SAR TEST REPORT (15.407)

REPORT NO.: SA970313L06-1

MODEL NO.: WUB-710A (refer to item 2.1 for more details)

RECEIVED: Mar. 13, 2008

TESTED: Mar. 22 ~ Mar. 23, 2008

ISSUED: Mar. 31, 2008

APPLICANT: U-MEDIA Communications, Inc.

ADDRESS: 9F, No.1, Jin-shan 7th St., Hsinchu 300, Taiwan, R.O.C.

ISSUED BY: Advance Data Technology Corporation

LAB ADDRESS: No.47, 14th Ling, Chia Pau Tsuen, Linko Hsiang 244, Taipei Hsien, Taiwan, R.O.C.

TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

TABLE OF CONTENTS

1. CERTIFICATION....3
2. GENERAL INFORMATION....4
2.1 GENERAL DESCRIPTION OF EUT....4
2.2 GENERAL DESCRIPTION OF APPLIED STANDARDS....6
2.3 GENERAL INOFRMATION OF THE SAR SYSTEM....7
2.4 GENERAL DESCRIPTION OF THE SPATIAL PEAK SAR EVALUATION....11
3. DESCRIPTION OF SUPPORT UNITS....15
4. DESCRIPTION OF TEST MODES AND CONFIGURATIONS....16
4.1. DESCRIPTION OF ANTENNA LOCATION....16
4.2. DESCRIPTION OF ASSESSMENT POSITION....16
4.3. DESCRIPTION OF TEST MODE....17
4.4. SUMMARY OF TEST RESULTS....18
5. TEST RESULTS....20
5.1 TEST PROCEDURES....20
5.2 MEASURED SAR RESULTS....22
5.3 SAR LIMITS....28
5.4 RECIPES FOR TISSUE SIMULATING LIQUIDS....29
5.5 TEST EQUIPMENT FOR TISSUE PROPERTY....35
6. SYSTEM VALIDATION....36
6.1 TEST EQUIPMENT....36
6.2 TEST PROCEDURE....37
6.3 VALIDATION RESULTS....39
6.4 SYSTEM VALIDATION UNCERTAINTIES (FOR 5.0GHz)....40
7. MEASUREMENT SAR PROCEDURE UNCERTAINTIES....41
7.1. PROBE CALIBRATION UNCERTAINTY....41
7.2. ISOTROPY UNCERTAINTY....42
7.3. BOUNDARY EFFECT UNCERTAINTY....42
7.4. PROBE LINEARITY UNCERTAINTY....43
7.5. READOUT ELECTRONICS UNCERTAINTY....43
7.6. RESPONSE TIME UNCERTAINTY....43
7.7. INTEGRATION TIME UNCERTAINTY....44
7.8. PROBE POSITIONER MECHANICAL TOLERANCE....45
7.9. PROBE POSITIONING....45
7.10. PHANTOM UNCERTAINTY....46
7.11. DASY4 UNCERTAINTY BUDGET (FOR 5 ~ 6GHz)....47
8. INFORMATION ON THE TESTING LABORATORIES....48
APPENDIX A: TEST CONFIGURATIONS AND TEST DATA
APPENDIX B: ADT SAR MEASUREMENT SYSTEM
APPENDIX C: PHOTOGRAPHS OF SYSTEM VALIDATION
APPENDIX D: SYSTEM CERTIFICATE & CALIBRATION

1. CERTIFICATION

PRODUCT:	2.4GHz/5GHz Wireless USB Adapter (refer to item 2.1 for more details)
MODEL:	WUB-710A (refer to item 2.1 for more details)
BRAND:	U-MEDIA (refer to item 2.1 for more details)
APPLICANT:	U-MEDIA Communications, Inc.
TESTED:	Mar. 22 ~ Mar. 23, 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: WUB-710A) 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.

PREPARED BY : Rennie Wang / Senior Specialist , **DATE:** Mar. 31, 2008

TECHNICAL ACCEPTANCE : James Fan / Engineer , **DATE:** Mar. 31, 2008
Responsible for RF

APPROVED BY : Gary Chang / Assistant Manager , **DATE:** Mar. 31, 2008

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	2.4GHz/5GHz Wireless USB Adapter (refer to NOTE for more details)	
MODEL NO.	WUB-710A (refer to NOTE for more details)	
FCC ID	SI5WUB710A	
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 150.0Mbps (for TX) up to 300.0Mbps (for Rx)	
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**	
	20.417mW / Ch36: 5180MHz 20.512mW / Ch40: 5200MHz 20.464mW / Ch48: 5240MHz 20.370mW / Ch52: 5260MHz 20.464mW / Ch60: 5300MHz 20.045mW / Ch64: 5320MHz 20.137mW / Ch100: 5500MHz	20.098mW / Ch104: 5520MHz 20.103mW / Ch116: 5580MHz 20.091mW / Ch120: 5600MHz 20.108mW / Ch124: 5620MHz 20.096mW / Ch136: 5680MHz 19.999mW / Ch140: 5700MHz

CHANNEL FREQUENCIES UNDER TEST AND ITS CONDUCTED OUTPUT POWER FOR 5GHz	**DRAFT 802.11n (20MHz)**	
	20.184mW / Ch36: 5180MHz 19.953mW / Ch40: 5200MHz 20.137mW / Ch48: 5240MHz 20.230mW / Ch52: 5260MHz 20.324mW / Ch60: 5300MHz 20.184mW / Ch64: 5320MHz 16.181mW / Ch100: 5500MHz	20.103mW / Ch104: 5520MHz 20.116mW / Ch116: 5580MHz 20.184mW / Ch120: 5600MHz 20.135mW / Ch124: 5620MHz 20.058mW / Ch136: 5680MHz 20.091mW / Ch140: 5700MHz
	DRAFT 802.11n (40MHz)	
	19.999mW / Ch38: 5190MHz 20.091mW / Ch46: 5230MHz 20.370mW / Ch54: 5270MHz 20.324mW / Ch62: 5310MHz	20.091mW / Ch102: 5510MHz 19.999mW / Ch118: 5590MHz 20.091mW / Ch134: 5670MHz
AVERAGE SAR (1g)	0.726W/kg	
ANTENNA TYPE(S)	2.4GHz: Printed antenna with 1.0dBi gain 5.0GHz: Printed antenna with 2.0dBi gain	
DATA CABLE	1.5m shielded USB cable with 2 cores	
I/O PORTS	USB	
ACCESSORY DEVICES	NA	

NOTE:

1. The models as identified below are identical to each other except of the model name, brand name and product name due to marketing requirement.

MODEL NAME	BRAND NAME	PRODUCT NAME	DESCRIPTION
WUB-710A	U-MEDIA	2.4GHz/5GHz Wireless USB Adapter	Main model
W211NU	CradlePoint	CradlePoint Wireless-N USB Adapter	For marketing difference

2. The EUT is a 2.4GHz/5GHz Wireless USB Adapter. The functions of EUT listed as below:

	TEST STANDARD	REFERENCE REPORT
WLAN 802.11b/g, draft 802.11n	FCC Guidelines for Human Exposure	SA970313L06
WLAN 802.11a, draft 802.11n (5725~5850 MHz)	FCC Part 2 (Section 2.1093)	SA970313L06-2
WLAN 802.11a, draft 802.11n (5150~ 5350MHz, 5470~5725 MHz)		SA970313L06-1

3. 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)	√	√	√	√

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

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

5. 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 INOFRMATION 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 form 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 µW/g to > 100 mW/g; Linearity: ± 0.2 dB
OPTICAL SURFACE DETECTION	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
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 50361 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 ± 0.2mm
FILLING VOLUME	Approx. 25liters
DIMENSIONS	Height: 810mm; Length: 1000mm; Width: 500mm

SYSTEM VALIDATION KITS:

CONSTRUCTION	Symmetrical dipole with l/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 < 1GHz); > 40W (f > 1GHz)
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 ε =3 and loss tangent δ =0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered. 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.

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 200MOhm; 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:

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

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:

$$\text{E-fieldprobes: } E_i = \sqrt{\frac{V_1}{Norm_i \cdot ConvF}}$$

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

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

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

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

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

$$SAR = E_{tot}^2 \cdot \frac{S}{r \cdot 1'000}$$

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/cm3

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 the 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.

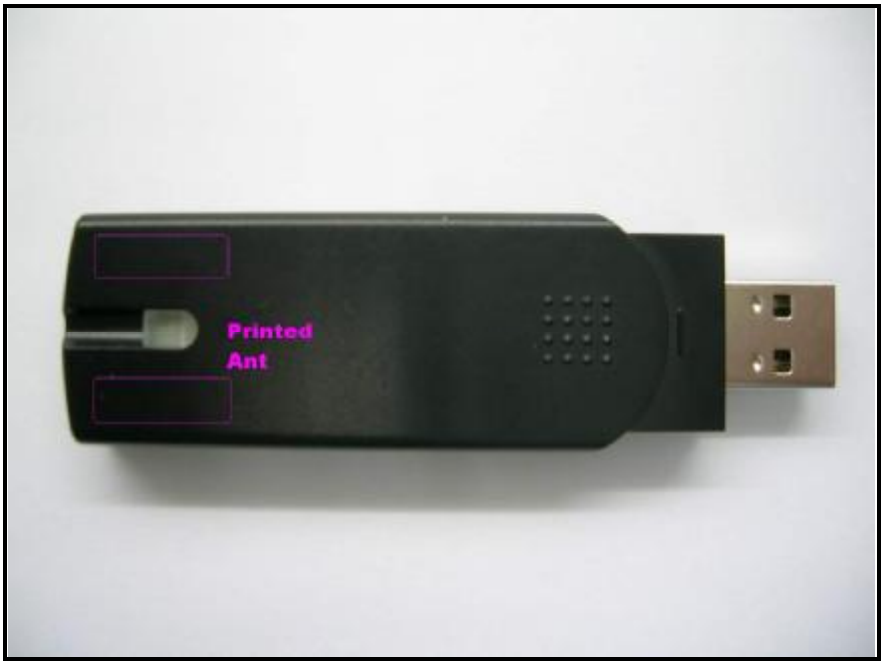
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	HP	nx6215	s/n:CND5390CMP	FCC DoC Approved
2	NOTEBOOK	Dell	PP01L	TW-09C748-12800-16M-5064	FCC DoC Approved

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	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: NOTEBOOK MODEL: nx6125 The bottom of the EUT face to the phantom with 5mm-separation distance.	**B: NOTEBOOK MODEL: PP01L** The edge of the EUT face to the phantom with 5mm-separation distance.

NOTE: The bottom of the notebook contacts to the bottom of the flat phantom with 0mm-separation distance.

4.3. DESCRIPTION OF TEST MODE

ITEM	TEST MODE	MODULATION	ASSESSMENT POSTITION	TESTED CHANNEL
1	802.11a	BPSK	A	36, 40, 48, 52, 60, 64, 100, 104, 116, 120, 124, 136, 140
2	Draft 802.11n (20MHz)	BPSK	A	36, 40, 48, 52, 60, 64, 100, 104, 116, 120, 124, 136, 140
3	Draft 802.11n (40MHz)	BPSK	A	38, 46, 54, 62, 102, 118, 134
4	802.11a	BPSK	B	36, 40, 48, 52, 60, 64, 100, 104, 116, 120, 124, 136, 140
5	Draft 802.11n (20MHz)	BPSK	B	36, 40, 48, 52, 60, 64, 100, 104, 116, 120, 124, 136, 140
6	Draft 802.11n (40MHz)	BPSK	B	38, 46, 54, 62, 102, 118, 134

4.4. SUMMARY OF TEST RESULTS

COMMUNICATION MODE	802.11a	Draft 802.11n (20MHz)
TEST MODE	1	2
MEASURED VALUE OF 1g SAR (W/kg)		
CHANNEL	ASSESSMENT POSITION (A)	
36	0.576	0.650
40	0.608	0.656
48	0.648	0.638
52	0.699	0.689
60	0.676	0.677
64	0.685	0.679
100	0.652	0.500
104	0.616	0.480
116	0.474	0.413
120	0.455	0.413
124	0.419	0.358
136	0.335	0.333
140	0.305	0.313

COMMUNICATION MODE	Draft 802.11n (40MHz)
TEST MODE	3
MEASURED VALUE OF 1g SAR (W/kg)	
CHANNEL	ASSESSMENT POSITION (A)
38	0.675
46	**0.726**
54	0.673
62	0.693
102	0.645
118	0.458
134	0.366

NOTE: The worst value has been marked by boldface.

COMMUNICATION MODE	802.11a	Draft 802.11n (20MHz)
TEST MODE	4	5
MEASURED VALUE OF 1g SAR (W/kg)		
CHANNEL	ASSESSMENT POSITION (B)	
36	0.232	0.267
40	0.244	0.256
48	0.289	0.270
52	0.306	0.306
60	0.303	0.296
64	0.306	0.302
100	0.241	0.182
104	0.219	0.191
116	0.152	0.118
120	0.149	0.127
124	0.132	0.120
136	0.105	0.106
140	0.101	0.085

COMMUNICATION MODE	Draft 802.11n (40MHz)
TEST MODE	6
MEASURED VALUE OF 1g SAR (W/kg)	
CHANNEL	ASSESSMENT POSITION (B)
38	0.257
46	0.292
54	0.296
62	0.276
102	0.221
118	0.146
134	0.105

NOTE: The worst value has been marked by boldface.

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 ±1.0mm 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 ±5%.

5.2 MEASURED SAR RESULTS

ENVIRONMENTAL CONDITION	Air Temperature：22.3°C, Liquid Temperature：21.1°C Humidity：60%RH		
TESTED BY	Sam Onn	DATE	Mar. 22, 2008

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
36	**5180.000**	**802.11a**	20.417	20.214	-0.99	1	0.576
40	**5200.000**	**802.11a**	20.512	20.318	-0.95	1	0.608
48	**5240.000**	**802.11a**	20.464	20.259	-1.00	1	0.648
52	**5260.000**	**802.11a**	20.370	20.190	-0.88	1	0.699
60	**5300.000**	**802.11a**	20.464	20.258	-1.01	1	0.676
64	**5320.000**	**802.11a**	20.045	19.902	-0.71	1	0.685
100	**5500.000**	**802.11a**	20.137	20.010	-0.63	1	0.652
104	**5520.000**	**802.11a**	20.098	19.879	-1.09	1	0.616
116	**5580.000**	**802.11a**	20.103	19.895	-1.03	1	0.474
120	**5600.000**	**802.11a**	20.091	19.836	-1.27	1	0.455
124	**5620.000**	**802.11a**	20.108	19.845	-1.31	1	0.419
136	**5680.000**	**802.11a**	20.096	19.813	-1.41	1	0.335
140	**5700.000**	**802.11a**	19.999	19.754	-1.23	1	0.305

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 : 22.3°C, Liquid Temperature : 21.1°C Humidity : 60%RH		
TESTED BY	Sam Onn	DATE	Mar. 22, 2008

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
36	5180.000	DRAFT 802.11n (20MHz)	20.184	20.001	-0.91	2	0.650
40	5200.000	DRAFT 802.11n (20MHz)	19.953	19.721	-1.16	2	0.656
48	5240.000	DRAFT 802.11n (20MHz)	20.137	19.913	-1.11	2	0.638
52	5260.000	DRAFT 802.11n (20MHz)	20.230	19.999	-1.14	2	0.689
60	5300.000	DRAFT 802.11n (20MHz)	20.324	20.101	-1.10	2	0.677
64	5320.000	DRAFT 802.11n (20MHz)	20.184	20.023	-0.80	2	0.679
100	5500.000	DRAFT 802.11n (20MHz)	16.181	15.987	-1.20	2	0.500
104	5520.000	DRAFT 802.11n (20MHz)	20.103	19.834	-1.34	2	0.480
116	5580.000	DRAFT 802.11n (20MHz)	20.116	19.815	-1.50	2	0.413
120	5600.000	DRAFT 802.11n (20MHz)	20.184	19.883	-1.49	2	0.413
124	5620.000	DRAFT 802.11n (20MHz)	20.135	19.841	-1.46	2	0.358
136	5680.000	DRAFT 802.11n (20MHz)	20.058	19.852	-1.03	2	0.333
140	5700.000	DRAFT 802.11n (20MHz)	20.091	19.784	-1.53	2	0.313

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 : 22.3°C, Liquid Temperature : 21.1°C Humidity : 60%RH		
TESTED BY	Sam Onn	DATE	Mar. 22, 2008

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
38	**5190.000**	**DRAFT 802.11n (40MHz)**	19.999	19.858	-0.71	3	0.675
46	**5230.000**	**DRAFT 802.11n (40MHz)**	20.091	19.831	-1.29	3	**0.726**
54	**5270.000**	**DRAFT 802.11n (40MHz)**	20.370	20.142	-1.12	3	0.673
62	**5310.000**	**DRAFT 802.11n (40MHz)**	20.324	20.116	-1.02	3	0.693
102	**5510.000**	**DRAFT 802.11n (40MHz)**	20.091	19.875	-1.08	3	0.645
118	**5590.000**	**DRAFT 802.11n (40MHz)**	19.999	19.714	-1.43	3	0.458
134	**5670.000**	**DRAFT 802.11n (40MHz)**	20.091	19.842	-1.24	3	0.366

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 : 22.5°C, Liquid Temperature : 21.4°C Humidity : 60%RH		
TESTED BY	Sam Onn	DATE	Mar. 23, 2008

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
36	5180.000	802.11a	20.417	20.138	-1.37	4	0.232
40	5200.000	802.11a	20.512	20.201	-1.52	4	0.244
48	5240.000	802.11a	20.464	20.168	-1.45	4	0.289
52	5260.000	802.11a	20.370	20.113	-1.26	4	0.306
60	5300.000	802.11a	20.464	20.145	-1.56	4	0.303
64	5320.000	802.11a	20.045	19.769	-1.38	4	0.306
100	5500.000	802.11a	20.137	19.754	-1.90	4	0.241
104	5520.000	802.11a	20.098	19.761	-1.68	4	0.219
116	5580.000	802.11a	20.103	19.851	-1.25	4	0.152
120	5600.000	802.11a	20.091	19.741	-1.74	4	0.149
124	5620.000	802.11a	20.108	19.736	-1.85	4	0.132
136	5680.000	802.11a	20.096	19.802	-1.46	4	0.105
140	5700.000	802.11a	19.999	19.741	-1.29	4	0.101

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 : 22.5°C, Liquid Temperature : 21.4°C Humidity : 60%RH		
TESTED BY	Sam Onn	DATE	Mar. 23, 2008

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
36	5180.000	DRAFT 802.11n (20MHz)	20.184	19.938	-1.22	5	0.267
40	5200.000	DRAFT 802.11n (20MHz)	19.953	19.599	-1.77	5	0.256
48	5240.000	DRAFT 802.11n (20MHz)	20.137	19.982	-0.77	5	0.270
52	5260.000	DRAFT 802.11n (20MHz)	20.230	19.994	-1.17	5	0.306
60	5300.000	DRAFT 802.11n (20MHz)	20.324	20.125	-0.98	5	0.296
64	5320.000	DRAFT 802.11n (20MHz)	20.184	20.017	-0.83	5	0.302
100	5500.000	DRAFT 802.11n (20MHz)	16.181	16.028	-0.95	5	0.182
104	5520.000	DRAFT 802.11n (20MHz)	20.103	19.954	-0.74	5	0.191
116	5580.000	DRAFT 802.11n (20MHz)	20.116	19.867	-1.24	5	0.118
120	5600.000	DRAFT 802.11n (20MHz)	20.184	19.836	-1.72	5	0.127
124	5620.000	DRAFT 802.11n (20MHz)	20.135	19.774	-1.79	5	0.120
136	5680.000	DRAFT 802.11n (20MHz)	20.058	19.782	-1.38	5	0.106
140	5700.000	DRAFT 802.11n (20MHz)	20.091	19.899	-0.96	5	0.085

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 : 22.5°C, Liquid Temperature : 21.4°C Humidity : 60%RH		
TESTED BY	Sam Onn	DATE	Mar. 23, 2008

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (mW)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
38	5190.000	DRAFT 802.11n (40MHz)	19.999	19.814	-0.93	6	0.257
46	5230.000	DRAFT 802.11n (40MHz)	20.091	19.838	-1.26	6	0.292
54	5270.000	DRAFT 802.11n (40MHz)	20.370	20.194	-0.86	6	0.296
62	5310.000	DRAFT 802.11n (40MHz)	20.324	20.132	-0.94	6	0.276
102	5510.000	DRAFT 802.11n (40MHz)	20.091	19.853	-1.18	6	0.221
118	5590.000	DRAFT 802.11n (40MHz)	19.999	19.689	-1.55	6	0.146
134	5670.000	DRAFT 802.11n (40MHz)	20.091	19.836	-1.27	6	0.105

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 litters of tissue simulation liquid.

The following ingredients are used：

- **WATER-** Deionized water (pure H20), 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 (±1°).
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 >8mm thickness ε'=10.0, ε''=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 $\sigma = \omega \varepsilon_0 \varepsilon'' = \varepsilon''$ f [GHz] / 18.
8. Measure liquid shortly after calibration. Repeat calibration every hour.
9. Stir the liquid to be measured. Take a sample (~ 50ml) 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		21.1	
TEST DATE		NA		Mar. 22, 2008	
TESTED BY		NA		Sam Onn	
FREQ. (MHz)	**LIQUID PARAMETER**	**STANDARD VALUE**	**MEASUREMENT VALUE**	**STANDARD VALUE**	**MEASUREMENT VALUE**
5180	Permitivity (ε)	NA	NA	49.00	48.50
5190		NA	NA	49.00	48.40
5200		NA	NA	49.00	48.40
5230		NA	NA	49.00	48.40
5240		NA	NA	49.00	48.40
5260		NA	NA	48.90	48.30
5270		NA	NA	48.90	48.30
5300		NA	NA	48.90	48.20
5310		NA	NA	48.90	48.20
5320		NA	NA	48.90	48.20
5500		NA	NA	48.60	47.90
5510		NA	NA	48.60	47.80
5520		NA	NA	48.60	47.80
5580		NA	NA	48.50	47.70
5590		NA	NA	48.50	47.60
5600		NA	NA	48.50	47.60
5620		NA	NA	48.40	47.60
5670		NA	NA	48.40	47.50
5680		NA	NA	48.40	47.50
5700		NA	NA	48.30	47.40
5800		NA	NA	48.20	47.20
Dielectric Parameters Required at 21℃					

LIQUID TYPE		HSL-5800		MSL-5800	
SIMULATING LIQUID TEMP.		NA		21.1	
TEST DATE		NA		Mar. 22, 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	5.30
5190		NA	NA	5.29	5.31
5200		NA	NA	5.30	5.35
5230		NA	NA	5.33	5.37
5240		NA	NA	5.35	5.38
5260		NA	NA	5.37	5.41
5270		NA	NA	5.38	5.41
5300		NA	NA	5.42	5.45
5310		NA	NA	5.43	5.46
5320		NA	NA	5.44	5.47
5500		NA	NA	5.65	5.69
5510		NA	NA	5.66	5.70
5520		NA	NA	5.67	5.71
5580		NA	NA	5.74	5.79
5590		NA	NA	5.75	5.81
5600		NA	NA	5.77	5.91
5620		NA	NA	5.79	5.91
5670		NA	NA	5.85	5.92
5680		NA	NA	5.86	5.93
5700		NA	NA	5.88	5.94
5800		NA	NA	6.00	6.06
Dielectric Parameters Required at 21℃					

LIQUID TYPE		HSL-5800		MSL-5800	
SIMULATING LIQUID TEMP.		NA		21.4	
TEST DATE		NA		Mar. 23, 2008	
TESTED BY		NA		Sam Onn	
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	STANDARD VALUE	MEASUREMENT VALUE
5180	Permitivity (ε)	NA	NA	49.00	48.20
5190		NA	NA	49.00	48.20
5200		NA	NA	49.00	48.20
5230		NA	NA	49.00	48.10
5240		NA	NA	49.00	48.10
5260		NA	NA	48.90	48.10
5270		NA	NA	48.90	48.00
5300		NA	NA	48.90	48.00
5310		NA	NA	48.90	48.00
5320		NA	NA	48.90	47.90
5500		NA	NA	48.60	47.60
5510		NA	NA	48.60	47.60
5520		NA	NA	48.60	47.50
5580		NA	NA	48.50	47.40
5590		NA	NA	48.50	47.40
5600		NA	NA	48.50	47.40
5620		NA	NA	48.40	47.40
5670		NA	NA	48.40	47.20
5680		NA	NA	48.40	47.20
5700		NA	NA	48.30	47.20
5800		NA	NA	48.20	47.00
Dielectric Parameters Required at 21℃					

LIQUID TYPE		HSL-5800		MSL-5800	
SIMULATING LIQUID TEMP.		NA		21.4	
TEST DATE		NA		Mar. 23, 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	5.27
5190		NA	NA	5.29	5.28
5200		NA	NA	5.30	5.28
5230		NA	NA	5.33	5.34
5240		NA	NA	5.35	5.35
5260		NA	NA	5.37	5.38
5270		NA	NA	5.38	5.38
5300		NA	NA	5.42	5.42
5310		NA	NA	5.43	5.41
5320		NA	NA	5.44	5.44
5500		NA	NA	5.65	5.66
5510		NA	NA	5.66	5.67
5520		NA	NA	5.67	5.68
5580		NA	NA	5.74	5.76
5590		NA	NA	5.75	5.78
5600		NA	NA	5.77	5.80
5620		NA	NA	5.79	5.82
5670		NA	NA	5.85	5.88
5680		NA	NA	5.86	5.89
5700		NA	NA	5.88	5.91
5800		NA	NA	6.00	6.03
Dielectric Parameters Required at 21℃					

5.5 TEST EQUIPMENT FOR TISSUE PROPERTY

ITEM	NAME	BAND	TYPE	SERIES NO.	CALIBRATED UNTIL
1	Network Analyzer	Agilent	E8358A	US41480538	Nov. 11, 2008
2	Dielectric Probe	Agilent	85070D	US01440176	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 ±2.5% and ±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 ±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.	CALIBRATED UNTIL
1	SAM Phantom	S & P	QD000 P40 CA	PT-1150	NA
2	Signal Generator	Anritsu	68247B	984703	May 18, 2008
3	E-Field Probe	Speaq	EX3DV6	3504	Aug. 29, 2008
4	DAE	Speaq	DAE	510	Aug. 28, 2008
5	Robot Positioner	Staubli Unimation	NA	NA	NA
6	Validation Dipole	Speaq	D5GHzV2	1018	Apr. 18, 2008

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 ±0.02dB.

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 ±0.1mm). 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 $\pm 30^{O}$.) 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 ±0.1mm.

