured) = 0.682 mW/g



Date/Time: 2008/9/25 13:11:53

Test Laboratory: Advance Data Technology

11a-Ch104-M04

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5520 MHz

Communication System: 802.11a ; Frequency: 5520 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: $f = 5520$ MHz; $\sigma = 5.69$ mho/m; $\epsilon_r = 48.4$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)
Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.72, 3.72, 3.72) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 104/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.617 mW/g

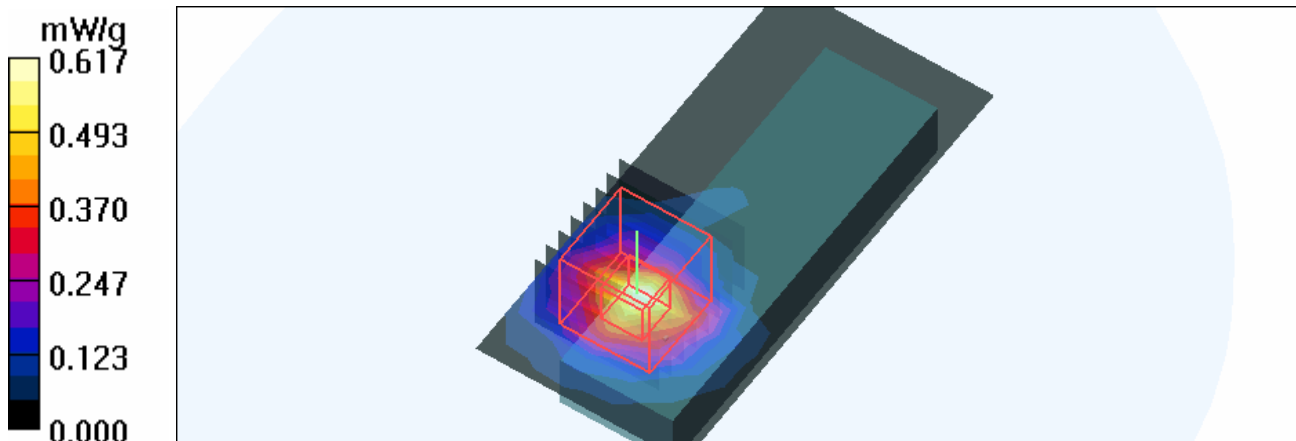
Mid Channel 104/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 10.4 V/m

Peak SAR (extrapolated) = 1.63 W/kg

SAR(1 g) = 0.419 mW/g; SAR(10 g) = 0.146 mW/g

Maximum value of SAR (measured) = 0.599 mW/g



Date/Time: 2008/9/25 13:35:44

Test Laboratory: Advance Data Technology

11a-Ch116-M04

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5580 MHz

Communication System: 802.11a ; Frequency: 5580 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
 Medium: MSL5800 Medium parameters used: $f = 5580 \text{ MHz}$; $\sigma = 5.78 \text{ mho/m}$; $\epsilon_r = 48.2$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)
 Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 116/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.578 mW/g

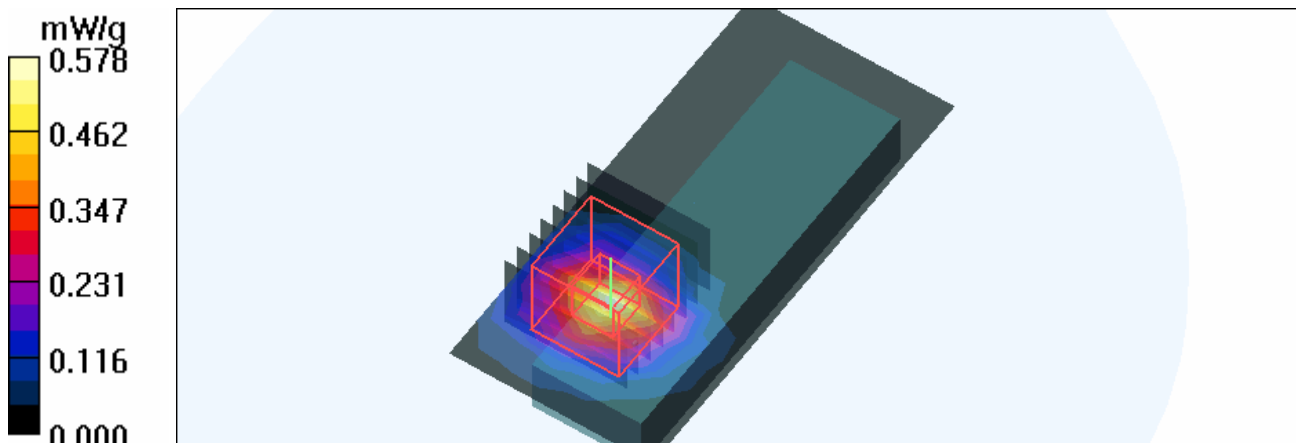
Mid Channel 116/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 9.98 V/m

Peak SAR (extrapolated) = 1.66 W/kg

SAR(1 g) = 0.402 mW/g; SAR(10 g) = 0.135 mW/g

Maximum value of SAR (measured) = 0.563 mW/g



Date/Time: 2008/9/25 13:58:55

Test Laboratory: Advance Data Technology

11a-Ch120-M04

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5600 MHz

Communication System: 802.11a ; Frequency: 5600 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.81$ mho/m; $\epsilon_r = 48.2$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)
Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 120/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.717 mW/g

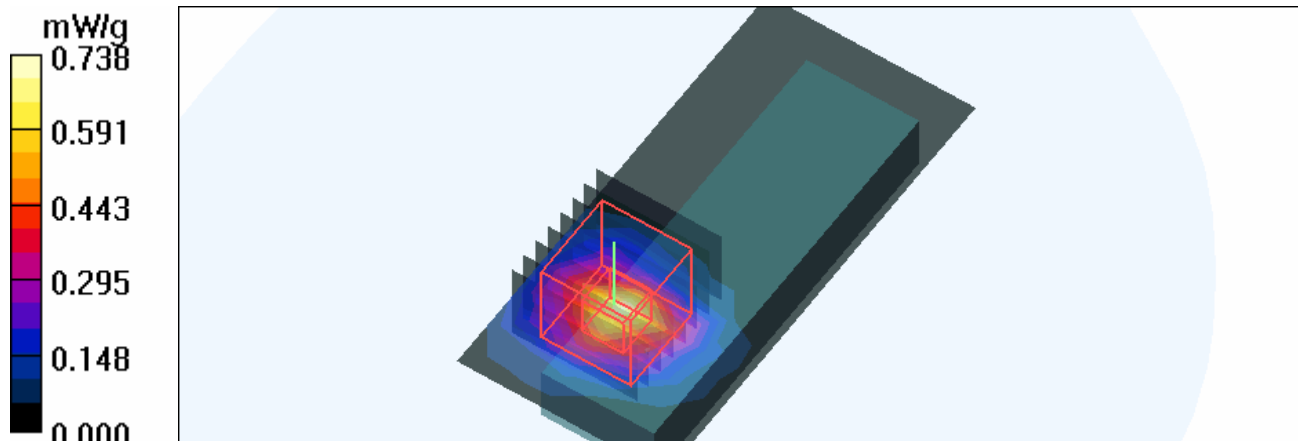
Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 10.8 V/m

Peak SAR (extrapolated) = 2.46 W/kg

SAR(1 g) = 0.518 mW/g; SAR(10 g) = 0.171 mW/g

Maximum value of SAR (measured) = 0.738 mW/g



Date/Time: 2008/9/25 14:22:12

Test Laboratory: Advance Data Technology

11a-Ch124-M04

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5620 MHz

Communication System: 802.11a ; Frequency: 5620 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
 Medium: MSL5800 Medium parameters used: $f = 5620 \text{ MHz}$; $\sigma = 5.84 \text{ mho/m}$; $\epsilon_r = 48.1$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)
 Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 124/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.568 mW/g

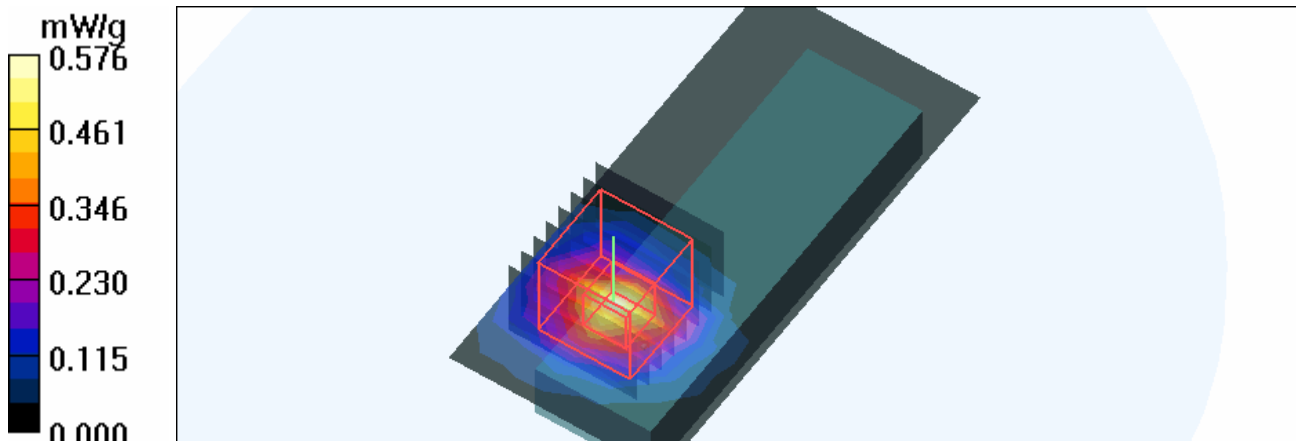
Mid Channel 124/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 9.54 V/m

Peak SAR (extrapolated) = 1.40 W/kg

SAR(1 g) = 0.393 mW/g; SAR(10 g) = 0.132 mW/g

Maximum value of SAR (measured) = 0.576 mW/g



Date/Time: 2008/9/25 14:45:19

Test Laboratory: Advance Data Technology

11a-Ch136-M04

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5680 MHz

Communication System: 802.11a ; Frequency: 5680 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: $f = 5680$ MHz; $\sigma = 5.93$ mho/m; $\epsilon_r = 48.1$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)
Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 136/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.585 mW/g

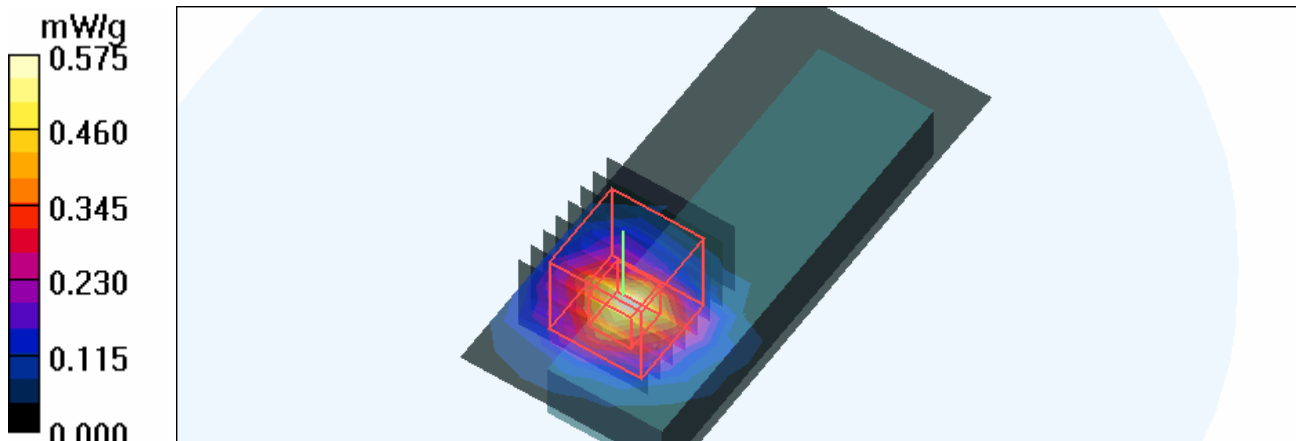
Mid Channel 136/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 9.75 V/m

Peak SAR (extrapolated) = 1.59 W/kg

SAR(1 g) = 0.409 mW/g; SAR(10 g) = 0.138 mW/g

Maximum value of SAR (measured) = 0.575 mW/g



Date/Time: 2008/9/25 15:08:48

Test Laboratory: Advance Data Technology

11a-Ch140-M04

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5700 MHz

Communication System: 802.11a ; Frequency: 5700 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
 Medium: MSL5800 Medium parameters used: $f = 5700 \text{ MHz}$; $\sigma = 5.96 \text{ mho/m}$; $\epsilon_r = 48$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)
 Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 140/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.522 mW/g

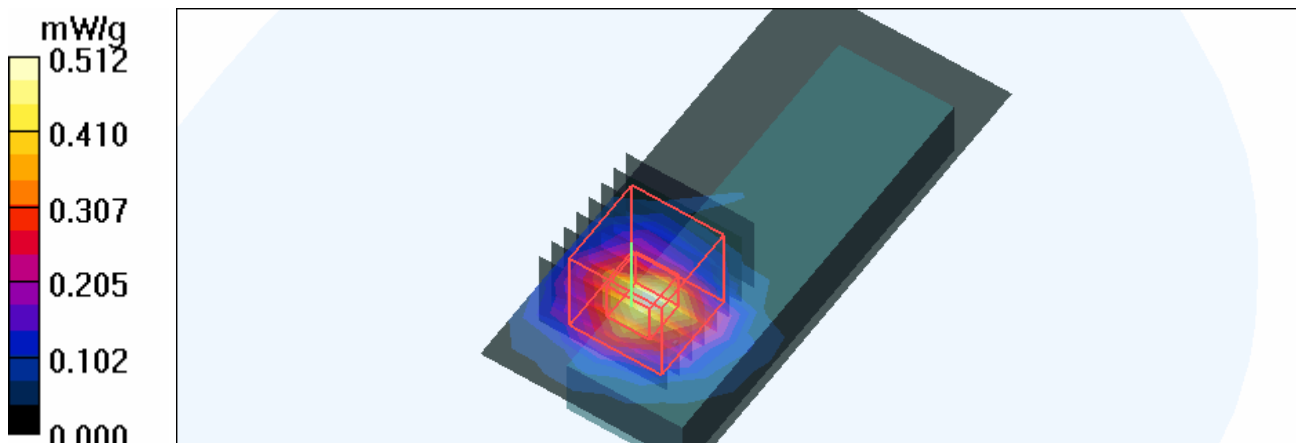
Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 9.14 V/m

Peak SAR (extrapolated) = 1.41 W/kg

SAR(1 g) = 0.363 mW/g; SAR(10 g) = 0.122 mW/g

Maximum value of SAR (measured) = 0.512 mW/g



Date/Time: 2008/9/25 15:56:42

Test Laboratory: Advance Data Technology

11an 20M-Ch40-M05

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5200 MHz

Communication System: 11n 5G span20 ; Frequency: 5200 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5200$ MHz; $\sigma = 5.23$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(4.17, 4.17, 4.17) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 40/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.648 mW/g

