SAR TEST REPORT

Equipment Under Test	Touchpad
Model Number of Host	HSTNH-I30C
Mode of Operation	WLAN 802.11 b/g/n(20M)(40M)/a band
FCC ID	B94HHI30C
IC ID	3905A-HHI30C
Company Name	Hewlett-Packard Company
Company Address	950 W. Maude Ave, Sunnyvale, CA 94085 USA
Date of Receipt	2011.05.25
Date of Test(s)	2011.06.07-08
Date of Issue	2011.06.20

Standards:

FCC OET 65 supplement C,
IEEE /ANSI C95.1, C95.3, IEEE 1528
RSS-102

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

Remarks:

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

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS Taiwan Electronic & Communication Laboratory or testing done by SGS Taiwan Electronic & Communication Laboratory in connection with distribution or use of the product described in this report must be approved by SGS Taiwan Electronic & Communication Laboratory in writing.

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Supervisor

Revision Version

Report Number	Revision	Date	Memo
EN/2011/50005	00	2011/06/16	Initial creation of test report.
EN/2011/50005	01	2011/06/20	Modify 1st report

This test repot contains a reference to the previous version test report that it replaces.

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1. General Information

1.1 Testing Laboratory

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Testing Location	1F,No.8, Alley 15, Lane 120, Sec .1, NeiHu Road NeiHu District Taipei City 114, Taiwan

1.2 Details of Applicant

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1.3 Description of EUT

EUT Name	Touchpad
Model Number of Host	HSTNH-I30C
Model No of WLAN Module	Atheros 6003
Marketing Name.	HP TouchPad

FCC ID	B94HHI30C		
IC ID	3905A-HHI30C		
Definition	Production unit		
Mode of Operation	WLAN 802.11 b/g/n(20M)(40M)/a band		
Duty Cycle	WLAN 802.11 b/g/n(20M)(40M)/a		
	1		
TX Frequency range (MHz)	WLAN802.11 b/g	WLAN802.11 n (20M)	
	2412-2462	2412-2462	
	WLAN 802.11 a	WLAN802.11 n (20M) 5G	WLAN802.11 n (40M) 5G
	5180-5825	5180-5825	5190-5795
Channel Number (ARFCN)	WLAN802.11 b/g	WLAN802.11 n (20M)	
	1-11	1-11	
	WLAN 802.11 a	WLAN802.11 n (20M) 5G	WLAN802.11 n (40M) 5G
	36-165	36-165	38-159

Max. SAR Measured (1g)	WLAN802.11 b
	0.522W/kg (WLAN802.11b_ CH6_ Configuration 2)
	WLAN802.11 n (20M)5G
	0.775W/kg (WLAN802.11n(20M)5.8G _ CH149_ Configuration 6)
	WLAN802.11 n (40M)5G
	0.965W/kg (WLAN802.11n(40M)5.5G_CH118_ Configuration 6)
	WLAN802.11 a
	0.626W/kg (WLAN802.11a 5.5G_CH104_ Configuration 6)

Note:

1. The 1-g SAR for the highest output channel is less than 0.8 W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.
2. The 1-g SAR for the highest output channel is less than 0.4 W/kg, where the transmission band corresponding to all channels is ≤ 200 MHz, testing for the other channels is not required.

Conducted Power

	Main Antenna		
EUT Mode	**Frequency (MHz)**	**CH**	**AVG. Power (dBm)**
WLAN802.11b	2412	1	16.19
	2437	6	16.35
	2462	11	15.31
EUT Mode	**Frequency (MHz)**	**CH**	**AVG. Power (dBm)**
WLAN802.11g	2412	1	13.52
	2437	6	16.46
	2462	11	15.54
EUT Mode	**Frequency (MHz)**	**CH**	**AVG. Power (dBm)**
WLAN802.11n 20M	2412	1	15.8
	2437	6	16.36
	2462	11	15.42
EUT Mode	**Frequency (MHz)**	**CH**	**AVG. Power (dBm)**
WLAN802.11n 20M(5.2G)	5180	36	12.18
	5240	48	12.52
	5260	52	14.43
	5320	64	11.9

EUT Mode	Frequency (MHz)	CH	AVG. Power (dBm)
WLAN802.11n 20M(5.5G)	5500	100	12.19
	5600	120	11.83
	5700	140	11.98
EUT Mode	**Frequency (MHz)**	**CH**	**AVG. Power (dBm)**
WLAN802.11n 20M(5.8G)	5745	149	14.15
	5785	157	13.65
	5825	165	13.57
EUT Mode	**Frequency (MHz)**	**CH**	**AVG. Power (dBm)**
WLAN802.11n 40M(5.2G)	5190	38	14.99
	5230	46	14.88
	5270	54	14.92
	5310	62	14.64
EUT Mode	**Frequency (MHz)**	**CH**	**AVG. Power (dBm)**
WLAN802.11n 40M(5.5G)	5510	102	13
	5590	118	12.77
	5670	134	12.43
EUT Mode	**Frequency (MHz)**	**CH**	**AVG. Power (dBm)**
WLAN802.11n 40M(5.8G)	5755	151	14.39
	5795	159	14.36

EUT Mode	Frequency (MHz)	CH	AVG. Power (dBm)
WLAN802.11a (5.2G)	5180	36	12.54
	5200	40	12.42
	5220	44	12.24
	5240	48	12.55
	5260	52	15.2
	5280	56	14.89
	5300	60	14.31
	5320	64	11.49
EUT Mode	**Frequency (MHz)**	**CH**	**AVG. Power (dBm)**
WLAN802.11a (5.5G)	5500	100	12.58
	5520	104	12.60
	5540	108	12.54
	5560	112	12.40
	5580	116	12.36
	5600	120	12.27
	5620	124	12.47
	5640	128	12.53
	5660	132	12.51
	5680	136	12.41
	5700	140	12.24

EUT Mode	Frequency (MHz)	CH	AVG. Power (dBm)
WLAN802.11a (5.8G)	5745	149	14.27
	5765	153	13.16
	5785	157	13.45
	5805	161	14.05
	5825	165	14.25

According to **KDB248227**-SAR is not required for 802.11 g/HT20/HT40 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.

1.4 Test Environment

Ambient Temperature : 22±2° C
Tissue Simulating Liquid: 22±2° C

1.5 Operation description

Use chipset specific software to control the EUT, and makes it transmit in maximum power. Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s).
The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.

We will test it with 4 configurations:

Configuration 1: Front side. (test front position 10mm separation distance_hotspot mode) **(Appendix-Fig.3)**

Configuration 2: Lap-held mode. (WLAN/Main–to-user separation distance is 10.27 mm) (Appendix-Fig.4)

Configuration 3: Primary Landscape mode. (WLAN / main-to-edge of screen distance is 34.31 mm)(Appendix-Fig.5)

Configuration 4: Secondary Landscape mode. (WLAN/Main-to-user separation distance is 122.21 mm>50mm)(Appendix-Fig.6)

Configuration 5: Primary Portrait mode.(WLAN/main–to-edge of screen distance is 225.65 mm. SAR test is not required) (Appendix-Fig.7)

Configuration 6: Secondary Portrait mode. (WLAN / main–to-edge of screen distance is 5.92 mm) (Appendix-Fig.8)

For larger tablets with a display or overall diagonal dimension > 20 cm, the SAR procedures in **KDB 447498** should be used.

The following procedures are applicable to tablet computers with antennas installed along the tablet edges while operating in Tablet Mode.21 When the output power of an antenna is > 60/f(GHz) mW, SAR is required for both bottom face and edge exposure conditions.

For edge configuration: SAR is required for each antenna located within 5 cm of the tablet edge closet to the user for the applicable display orientation

Front surface position with hotspot mode: The following procedures are applicable when the overall device length and width are ≥9 cm x 5 cm respectively, a test separation of 10 mm is required (referred as test guidance of **KDB 941225 D06**)

All the test positions of device relative to body were measured placing the device in direct contact with the phantom surface, so the requirements mentioned at RSS-102 Supplementary Procedures (SPR)-001 - SAR TESTING REQUIREMENTS WITH REGARD TO BYSTANDERS FOR LAPTOP TYPE COMPUTERS WITH ANTENNAS BUILT-IN ON DISPLAY SCREEN (LAPTOP MODE/TABLET MODE) are covered.

1.6 The SAR Measurement System

A photograph of the SAR measurement System is given in Fig. a. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 5 professional system). A Model EX3DV4 field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ ($|Ei|^2$)/ ρ where σ and ρ are the conductivity and mass density of the tissue-simulant.

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

- A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc.

The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

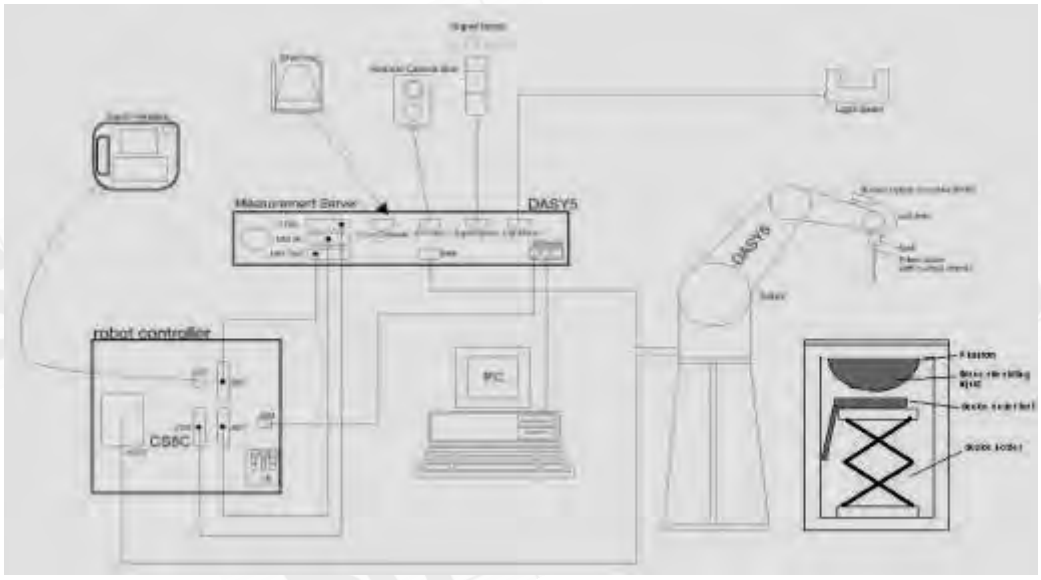


Fig.a The block diagram of SAR system

- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
  - A computer operating Windows 2000 or Windows XP.
  - DASY5 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
  - The SAM twin phantom enabling testing left-hand and right-hand usage.
  - The device holder for handheld mobile phones.
  - Tissue simulating liquid mixed according to the given recipes.
  - Validation dipole kits allowing to validate the proper functioning of the system.

1.7 System Components

EX3DV4 E-Field Probe

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)	
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for MSL2450/5200/5500/5800 MHZ Additional CF for other liquids and frequencies upon request	
Frequency	10 MHz to > 6 GHz, Linearity: ± 0.2 dB (30 MHz to 6 GHz)	
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)	

Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

SAM PHANTOM V4.0C

Construction	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-200X, 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 ± 0.2 mm	
Filling Volume	Approx. 25 liters	
Dimensions	Height: 850 mm; Length: 1000 mm; Width: 500 mm	

DEVICE HOLDER

Construction	The device holder (Supporter) for Notebook is made by POM (polyoxymethylene resin) , which is non-metal and non-conductive. The height can be adjusted to fit varies kind of notebooks.	 Device Holder

1.8 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 5% from the target SAR values. These tests were done at 2450/5200/5500/5800 MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1 (SAR values are normalized to 1W forward power delivered to the dipole). During the tests, the ambient temperature of the laboratory was in the range 22.1°C, the relative humidity was in the range 62% and the liquid depth above the ear reference points was above 15 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

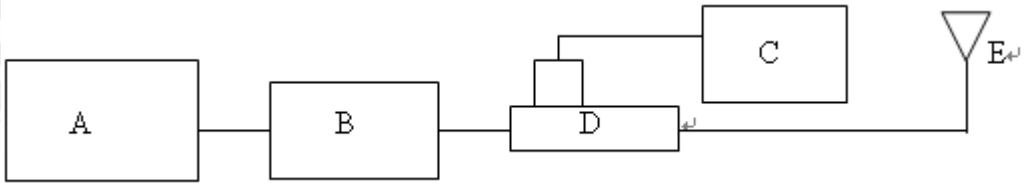
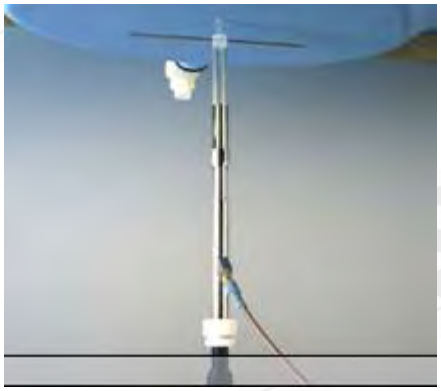


Fig.b The block diagram of system verification

A. Agilent Model 8648D Signal Generator
B. Mini circuits Model ZHL-42 Amplifier
C. Agilent Model U2001B Power Sensor
D. Agilent Model 777D Dual directional coupling
E. Reference dipole antenna



Photograph of the dipole Antenna

Validation Kit	Frequency Hz	Target SAR (1g) (Pin=250mW)	Measured SAR (1g)	Measured Date
D2450V2 S/N: 727	2450 MHz (Body)	12.7 mW/g	13.1 mW/g	2011-06-07
D5200V2 S/N:1040	5200 MHz (Body)	7.57 mW/g	7.85 mW/g	2011-06-07
D5500V2 S/N: 1040	5500 MHz (Body)	8.04 mW/g	8.18 mW/g	2011-06-08
D5800V2 S/N: 1040	5800 MHz (Body)	6.93 mW/g	7.07 mW/g	2011-06-08

Table 1. Results of system validation

1.9 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this body-simulant fluid were measured by using the Agilent Model 85070D Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with HP 8753D Network Analyzer (30 KHz-6000 MHz) by using a procedure detailed in Section V.

All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The depth of the tissue timulant in the ear reference point of the phantom was 15cm±5mm during all tests. (Fig .2)

Frequency (MHz)	Tissue type	Measurement date/ Limits	Dielectric Parameters		
			ρ	σ (S/m)	Simulated Tissue Temperature(° C)
2450	Body	Measured, 2011.06.07	52.326	1.974	21.7
		Recommended Limits	48.07-53.13	1.81-2.01	20-24
5200	Body	Measured, 2011.06.07	48.306	5.299	21.7
		Recommended Limits	46.55-51.45	5.16-5.71	20-24
5500	Body	Measured, 2011.06.08	47.595	5.757	21.7
		Recommended Limits	45.88-50.72	5.52-6.09	20-24
5800	Body	Measured, 2011.06.08	46.61	6.203	21.7
		Recommended Limits	45.41-50.19	5.83-6.44	20-24

Table 2. Dielectric Parameters of Tissue Simulant Fluid

1.10 Evaluation Procedures

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 1 g and 10 g 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 –2 dB 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 1 g and 10 g 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 7x7x7 scans. The routines are verified and optimized for the grid dimensions used in these cube measurements. The measured volume of 30x30x30mm 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 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.

1.11 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (“SAR”) in Section 4.2 of “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,” ANSI/IEEE C95.1–1992, Copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in “Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields,” NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814.

SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter. Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

(1) Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube).

(2) Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety program in a work environment.

(3) Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section.(Table .4)

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR (Brain)	1.60 m W/g	8.00 m W/g
Spatial Average SAR (Whole Body)	0.08 m W/g	0.40 m W/g
Spatial Peak SAR (Hands/Feet/Ankle/Wrist)	4.00 m W/g	20.00 m W/g

Table .3 RF exposure limits

Notes:

1. Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.
2. Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.

2. Summary of Results

WLAN802.11 b

Configuration 1: Front side(test front position 10mm separation distance_hotspot mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450MHz	6	2437	16.35dBm	0.130	22.1	21.7
Configuration 2: Lap-held mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450MHz	6	2437	16.35dBm	0.522	22.1	21.7
Configuration 3: Primary Landscape mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450MHz	6	2437	16.35dBm	0.052	22.1	21.7
Configuration 6: Secondary Portrait mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450MHz	6	2437	16.35dBm	0.320	22.1	21.7

WLAN802.11 n (20M) 5.2G

Configuration 1: Front side(test front position 10mm separation distance_hotspot mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5200MHz	52	5260	14.43dBm	0.131	22.1	21.7

Configuration 2: Lap-held mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5200MHz	36	5180	12.18dBm	0.158	22.1	21.7
	48	5240	12.52dBm	0.181	22.1	21.7
	52	5260	14.43dBm	0.402	22.1	21.7
	64	5320	11.9dBm	0.258	22.1	21.7
Configuration 3: Primary Landscape mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5200MHz	52	5260	14.43dBm	0.00276	22.1	21.7
Configuration 6: Secondary Portrait mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5200MHz	36	5180	12.18dBm	0.283	22.1	21.7
	48	5240	12.52dBm	0.324	22.1	21.7
	52	5260	14.43dBm	0.698	22.1	21.7
	64	5320	11.9dBm	0.428	22.1	21.7

WLAN802.11 n (20M) 5.5G

Configuration 1: Front side(test front position 10mm separation distance_hotspot mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5500MHz	100	5500	12.19dBm	0.122	22.1	21.7
Configuration 2: Lap-held mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5500MHz	100	5500	12.19dBm	0.322	22.1	21.7
Configuration 3: Primary Landscape mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5500MHz	100	5500	12.19dBm	0.023	22.1	21.7

Configuration 6: Secondary Portrait mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5500MHz	100	5500	12.19dBm	0.580	22.1	21.7
	120	5600	11.83dBm	0.690	22.1	21.7
	140	5700	11.98dBm	0.364	22.1	21.7

WLAN802.11 n (20M) 5.8G

Configuration 1: Front side(test front position 10mm separation distance_hotspot mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5800MHz	149	5745	14.15dBm	0.167	22.1	21.7
Configuration 2: Lap-held mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5800MHz	149	5745	14.15dBm	0.366	22.1	21.7
Configuration 3: Primary Landscape mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5800MHz	149	5745	14.15dBm	0.049	22.1	21.7
Configuration 6: Secondary Portrait mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5800MHz	149	5745	14.15dBm	0.775	22.1	21.7

WLAN802.11 n (40M) 5.2G

Configuration 1: Front side(test front position 10mm separation distance_hotspot mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5200MHz	38	5190	14.99dBm	0.134	22.1	21.7

Configuration 2: Lap-held mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5200MHz	38	5190	14.99dBm	0.215	22.1	21.7
Configuration 3: Primary Landscape mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5200MHz	38	5190	14.99dBm	0.025	22.1	21.7
Configuration 6: Secondary Portrait mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5200MHz	38	5190	14.99dBm	0.577	22.1	21.7
	46	5230	14.88dBm	0.567	22.1	21.7
	54	5270	14.92dBm	0.554	22.1	21.7
	62	5310	14.64dBm	0.681	22.1	21.7

WLAN802.11 n (40M) 5.5G

Configuration 1: Front side(test front position 10mm separation distance_hotspot mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5500MHz	102	5510	13dBm	0.160	22.1	21.7
Configuration 2: Lap-held mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5500MHz	102	5510	13dBm	0.405	22.1	21.7
	118	5590	12.77dBm	0.395	22.1	21.7
	134	5670	12.43dBm	0.324	22.1	21.7
Configuration 3: Primary Landscape mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5500MHz	102	5510	13dBm	0.031	22.1	21.7

Configuration 6: Secondary Portrait mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5500MHz	102	5510	13dBm	0.649	22.1	21.7
	118	5590	12.77dBm	**0.965**	22.1	21.7
	134	5670	12.43dBm	0.495	22.1	21.7

WLAN802.11 n(40M) 5.8G

Configuration 1: Front side(test front position 10mm separation distance_hotspot mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5800MHz	151	5755	14.39dBm	0.162	22.1	21.7
Configuration 2: Lap-held mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5800MHz	151	5755	14.39dBm	0.391	22.1	21.7
Configuration 3: Primary Landscape mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5800MHz	151	5755	14.39dBm	0.057	22.1	21.7
Configuration 6: Secondary Portrait mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5800MHz	151	5755	14.39dBm	0.559	22.1	21.7

WLAN802.11 a 5.2G

Configuration 1: Front side(test front position 10mm separation distance_hotspot mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5200MHz	52	5260	15.2dBm	0.135	22.1	21.7

Configuration 2: Lap-held mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5200MHz	36	5180	12.54dBm	0.159	22.1	21.7
	48	5240	12.55dBm	0.194	22.1	21.7
	52	5260	15.2dBm	0.425	22.1	21.7
	64	5320	11.49dBm	0.260	22.1	21.7
Configuration 3: Primary Landscape mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5200MHz	52	5260	15.2dBm	0.00929	22.1	21.7
Configuration 6: Secondary Portrait mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5200MHz	36	5180	12.54dBm	0.268	22.1	21.7
	48	5240	12.55dBm	0.265	22.1	21.7
	52	5260	15.2dBm	0.561	22.1	21.7
	64	5320	11.49dBm	0.431	22.1	21.7

WLAN802.11 a 5.5G

Configuration 1: Front side(test front position 10mm separation distance_hotspot mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5500MHz	104	5520	12.60dBm	0.133	22.1	21.7
Configuration 2: Lap-held mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5500MHz	104	5520	12.60dBm	0.350	22.1	21.7
Configuration 3: Primary Landscape mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5500MHz	104	5520	12.60dBm	0.034	22.1	21.7

Configuration 6: Secondary Portrait mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5500MHz	104	5520	12.60dBm	0.626	22.1	21.7
	116	5580	12.36dBm	0.617	22.1	21.7
	124	5620	12.47dBm	0.493	22.1	21.7
	136	5680	12.41dBm	0.484	22.1	21.7

WLAN802.11 a 5.8G

Configuration 1: Front side(test front position 10mm separation distance_hotspot mode)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5800MHz	149	5745	14.27dBm	0.168	22.1	21.7
Configuration 2: Lap-held mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5800MHz	149	5745	14.27dBm	0.373	22.1	21.7
Configuration 3: Primary Landscape mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5800MHz	149	5745	14.27dBm	0.049	22.1	21.7
Configuration 6: Secondary Portrait mode						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
5800MHz	149	5745	14.27dBm	0.620	22.1	21.7

Note: The SAR measurement results with transmitter at maximum output power.