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

As the closest distance is 10mm, the resulting tolerance $SAR_{tolerance}$[%] 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	19.50 (1g)	21.20	8.72	10mm	Mar. 22, 2008
MSL5200	19.50 (1g)	20.90	7.18	10mm	Mar. 23, 2008
MSL5500	19.60 (1g)	21.30	8.67	10mm	Mar. 22, 2008
MSL5500	19.60 (1g)	21.00	7.14	10mm	Mar. 23, 2008
MSL5800	17.60 (1g)	19.10	8.52	10mm	Mar. 22, 2008
MSL5800	17.60 (1g)	18.90	7.39	10mm	Mar. 23, 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	$\sqrt{3}$	1	1	2.7	2.7	∞
Hemispherical Isotropy	0.0	Rectangular	$\sqrt{3}$	1	1	0.0	0.0	∞
Boundary effect	2.0	Rectangular	$\sqrt{3}$	1	1	1.2	1.2	∞
Linearity	4.7	Rectangular	$\sqrt{3}$	1	1	2.7	2.7	∞
System Detection Limit	1.0	Rectangular	$\sqrt{3}$	1	1	0.6	0.6	∞
Readout Electronics	1.0	Normal	1	1	1	1.0	1.0	∞
Response Time	0.0	Rectangular	$\sqrt{3}$	1	1	0.0	0.0	∞
Integration Time	0.0	Rectangular	$\sqrt{3}$	1	1	0.0	0.0	∞
RF Ambient Conditions	3.0	Rectangular	$\sqrt{3}$	1	1	1.7	1.7	∞
Probe Positioner	0.8	Rectangular	$\sqrt{3}$	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	$\sqrt{3}$	1	1	2.3	2.3	∞
Dipole								
Dipole Axis to Liquid Distance	2.0	Rectangular	$\sqrt{3}$	1	1	1.2	1.2	∞
Input power and SAR drift measurement	4.7	Rectangular	$\sqrt{3}$	1	1	2.7	2.7	∞
Phantom and Tissue Parameters								
Phantom Uncertainty	4.0	Rectangular	$\sqrt{3}$	1	1	2.3	2.3	∞
Liquid Conductivity (target)	5.0	Rectangular	$\sqrt{3}$	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	$\sqrt{3}$	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 50361, 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 ±0.20dB, while the maximum deviation of hemispherical isotropy is ±0.40dB, corresponding to ±4.7% and ±9.6%, respectively. A weighting factor of cp 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

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

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

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., δ= 13.95mm 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 < ± 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 < ±0.20dB (< ±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 ±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:

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

where Tm is 500 ms, i.e., the time between measurement samples, and $_T$ the time constant. The response time $_T$ of SPEAG's probes is <5ms. 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

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

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 enter of the probe sensors. The tolerance is determined as:

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

The specified repeatability of the RX robot family used in DASY4 systems is ±25µm. The absolute accuracy for short distance movements is better than ±0.1mm, 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:

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

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

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

For a maximum deviation d of the inner and outer shell of the phantom from that specified in the CAD file of ±0.2mm, and a 10mm spacing a between source and tissue liquid, the calculated phantom uncertainty is ±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	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	$\sqrt{3}$	0.7	0.7	3.9	3.9	∞
Boundary effect	2.0	Rectangular	$\sqrt{3}$	1	1	1.2	1.2	∞
Linearity	4.7	Rectangular	$\sqrt{3}$	1	1	2.7	2.7	∞
System Detection Limit	1.0	Rectangular	$\sqrt{3}$	1	1	0.6	0.6	∞
Readout Electronics	1.0	Normal	1	1	1	1.0	1.0	∞
Response Time	0.8	Rectangular	$\sqrt{3}$	1	1	0.5	0.5	∞
Integration Time	2.6	Rectangular	$\sqrt{3}$	1	1	1.5	1.5	∞
RF Ambient Conditions	3.0	Rectangular	$\sqrt{3}$	1	1	1.7	1.7	∞
Probe Positioner	0.8	Rectangular	$\sqrt{3}$	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	$\sqrt{3}$	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	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and Tissue Parameters								
Phantom Uncertainty	4.0	Rectangular	$\sqrt{3}$	1	1	2.3	2.3	∞
Liquid Conductivity (target)	5.0	Rectangular	$\sqrt{3}$	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	$\sqrt{3}$	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, A2LA
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

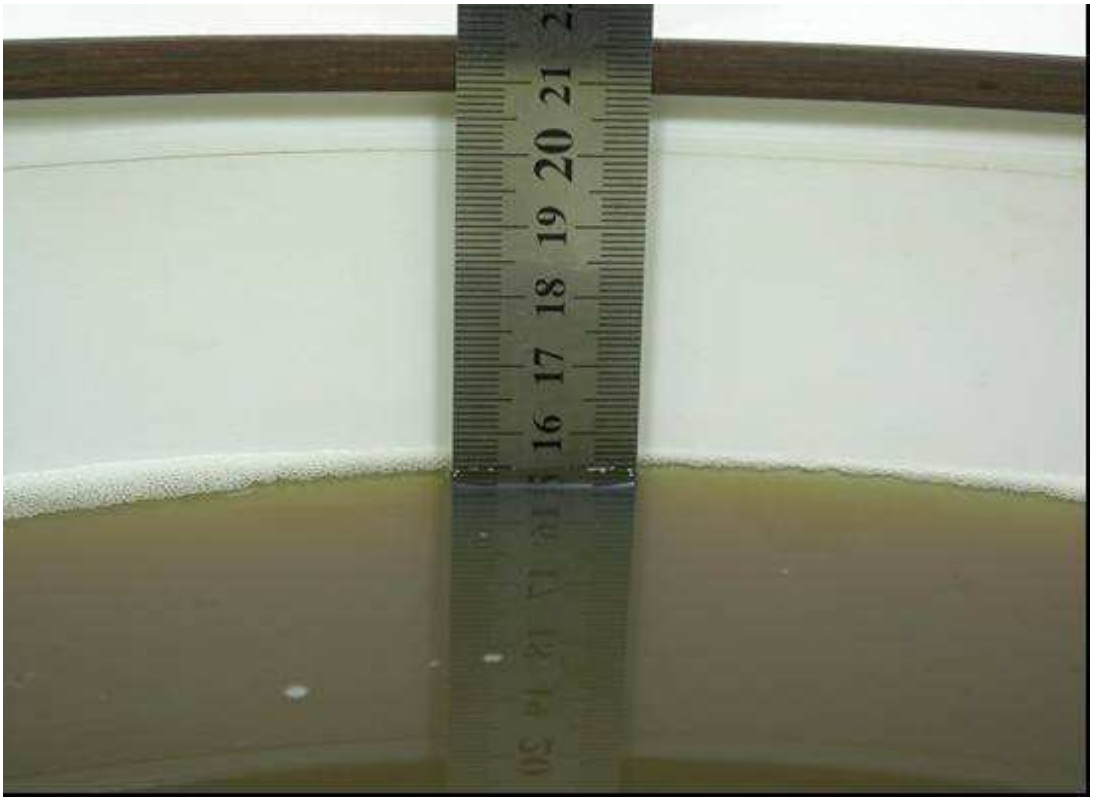
Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Web Site: www.adt.com.tw

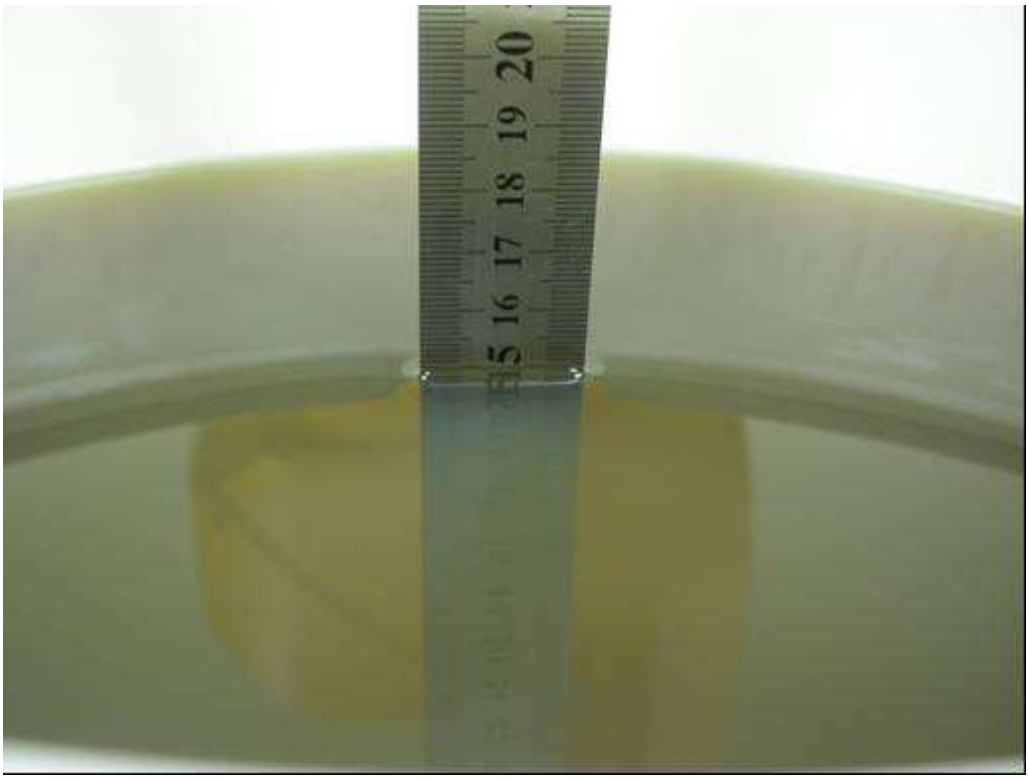
The address and road map of all our labs can be found in our web site also.

APPENDIX A: TEST DATA
Liquid Level Photo

MSL 5800MHz D=151mm



MSL 5800MHz D=155mm



Date/Time: 2008/3/22 02:29:20

Test Laboratory: Advance Data Technology

M01-NX6125-11a- Ch36

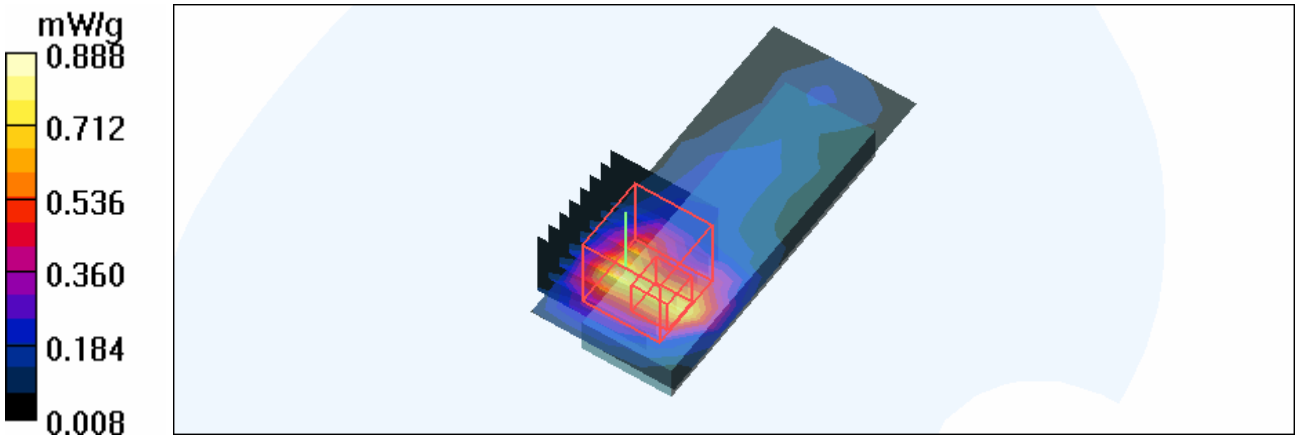
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5180 MHz

Communication System: 802.11a ; Frequency: 5180 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5180 MHz; σ = 5.3 mho/m; ε_r = 48.5; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel 36/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.795 mW/g

Low Channel 36/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.83 V/m
Peak SAR (extrapolated) = 1.99 W/kg
SAR(1 g) = 0.576 mW/g; SAR(10 g) = 0.237 mW/g
Maximum value of SAR (measured) = 0.888 mW/g



Date/Time: 2008/3/22 02:51:54

Test Laboratory: Advance Data Technology

M01-NX6125-11a- Ch40

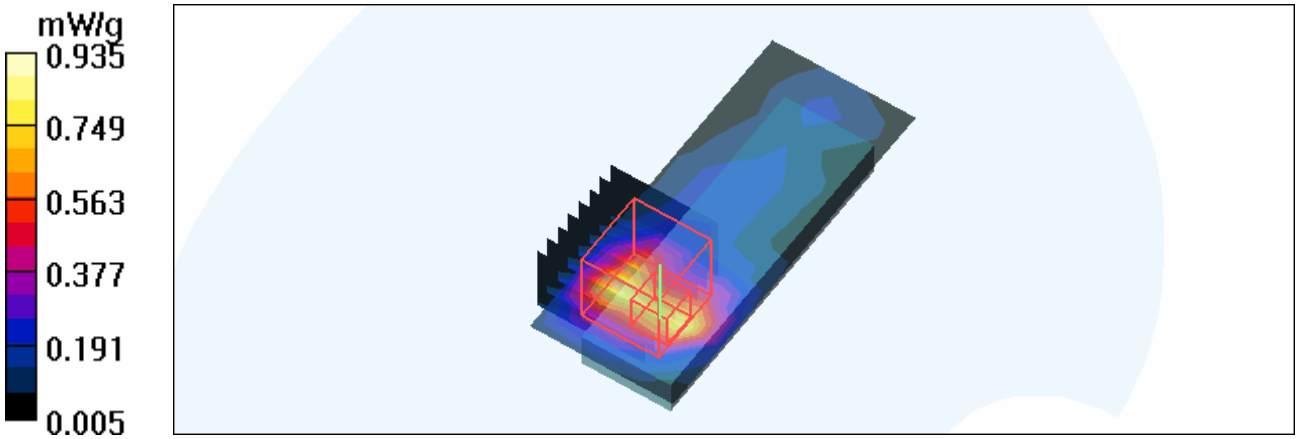
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5200 MHz

Communication System: 802.11a ; Frequency: 5200 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5200 MHz; σ = 5.35 mho/m; ε_r = 48.4; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.849 mW/g

Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.96 V/m
Peak SAR (extrapolated) = 2.19 W/kg
SAR(1 g) = 0.608 mW/g; SAR(10 g) = 0.246 mW/g
Maximum value of SAR (measured) = 0.935 mW/g



Date/Time: 2008/3/22 03:13:24

Test Laboratory: Advance Data Technology

M01-NX6125-11a- Ch48

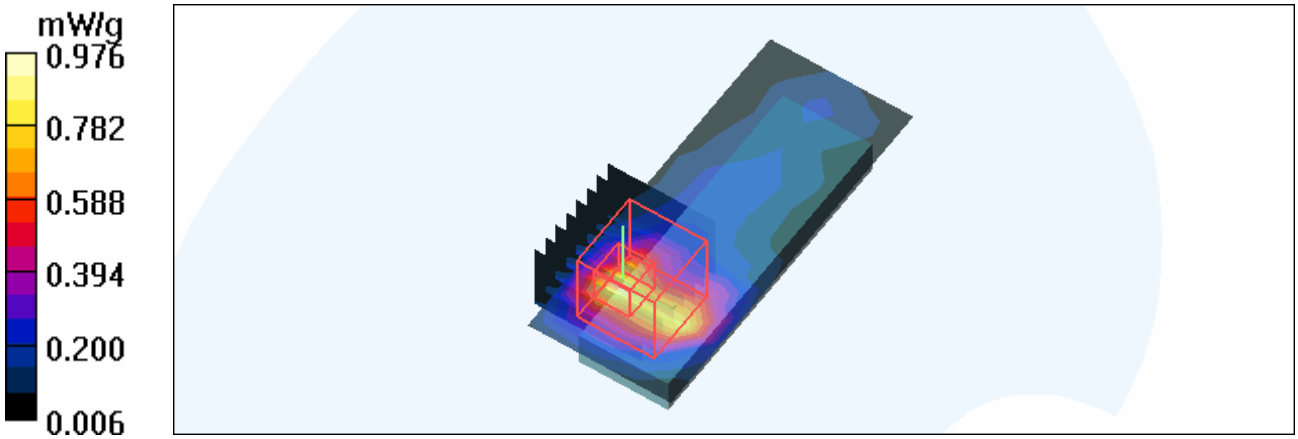
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5240 MHz

Communication System: 802.11a ; Frequency: 5240 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used : f = 5240 MHz; σ = 5.38 mho/m; ε_r = 48.4; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 48/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.919 mW/g

Mid Channel 48/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.98 V/m
Peak SAR (extrapolated) = 2.38 W/kg
SAR(1 g) = 0.648 mW/g; SAR(10 g) = 0.263 mW/g
Maximum value of SAR (measured) = 0.976 mW/g



Date/Time: 2008/3/22 03:37:02

Test Laboratory: Advance Data Technology

M01-NX6125-11a- Ch52

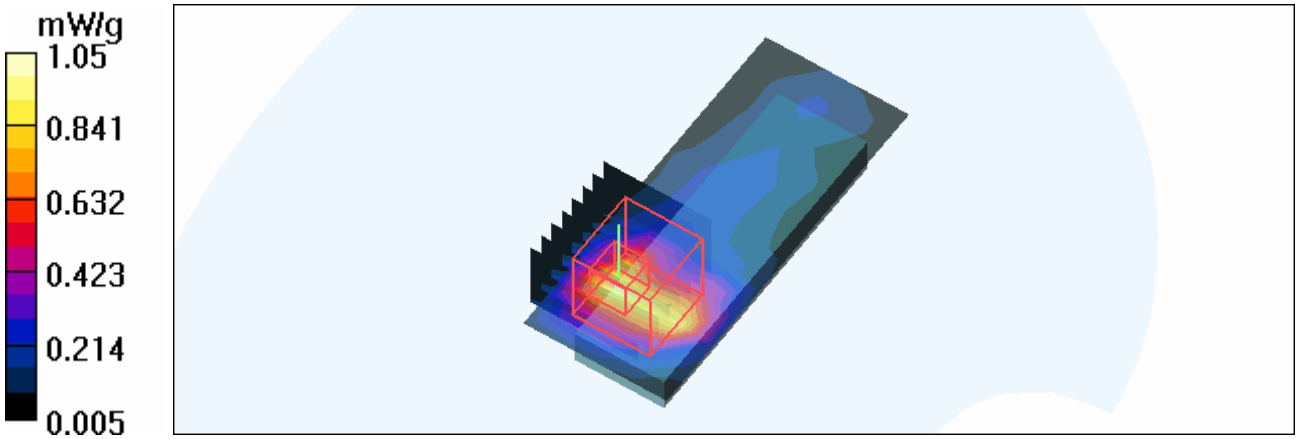
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5260 MHz

Communication System: 802.11a ; Frequency: 5260 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5260 MHz; σ = 5.41 mho/m; ε_r = 48.3; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.981 mW/g

Mid Channel 52/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.15 V/m
Peak SAR (extrapolated) = 2.59 W/kg
SAR(1 g) = 0.699 mW/g; SAR(10 g) = 0.285 mW/g
Maximum value of SAR (measured) = 1.05 mW/g



Date/Time: 2008/3/22 03:59:21

Test Laboratory: Advance Data Technology

M01-NX6125-11a- Ch60

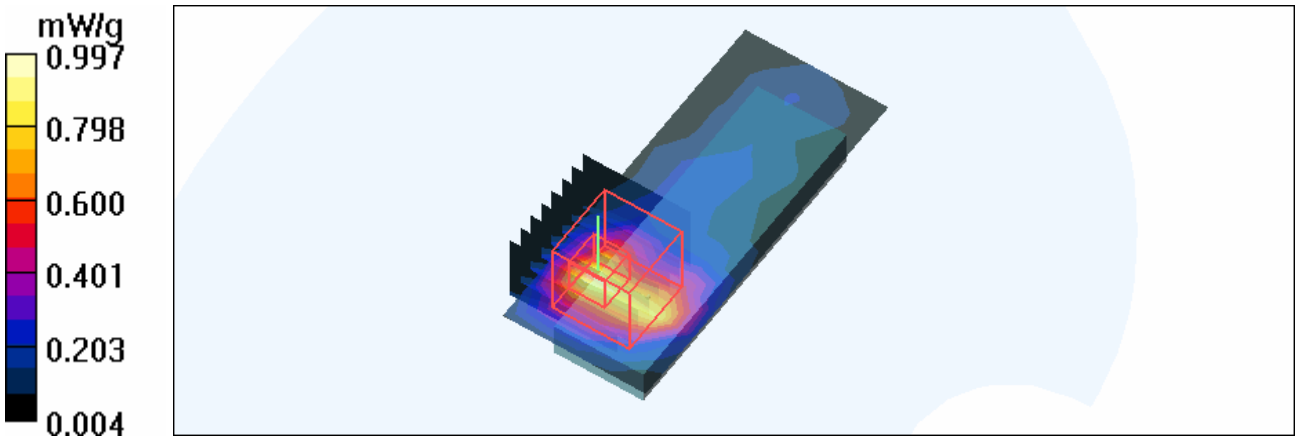
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5300 MHz

Communication System: 802.11a ; Frequency: 5300 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5300 MHz; σ = 5.45 mho/m; ε_r = 48.2; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 60/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.943 mW/g

Mid Channel 60/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.14 V/m
Peak SAR (extrapolated) = 2.56 W/kg
SAR(1 g) = 0.676 mW/g; SAR(10 g) = 0.274 mW/g
Maximum value of SAR (measured) = 0.997 mW/g



Date/Time: 2008/3/22 04:25:14

Test Laboratory: Advance Data Technology

M01-NX6125-11a- Ch64

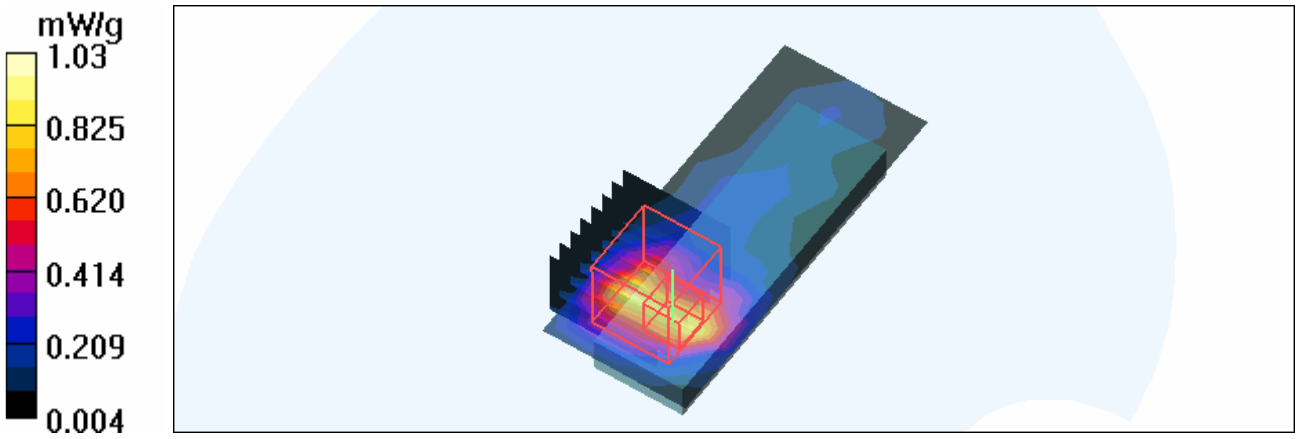
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5320 MHz

Communication System: 802.11a ; Frequency: 5320 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5320 MHz; σ = 5.47 mho/m; ε_r = 48.2; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.938 mW/g

Mid Channel 64/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.07 V/m
Peak SAR (extrapolated) = 2.58 W/kg
SAR(1 g) = 0.685 mW/g; SAR(10 g) = 0.275 mW/g
Maximum value of SAR (measured) = 1.03 mW/g



Date/Time: 2008/3/22 04:48:15

Test Laboratory: Advance Data Technology

M01-NX6125-11a- Ch100

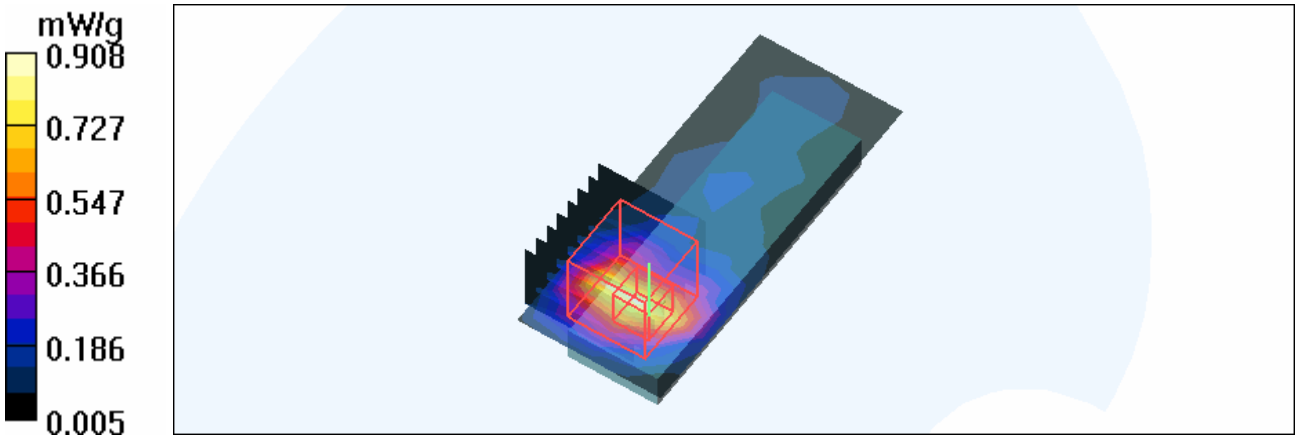
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5500 MHz

Communication System: 802.11a ; Frequency: 5500 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5500 MHz; σ = 5.69 mho/m; ε_r = 47.9; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(3.99, 3.99, 3.99) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.875 mW/g

Mid Channel 100/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.94 V/m
Peak SAR (extrapolated) = 2.60 W/kg
SAR(1 g) = 0.652 mW/g; SAR(10 g) = 0.249 mW/g
Maximum value of SAR (measured) = 0.908 mW/g



Date/Time: 2008/3/22 05:10:03

Test Laboratory: Advance Data Technology

M01-NX6125-11a- Ch104

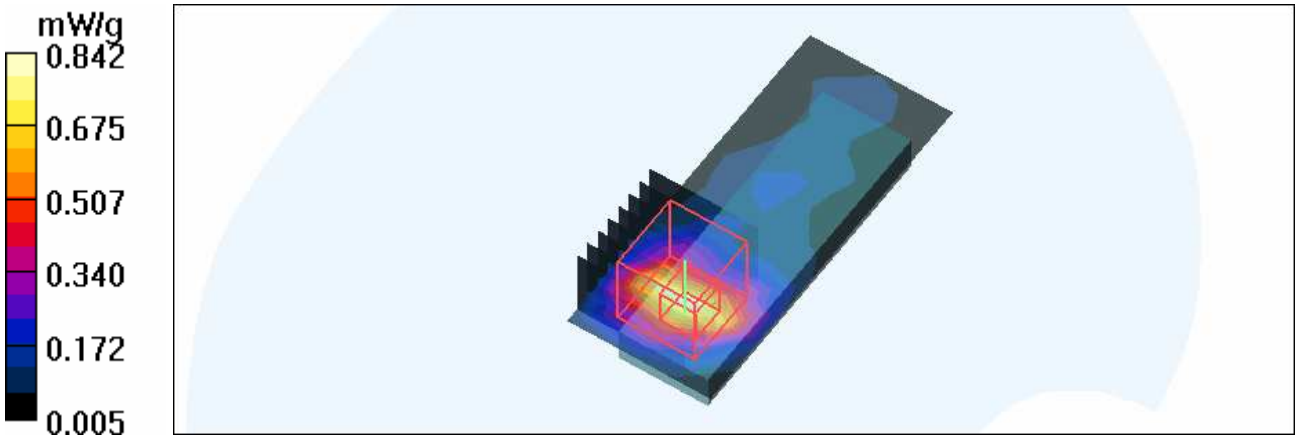
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5520 MHz

Communication System: 802.11a ; Frequency: 5520 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5520 MHz; σ = 5.71 mho/m; ε_r = 47.8; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(3.99, 3.99, 3.99) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.830 mW/g

Mid Channel 104/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.53 V/m
Peak SAR (extrapolated) = 2.40 W/kg
SAR(1 g) = 0.616 mW/g; SAR(10 g) = 0.235 mW/g
Maximum value of SAR (measured) = 0.842 mW/g



Date/Time: 2008/3/22 05:32:38

Test Laboratory: Advance Data Technology

M01-NX6125-11a- Ch116

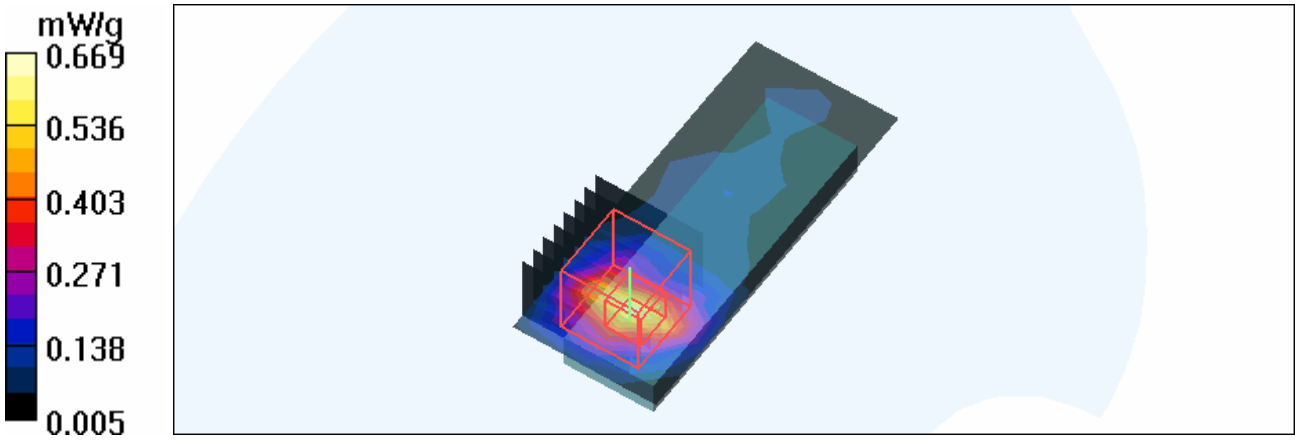
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5580 MHz

Communication System: 802.11a ; Frequency: 5580 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5580 MHz; σ = 5.79 mho/m; ε_r = 47.7; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.626 mW/g

Mid Channel 116/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.22 V/m
Peak SAR (extrapolated) = 2.02 W/kg
SAR(1 g) = 0.474 mW/g; SAR(10 g) = 0.175 mW/g
Maximum value of SAR (measured) = 0.669 mW/g



Date/Time: 2008/3/22 05:57:22

Test Laboratory: Advance Data Technology

M01-NX6125-11a- Ch120

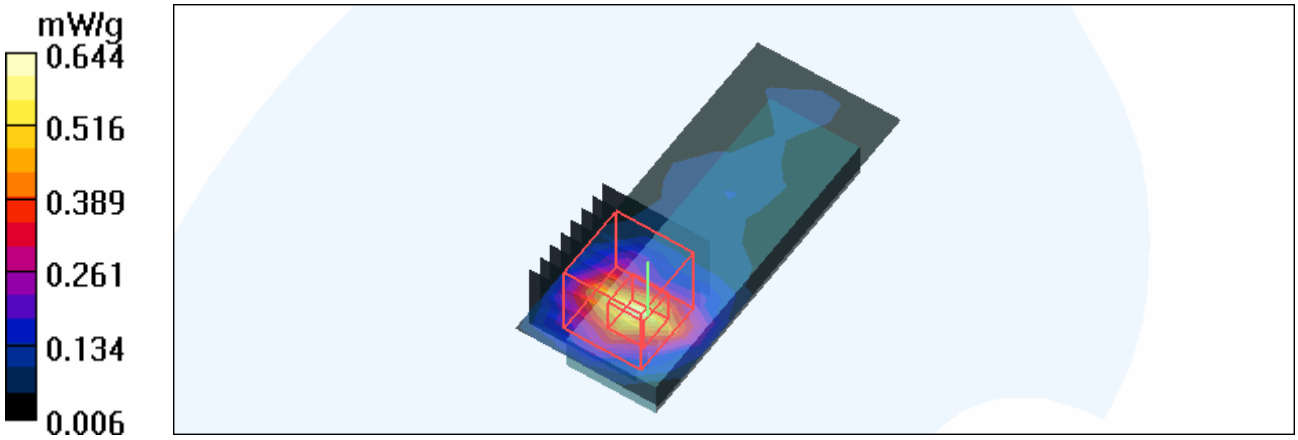
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5600 MHz

Communication System: 802.11a ; Frequency: 5600 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5600 MHz; σ = 5.91 mho/m; ε_r = 47.6; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.619 mW/g

Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.91 V/m
Peak SAR (extrapolated) = 1.90 W/kg
SAR(1 g) = 0.455 mW/g; SAR(10 g) = 0.168 mW/g
Maximum value of SAR (measured) = 0.644 mW/g



Date/Time: 2008/3/22 06:18:48

Test Laboratory: Advance Data Technology

M01-NX6125-11a- Ch124

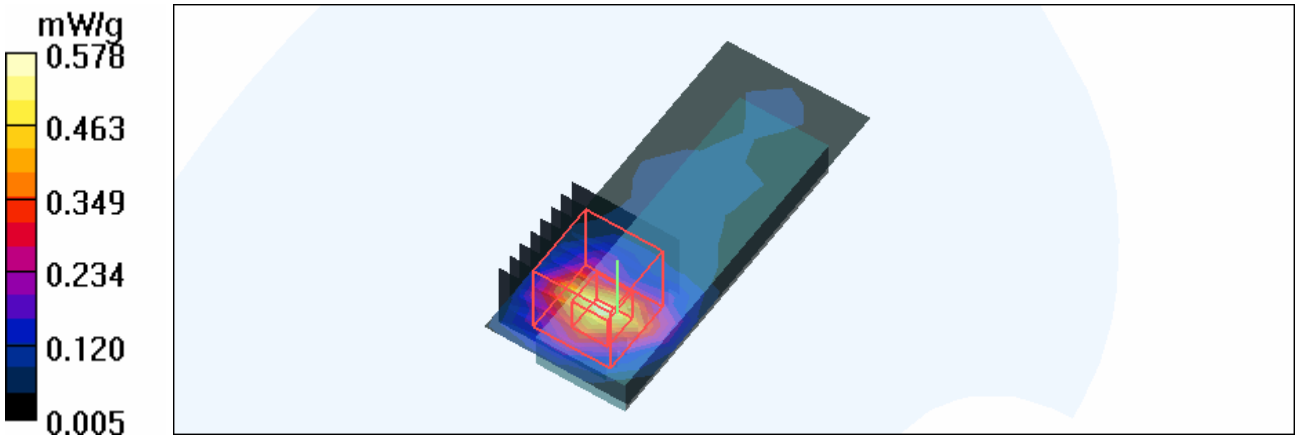
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5620 MHz