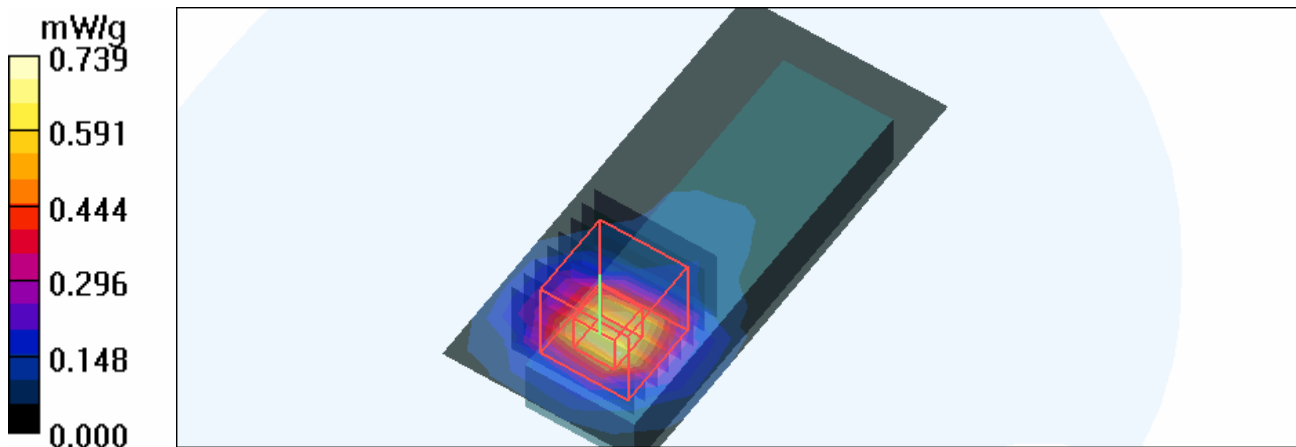
Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 10.4 V/m

Peak SAR (extrapolated) = 1.76 W/kg

SAR(1 g) = 0.495 mW/g; SAR(10 g) = 0.177 mW/g

Maximum value of SAR (measured) = 0.739 mW/g



Date/Time: 2008/9/25 16:20:58

Test Laboratory: Advance Data Technology

11an 20M-Ch64-M05

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5320 MHz

Communication System: 11n 5G span20 ; Frequency: 5320 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5320$ MHz; $\sigma = 5.41$ mho/m; $\epsilon_r = 48.8$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.87, 3.87, 3.87) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 64/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.619 mW/g

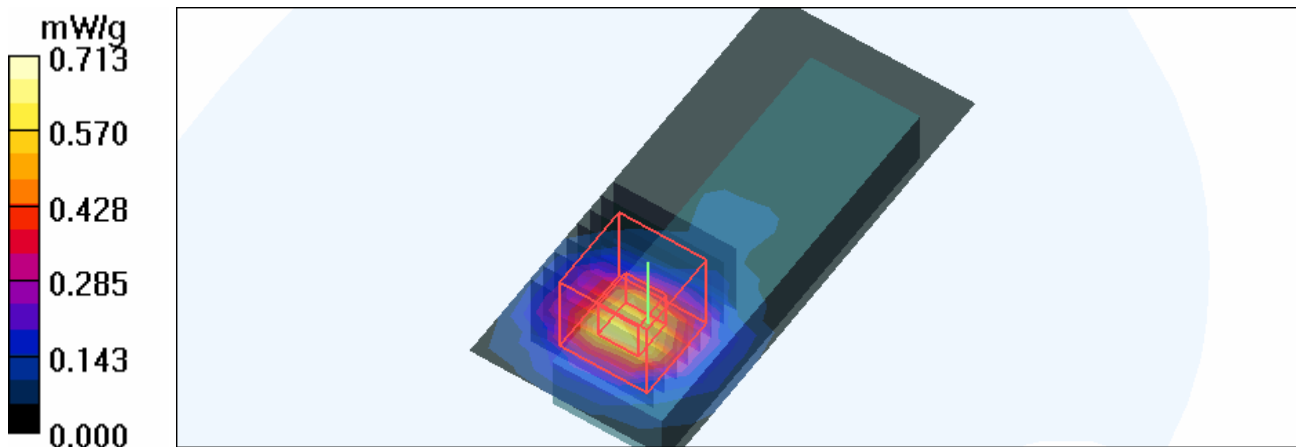
Mid Channel 64/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 11.3 V/m

Peak SAR (extrapolated) = 2.30 W/kg

SAR(1 g) = 0.526 mW/g; SAR(10 g) = 0.174 mW/g

Maximum value of SAR (measured) = 0.713 mW/g



Date/Time: 2008/9/25 16:45:21

Test Laboratory: Advance Data Technology

11an 20M-Ch100-M05

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5500 MHz

Communication System: 11n 5G span20 ; Frequency: 5500 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5500$ MHz; $\sigma = 5.67$ mho/m; $\epsilon_r = 48.4$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.72, 3.72, 3.72) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 100/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.605 mW/g

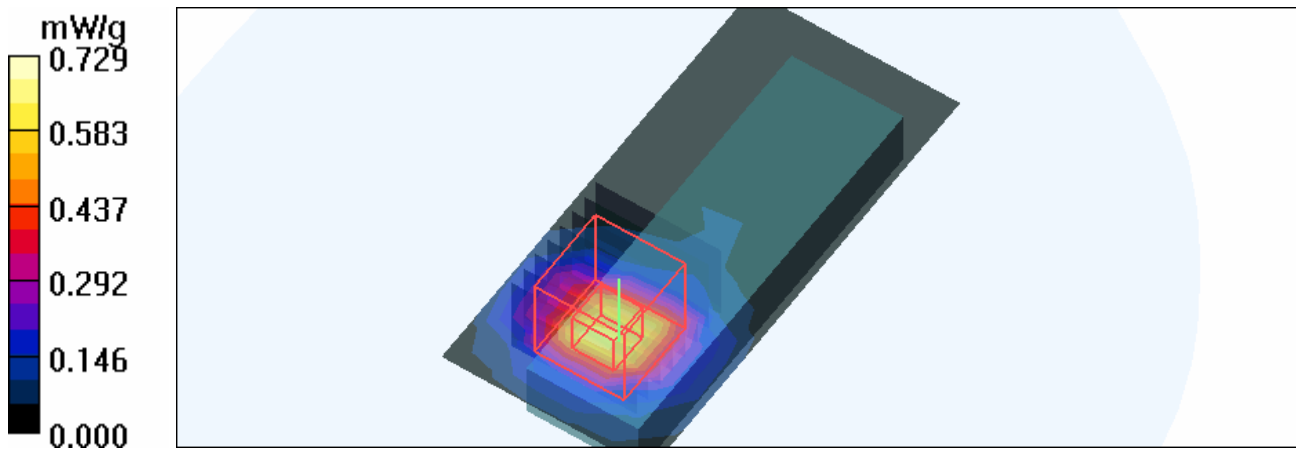
Mid Channel 100/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 9.37 V/m

Peak SAR (extrapolated) = 1.48 W/kg

SAR(1 g) = 0.451 mW/g; SAR(10 g) = 0.171 mW/g

Maximum value of SAR (measured) = 0.729 mW/g



Date/Time: 2008/9/25 17:09:38

Test Laboratory: Advance Data Technology

11an 20M-Ch104-M05

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5520 MHz

Communication System: 11n 5G span20 ; Frequency: 5520 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5520$ MHz; $\sigma = 5.69$ mho/m; $\epsilon_r = 48.4$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.72, 3.72, 3.72) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 104/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.651 mW/g

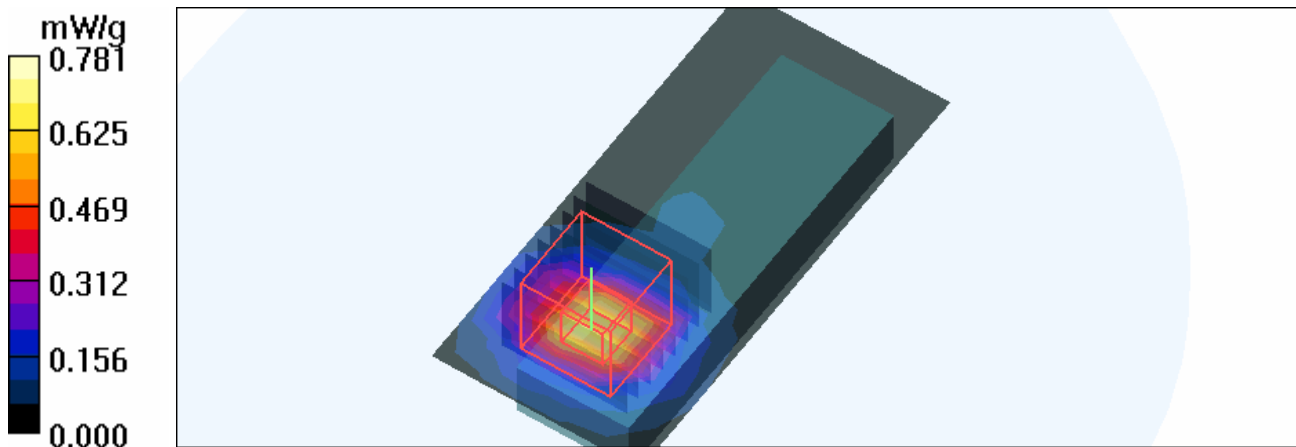
Mid Channel 104/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 10.1 V/m

Peak SAR (extrapolated) = 1.92 W/kg

SAR(1 g) = 0.551 mW/g; SAR(10 g) = 0.194 mW/g

Maximum value of SAR (measured) = 0.781 mW/g



Date/Time: 2008/9/25 17:33:24

Test Laboratory: Advance Data Technology

11an 20M-Ch116-M05

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5580 MHz

Communication System: 11n 5G span20 ; Frequency: 5580 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5580 \text{ MHz}$; $\sigma = 5.78 \text{ mho/m}$; $\epsilon_r = 48.2$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 116/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.555 mW/g

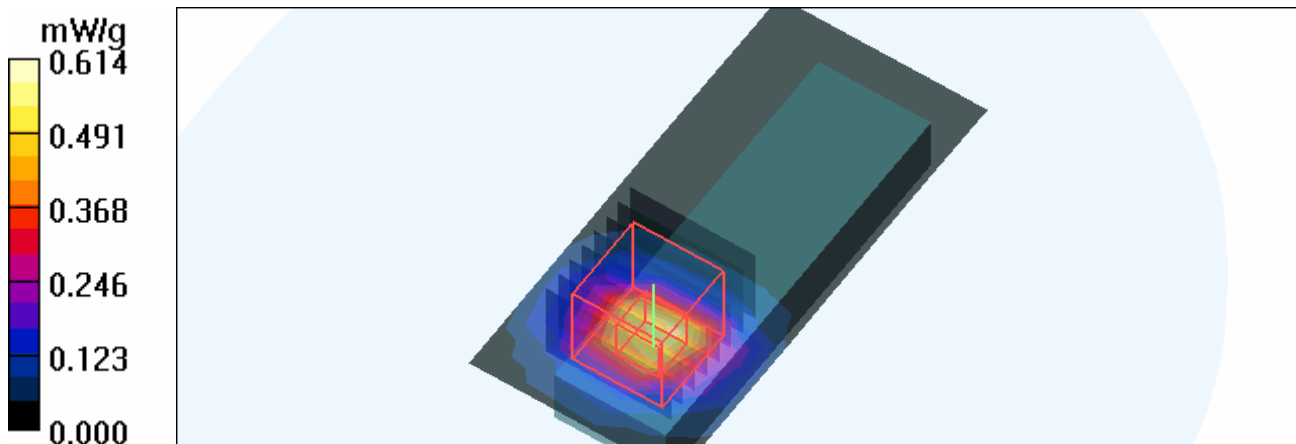
Mid Channel 116/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 9.13 V/m

Peak SAR (extrapolated) = 1.77 W/kg

SAR(1 g) = 0.431 mW/g; SAR(10 g) = 0.152 mW/g

Maximum value of SAR (measured) = 0.614 mW/g



Date/Time: 2008/9/25 17:58:22

Test Laboratory: Advance Data Technology

11an 20M-Ch120-M05

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5600 MHz

Communication System: 11n 5G span20 ; Frequency: 5600 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.81$ mho/m; $\epsilon_r = 48.2$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 120/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.442 mW/g

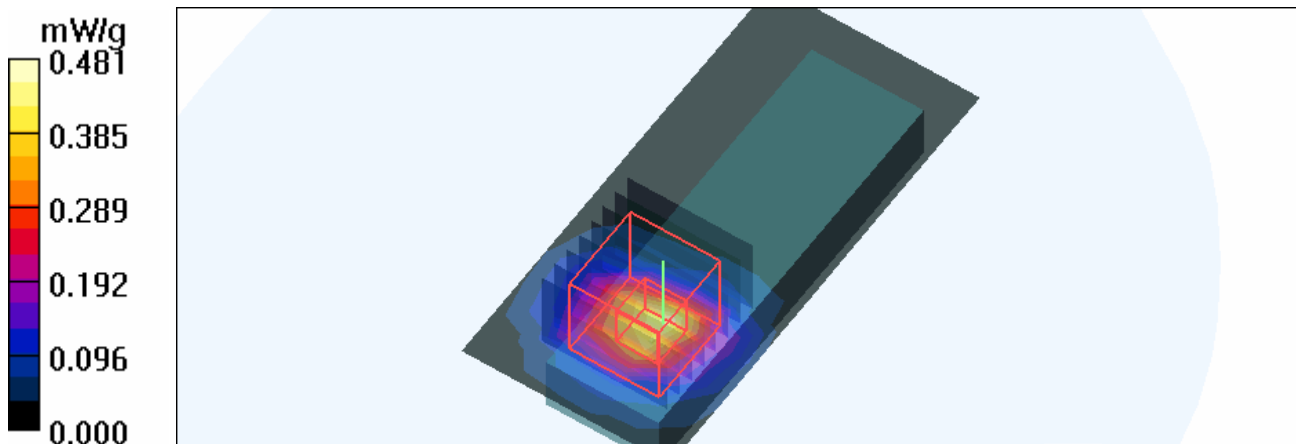
Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 8.12 V/m

Peak SAR (extrapolated) = 1.23 W/kg

SAR(1 g) = 0.344 mW/g; SAR(10 g) = 0.114 mW/g

Maximum value of SAR (measured) = 0.481 mW/g



Date/Time: 2008/9/25 18:25:13

Test Laboratory: Advance Data Technology

11an 20M-Ch124-M05

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5620 MHz

Communication System: 11n 5G span20 ; Frequency: 5620 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5620$ MHz; $\sigma = 5.84$ mho/m; $\epsilon_r = 48.1$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 124/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.442 mW/g

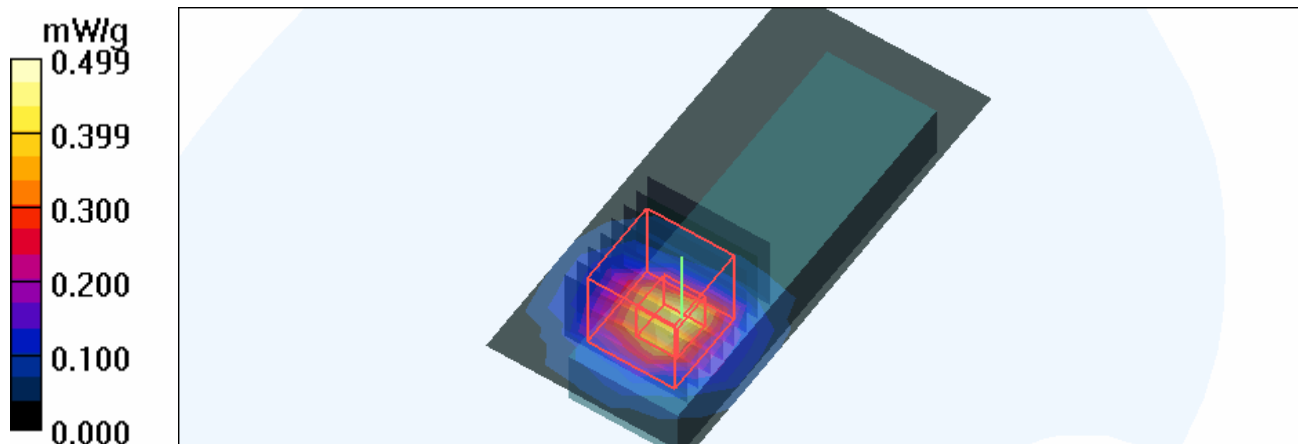
Mid Channel 124/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 8.62 V/m

