FCC SAR Test Report

APPLICANT	:	Belkin International Inc.
EQUIPMENT	:	AC Wi-Fi Dual-Band USB Adapter
BRAND NAME	:	Belkin
MODEL NAME	:	F9L1106V2, F9L1107xxxxx, F9L1109V1
FCC ID	:	K7SF9L1106V2
STANDARD	:	FCC 47 CFR Part 2 (2.1093) ANSI/IEEE C95.1-1992 IEEE 1528-2003 FCC OET Bulletin 65 Supplement C (Edition 01-01)

The product was completely tested on Dec. 06, 2012. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Jones Tsai

Jones Tsai / Manager

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No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA2N0801	Rev. 01	Initial issue of report	Dec. 14, 2012
FA2N0801	Rev. 02	Revised report in page 26~39 and WLAN Antenna description in SAR plots.	Dec. 18, 2012

1. Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for **Belkin International Inc. AC Wi-Fi Dual-Band USB Adapter F9L1106V2, F9L1107xxxxx, F9L1109V1** are as follows.

Exposure Position	Frequency Band	Highest Reported 1g-SAR (W/kg)	Equipment Class	Highest Reported 1g-SAR (W/kg)
Body (0.5cm Gap)	WLAN, 2412 - 2462 MHz	**1.17**	DTS	**1.17**
	WLAN, 5745 - 5825 MHz	**1.12**		
	WLAN, 5180 - 5240 MHz	**0.67**	NII	**0.67**

This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2003 and FCC OET Bulletin 65 Supplement C (Edition 01-01).

2. Administration Data

2.1 Testing Laboratory

Test Site	SPORTON INTERNATIONAL INC.
Test Site Location	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978

2.2 Applicant

Company Name	Belkin International Inc.
Address	12045 E. Waterfront Drive Playa Viste, CA 90094, USA

2.3 Manufacturer

Company Name	Belkin International Inc.
Address	12045 E. Waterfront Drive Playa Viste, CA 90094, USA

2.4 Application Details

Date of Start during the Test	Dec. 05, 2012
Date of End during the Test	Dec. 06, 2012

3. General Information

3.1 Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT	AC Wi-Fi Dual-Band USB Adapter
Brand Name	Belkin
Model Name	F9L1106V2, F9L1107XXXXX, F9L1109V1
FCC ID	K7SF9L1106V2
Tx Frequency	WLAN2.4G: 2412 MHz ~ 2462 MHz WLAN5G: 5180 MHz ~ 5240 MHz; 5745 MHz ~ 5825 MHz
Measure Maximum Average Output Power to Antenna	802.11b: 17.3 dBm 802.11g: 16.6 dBm 802.11n-HT20 (2.4GHz): 18.86 dBm 802.11n-HT40 (2.4GHz): 18.38 dBm 802.11a: 15.97 dBm 802.11n-HT20 (5GHz): 21.95 dBm 802.11n-HT40 (5GHz): 21.32 dBm 802.11ac-HT20 (5GHz): 21.87 dBm 802.11ac-HT40 (5GHz): 21.14 dBm 802.11ac-HT80 (5GHz): 21.29 dBm
Antenna Type	Printed Antenna
Uplink Modulations	802.11b: DSSS (BPSK / QPSK / CCK) 802.11a/g/n/ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
EUT Stage	Identical Prototype
Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.	

3.2 Maximum RF output power among production units

Max Target Average Power for Production Unit								
Mode / Band	IEEE 802.11							
	a	b	g	HT-20	HT-40	VHT-20	VHT-40	VHT-80
2.4 GHz WIFI (ANT A)		17.5	17					
2.4 GHz WIFI (ANT A+B)				19	18.5			
5 GHz Band 1 WIFI(ANT A)	16							
5 GHz Band 4 WIFI(ANT A)	16							
5 GHz Band 1 WIFI(ANT A+B)				16	16	16	16	15
5 GHz Band 4 WIFI(ANT A+B)				22	21.5	22	21.5	21.5

3.3 Product Photos

Please refer to Appendix D.