Communication System: 802.11a ; Frequency: 5620 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5620 MHz; σ = 5.91 mho/m; ε_r = 47.6; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.559 mW/g

Mid Channel 124/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.43 V/m
Peak SAR (extrapolated) = 1.71 W/kg
SAR(1 g) = 0.419 mW/g; SAR(10 g) = 0.155 mW/g
Maximum value of SAR (measured) = 0.578 mW/g



Date/Time: 2008/3/22 06:40:56

Test Laboratory: Advance Data Technology

M01-NX6125-11a- Ch136

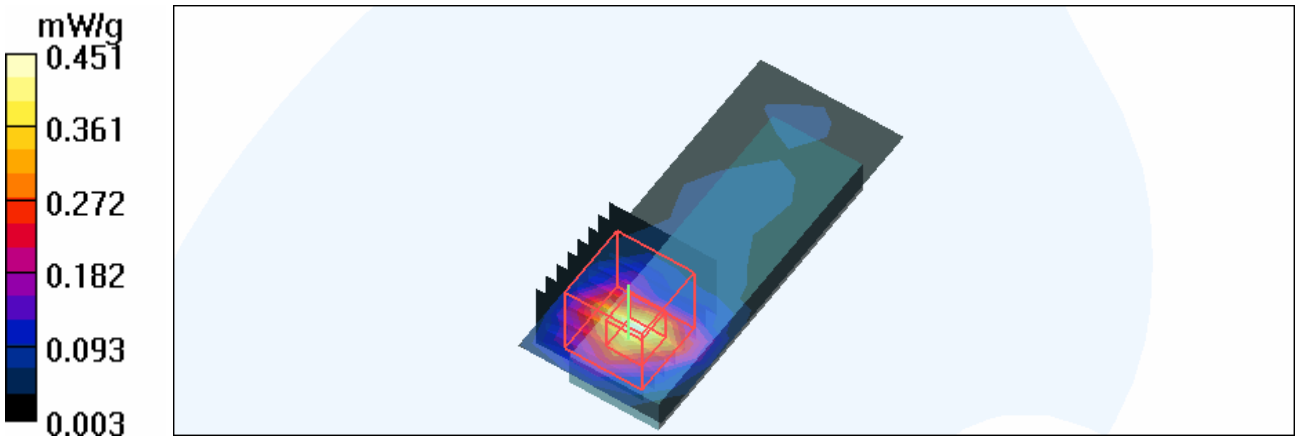
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5680 MHz

Communication System: 802.11a ; Frequency: 5680 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5680 MHz; σ = 5.93 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.452 mW/g

Mid Channel 136/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.54 V/m
Peak SAR (extrapolated) = 1.42 W/kg
SAR(1 g) = 0.335 mW/g; SAR(10 g) = 0.122 mW/g
Maximum value of SAR (measured) = 0.451 mW/g



Date/Time: 2008/3/22 07:02:38

Test Laboratory: Advance Data Technology

M01-NX6125-11a- Ch140

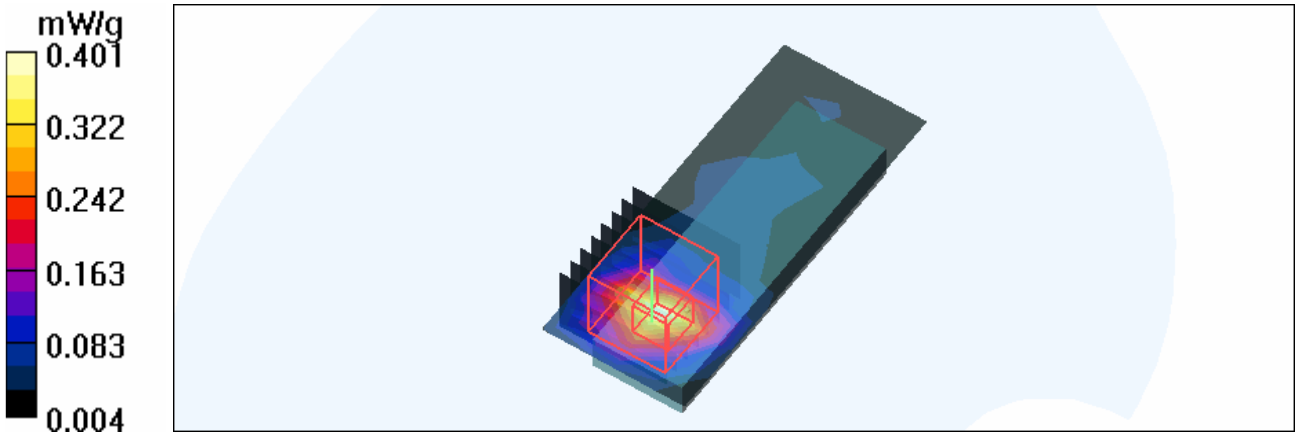
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5700 MHz

Communication System: 802.11a ; Frequency: 5700 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5700 MHz; σ = 5.94 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.400 mW/g

Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.32 V/m
Peak SAR (extrapolated) = 1.31 W/kg
SAR(1 g) = 0.305 mW/g; SAR(10 g) = 0.112 mW/g
Maximum value of SAR (measured) = 0.401 mW/g



Date/Time: 2008/3/22 08:40:03

Test Laboratory: Advance Data Technology

M02-NX6125-11n 5G 20M- Ch36

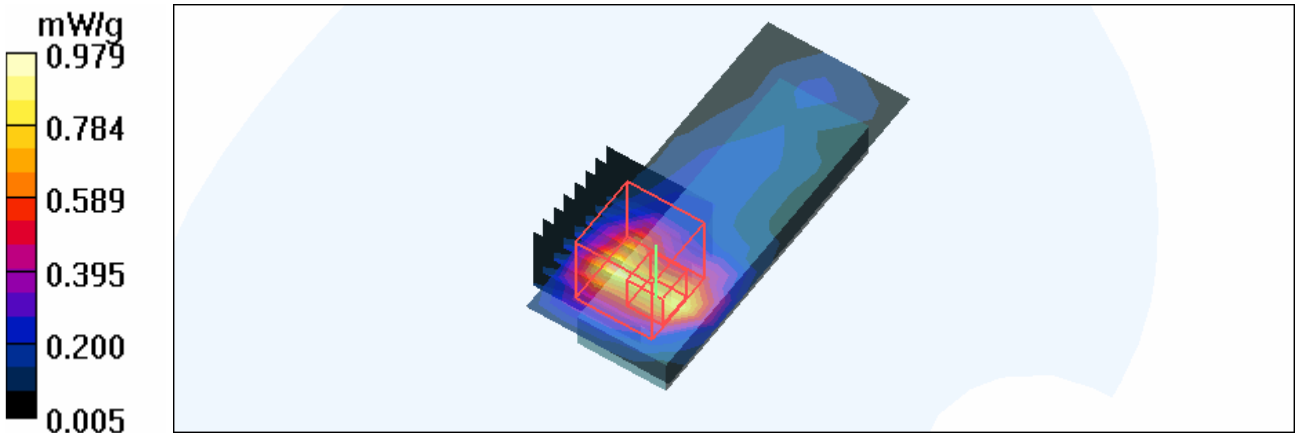
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5180 MHz

Communication System: 11n 5G span20 ; Frequency: 5180 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5180 MHz; σ = 5.3 mho/m; ε_r = 48.5; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel 36/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.905 mW/g

Low Channel 36/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.49 V/m
Peak SAR (extrapolated) = 2.29 W/kg
SAR(1 g) = 0.650 mW/g; SAR(10 g) = 0.266 mW/g
Maximum value of SAR (measured) = 0.979 mW/g



Date/Time: 2008/3/22 09:01:42

Test Laboratory: Advance Data Technology

M02-NX6125-11n 5G 20M- Ch40

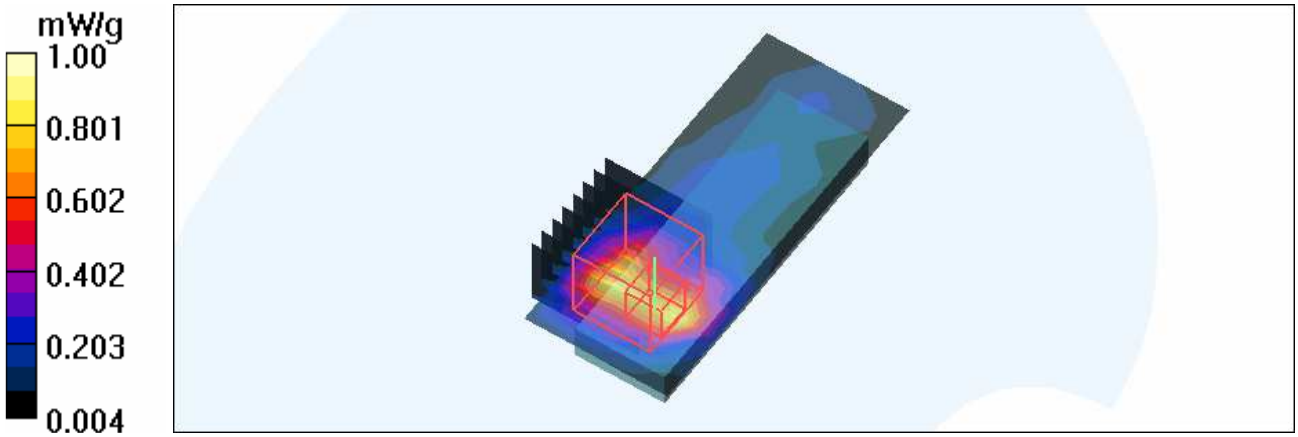
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5200 MHz

Communication System: 11n 5G span20 ; Frequency: 5200 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5200 MHz; σ = 5.35 mho/m; ε_r = 48.4; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.907 mW/g

Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.29 V/m
Peak SAR (extrapolated) = 2.38 W/kg
SAR(1 g) = 0.656 mW/g; SAR(10 g) = 0.266 mW/g
Maximum value of SAR (measured) = 1.00 mW/g



Date/Time: 2008/3/22 09:23:04

Test Laboratory: Advance Data Technology

M02-NX6125-11n 5G 20M- Ch48

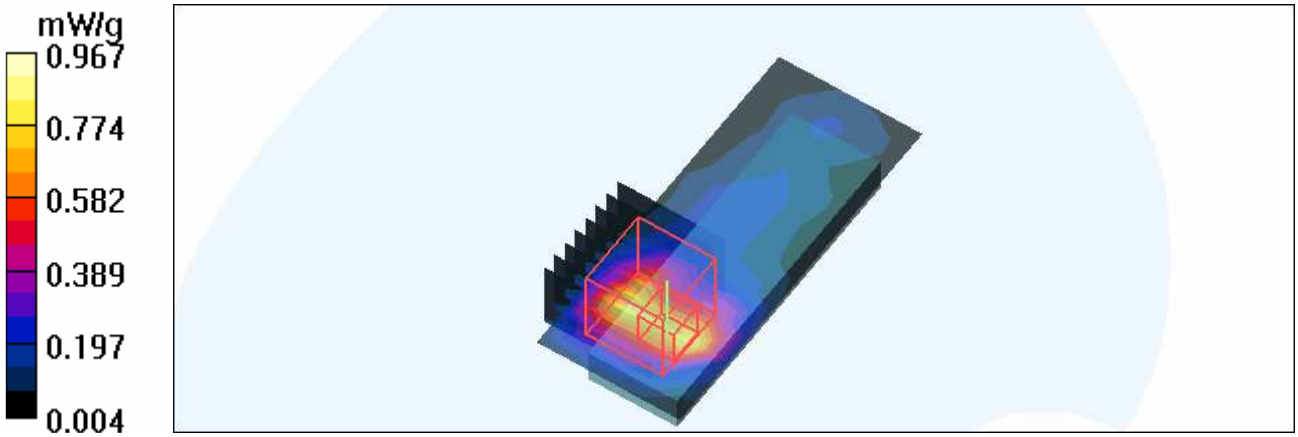
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5240 MHz

Communication System: 11n 5G span20 ; Frequency: 5240 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used : f = 5240 MHz; σ = 5.38 mho/m; ε_r = 48.4; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 48/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.872 mW/g

Mid Channel 48/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.24 V/m
Peak SAR (extrapolated) = 2.34 W/kg
SAR(1 g) = 0.638 mW/g; SAR(10 g) = 0.258 mW/g
Maximum value of SAR (measured) = 0.967 mW/g



Date/Time: 2008/3/22 09:45:10

Test Laboratory: Advance Data Technology

M02-NX6125-11n 5G 20M- Ch52

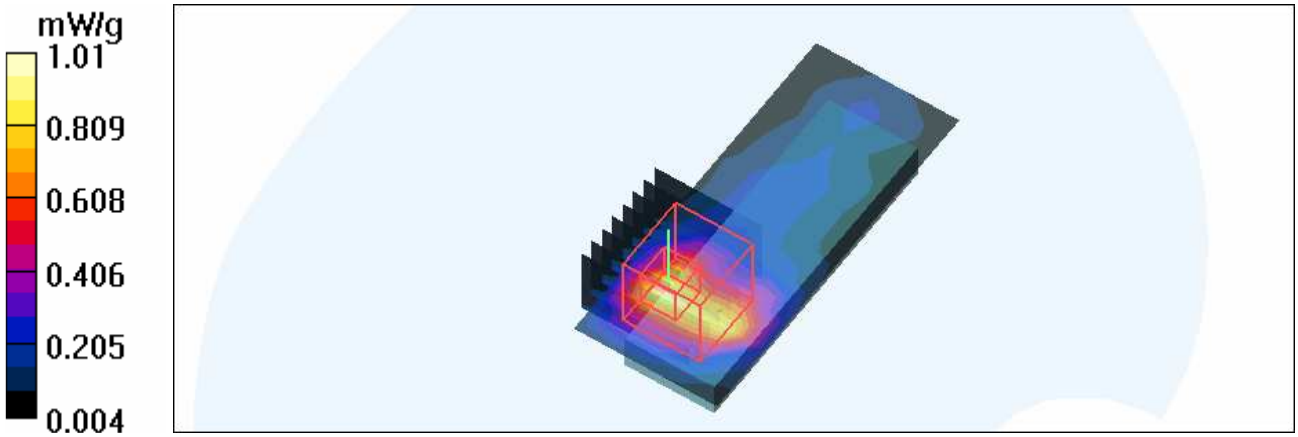
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5260 MHz

Communication System: 11n 5G span20 ; Frequency: 5260 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5260 MHz; σ = 5.41 mho/m; ε_r = 48.3; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.977 mW/g

Mid Channel 52/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.45 V/m
Peak SAR (extrapolated) = 2.54 W/kg
SAR(1 g) = 0.689 mW/g; SAR(10 g) = 0.280 mW/g
Maximum value of SAR (measured) = 1.01 mW/g



Date/Time: 2008/3/22 10:23:34

Test Laboratory: Advance Data Technology

M02-NX6125-11n 5G 20M- Ch60

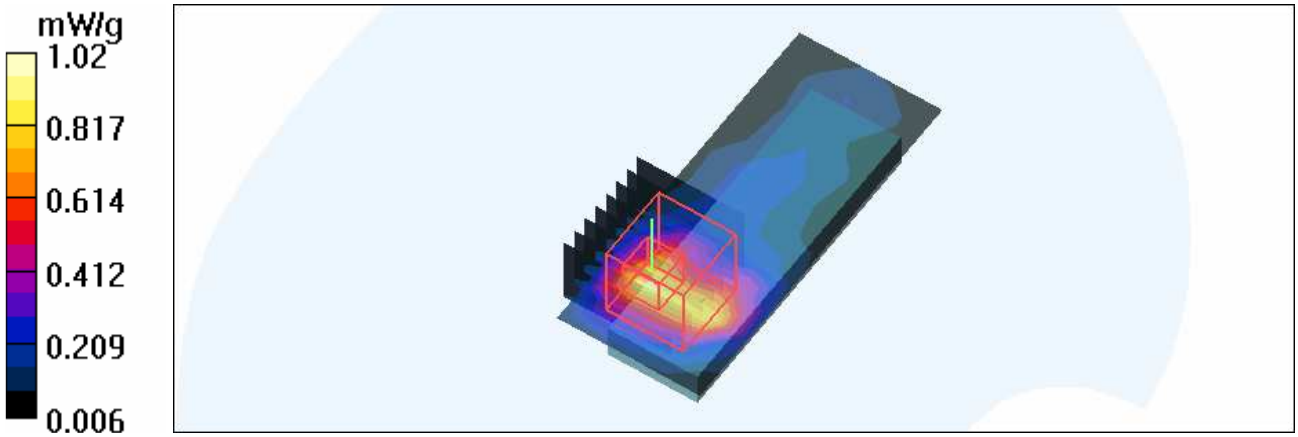
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5300 MHz

Communication System: 11n 5G span20 ; Frequency: 5300 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5300 MHz; σ = 5.45 mho/m; ε_r = 48.2; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 60/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.954 mW/g

Mid Channel 60/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.21 V/m
Peak SAR (extrapolated) = 2.62 W/kg
SAR(1 g) = 0.677 mW/g; SAR(10 g) = 0.273 mW/g
Maximum value of SAR (measured) = 1.02 mW/g



Date/Time: 2008/3/22 10:59:40

Test Laboratory: Advance Data Technology

M02-NX6125-11n 5G 20M- Ch64

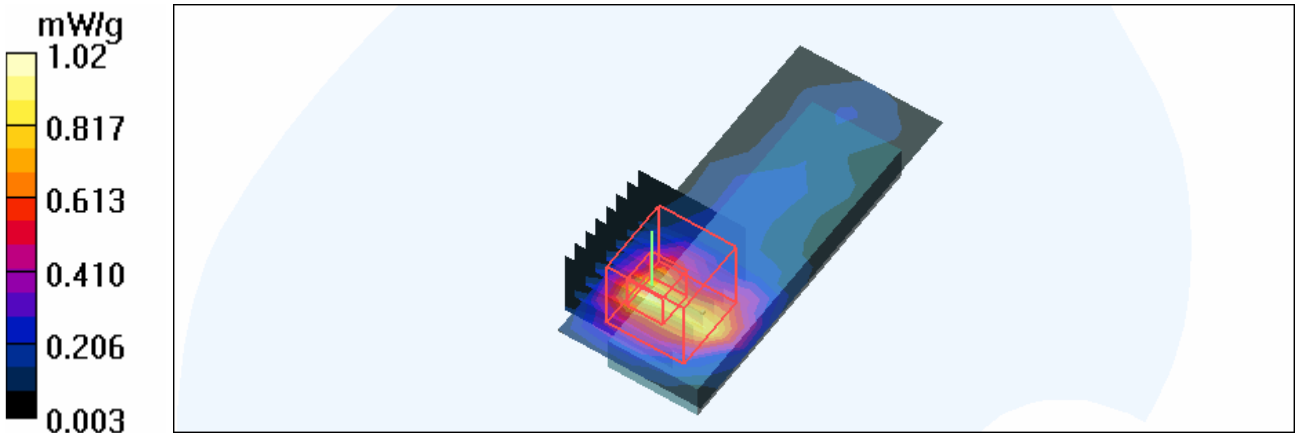
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5320 MHz

Communication System: 11n 5G span20 ; Frequency: 5320 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5320 MHz; σ = 5.47 mho/m; ε_r = 48.2; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.946 mW/g

Mid Channel 64/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.00 V/m
Peak SAR (extrapolated) = 2.61 W/kg
SAR(1 g) = 0.679 mW/g; SAR(10 g) = 0.274 mW/g
Maximum value of SAR (measured) = 1.02 mW/g



Date/Time: 2008/3/22 11:27:42

Test Laboratory: Advance Data Technology

M02-NX6125-11n 5G 20M- Ch100

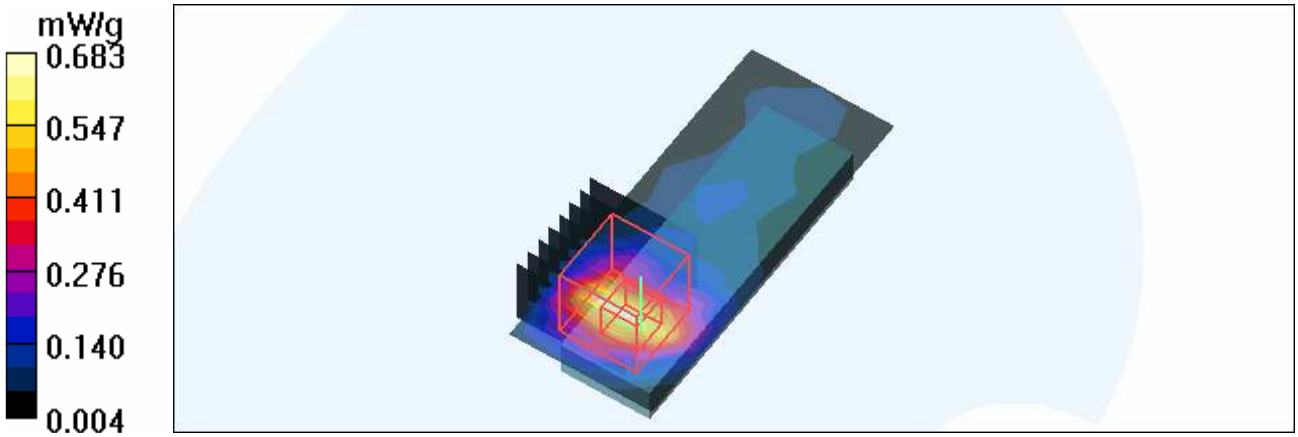
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5500 MHz

Communication System: 11n 5G span20 ; Frequency: 5500 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5500 MHz; σ = 5.69 mho/m; ε_r = 47.9; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(3.99, 3.99, 3.99) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.664 mW/g

Mid Channel 100/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.85 V/m
Peak SAR (extrapolated) = 1.96 W/kg
SAR(1 g) = 0.500 mW/g; SAR(10 g) = 0.194 mW/g
Maximum value of SAR (measured) = 0.683 mW/g



Date/Time: 2008/3/22 11:50:42

Test Laboratory: Advance Data Technology

M02-NX6125-11n 5G 20M- Ch104

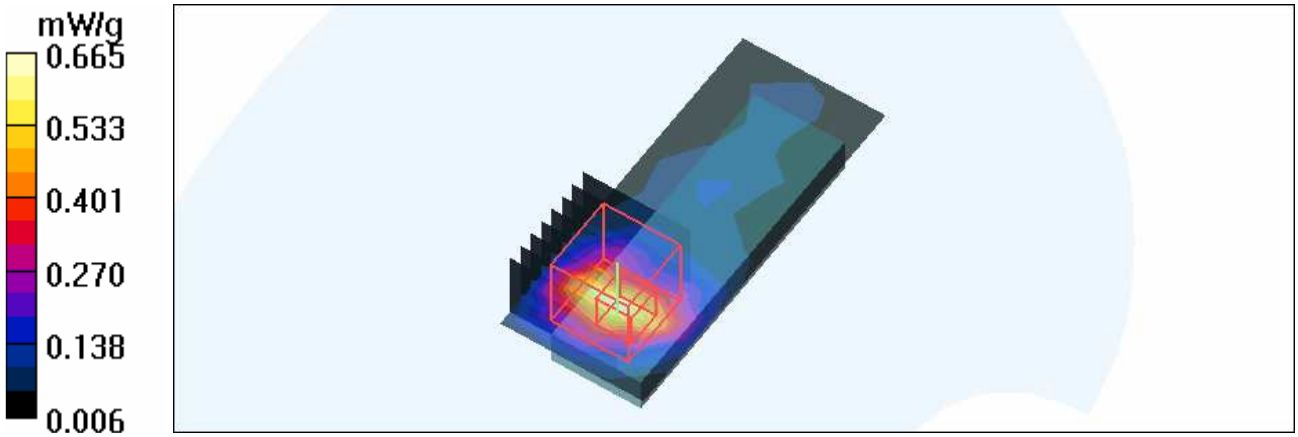
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5520 MHz

Communication System: 11n 5G span20 ; Frequency: 5520 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5520 MHz; σ = 5.71 mho/m; ε_r = 47.8; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(3.99, 3.99, 3.99) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.645 mW/g

Mid Channel 104/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.64 V/m
Peak SAR (extrapolated) = 1.92 W/kg
SAR(1 g) = 0.480 mW/g; SAR(10 g) = 0.183 mW/g
Maximum value of SAR (measured) = 0.665 mW/g



Date/Time: 2008/3/22 12:12:57

Test Laboratory: Advance Data Technology

M02-NX6125-11n 5G 20M- Ch116

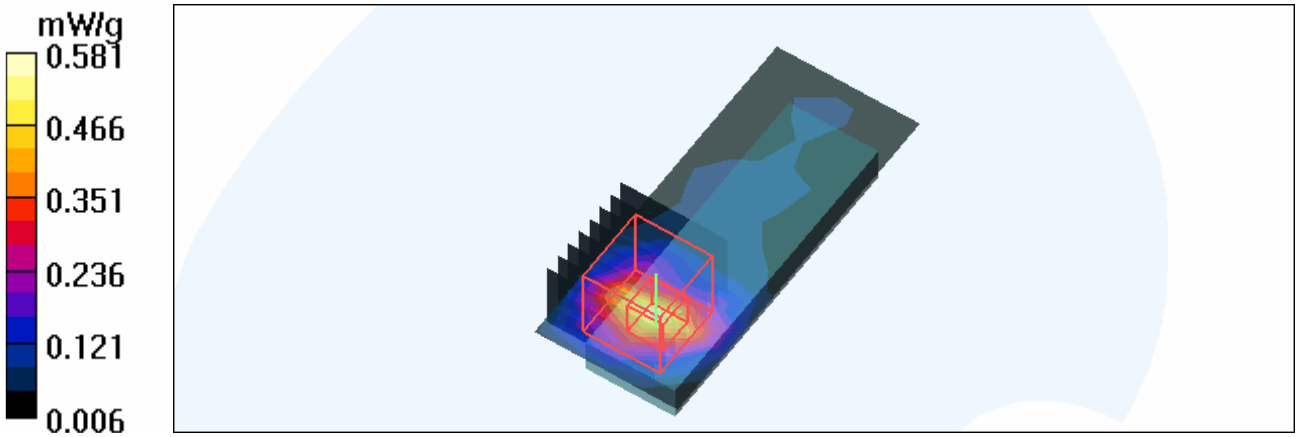
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5580 MHz

Communication System: 11n 5G span20 ; Frequency: 5580 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5580 MHz; σ = 5.79 mho/m; ε_r = 47.7; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.546 mW/g

Mid Channel 116/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.81 V/m
Peak SAR (extrapolated) = 1.73 W/kg
SAR(1 g) = 0.413 mW/g; SAR(10 g) = 0.154 mW/g
Maximum value of SAR (measured) = 0.581 mW/g



Date/Time: 2008/3/22 12:34:27

Test Laboratory: Advance Data Technology

M02-NX6125-11n 5G 20M- Ch120

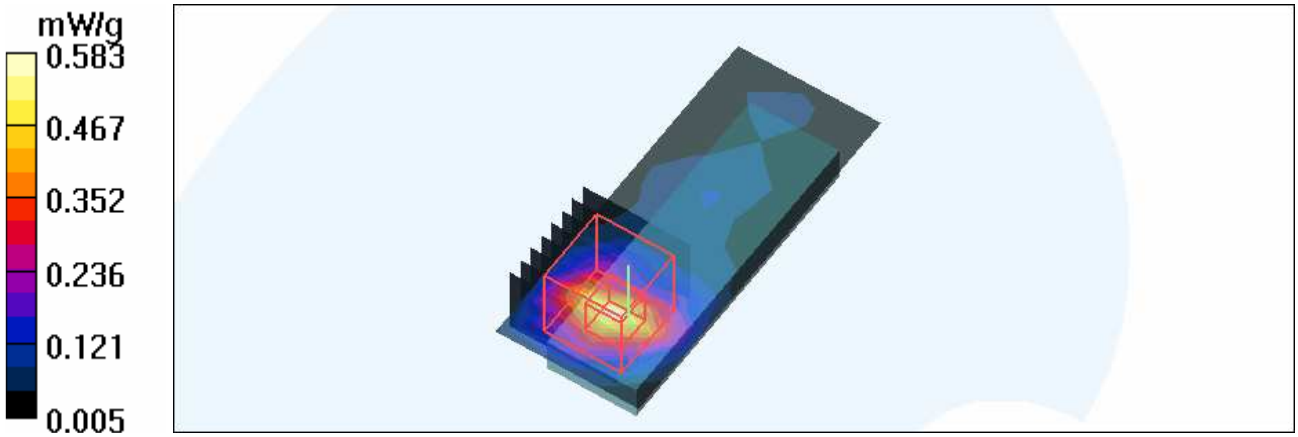
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5600 MHz

Communication System: 11n 5G span20 ; Frequency: 5600 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5600 MHz; σ = 5.91 mho/m; ε_r = 47.6; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.571 mW/g

Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.45 V/m
Peak SAR (extrapolated) = 1.63 W/kg
SAR(1 g) = 0.413 mW/g; SAR(10 g) = 0.153 mW/g
Maximum value of SAR (measured) = 0.583 mW/g



Date/Time: 2008/3/22 12:55:56

Test Laboratory: Advance Data Technology

M02-NX6125-11n 5G 20M- Ch124

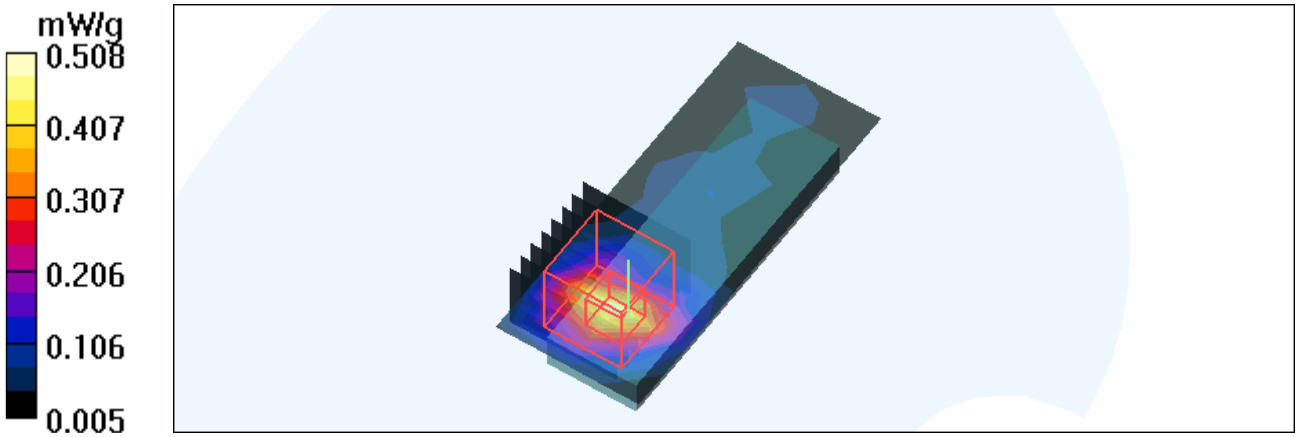
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5620 MHz