Peak SAR (extrapolated) = 1.15 W/kg

SAR(1 g) = 0.332 mW/g; SAR(10 g) = 0.112 mW/g

Maximum value of SAR (measured) = 0.499 mW/g



Date/Time: 2008/9/25 18:49:02

Test Laboratory: Advance Data Technology

11an 20M-Ch136-M05

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5680 MHz

Communication System: 11n 5G span20 ; Frequency: 5680 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5680$ MHz; $\sigma = 5.93$ mho/m; $\epsilon_r = 48.1$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 136/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.458 mW/g

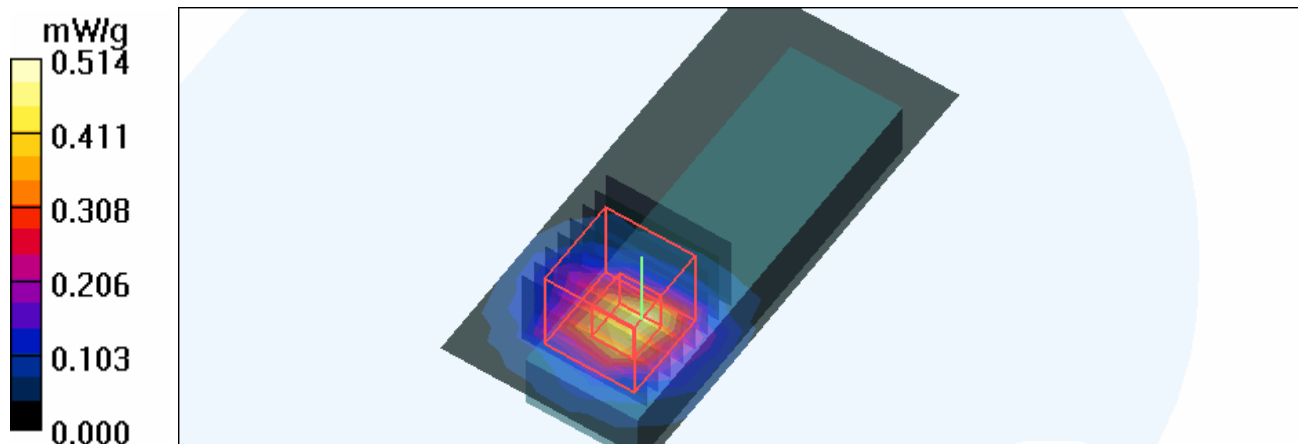
Mid Channel 136/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 8.56 V/m

Peak SAR (extrapolated) = 1.45 W/kg

SAR(1 g) = 0.369 mW/g; SAR(10 g) = 0.128 mW/g

Maximum value of SAR (measured) = 0.514 mW/g



Date/Time: 2008/9/25 19:14:08

Test Laboratory: Advance Data Technology

11an 20M-Ch140-M05

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5700 MHz

Communication System: 11n 5G span20 ; Frequency: 5700 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5700$ MHz; $\sigma = 5.96$ mho/m; $\epsilon_r = 48$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 140/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.455 mW/g

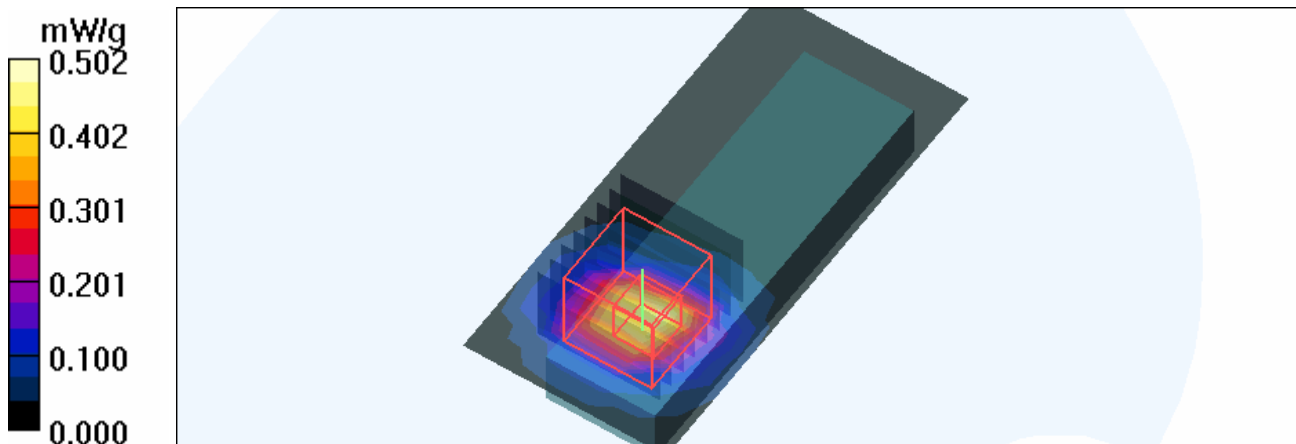
Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 8.73 V/m

Peak SAR (extrapolated) = 1.36 W/kg

SAR(1 g) = 0.353 mW/g; SAR(10 g) = 0.118 mW/g

Maximum value of SAR (measured) = 0.502 mW/g



Date/Time: 2008/9/25 20:03:23

Test Laboratory: Advance Data Technology

11an 40M-Ch46-M06

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5230 MHz

Communication System: 11n 5G span40 ; Frequency: 5230 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5230 \text{ MHz}$; $\sigma = 5.28 \text{ mho/m}$; $\epsilon_r = 48.9$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(4.17, 4.17, 4.17) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 46/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.767 mW/g

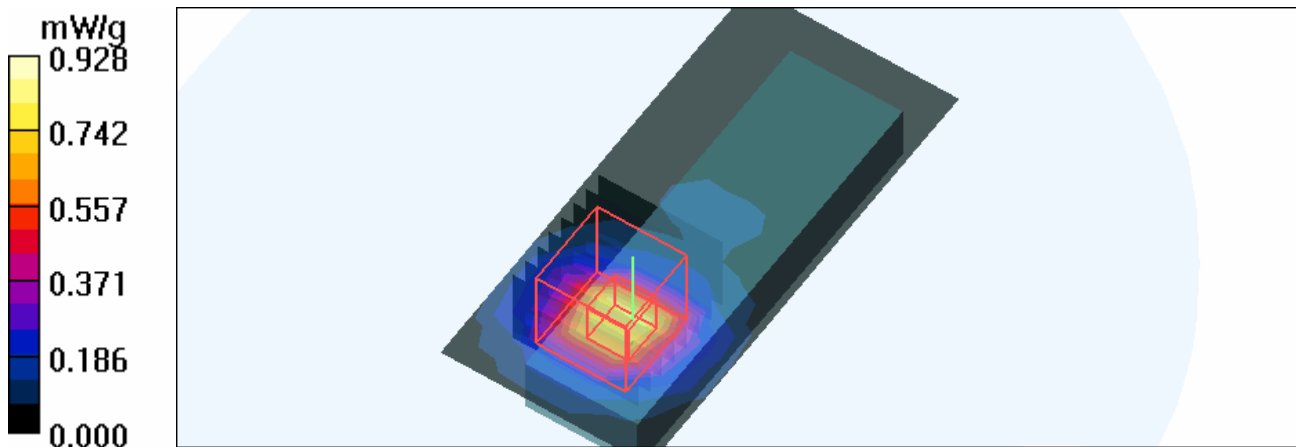
Mid Channel 46/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 13.5 V/m

Peak SAR (extrapolated) = 2.10 W/kg

SAR(1 g) = 0.638 mW/g; SAR(10 g) = 0.224 mW/g

Maximum value of SAR (measured) = 0.928 mW/g



Date/Time: 2008/9/25 20:28:16

Test Laboratory: Advance Data Technology

11an 40M-Ch54-M06

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5270 MHz

Communication System: 11n 5G span40 ; Frequency: 5270 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5270$ MHz; $\sigma = 5.34$ mho/m; $\epsilon_r = 48.9$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.87, 3.87, 3.87) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 54/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.723 mW/g

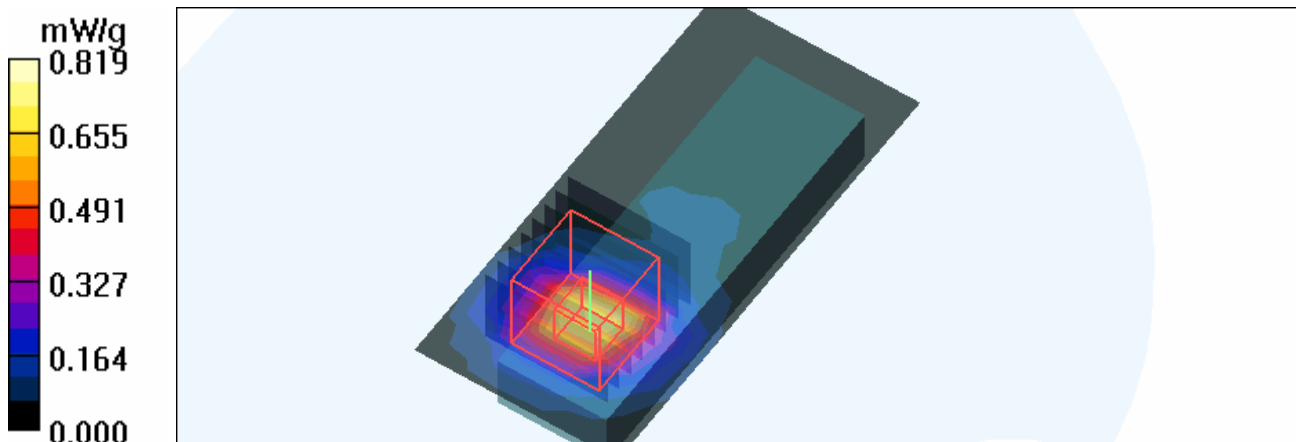
Mid Channel 54/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 12.3 V/m

Peak SAR (extrapolated) = 1.96 W/kg

SAR(1 g) = 0.584 mW/g; SAR(10 g) = 0.203 mW/g

Maximum value of SAR (measured) = 0.819 mW/g



Date/Time: 2008/9/25 20:53:16

Test Laboratory: Advance Data Technology

11an 40M-Ch102-M06

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5510 MHz

Communication System: 11n 5G span40 ; Frequency: 5510 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used : $f = 5510$ MHz; $\sigma = 5.69$ mho/m; $\epsilon_r = 48.4$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.72, 3.72, 3.72) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 102/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.572 mW/g

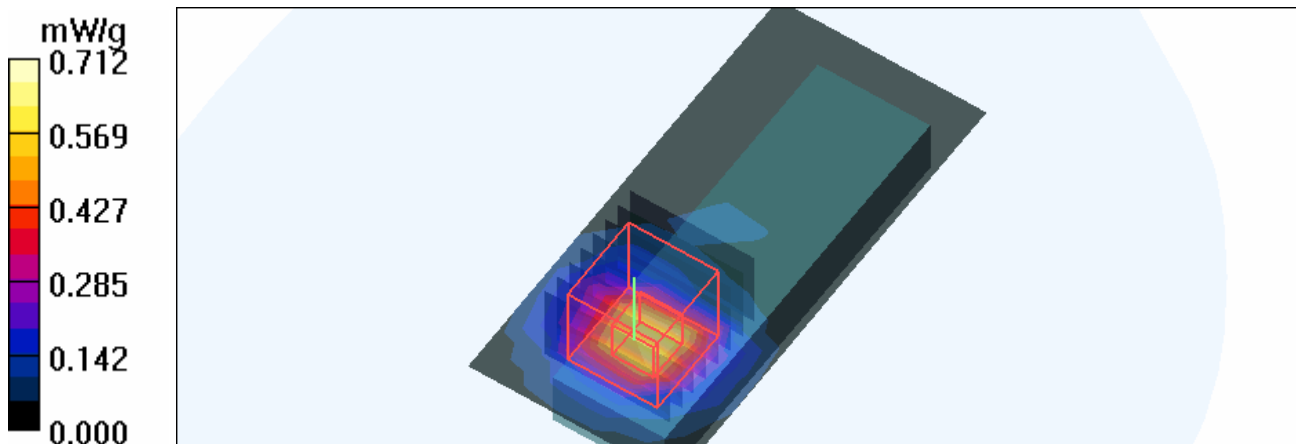
Mid Channel 102/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 10.6 V/m

Peak SAR (extrapolated) = 1.63 W/kg

SAR(1 g) = 0.474 mW/g; SAR(10 g) = 0.169 mW/g

Maximum value of SAR (measured) = 0.712 mW/g



Date/Time: 2008/9/25 21:17:53

Test Laboratory: Advance Data Technology

11an 40M-Ch118-M06

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5590 MHz

Communication System: 11n 5G span40 ; Frequency: 5590 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5590 \text{ MHz}$; $\sigma = 5.8 \text{ mho/m}$; $\epsilon_r = 48.2$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 118/Area Scan (6x11x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.390 mW/g

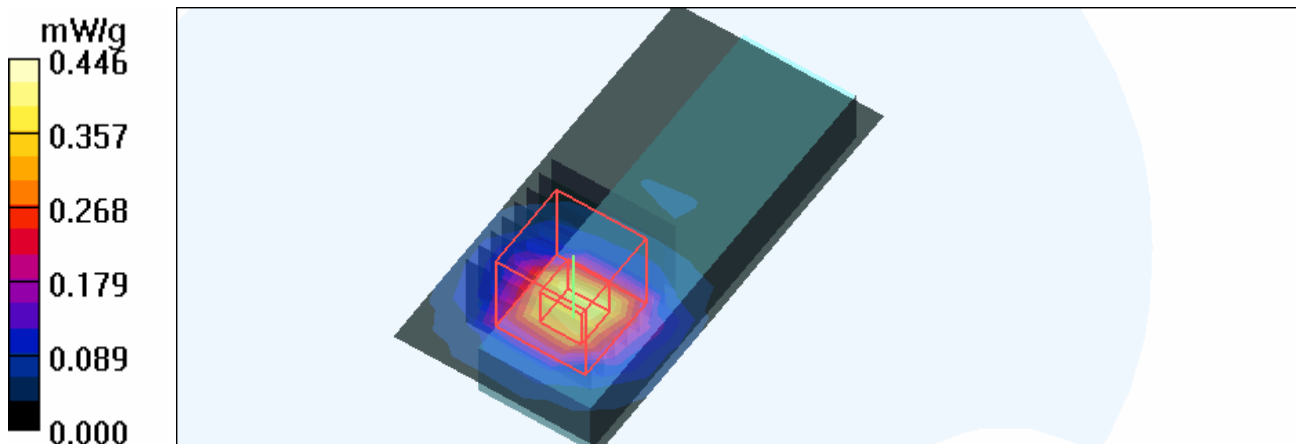
Mid Channel 118/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 8.32 V/m