3.4 Applied Standards

The Specific Absorption Rate (SAR) testing specification, method, and procedure for this device is in accordance with the following standards:

- FCC 47 CFR Part 2 (2.1093)
- ANSI/IEEE C95.1-1992
- IEEE 1528-2003
- FCC OET Bulletin 65 Supplement C (Edition 01-01)
- FCC KDB 248227 D01 v01r02
- FCC KDB 447498 D01 v05
- FCC KDB 447498 D02 v02
- FCC KDB 644545 D01 v01

3.5 Device Category and SAR Limits

This device belongs to portable device category because its radiating structure is allowed to be used within 20 centimeters of the body of the user. Limit for General Population/Uncontrolled exposure should be applied for this device, it is 1.6 W/kg as averaged over any 1 gram of tissue.

3.6 Test Conditions

3.6.1 Ambient Condition

Ambient Temperature	20 to 24 ℃
Humidity	< 60 %

3.6.2 Test Configuration

For WLAN SAR testing, WLAN engineering testing software installed on the EUT can provide continuous transmitting RF signal.

4. Specific Absorption Rate (SAR)

4.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

4.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$\mathbf{SAR} = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\mathbf{dm}}\right) = \frac{\mathbf{d}}{\mathbf{dt}}\left(\frac{\mathbf{dW}}{\boldsymbol{\rho}\mathbf{dv}}\right)$$

SAR is expressed in units of Watts per kilogram (W/kg)

SAR measurement can be either related to the temperature elevation in tissue by

$$\mathbf{SAR} = \mathbf{C}\left(\frac{\boldsymbol{\delta}\mathbf{T}}{\boldsymbol{\delta}\mathbf{t}}\right)$$

Where: C is the specific heat capacity, δT is the temperature rise and δt is the exposure duration, or related to the electrical field in the tissue by