Communication System: 11n 5G span20 ; Frequency: 5620 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5620 MHz; σ = 5.91 mho/m; ε_r = 47.6; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.488 mW/g

Mid Channel 124/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.18 V/m
Peak SAR (extrapolated) = 1.44 W/kg
SAR(1 g) = 0.358 mW/g; SAR(10 g) = 0.133 mW/g
Maximum value of SAR (measured) = 0.508 mW/g



Date/Time: 2008/3/22 13:17:28

Test Laboratory: Advance Data Technology

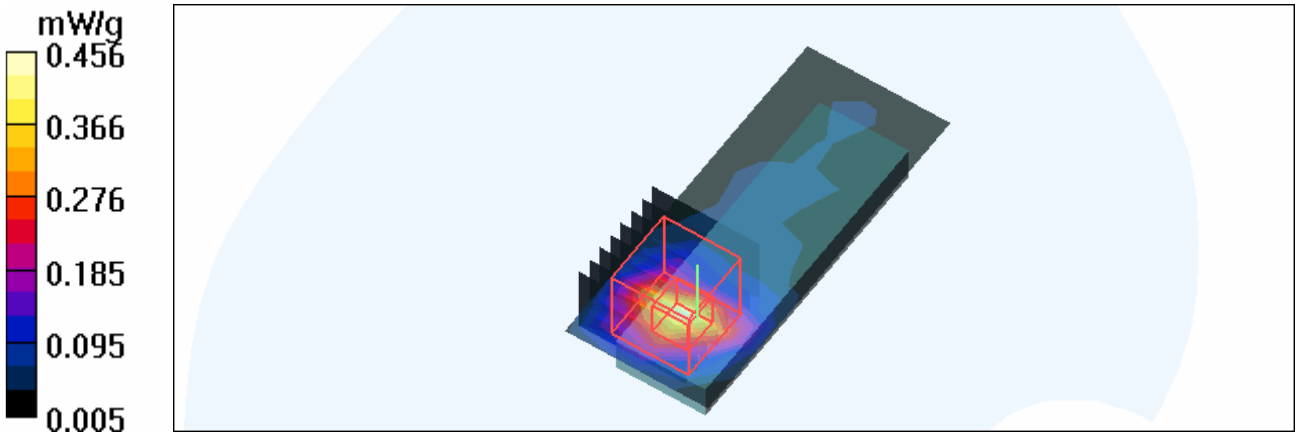
M02-NX6125-11n 5G 20M- Ch136

DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; 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; σ = 5.93 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.442 mW/g

Mid Channel 136/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.67 V/m
Peak SAR (extrapolated) = 1.42 W/kg
SAR(1 g) = 0.333 mW/g; SAR(10 g) = 0.121 mW/g
Maximum value of SAR (measured) = 0.456 mW/g



Date/Time: 2008/3/22 13:38:46

Test Laboratory: Advance Data Technology

M02-NX6125-11n 5G 20M- Ch140

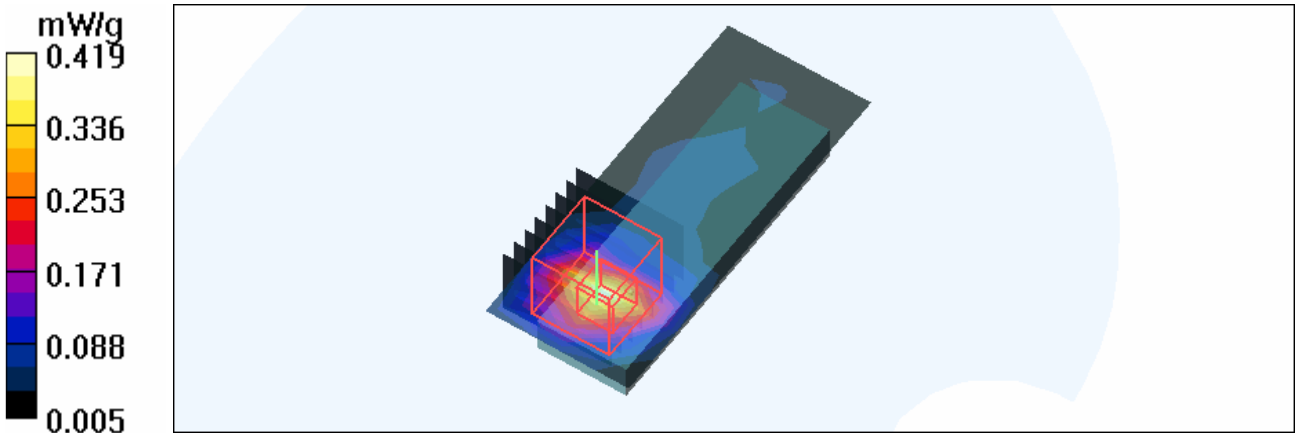
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5700 MHz

Communication System: 11n 5G span20 ; Frequency: 5700 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5700 MHz; σ = 5.94 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.409 mW/g

Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.26 V/m
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.313 mW/g; SAR(10 g) = 0.113 mW/g
Maximum value of SAR (measured) = 0.419 mW/g



Date/Time: 2008/3/22 15:08:02

Test Laboratory: Advance Data Technology

M03-NX6125-11n 5G 40M- Ch38

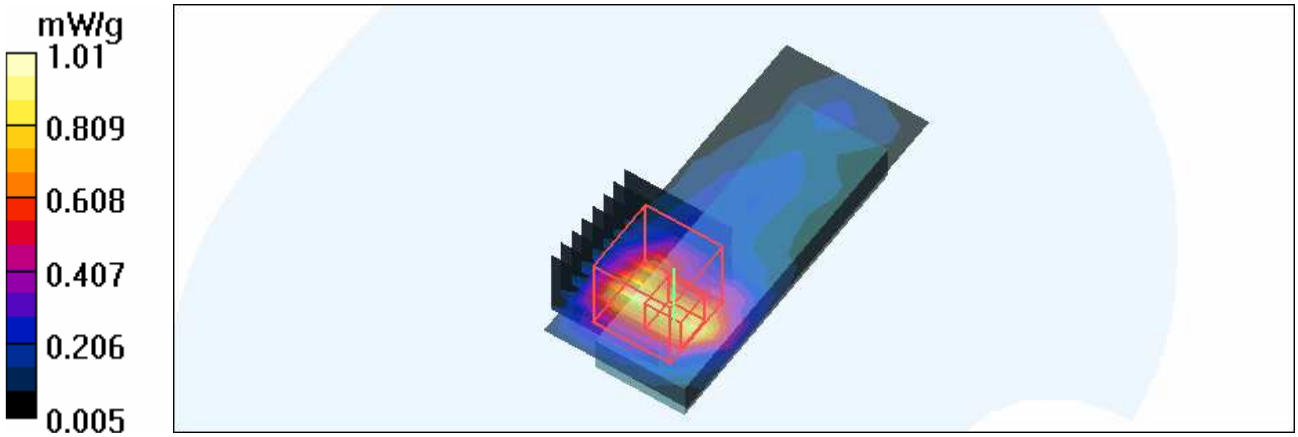
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5190 MHz

Communication System: 11n 5G span40 ; Frequency: 5190 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5190 MHz; σ = 5.31 mho/m; ε_r = 48.4; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel 38/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.940 mW/g

Low Channel 38/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.46 V/m
Peak SAR (extrapolated) = 2.40 W/kg
SAR(1 g) = 0.675 mW/g; SAR(10 g) = 0.276 mW/g
Maximum value of SAR (measured) = 1.01 mW/g



Date/Time: 2008/3/22 15:32:44

Test Laboratory: Advance Data Technology

M03-NX6125-11n 5G 40M- Ch46

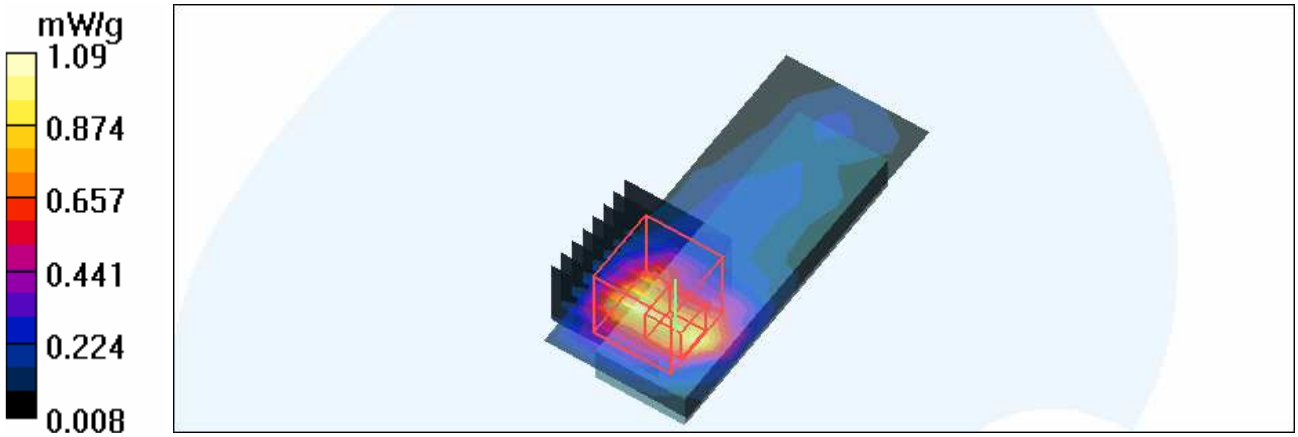
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5230 MHz

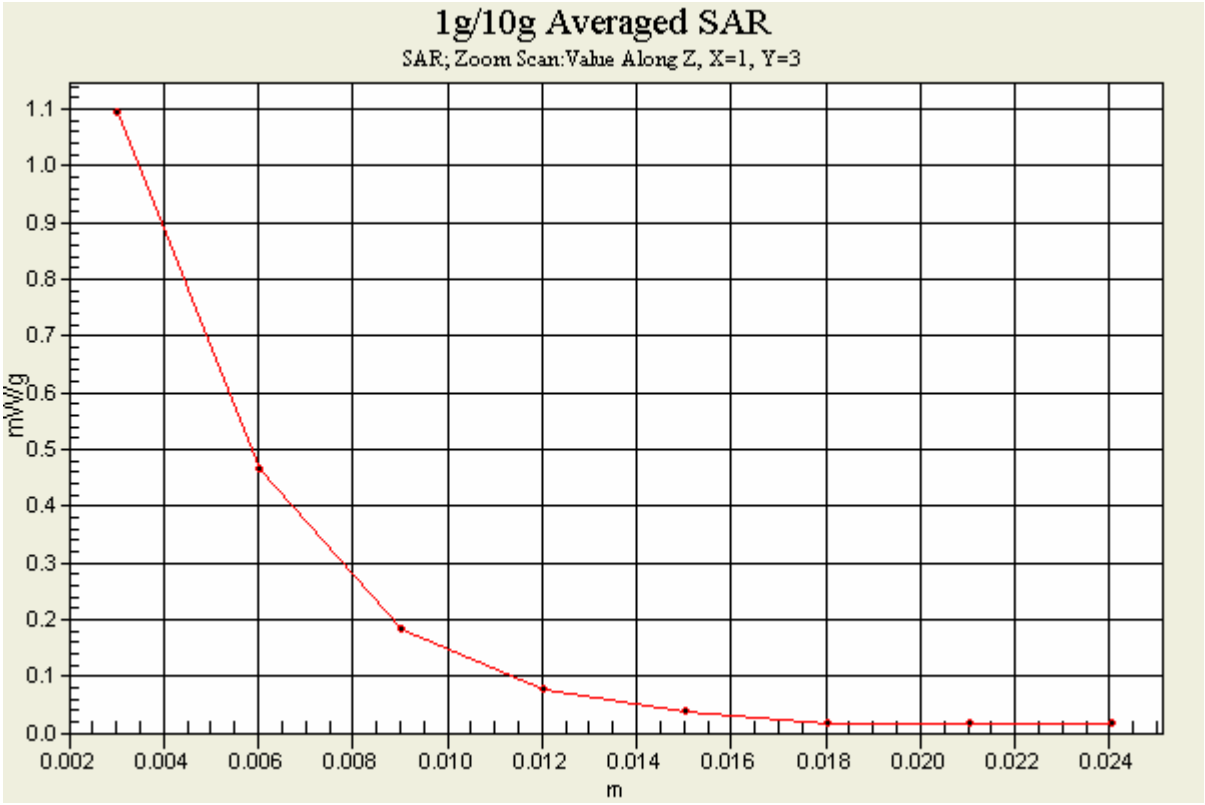
Communication System: 11n 5G span40 ; Frequency: 5230 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5230 MHz; σ = 5.37 mho/m; ε_r = 48.4; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.01 mW/g

Mid Channel 46/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 10.0 V/m
Peak SAR (extrapolated) = 2.59 W/kg
SAR(1 g) = 0.726 mW/g; SAR(10 g) = 0.299 mW/g
Maximum value of SAR (measured) = 1.09 mW/g




1g/10g Averaged SAR
SAR; Zoom Scan:Value Along Z, X=1, Y=3
mW/g
m
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.002
0.004
0.006
0.008
0.010
0.012
0.014
0.016
0.018
0.020
0.022
0.024

Date/Time: 2008/3/22 15:54:33

Test Laboratory: Advance Data Technology

M03-NX6125-11n 5G 40M- Ch54

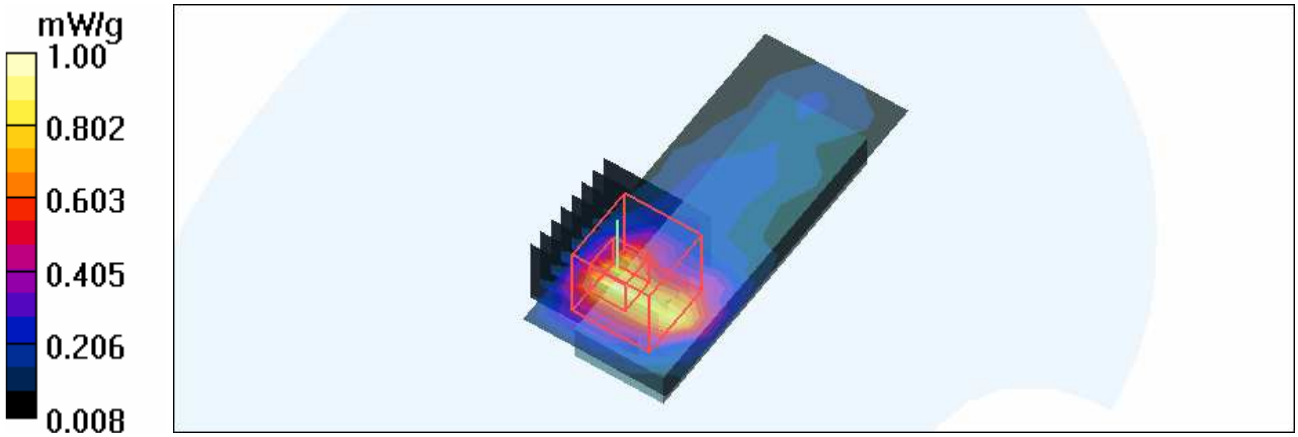
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5270 MHz

Communication System: 11n 5G span40 ; Frequency: 5270 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5270 MHz; σ = 5.41 mho/m; ε_r = 48.3; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.935 mW/g

Mid Channel 54/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.34 V/m
Peak SAR (extrapolated) = 2.46 W/kg
SAR(1 g) = 0.673 mW/g; SAR(10 g) = 0.277 mW/g
Maximum value of SAR (measured) = 1.00 mW/g



Date/Time: 2008/3/22 16:16:07

Test Laboratory: Advance Data Technology

M03-NX6125-11n 5G 40M- Ch62

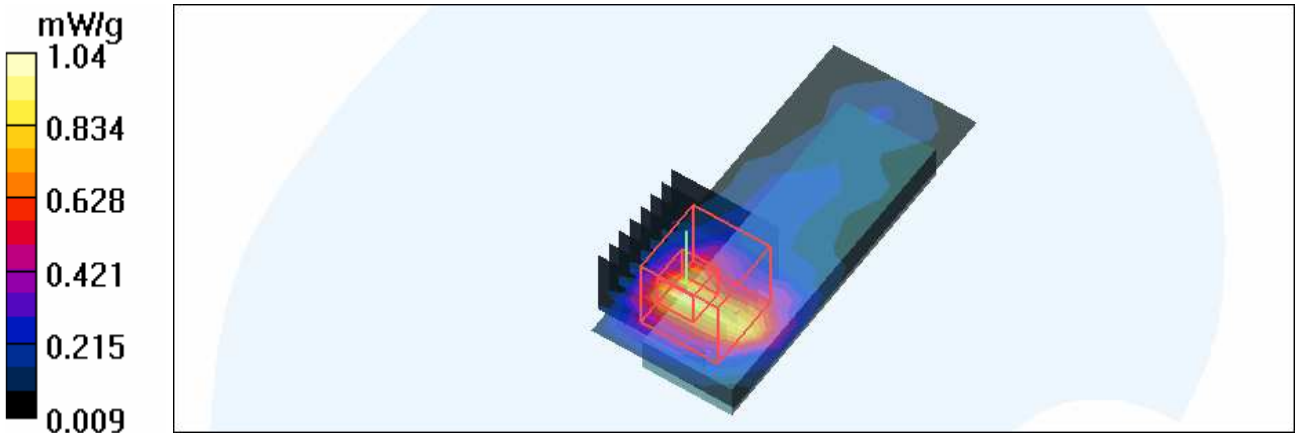
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5310 MHz

Communication System: 11n 5G span40 ; Frequency: 5310 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5310 MHz; σ = 5.46 mho/m; ε_r = 48.2; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 62/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.977 mW/g

Mid Channel 62/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.36 V/m
Peak SAR (extrapolated) = 2.52 W/kg
SAR(1 g) = 0.693 mW/g; SAR(10 g) = 0.284 mW/g
Maximum value of SAR (measured) = 1.04 mW/g



Date/Time: 2008/3/22 16:37:54

Test Laboratory: Advance Data Technology

M03-NX6125-11n 5G 40M- Ch102

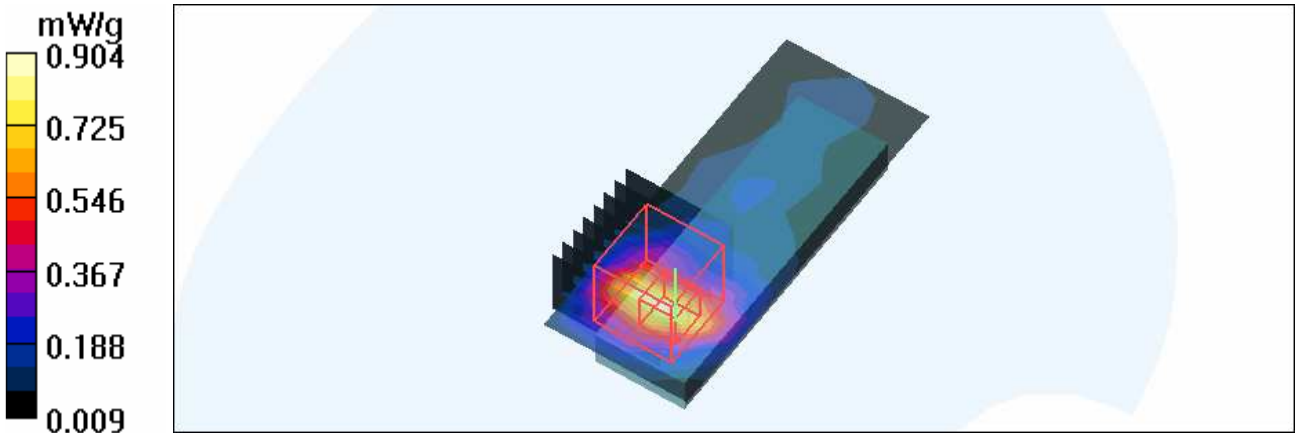
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5510 MHz

Communication System: 11n 5G span40 ; Frequency: 5510 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5510 MHz; σ = 5.7 mho/m; ε_r = 47.8; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(3.99, 3.99, 3.99) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.871 mW/g

Mid Channel 102/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.87 V/m
Peak SAR (extrapolated) = 2.49 W/kg
SAR(1 g) = 0.645 mW/g; SAR(10 g) = 0.248 mW/g
Maximum value of SAR (measured) = 0.904 mW/g



Date/Time: 2008/3/22 17:08:28

Test Laboratory: Advance Data Technology

M03-NX6125-11n 5G 40M- Ch118

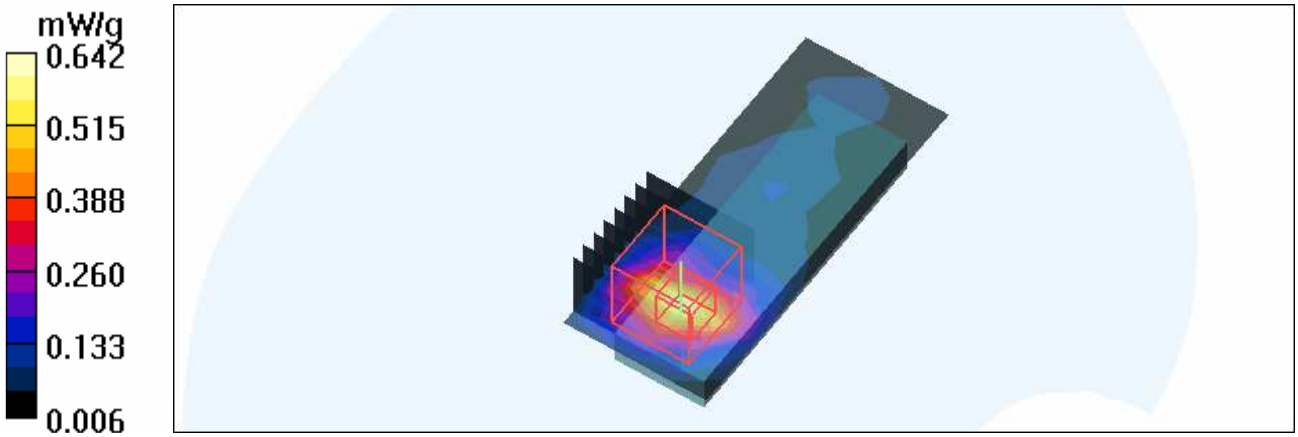
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5590 MHz

Communication System: 11n 5G span40 ; Frequency: 5590 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5590 MHz; σ = 5.81 mho/m; ε_r = 47.6; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.623 mW/g

Mid Channel 118/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.25 V/m
Peak SAR (extrapolated) = 1.79 W/kg
SAR(1 g) = 0.458 mW/g; SAR(10 g) = 0.174 mW/g
Maximum value of SAR (measured) = 0.642 mW/g



Date/Time: 2008/3/22 18:30:58

Test Laboratory: Advance Data Technology

M03-NX6125-11n 5G 40M- Ch134

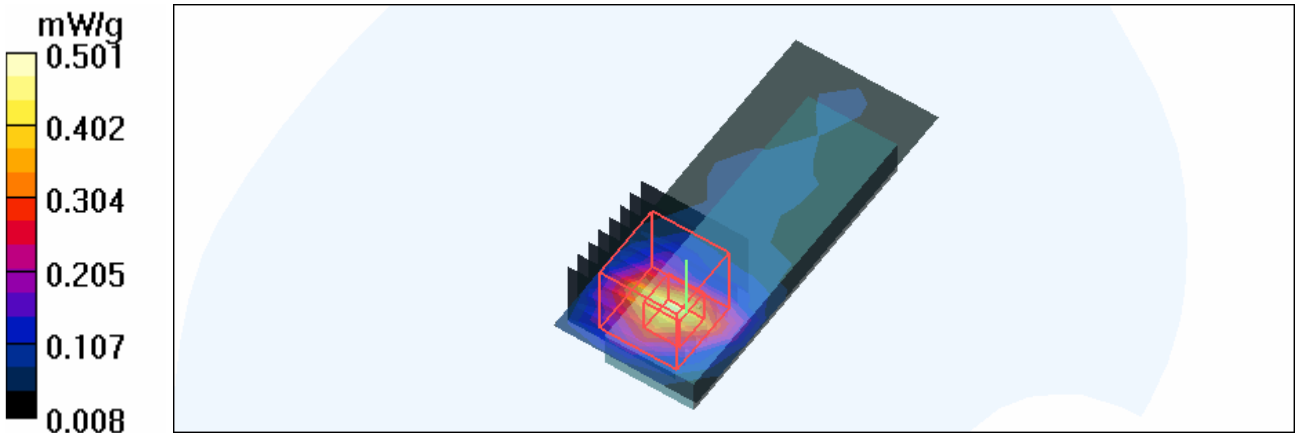
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5670 MHz

Communication System: 11n 5G span40 ; Frequency: 5670 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5670 MHz; σ = 5.92 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The bottom side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.470 mW/g

Mid Channel 134/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.81 V/m
Peak SAR (extrapolated) = 1.62 W/kg
SAR(1 g) = 0.366 mW/g; SAR(10 g) = 0.136 mW/g
Maximum value of SAR (measured) = 0.501 mW/g



Date/Time: 2008/3/23 01:49:02

Test Laboratory: Advance Data Technology

M04-PP01L-11a- Ch36

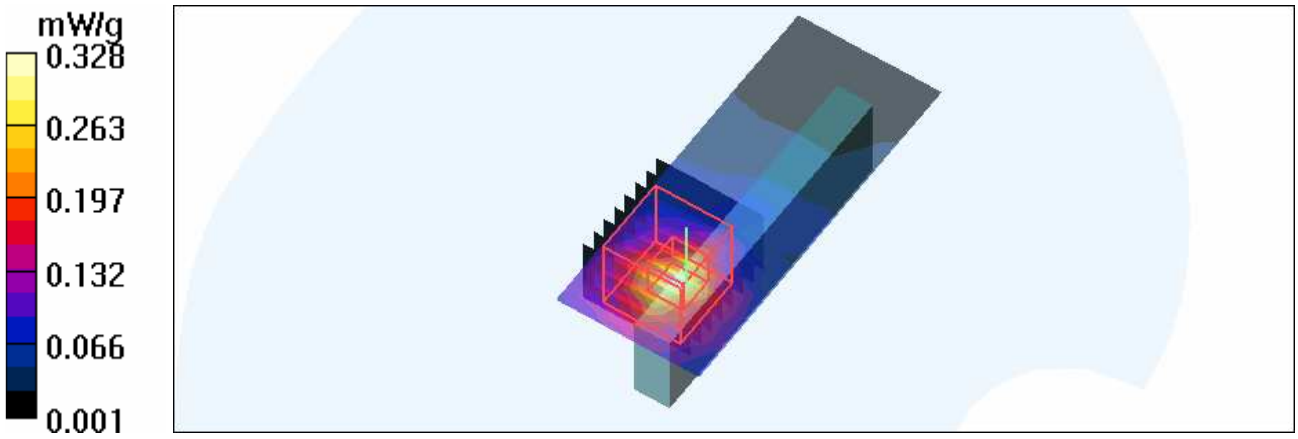
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5180 MHz

Communication System: 802.11a ; Frequency: 5180 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5180 MHz; σ = 5.27 mho/m; ε_r = 48.2; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel 36/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.340 mW/g

Low Channel 36/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.34 V/m
Peak SAR (extrapolated) = 0.750 W/kg
SAR(1 g) = 0.232 mW/g; SAR(10 g) = 0.089 mW/g
Maximum value of SAR (measured) = 0.328 mW/g



Date/Time: 2008/3/23 02:18:16

Test Laboratory: Advance Data Technology

M04-PP01L-11a- Ch40

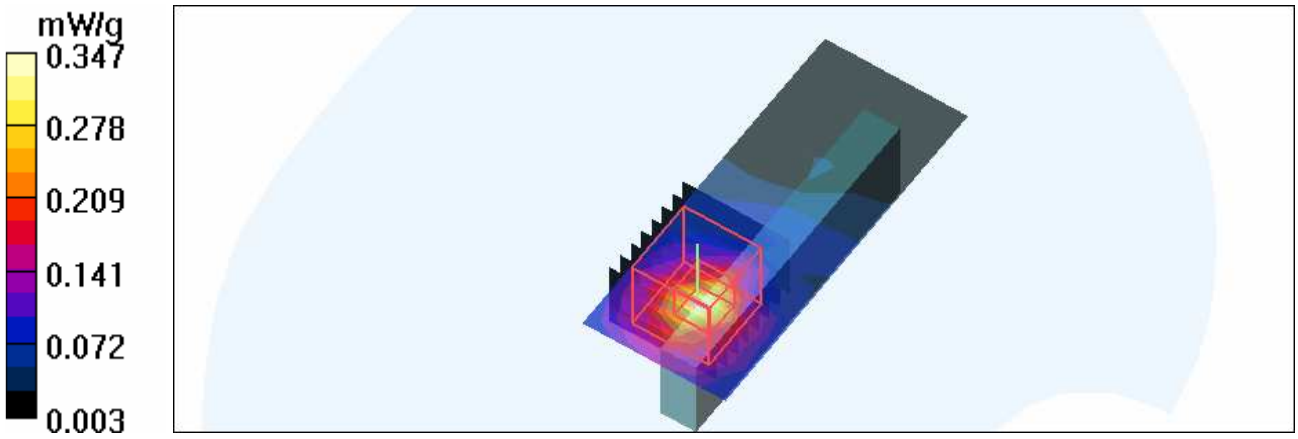
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5200 MHz

Communication System: 802.11a ; Frequency: 5200 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5200 MHz; σ = 5.28 mho/m; ε_r = 48.2; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.358 mW/g

Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.45 V/m
Peak SAR (extrapolated) = 0.774 W/kg
SAR(1 g) = 0.244 mW/g; SAR(10 g) = 0.091 mW/g
Maximum value of SAR (measured) = 0.347 mW/g