Peak SAR (extrapolated) = 1.27 W/kg

SAR(1 g) = 0.322 mW/g; SAR(10 g) = 0.111 mW/g

Maximum value of SAR (measured) = 0.446 mW/g



Date/Time: 2008/9/25 21:42:40

Test Laboratory: Advance Data Technology

11an 40M-Ch134-M06

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5670 MHz

Communication System: 11n 5G span40 ; Frequency: 5670 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5670$ MHz; $\sigma = 5.92$ mho/m; $\epsilon_r = 48.1$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The front side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 134/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.488 mW/g

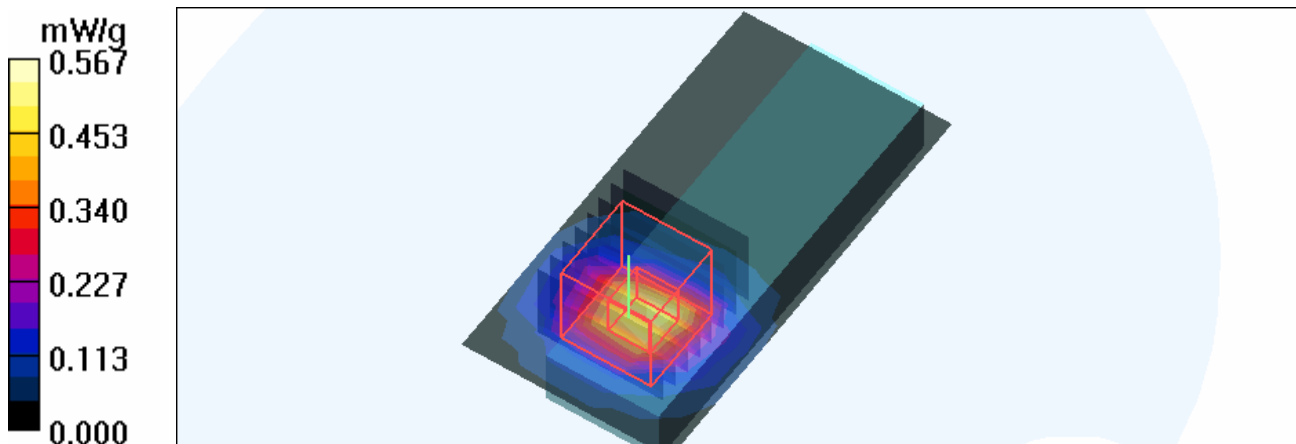
Mid Channel 134/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 8.75 V/m

Peak SAR (extrapolated) = 1.37 W/kg

SAR(1 g) = 0.395 mW/g; SAR(10 g) = 0.136 mW/g

Maximum value of SAR (measured) = 0.567 mW/g



Date/Time: 2008/9/25 22:35:26

Test Laboratory: Advance Data Technology

11a-Ch40-M07

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5200 MHz

Communication System: 802.11a ; Frequency: 5200 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
 Medium: MSL5800 Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 5.23 \text{ mho/m}$; $\epsilon_r = 49$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
 Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(4.17, 4.17, 4.17) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 40/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.219 mW/g

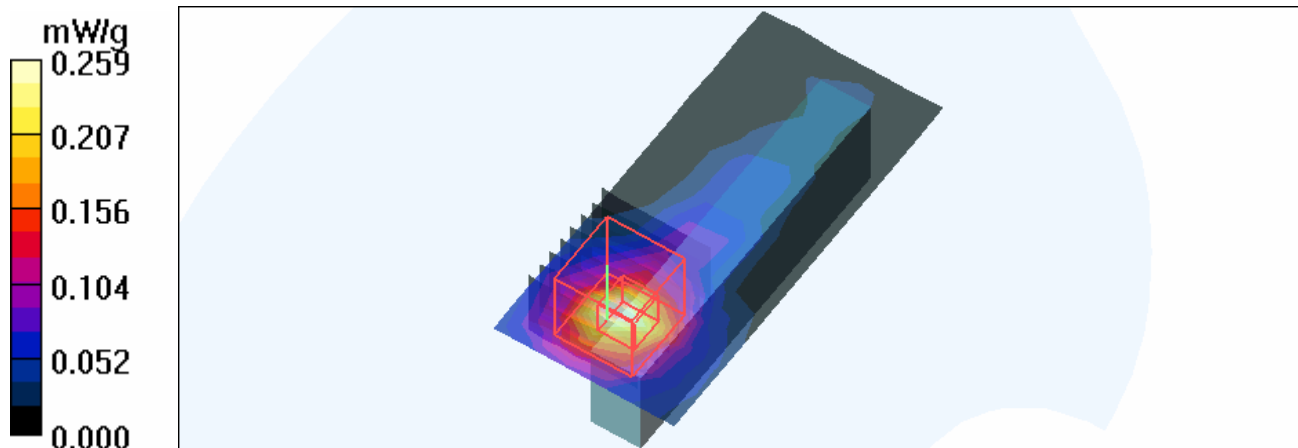
Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 4.92 V/m

Peak SAR (extrapolated) = 0.735 W/kg

SAR(1 g) = 0.169 mW/g; SAR(10 g) = 0.062 mW/g

Maximum value of SAR (measured) = 0.259 mW/g



Date/Time: 2008/9/25 23:00:07

Test Laboratory: Advance Data Technology

11a-Ch52-M07

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5260 MHz

Communication System: 802.11a ; Frequency: 5260 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: $f = 5260 \text{ MHz}$; $\sigma = 5.33 \text{ mho/m}$; $\epsilon_r = 48.9$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.87, 3.87, 3.87) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 52/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.177 mW/g

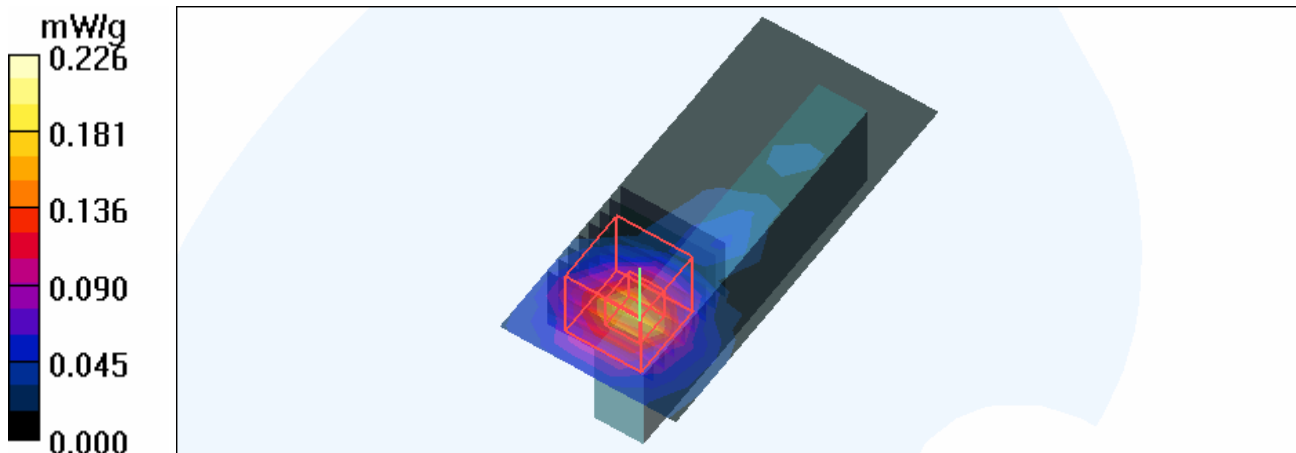
Mid Channel 52/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 4.47 V/m

Peak SAR (extrapolated) = 0.509 W/kg

SAR(1 g) = 0.159 mW/g; SAR(10 g) = 0.058 mW/g

Maximum value of SAR (measured) = 0.226 mW/g



Date/Time: 2008/9/25 23:25:14

Test Laboratory: Advance Data Technology

11a-Ch140-M07

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5700 MHz

Communication System: 802.11a ; Frequency: 5700 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: $f = 5700 \text{ MHz}$; $\sigma = 5.96 \text{ mho/m}$; $\epsilon_r = 48$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Printed Antenna ; Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 140/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.191 mW/g

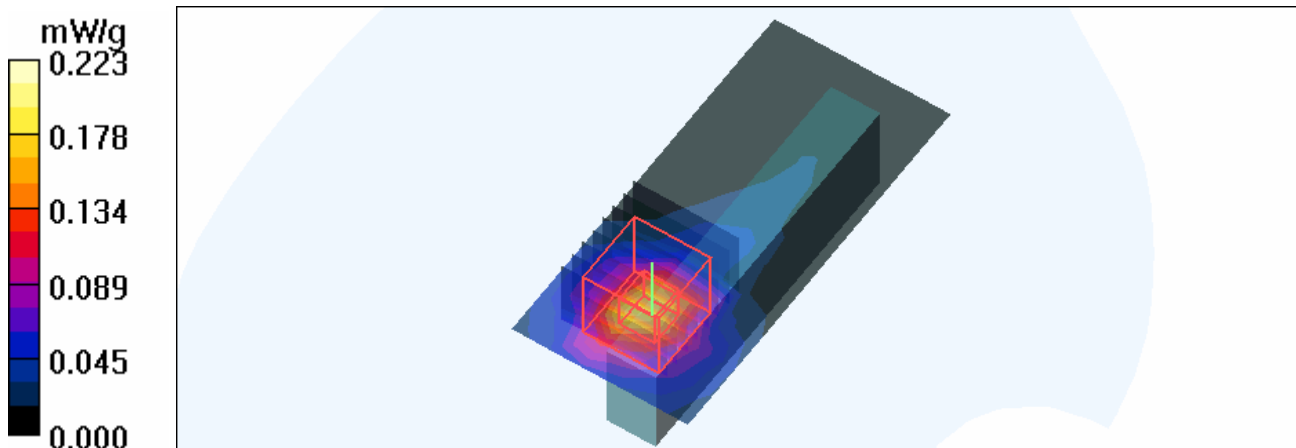
Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 4.13 V/m

Peak SAR (extrapolated) = 0.601 W/kg

SAR(1 g) = 0.157 mW/g; SAR(10 g) = 0.055 mW/g

Maximum value of SAR (measured) = 0.223 mW/g



Date/Time: 2008/9/26 01:56:24

Test Laboratory: Advance Data Technology

11an 20M-Ch40-M08

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type:

WLI-UC-AG300N ; Test Frequency: 5200 MHz

Communication System: 11n 5G span20 ; Frequency: 5200 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 5.27 \text{ mho/m}$; $\epsilon_r = 49.8$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(4.17, 4.17, 4.17) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 40/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.171 mW/g

Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 5.79 V/m

Peak SAR (extrapolated) = 0.368 W/kg

SAR(1 g) = 0.113 mW/g; SAR(10 g) = 0.041 mW/g

Maximum value of SAR (measured) = 0.165 mW/g

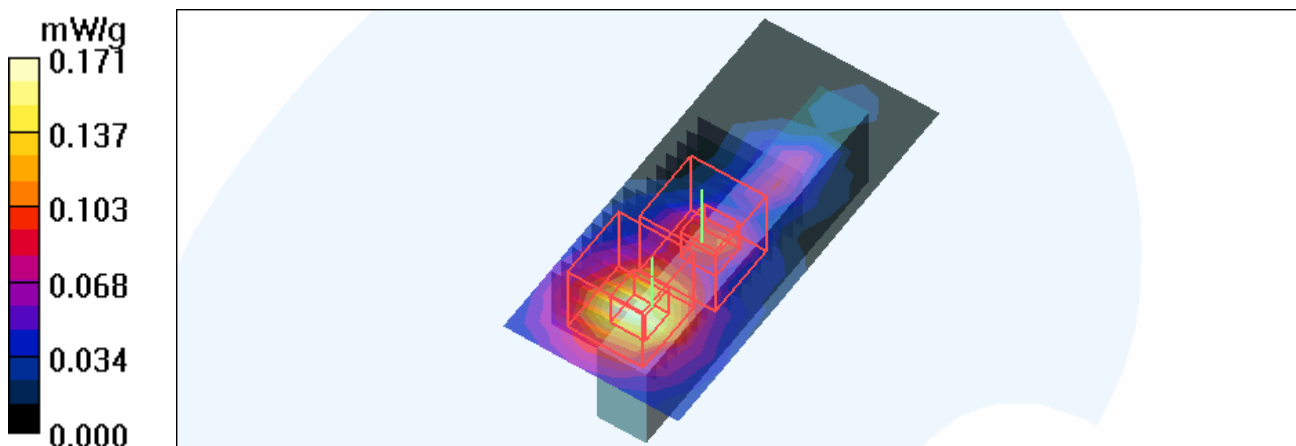
Mid Channel 40/Zoom Scan (8x8x8)/Cube 1: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 5.79 V/m

Peak SAR (extrapolated) = 0.269 W/kg

SAR(1 g) = 0.087 mW/g; SAR(10 g) = 0.031 mW/g

Maximum value of SAR (measured) = 0.129 mW/g



Date/Time: 2008/9/26 02:29:21

Test Laboratory: Advance Data Technology

11an 20M-Ch64-M08

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type:

WLI-UC-AG300N ; Test Frequency: 5320 MHz

Communication System: 11n 5G span20 ; Frequency: 5320 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5320 \text{ MHz}$; $\sigma = 5.45 \text{ mho/m}$; $\epsilon_r = 49.6$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.87, 3.87, 3.87) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 64/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.220 mW/g

Mid Channel 64/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 6.70 V/m

Peak SAR (extrapolated) = 0.562 W/kg

SAR(1 g) = 0.160 mW/g; SAR(10 g) = 0.057 mW/g

Maximum value of SAR (measured) = 0.296 mW/g

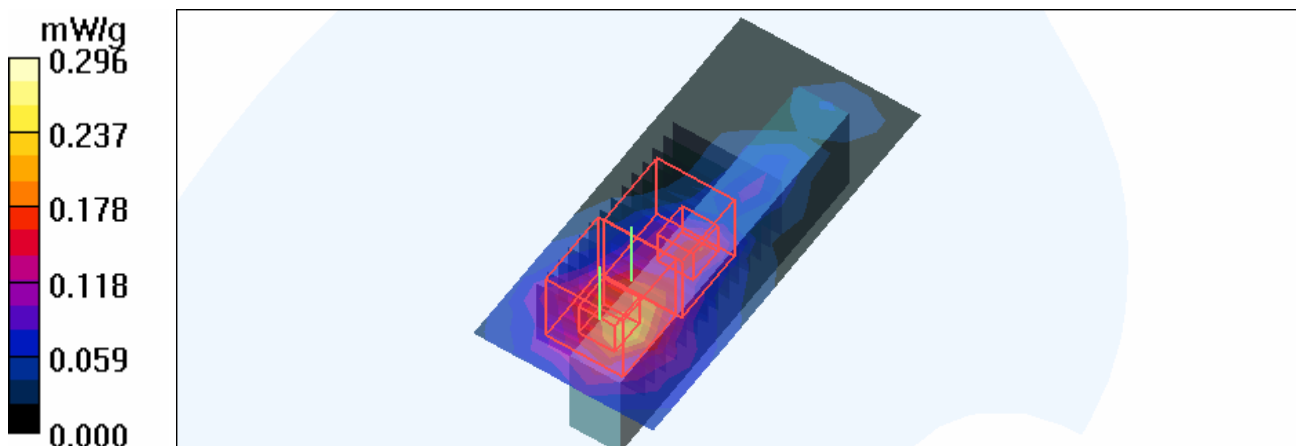
Mid Channel 64/Zoom Scan (8x8x8)/Cube 1: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 6.70 V/m

Peak SAR (extrapolated) = 0.279 W/kg

SAR(1 g) = 0.082 mW/g; SAR(10 g) = 0.029 mW/g

Maximum value of SAR (measured) = 0.141 mW/g



Date/Time: 2008/9/26 02:53:34

Test Laboratory: Advance Data Technology

11an 20M-Ch120-M08

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5600 MHz

Communication System: 11n 5G span20 ; Frequency: 5600 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.85$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 120/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.224 mW/g