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

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

5. SAR Measurement System

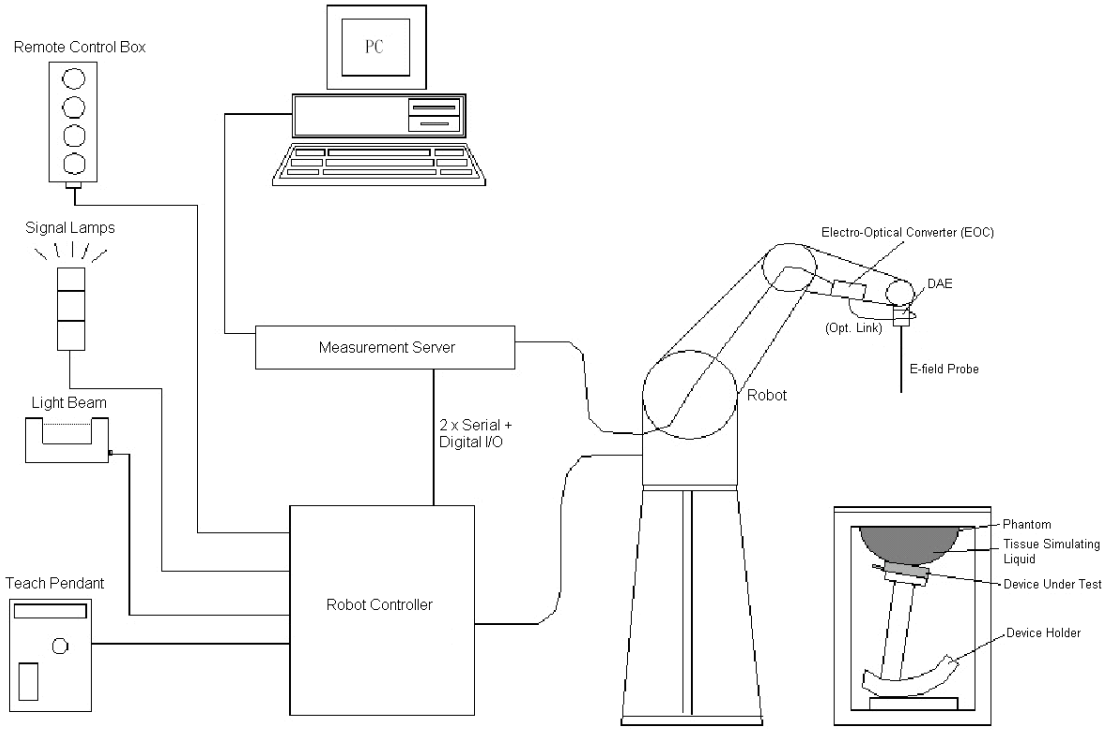


Fig 5.1 SPEAG DASY System Configurations

The DASY system for performance compliance tests is illustrated above graphically. This system consists of the following items:

- A standard high precision 6-axis robot with controller, a teach pendant and software
- A data acquisition electronic (DAE) attached to the robot arm extension
- A dosimetric probe equipped with an optical surface detector system
- The electro-optical converter (EOC) performs the conversion between optical and electrical signals
- A measurement server performs the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the accuracy of the probe positioning
- A computer operating Windows XP
- DASY software
- Remove control with teach pendant and additional circuitry for robot safety such as warming lamps, etc.
- The SAM twin phantom
- A device holder
- Tissue simulating liquid
- Dipole for evaluating the proper functioning of the system

Some of the components are described in details in the following sub-sections.

5.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG).The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

5.1.1 E-Field Probe Specification

<ET3DV6 / ET3DV6R Probe >

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection system. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Frequency	10 MHz to 3 GHz; Linearity: ± 0.2 dB
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.4 dB in HSL (rotation normal to probe axis)
Dynamic Range	5 µW/g to 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm (Tip: 16 mm) Tip diameter: 6.8 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.7 mm

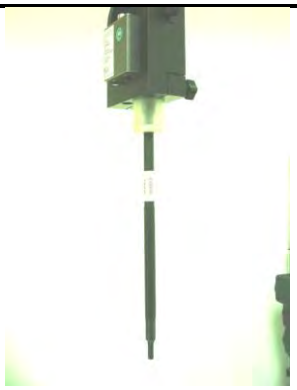


Fig 5.2 Photo of ET3DV6/ET3DV6R

<EX3DV4 / ES3DV4 Probe>

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Frequency	10 MHz to 6 GHz; Linearity: ± 0.2 dB
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

Fig 5.3 Photo of EX3DV4/ES3DV4

5.1.2 E-Field Probe Calibration

Each probe needs to be calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy shall be evaluated and within ± 0.25 dB. The sensitivity parameters (NormX, NormY, and NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested. The calibration data can be referred to appendix C of this report.

5.2 Data Acquisition Electronics (DAE)

The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

Fig 5.4 Photo of DAE

5.3 Robot

The SPEAG DASY system uses the high precision robots (DASY4: RX90BL; DASY5: TX90XL) type from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY4: CS7MB; DASY5: CS8c) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability ±0.035 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)

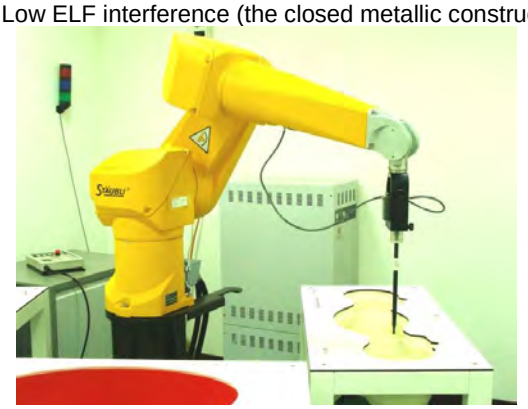


Fig 5.5 Photo of DASY4

Fig 5.6 Photo of DASY5

5.4 Measurement Server

The measurement server is based on a PC/104 CPU board with CPU (DASY4: 166 MHz, Intel Pentium; DASY5: 400 MHz, Intel Celeron), chipdisk (DASY4: 32 MB; DASY5: 128 MB), RAM (DASY4: 64 MB, DASY5: 128 MB). The necessary circuits for communication with the DAE electronic box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY I/O board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all the real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operations.