3. Instruments List

Manufacturer	Device	Type	Serial number	Date of last calibration
Schmid & Partner Engineering AG	Dosimetric E-Field Probe	EX3DV4	3703	Jan.24.2011
Schmid & Partner Engineering AG	2450/5200/5500/5800 MHz System Validation Dipole	D2450V2	727	Apr.19.2011
		D5GHzV2	1040	Jun.23.2010
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	856	May 18.2011
Schmid & Partner Engineering AG	Software	DASY 5 V5.0 Build125	N/A	Calibration not required
Schmid & Partner Engineering AG	Phantom	SAM	N/A	Calibration not required
Agilent	Network Analyzer	8753D	3410A05547	Mar.16.2011
Agilent	Dielectric Probe Kit	85070D	US01440168	Calibration not required
Agilent	Dual-directional coupler	777D	50114	Aug.25.2010
Agilent	RF Signal Generator	8648D	3847M00432	Jun.04.2010
Agilent	Power Sensor	U2001B	MY48100169	Apr.28.2011

4. Measurements

Date: 6/7/2011

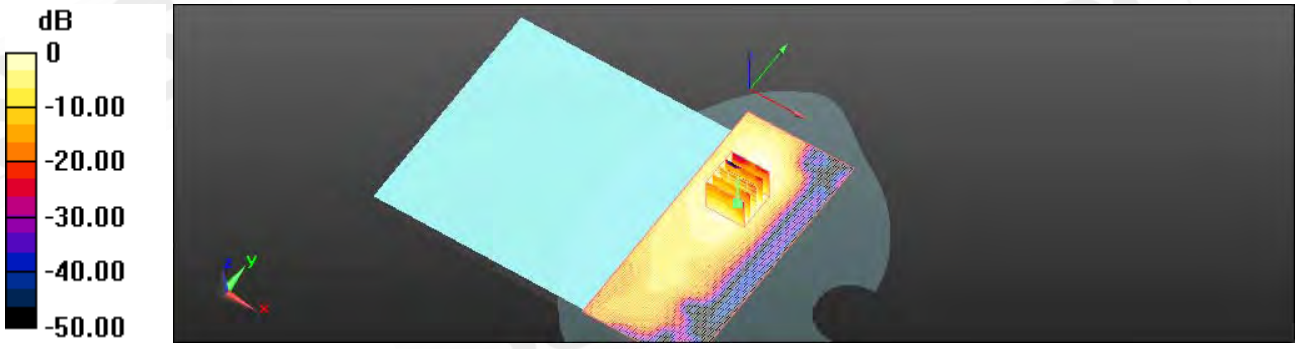
Configuration 1_ WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.964 mho/m; ε_r = 54.201; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.82, 6.82, 6.82); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.128 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.616 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.245 W/kg
SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.067 mW/g
Maximum value of SAR (measured) = 0.146 mW/g



0 dB = 0.150mW/g

Date: 6/7/2011

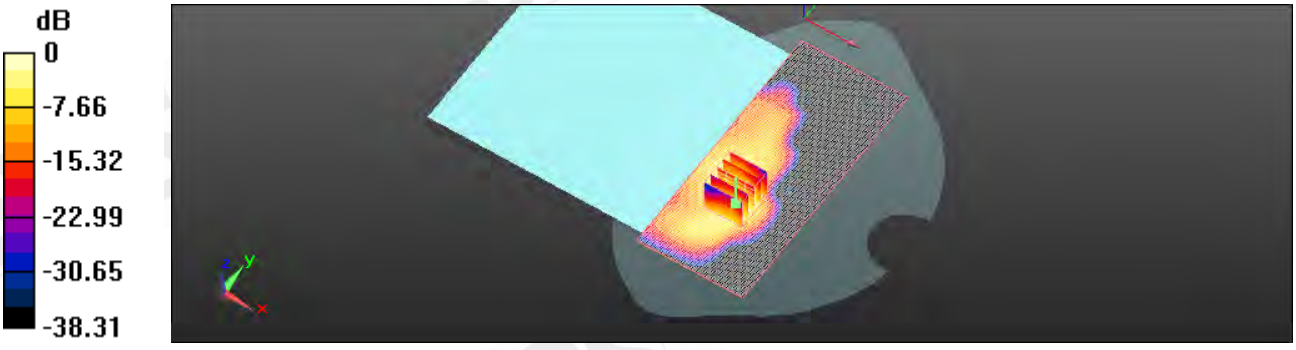
Configuration 2_ WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.964 mho/m; ε_r = 54.201; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.82, 6.82, 6.82); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.628 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.327 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.055 W/kg
SAR(1 g) = 0.522 mW/g; SAR(10 g) = 0.247 mW/g
Maximum value of SAR (measured) = 0.598 mW/g



0 dB = 0.600mW/g

Date: 6/7/2011

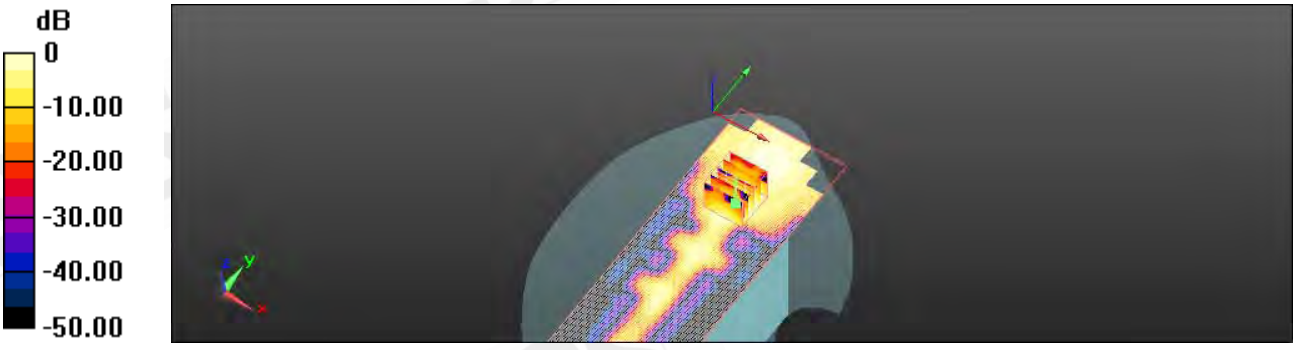
Configuration 3_ WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.964 mho/m; ε_r = 54.201; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.82, 6.82, 6.82); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.069 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.128 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.097 W/kg
SAR(1 g) = 0.052 mW/g; SAR(10 g) = 0.025 mW/g
Maximum value of SAR (measured) = 0.059 mW/g



0 dB = 0.060mW/g

Date: 6/7/2011

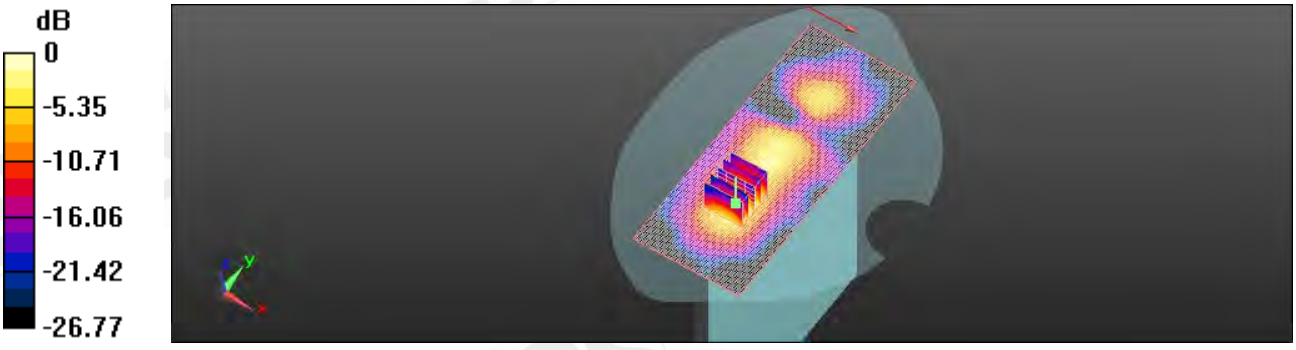
Configuration 6_ WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.964 mho/m; ε_r = 54.201; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.82, 6.82, 6.82); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.344 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.977 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.668 W/kg
SAR(1 g) = 0.320 mW/g; SAR(10 g) = 0.142 mW/g
Maximum value of SAR (measured) = 0.378 mW/g



0 dB = 0.380mW/g

Date: 6/7/2011

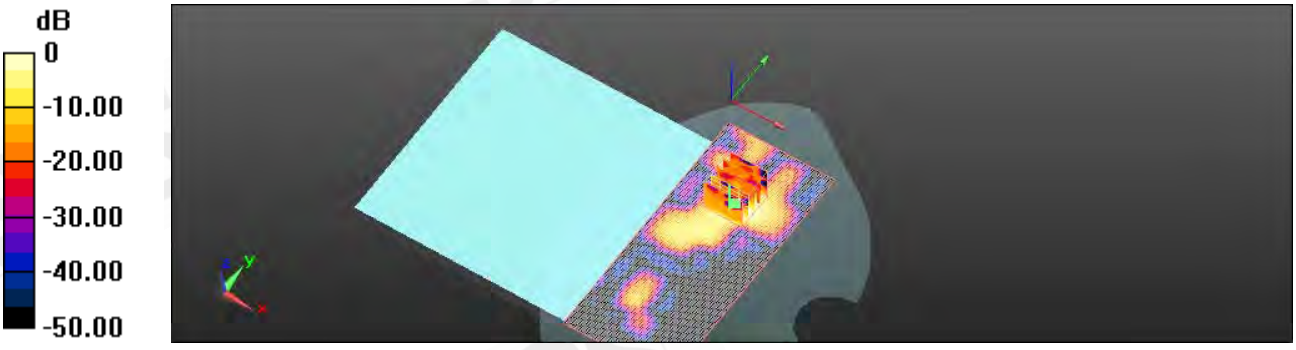
Configuration 1_ WLAN802.11n(20M)5.2G_CH52

Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5260 MHz
Medium parameters used: f = 5260 MHz; σ = 5.422 mho/m; ε_r = 48.196; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.73, 3.73, 3.73); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.174 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.218 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.379 W/kg
SAR(1 g) = 0.131 mW/g; SAR(10 g) = 0.045 mW/g
Maximum value of SAR (measured) = 0.145 mW/g



0 dB = 0.150mW/g

Date: 6/7/2011

Configuration 2_ WLAN802.11n(20M)5.2G_CH36

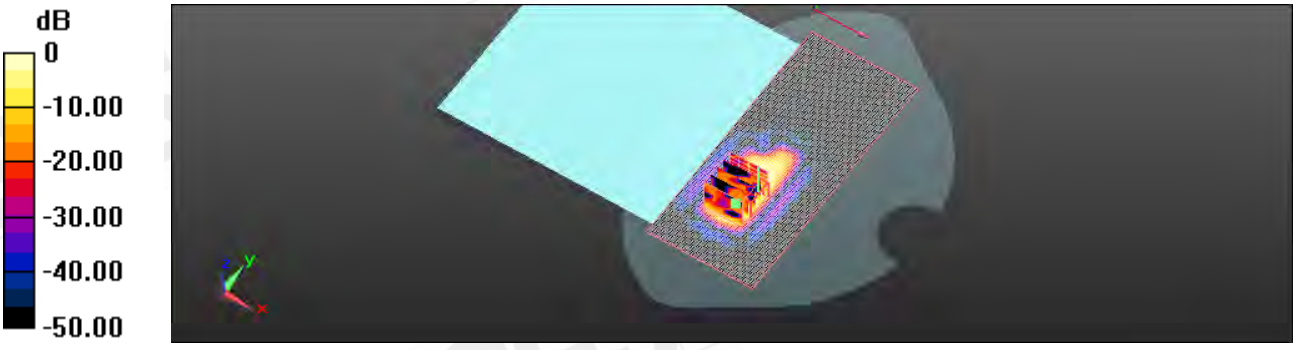
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5180 MHz
Medium parameters used: f = 5180 MHz; σ = 5.273 mho/m; ε_r = 48.384; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(4, 4, 4); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.321 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.865 V/m; Power Drift =0.14 dB
Peak SAR (extrapolated) = 0.445 W/kg

SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.057 mW/g
Maximum value of SAR (measured) = 0.188 mW/g



0 dB = 0.190mW/g

Date: 6/7/2011

Configuration 2_ WLAN802.11n(20M)5.2G_CH48

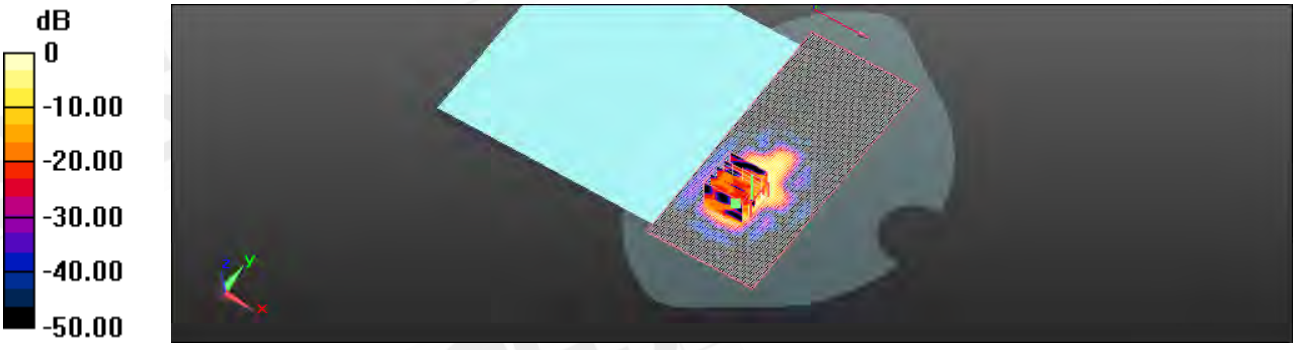
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5240 MHz
Medium parameters used: f = 5240 MHz; σ = 5.386 mho/m; ε_r = 48.253; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(4, 4, 4); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.275 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.989 V/m; Power Drift = 0.078 dB
Peak SAR (extrapolated) = 0.495 W/kg

SAR(1 g) = 0.181 mW/g; SAR(10 g) = 0.062 mW/g
Maximum value of SAR (measured) = 0.207 mW/g



0 dB = 0.210mW/g

Date: 6/7/2011

Configuration 2_ WLAN802.11n(20M)5.2G_CH52

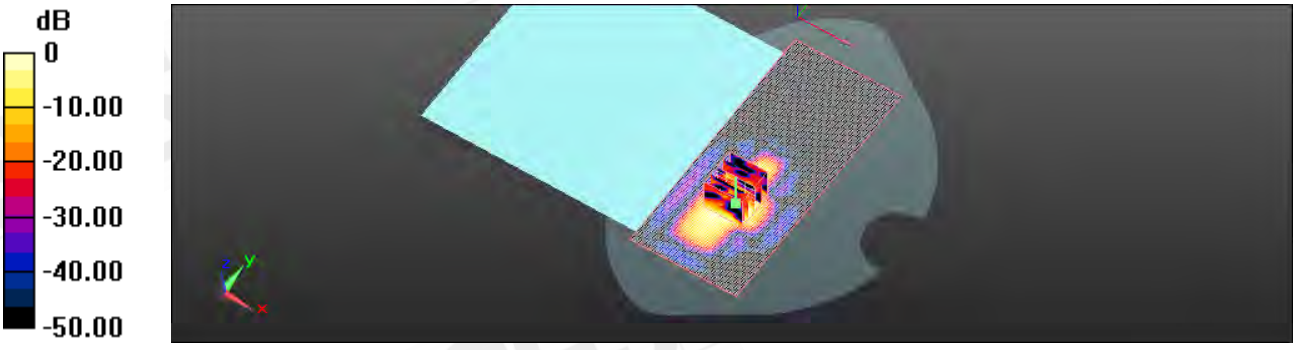
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5260 MHz
Medium parameters used: f = 5260 MHz; σ = 5.422 mho/m; ε_r = 48.196; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.73, 3.73, 3.73); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.496 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.272 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 2.586 W/kg

SAR(1 g) = 0.402 mW/g; SAR(10 g) = 0.132 mW/g
Maximum value of SAR (measured) = 0.415 mW/g



0 dB = 0.410mW/g

Date: 6/7/2011

Configuration 2_ WLAN802.11n(20M)5.2G_CH64

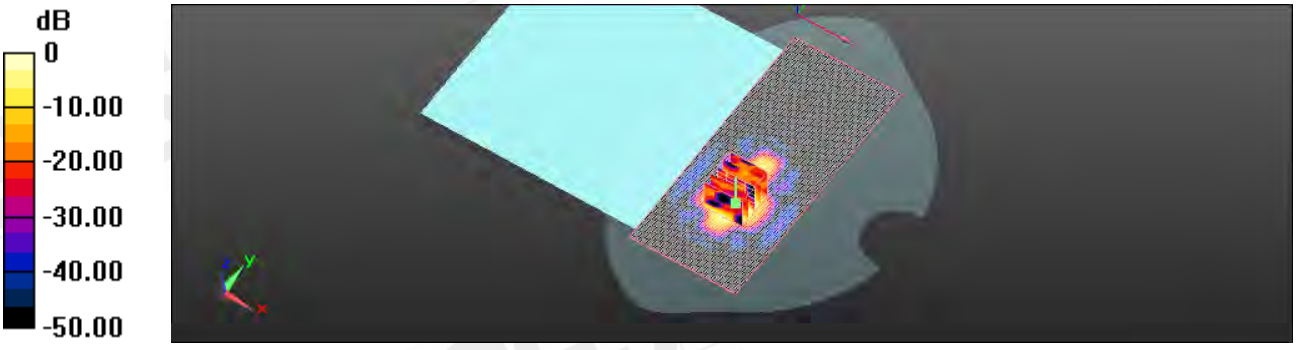
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5320 MHz
Medium parameters used: f = 5320 MHz; σ = 5.529 mho/m; ε_r = 48.047; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.73, 3.73, 3.73); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.387 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.107 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 0.780 W/kg

SAR(1 g) = 0.258 mW/g; SAR(10 g) = 0.088 mW/g
Maximum value of SAR (measured) = 0.314 mW/g



0 dB = 0.310mW/g

Date: 6/7/2011

Configuration 3_ WLAN802.11n(20M)5.2G_CH52

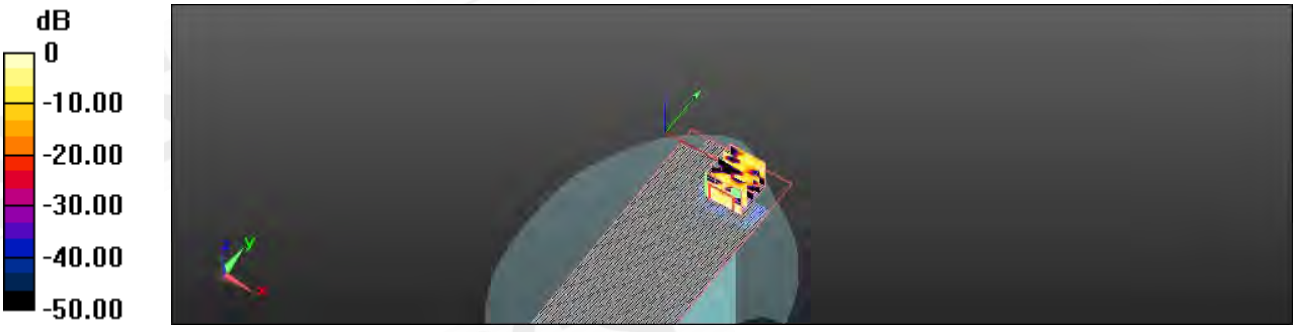
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5260 MHz
Medium parameters used: f = 5260 MHz; σ = 5.422 mho/m; ε_r = 48.196; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.73, 3.73, 3.73); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.00783 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.190 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.025 W/kg

SAR(1 g) = 0.00276 mW/g; SAR(10 g) = 0.000765 mW/g
Maximum value of SAR (measured) = 0.00874 mW/g



0 dB = 0.0087mW/g

Date: 6/7/2011

Configuration 6_ WLAN802.11n(20M)5.2G_CH36

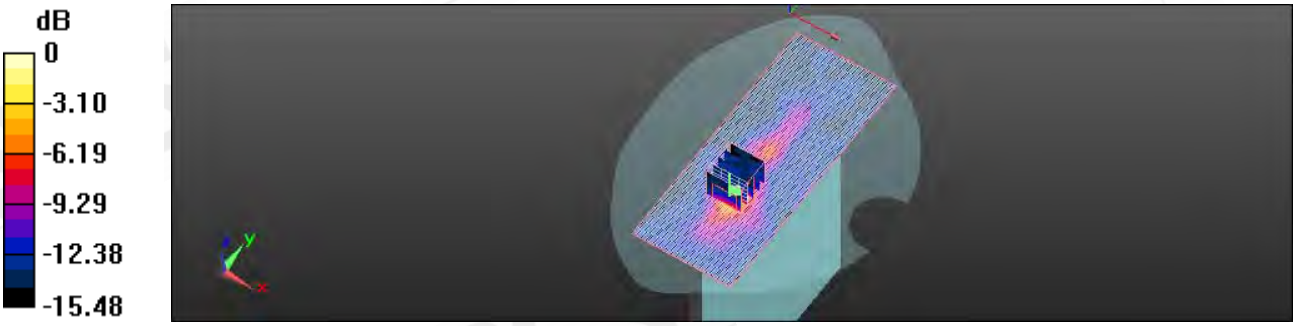
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5180 MHz
Medium parameters used: f = 5180 MHz; σ = 5.273 mho/m; ε_r = 48.384; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(4, 4, 4); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.322 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.701 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.741 W/kg

SAR(1 g) = 0.283 mW/g; SAR(10 g) = 0.103 mW/g
Maximum value of SAR (measured) = 0.394 mW/g



0 dB = 0.390mW/g

Date: 6/7/2011

Configuration 6_ WLAN802.11n(20M)5.2G_CH48

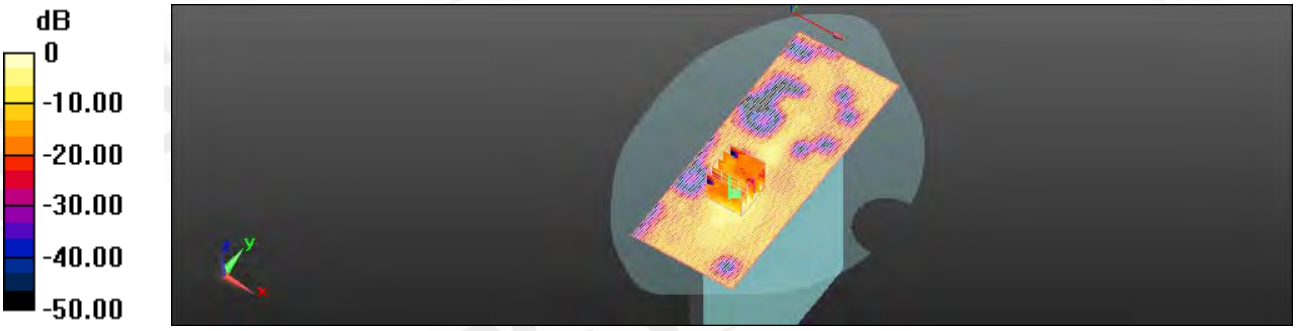
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5240 MHz
Medium parameters used: f = 5240 MHz; σ = 5.386 mho/m; ε_r = 48.253; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(4, 4, 4); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.312 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.131 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 1.538 W/kg

SAR(1 g) = 0.324 mW/g; SAR(10 g) = 0.091 mW/g
Maximum value of SAR (measured) = 0.336 mW/g