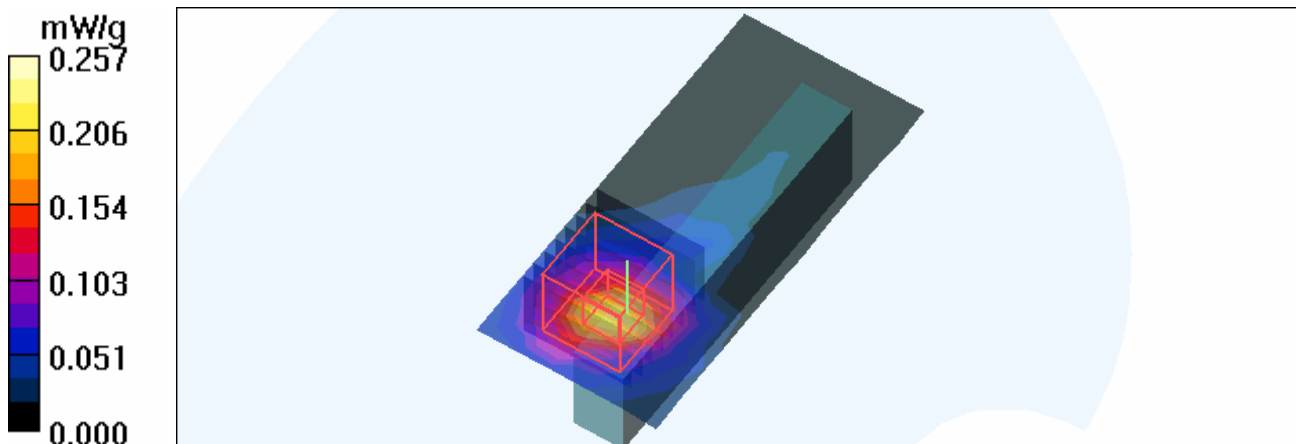
Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 6.56 V/m

Peak SAR (extrapolated) = 0.519 W/kg

SAR(1 g) = 0.147 mW/g; SAR(10 g) = 0.045 mW/g

Maximum value of SAR (measured) = 0.257 mW/g



Date/Time: 2008/9/26 02:45:56

Test Laboratory: Advance Data Technology

11an 40M-Ch46-M09

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5230 MHz

Communication System: 11n 5G span40 ; Frequency: 5230 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5230$ MHz; $\sigma = 5.32$ mho/m; $\epsilon_r = 49.7$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(4.17, 4.17, 4.17) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 46/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.196 mW/g

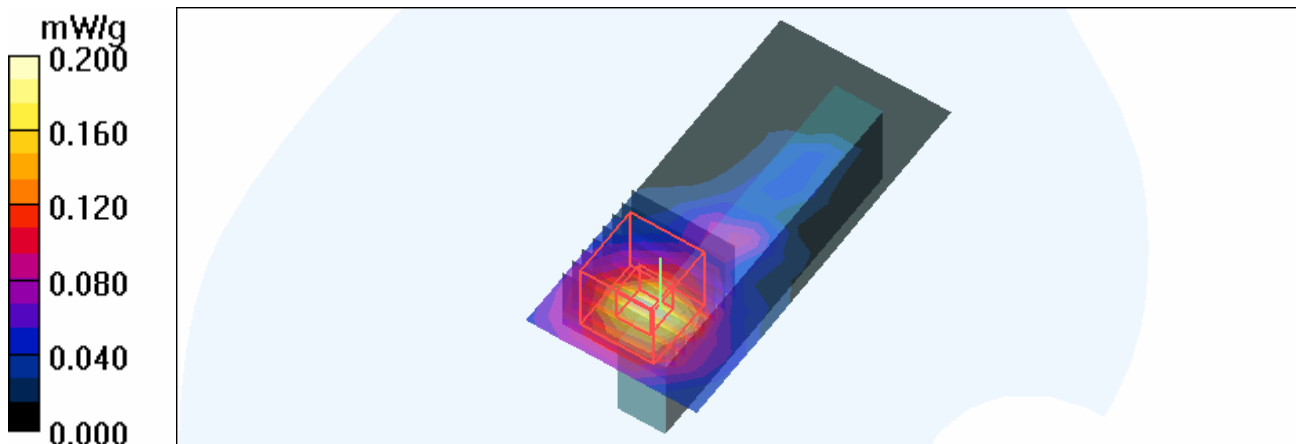
Mid Channel 46/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 5.13 V/m

Peak SAR (extrapolated) = 1.11 W/kg

SAR(1 g) = 0.134 mW/g; SAR(10 g) = 0.048 mW/g

Maximum value of SAR (measured) = 0.200 mW/g



Date/Time: 2008/9/26 03:41:51

Test Laboratory: Advance Data Technology

11an 40M-Ch54-M09

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5270 MHz

Communication System: 11n 5G span40 ; Frequency: 5270 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5270$ MHz; $\sigma = 5.38$ mho/m; $\epsilon_r = 49.7$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.87, 3.87, 3.87) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 54/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.204 mW/g

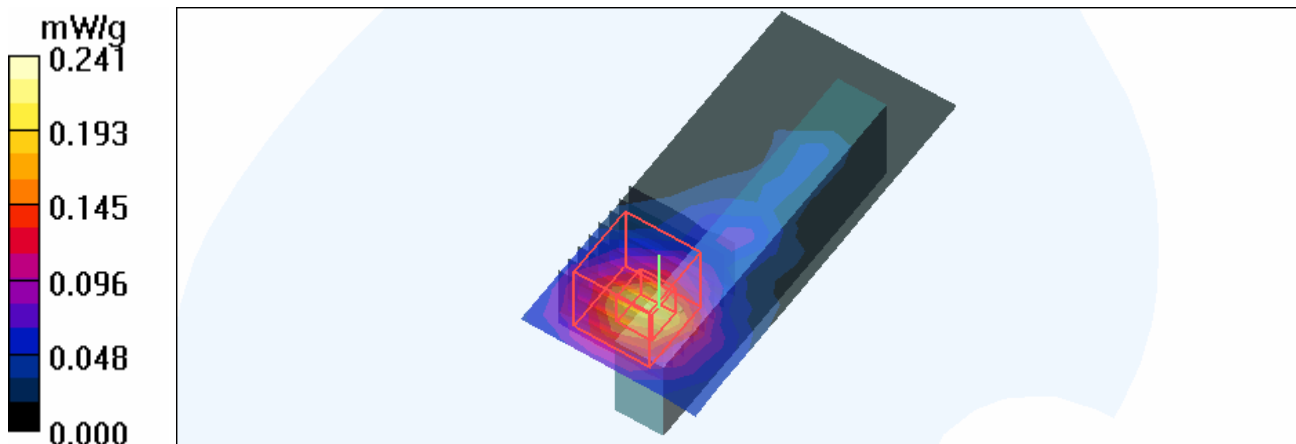
Mid Channel 54/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 5.98 V/m

Peak SAR (extrapolated) = 0.817 W/kg

SAR(1 g) = 0.155 mW/g; SAR(10 g) = 0.054 mW/g

Maximum value of SAR (measured) = 0.241 mW/g



Date/Time: 2008/9/26 04:06:12

Test Laboratory: Advance Data Technology

11an 40M-Ch134-M09

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5670 MHz

Communication System: 11n 5G span40 ; Frequency: 5670 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5670$ MHz; $\sigma = 5.96$ mho/m; $\epsilon_r = 48.9$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 134/Area Scan (6x11x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.211 mW/g

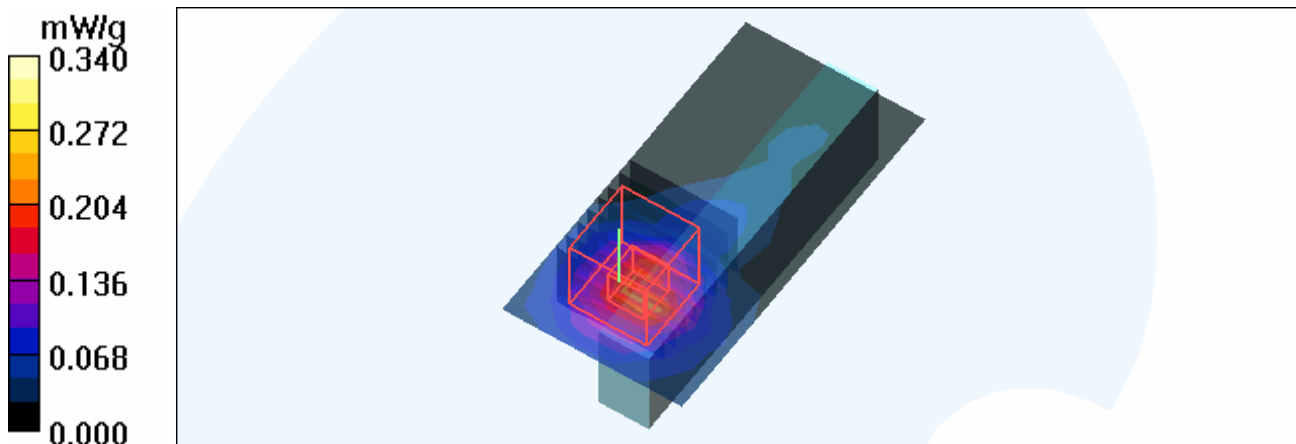
Mid Channel 134/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 6.42 V/m

Peak SAR (extrapolated) = 1.06 W/kg

SAR(1 g) = 0.198 mW/g; SAR(10 g) = 0.065 mW/g

Maximum value of SAR (measured) = 0.340 mW/g



Date/Time: 2008/9/26 04:55:30

Test Laboratory: Advance Data Technology

11a-Ch40-M10

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5200 MHz

Communication System: 802.11a ; Frequency: 5200 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
 Medium: MSL5800 Medium parameters used: $f = 5200$ MHz; $\sigma = 5.27$ mho/m; $\epsilon_r = 49.8$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
 Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(4.17, 4.17, 4.17) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 40/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.143 mW/g

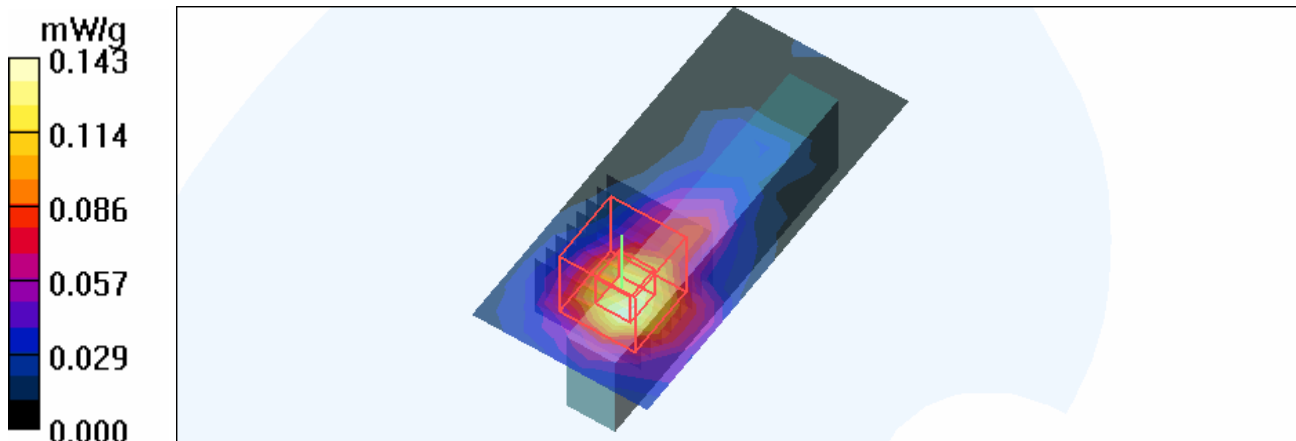
Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 5.84 V/m

Peak SAR (extrapolated) = 0.259 W/kg

SAR(1 g) = 0.078 mW/g; SAR(10 g) = 0.027 mW/g

Maximum value of SAR (measured) = 0.117 mW/g



Date/Time: 2008/9/26 05:20:07

Test Laboratory: Advance Data Technology

11a-Ch52-M10

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5260 MHz

Communication System: 802.11a ; Frequency: 5260 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
 Medium: MSL5800 Medium parameters used: $f = 5260 \text{ MHz}$; $\sigma = 5.37 \text{ mho/m}$; $\epsilon_r = 49.7$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
 Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.87, 3.87, 3.87) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 52/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.154 mW/g

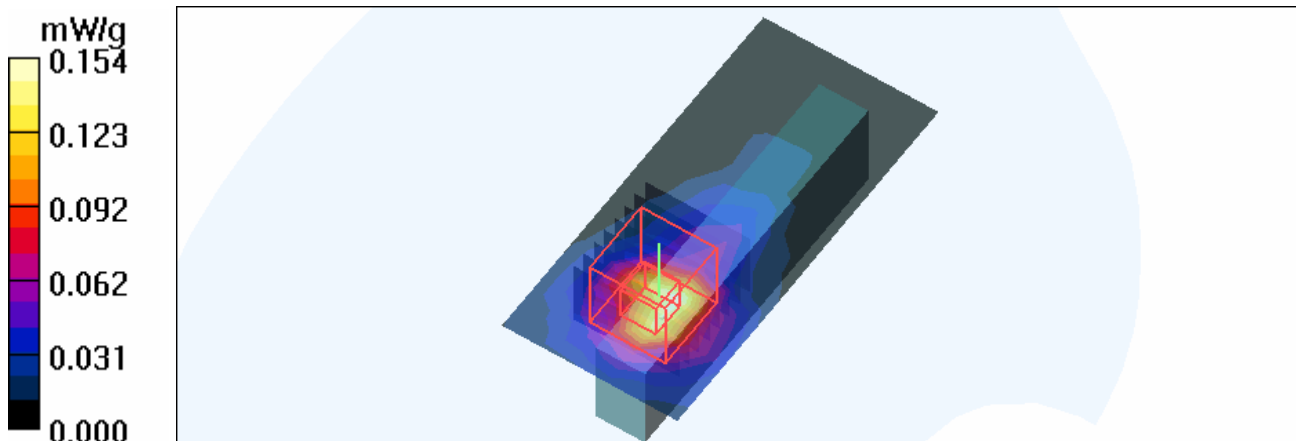
Mid Channel 52/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 5.03 V/m

Peak SAR (extrapolated) = 0.275 W/kg

SAR(1 g) = 0.081 mW/g; SAR(10 g) = 0.027 mW/g

Maximum value of SAR (measured) = 0.124 mW/g



Date/Time: 2008/9/26 05:44:23

Test Laboratory: Advance Data Technology

11a-Ch140-M10

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5700 MHz

Communication System: 802.11a ; Frequency: 5700 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
 Medium: MSL5800 Medium parameters used: $f = 5700 \text{ MHz}$; $\sigma = 6 \text{ mho/m}$; $\epsilon_r = 48.8$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
 Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 140/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.092 mW/g