Date/Time: 2008/3/23 02:48:31

Test Laboratory: Advance Data Technology

M04-PP01L-11a- Ch48

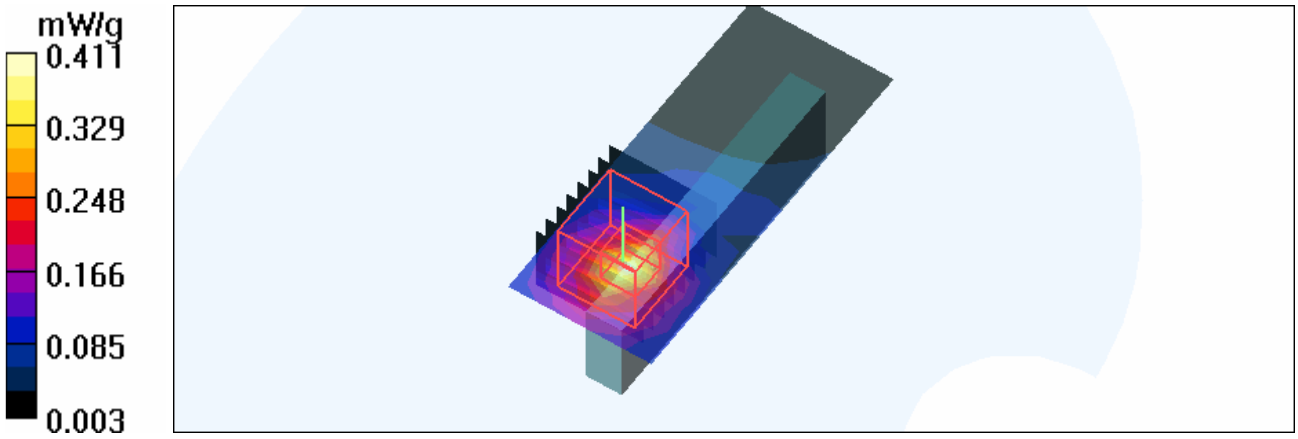
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5240 MHz

Communication System: 802.11a ; Frequency: 5240 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used : f = 5240 MHz; σ = 5.35 mho/m; ε_r = 48.1; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 48/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.401 mW/g

Mid Channel 48/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.08 V/m
Peak SAR (extrapolated) = 0.951 W/kg
SAR(1 g) = 0.289 mW/g; SAR(10 g) = 0.106 mW/g
Maximum value of SAR (measured) = 0.411 mW/g



Date/Time: 2008/3/23 03:10:30

Test Laboratory: Advance Data Technology

M04-PP01L-11a- Ch52

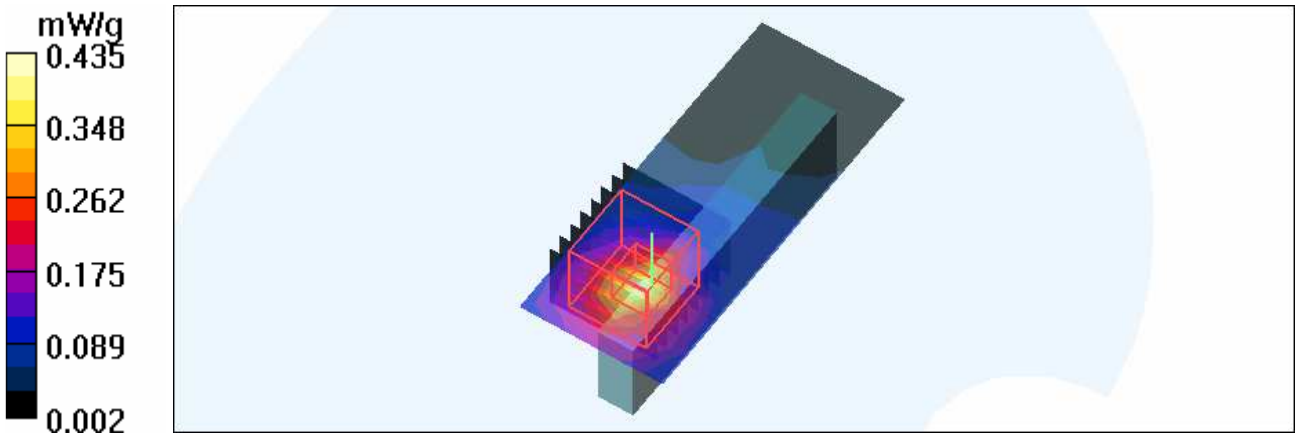
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5260 MHz

Communication System: 802.11a ; Frequency: 5260 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5260 MHz; σ = 5.38 mho/m; ε_r = 48.1; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.428 mW/g

Mid Channel 52/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.34 V/m
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.306 mW/g; SAR(10 g) = 0.115 mW/g
Maximum value of SAR (measured) = 0.435 mW/g



Date/Time: 2008/3/23 03:33:33

Test Laboratory: Advance Data Technology

M04-PP01L-11a- Ch60

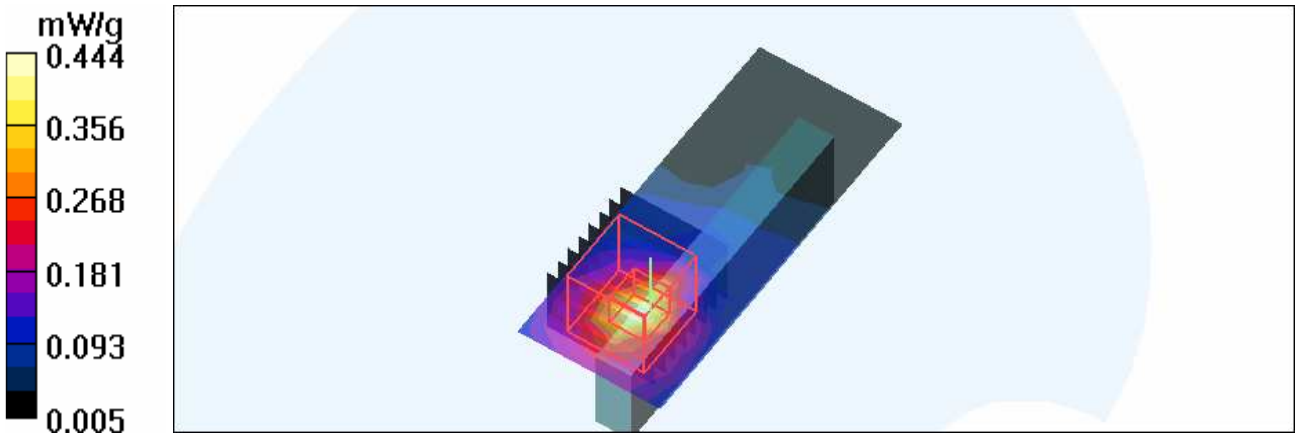
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5300 MHz

Communication System: 802.11a ; Frequency: 5300 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5300 MHz; σ = 5.42 mho/m; ε_r = 48; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 60/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.444 mW/g

Mid Channel 60/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.59 V/m
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.303 mW/g; SAR(10 g) = 0.112 mW/g
Maximum value of SAR (measured) = 0.427 mW/g



Date/Time: 2008/3/23 03:55:26

Test Laboratory: Advance Data Technology

M04-PP01L-11a- Ch64

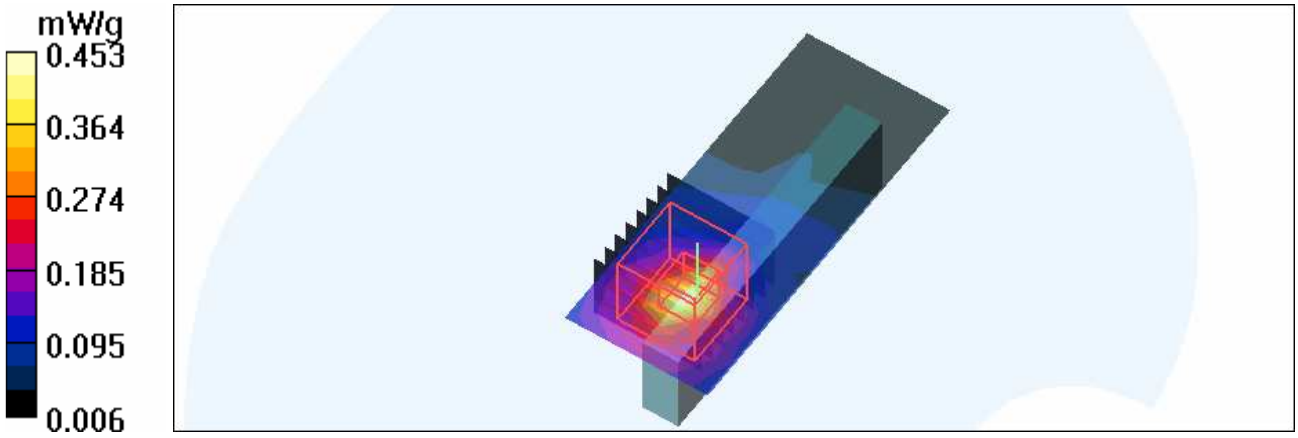
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5320 MHz

Communication System: 802.11a ; Frequency: 5320 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5320 MHz; σ = 5.44 mho/m; ε_r = 47.9; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.453 mW/g

Mid Channel 64/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.58 V/m
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.306 mW/g; SAR(10 g) = 0.114 mW/g
Maximum value of SAR (measured) = 0.433 mW/g



Date/Time: 2008/3/23 04:18:03

Test Laboratory: Advance Data Technology

M04-PP01L-11a- Ch100

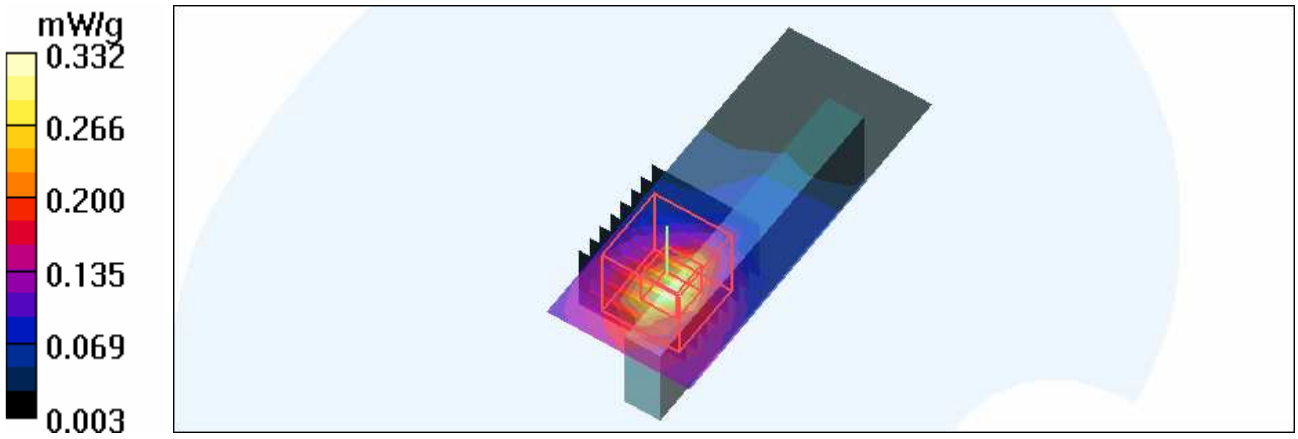
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5500 MHz

Communication System: 802.11a ; Frequency: 5500 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5500 MHz; σ = 5.66 mho/m; ε_r = 47.6; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(3.99, 3.99, 3.99) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.328 mW/g

Mid Channel 100/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.99 V/m
Peak SAR (extrapolated) = 0.919 W/kg
SAR(1 g) = 0.241 mW/g; SAR(10 g) = 0.090 mW/g
Maximum value of SAR (measured) = 0.332 mW/g



Date/Time: 2008/3/23 04:40:26

Test Laboratory: Advance Data Technology

M04-PP01L-11a- Ch104

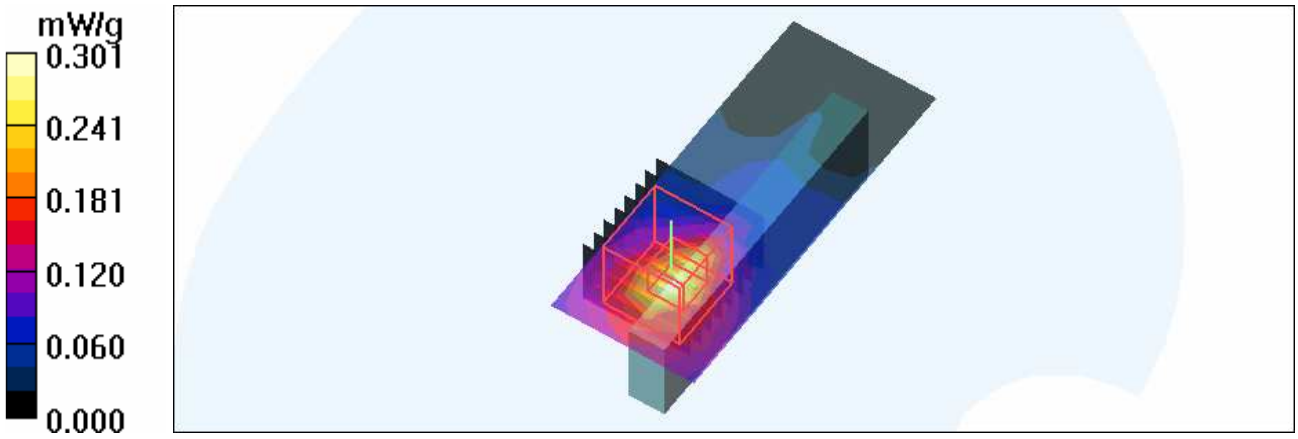
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5520 MHz

Communication System: 802.11a ; Frequency: 5520 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5520 MHz; σ = 5.68 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(3.99, 3.99, 3.99) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.294 mW/g

Mid Channel 104/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.65 V/m
Peak SAR (extrapolated) = 0.796 W/kg
SAR(1 g) = 0.219 mW/g; SAR(10 g) = 0.083 mW/g
Maximum value of SAR (measured) = 0.301 mW/g



Date/Time: 2008/3/23 05:03:27

Test Laboratory: Advance Data Technology

M04-PP01L-11a- Ch116

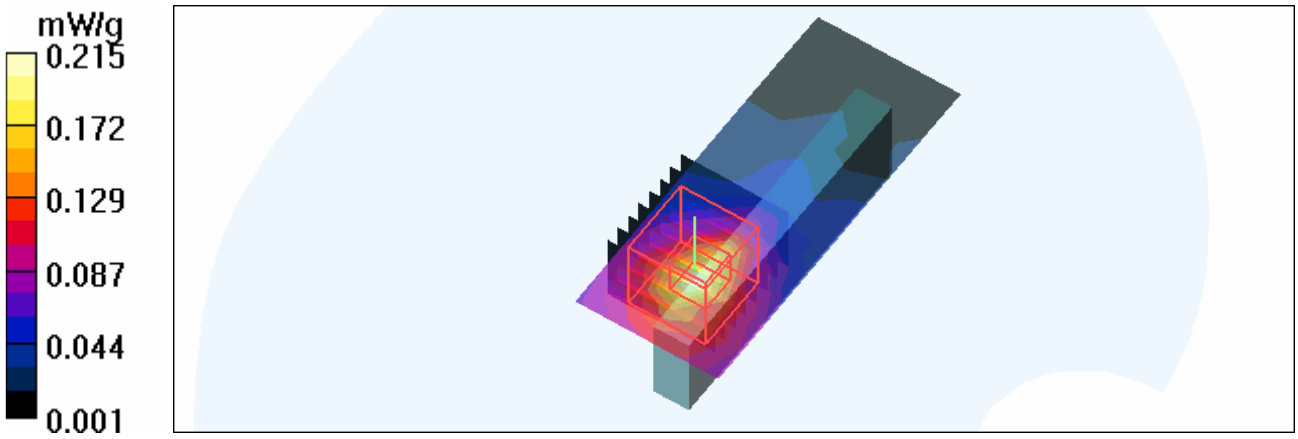
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5580 MHz

Communication System: 802.11a ; Frequency: 5580 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5580 MHz; σ = 5.76 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel 116/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.212 mW/g

Low Channel 116/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.60 V/m
Peak SAR (extrapolated) = 0.580 W/kg
SAR(1 g) = 0.152 mW/g; SAR(10 g) = 0.052 mW/g
Maximum value of SAR (measured) = 0.215 mW/g



Date/Time: 2008/3/23 05:26:05

Test Laboratory: Advance Data Technology

M04-PP01L-11a- Ch120

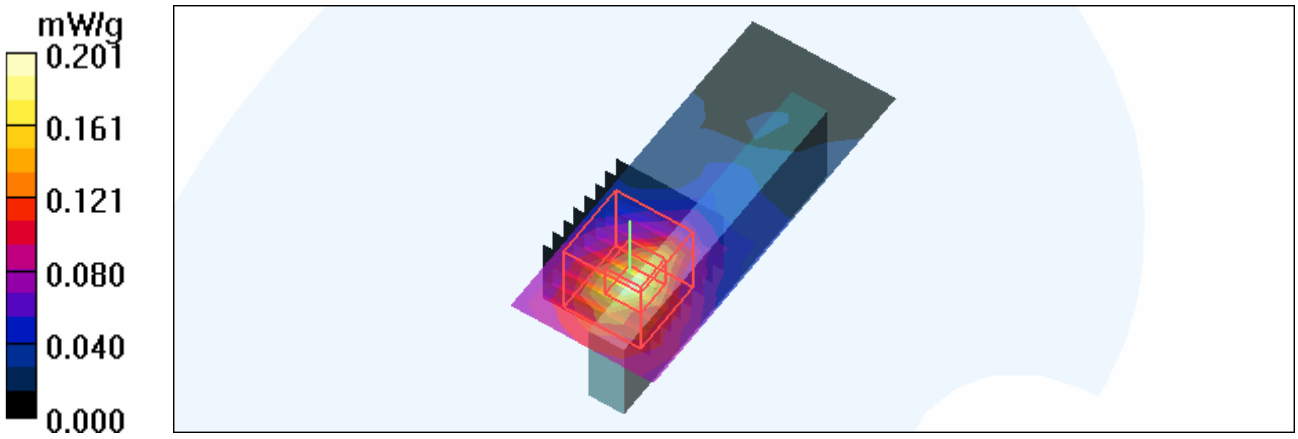
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5600 MHz

Communication System: 802.11a ; Frequency: 5600 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5600 MHz; σ = 5.8 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.195 mW/g

Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.32 V/m
Peak SAR (extrapolated) = 0.552 W/kg
SAR(1 g) = 0.149 mW/g; SAR(10 g) = 0.058 mW/g
Maximum value of SAR (measured) = 0.201 mW/g



Date/Time: 2008/3/23 05:48:21

Test Laboratory: Advance Data Technology

M04-PP01L-11a-Ch124

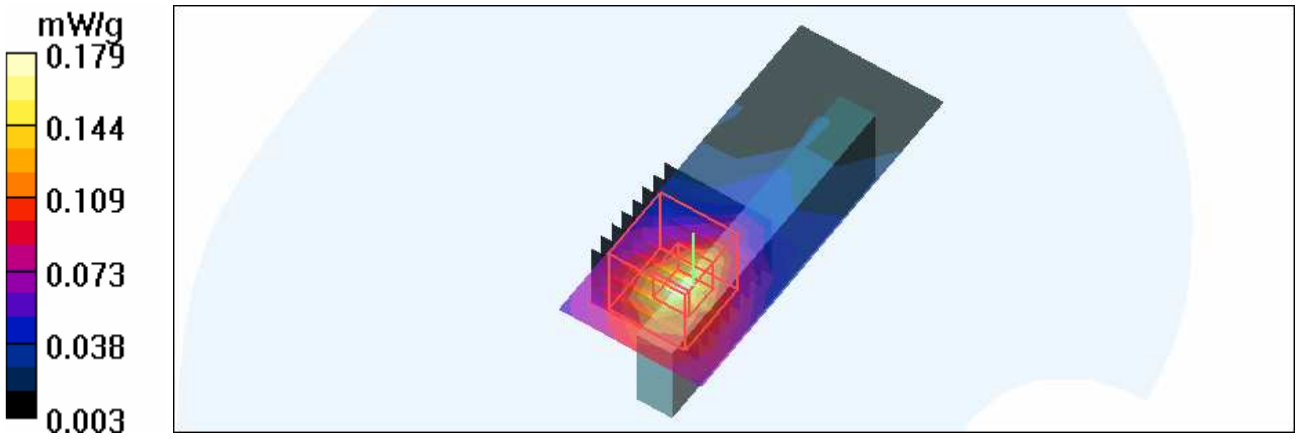
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5620 MHz

Communication System: 802.11a ; Frequency: 5620 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5620 MHz; σ = 5.82 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.176 mW/g

Mid Channel 124/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.06 V/m
Peak SAR (extrapolated) = 0.500 W/kg
SAR(1 g) = 0.132 mW/g; SAR(10 g) = 0.054 mW/g
Maximum value of SAR (measured) = 0.179 mW/g



Date/Time: 2008/3/23 06:10:42

Test Laboratory: Advance Data Technology

M04-PP01L-11a-Ch136

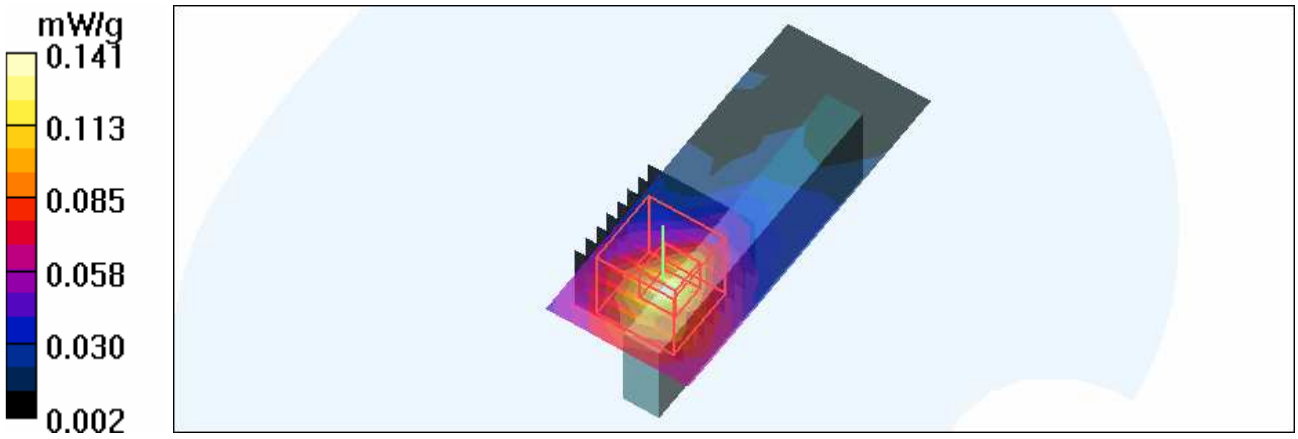
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5680 MHz

Communication System: 802.11a ; Frequency: 5680 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5680 MHz; σ = 5.89 mho/m; ε_r = 47.2; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.138 mW/g

Mid Channel 136/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.43 V/m
Peak SAR (extrapolated) = 0.430 W/kg
SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.043 mW/g
Maximum value of SAR (measured) = 0.141 mW/g



Date/Time: 2008/3/23 06:32:51

Test Laboratory: Advance Data Technology

M04-PP01L-11a- Ch140

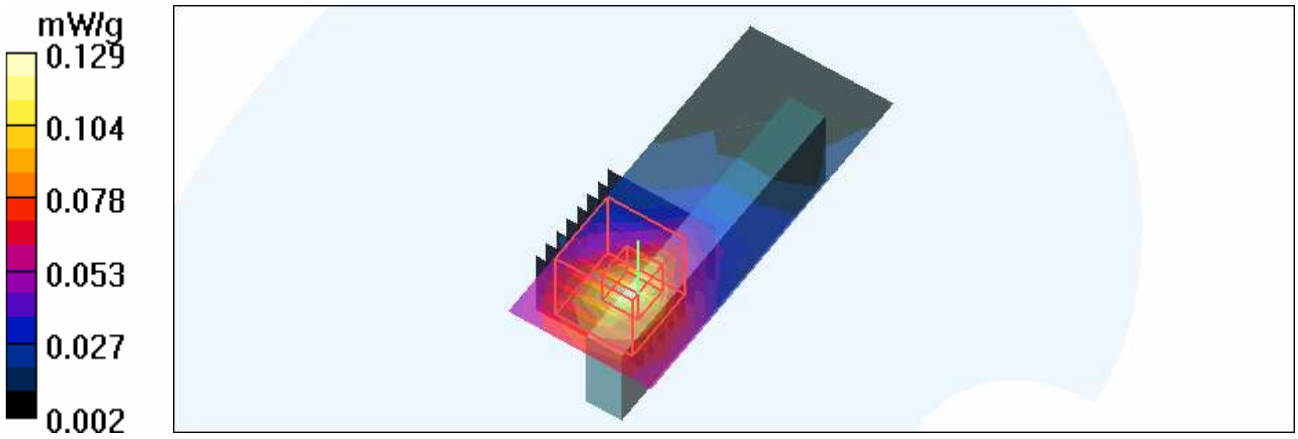
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5700 MHz

Communication System: 802.11a ; Frequency: 5700 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5700 MHz; σ = 5.91 mho/m; ε_r = 47.2; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.125 mW/g

Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.15 V/m
Peak SAR (extrapolated) = 0.511 W/kg
SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.040 mW/g
Maximum value of SAR (measured) = 0.129 mW/g



Date/Time: 2008/3/23 08:15:47

Test Laboratory: Advance Data Technology

M05-PP01L-11n 5G 20M- Ch36

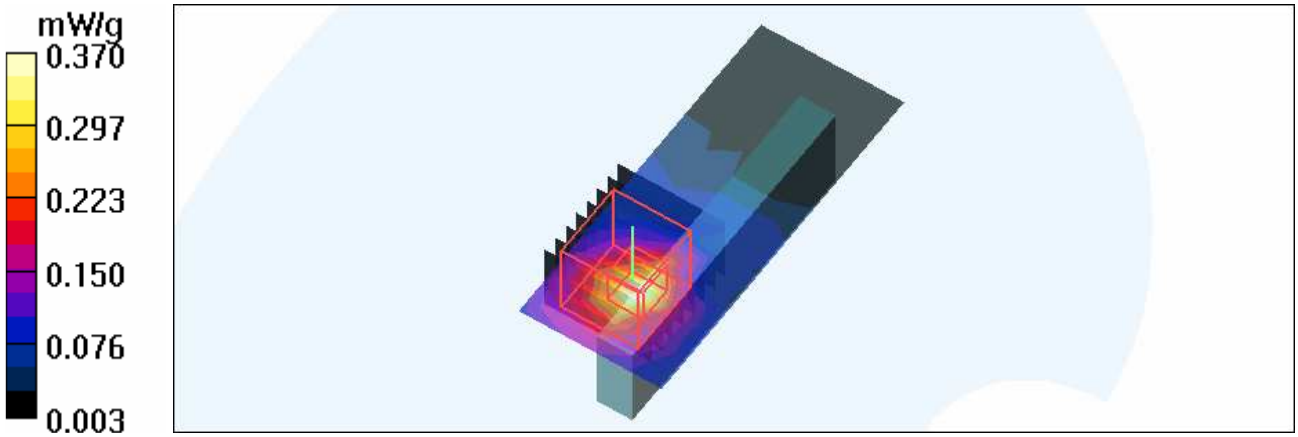
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5180 MHz

Communication System: 11n 5G span20 ; Frequency: 5180 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5180 MHz; σ = 5.27 mho/m; ε_r = 48.2; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel 36/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.388 mW/g

Low Channel 36/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.73 V/m
Peak SAR (extrapolated) = 0.895 W/kg
SAR(1 g) = 0.267 mW/g; SAR(10 g) = 0.101 mW/g
Maximum value of SAR (measured) = 0.370 mW/g



Date/Time: 2008/3/23 08:46:59

Test Laboratory: Advance Data Technology

M05-PP01L-11n 5G 20M- Ch40

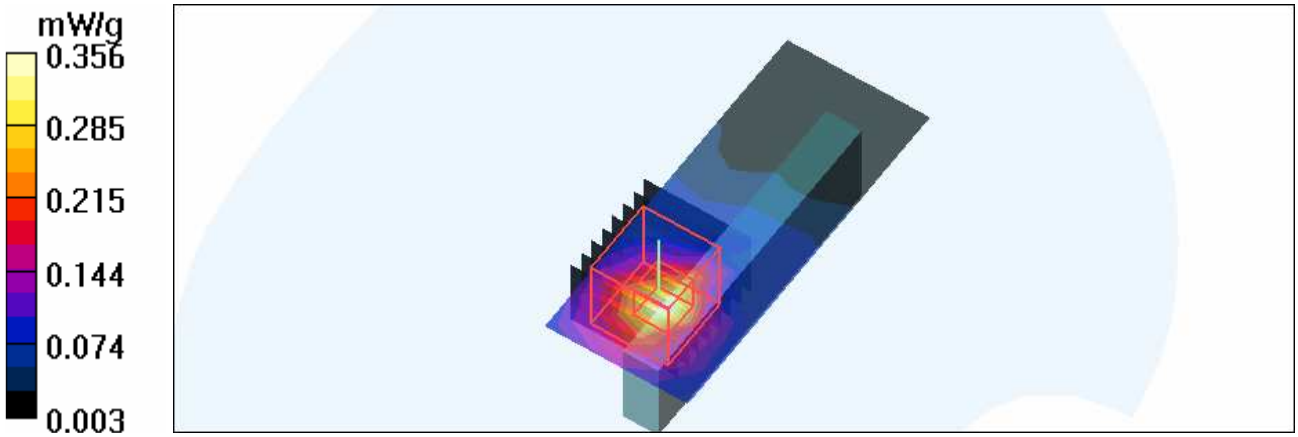
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5200 MHz

Communication System: 11n 5G span20 ; Frequency: 5200 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5200 MHz; σ = 5.28 mho/m; ε_r = 48.2; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.372 mW/g

Mid Channel 40/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.00 V/m
Peak SAR (extrapolated) = 0.840 W/kg
SAR(1 g) = 0.256 mW/g; SAR(10 g) = 0.096 mW/g
Maximum value of SAR (measured) = 0.356 mW/g



Date/Time: 2008/3/23 09:18:30

Test Laboratory: Advance Data Technology

M05-PP01L-11n 5G 20M- Ch48

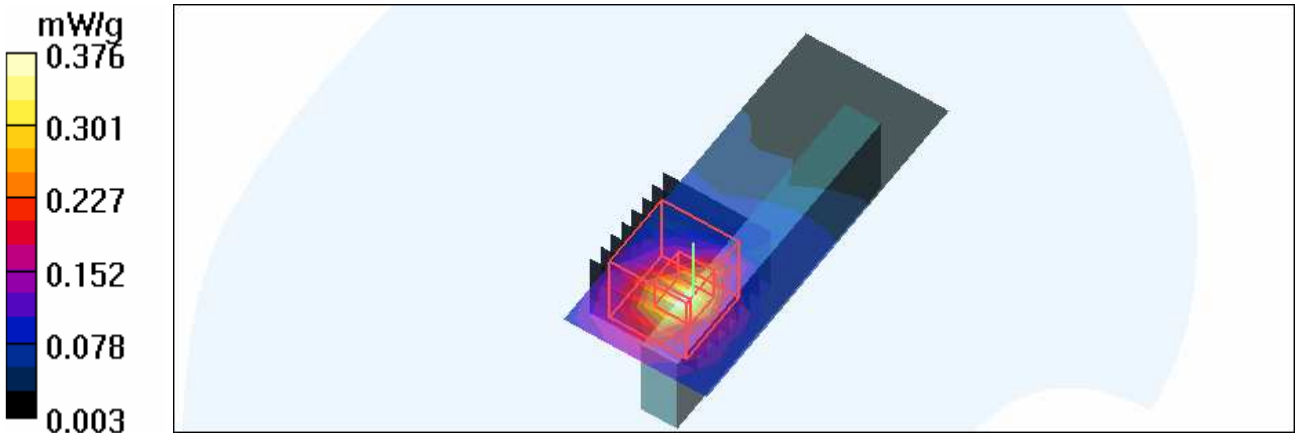
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5240 MHz