0 dB = 0.340mW/g

Date: 6/7/2011

Configuration 6_ WLAN802.11n(20M)5.2G_CH52

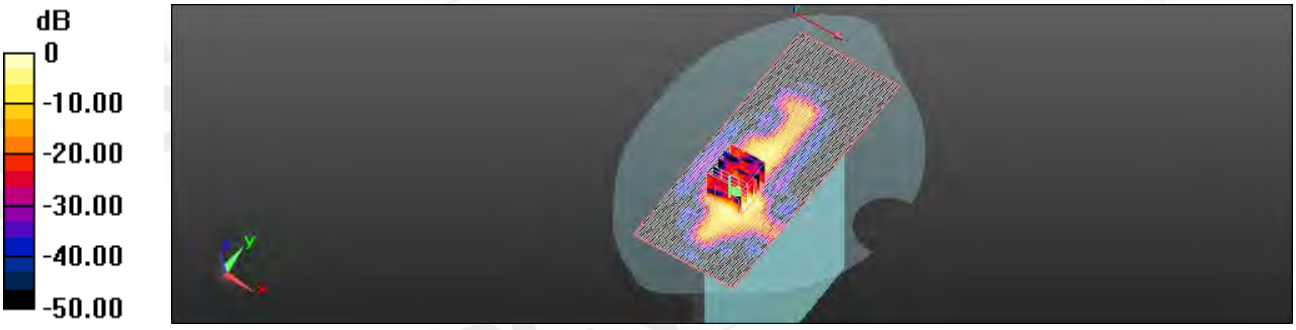
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5260 MHz
Medium parameters used: f = 5260 MHz; σ = 5.422 mho/m; ε_r = 48.196; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.73, 3.73, 3.73); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.621 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.861 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 3.471 W/kg

SAR(1 g) = 0.698 mW/g; SAR(10 g) = 0.209 mW/g
Maximum value of SAR (measured) = 0.653 mW/g



0 dB = 0.650mW/g

Date: 6/7/2011

Configuration 6_ WLAN802.11n(20M)5.2G_CH64

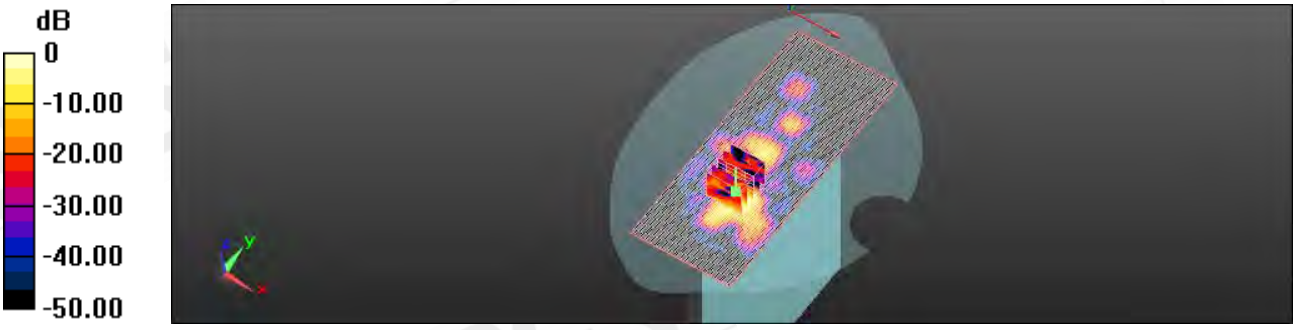
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5320 MHz
Medium parameters used: f = 5320 MHz; σ = 5.529 mho/m; ε_r = 48.047; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.73, 3.73, 3.73); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.554 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.415 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 1.124 W/kg

SAR(1 g) = 0.428 mW/g; SAR(10 g) = 0.122 mW/g
Maximum value of SAR (measured) = 0.504 mW/g



0 dB = 0.500mW/g

Date: 6/8/2011

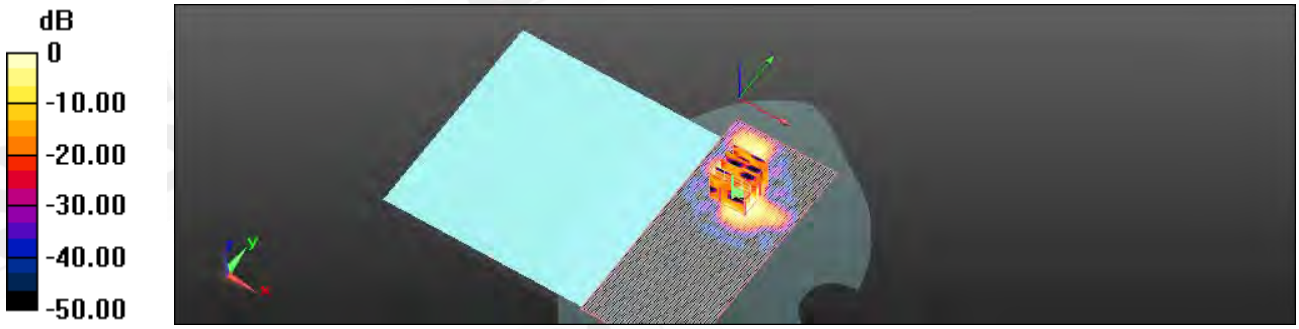
Configuration 1_ WLAN802.11n(20M)5.5G_CH100

Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5500 MHz
Medium parameters used: f = 5500 MHz; σ = 5.757 mho/m; ε_r = 47.595; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.188 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.615 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.446 W/kg
SAR(1 g) = 0.122 mW/g; SAR(10 g) = 0.043 mW/g
Maximum value of SAR (measured) = 0.121 mW/g



0 dB = 0.120mW/g

Date: 6/8/2011

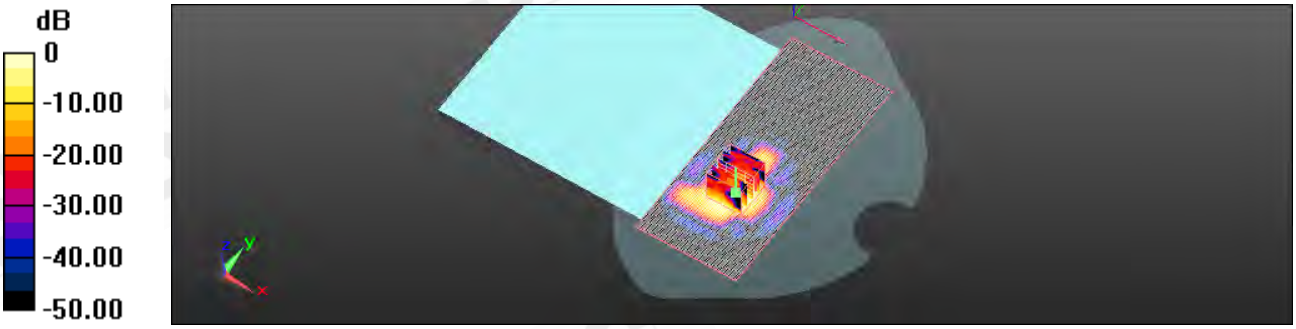
Configuration 2_ WLAN802.11n(20M)5.5G_CH100

Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5500 MHz
Medium parameters used: f = 5500 MHz; σ = 5.757 mho/m; ε_r = 47.595; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.563 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.281 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.875 W/kg
SAR(1 g) = 0.322 mW/g; SAR(10 g) = 0.112 mW/g
Maximum value of SAR (measured) = 0.411 mW/g



0 dB = 0.410mW/g

Date: 6/8/2011

Configuration 3_ WLAN802.11n(20M)5.5G_CH100

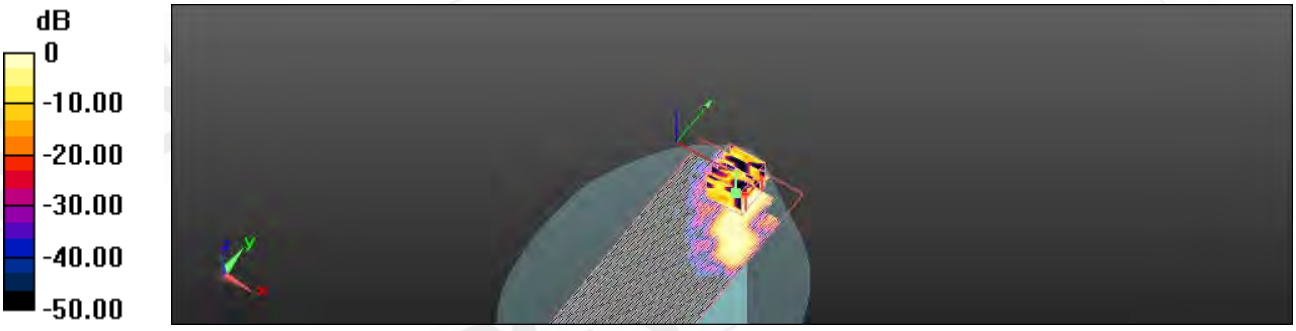
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5500 MHz
Medium parameters used: f = 5500 MHz; σ = 5.757 mho/m; ε_r = 47.595; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.032 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.437 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.097 W/kg

SAR(1 g) = 0.023 mW/g; SAR(10 g) = 0.00878 mW/g
Maximum value of SAR (measured) = 0.024 mW/g



0 dB = 0.020mW/g

Date: 6/8/2011

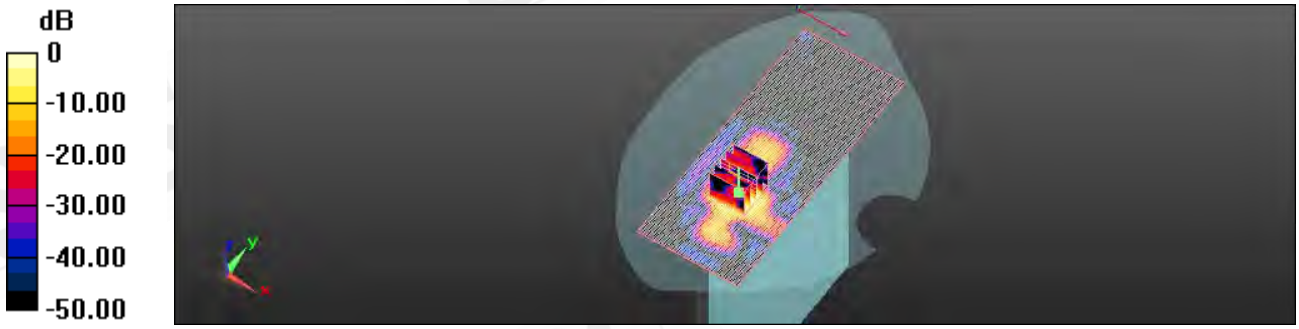
Configuration 6_ WLAN802.11n(20M)5.5G_CH100

Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5500 MHz
Medium parameters used: f = 5500 MHz; σ = 5.757 mho/m; ε_r = 47.595; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.730 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.933 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 1.599 W/kg
SAR(1 g) = 0.580 mW/g; SAR(10 g) = 0.177 mW/g
Maximum value of SAR (measured) = 0.751 mW/g



0 dB = 0.750mW/g

Date: 6/8/2011

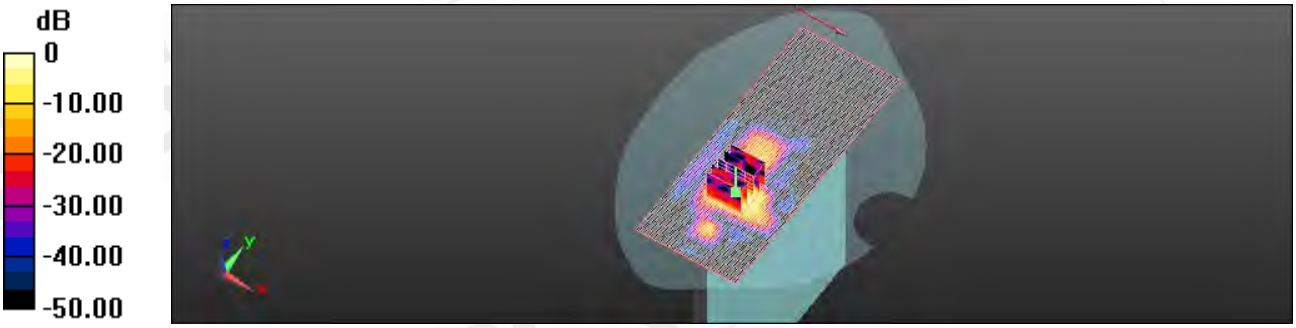
Configuration 6_ WLAN802.11n(20M)5.5G_CH120

Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5600 MHz
Medium parameters used: f = 5600 MHz; σ = 5.911 mho/m; ε_r = 47.396; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.770 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.697 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 2.620 W/kg
SAR(1 g) = 0.690 mW/g; SAR(10 g) = 0.200 mW/g
Maximum value of SAR (measured) = 0.769 mW/g



0 dB = 0.770mW/g

Date: 6/8/2011

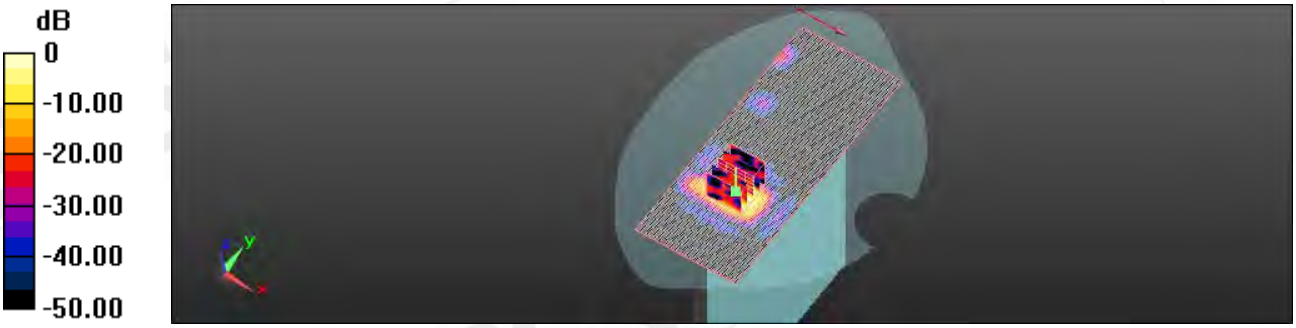
Configuration 6_ WLAN802.11n(20M)5.5G_CH140

Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5700 MHz
Medium parameters used: f = 5700 MHz; σ = 6.059 mho/m; ε_r = 46.989; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.67, 3.67, 3.67); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.589 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.783 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.014 W/kg
SAR(1 g) = 0.364 mW/g; SAR(10 g) = 0.111 mW/g
Maximum value of SAR (measured) = 0.485 mW/g



0 dB = 0.490mW/g

Date: 6/8/2011

Configuration 1_ WLAN802.11n(20M)5.8G_CH149

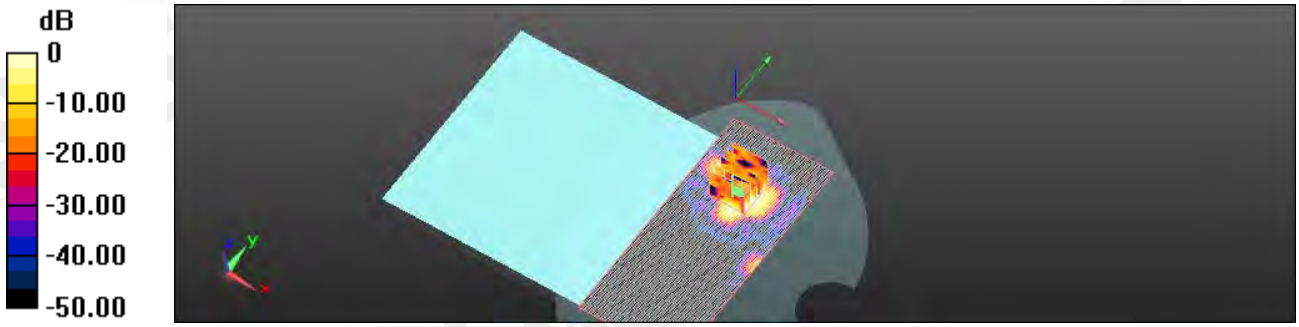
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.107 mho/m; ε_r = 46.867; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.67, 3.67, 3.67); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.232 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.355 V/m; Power Drift = 0.22 dB
Peak SAR (extrapolated) = 0.736 W/kg

SAR(1 g) = 0.167 mW/g; SAR(10 g) = 0.058 mW/g
Maximum value of SAR (measured) = 0.161 mW/g



0 dB = 0.160mW/g

Date: 6/8/2011

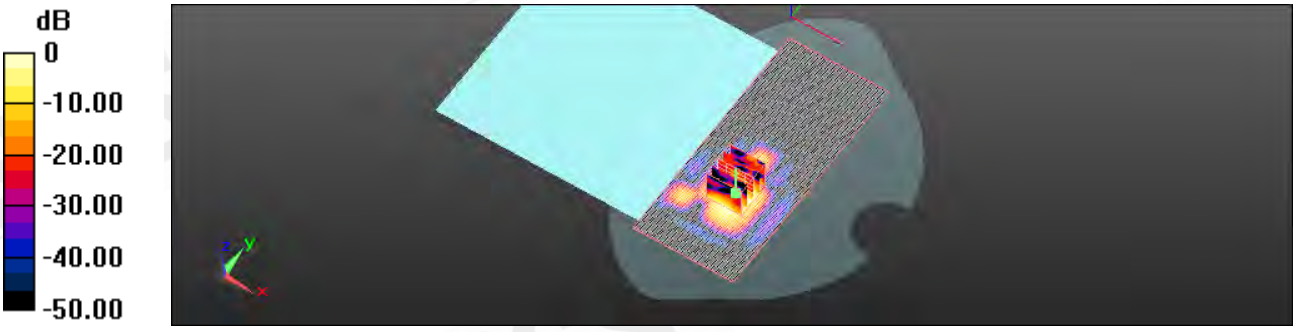
Configuration 2_ WLAN802.11n(20M)5.8G_CH149

Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.107 mho/m; ε_r = 46.867; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.67, 3.67, 3.67); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.621 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.278 V/m; Power Drift = 0.21 dB
Peak SAR (extrapolated) = 1.092 W/kg
SAR(1 g) = 0.366 mW/g; SAR(10 g) = 0.122 mW/g
Maximum value of SAR (measured) = 0.462 mW/g



0 dB = 0.460mW/g

Date: 6/8/2011

Configuration 3_ WLAN802.11n(20M)5.8G_CH149

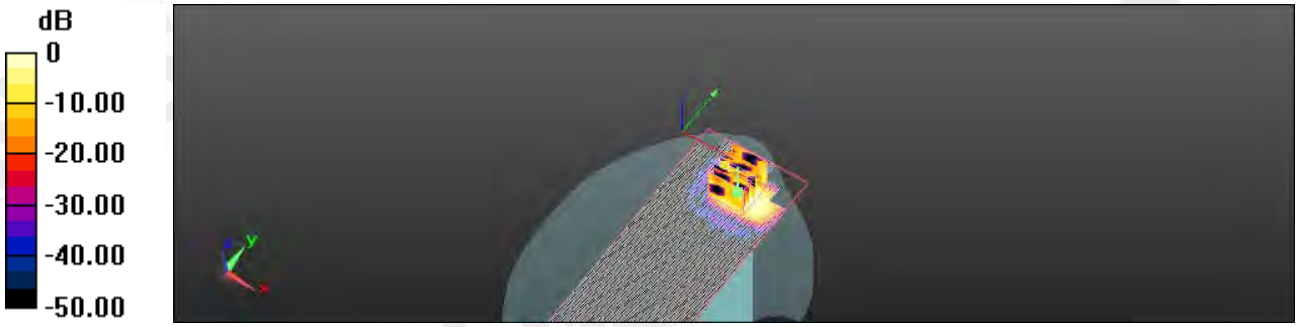
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.107 mho/m; ε_r = 46.867; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.67, 3.67, 3.67); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.120 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.518 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.187 W/kg

SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.017 mW/g
Maximum value of SAR (measured) = 0.049 mW/g



0 dB = 0.050mW/g

Date: 6/8/2011

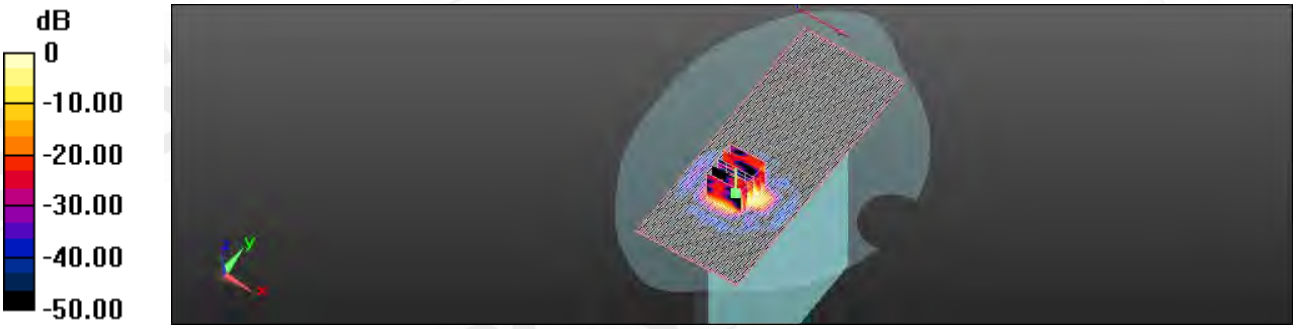
Configuration 6_ WLAN802.11n(20M)5.8G_CH149

Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.107 mho/m; ε_r = 46.867; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.67, 3.67, 3.67); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.981 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.950 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 4.435 W/kg
SAR(1 g) = 0.775 mW/g; SAR(10 g) = 0.241 mW/g
Maximum value of SAR (measured) = 0.735 mW/g



0 dB = 0.730mW/g

Date: 6/7/2011

Configuration 1_ WLAN802.11n(40M)5.2G_CH38

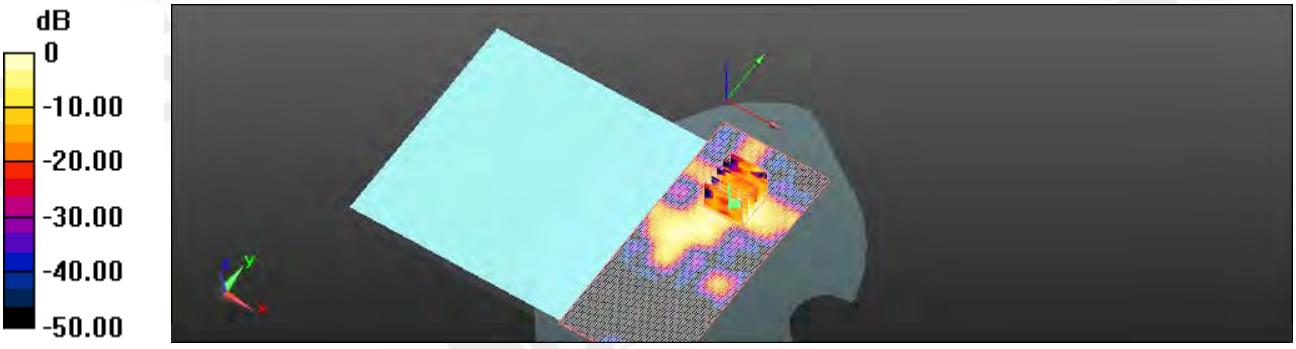
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5190 MHz
Medium parameters used (interpolated): f = 5190 MHz; σ = 5.286 mho/m; ε_r = 48.353; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(4, 4, 4); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.175 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.414 V/m; Power Drift = -0.20 dB
Peak SAR (extrapolated) = 0.409 W/kg

SAR(1 g) = 0.134 mW/g; SAR(10 g) = 0.046 mW/g
Maximum value of SAR (measured) = 0.141 mW/g