Fig 5.7 Photo of Server for DASY4

Fig 5.8 Photo of Server for DASY5

5.5 Phantom

<SAM Twin Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	Length: 1000 mm; Width: 500 mm; Height: adjustable feet
Measurement Areas	Left Hand, Right Hand, Flat Phantom

Fig 5.9 Photo of SAM Phantom

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

<ELI4 Phantom>

Shell Thickness	2 ± 0.2 mm (sagging: <1%)
Filling Volume	Approx. 30 liters
Dimensions	Major ellipse axis: 600 mm Minor axis: 400 mm

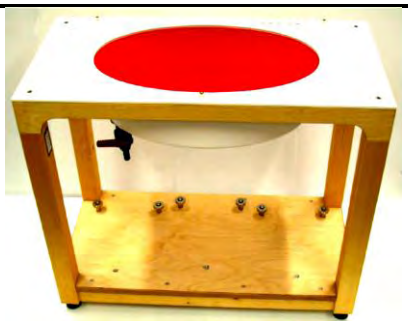


Fig 5.10 Photo of ELI4 Phantom

The ELI4 phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

5.6 Device Holder

<Device Holder for SAM Twin Phantom>

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

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

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

Fig 5.11 Device Holder

<Laptop Extension Kit>

The extension is lightweight and made of POM, acrylic glass and foam. It fits easily on the upper part of the mounting device in place of the phone positioned. The extension is fully compatible with the SAM Twin and ELI phantoms.

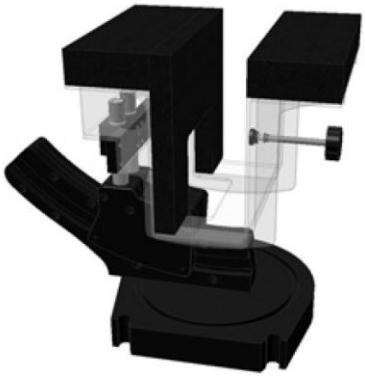


Fig 5.12 Laptop Extension Kit

5.7 Data Storage and Evaluation

5.7.1 Data Storage

The DASY software stores the assessed data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all the necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files. The post-processing software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of erroneous parameter settings. For example, if a measurement has been performed with an incorrect crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be reevaluated.

The measured data can be visualized or exported in different units or formats, depending on the selected probe type (e.g., [V/m], [A/m], [mW/g]). Some of these units are not available in certain situations or give meaningless results, e.g., a SAR-output in a non-lose media, will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

5.7.2 Data Evaluation

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

Probe parameters：	- Sensitivity	$Norm_i$, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	dcp_i
Device parameters：	- Frequency	f
	- Crest factor	cf
Media parameters：	- Conductivity	σ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multi-meter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

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

The formula for each channel can be given as：

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

with V_i = compensated signal of channel i, (i = x, y, z)
U_i = input signal of channel i, (i = x, y, z)
cf = crest factor of exciting field (DASY parameter)
dcp_i = diode compression point (DASY parameter)

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

E-field Probes：$$\mathbf{E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}}$$

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

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

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

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

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

$$\mathbf{SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1000}}$$

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

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.

5.8 Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	2450MHz System Validation Kit	D2450V2	736	Jul. 25, 2011	Jul. 24, 2013
SPEAG	5GHz System Validation Kit	D5GHzV2	1006	Jan. 18, 2012	Jan. 17, 2013
SPEAG	Data Acquisition Electronics	DAE4	1338	Jun. 12, 2012	Jun. 11, 2013
SPEAG	Dosimetric E-Field Probe	EX3DV4	3792	Jun. 21, 2012	Jun. 20, 2013
SPEAG	Device Holder	N/A	N/A	NCR	NCR
SPEAG	ELI4 Phantom	QD 0VA 001 BB	1026	NCR	NCR
Agilent	Network Analyzer	E5071C	MY46101588	May. 11, 2012	May. 10, 2013
Agilent	ESG Vector Series Signal Generator	E4438C	MY49070755	Oct. 02, 2012	Oct. 01, 2013
Anritsu	Power Meter	ML2495A	1132003	Aug. 14, 2012	Aug. 13, 2013
Agilent	Dual Directional Coupler	778D	50422	NCR	NCR
Woken	Attenuator	WK0602-XX	N/A	NCR	NCR
AR	Power Amplifier	5S1G4M2	0328767	NCR	NCR
R&S	Spectrum Analyzer	FSP	101131	Jul. 23, 2012	Jul. 22, 2013