Communication System: 11n 5G span20 ; Frequency: 5240 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used : f = 5240 MHz; σ = 5.35 mho/m; ε_r = 48.1; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 48/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.388 mW/g

Mid Channel 48/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.16 V/m
Peak SAR (extrapolated) = 0.915 W/kg
SAR(1 g) = 0.270 mW/g; SAR(10 g) = 0.100 mW/g
Maximum value of SAR (measured) = 0.376 mW/g



Date/Time: 2008/3/23 09:49:14

Test Laboratory: Advance Data Technology

M05-PP01L-11n 5G 20M- Ch52

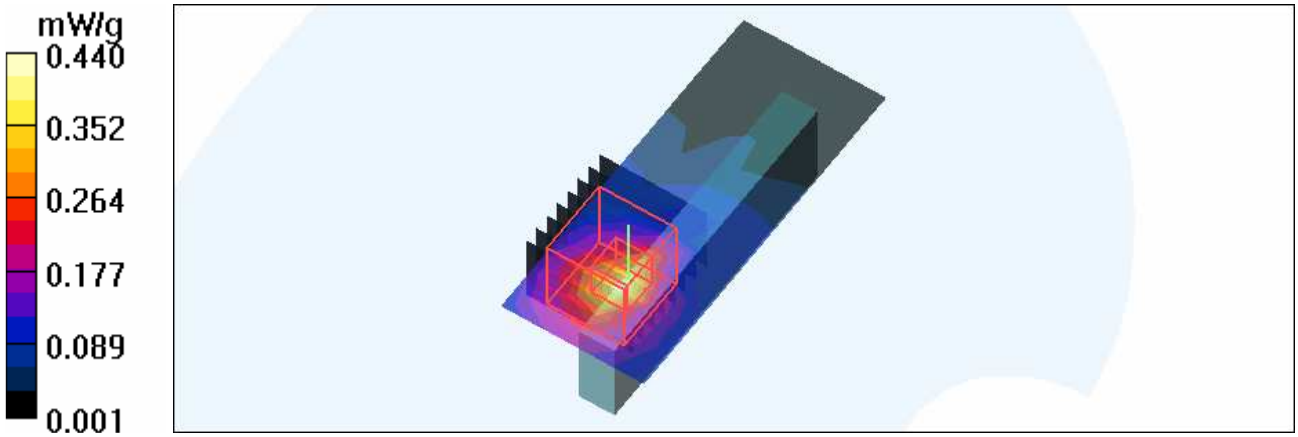
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5260 MHz

Communication System: 11n 5G span20 ; Frequency: 5260 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5260 MHz; σ = 5.38 mho/m; ε_r = 48.1; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.419 mW/g

Mid Channel 52/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.48 V/m
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.306 mW/g; SAR(10 g) = 0.114 mW/g
Maximum value of SAR (measured) = 0.440 mW/g



Date/Time: 2008/3/23 10:20:05

Test Laboratory: Advance Data Technology

M05-PP01L-11n 5G 20M- Ch60

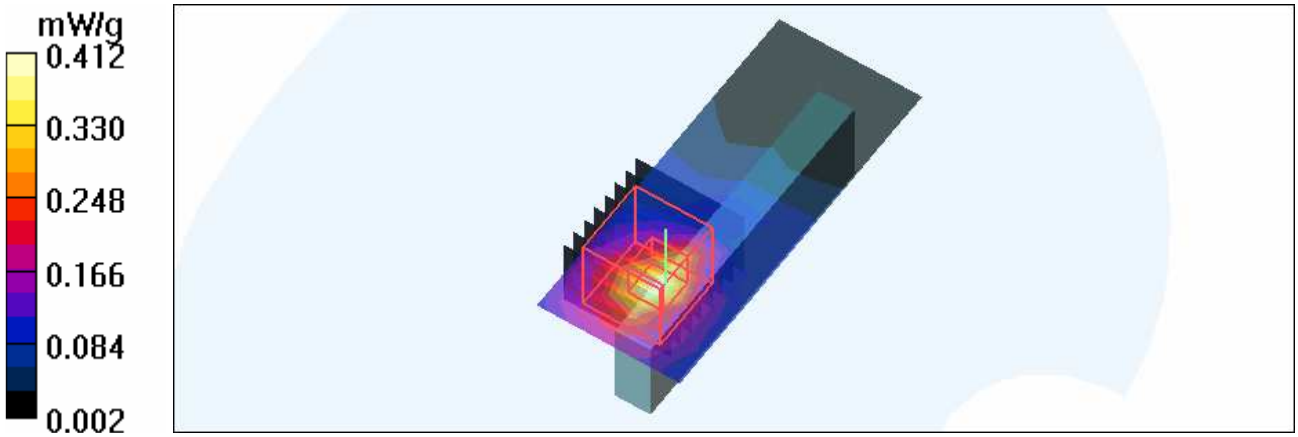
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5300 MHz

Communication System: 11n 5G span20 ; Frequency: 5300 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5300 MHz; σ = 5.42 mho/m; ε_r = 48; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 60/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.424 mW/g

Mid Channel 60/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.59 V/m
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.296 mW/g; SAR(10 g) = 0.111 mW/g
Maximum value of SAR (measured) = 0.412 mW/g



Date/Time: 2008/3/23 10:51:01

Test Laboratory: Advance Data Technology

M05-PP01L-11n 5G 20M- Ch64

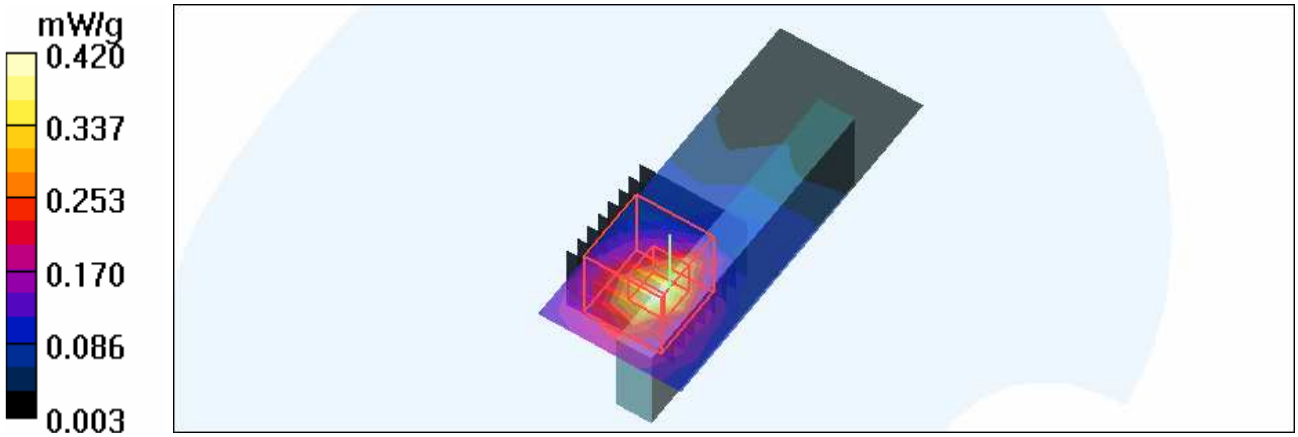
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5320 MHz

Communication System: 11n 5G span20 ; Frequency: 5320 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5320 MHz; σ = 5.44 mho/m; ε_r = 47.9; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.428 mW/g

Mid Channel 64/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.58 V/m
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.302 mW/g; SAR(10 g) = 0.111 mW/g
Maximum value of SAR (measured) = 0.420 mW/g



Date/Time: 2008/3/23 11:23:15

Test Laboratory: Advance Data Technology

M05-PP01L-11n 5G 20M- Ch100

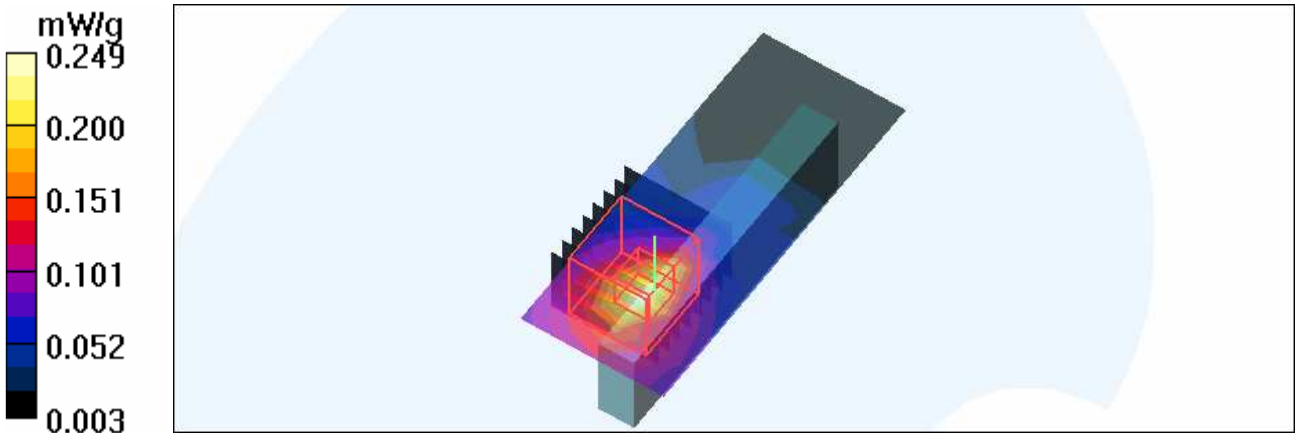
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5500 MHz

Communication System: 11n 5G span20 ; Frequency: 5500 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5500 MHz; σ = 5.66 mho/m; ε_r = 47.6; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(3.99, 3.99, 3.99) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.243 mW/g

Mid Channel 100/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.07 V/m
Peak SAR (extrapolated) = 0.682 W/kg
SAR(1 g) = 0.182 mW/g; SAR(10 g) = 0.070 mW/g
Maximum value of SAR (measured) = 0.249 mW/g



Date/Time: 2008/3/23 11:54:21

Test Laboratory: Advance Data Technology

M05-PP01L-11n 5G 20M- Ch104

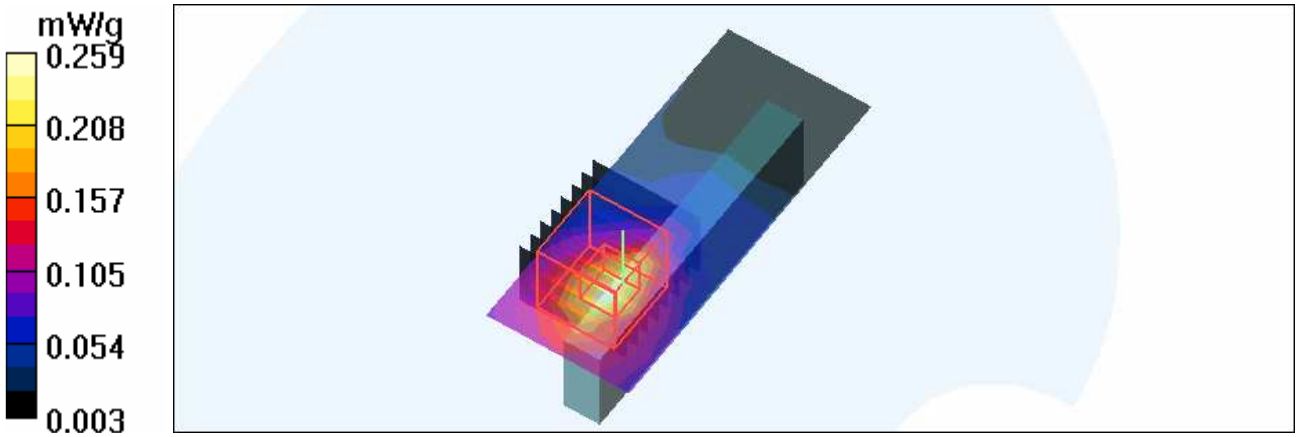
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5520 MHz

Communication System: 11n 5G span20 ; Frequency: 5520 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5520 MHz; σ = 5.68 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(3.99, 3.99, 3.99) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.254 mW/g

Mid Channel 104/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.36 V/m
Peak SAR (extrapolated) = 0.715 W/kg
SAR(1 g) = 0.191 mW/g; SAR(10 g) = 0.074 mW/g
Maximum value of SAR (measured) = 0.259 mW/g



Date/Time: 2008/3/23 12:24:20

Test Laboratory: Advance Data Technology

M05-PP01L-11n 5G 20M- Ch116

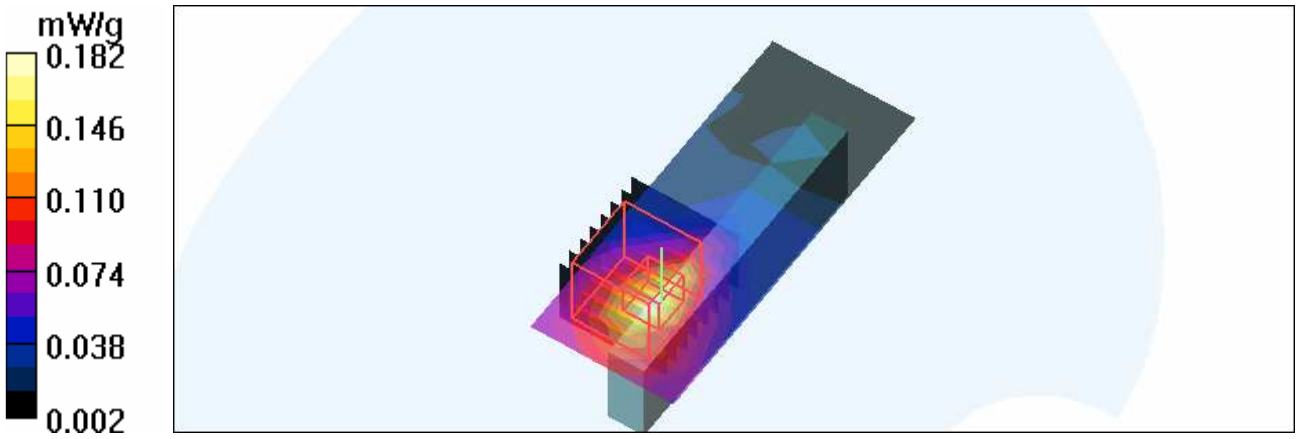
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5580 MHz

Communication System: 11n 5G span20 ; Frequency: 5580 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5580 MHz; σ = 5.76 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel 116/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.182 mW/g

Low Channel 116/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.23 V/m
Peak SAR (extrapolated) = 0.412 W/kg
SAR(1 g) = 0.118 mW/g; SAR(10 g) = 0.044 mW/g



Date/Time: 2008/3/23 12:55:23

Test Laboratory: Advance Data Technology

M05-PP01L-11n 5G 20M- Ch120

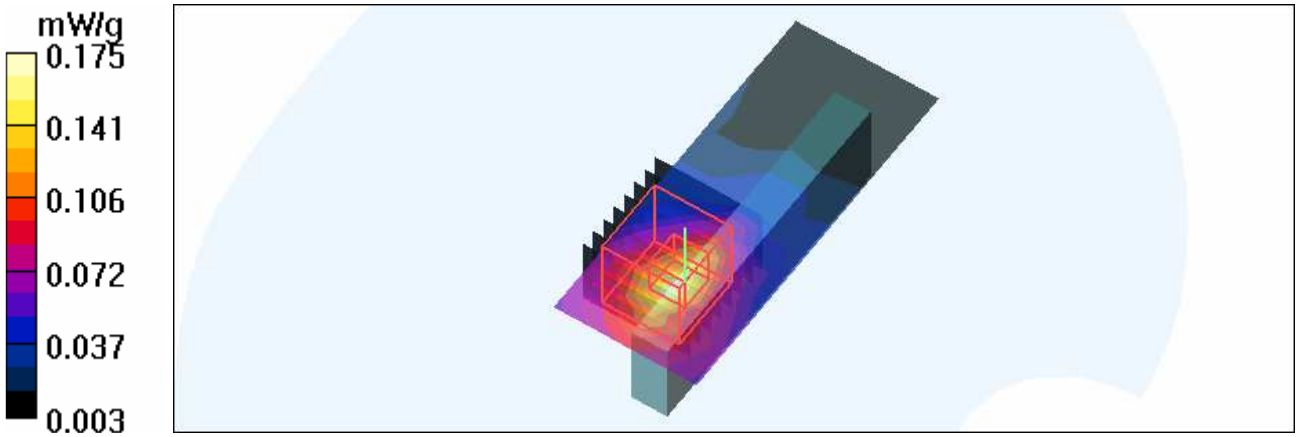
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5600 MHz

Communication System: 11n 5G span20 ; Frequency: 5600 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5600 MHz; σ = 5.8 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.170 mW/g

Mid Channel 120/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.01 V/m
Peak SAR (extrapolated) = 0.523 W/kg
SAR(1 g) = 0.127 mW/g; SAR(10 g) = 0.051 mW/g
Maximum value of SAR (measured) = 0.175 mW/g



Date/Time: 2008/3/23 13:27:22

Test Laboratory: Advance Data Technology

M05-PP01L-11n 5G 20M- Ch124

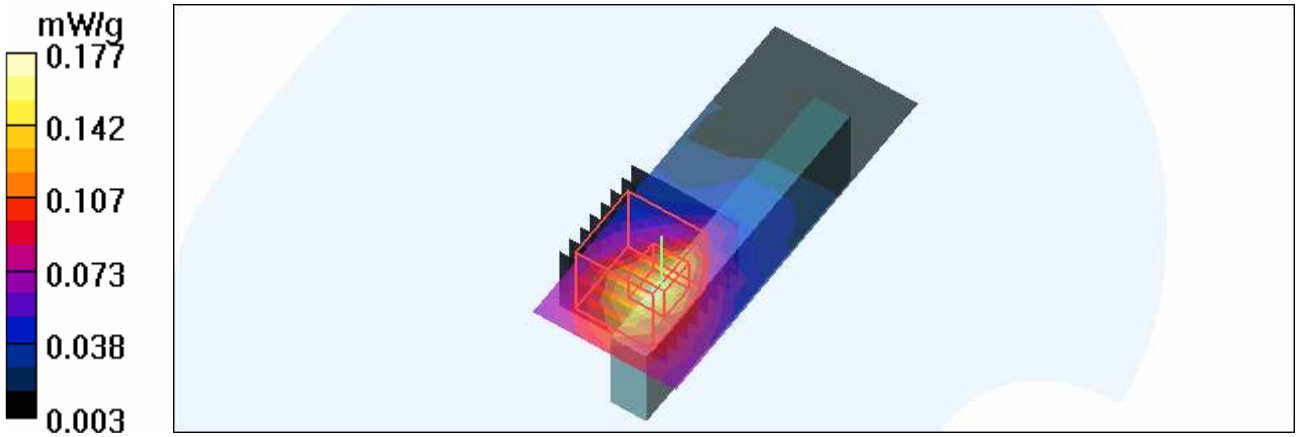
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5620 MHz

Communication System: 11n 5G span20 ; Frequency: 5620 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5620 MHz; σ = 5.82 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.170 mW/g

Mid Channel 124/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.10 V/m
Peak SAR (extrapolated) = 0.426 W/kg
SAR(1 g) = 0.120 mW/g; SAR(10 g) = 0.048 mW/g
Maximum value of SAR (measured) = 0.177 mW/g



Date/Time: 2008/3/23 14:00:40

Test Laboratory: Advance Data Technology

M05-PP01L-11n 5G 20M- Ch136

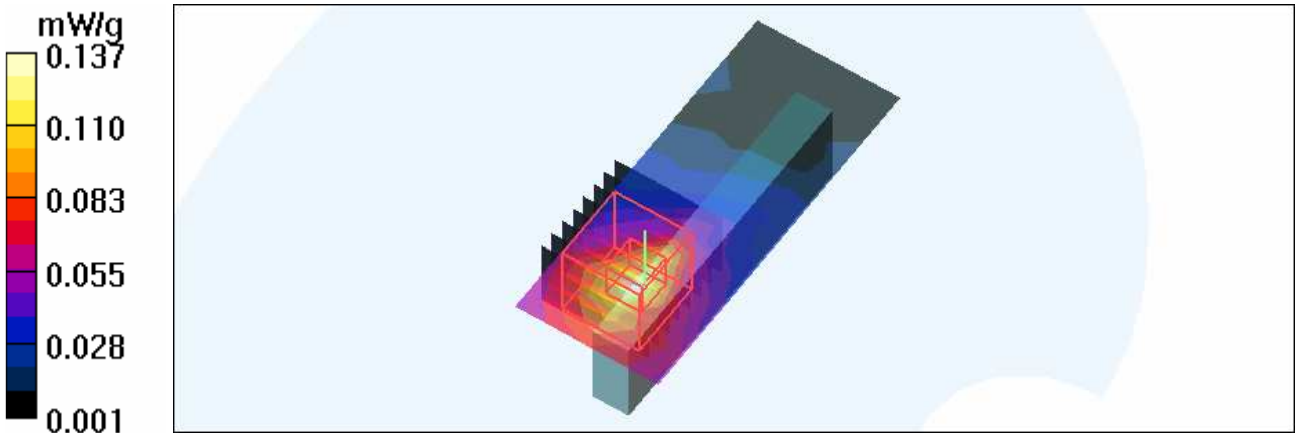
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5680 MHz

Communication System: 11n 5G span20 ; Frequency: 5680 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5680 MHz; σ = 5.89 mho/m; ε_r = 47.2; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.134 mW/g

Mid Channel 136/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.38 V/m
Peak SAR (extrapolated) = 0.450 W/kg
SAR(1 g) = 0.106 mW/g; SAR(10 g) = 0.044 mW/g
Maximum value of SAR (measured) = 0.137 mW/g



Date/Time: 2008/3/23 14:31:17

Test Laboratory: Advance Data Technology

M05-PP01L-11n 5G 20M- Ch140

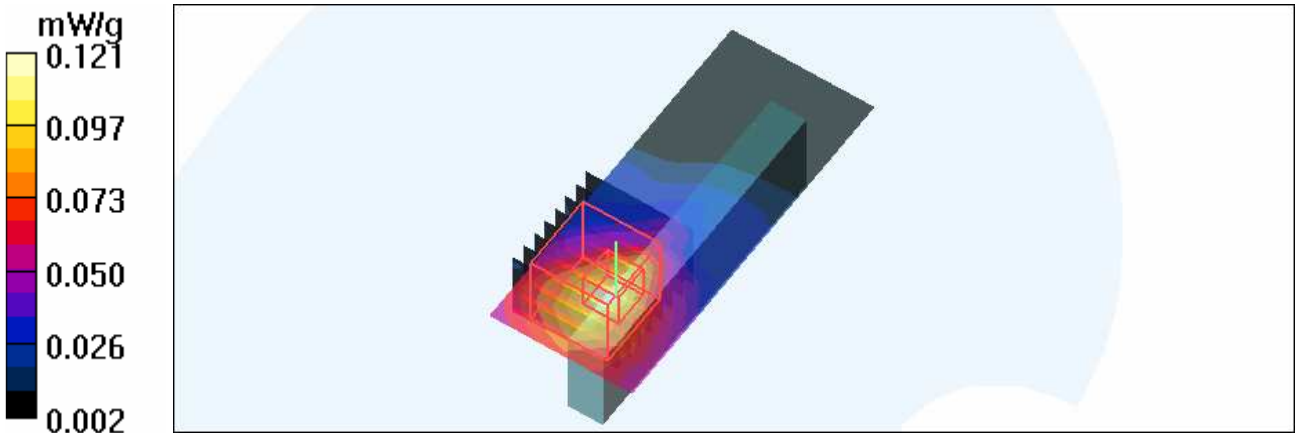
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5700 MHz

Communication System: 11n 5G span20 ; Frequency: 5700 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5700 MHz; σ = 5.91 mho/m; ε_r = 47.2; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.118 mW/g

Mid Channel 140/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.14 V/m
Peak SAR (extrapolated) = 0.280 W/kg
SAR(1 g) = 0.085 mW/g; SAR(10 g) = 0.036 mW/g
Maximum value of SAR (measured) = 0.121 mW/g



Date/Time: 2008/3/23 16:35:10

Test Laboratory: Advance Data Technology

M06-PP01L-11n 5G 40M- Ch38

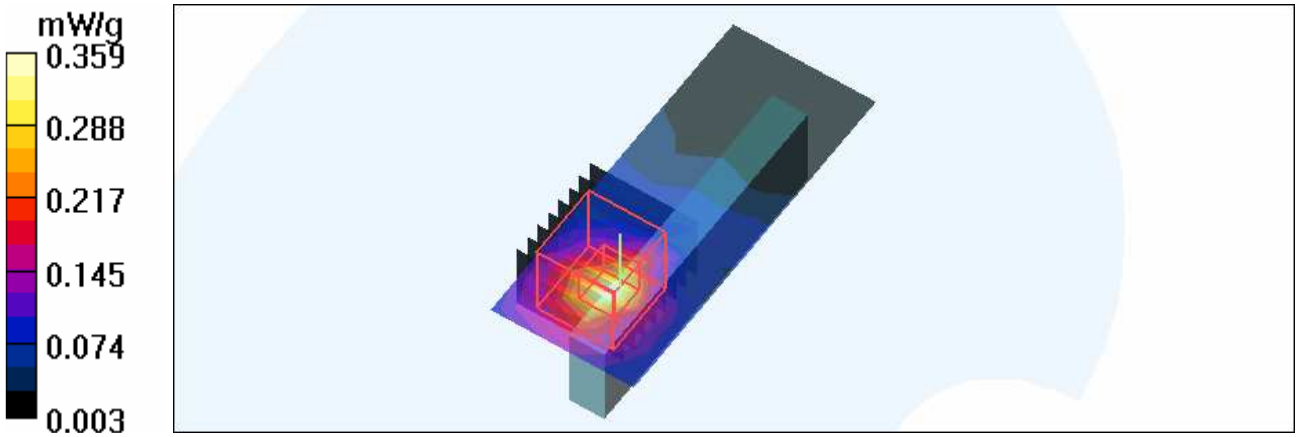
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5190 MHz

Communication System: 11n 5G span40 ; Frequency: 5190 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5190 MHz; σ = 5.28 mho/m; ε_r = 48.2; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- Phantom: SAM 12 ; Type: SAM V4.0 ; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53 ; Postprocessing SW: SEMCAD, V1.8 Build 172

Low Channel 38/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.376 mW/g

Low Channel 38/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.92 V/m
Peak SAR (extrapolated) = 0.838 W/kg
SAR(1 g) = 0.257 mW/g; SAR(10 g) = 0.096 mW/g
Maximum value of SAR (measured) = 0.359 mW/g



Date/Time: 2008/3/23 17:05:46

Test Laboratory: Advance Data Technology

M06-PP01L-11n 5G 40M- Ch46

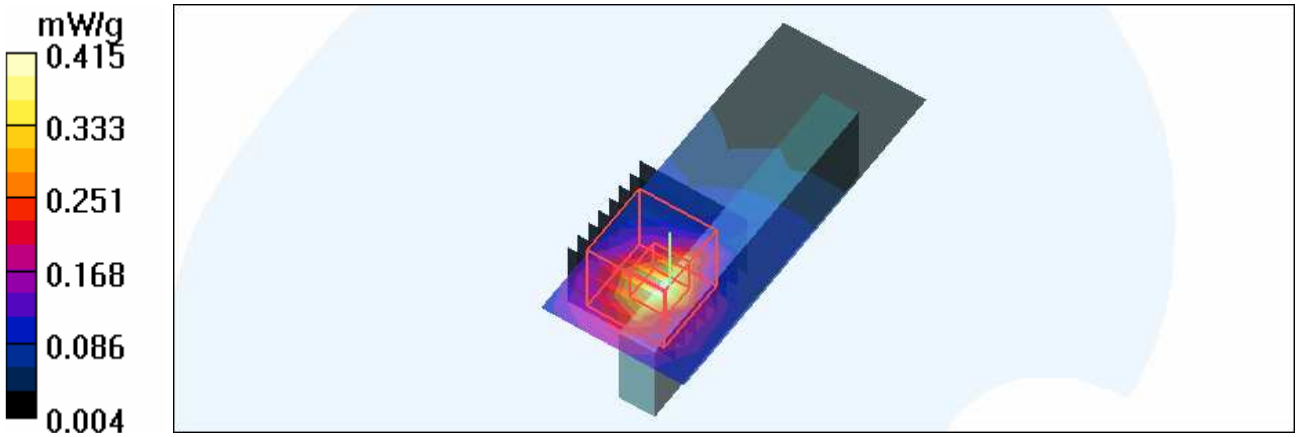
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5230 MHz

Communication System: 11n 5G span40 ; Frequency: 5230 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5230 MHz; σ = 5.34 mho/m; ε_r = 48.1; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.431 mW/g

Mid Channel 46/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.47 V/m
Peak SAR (extrapolated) = 0.916 W/kg
SAR(1 g) = 0.292 mW/g; SAR(10 g) = 0.109 mW/g
Maximum value of SAR (measured) = 0.415 mW/g



Date/Time: 2008/3/23 17:38:28

Test Laboratory: Advance Data Technology

M06-PP01L-11n 5G 40M- Ch54

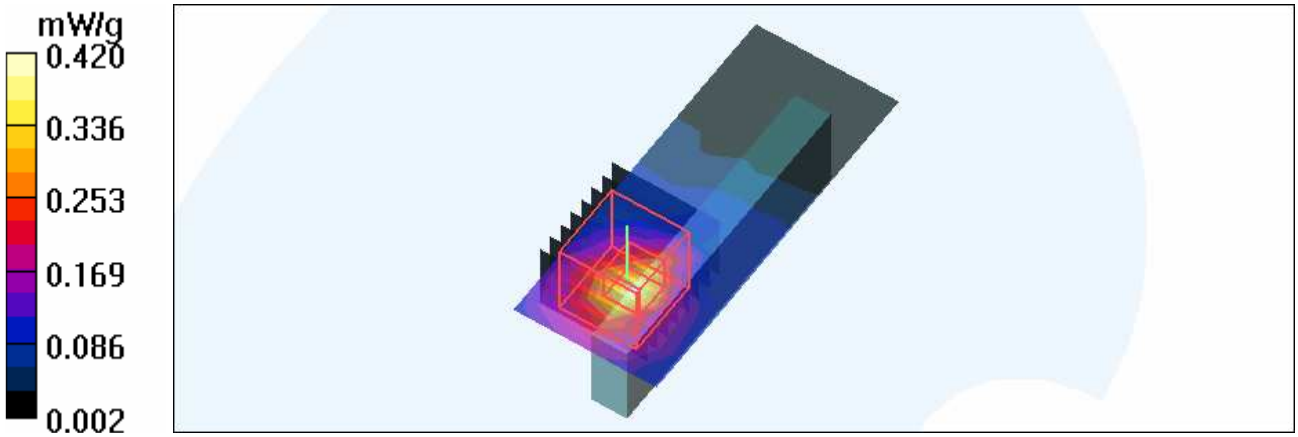
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5270 MHz