0 dB = 0.140mW/g

Date: 6/7/2011

Configuration 2_ WLAN802.11n(40M)5.2G_CH38

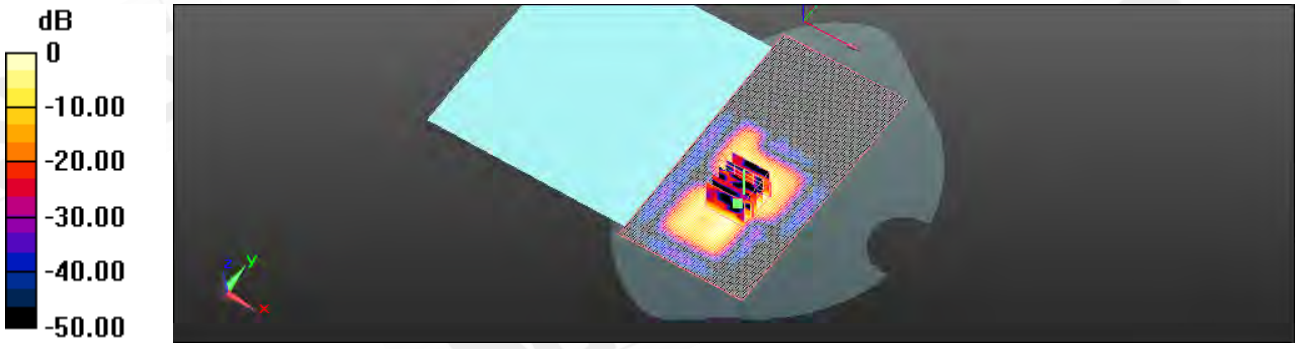
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5190 MHz
Medium parameters used (interpolated): f = 5190 MHz; σ = 5.286 mho/m; ε_r = 48.353; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(4, 4, 4); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.237 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.827 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.960 W/kg

SAR(1 g) = 0.215 mW/g; SAR(10 g) = 0.054 mW/g
Maximum value of SAR (measured) = 0.300 mW/g



0 dB = 0.300mW/g

Date: 6/7/2011

Configuration 3_ WLAN802.11n(40M)5.2G_CH38

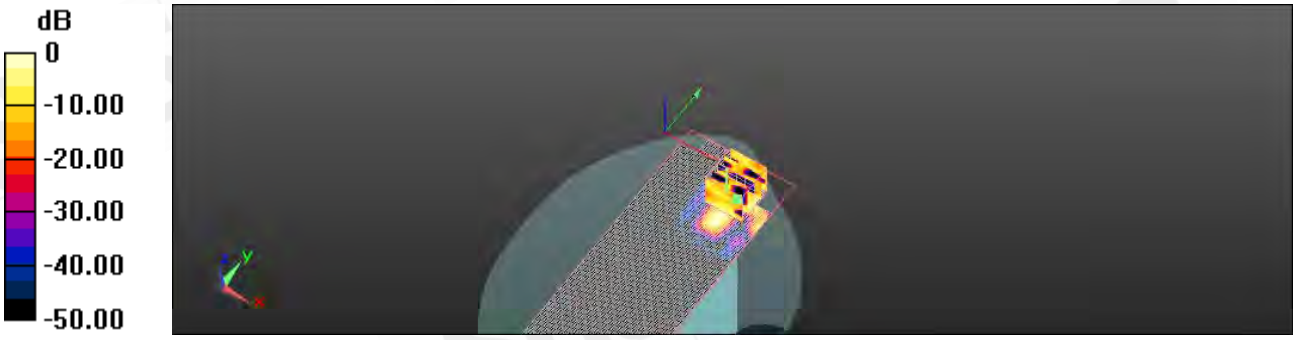
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5190 MHz
Medium parameters used (interpolated): f = 5190 MHz; σ = 5.286 mho/m; ε_r = 48.353; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(4, 4, 4); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.026 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.524 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.106 W/kg

SAR(1 g) = 0.025 mW/g; SAR(10 g) = 0.00927 mW/g
Maximum value of SAR (measured) = 0.025 mW/g



0 dB = 0.030mW/g

Date: 6/7/2011

Configuration 6_ WLAN802.11n(40M)5.2G_CH38

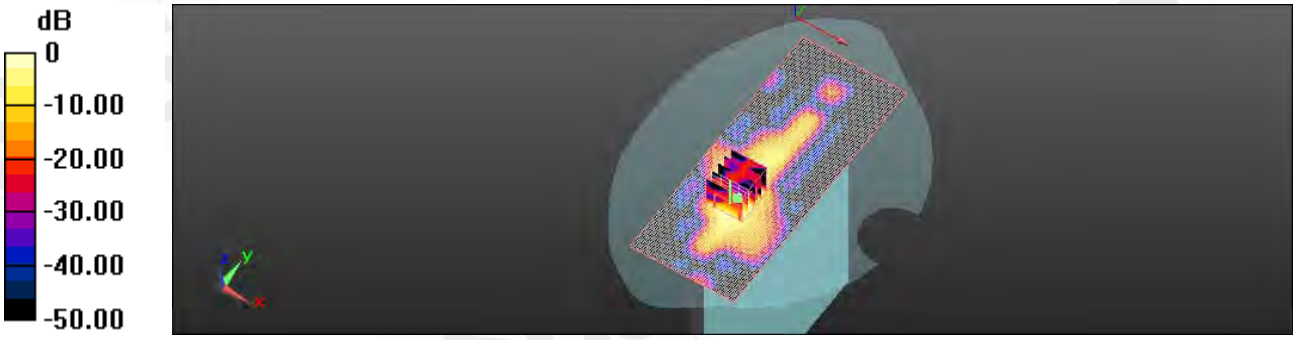
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5190 MHz
Medium parameters used (interpolated): f = 5190 MHz; σ = 5.286 mho/m; ε_r = 48.353; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(4, 4, 4); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.584 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.234 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 1.889 W/kg

SAR(1 g) = 0.577 mW/g; SAR(10 g) = 0.144 mW/g
Maximum value of SAR (measured) = 0.775 mW/g



0 dB = 0.770mW/g

Date: 6/7/2011

Configuration 6_ WLAN802.11n(40M)5.2G_CH46

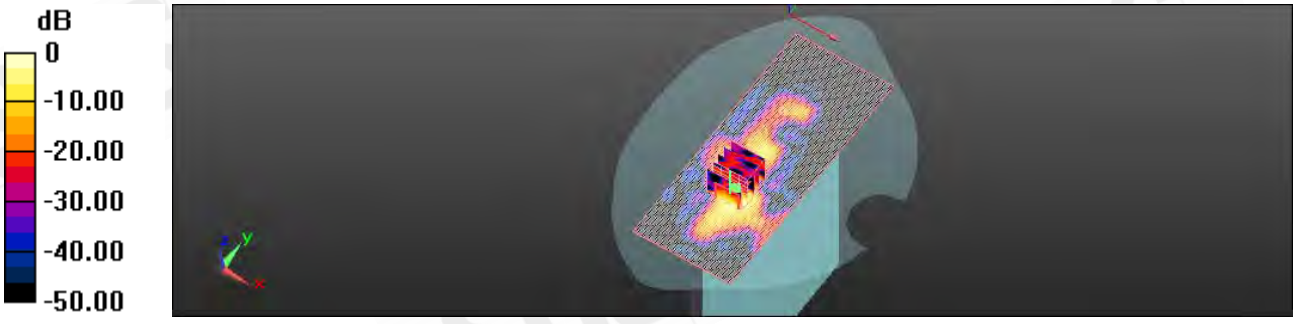
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5230 MHz
Medium parameters used (interpolated): f = 5230 MHz; σ = 5.366 mho/m; ε_r = 48.266; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(4, 4, 4); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.735 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.550 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.551 W/kg

SAR(1 g) = 0.567 mW/g; SAR(10 g) = 0.175 mW/g
Maximum value of SAR (measured) = 0.775 mW/g



0 dB = 0.780mW/g

Date: 6/7/2011

Configuration 6_ WLAN802.11n(40M)5.2G_CH54

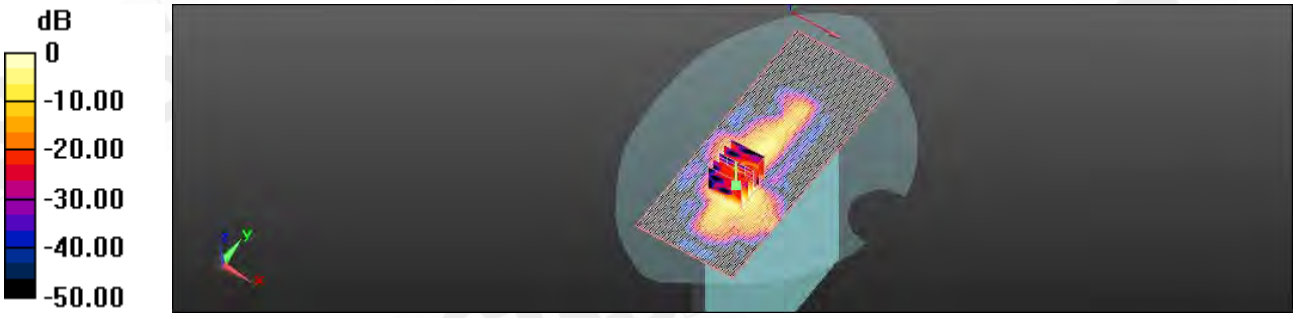
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5270 MHz
Medium parameters used (interpolated): f = 5270 MHz; σ = 5.437 mho/m; ε_r = 48.155; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.73, 3.73, 3.73); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.718 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.217 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.501 W/kg

SAR(1 g) = 0.554 mW/g; SAR(10 g) = 0.169 mW/g
Maximum value of SAR (measured) = 0.637 mW/g



0 dB = 0.640mW/g

Date: 6/7/2011

Configuration 6_ WLAN802.11n(40M)5.2G_CH62

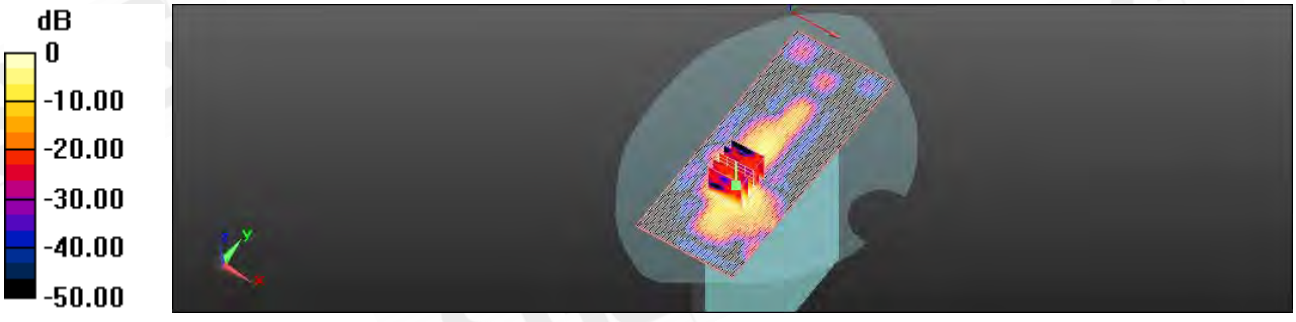
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5310 MHz
Medium parameters used (interpolated): f = 5310 MHz; σ = 5.509 mho/m; ε_r = 48.067; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.73, 3.73, 3.73); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.879 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.355 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 1.826 W/kg

SAR(1 g) = 0.681 mW/g; SAR(10 g) = 0.208 mW/g
Maximum value of SAR (measured) = 0.784 mW/g



0 dB = 0.780mW/g

Date: 6/8/2011

Configuration 1_ WLAN802.11n(40M)5.5G_CH102

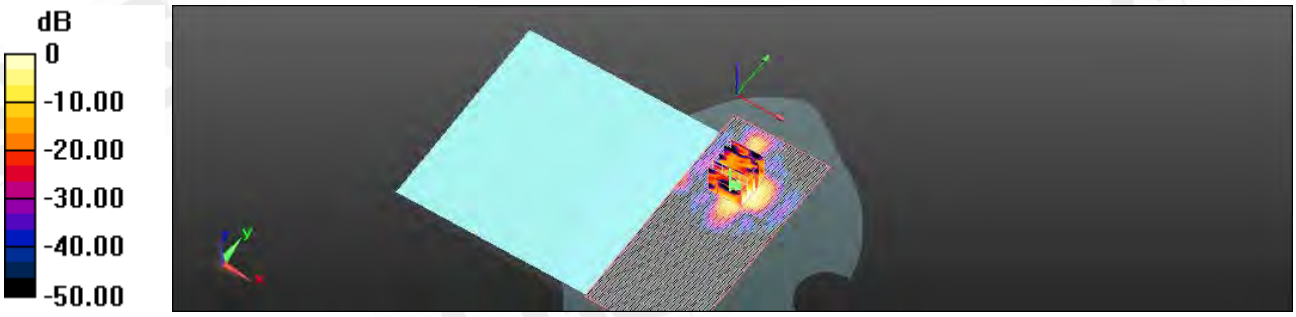
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5510 MHz
Medium parameters used (interpolated): f = 5510 MHz; σ = 5.771 mho/m; ε_r = 47.584; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.262 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.708 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.555 W/kg

SAR(1 g) = 0.160 mW/g; SAR(10 g) = 0.055 mW/g
Maximum value of SAR (measured) = 0.164 mW/g



0 dB = 0.160mW/g

Date: 6/8/2011

Configuration 2_ WLAN802.11n(40M)5.5G_CH102

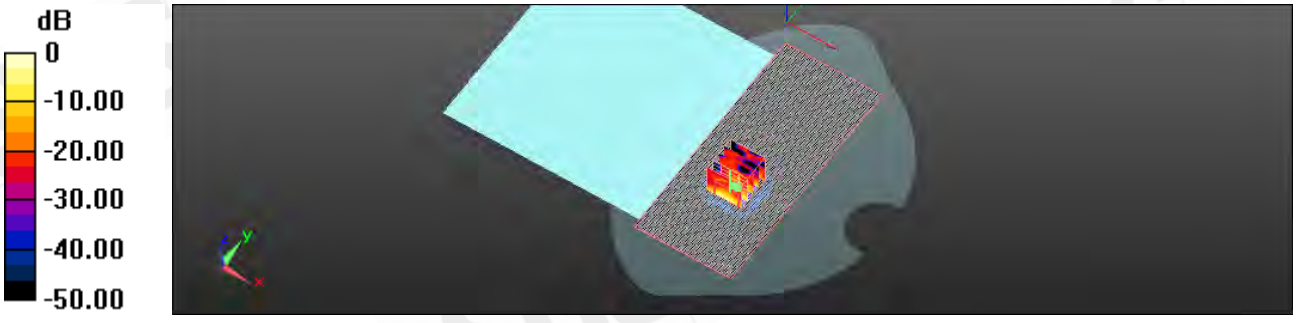
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5510 MHz
Medium parameters used (interpolated): f = 5510 MHz; σ = 5.771 mho/m; ε_r = 47.584; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.358 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.368 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.057 W/kg

SAR(1 g) = 0.405 mW/g; SAR(10 g) = 0.131 mW/g
Maximum value of SAR (measured) = 0.526 mW/g



0 dB = 0.530mW/g

Date: 6/8/2011

Configuration 2_ WLAN802.11n(40M)5.5G_CH118

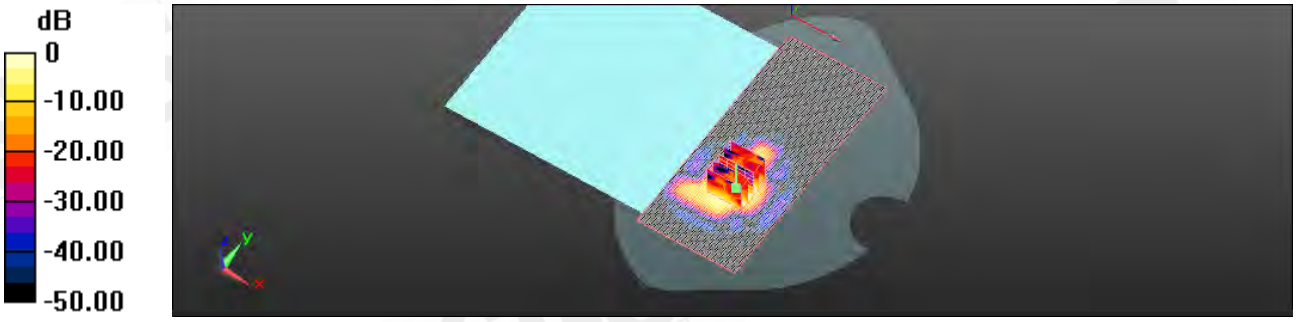
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5590 MHz
Medium parameters used (interpolated): f = 5590 MHz; σ = 5.903 mho/m; ε_r = 47.426; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.710 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.038 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.098 W/kg

SAR(1 g) = 0.395 mW/g; SAR(10 g) = 0.137 mW/g
Maximum value of SAR (measured) = 0.511 mW/g



0 dB = 0.510mW/g

Date: 6/8/2011

Configuration 2_ WLAN802.11n(40M)5.5G_CH134

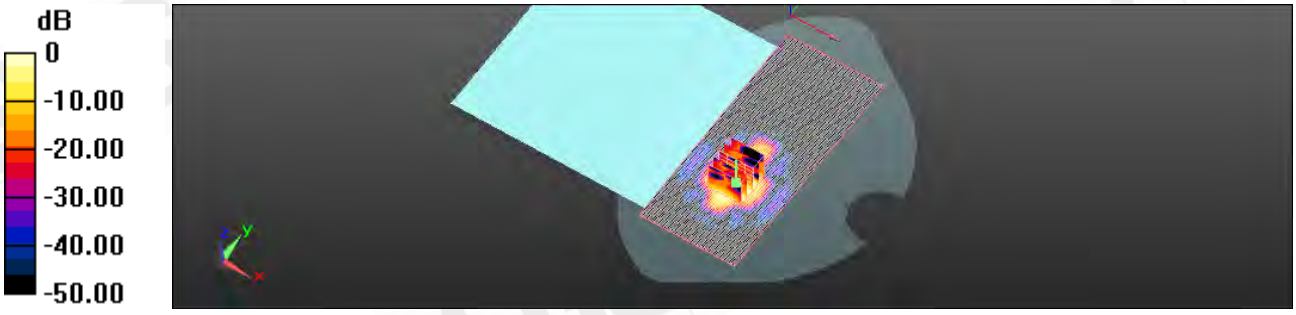
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5670 MHz
Medium parameters used (interpolated): f = 5670 MHz; σ = 6.019 mho/m; ε_r = 46.988; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.643 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.390 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.907 W/kg

SAR(1 g) = 0.324 mW/g; SAR(10 g) = 0.111 mW/g
Maximum value of SAR (measured) = 0.426 mW/g



0 dB = 0.430mW/g

Date: 6/8/2011

Configuration 3_ WLAN802.11n(40M)5.5G_CH102

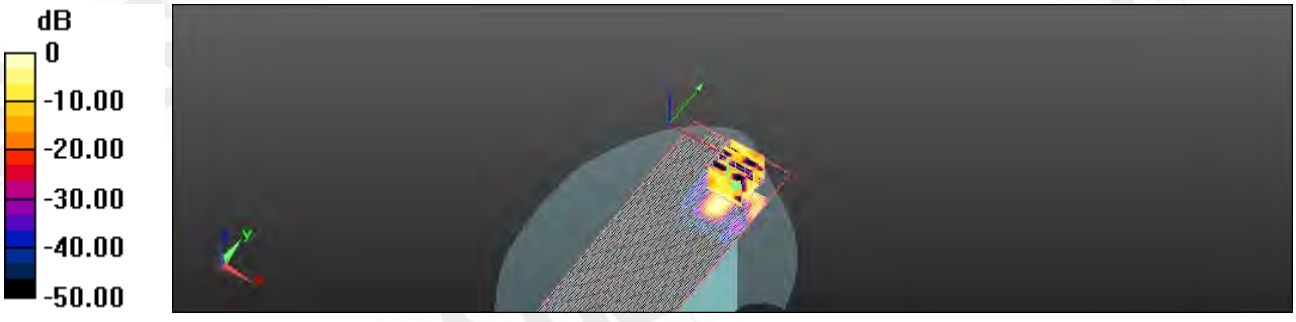
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5510 MHz
Medium parameters used (interpolated): f = 5510 MHz; σ = 5.771 mho/m; ε_r = 47.584; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.032 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.559 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.129 W/kg

SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.011 mW/g
Maximum value of SAR (measured) = 0.031 mW/g



0 dB = 0.030mW/g

Date: 6/8/2011

Configuration 6_ WLAN802.11n(40M)5.5G_CH102

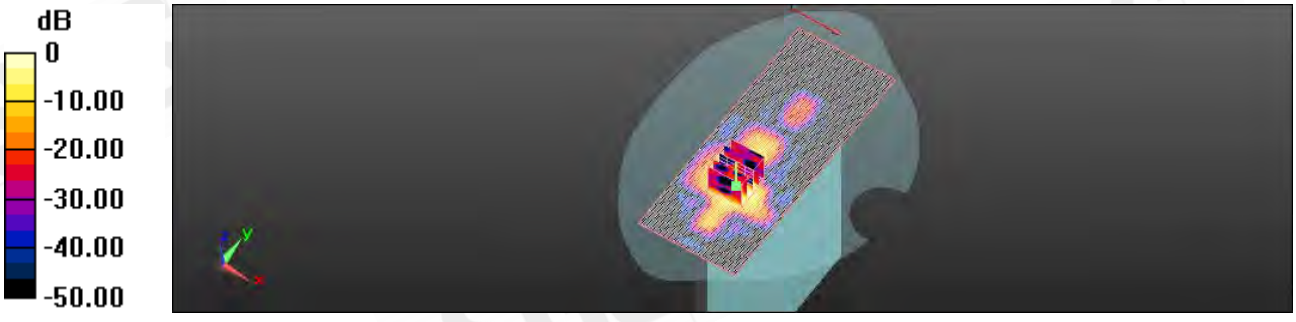
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5510 MHz
Medium parameters used (interpolated): f = 5510 MHz; σ = 5.771 mho/m; ε_r = 47.584; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.946 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.184 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.805 W/kg

SAR(1 g) = 0.649 mW/g; SAR(10 g) = 0.197 mW/g
Maximum value of SAR (measured) = 0.840 mW/g



0 dB = 0.840mW/g

Date: 6/8/2011

Configuration 6_ WLAN802.11n(40M)5.5G_CH118

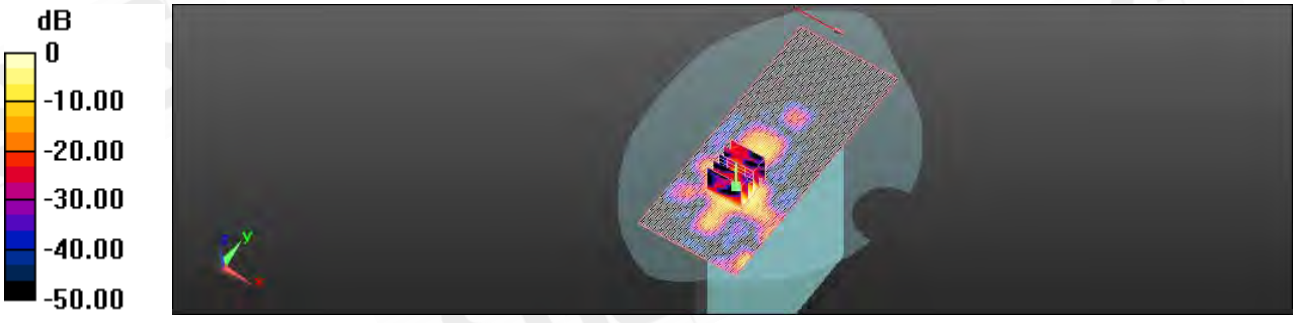
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5590 MHz
Medium parameters used (interpolated): f = 5590 MHz; σ = 5.903 mho/m; ε_r = 47.426; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