Table 5.1 Test Equipment List

Note:

1. The calibration certificate of DASY can be referred to appendix C of this report.
2. Referring to KDB 865664 D01v01, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
3. The justification data of dipole D2450V2, SN: 736, can be found in appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.

6. Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 6.1. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 6.2.

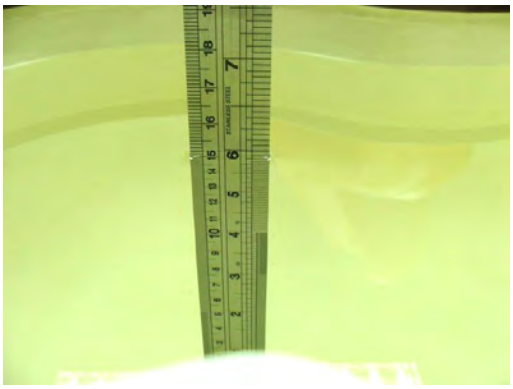


Fig 6.1 Photo of Liquid Height for Head SAR

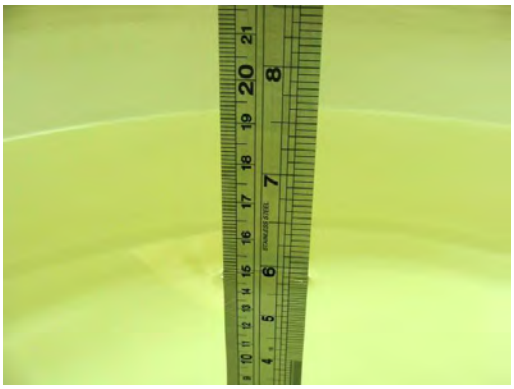


Fig 6.2 Photo of Liquid Height for Body SAR

The following table gives the recipes for tissue simulating liquid.

Frequency (MHz)	Water (%)	Sugar (%)	Cellulose (%)	Salt (%)	Preventol (%)	DGBE (%)	Conductivity (σ)	Permittivity (ε_r)
2450	68.6	0	0	0	0	31.4	1.95	52.7

Table 6.1 Recipes of Tissue Simulating Liquid

Simulating Liquid for 5G, Manufactured by SPEAG

Ingredients	(% by weight)
Water	64~78%
Mineral oil	11~18%
Emulsifiers	9~15%
Additives and Salt	2~3%

The dielectric parameters of the liquids were verified prior to the SAR evaluation using an Agilent 85070D Dielectric Probe Kit and an Agilent Network Analyzer.

The following table shows the measuring results for simulating liquid.

Freq. (MHz)	Liquid Type	Temp. (℃)	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Date
2450	Body	21.5	2.015	53.858	1.95	52.7	3.33	2.20	±5	Dec. 06, 2012
5200	Body	21.7	5.336	47.488	5.30	49.0	0.68	-3.09	±5	Dec. 05, 2012
5800	Body	21.6	6.243	46.387	6.00	48.2	4.05	-3.76	±5	Dec. 05, 2012