Communication System: 11n 5G span40 ; Frequency: 5270 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5270 MHz; σ = 5.38 mho/m; ε_r = 48; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.416 mW/g

Mid Channel 54/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.47 V/m
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.296 mW/g; SAR(10 g) = 0.111 mW/g
Maximum value of SAR (measured) = 0.420 mW/g



Date/Time: 2008/3/23 18:10:54

Test Laboratory: Advance Data Technology

M06-PP01L-11n 5G 40M- Ch62

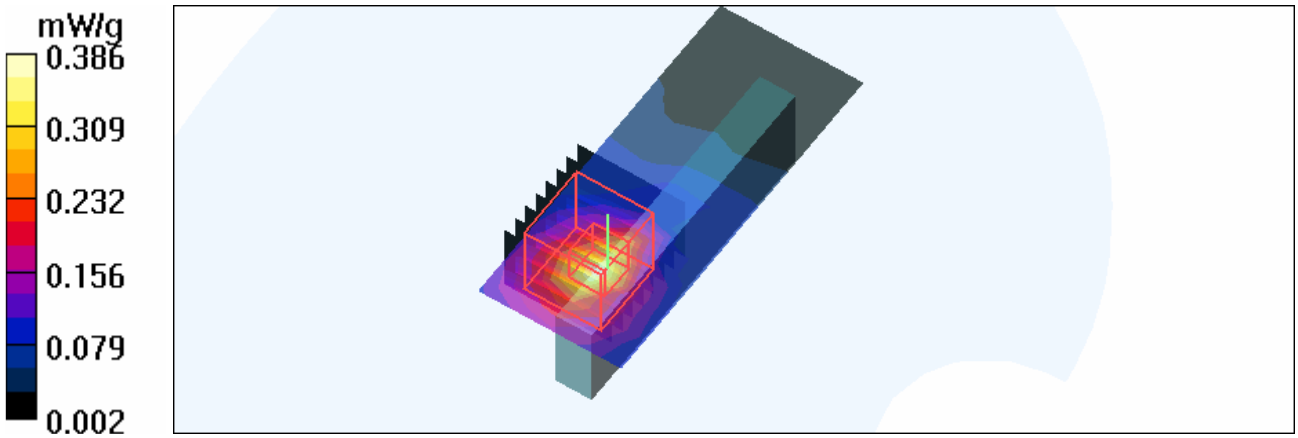
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5310 MHz

Communication System: 11n 5G span40 ; Frequency: 5310 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5310 MHz; σ = 5.41 mho/m; ε_r = 48; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.08, 4.08, 4.08) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 62/Area Scan (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.382 mW/g

Mid Channel 62/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 7.40 V/m
Peak SAR (extrapolated) = 0.972 W/kg
SAR(1 g) = 0.276 mW/g; SAR(10 g) = 0.104 mW/g
Maximum value of SAR (measured) = 0.386 mW/g



Date/Time: 2008/3/23 18:42:34

Test Laboratory: Advance Data Technology

M06-PP01L-11n 5G 40M- Ch102

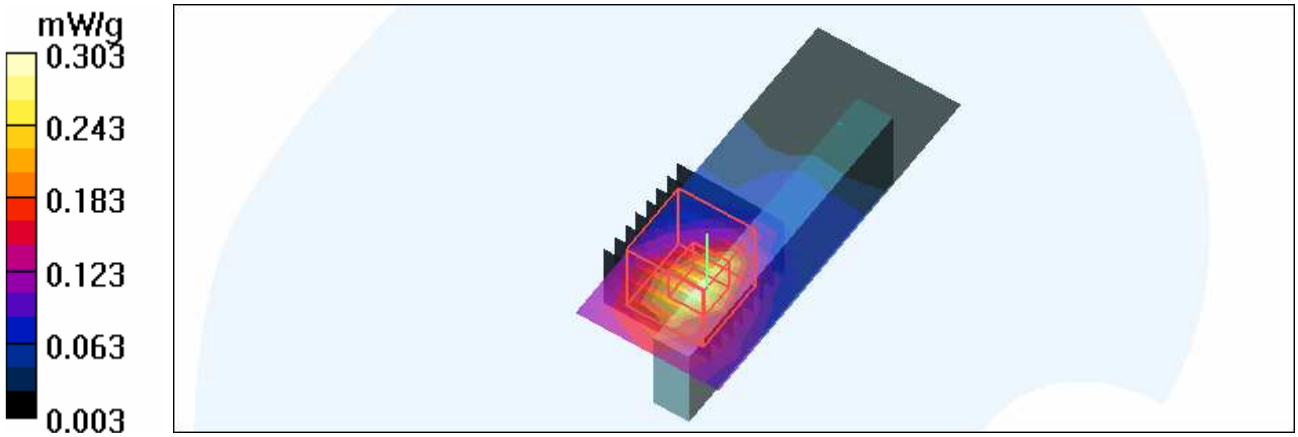
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5510 MHz

Communication System: 11n 5G span40 ; Frequency: 5510 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5510 MHz; σ = 5.67 mho/m; ε_r = 47.6; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(3.99, 3.99, 3.99) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.293 mW/g

Mid Channel 102/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.80 V/m
Peak SAR (extrapolated) = 0.858 W/kg
SAR(1 g) = 0.221 mW/g; SAR(10 g) = 0.085 mW/g
Maximum value of SAR (measured) = 0.303 mW/g



Date/Time: 2008/3/23 19:11:14

Test Laboratory: Advance Data Technology

M06-PP01L-11n 5G 40M- Ch118

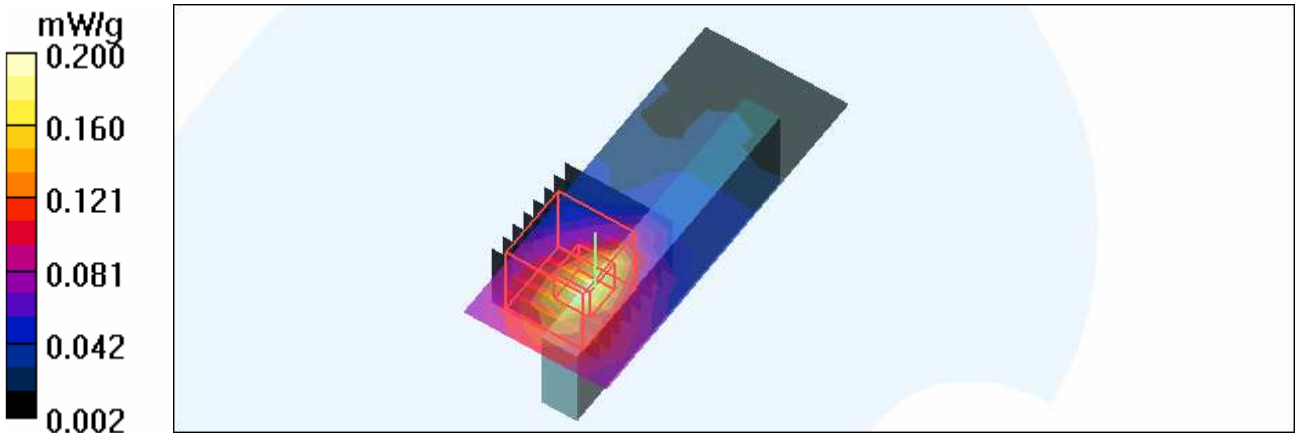
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5590 MHz

Communication System: 11n 5G span40 ; Frequency: 5590 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5590 MHz; σ = 5.78 mho/m; ε_r = 47.4; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.195 mW/g

Mid Channel 118/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 5.60 V/m
Peak SAR (extrapolated) = 0.537 W/kg
SAR(1 g) = 0.146 mW/g; SAR(10 g) = 0.058 mW/g
Maximum value of SAR (measured) = 0.200 mW/g



Date/Time: 2008/3/23 19:42:59

Test Laboratory: Advance Data Technology

M06-PP01L-11n 5G 40M- Ch134

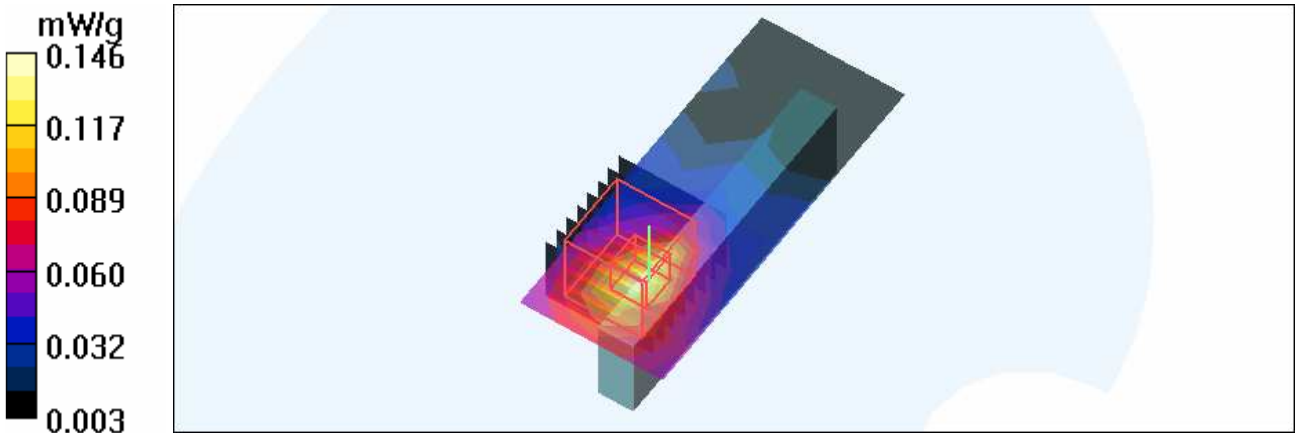
DUT: 2.4GHz/5GHz Wirelwss USB Adapter ; Type: WUB710A ; Test Frequency: 5670 MHz

Communication System: 11n 5G span40 ; Frequency: 5670 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5670 MHz; σ = 5.88 mho/m; ε_r = 47.2; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 5 mm (The edge side of the EUT to the Phantom)
Antenna type : Internal Antenna ; Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.09, 4.09, 4.09) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510 ; Calibrated: 2007/8/29
- 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 (5x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.142 mW/g

Mid Channel 134/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 4.63 V/m
Peak SAR (extrapolated) = 0.435 W/kg
SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.042 mW/g
Maximum value of SAR (measured) = 0.146 mW/g



Date/Time: 2008/3/22 00:45:11

Test Laboratory: Advance Data Technology

System Validation Check-MSL 5200MHz

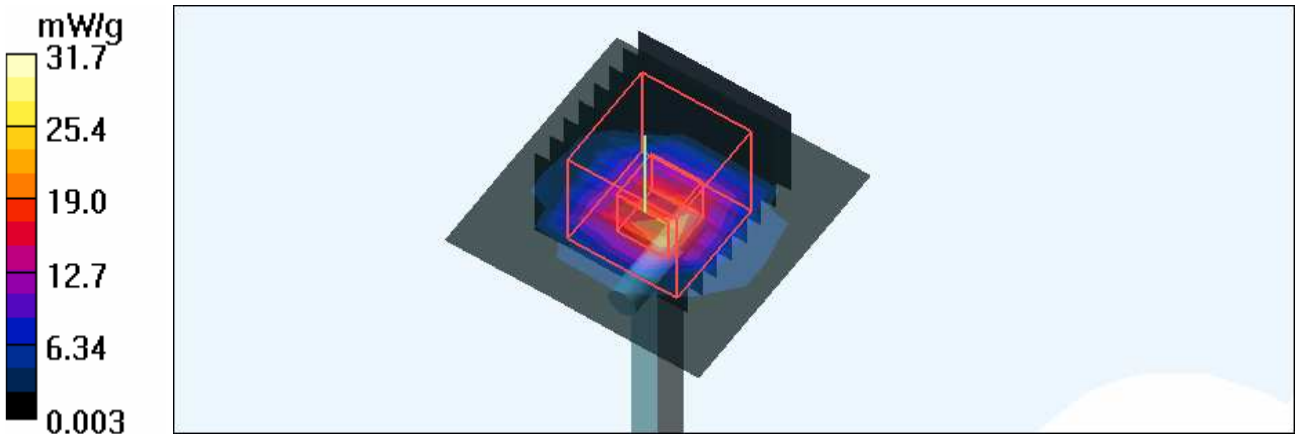
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5200 MHz

Communication System: CW ; Frequency: 5200 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL5800;Medium parameters used: f = 5200 MHz; σ = 5.35 mho/m; ε_r = 48.4; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2007/8/29
- 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=250mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 21.9 mW/g

f=5200, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 81.7 V/m; Power Drift = -0.051 dB
Peak SAR (extrapolated) = 80.0 W/kg
SAR(1 g) = 21.2 mW/g; SAR(10 g) = 5.88 mW/g
Maximum value of SAR (measured) = 31.7 mW/g



Date/Time: 2008/3/22 01:17:34

Test Laboratory: Advance Data Technology

System Validation Check-MSL 5500MHz

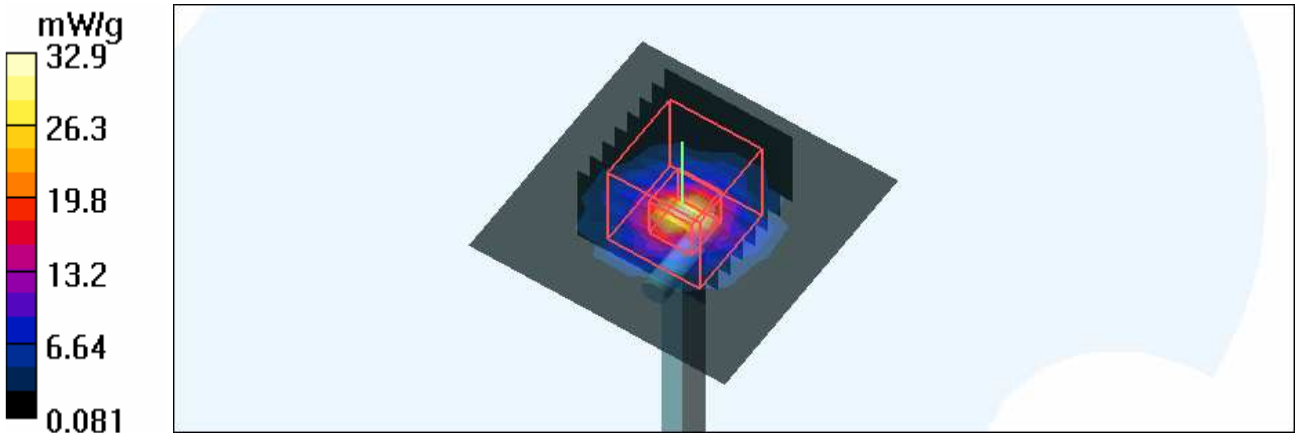
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5500 MHz

Communication System: CW ; Frequency: 5500 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL5800;Medium parameters used: f = 5500 MHz; σ = 5.69 mho/m; ε_r = 47.9; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(3.99, 3.99, 3.99) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2007/8/29
- 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=250mW/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 32.9 mW/g

f=5500, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 77.8 V/m; Power Drift = -0.049 dB
Peak SAR (extrapolated) = 87.0 W/kg
SAR(1 g) = 21.3 mW/g; SAR(10 g) = 5.83 mW/g
Maximum value of SAR (measured) = 29.9 mW/g



Date/Time: 2008/3/22 01:38:55

Test Laboratory: Advance Data Technology

System Validation Check-MSL 5800MHz

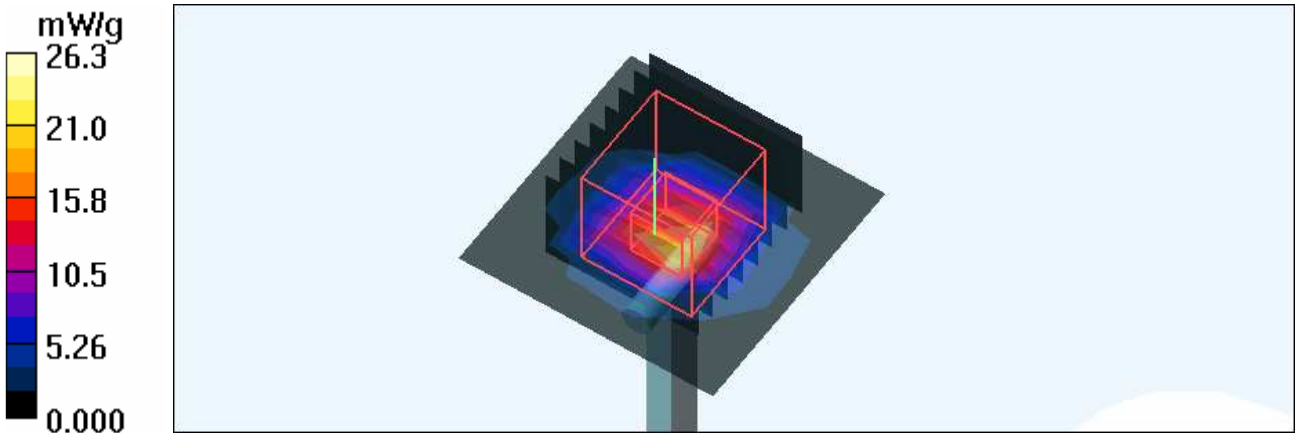
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5800 MHz

Communication System: CW ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL5800;Medium parameters used: f = 5800 MHz; σ = 6.06 mho/m; ε_r = 47.2; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.3 degrees ; Liquid temp. : 21.1 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.1, 4.1, 4.1) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2007/8/29
- 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=5800, d=10mm, Pin=250mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 19.4 mW/g

f=5800, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 70.7 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 91.9 W/kg
SAR(1 g) = 19.1 mW/g; SAR(10 g) = 5.24 mW/g
Maximum value of SAR (measured) = 26.3 mW/g



Date/Time: 2008/3/23 00:20:11

Test Laboratory: Advance Data Technology

System Validation Check-MSL 5200MHz

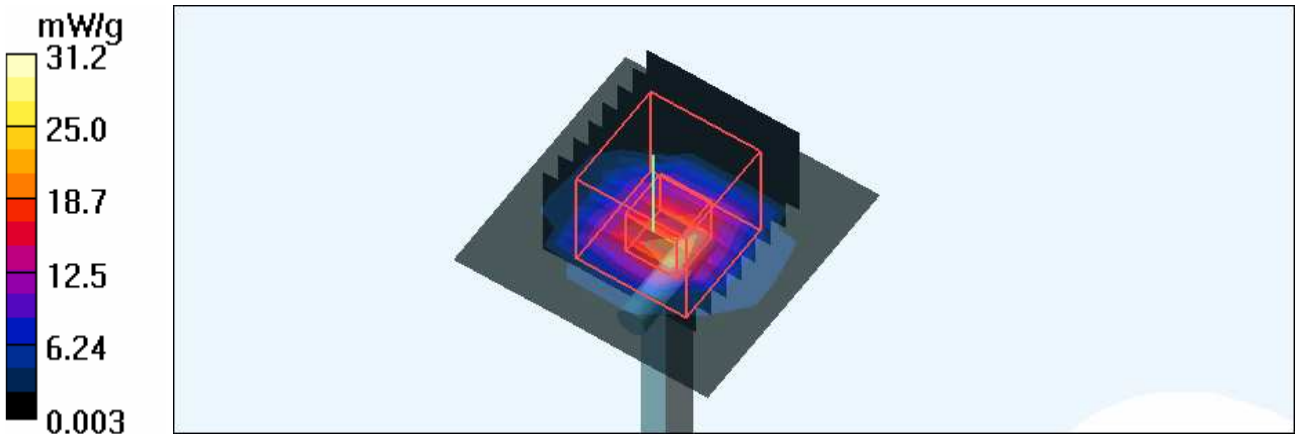
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5200 MHz

Communication System: CW ; Frequency: 5200 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL5800;Medium parameters used: f = 5200 MHz; σ = 5.28 mho/m; ε_r = 48.2; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.34, 4.34, 4.34) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2007/8/29
- 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=250mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 21.5 mW/g

f=5200, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 81.6V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 78.8 W/kg
SAR(1 g) = 20.9 mW/g; SAR(10 g) = 5.7 mW/g
Maximum value of SAR (measured) = 31.2 mW/g



Date/Time: 2008/3/23 00:45:29

Test Laboratory: Advance Data Technology

System Validation Check-MSL 5500MHz

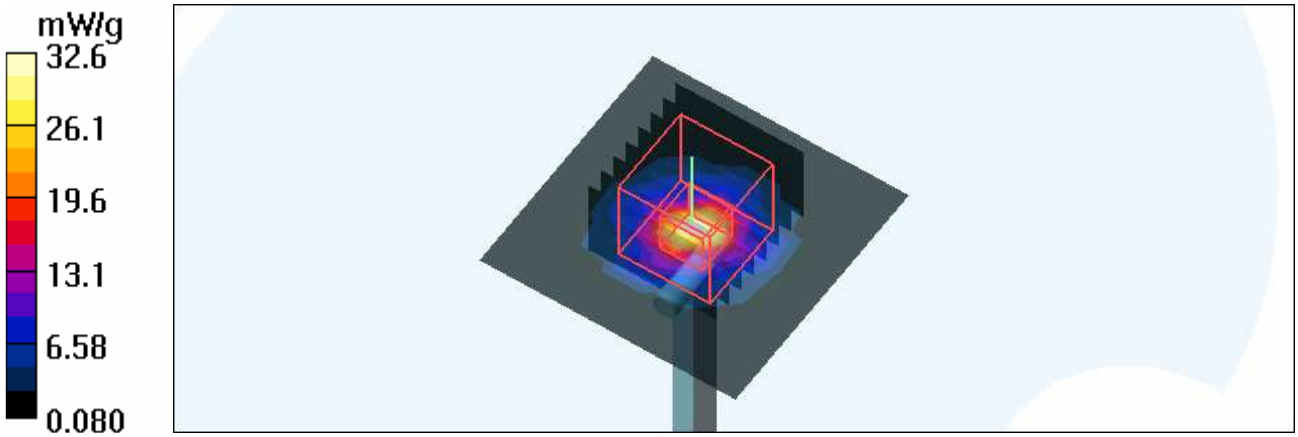
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5500 MHz

Communication System: CW ; Frequency: 5500 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL5800;Medium parameters used: f = 5500 MHz; σ = 5.66 mho/m; ε_r = 47.6; ρ = 1000 kg/m^3 ; Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(3.99, 3.99, 3.99) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2007/8/29
- 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=250mW/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 32.6 mW/g

f=5500, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 77.7 V/m; Power Drift = -0.031 dB
Peak SAR (extrapolated) = 86.6 W/kg
SAR(1 g) = 21.0 mW/g; SAR(10 g) = 5.6 mW/g
Maximum value of SAR (measured) = 29.6 mW/g



Date/Time: 2008/3/23 01:15:07

Test Laboratory: Advance Data Technology

System Validation Check-MSL 5800MHz

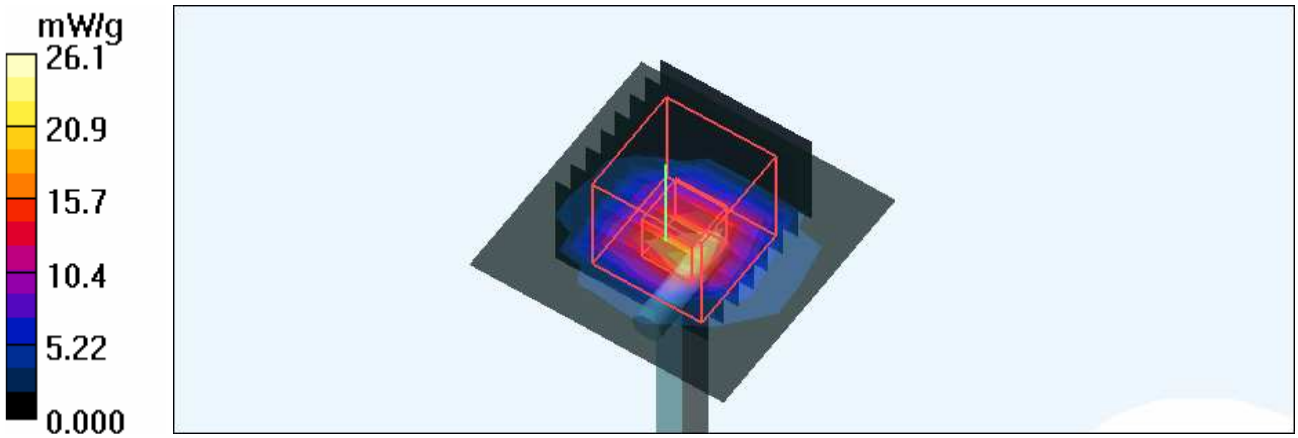
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5800 MHz

Communication System: CW ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL5800;Medium parameters used: f = 5800 MHz; σ = 6.03 mho/m; ε_r = 47; ρ = 1000 kg/m^3 ;
Liquid level : 155 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 22.5 degrees ; Liquid temp. : 21.4 degrees

DASY4 Configuration:
- Probe: EX3DV3 - SN3504 ; ConvF(4.1, 4.1, 4.1) ; Calibrated: 2007/8/30
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2007/8/29
- Phantom: SAM 12; Type: SAM V4.0; Serial: TP 1202
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

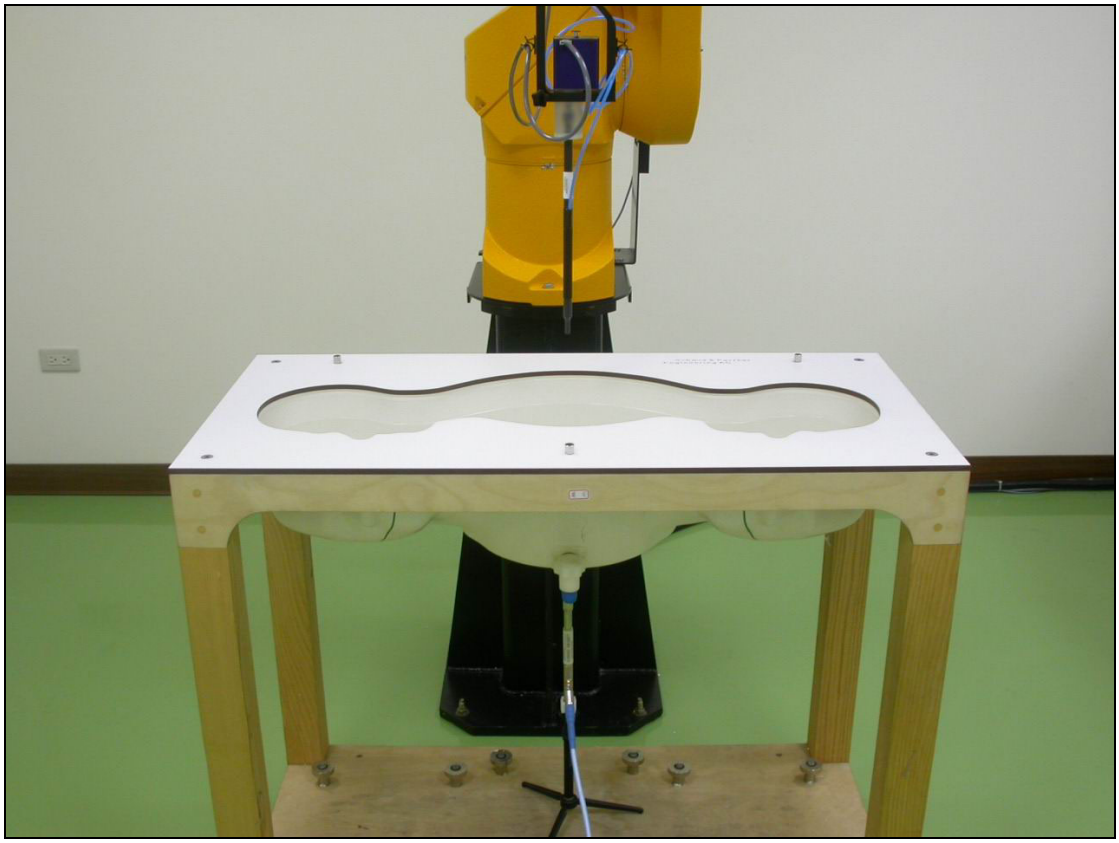
f=5800, d=10mm, Pin=250mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 19.2 mW/g

f=5800, d=10mm, Pin=250mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 70.7 V/m; Power Drift = -0.045 dB
Peak SAR (extrapolated) = 91.3 W/kg
SAR(1 g) = 18.9 mW/g; SAR(10 g) = 5.17 mW/g
Maximum value of SAR (measured) = 26.1 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

Schmid & Partner Engineering AG
Zeughausstrasse 43, CH-8004 Zurich
Tel. +41 1 245 97 00, Fax +41 1 245 97 79

D2: DOSIMETRIC E-FIELD PROBE

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

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

Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client ADT (Auderi)

Certificate No: EX3-3504_Aug07

CALIBRATION CERTIFICATE

Object	EX3DV3 - SN:3504
Calibration procedure(s)	QA CAL-01.v6 and QA CAL-14.v3 Calibration procedure for dosimetric E-field probes
Calibration date:	August 30, 2007
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 ± 3)°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	4-Jan-07 (SPEAG, No. ES3-3013_Jan07)	Jan-08
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 Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

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

Issued: August 30, 2007

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConF	sensitivity in TSL / NORMx,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:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (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 *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe EX3DV3

SN:3504

Manufactured:	December 15, 2003
Last calibrated:	November 23, 2006
Recalibrated:	August 30, 2007

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

DASY - Parameters of Probe: EX3DV3 SN:3504

Sensitivity in Free Space[A] Diode Compression[B]

NormX	**0.610** ± 10.1%	$\mu V/(V/m)^2$	DCP X	**95** mV
NormY	**0.610** ± 10.1%	$\mu V/(V/m)^2$	DCP Y	**97** mV
NormZ	**0.630** ± 10.1%	$\mu V/(V/m)^2$	DCP Z	**94** mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL **2300 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	3.4	1.2
SAR_{be} [%]	With Correction Algorithm	0.2	0.1

TSL **3500 MHz** **Typical SAR gradient: 18 % per mm**

Sensor Center to Phantom Surface Distance		**2.0 mm**	**3.0 mm**
SAR_{be} [%]	Without Correction Algorithm	5.4	2.6
SAR_{be} [%]	With Correction Algorithm	0.0	0.0

Sensor Offset

Probe Tip to Sensor Center	**1.0** mm

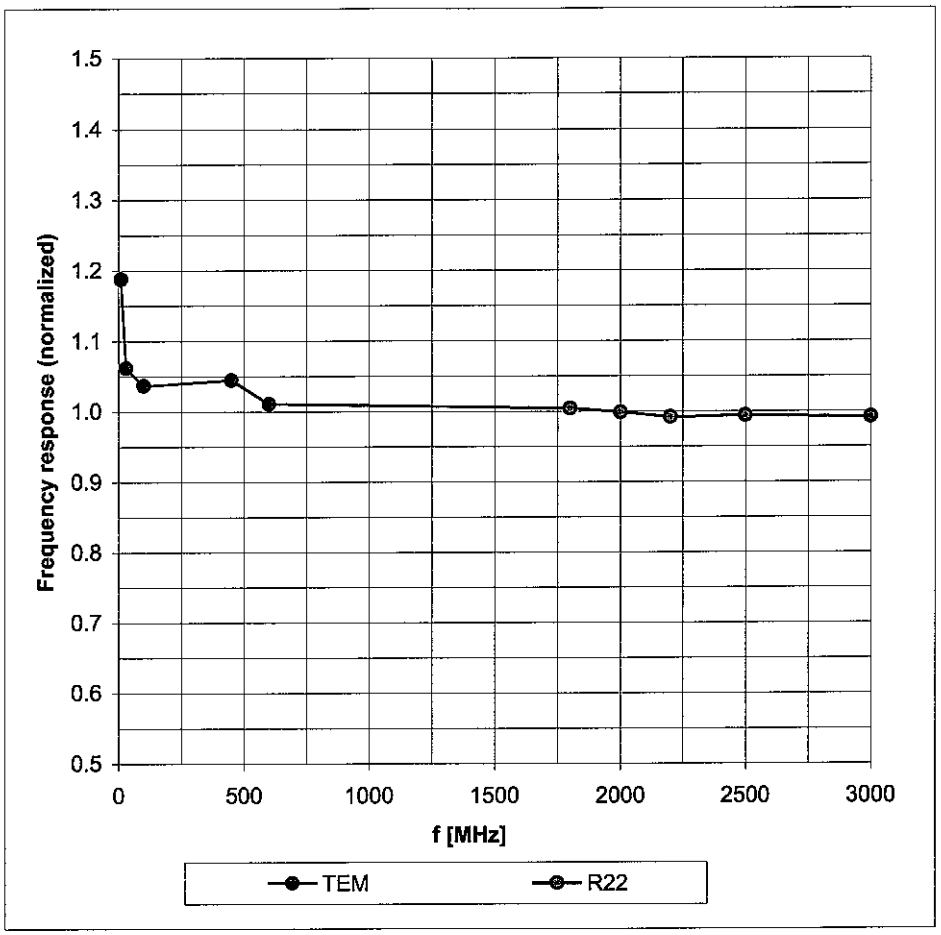
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).