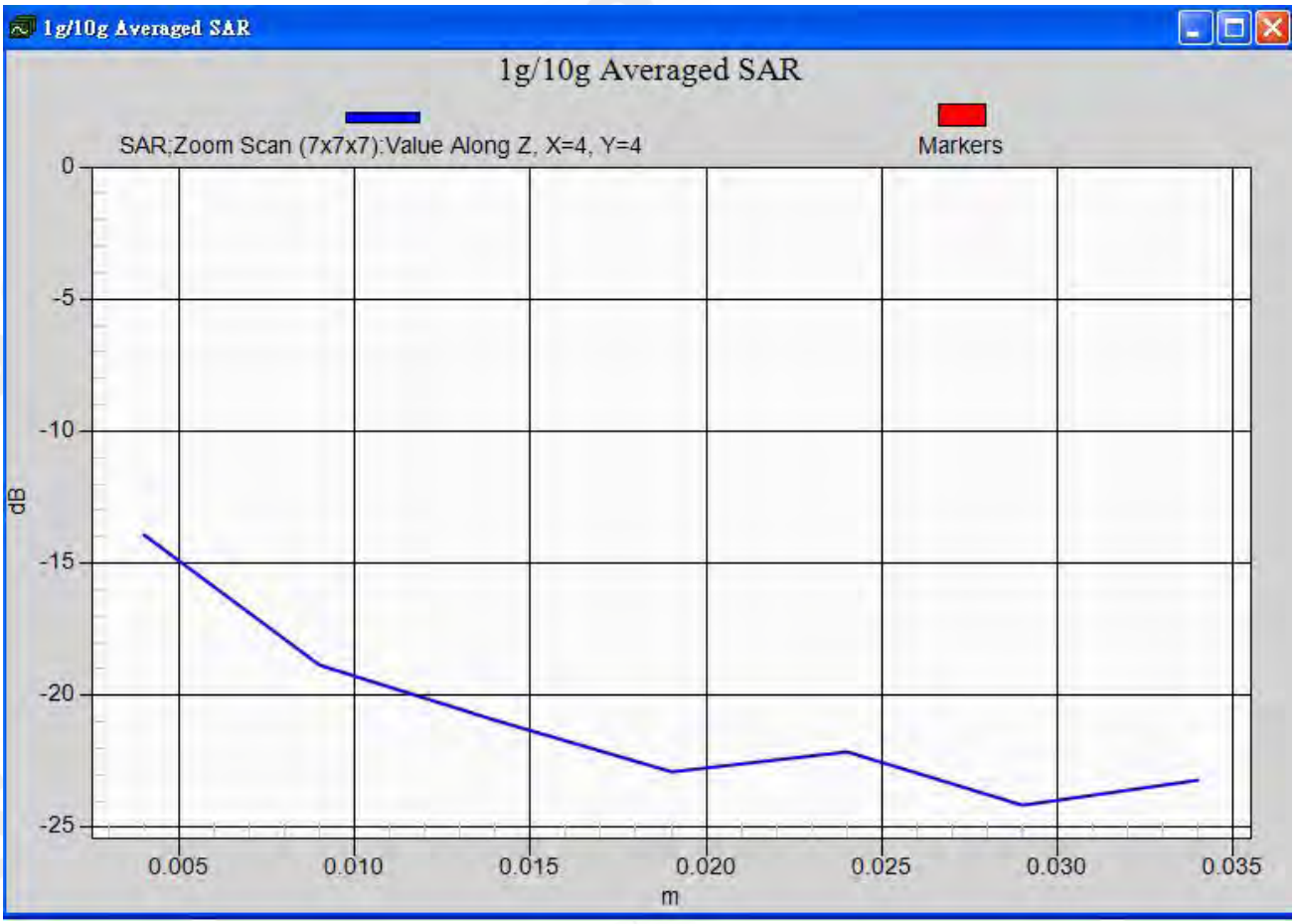
Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.980 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.415 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 4.913 W/kg

SAR(1 g) = 0.965 mW/g; SAR(10 g) = 0.284 mW/g
Maximum value of SAR (measured) = 0.900 mW/g



0 dB = 0.900mW/g



Date: 6/8/2011

Configuration 6_ WLAN802.11n(40M)5.5G_CH134

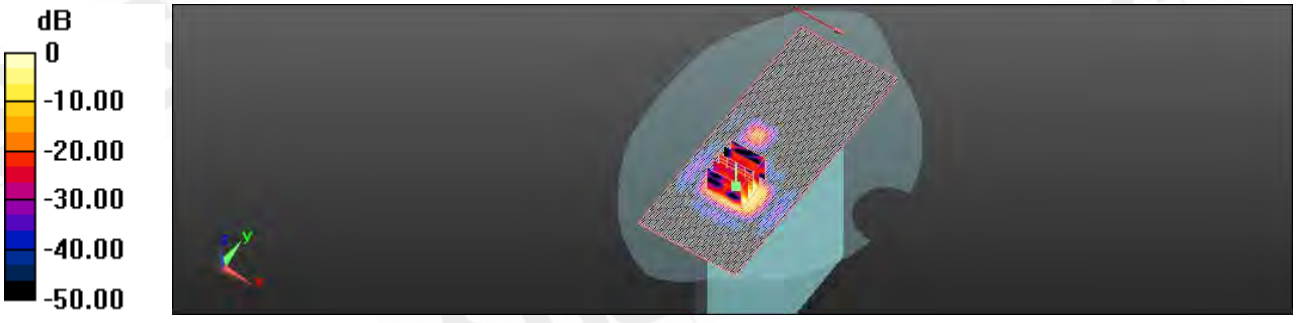
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5670 MHz
Medium parameters used (interpolated): f = 5670 MHz; σ = 6.019 mho/m; ε_r = 46.988; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.908 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.308 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 1.368 W/kg

SAR(1 g) = 0.495 mW/g; SAR(10 g) = 0.153 mW/g
Maximum value of SAR (measured) = 0.665 mW/g



0 dB = 0.660mW/g

Date: 6/8/2011

Configuration 1_ WLAN802.11n(40M)5.8G_CH151

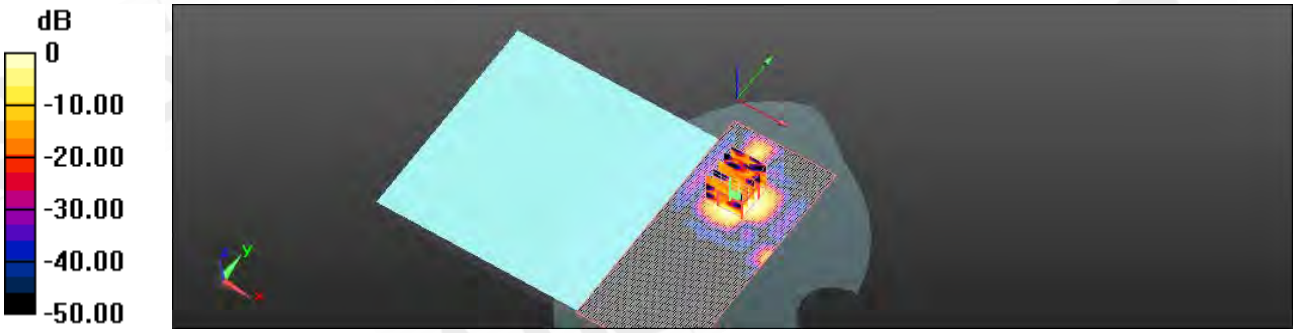
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5755 MHz
Medium parameters used (interpolated): f = 5755 MHz; σ = 6.125 mho/m; ε_r = 46.806; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.67, 3.67, 3.67); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.246 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.681 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.649 W/kg

SAR(1 g) = 0.162 mW/g; SAR(10 g) = 0.058 mW/g
Maximum value of SAR (measured) = 0.156 mW/g



0 dB = 0.160mW/g

Date: 6/8/2011

Configuration 2_ WLAN802.11n(40M)5.8G_CH151

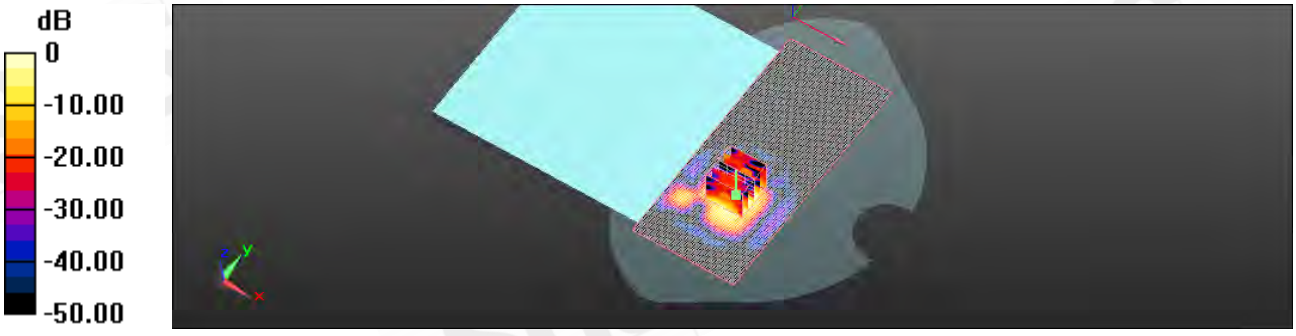
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5755 MHz
Medium parameters used (interpolated): f = 5755 MHz; σ = 6.125 mho/m; ε_r = 46.806; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.67, 3.67, 3.67); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.713 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.602 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 1.113 W/kg

SAR(1 g) = 0.391 mW/g; SAR(10 g) = 0.134 mW/g
Maximum value of SAR (measured) = 0.508 mW/g



0 dB = 0.510mW/g

Date: 6/8/2011

Configuration 3_ WLAN802.11n(40M)5.8G_CH151

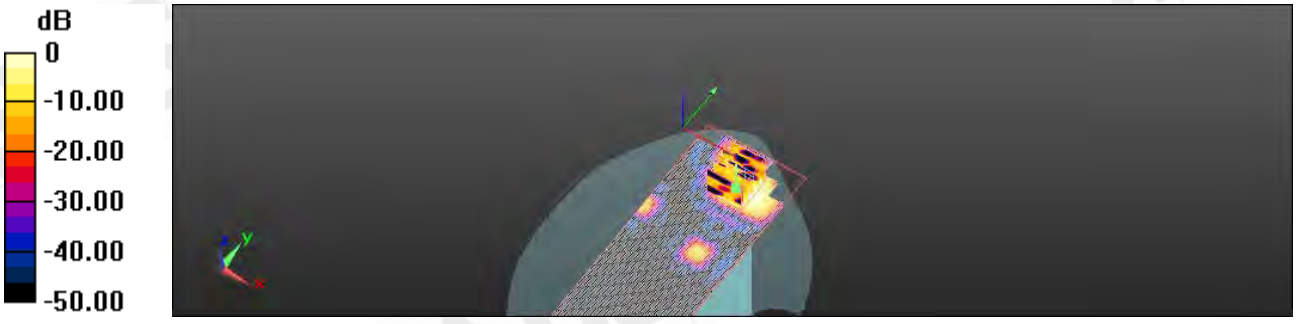
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5755 MHz
Medium parameters used (interpolated): f = 5755 MHz; σ = 6.125 mho/m; ε_r = 46.806; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.67, 3.67, 3.67); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.120 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.452 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.245 W/kg

SAR(1 g) = 0.057 mW/g; SAR(10 g) = 0.019 mW/g
Maximum value of SAR (measured) = 0.049 mW/g



0 dB = 0.050mW/g

Date: 6/8/2011

Configuration 6_ WLAN802.11n(40M)5.8G_CH151

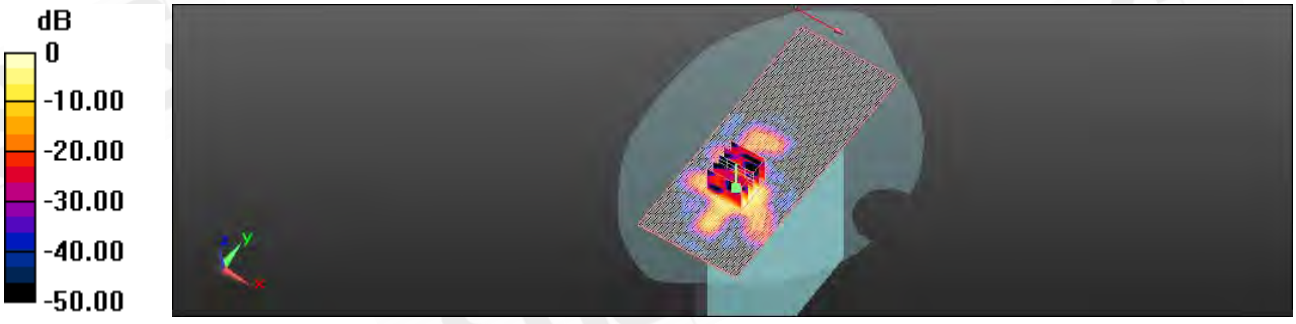
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5755 MHz
Medium parameters used (interpolated): f = 5755 MHz; σ = 6.125 mho/m; ε_r = 46.806; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.67, 3.67, 3.67); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.954 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.227 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 1.584 W/kg

SAR(1 g) = 0.559 mW/g; SAR(10 g) = 0.176 mW/g
Maximum value of SAR (measured) = 0.745 mW/g



0 dB = 0.740mW/g

Date: 6/7/2011

Configuration 1_ WLAN802.11a 5.2G_CH52

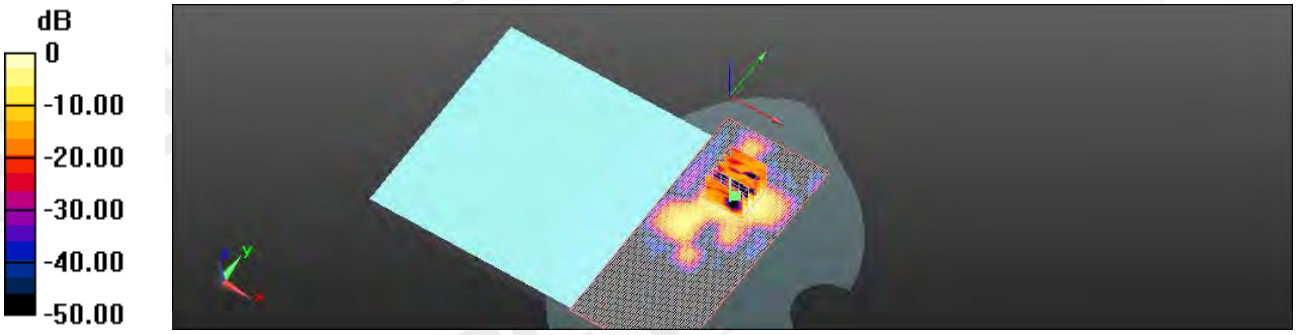
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5260 MHz
Medium parameters used: f = 5260 MHz; σ = 5.422 mho/m; ε_r = 48.196; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.73, 3.73, 3.73); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.159 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.350 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.537 W/kg

SAR(1 g) = 0.135 mW/g; SAR(10 g) = 0.045 mW/g
Maximum value of SAR (measured) = 0.138 mW/g



0 dB = 0.140mW/g

Date: 6/7/2011

Configuration 2_ WLAN802.11a 5.2G_CH36

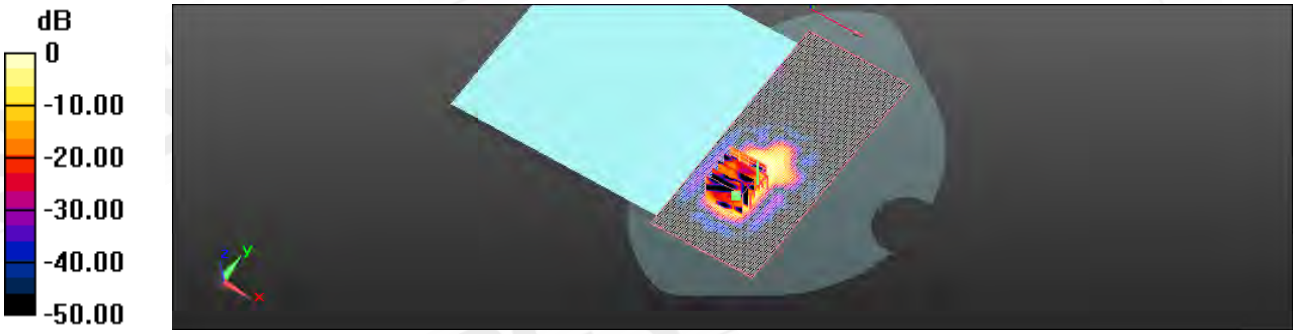
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5180 MHz
Medium parameters used: f = 5180 MHz; σ = 5.273 mho/m; ε_r = 48.384; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(4, 4, 4); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.322 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.099 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.444 W/kg

SAR(1 g) = 0.159 mW/g; SAR(10 g) = 0.057 mW/g
Maximum value of SAR (measured) = 0.186 mW/g



0 dB = 0.190mW/g

Date: 6/7/2011

Configuration 2_ WLAN802.11a 5.2G_CH48

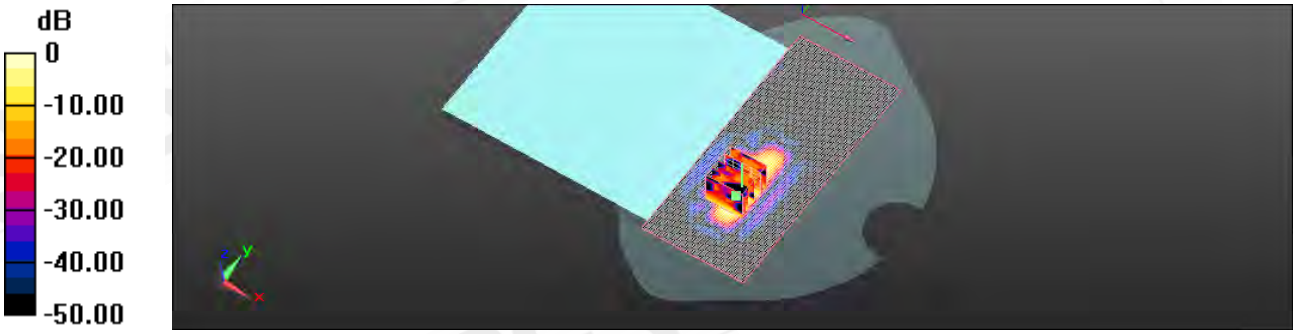
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5240 MHz
Medium parameters used: f = 5240 MHz; σ = 5.386 mho/m; ε_r = 48.253; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(4, 4, 4); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.265 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.843 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.568 W/kg

SAR(1 g) = 0.194 mW/g; SAR(10 g) = 0.067 mW/g
Maximum value of SAR (measured) = 0.210 mW/g



0 dB = 0.210mW/g

Date: 6/7/2011

Configuration 2_ WLAN802.11a 5.2G_CH52

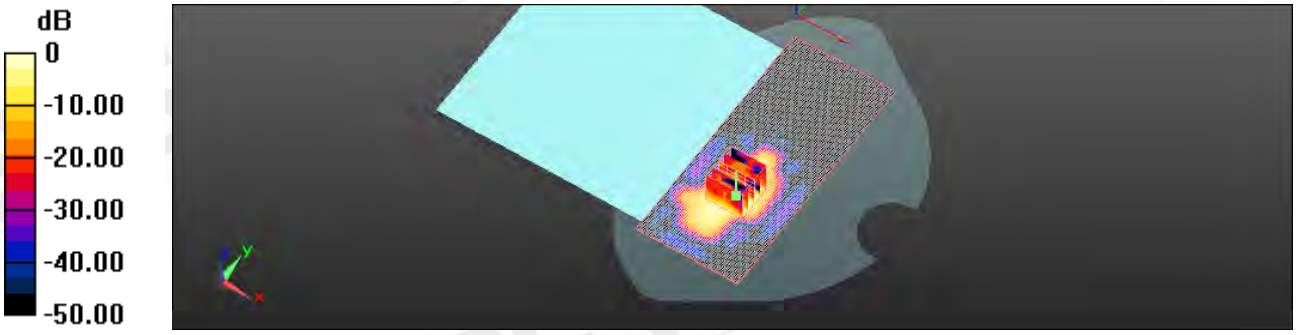
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5260 MHz
Medium parameters used: f = 5260 MHz; σ = 5.422 mho/m; ε_r = 48.196; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.73, 3.73, 3.73); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.477 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.396 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 2.386 W/kg

SAR(1 g) = 0.425 mW/g; SAR(10 g) = 0.143 mW/g
Maximum value of SAR (measured) = 0.445 mW/g



0 dB = 0.440mW/g

Date: 6/7/2011

Configuration 2_ WLAN802.11a 5.2G_CH64

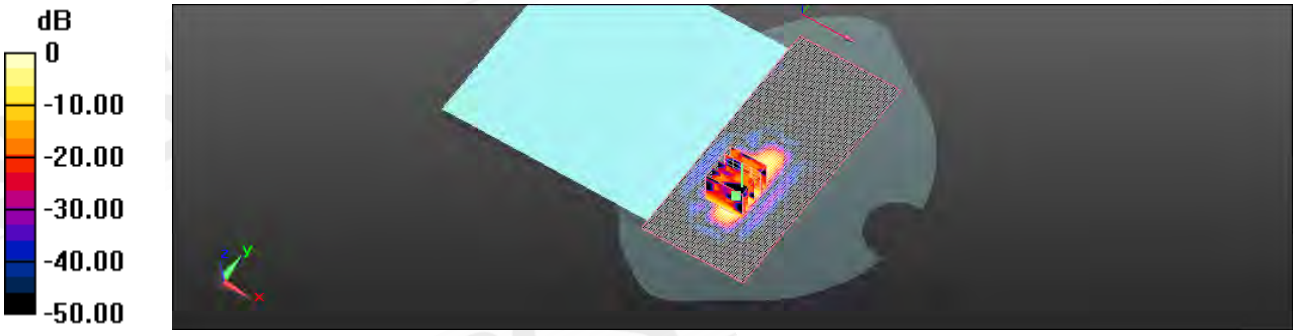
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5320 MHz
Medium parameters used: f = 5320 MHz; σ = 5.529 mho/m; ε_r = 48.047; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.73, 3.73, 3.73); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.381 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.933 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.715 W/kg

SAR(1 g) = 0.260 mW/g; SAR(10 g) = 0.090 mW/g
Maximum value of SAR (measured) = 0.308 mW/g