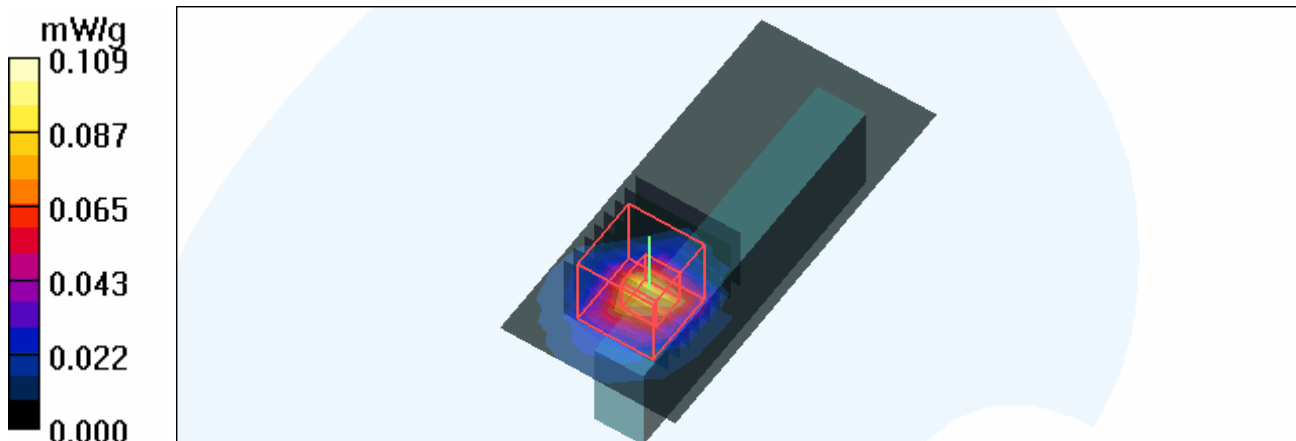
Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 4.85 V/m

Peak SAR (extrapolated) = 0.304 W/kg

SAR(1 g) = 0.065 mW/g; SAR(10 g) = 0.022 mW/g

Maximum value of SAR (measured) = 0.109 mW/g



Date/Time: 2008/9/26 06:32:39

Test Laboratory: Advance Data Technology

11an 20M-Ch40-M11

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5200 MHz

Communication System: 11n 5G span20 ; Frequency: 5200 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5200$ MHz; $\sigma = 5.27$ mho/m; $\epsilon_r = 49.8$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(4.17, 4.17, 4.17) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 40/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.105 mW/g

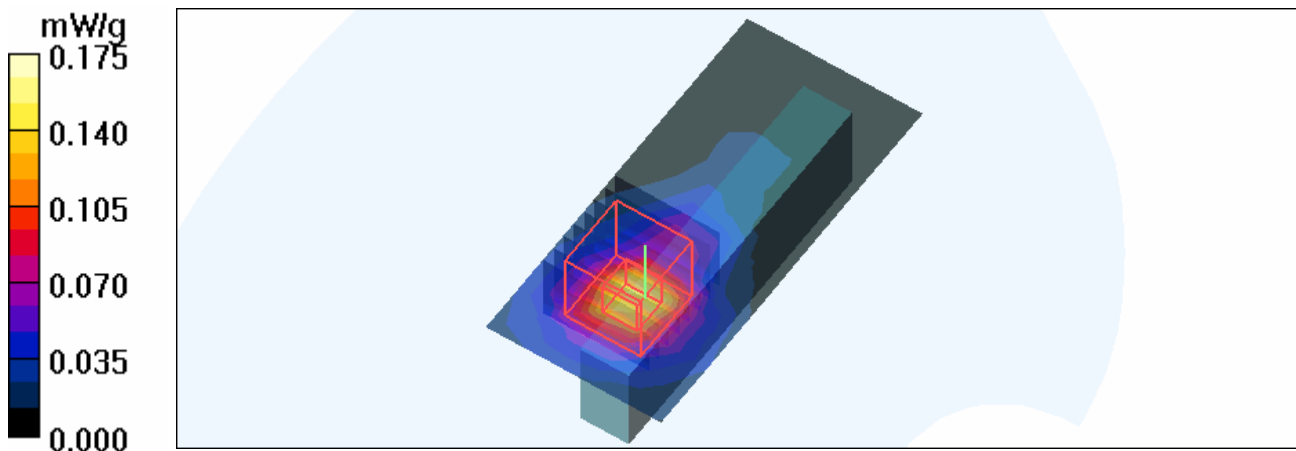
Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 6.94 V/m

Peak SAR (extrapolated) = 0.426 W/kg

SAR(1 g) = 0.106 mW/g; SAR(10 g) = 0.041 mW/g

Maximum value of SAR (measured) = 0.175 mW/g



Date/Time: 2008/9/26 06:56:43

Test Laboratory: Advance Data Technology

11an 20M-Ch64-M11

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5320 MHz

Communication System: 11n 5G span20 ; Frequency: 5320 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5320$ MHz; $\sigma = 5.45$ mho/m; $\epsilon_r = 49.6$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.87, 3.87, 3.87) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 64/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.157 mW/g

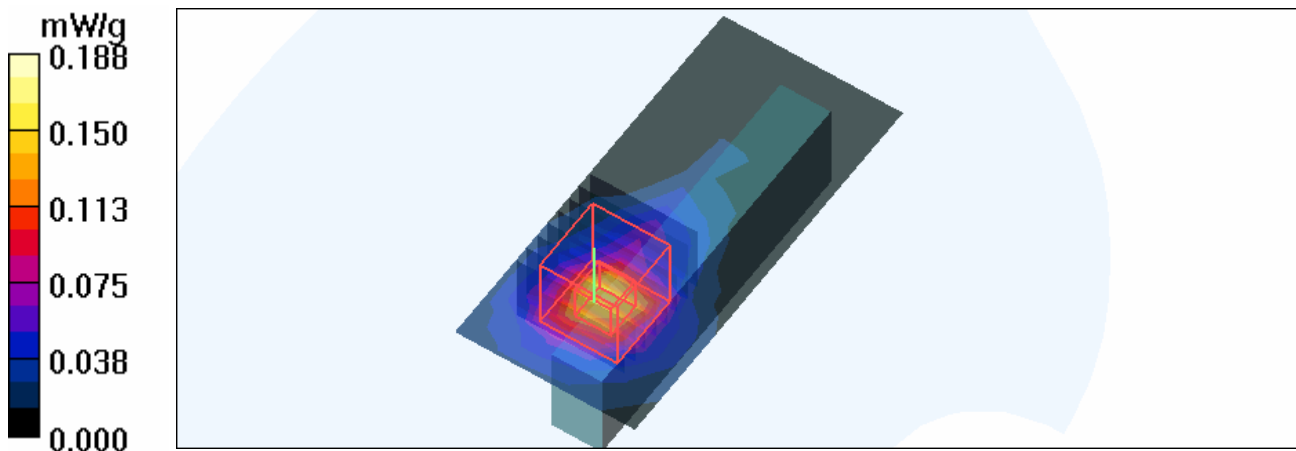
Mid Channel 64/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 6.95 V/m

Peak SAR (extrapolated) = 0.428 W/kg

SAR(1 g) = 0.128 mW/g; SAR(10 g) = 0.042 mW/g

Maximum value of SAR (measured) = 0.188 mW/g



Date/Time: 2008/9/26 07:21:16

Test Laboratory: Advance Data Technology

11an 20M-Ch120-M11

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5600 MHz

Communication System: 11n 5G span20 ; Frequency: 5600 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5600$ MHz; $\sigma = 5.85$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 120/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.158 mW/g

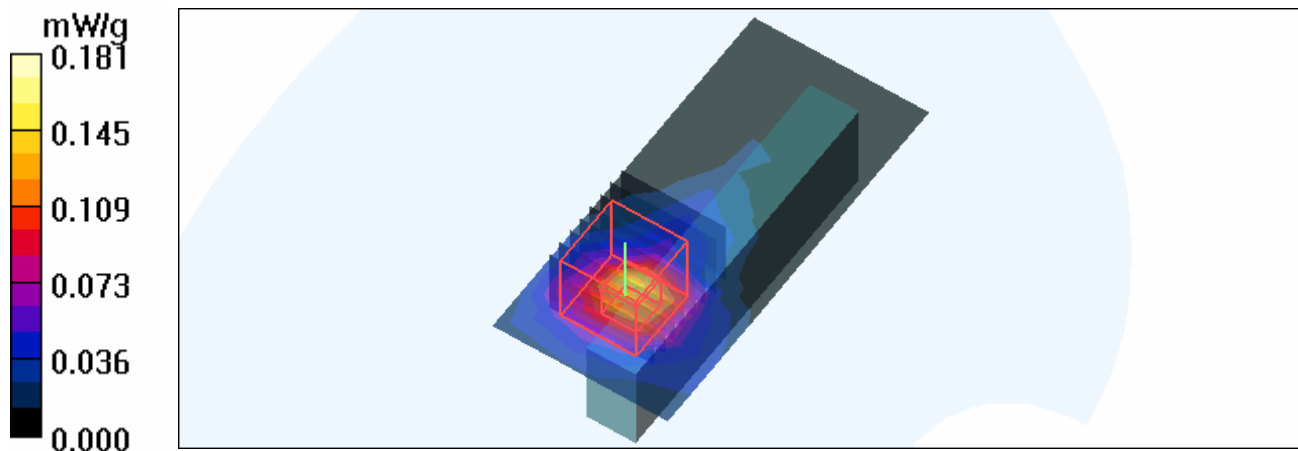
Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 6.70 V/m

Peak SAR (extrapolated) = 0.441 W/kg

SAR(1 g) = 0.114 mW/g; SAR(10 g) = 0.040 mW/g

Maximum value of SAR (measured) = 0.181 mW/g



Date/Time: 2008/9/26 08:23:26

Test Laboratory: Advance Data Technology

11an 40M-Ch46-M12

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5230 MHz

Communication System: 11n 5G span40 ; Frequency: 5230 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5230$ MHz; $\sigma = 5.32$ mho/m; $\epsilon_r = 49.7$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(4.17, 4.17, 4.17) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 46/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.127 mW/g

Mid Channel 46/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 4.87 V/m

Peak SAR (extrapolated) = 0.647 W/kg

SAR(1 g) = 0.128 mW/g; SAR(10 g) = 0.043 mW/g

Maximum value of SAR (measured) = 0.153 mW/g

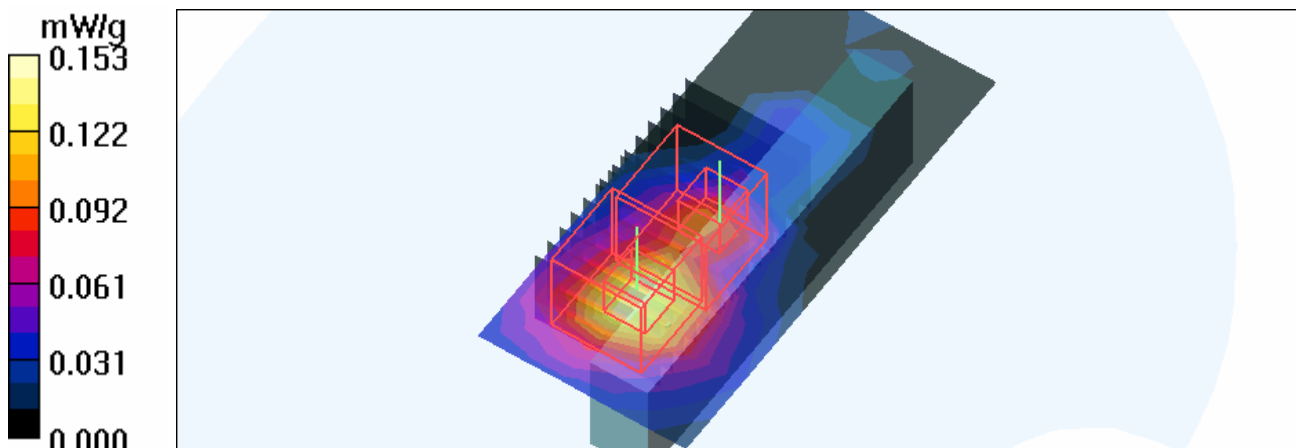
Mid Channel 46/Zoom Scan (8x8x8)/Cube 1: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 4.87 V/m

Peak SAR (extrapolated) = 0.233 W/kg

SAR(1 g) = 0.074 mW/g; SAR(10 g) = 0.031 mW/g

Maximum value of SAR (measured) = 0.096 mW/g



Date/Time: 2008/9/26 08:56:38

Test Laboratory: Advance Data Technology

11an 40M-Ch54-M12

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type:

WLI-UC-AG300N ; Test Frequency: 5270 MHz

Communication System: 11n 5G span40 ; Frequency: 5270 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5270 \text{ MHz}$; $\sigma = 5.38 \text{ mho/m}$; $\epsilon_r = 49.7$; $\rho = 1000 \text{ kg/m}^3$; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.87, 3.87, 3.87) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 54/Area Scan (6x12x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (measured) = 0.181 mW/g

Mid Channel 54/Zoom Scan (8x8x8)/Cube 0: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 6.18 V/m

Peak SAR (extrapolated) = 0.429 W/kg

SAR(1 g) = 0.132 mW/g; SAR(10 g) = 0.047 mW/g

Maximum value of SAR (measured) = 0.191 mW/g

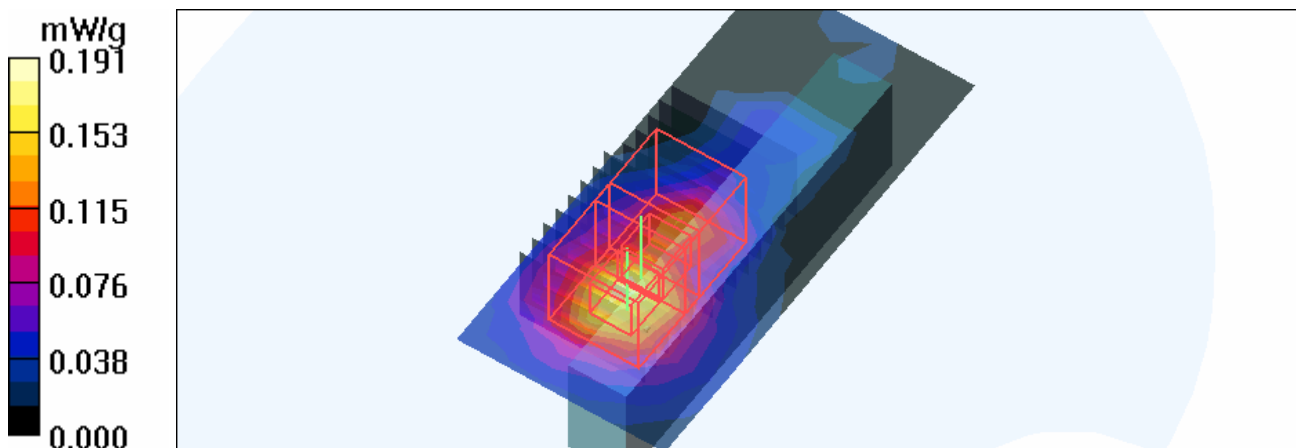
Mid Channel 54/Zoom Scan (8x8x8)/Cube 1: Measurement grid: $dx=4.3\text{mm}$, $dy=4.3\text{mm}$, $dz=3\text{mm}$

Reference Value = 6.18 V/m

Peak SAR (extrapolated) = 0.351 W/kg

SAR(1 g) = 0.090 mW/g; SAR(10 g) = 0.035 mW/g

Maximum value of SAR (measured) = 0.156 mW/g



Date/Time: 2008/9/26 09:21:41

Test Laboratory: Advance Data Technology

11an 40M-Ch134-M12

DUT: AirStation Wireless-N Dualband NFINITI Keychain USB2.0 Adapter ; Type: WLI-UC-AG300N ; Test Frequency: 5670 MHz

Communication System: 11n 5G span40 ; Frequency: 5670 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL5800 Medium parameters used: $f = 5670$ MHz; $\sigma = 5.96$ mho/m; $\epsilon_r = 48.9$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm

Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)

Antenna type : Printed Antenna ; Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.83, 3.83, 3.83) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Mid Channel 102/Area Scan (6x12x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 0.190 mW/g

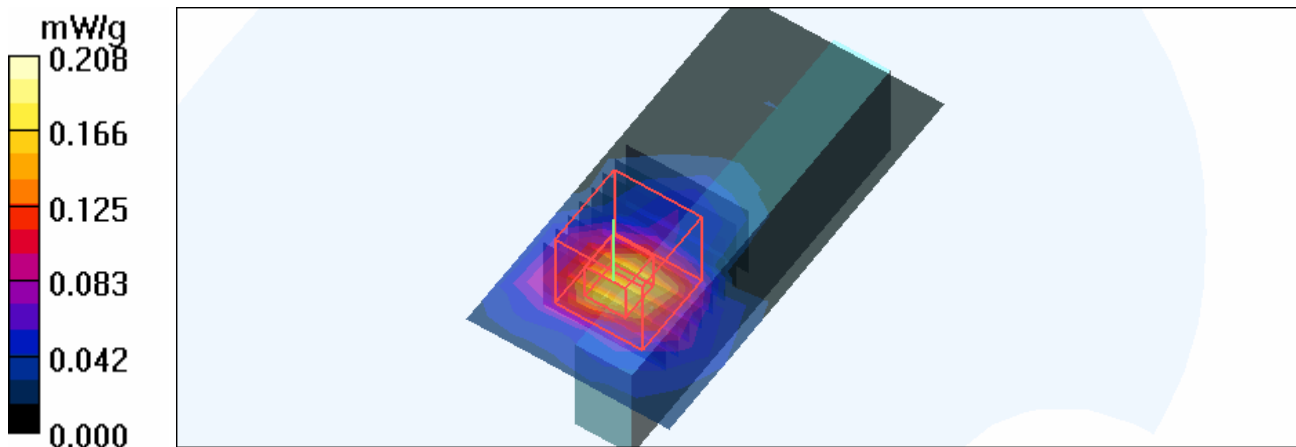
Mid Channel 102/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 5.85 V/m

Peak SAR (extrapolated) = 0.940 W/kg

SAR(1 g) = 0.142 mW/g; SAR(10 g) = 0.048 mW/g

Maximum value of SAR (measured) = 0.208 mW/g



Date/Time: 2008/9/25 00:32:13

Test Laboratory: Advance Data Technology

System Validation Check-MSL 5GHz

DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5200 MHz

Communication System: CW ; Frequency: 5200 MHz; Duty Cycle: 1:1; Modulation type: CW
 Medium: MSL5800; Medium parameters used: $f = 5200$ MHz; $\sigma = 5.23$ mho/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³ ;
 Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)
 Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(4.17, 4.17, 4.17) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

f=5200, d=10mm, Pin=100mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (measured) = 7.95 mW/g

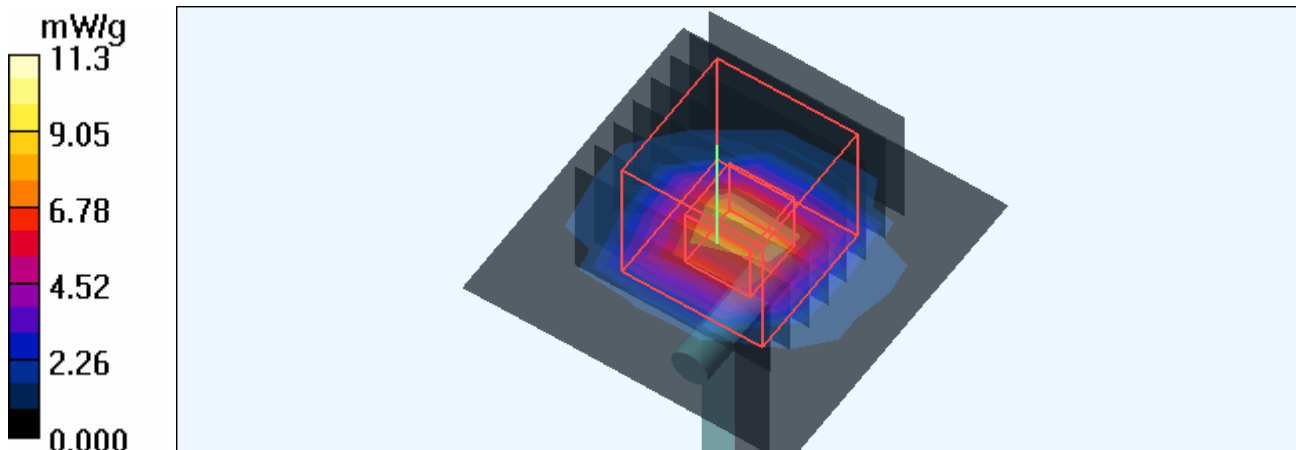
f=5200, d=10mm, Pin=100mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 49.8 V/m; Power Drift = -0.127 dB

Peak SAR (extrapolated) = 31.6 W/kg

SAR(1 g) = 7.98 mW/g; SAR(10 g) = 2.23 mW/g

Maximum value of SAR (measured) = 11.3 mW/g



Date/Time: 2008/9/25 00:55:24

Test Laboratory: Advance Data Technology

System Validation Check-MSL 5GHz

DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5500 MHz

Communication System: CW ; Frequency: 5500 MHz; Duty Cycle: 1:1; Modulation type: CW
 Medium: MSL5800; Medium parameters used: $f = 5500$ MHz; $\sigma = 5.67$ mho/m; $\epsilon_r = 48.4$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom) Air temp. : 23.8 degrees ; Liquid temp. : 22.7 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.72, 3.72, 3.72) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

f=5500, d=10mm, Pin=100mW/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (measured) = 12.2 mW/g

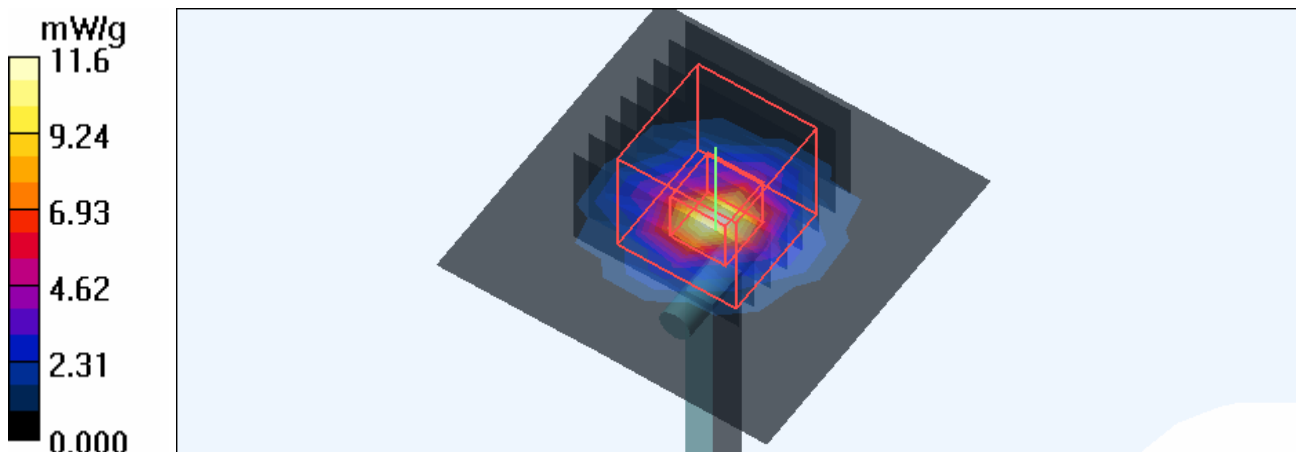
f=5500, d=10mm, Pin=100mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 48.2 V/m; Power Drift = -0.054 dB

Peak SAR (extrapolated) = 35.1 W/kg

SAR(1 g) = 7.95 mW/g; SAR(10 g) = 2.17 mW/g

Maximum value of SAR (measured) = 11.6 mW/g



Date/Time: 2008/9/26 00:26:52

Test Laboratory: Advance Data Technology

System Validation Check-MSL 5GHz

DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5200 MHz

Communication System: CW ; Frequency: 5200 MHz; Duty Cycle: 1:1; Modulation type: CW
 Medium: MSL5800; Medium parameters used: $f = 5200$ MHz; $\sigma = 5.27$ mho/m; $\epsilon_r = 49.8$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom) Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(4.17, 4.17, 4.17) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

f=5200, d=10mm, Pin=100mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (measured) = 7.23 mW/g

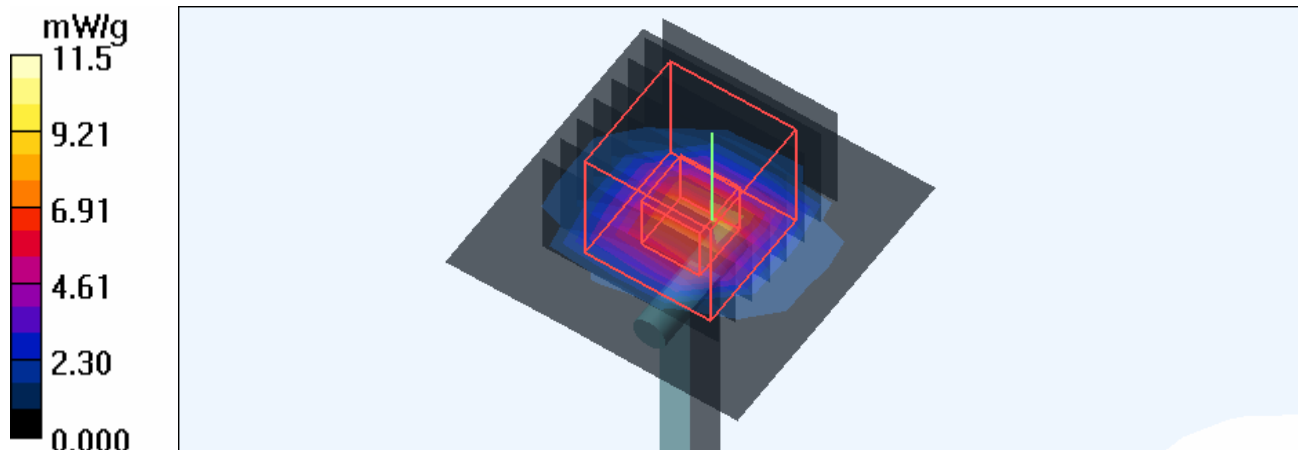
f=5200, d=10mm, Pin=100mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 49.7 V/m; Power Drift = -0.126 dB

Peak SAR (extrapolated) = 32.9 W/kg

SAR(1 g) = 7.91 mW/g; SAR(10 g) = 2.17 mW/g

Maximum value of SAR (measured) = 11.5 mW/g



Date/Time: 2008/9/26 00:47:19

Test Laboratory: Advance Data Technology

System Validation Check-MSL 5GHz

DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5500 MHz

Communication System: CW ; Frequency: 5500 MHz; Duty Cycle: 1:1; Modulation type: CW
 Medium: MSL5800; Medium parameters used: $f = 5500$ MHz; $\sigma = 5.71$ mho/m; $\epsilon_r = 49.2$; $\rho = 1000$ kg/m³ ; Liquid level : 153 mm
 Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)
 Air temp. : 23.2 degrees ; Liquid temp. : 22.5 degrees

DASY4 Configuration:

- Probe: EX3DV3 - SN3506 ; ConvF(3.72, 3.72, 3.72) ; Calibrated: 2008/3/21
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2008/3/13
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

f=5500, d=10mm, Pin=100mW/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (measured) = 12.3 mW/g

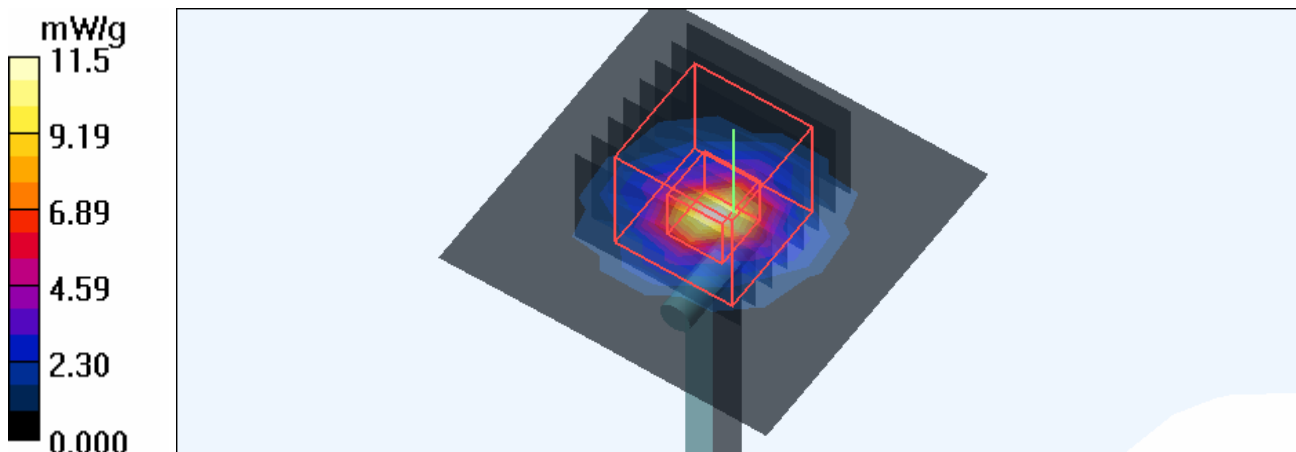
f=5500, d=10mm, Pin=100mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm

Reference Value = 46.3 V/m; Power Drift = -0.102 dB

Peak SAR (extrapolated) = 36.1 W/kg

SAR(1 g) = 7.88 mW/g; SAR(10 g) = 2.15 mW/g

Maximum value of SAR (measured) = 11.5 mW/g



APPENDIX B: ADT SAR MEASUREMENT SYSTEM



APPENDIX C: PHOTOGRAPHS OF SYSTEM VALIDATION





APPENDIX D: SYSTEM CERTIFICATE & CALIBRATION

D1: SAM PHANTOM

Schmid & Partner Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Certificate of conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 CA
Series No	TP-1150 and higher
Manufacturer / Origin	Untersee Composites Hauptstr. 69 CH-8559 Fruthwilen Switzerland

Tests

The series production process used allows the limitation to test of first articles. Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series units (called samples).

Test	Requirement	Details	Units tested
Shape	Compliance with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness	Compliant with the requirements according to the standards	2mm +/- 0.2mm in specific areas	First article, Samples
Material parameters	Dielectric parameters for required frequencies	200 MHz – 3 GHz Relative permittivity < 5 Loss tangent < 0.05.	Material sample TP 104-5
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards	Liquid type HSL 1800 and others according to the standard.	Pre-series, First article

Standards

- [1] CENELEC EN 50361
- [2] IEEE P1528-200x draft 6.5
- [3] IEC PT 62209 draft 0.9

(*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of [1] and [3].

Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standard [1] and draft standards [2] and [3].