[B] Numerical linearization parameter: uncertainty not required.

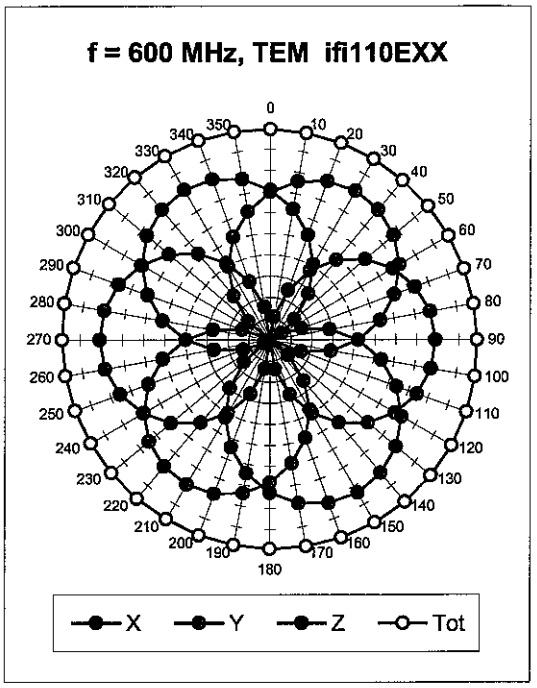
Frequency Response of E-Field

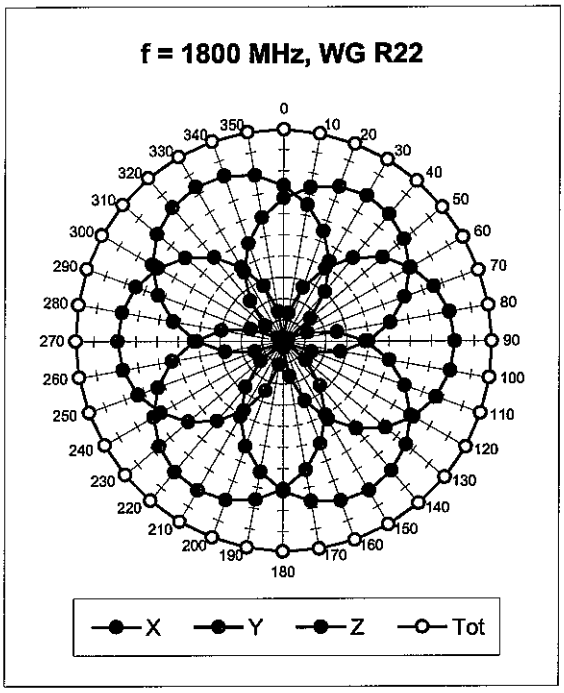
(TEM-Cell:ifi110 EXX, Waveguide: R22)

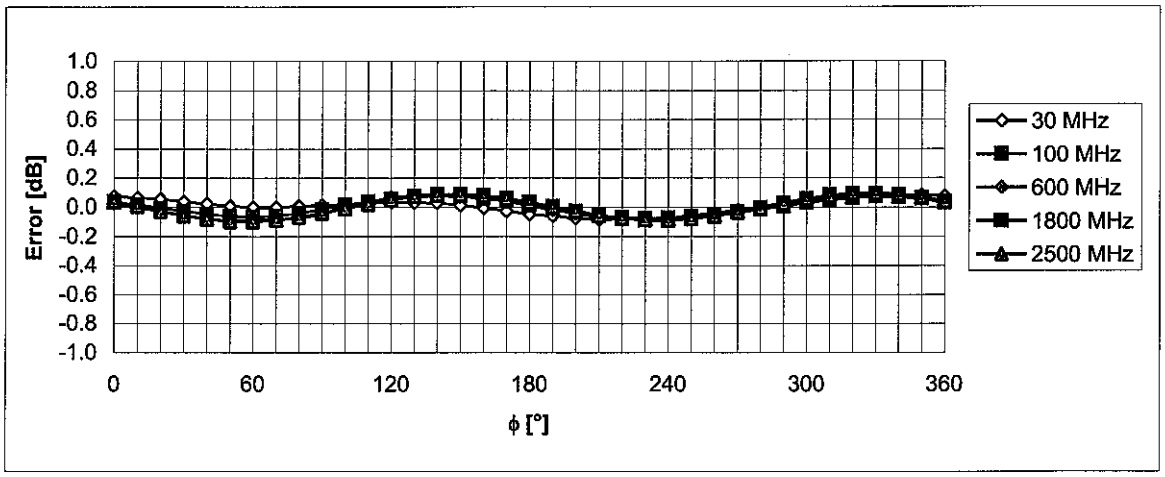


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°



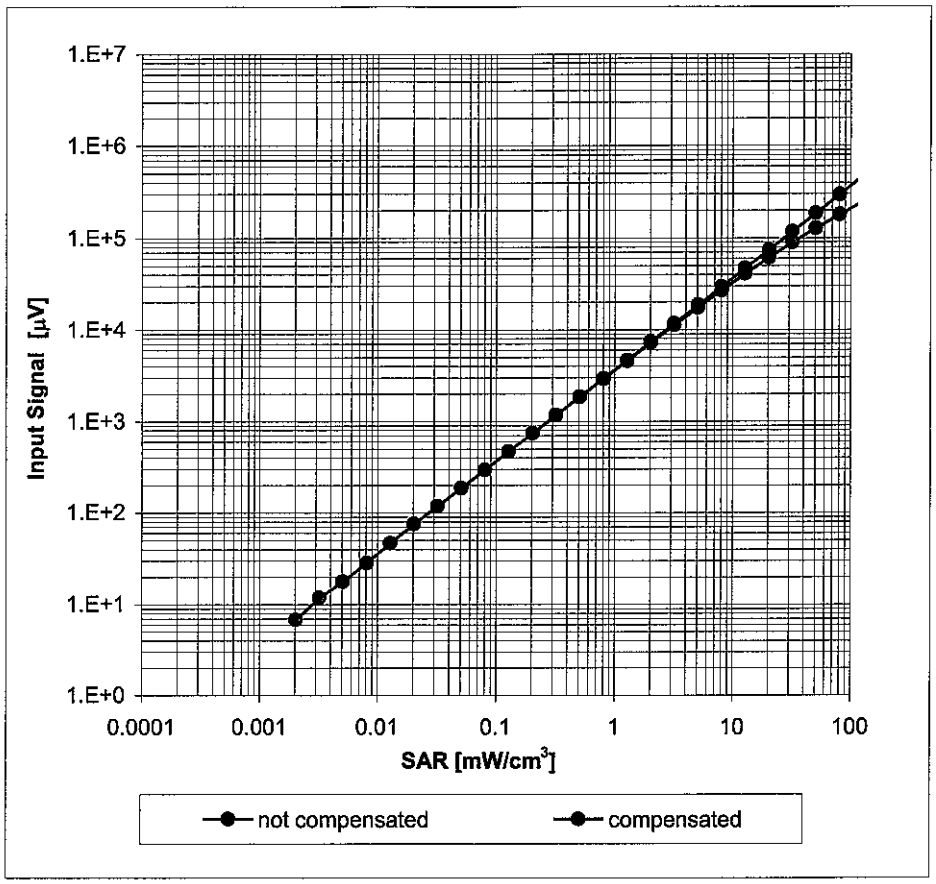


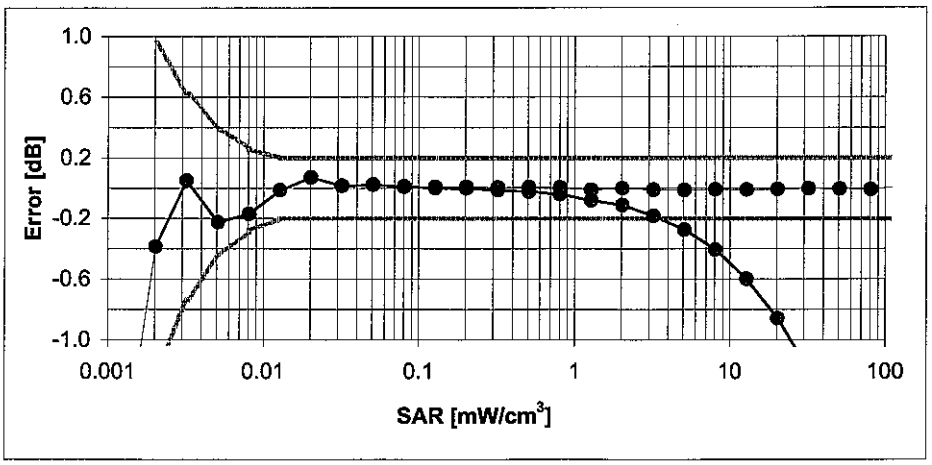


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)





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

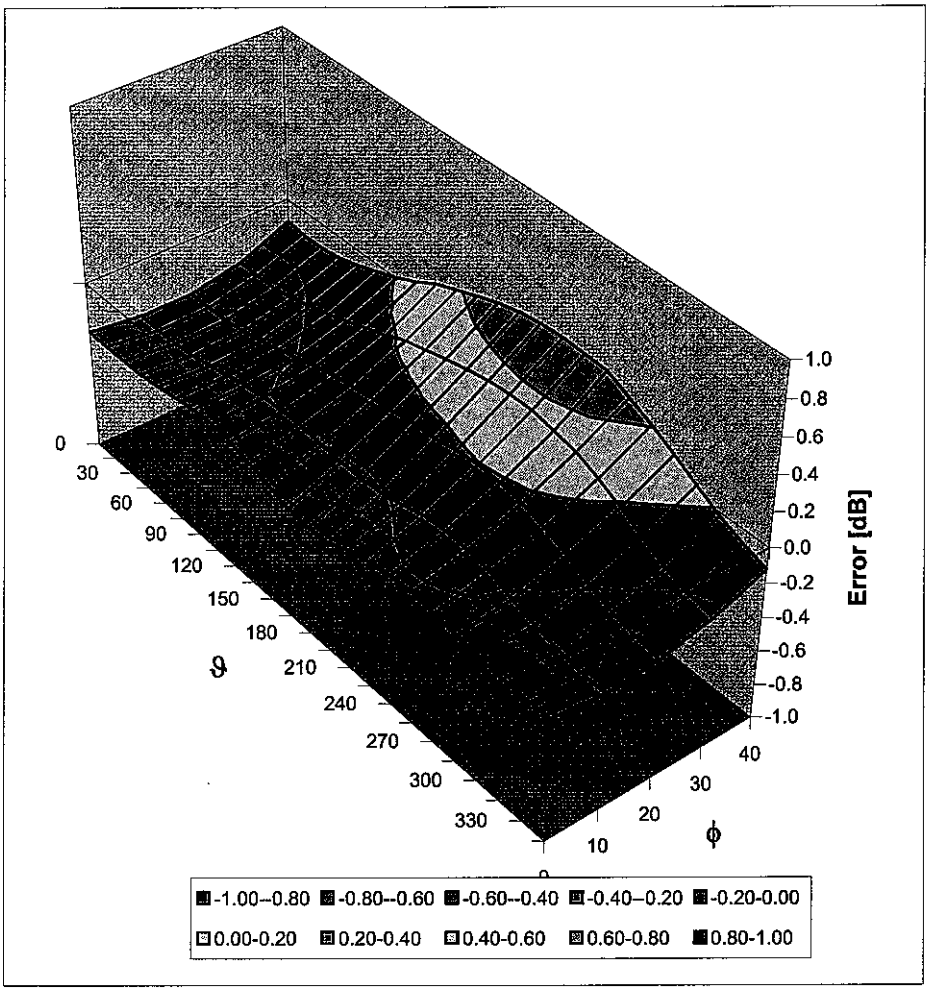
Conversion Factor Assessment

f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
2300	± 50 / ± 100	Head	39.4 ± 5%	1.71 ± 5%	0.32	1.00	7.88 ± 11.8% (k=2)
2600	± 50 / ± 100	Head	39.0 ± 5%	1.96 ± 5%	0.36	1.00	7.39 ± 11.8% (k=2)
3500	± 50 / ± 100	Head	37.9 ± 5%	2.91 ± 5%	0.26	1.24	7.24 ± 13.1% (k=2)
4950	± 50 / ± 100	Head	36.3 ± 5%	4.40 ± 5%	0.33	1.70	5.56 ± 13.1% (k=2)
5200	± 50 / ± 100	Head	36.0 ± 5%	4.66 ± 5%	0.34	1.70	5.13 ± 13.1% (k=2)
5300	± 50 / ± 100	Head	35.9 ± 5%	4.76 ± 5%	0.32	1.70	4.80 ± 13.1% (k=2)
5500	± 50 / ± 100	Head	35.6 ± 5%	4.96 ± 5%	0.33	1.70	4.79 ± 13.1% (k=2)
5600	± 50 / ± 100	Head	35.5 ± 5%	5.07 ± 5%	0.35	1.70	4.55 ± 13.1% (k=2)
5800	± 50 / ± 100	Head	35.3 ± 5%	5.27 ± 5%	0.33	1.70	4.59 ± 13.1% (k=2)
2300	± 50 / ± 100	Body	52.8 ± 5%	1.85 ± 5%	0.37	1.00	7.84 ± 11.8% (k=2)
2600	± 50 / ± 100	Body	52.5 ± 5%	2.16 ± 5%	0.37	1.00	7.09 ± 11.8% (k=2)
3500	± 50 / ± 100	Body	51.3 ± 5%	3.31 ± 5%	0.29	1.37	6.61 ± 13.1% (k=2)
4950	± 50 / ± 100	Body	49.4 ± 5%	5.01 ± 5%	0.35	1.65	4.77 ± 13.1% (k=2)
5200	± 50 / ± 100	Body	49.0 ± 5%	5.30 ± 5%	0.38	1.65	4.34 ± 13.1% (k=2)
5300	± 50 / ± 100	Body	48.9 ± 5%	5.42 ± 5%	0.35	1.65	4.08 ± 13.1% (k=2)
5500	± 50 / ± 100	Body	48.6 ± 5%	5.65 ± 5%	0.32	1.65	3.99 ± 13.1% (k=2)
5600	± 50 / ± 100	Body	48.5 ± 5%	5.77 ± 5%	0.34	1.65	4.09 ± 13.1% (k=2)
5800	± 50 / ± 100	Body	48.2 ± 5%	6.00 ± 5%	0.30	1.65	4.10 ± 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.**

Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



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

D3: DAE

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

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

Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client ADT (Auden)

Certificate No: DAE3-510_Aug07

CALIBRATION CERTIFICATE

Object	DAE3 - SD 000 D03 AA - SN: 510
Calibration procedure(s)	QA CAL-06.v12 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	August 29, 2007
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 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Fluke Process Calibrator Type 702	SN: 6295803	13-Oct-06 (Elcal AG, No: 5492)	Oct-07
Keithley Multimeter Type 2001	SN: 0810278	03-Oct-06 (Elcal AG, No: 5478)	Oct-07
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1004	25-Jun-07 (SPEAG, in house check)	In house check Jun-08

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

Issued: August 29, 2007

Glossary

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

Methods Applied and Interpretation of Parameters

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

DC Voltage Measurement

A/D - Converter Resolution nominal

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

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

Calibration Factors	X	Y	Z
High Range	404.150 ± 0.1% (k=2)	404.218 ± 0.1% (k=2)	404.585 ± 0.1% (k=2)
Low Range	3.98817 ± 0.7% (k=2)	3.97339 ± 0.7% (k=2)	3.96897 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	42 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Input (μV)	Reading (μV)	Error (%)
Channel X	+ Input	200000	200000.7	0.00
Channel X	+ Input	20000	20006.63	0.03
Channel X	- Input	20000	-19999.14	0.00
Channel Y	+ Input	200000	199999.5	0.00
Channel Y	+ Input	20000	20005.23	0.03
Channel Y	- Input	20000	-20002.04	0.01
Channel Z	+ Input	200000	199999.6	0.00
Channel Z	+ Input	20000	20006.53	0.03
Channel Z	- Input	20000	-20001.38	0.01

Low Range		Input (μV)	Reading (μV)	Error (%)
Channel X	+ Input	2000	2000	0.00
Channel X	+ Input	200	199.97	-0.01
Channel X	- Input	200	-199.90	-0.05
Channel Y	+ Input	2000	2000.1	0.00
Channel Y	+ Input	200	199.64	-0.18
Channel Y	- Input	200	-200.58	0.29
Channel Z	+ Input	2000	2000	0.00
Channel Z	+ Input	200	199.20	-0.40
Channel Z	- Input	200	-200.81	0.41

2. Common mode sensitivity

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

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	17.82	16.82
	- 200	-16.18	-16.83
Channel Y	200	14.68	14.20
	- 200	-15.70	-16.05
Channel Z	200	-8.25	-8.73
	- 200	8.01	8.08

3. Channel separation

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

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	0.75	1.74
Channel Y	200	2.34	-	2.77
Channel Z	200	-1.43	0.25	-

4. AD-Converter Values with inputs shorted

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

	High Range (LSB)	Low Range (LSB)
Channel X	15893	16120
Channel Y	16114	16051
Channel Z	16081	16196

5. Input Offset Measurement

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

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	-0.67	-1.71	-0.06	0.26
Channel Y	-1.04	-3.37	0.35	0.34
Channel Z	-1.26	-3.29	0.15	0.35

6. Input Offset Current

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

7. Input Resistance

	Zeroing (MOhm)	Measuring (MOhm)
Channel X	0.2001	198.5
Channel Y	0.2001	199.2
Channel Z	0.2000	200.3

8. Low Battery Alarm Voltage (verified during pre test)

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

9. Power Consumption (verified during pre test)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.0	+6	+14
Supply (- Vcc)	-0.01	-8	-9

D4: SYSTEM VALIDATION DIPOLE

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

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

Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client ADT (Auden)

Certificate No: D5GHzV2-1018_Apr07

CALIBRATION CERTIFICATE

Object	D5GHzV2 - SN: 1018
Calibration procedure(s)	QA CAL-22.v1 Calibration procedure for dipole validation kits between 3-6 GHz
Calibration date:	April 19, 2007
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 ± 3)°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 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 10 dB Attenuator	SN: 5047.2 (10r)	10-Aug-06 (METAS, No 217-00591)	Aug-07
Reference Probe EX3DV4	SN: 3503	9-Mar-07 (SPEAG, No. EX3-3503_Mar07)	Mar-08
DAE4	SN 601	30-Jan-07 (SPEAG, No. DAE4-601_Jan07)	Jan-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100005	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 25, 2007

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

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

Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEC Std 62209 Part 2, "Evaluation of Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices in the Frequency Range of 30 MHz to 6 GHz: Human models, Instrumentation, and Procedures"; Part 2: "Procedure to determine the Specific Absorption Rate (SAR) for including accessories and multiple transmitters", Draft Version 0.9, December 2004

b) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

c) DASY4 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY4	V4.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Area Scan resolution	dx, dy = 10 mm	
Zoom Scan Resolution	dx, dy = 4. mm, dz = 2.5 mm	
Frequency	5200 MHz ± 1 MHz 5500 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	36.0	4.66 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.5 ± 6 %	4.57 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	20.1 mW / g
SAR normalized	normalized to 1W	80.4 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**80.1 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.68 mW / g
SAR normalized	normalized to 1W	22.7 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**22.6 mW / g ± 19.5 % (k=2)**

[1] Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities"

Head TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.6	4.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.9 ± 6 %	4.87 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	19.2 mW / g
SAR normalized	normalized to 1W	76.8 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**76.3 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.44 mW / g
SAR normalized	normalized to 1W	21.8 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**21.6 mW / g ± 19.5 % (k=2)**

Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.4 ± 6 %	5.12 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	19.3 mW / g
SAR normalized	normalized to 1W	77.2 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**76.5 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.43 mW / g
SAR normalized	normalized to 1W	21.7 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**21.5 mW / g ± 19.5 % (k=2)**

[1] Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities"

Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.3 ± 6 %	5.31 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	250 mW input power	19.5 mW / g
SAR normalized	normalized to 1W	78.0 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**77.1 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.48 mW / g
SAR normalized	normalized to 1W	21.9 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**21.7 mW / g ± 19.5 % (k=2)**

Body TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.6	5.56 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.6 ± 6 %	5.68 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	250 mW input power	19.6 mW / g
SAR normalized	normalized to 1W	78.4 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**77.4 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.47 mW / g
SAR normalized	normalized to 1W	21.9 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**21.6 mW / g ± 19.5 % (k=2)**

[1] Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities"

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.0 ± 6 %	6.04 mho/m ± 6 %
Body TSL temperature during test	(22.0± 0.2) °C	----	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	250 mW input power	17.6 mW / g
SAR normalized	normalized to 1W	70.4 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**69.4 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	4.92 mW / g
SAR normalized	normalized to 1W	19.7 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**19.4 mW / g ± 19.5 % (k=2)**

[1] Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities"

Appendix

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	51.6 Ω - 10.3 jΩ
Return Loss	-19.8 dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	48.9 Ω - 2.0 jΩ
Return Loss	-32.5 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	56.4 Ω + 3.8 jΩ
Return Loss	-23.1 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	51.3 Ω - 9.0 jΩ
Return Loss	-20.9 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	49.0 Ω - 1.6 jΩ
Return Loss	-34.3 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	57.3 Ω + 5.3 jΩ
Return Loss	-21.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.201 ns

After long term use with 40 W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	February 05, 2004

DASY4 Validation Report for Head TSL

Date/Time: 19.04.2007 20:55:27

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN:1018

Communication System: CW-5GHz; Frequency: 5200 MHz Frequency: 5500 MHz Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: HSL 5800 MHz;
Medium parameters used: f = 5200 MHz; σ = 4.57 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3

Medium parameters used: f = 5500 MHz; σ = 4.87 mho/m; ε_r = 34.9; ρ = 1000 kg/m^3

Medium parameters used: f = 5800 MHz; σ = 5.12 mho/m; ε_r = 34.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.56, 5.56, 5.56)ConvF(5.2, 5.2, 5.2)ConvF(4.97, 4.97, 4.97); Calibrated: 09.03.2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.01.2007
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW, f=5200 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10):

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 63.1 V/m; Power Drift = 0.069 dB
Peak SAR (extrapolated) = 75.3 W/kg
SAR(1 g) = 20.1 mW/g; SAR(10 g) = 5.68 mW/g
Maximum value of SAR (measured) = 41.5 mW/g

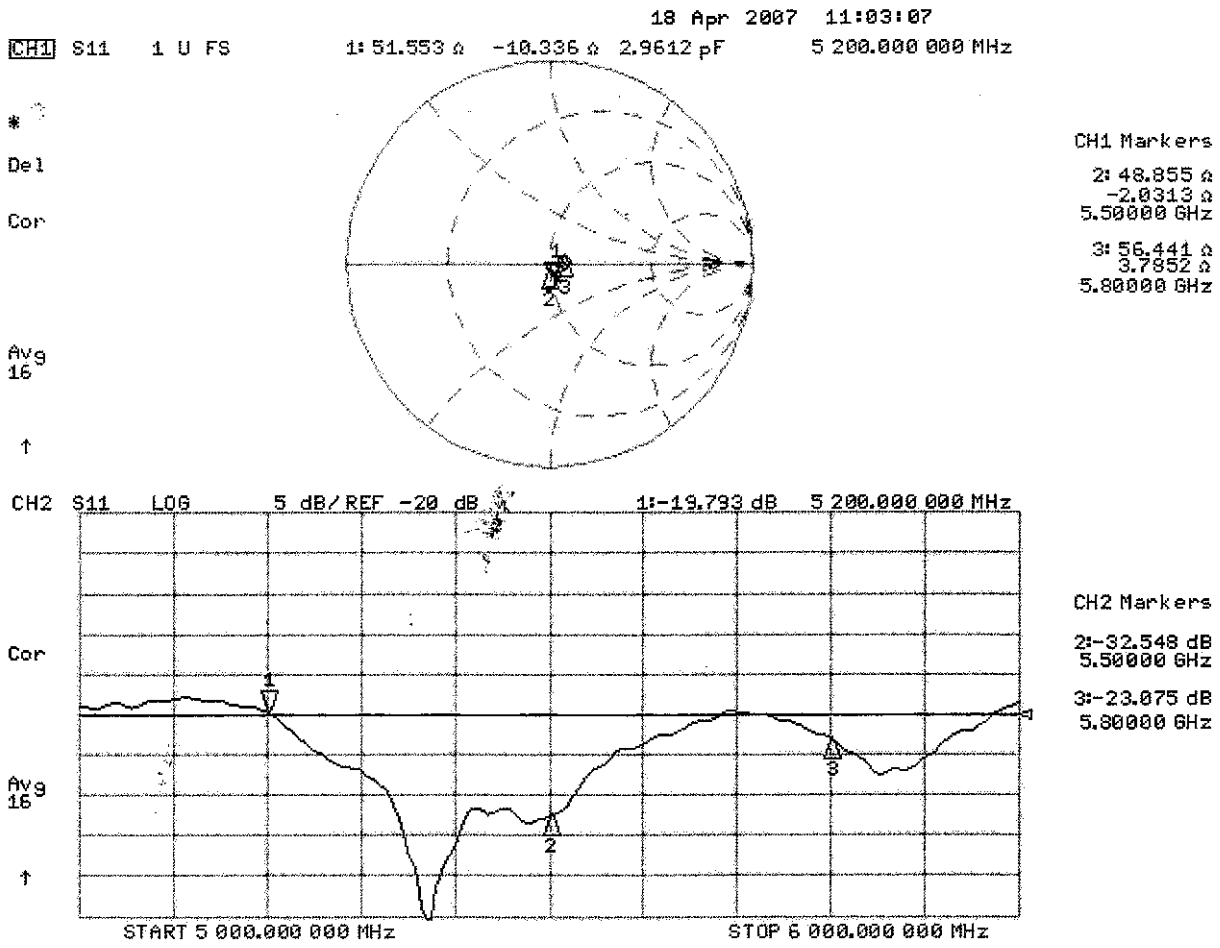
d=10mm, Pin=250mW, f=5500 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10):

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 62.5 V/m; Power Drift = 0.108 dB
Peak SAR (extrapolated) = 75.4 W/kg
SAR(1 g) = 19.2 mW/g; SAR(10 g) = 5.44 mW/g
Maximum value of SAR (measured) = 40.2 mW/g

d=10mm, Pin=250mW, f=5800 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10):

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 62.1 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 79.9 W/kg
SAR(1 g) = 19.3 mW/g; SAR(10 g) = 5.43 mW/g
Maximum value of SAR (measured) = 41.1 mW/g

Impedance Measurement Plot for Head TSL



DASY4 Validation Report for Body TSL

Date/Time: 19.04.2007 19:34:02

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN:1018

Communication System: CW-5GHz; Frequency: 5200 MHzFrequency: 5500 MHzFrequency: 5800 MHz;Duty Cycle: 1:1
Medium: MSL 5800 MHz;
Medium parameters used: f = 5200 MHz; σ = 5.31 mho/m; ε_r = 47.3; ρ = 1000 kg/m^3

Medium parameters used: f = 5500 MHz; σ = 5.68 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3

Medium parameters used: f = 5800 MHz; σ = 6.04 mho/m; ε_r = 46; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.96, 4.96, 4.96)ConvF(4.63, 4.63, 4.63)ConvF(4.76, 4.76, 4.76); Calibrated: 09.03.2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.01.2007
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 53; Postprocessing SW: SEMCAD, V1.8 Build 172

d=10mm, Pin=250mW, f=5200 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10):

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 79.0 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 71.6 W/kg
SAR(1 g) = 19.5 mW/g; SAR(10 g) = 5.48 mW/g
Maximum value of SAR (measured) = 39.0 mW/g

d=10mm, Pin=250mW, f=5500 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10):

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 75.8 V/m; Power Drift = 0.001 dB
Peak SAR (extrapolated) = 77.8 W/kg
SAR(1 g) = 19.6 mW/g; SAR(10 g) = 5.47 mW/g
Maximum value of SAR (measured) = 40.6 mW/g

d=10mm, Pin=250mW, f=5800 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10):

Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 70.5 V/m; Power Drift = -0.046 dB
Peak SAR (extrapolated) = 71.2 W/kg
SAR(1 g) = 17.6 mW/g; SAR(10 g) = 4.92 mW/g
Maximum value of SAR (measured) = 35.8 mW/g

Impedance Measurement Plot for Body TSL