0 dB = 0.210mW/g

Date: 6/7/2011

Configuration 3_ WLAN802.11a 5.2G_CH52

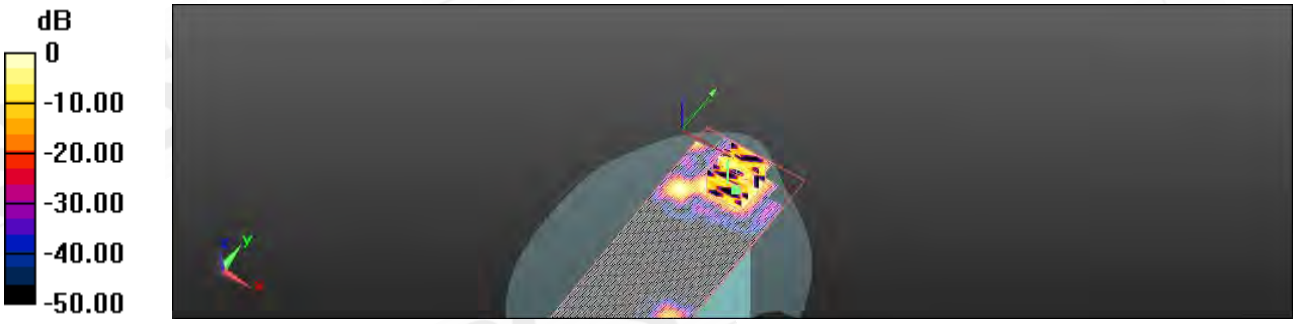
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5260 MHz
Medium parameters used: f = 5260 MHz; σ = 5.422 mho/m; ε_r = 48.196; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.73, 3.73, 3.73); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.028 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.556 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 0.045 W/kg

SAR(1 g) = 0.00929 mW/g; SAR(10 g) = 0.00228 mW/g
Maximum value of SAR (measured) = 0.012 mW/g



0 dB = 0.010mW/g

Date: 6/7/2011

Configuration 6_ WLAN802.11a 5.2G_CH36

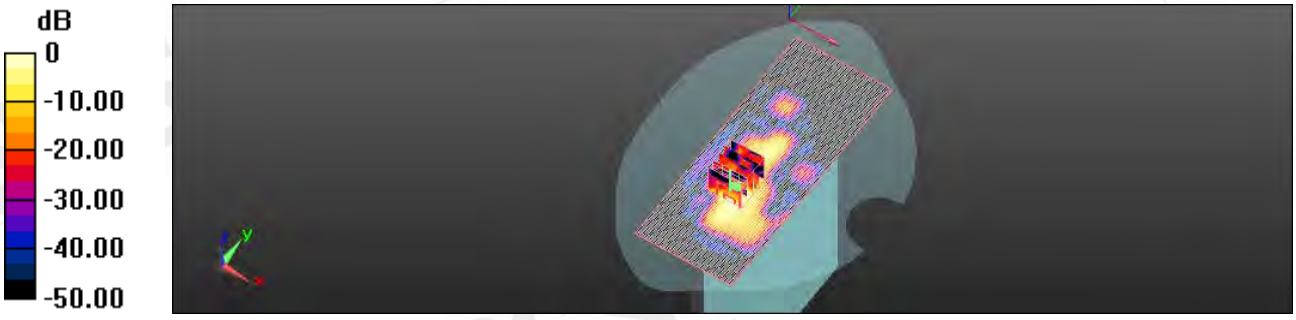
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5180 MHz
Medium parameters used: f = 5180 MHz; σ = 5.273 mho/m; ε_r = 48.384; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(4, 4, 4); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.359 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.226 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.730 W/kg

SAR(1 g) = 0.268 mW/g; SAR(10 g) = 0.080 mW/g
Maximum value of SAR (measured) = 0.287 mW/g



0 dB = 0.290mW/g

Date: 6/7/2011

Configuration 6_ WLAN802.11a 5.2G_CH48

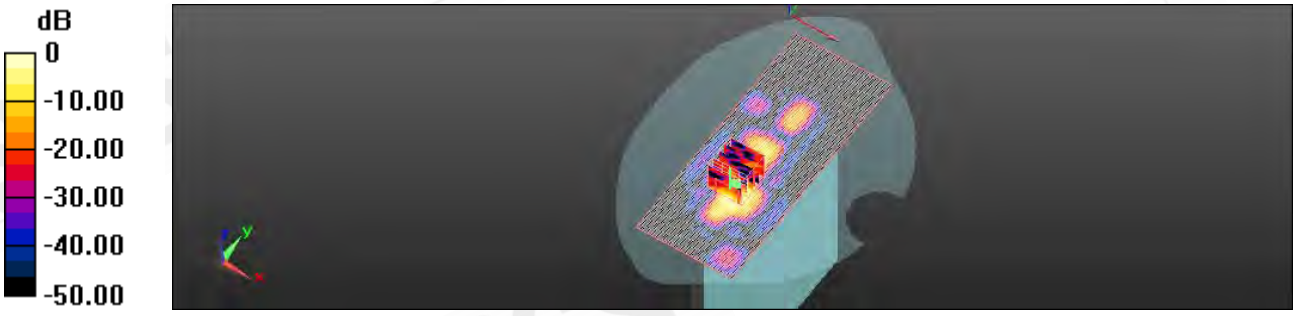
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5240 MHz
Medium parameters used: f = 5240 MHz; σ = 5.386 mho/m; ε_r = 48.253; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(4, 4, 4); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.306 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.454 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.704 W/kg

SAR(1 g) = 0.265 mW/g; SAR(10 g) = 0.077 mW/g
Maximum value of SAR (measured) = 0.358 mW/g



0 dB = 0.360mW/g

Date: 6/7/2011

Configuration 6_ WLAN802.11a 5.2G_CH52

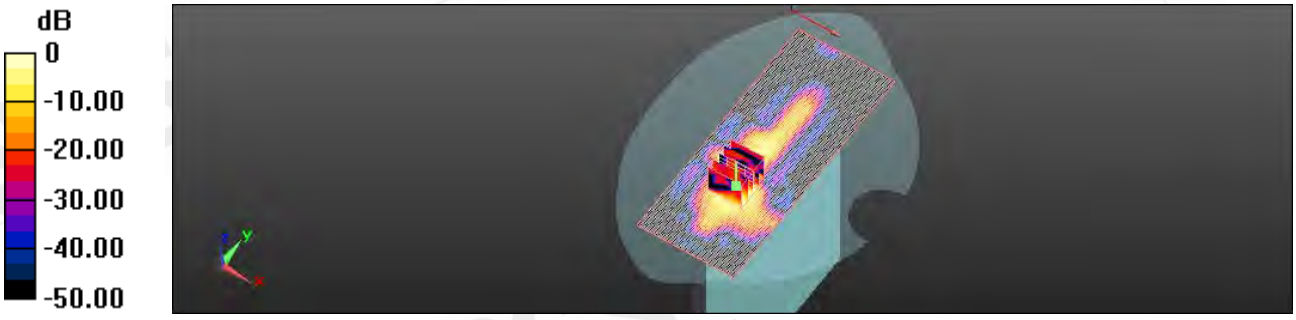
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5260 MHz
Medium parameters used: f = 5260 MHz; σ = 5.422 mho/m; ε_r = 48.196; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.73, 3.73, 3.73); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.631 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.992 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 1.510 W/kg

SAR(1 g) = 0.561 mW/g; SAR(10 g) = 0.171 mW/g
Maximum value of SAR (measured) = 0.661 mW/g



0 dB = 0.660mW/g

Date: 6/7/2011

Configuration 6_ WLAN802.11a 5.2G_CH64

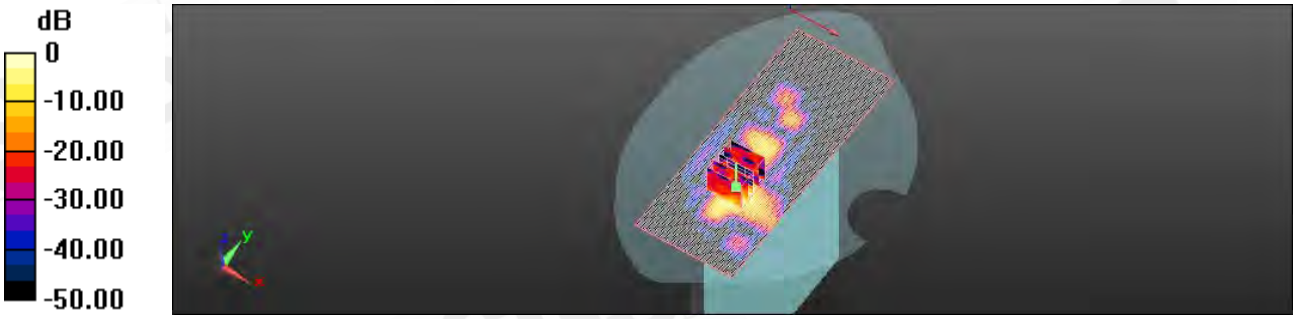
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5320 MHz
Medium parameters used: f = 5320 MHz; σ = 5.529 mho/m; ε_r = 48.047; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.73, 3.73, 3.73); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.477 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.884 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.168 W/kg

SAR(1 g) = 0.431 mW/g; SAR(10 g) = 0.129 mW/g
Maximum value of SAR (measured) = 0.507 mW/g



0 dB = 0.510mW/g

Date: 6/8/2011

Configuration 1_ WLAN802.11a 5.5G_CH104

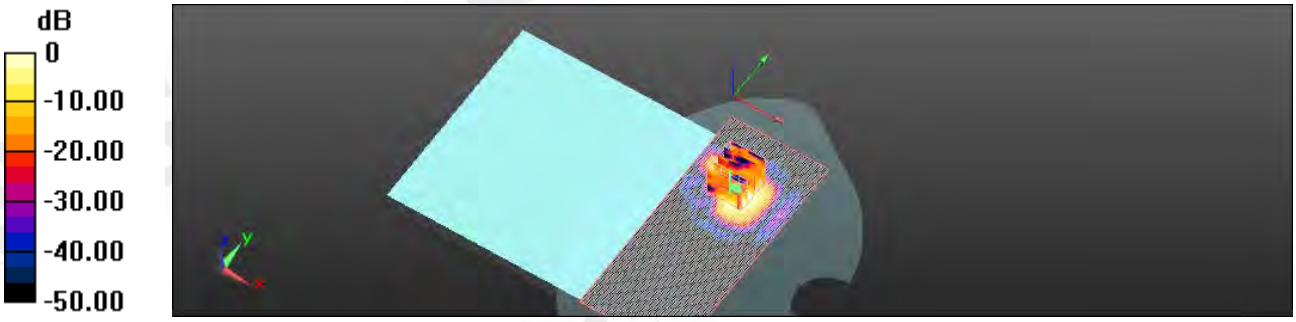
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5520 MHz
Medium parameters used: f = 5520 MHz; σ = 5.786 mho/m; ε_r = 47.573; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.184 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.691 V/m; Power Drift = -0.21 dB
Peak SAR (extrapolated) = 0.536 W/kg

SAR(1 g) = 0.133 mW/g; SAR(10 g) = 0.046 mW/g
Maximum value of SAR (measured) = 0.143 mW/g



0 dB = 0.140mW/g

Date: 6/8/2011

Configuration 2_ WLAN802.11a 5.5G_CH104

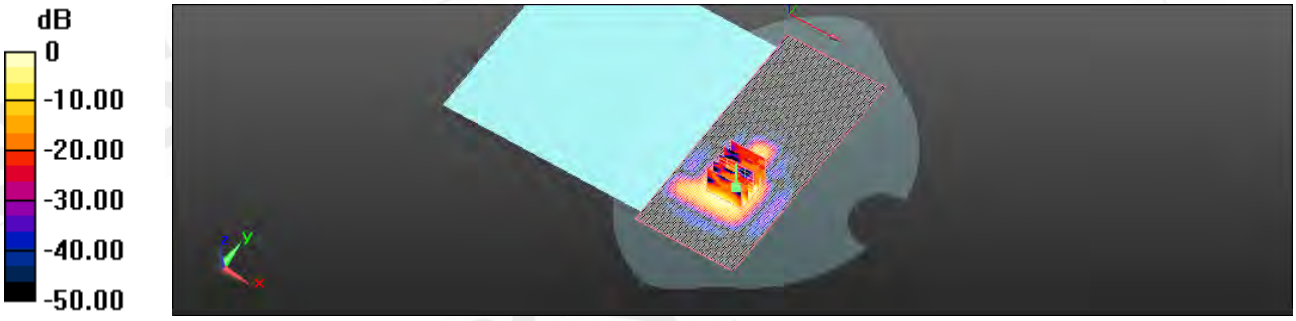
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5520 MHz
Medium parameters used: f = 5520 MHz; σ = 5.786 mho/m; ε_r = 47.573; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.583 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.435 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.952 W/kg

SAR(1 g) = 0.350 mW/g; SAR(10 g) = 0.122 mW/g
Maximum value of SAR (measured) = 0.453 mW/g



0 dB = 0.450mW/g

Date: 6/8/2011

Configuration 3_ WLAN802.11a 5.5G_CH104

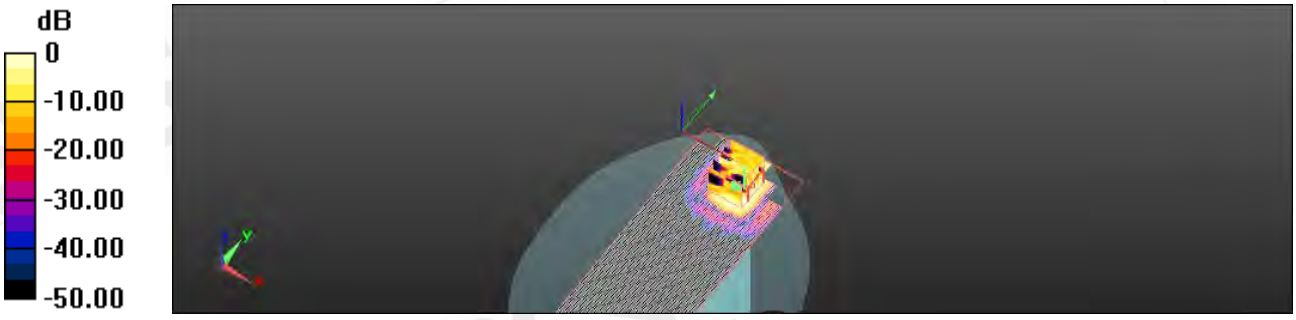
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5520 MHz
Medium parameters used: f = 5520 MHz; σ = 5.786 mho/m; ε_r = 47.573; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.035 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.312 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 0.163 W/kg

SAR(1 g) = 0.034 mW/g; SAR(10 g) = 0.011 mW/g
Maximum value of SAR (measured) = 0.031 mW/g



0 dB = 0.030mW/g

Date: 6/8/2011

Configuration 6_ WLAN802.11a 5.5G_CH104

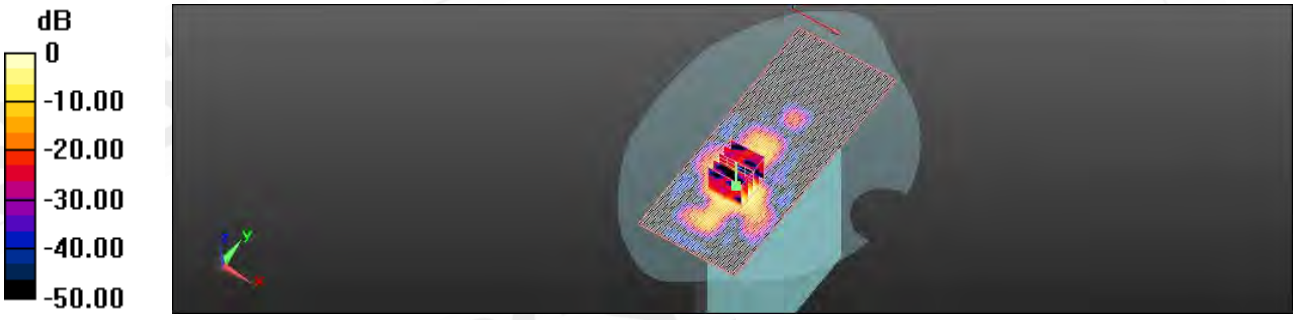
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5520 MHz
Medium parameters used: f = 5520 MHz; σ = 5.786 mho/m; ε_r = 47.573; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.802 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.995 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 1.695 W/kg

SAR(1 g) = 0.626 mW/g; SAR(10 g) = 0.188 mW/g
Maximum value of SAR (measured) = 0.818 mW/g



0 dB = 0.820mW/g

Date: 6/8/2011

Configuration 6_ WLAN802.11a 5.5G_CH116

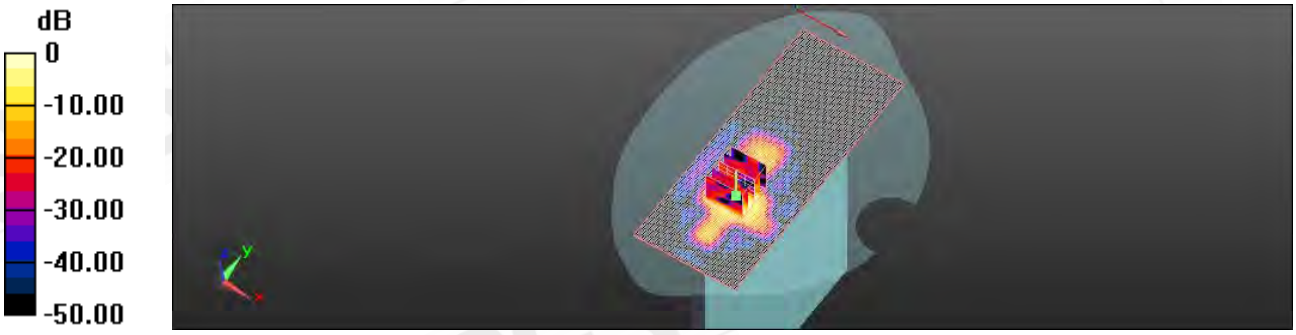
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5580 MHz
Medium parameters used: f = 5580 MHz; σ = 5.896 mho/m; ε_r = 47.456; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.864 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.880 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 1.721 W/kg

SAR(1 g) = 0.617 mW/g; SAR(10 g) = 0.190 mW/g
Maximum value of SAR (measured) = 0.803 mW/g



0 dB = 0.800mW/g

Date: 6/8/2011

Configuration 6_ WLAN802.11a 5.5G_CH124

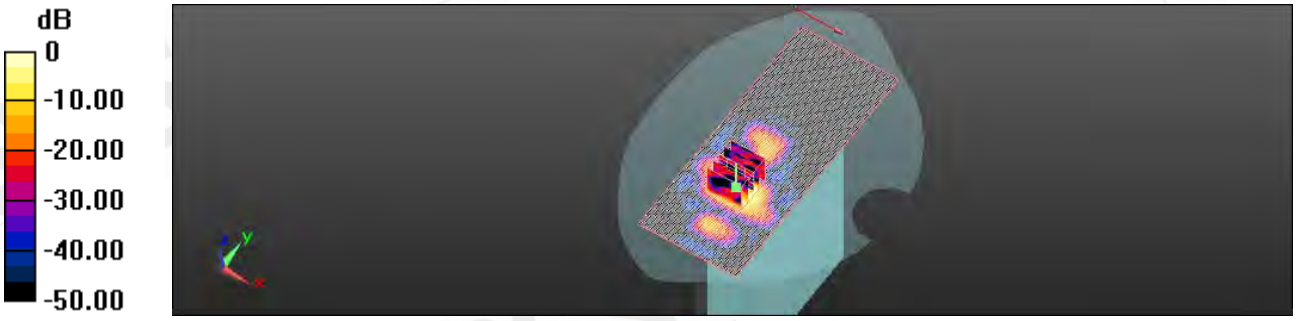
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5620 MHz
Medium parameters used: f = 5620 MHz; σ = 5.932 mho/m; ε_r = 47.233; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.779 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.469 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 1.394 W/kg

SAR(1 g) = 0.493 mW/g; SAR(10 g) = 0.151 mW/g
Maximum value of SAR (measured) = 0.665 mW/g



0 dB = 0.670mW/g

Date: 6/8/2011

Configuration 6_ WLAN802.11a 5.5G_CH136

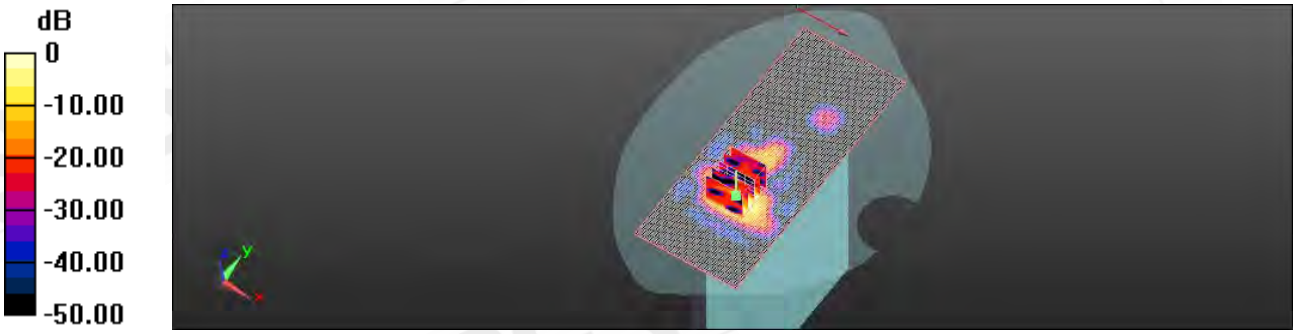
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5680 MHz
Medium parameters used: f = 5680 MHz; σ = 6.035 mho/m; ε_r = 46.913; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.776 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.001 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 1.395 W/kg

SAR(1 g) = 0.484 mW/g; SAR(10 g) = 0.149 mW/g
Maximum value of SAR (measured) = 0.640 mW/g



0 dB = 0.640mW/g

Date: 6/8/2011

Configuration 1_ WLAN802.11a 5.8G_CH149

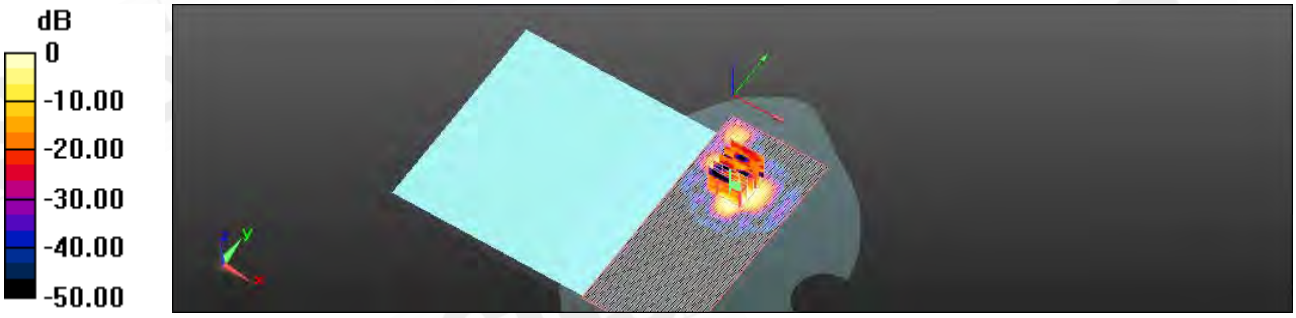
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.107 mho/m; ε_r = 46.867; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.67, 3.67, 3.67); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.239 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.656 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.686 W/kg

SAR(1 g) = 0.168 mW/g; SAR(10 g) = 0.060 mW/g
Maximum value of SAR (measured) = 0.164 mW/g