Date 28.02.2002

Signature / Stamp

F. Bombault

**Schmid & Partner
Engineering AG**

Zeughausstrasse 43, CH-8004 Zurich
Tel. +41 1 245 97 00, Fax +41 1 245 97 79

Thomas Kofe



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Client **ADT (Auden)**

Certificate No: **EX3-3506_Mar08**

CALIBRATION CERTIFICATE

Object **EX3DV3 - SN:3506**

Calibration procedure(s) **QA CAL-01.v6 and QA CAL-14.v3
Calibration procedure for dosimetric E-field probes**

Calibration date: **March 21, 2008**

Condition of the calibrated item **In Tolerance**

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 $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	8-Aug-07 (METAS, No. 217-00719)	Aug-08
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	8-Aug-07 (METAS, No. 217-00720)	Aug-08
Reference Probe ES3DV2	SN: 3013	2-Jan-08 (SPEAG, No. ES3-3013_Jan08)	Jan-09
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-07)	In house check: Oct-08

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

Issued: March 21, 2008

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



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
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., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- 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
- 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:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not effect the E²-field uncertainty inside TSL (see below *ConvF*).
- NORM(f)_{x,y,z}** = NORM_{x,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*.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ 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 NORM_{x,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 EX3DV3

SN:3506

Manufactured:	February 18, 2004
Last calibrated:	March 20, 2007
Recalibrated:	March 21, 2008

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: EX3DV3 SN:3506

Sensitivity in Free Space^A

Diode Compression^B

NormX	0.780 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	85 mV
NormY	0.830 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	85 mV
NormZ	0.760 ± 10.1%	$\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	85 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **900 MHz** **Typical SAR gradient: 5 % per mm**

Sensor Center to Phantom Surface Distance		2.0 mm	3.0 mm
SAR _{be} [%]	Without Correction Algorithm	15.4	11.5
SAR _{be} [%]	With Correction Algorithm	0.8	0.6

TSL **1750 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		2.0 mm	3.0 mm
SAR _{be} [%]	Without Correction Algorithm	10.2	6.5
SAR _{be} [%]	With Correction Algorithm	0.9	0.8

Sensor Offset

Probe Tip to Sensor Center **1.0 mm**

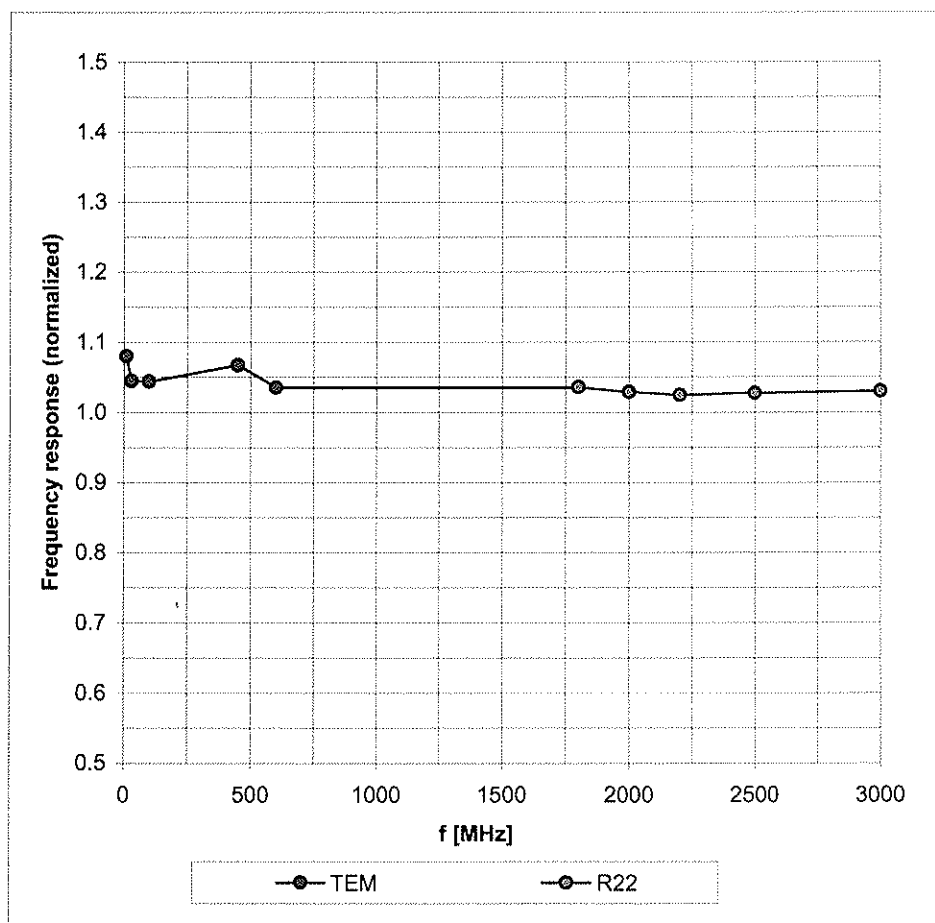
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty inside TSL (see Page 8).

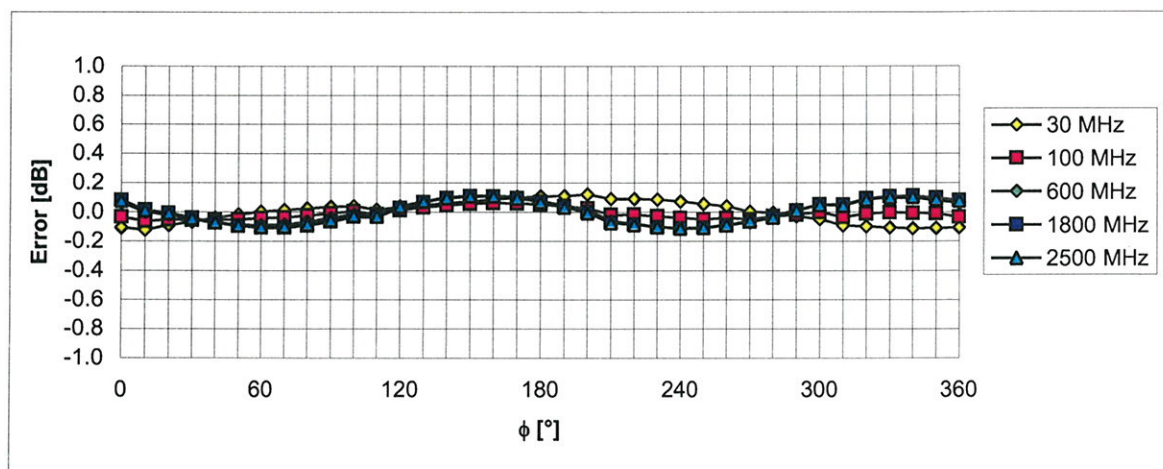
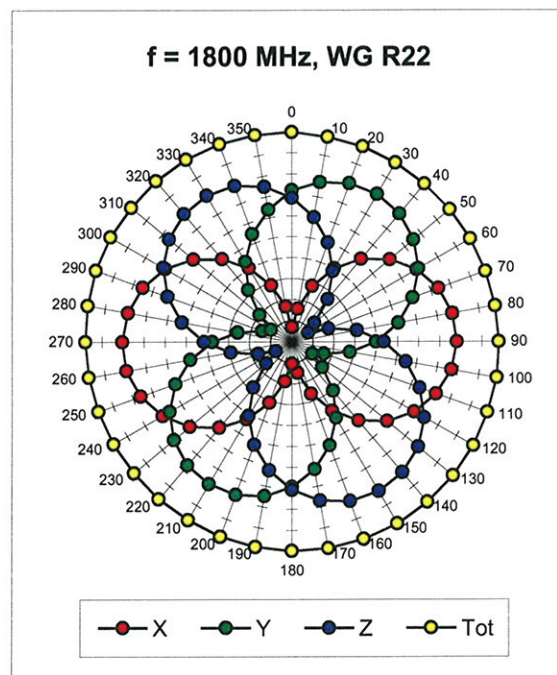
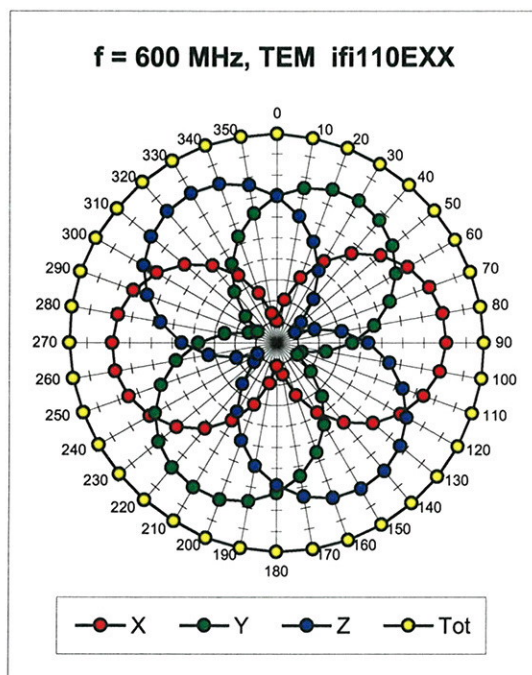
^B Numerical linearization parameter: uncertainty not required.

Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)

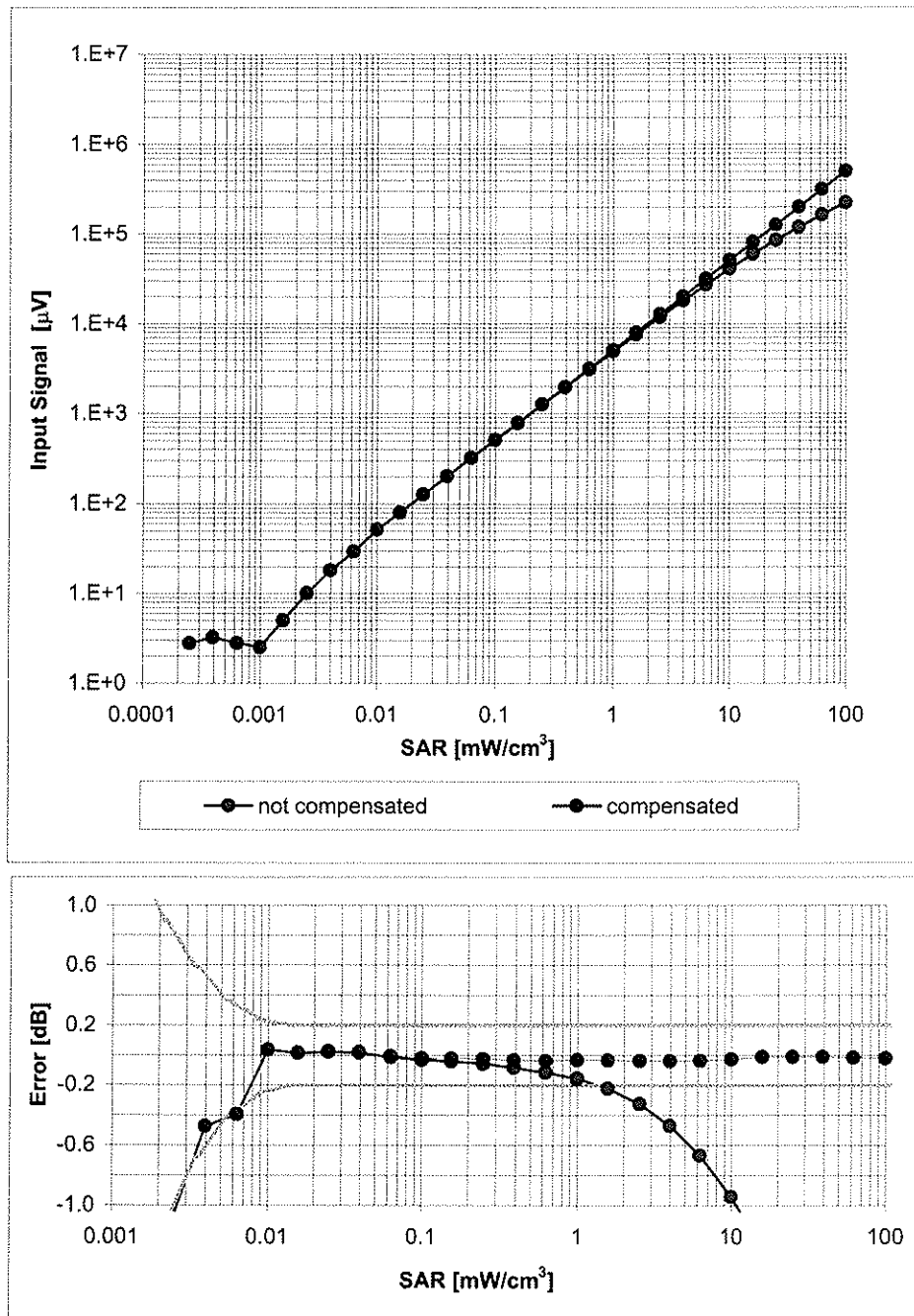


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

Receiving Pattern (ϕ), $\vartheta = 0^\circ$ Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range $f(\text{SAR}_{\text{head}})$

(Waveguide R22, $f = 1800 \text{ MHz}$)



Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment

f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.28	2.16	10.72 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.53	0.68	9.42 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.61	0.55	9.42 ± 11.0% (k=2)
2300	± 50 / ± 100	Head	39.4 ± 5%	1.71 ± 5%	0.55	0.57	8.35 ± 11.8% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.52	0.62	7.87 ± 11.8% (k=2)
2600	± 50 / ± 100	Head	39.0 ± 5%	1.96 ± 5%	0.43	0.75	7.48 ± 11.8% (k=2)
3500	± 50 / ± 100	Head	37.9 ± 5%	2.91 ± 5%	0.40	0.92	7.71 ± 13.1% (k=2)
4950	± 50 / ± 100	Head	36.3 ± 5%	4.40 ± 5%	0.25	1.75	5.42 ± 13.1% (k=2)
5200	± 50 / ± 100	Head	36.0 ± 5%	4.66 ± 5%	0.30	1.75	5.12 ± 13.1% (k=2)
5300	± 50 / ± 100	Head	35.9 ± 5%	4.76 ± 5%	0.34	1.75	4.64 ± 13.1% (k=2)
5500	± 50 / ± 100	Head	35.6 ± 5%	4.96 ± 5%	0.35	1.75	4.45 ± 13.1% (k=2)
5600	± 50 / ± 100	Head	35.5 ± 5%	5.07 ± 5%	0.50	1.75	4.18 ± 13.1% (k=2)
5800	± 50 / ± 100	Head	35.3 ± 5%	5.27 ± 5%	0.42	1.75	4.50 ± 13.1% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.37	1.50	10.18 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.71	0.63	9.32 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.32	0.94	9.34 ± 11.0% (k=2)
2300	± 50 / ± 100	Body	52.8 ± 5%	1.85 ± 5%	0.50	0.69	8.27 ± 11.8% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.33	1.11	7.77 ± 11.8% (k=2)
2600	± 50 / ± 100	Body	52.5 ± 5%	2.16 ± 5%	0.32	1.12	7.34 ± 11.8% (k=2)
3500	± 50 / ± 100	Body	51.3 ± 5%	3.31 ± 5%	0.48	1.10	6.92 ± 13.1% (k=2)
4950	± 50 / ± 100	Body	49.4 ± 5%	5.01 ± 5%	0.32	1.80	4.19 ± 13.1% (k=2)
5200	± 50 / ± 100	Body	49.0 ± 5%	5.30 ± 5%	0.30	1.80	4.17 ± 13.1% (k=2)
5300	± 50 / ± 100	Body	48.5 ± 5%	5.42 ± 5%	0.35	1.80	3.87 ± 13.1% (k=2)
5500	± 50 / ± 100	Body	48.6 ± 5%	5.65 ± 5%	0.45	1.80	3.72 ± 13.1% (k=2)
5600	± 50 / ± 100	Body	48.5 ± 5%	5.77 ± 5%	0.40	1.80	3.83 ± 13.1% (k=2)
5800	± 50 / ± 100	Body	48.2 ± 5%	6.00 ± 5%	0.48	1.80	3.75 ± 13.1% (k=2)

^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.