Table 6.2 Measuring Results for Simulating Liquid

7. SAR Measurement Evaluation

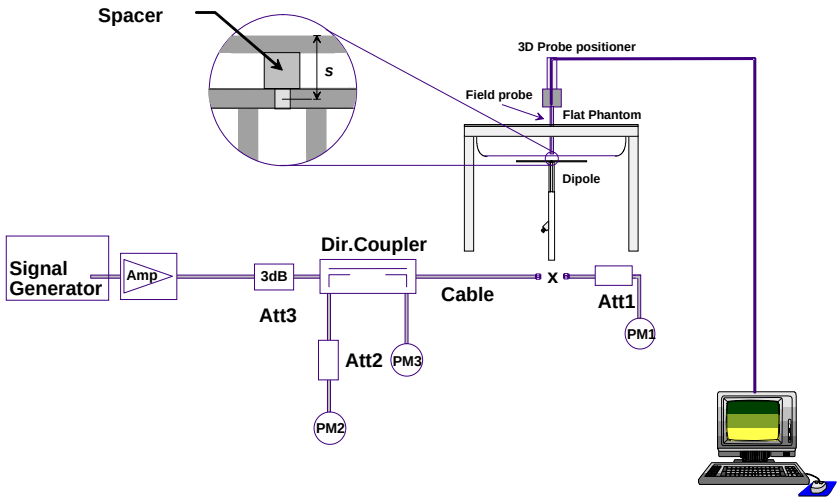
Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder.

7.1 Purpose of System Performance check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

7.2 System Setup

In the simplified setup for system evaluation, the EUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:



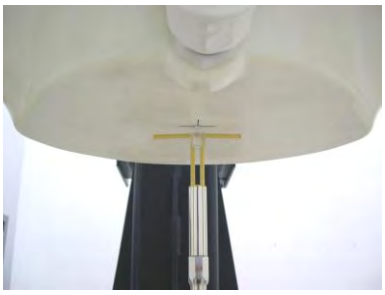


Fig 7.1 System Setup for System Evaluation

Fig 7.2 Photo of Dipole Setup

1. Signal Generator
2. Amplifier
3. Directional Coupler
4. Power Meter
5. Calibrated Dipole

7.3 SAR System Verification Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10 %. Table 7.1 shows the target SAR and measured SAR after normalized to 1W input power. The table below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix A of this report.

Measurement Date	Frequency (MHz)	Liquid Type	Input power fed to dipole (mW)	Targeted SAR_{1g} (W/kg)	Measured SAR_{1g} (W/kg)	Normalized SAR_{1g} (W/kg)	Deviation (%)
Dec. 06, 2012	2450	Body	250	52.3	12.4	49.60	-5.16
Dec. 05, 2012	5200	Body	100	72.60	7.36	73.60	1.38
Dec. 05, 2012	5800	Body	100	73.10	7.32	73.20	0.14

Table 7.1 Target and Measurement SAR after Normalized

8. EUT Testing Position

This EUT was tested in four different USB configurations. They are “direct laptop plug-in for configuration 1 and 3”, “USB cable plug-in for configuration 2 and 4”, and “USB cable plug-in for Tip Mode (the tip of the EUT)” shown as below. Both direct laptop plug-in and USB cable plug-in test configurations are tested with 5 cm separation between the particular dongle orientation and the flat phantom. Please refer to Appendix E for the test setup photos.

			
Configuration 1 (Horizontal Up)	Configuration 2 (Horizontal Down)	Configuration 3 (Vertical Front)	Configuration 4 (Vertical Back)

Fig 8.1 Illustration for USB Connector Orientations

9. Measurement Procedures

The measurement procedures are as follows:

<Conducted power measurement>

(a) For WWAN power measurement, use base station simulator to configure EUT WWAN transmission in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
(b) Read the WWAN RF power level from the base station simulator.
(c) For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band
(d) Connect EUT RF port through RF cable to the power meter, and measure WLAN/BT output power

<SAR measurement>

(a) Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
(b) Place the EUT in the positions as Appendix E demonstrates.
(c) Set scan area, grid size and other setting on the DASY software.
(d) Measure SAR results for the highest power channel on each testing position.
(e) Find out the largest SAR result on these testing positions of each band
(f) Measure SAR results for other channels in worst SAR testing position if the reported SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

9.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

9.2 Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g.

Area scan and zoom scan resolution setting follows KDB 865664 D01v01 quoted below.