0 dB = 0.160mW/g

Date: 6/8/2011

Configuration 2_ WLAN802.11a 5.8G_CH149

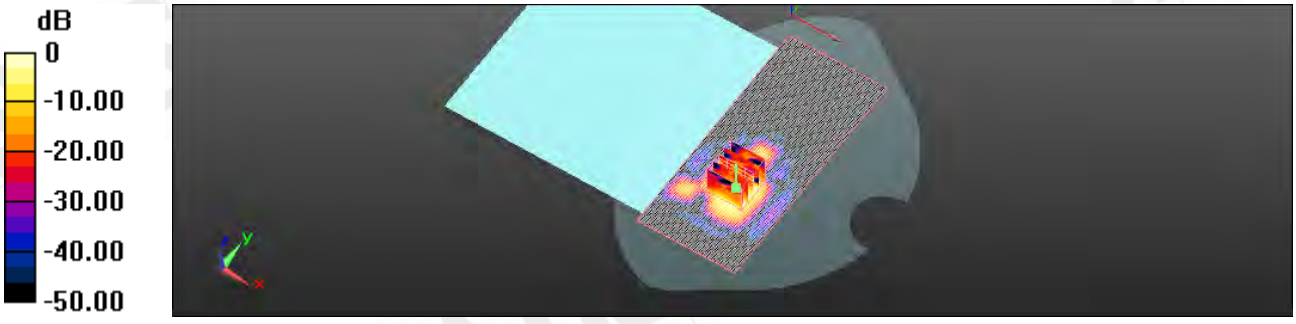
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.107 mho/m; ε_r = 46.867; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.67, 3.67, 3.67); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x141x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.677 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.119 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 1.048 W/kg

SAR(1 g) = 0.373 mW/g; SAR(10 g) = 0.127 mW/g
Maximum value of SAR (measured) = 0.464 mW/g



0 dB = 0.460mW/g

Date: 6/8/2011

Configuration 3_ WLAN802.11a 5.8G_CH149

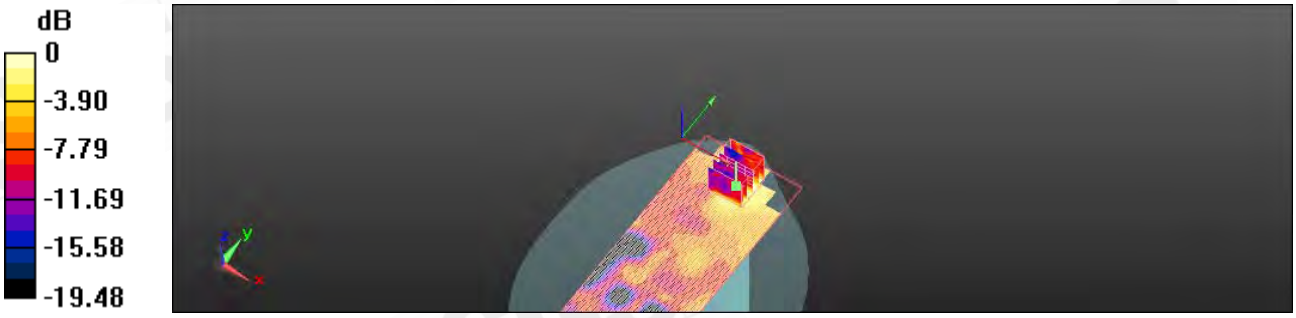
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.107 mho/m; ε_r = 46.867; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.67, 3.67, 3.67); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x181x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.058 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.137 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.120 W/kg

SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.020 mW/g
Maximum value of SAR (measured) = 0.059 mW/g



0 dB = 0.060mW/g

Date: 6/8/2011

Configuration 6_ WLAN802.11a 5.8G_CH149

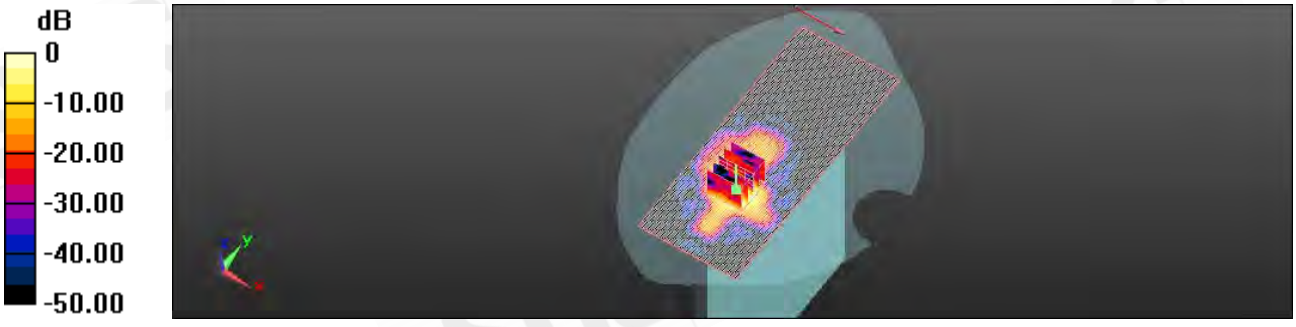
Communication System: WLAN 802.11n/a(5G) FCC; Frequency: 5745 MHz
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.107 mho/m; ε_r = 46.867; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.67, 3.67, 3.67); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM2; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.904 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.618 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 1.753 W/kg

SAR(1 g) = 0.620 mW/g; SAR(10 g) = 0.195 mW/g
Maximum value of SAR (measured) = 0.829 mW/g



0 dB = 0.830mW/g

5. SAR System Performance Verification

Date: 6/7/2011

DUT: Dipole 2450 MHz

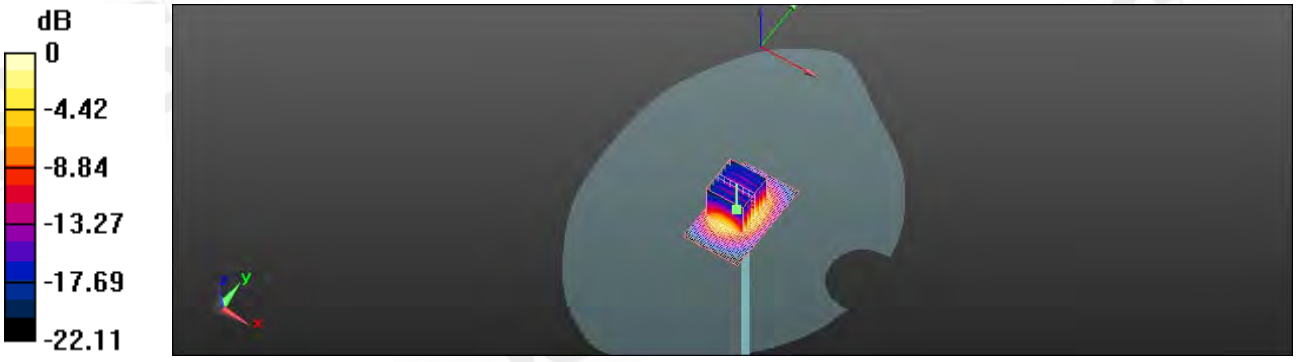
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.974 mho/m; ε_r = 52.326; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(6.82, 6.82, 6.82); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: AE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM with CRP Left; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 16.198 mW/g

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.781 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 29.041 W/kg

SAR(1 g) = 13.1 mW/g; SAR(10 g) = 6.21 mW/g
Maximum value of SAR (measured) = 15.047 mW/g



0 dB = 15.050mW/g

Date: 6/7/2011

DUT: Dipole 5200MHz

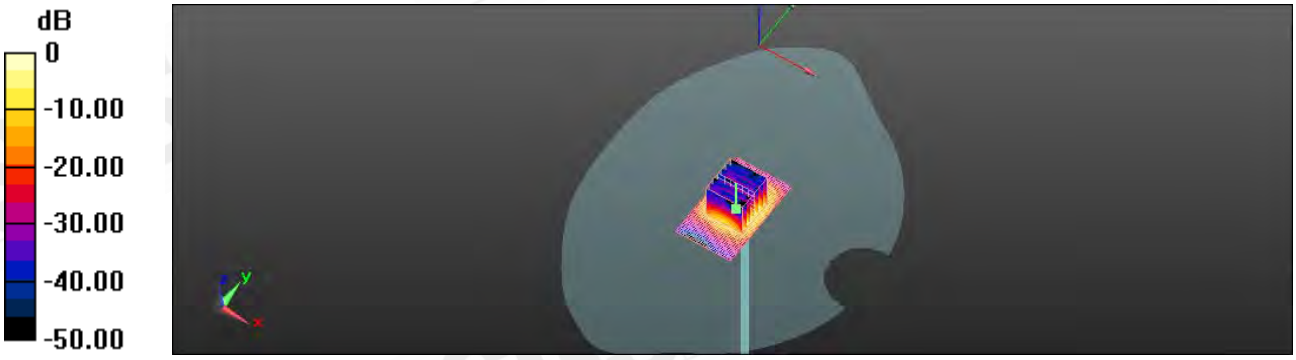
Communication System: CW; Frequency: 5200 MHz
Medium parameters used: f = 5200 MHz; σ = 5.299 mho/m; ε_r = 48.306; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(4, 4, 4); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: AE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM with CRP Left; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 12.144 mW/g

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 49.160 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 33.121 W/kg

SAR(1 g) = 7.85 mW/g; SAR(10 g) = 2.12 mW/g
Maximum value of SAR (measured) = 9.080 mW/g



0 dB = 9.080mW/g

Date: 6/8/2011

DUT: Dipole 5500MHz

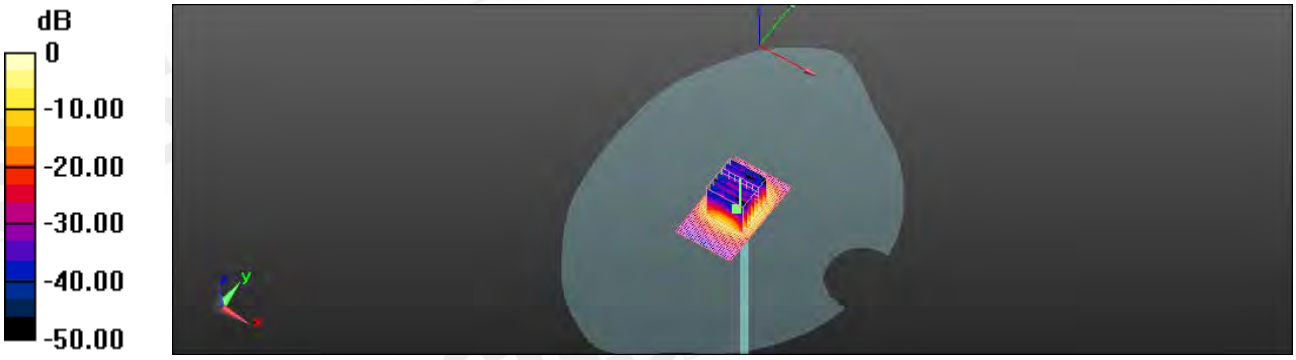
Communication System: CW; Frequency: 5500 MHz
Medium parameters used: f = 5500 MHz; σ = 5.757 mho/m; ε_r = 47.595; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.42, 3.42, 3.42); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: AE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM with CRP Left; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.807 mW/g

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.200 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 34.772 W/kg

SAR(1 g) = 8.18 mW/g; SAR(10 g) = 2.13 mW/g
Maximum value of SAR (measured) = 9.572 mW/g



0 dB = 9.570mW/g

Date: 6/8/2011

DUT: Dipole 5800MHz

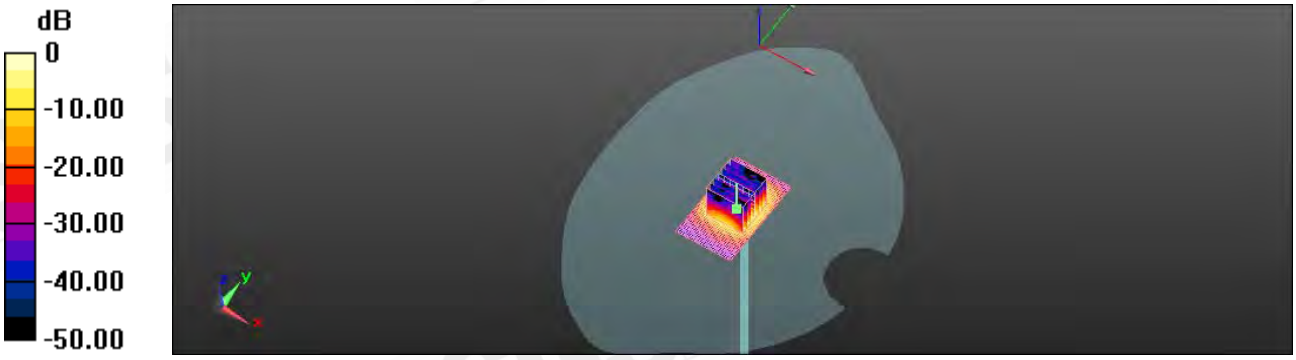
Communication System: CW; Frequency: 5800 MHz
Medium parameters used: f = 5800 MHz; σ = 6.203 mho/m; ε_r = 46.61; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3703; ConvF(3.67, 3.67, 3.67); Calibrated: 1/24/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: AE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM with CRP Left; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Configuration/d=10mm, Pin=250mW, dist=4mm): Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.502 mW/g

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 45.018 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 30.532 W/kg

SAR(1 g) = 7.07 mW/g; SAR(10 g) = 2.02 mW/g
Maximum value of SAR (measured) = 8.482 mW/g



0 dB = 8.480mW/g

6. DAE & Probe Calibration certificate

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Accreditation No.: SCS 108

Client SGS-TW (Auden)

Certificate No: DAE4-856_May11

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 856
Calibration procedure(s)	QA CAL-06.v23 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	May 18, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-10 (No:10376)	Sep-11
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V1.1	SE UMS 006 AB 1004	07-Jun-10 (in house check)	In house check: Jun-11

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

Issued: May 18, 2011

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

Certificate No: DAE4-856_May11 Page 1 of 5

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Accreditation No.: **SCS 108**

Client **SGS-TW (Auden)**

Certificate No: **EX3-3703_Jan11**

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3703

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

Calibration date: January 24, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	1-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	1-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 660	20-Apr-10 (No. DAE4-660_Apr10)	Apr-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Fin Bomholt	R&D Director	

Issued: January 25, 2011

Calibration Laboratory of
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Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

Probe EX3DV4

SN:3703

Manufactured:	July 21, 2009
Last calibrated:	December 30, 2009
Recalibrated:	January 24, 2011

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

EX3DV4 SN:3703 January 24, 2011

DASY/EASY - Parameters of Probe: EX3DV4 SN:3703

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.52	0.52	0.54	± 10.1%
DCP (mV)[B]	98.8	94.8	99.6	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dBuV	C	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	154.8	± 3.1 %
			Y	0.00	0.00	1.00	118.0	
			Z	0.00	0.00	1.00	156.4	

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

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).

[B] Numerical linearization parameter: uncertainty not required.

[E] Uncertainty is determined using the maximum deviation from linear response applying recatangular distribution and is expressed for the square of the field value.

EX3DV4 SN:3703 January 24, 2011

DASY/EASY - Parameters of Probe: EX3DV4 SN:3703

Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
750	± 50 / ± 100	41.9 ± 5%	0.89 ± 5%	9.21	9.21	9.21	0.73	0.65 ± 11.0%
835	± 50 / ± 100	41.5 ± 5%	0.90 ± 5%	8.83	8.83	8.83	0.79	0.61 ± 11.0%
900	± 50 / ± 100	41.5 ± 5%	0.97 ± 5%	8.78	8.78	8.78	0.73	0.63 ± 11.0%
1750	± 50 / ± 100	40.1 ± 5%	1.37 ± 5%	8.02	8.02	8.02	0.50	0.71 ± 11.0%
1900	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	7.67	7.67	7.67	0.39	0.82 ± 11.0%
2000	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	7.63	7.63	7.63	0.35	0.86 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	7.00	7.00	7.00	0.32	0.91 ± 11.0%
2600	± 50 / ± 100	39.0 ± 5%	1.96 ± 5%	6.75	6.75	6.75	0.30	1.02 ± 11.0%

[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.

DASY/EASY - Parameters of Probe: EX3DV4 SN:3703

Calibration Parameter Determined in Body Tissue Simulating Media

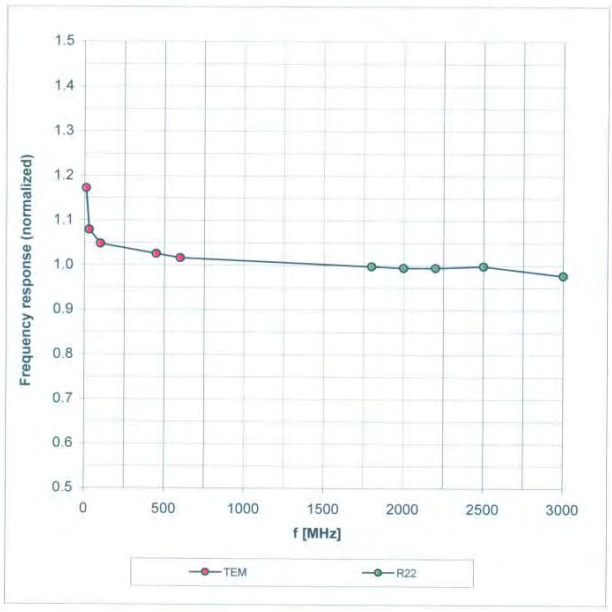
f [MHz]	Validity [MHz][C]	Permittivity	Conductivity	ConvF X	ConvF Y	ConvF Z	Alpha	Depth Unc (k=2)
750	± 50 / ± 100	55.5 ± 5%	0.96 ± 5%	9.06	9.06	9.06	0.57	0.73 ± 11.0%
835	± 50 / ± 100	55.2 ± 5%	0.97 ± 5%	8.85	8.85	8.85	0.46	0.83 ± 11.0%
900	± 50 / ± 100	55.0 ± 5%	1.05 ± 5%	8.74	8.74	8.74	0.45	0.83 ± 11.0%
1750	± 50 / ± 100	53.4 ± 5%	1.49 ± 5%	7.26	7.26	7.26	0.58	0.70 ± 11.0%
1900	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	7.04	7.04	7.04	0.44	0.82 ± 11.0%
2000	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	7.13	7.13	7.13	0.61	0.70 ± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	6.82	6.82	6.82	0.41	0.82 ± 11.0%
2600	± 50 / ± 100	52.5 ± 5%	2.16 ± 5%	6.78	6.78	6.78	0.33	0.89 ± 11.0%
5200	± 50 / ± 100	49.0 ± 5%	5.30 ± 5%	4.00	4.00	4.00	0.50	1.95 ± 13.1%
5300	± 50 / ± 100	48.9 ± 5%	5.42 ± 5%	3.73	3.73	3.73	0.55	1.95 ± 13.1%
5600	± 50 / ± 100	48.5 ± 5%	5.77 ± 5%	3.42	3.42	3.42	0.65	1.95 ± 13.1%
5800	± 50 / ± 100	48.2 ± 5%	6.00 ± 5%	3.67	3.67	3.67	0.65	1.95 ± 13.1%

[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.

EX3DV4 SN:3703 January 24, 2011

Frequency Response of E-Field

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



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

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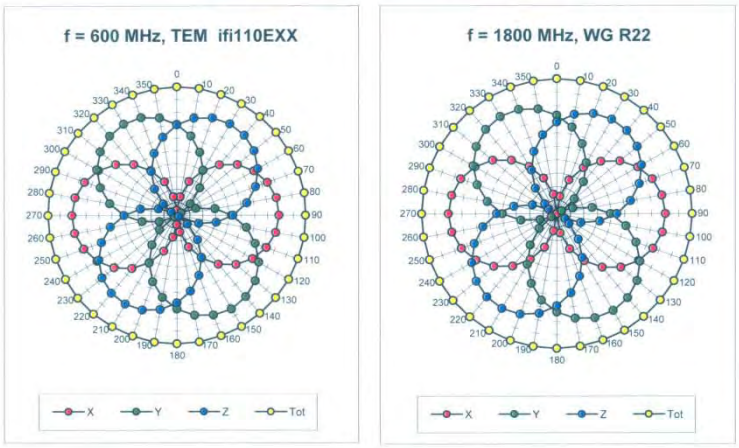
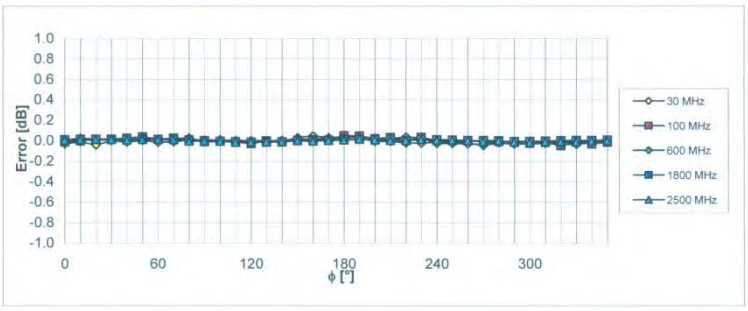
EX3DV4 SN:3703 January 24, 2011

Receiving Pattern (ϕ), ϑ = 0°



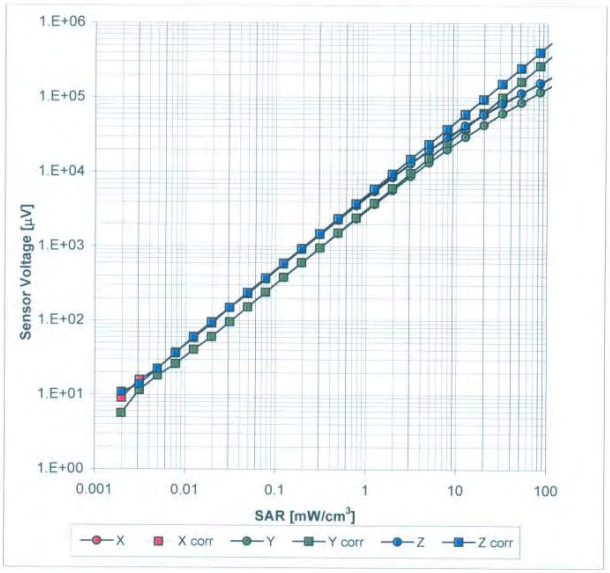


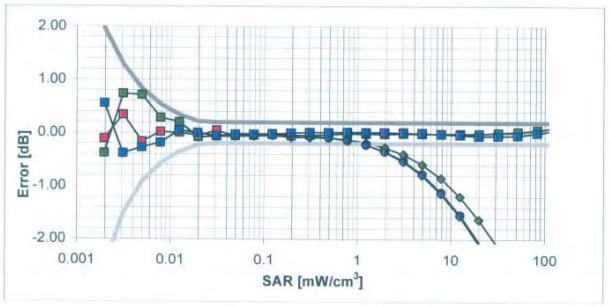
Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

EX3DV4 SN:3703 January 24, 2011

Dynamic Range f(SAR_{head})

(TEM cell, f = 900 MHz)

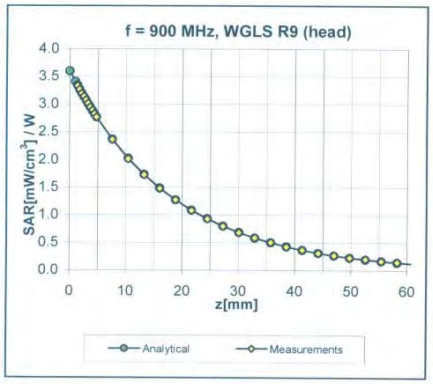


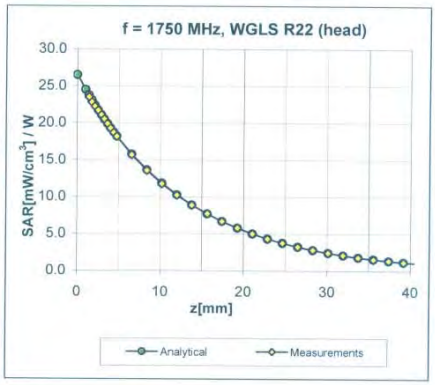


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

EX3DV4 SN:3703 January 24, 2011

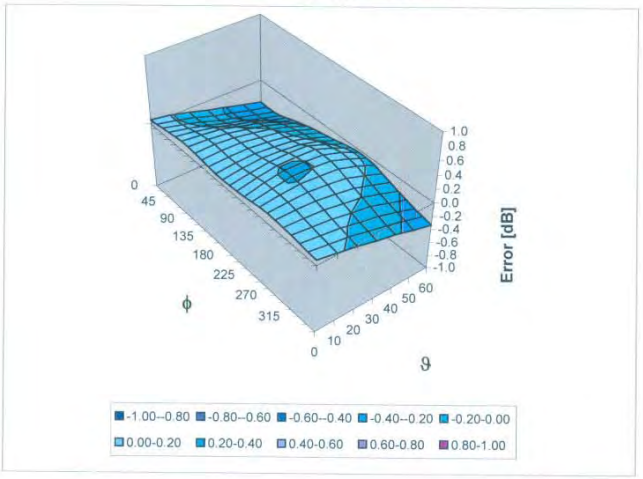
Conversion Factor Assessment





Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



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

EX3DV4 SN:3703 January 24, 2011

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

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7. Uncertainty Budget

DASY5 Uncertainty Budget
According to IEEE 1528 [1]

Error Description	Uncertainty value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±5.9%	N	1	1	1	±5.9%	±5.9%	∞
Axial Isotropy	±4.7%	R	$\sqrt{3}$	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical Isotropy	±9.6%	R	$\sqrt{3}$	0.7	0.7	±3.9%	±3.9%	∞
Boundary Effects	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%	∞
System Detection Limits	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Readout Electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response Time	±0.8%	R	$\sqrt{3}$	1	1	±0.5%	±0.5%	∞
Integration Time	±2.6%	R	$\sqrt{3}$	1	1	±1.5%	±1.5%	∞
RF Ambient Noise	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
RF Ambient Reflections	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Probe Positioner	±0.4%	R	$\sqrt{3}$	1	1	±0.2%	±0.2%	∞
Probe Positioning	±2.9%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Max. SAR Eval.	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power Drift	±5.0%	R	$\sqrt{3}$	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom Uncertainty	±4.0%	R	$\sqrt{3}$	1	1	±2.3%	±2.3%	∞
Liquid Conductivity (target)	±5.0%	R	$\sqrt{3}$	0.64	0.43	±1.8%	±1.2%	∞
Liquid Conductivity (meas.)	±2.5%	N	1	0.64	0.43	±1.6%	±1.1%	∞
Liquid Permittivity (target)	±5.0%	R	$\sqrt{3}$	0.6	0.49	±1.7%	±1.4%	∞
Liquid Permittivity (meas.)	±2.5%	N	1	0.6	0.49	±1.5%	±1.2%	∞
Combined Std. Uncertainty						±10.9%	±10.7%	387
Expanded STD Uncertainty						±21.9%	±21.4%	

Table 19.6: Worst-Case uncertainty budget for DASY5 assessed according to IEEE 1528 [1]. The budget is valid for the frequency range 300 MHz - 3 GHz and represents a worst-case analysis. For specific tests and configurations, the uncertainty could be considerable smaller.

8. Phantom Description

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s p e a g

Certificate of Conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 C
Series No	TP-1150 and higher
Manufacturer	SPEAG Zeughausstrasse 43 CH-8004 Zürich 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 items (called samples) or are tested at each item.

Test	Requirement	Details	Units tested
Dimensions	Compliant with the geometry according to the CAD model	IT'IS CAD File (*)	First article, Samples
Material thickness of shell	Compliant with the requirements according to the standards	2mm +/- 0.2mm in flat and specific areas of head section	First article, Samples, TP-1314 ff.
Material thickness at ERP	Compliant with the requirements according to the standards	6mm +/- 0.2mm at ERP	First article, All items
Material parameters	Dielectric parameters for required frequencies	300 MHz – 6 GHz: Relative permittivity < 5, Loss tangent < 0.05	Material samples
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards if handled and cleaned according to the instructions. Observe technical Note for material compatibility	DEGMBE based simulating liquids	Pre-series, First article, Material samples
Sagging	Compliant with the requirements according to the standards. Sagging of the flat section when filled with tissue simulating liquid	< 1% typical < 0.8% if filled with 155mm of HSL900 and without OUT below	Prototypes, Sample testing

Standards
[1] CENELEC EN 50361
[2] IEEE Std 1528-2003
[3] IEC 62209 Part I
[4] FCC OET Bulletin 65, Supplement C, Edition 01-01
(*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of the other documents.

Conformity
Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standards [1] to [4].

Date 07.07.2005

Signature / Stamp

s p e a g
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Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 1 245 9700, Fax +41 1 245 9779
info@speag.com, http://www.speag.com

9. System Validation from Original equipment supplier

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Client SGS TW (Auden)

Certificate No: D2450V2-727_Apr11

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 727
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits
Calibration date:	April 19, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: April 19, 2011

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

Certificate No: D2450V2-727_Apr11 Page 1 of 9

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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.7 ± 6 %	1.72 mho/m ± 6 %
Head TSL temperature during test	(21.0 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.7 mW / g
SAR normalized	normalized to 1W	54.8 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**55.8 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.39 mW / g
SAR normalized	normalized to 1W	25.6 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**25.7 mW /g ± 16.5 % (k=2)**

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Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	50.6 ± 6 %	1.91 mho/m ± 6 %
Body TSL temperature during test	(21.5 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.7 mW / g
SAR normalized	normalized to 1W	50.8 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**50.8 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.84 mW / g
SAR normalized	normalized to 1W	23.4 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**23.3 mW / g ± 16.5 % (k=2)**

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.3 Ω + 2.0 jΩ
Return Loss	- 26.9 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.9 Ω + 3.7 jΩ
Return Loss	- 28.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.149 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
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	January 9, 2003

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DASY5 Validation Report for Head TSL

Date/Time: 18.04.2011 16:55:19

Test Laboratory: SPEAG, Zurich, Switzerland

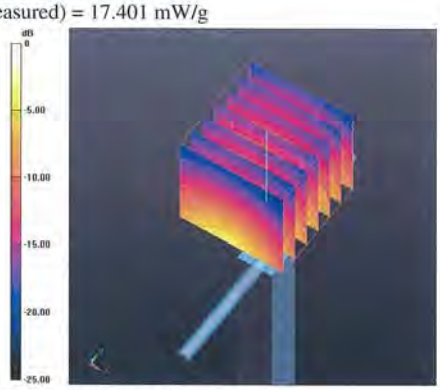
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: HSL U12 BB
Medium parameters used: f = 2450 MHz; σ = 1.74 mho/m; ε_r = 38.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.53, 4.53, 4.53); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2829)

Pin=250 mW, Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 103.6 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 27.919 W/kg
SAR(1 g) = 13.7 mW/g; SAR(10 g) = 6.39 mW/g
Maximum value of SAR (measured) = 17.401 mW/g



0 dB = 17.400mW/g

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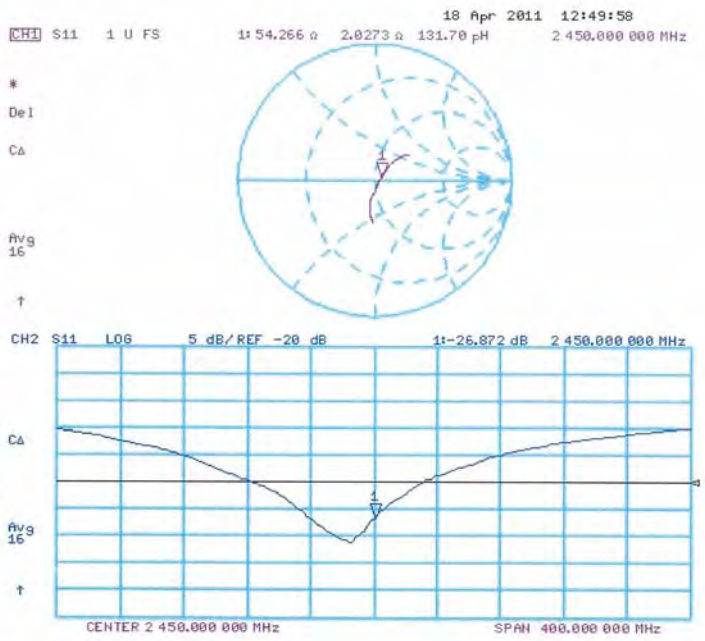
Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date/Time: 19.04.2011 14:37:11

Test Laboratory: SPEAG, Zurich, Switzerland

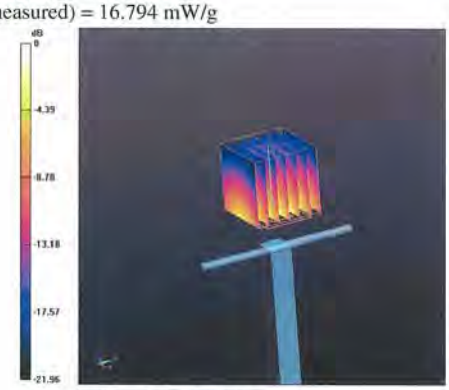
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: MSL U12 BB
Medium parameters used: f = 2450 MHz; σ = 1.91 mho/m; ε_r = 50.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

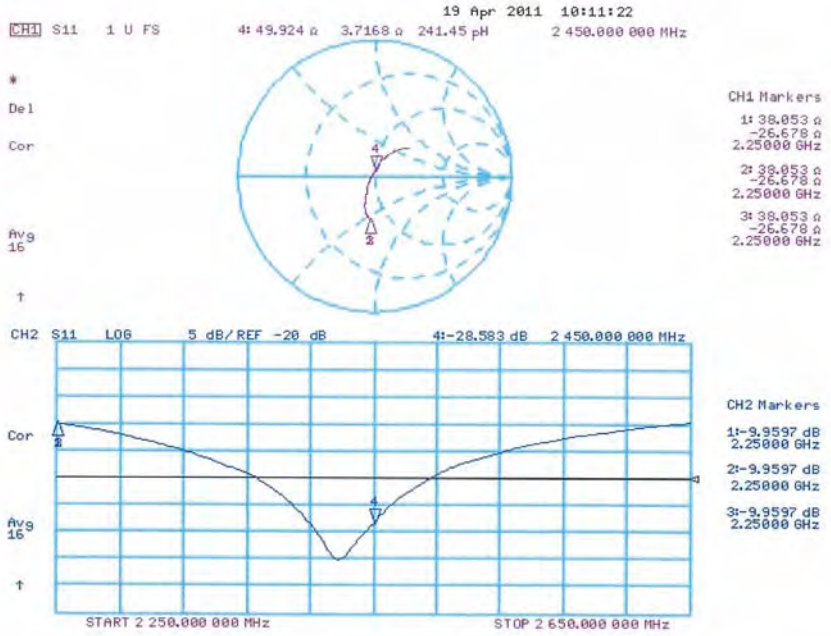
- Probe: ES3DV3 - SN3205; ConvF(4.31, 4.31, 4.31); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2829)

Pin=250 mW, Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.949 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 26.888 W/kg
SAR(1 g) = 12.7 mW/g; SAR(10 g) = 5.84 mW/g
Maximum value of SAR (measured) = 16.794 mW/g



0 dB = 16.790mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client Auden

Certificate No: D5GHzV2-1040_Jun10

CALIBRATION CERTIFICATE

Object	D5GHzV2 - SN: 1040
Calibration procedure(s)	QA CAL-22.v1 Calibration procedure for dipole validation kits between 3-6 GHz
Calibration date:	June 23, 2010

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe EX3DV4	SN: 3503	05-Mar-10 (No. EX3-3503_Mar10)	Mar-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

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

Issued: June 23, 2010

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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

a) 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) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V52.2
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 = 4.0 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	36.5 ± 6 %	4.57 mho/m ± 6 %
Head TSL temperature during test	(22.5 ± 0.2) °C	—	—

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	condition	
SAR measured	100 mW input power	8.23 mW / g
SAR normalized	normalized to 1W	82.3 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**82.5 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.35 mW / g
SAR normalized	normalized to 1W	23.5 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**23.5 mW / g ± 19.5 % (k=2)**

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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	35.9 ± 6 %	4.84 mho/m ± 6 %
Head TSL temperature during test	(22.5 ± 0.2) °C	----	----

SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	condition	
SAR measured	100 mW input power	8.79 mW / g
SAR normalized	normalized to 1W	87.9 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**88.0 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.48 mW / g
SAR normalized	normalized to 1W	24.8 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**24.8 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	35.4 ± 6 %	5.09 mho/m ± 6 %
Head TSL temperature during test	(22.5 ± 0.2) °C	----	----

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	condition	
SAR measured	100 mW input power	8.13 mW / g
SAR normalized	normalized to 1W	81.3 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**81.2 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.30 mW / g
SAR normalized	normalized to 1W	23.0 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**23.0 mW / g ± 19.5 % (k=2)**

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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	49.0 ± 6 %	5.47 mho/m ± 6 %
Body TSL temperature during test	(22.5 ± 0.2) °C	---	---

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	7.57 mW / g
SAR normalized	normalized to 1W	7.57 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**75.7 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.11 mW / g
SAR normalized	normalized to 1W	21.1 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.1 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	5.65 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	48.3 ± 6 %	5.83 mho/m ± 6 %
Body TSL temperature during test	(22.5 ± 0.2) °C	---	---

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	8.04 mW / g
SAR normalized	normalized to 1W	80.4 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**80.3 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.23 mW / g
SAR normalized	normalized to 1W	22.3 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**22.3 mW / g ± 19.5 % (k=2)**

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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	47.7 ± 6 %	6.18 mho/m ± 6 %
Body TSL temperature during test	(22.5 ± 0.2) °C	----	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	condition	
SAR measured	100 mW input power	6.93 mW / g
SAR normalized	normalized to 1W	69.3 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**69.2 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	1.92 mW / g
SAR normalized	normalized to 1W	19.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**19.2 mW / g ± 19.5 % (k=2)**

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Appendix

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	49.9 Ω - 7.6 jΩ
Return Loss	-22.4 dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	52.5 Ω - 5.4 jΩ
Return Loss	-24.8 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	55.9 Ω -1.7 jΩ
Return Loss	-24.7 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	51.0 Ω - 4.9 jΩ
Return Loss	-26.1 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	53.9 Ω - 3.4 jΩ
Return Loss	-26.1 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	56.9 Ω - 2.2 jΩ
Return Loss	-23.4 dB

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General Antenna Parameters and Design

Electrical Delay (one direction)	1.211 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	December 30, 2005

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DASY5 Validation Report for Head TSL

Date/Time: 22.06.2010 12:12:25

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN:1040

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: HSL 5000
Medium parameters used: f = 5200 MHz; σ = 4.56 mho/m; ε_r = 36.5; ρ = 1000 kg/m^3 , Medium parameters used: f = 5500 MHz; σ = 4.82 mho/m; ε_r = 35.9; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 5.07 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.36, 5.36, 5.36), ConvF(4.85, 4.85, 4.85), ConvF(4.74, 4.74, 4.74); Calibrated: 05.03.2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

D5GHzV2 Dipole (Head)/d=10mm, Pin=100mW, f=5200 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 62.2 V/m; Power Drift = 0.079 dB
Peak SAR (extrapolated) = 31.1 W/kg
SAR(1 g) = 8.23 mW/g; SAR(10 g) = 2.35 mW/g
Maximum value of SAR (measured) = 16 mW/g

D5GHzV2 Dipole (Head)/d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 62.7 V/m; Power Drift = 0.090 dB
Peak SAR (extrapolated) = 35.2 W/kg
SAR(1 g) = 8.79 mW/g; SAR(10 g) = 2.48 mW/g
Maximum value of SAR (measured) = 17.3 mW/g

D5GHzV2 Dipole (Head)/d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 59.6 V/m; Power Drift = 0.078 dB
Peak SAR (extrapolated) = 33.7 W/kg
SAR(1 g) = 8.13 mW/g; SAR(10 g) = 2.3 mW/g
Maximum value of SAR (measured) = 16.2 mW/g

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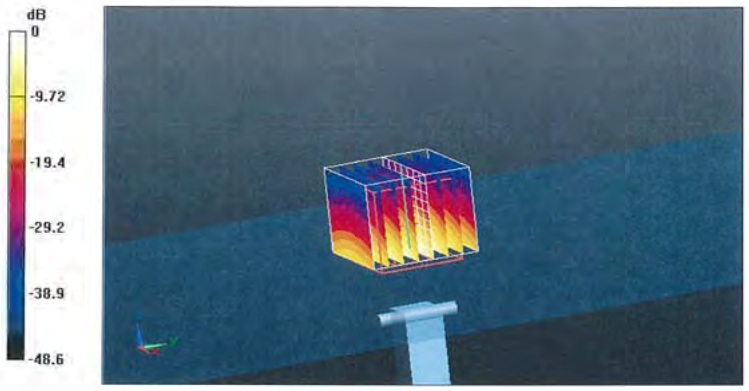

0 dB = 16.2mW/g

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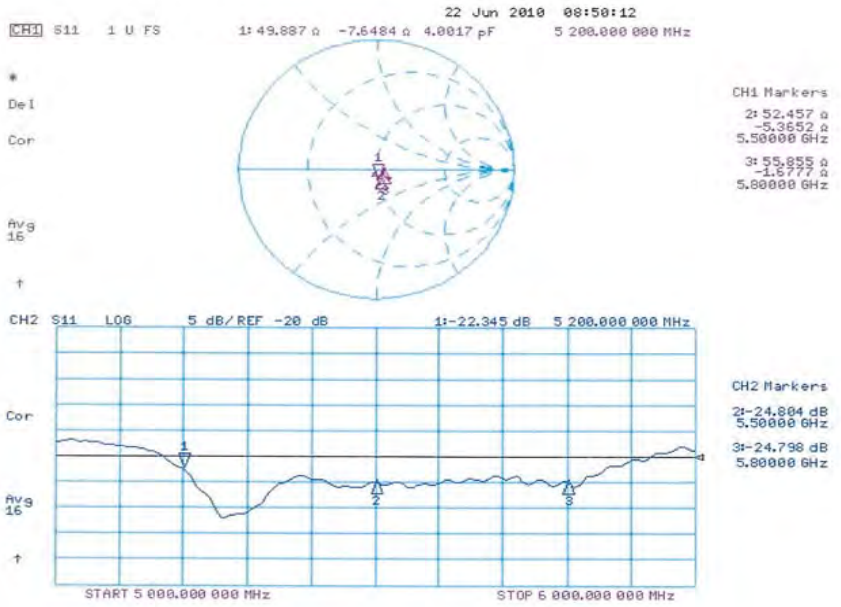
Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date/Time: 23.06.2010 12:48:48

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN:1040

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: MSL 5000 MHz
Medium parameters used: f = 5200 MHz; σ = 5.44 mho/m; ε_r = 49; ρ = 1000 kg/m^3 , Medium parameters used: f = 5500 MHz; σ = 5.8 mho/m; ε_r = 48.3; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 6.14 mho/m; ε_r = 47.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

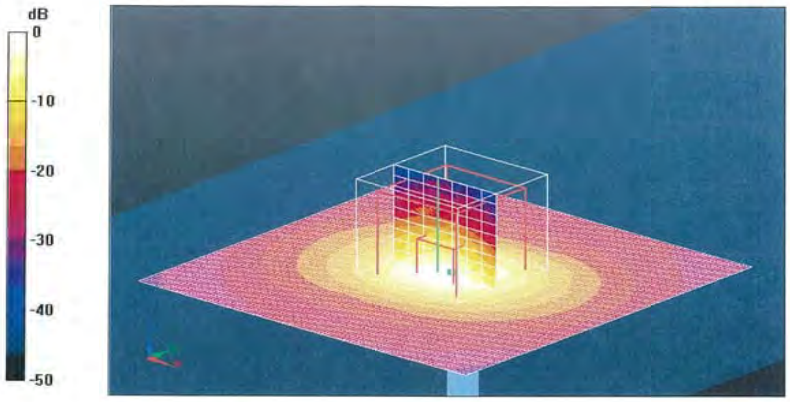
DASY5 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.88, 4.88, 4.88), ConvF(4.37, 4.37, 4.37), ConvF(4.57, 4.57, 4.57); Calibrated: 05.03.2010
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

D5GHzV2 Dipole (Body)/d=10mm, Pin=100mW, f=5200 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 58.4 V/m; Power Drift = -0.057 dB
Peak SAR (extrapolated) = 28.8 W/kg
SAR(1 g) = 7.57 mW/g; SAR(10 g) = 2.11 mW/g
Maximum value of SAR (measured) = 14.8 mW/g

D5GHzV2 Dipole (Body)/d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 58.9 V/m; Power Drift = -0.052 dB
Peak SAR (extrapolated) = 32.5 W/kg
SAR(1 g) = 8.04 mW/g; SAR(10 g) = 2.23 mW/g
Maximum value of SAR (measured) = 15.9 mW/g

D5GHzV2 Dipole (Body)/d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 53.2 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 29.8 W/kg
SAR(1 g) = 6.93 mW/g; SAR(10 g) = 1.92 mW/g
Maximum value of SAR (measured) = 14 mW/g



0 dB = 14mW/g

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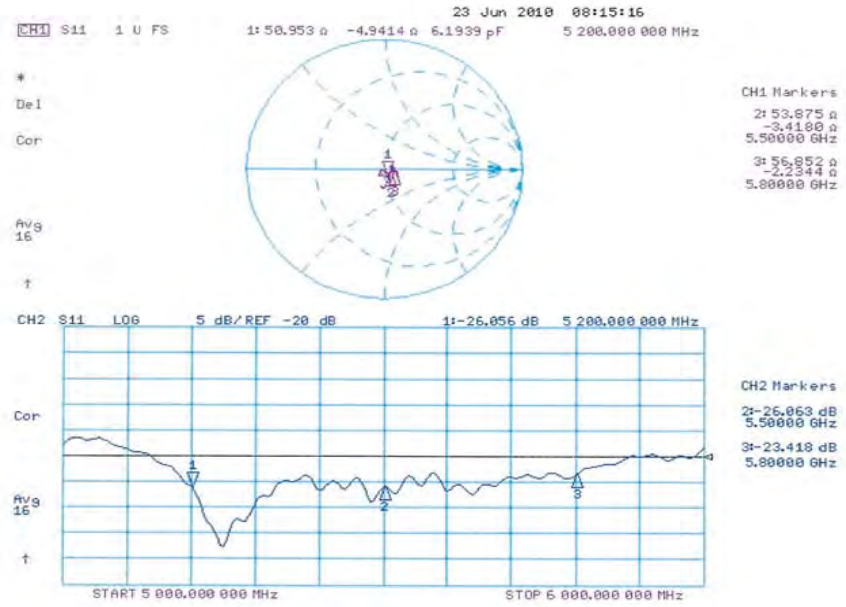
Impedance Measurement Plot for Body TSL



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