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the area scan based *1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

9.3 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

9.4 SAR Averaged Methods

In DASY, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

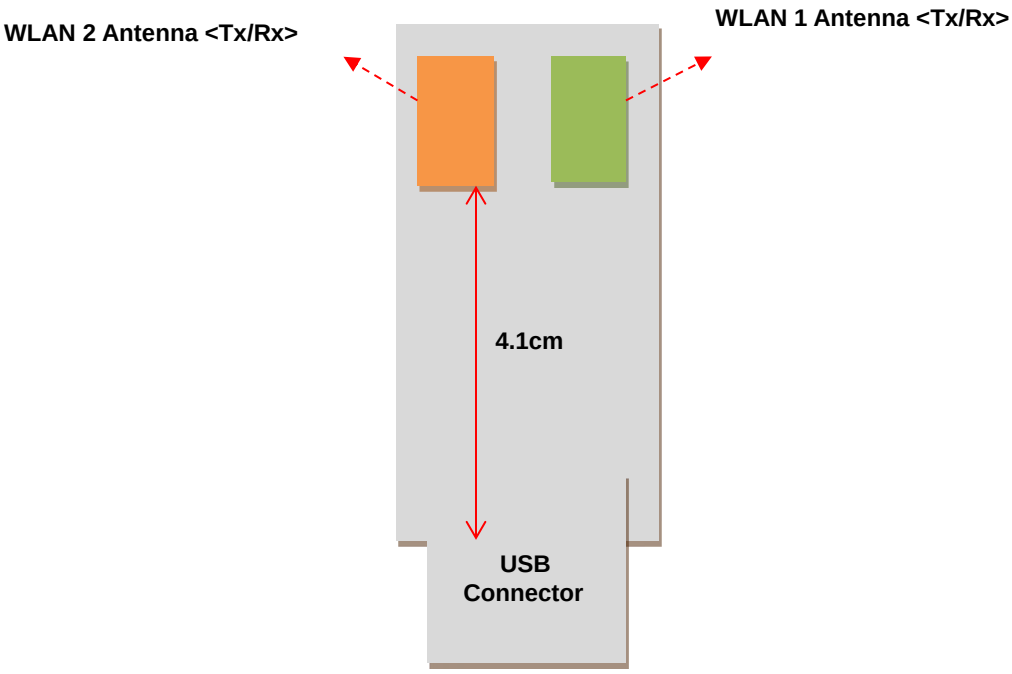
Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

9.5 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

10. SAR Test Configurations

10.1 Exposure Positions Consideration



Antennas	Wireless Interface
WLAN Antenna 2 (Tx/Rx)	802.11 b/g/n 802.11 a/n/ac
WLAN Antenna 1 (Tx/Rx)	802.11 n/ac

Band \ Antenna	Ant. 1	Ant. 2	Ant.1+2
2.4GHz 802. 11b/g	No	Yes	No
2.4GHz 802. 11n	No	No	Yes
5GHz 802. 11a	No	Yes	No
5GHz 802. 11n	No	No	Yes
5GHz 802. 11ac	No	No	Yes

10.2 Conducted RF Power (Unit: dBm)

<WLAN 2.4GHz>

Ant .2

WLAN 2.4G 802.11b Average Power (dBm)							
Power vs. Channel				Power vs. Data Rate			
Channel	Frequency (MHz)	Chain	Data Rate (bps)	Channel	Data Rate (bps)		
			1M		2M	5.5M	11M
CH 01	2412	2	16.70	CH11	17.21	17.10	17.00
CH 06	2437	2	17.00				
CH 11	2462	2	**17.30**				

WLAN 2.4G 802.11g Average Power (dBm)										
Power vs. Channel				Power vs. Data Rate						
Channel	Frequency (MHz)	Chain	Data Rate (bps)	Channel	Data Rate (bps)					
			6M		9M	12M	18M	24M	36M	48M	54M
CH 01	2412	2	15.72	CH11	16.55	16.50	16.45	16.41	16.38	16.29	16.20
CH 06	2437	2	16.00								
CH 11	2462	2	**16.60**								

Note:

1. Per KDB 248227, choose the highest output power channel to test SAR and determine further SAR exclusion
2. Per KDB 248227, 11g average output power is less than 0.25dB higher than 11b mode, thus the SAR can be excluded.
   For each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is less than 0.25dB higher than those measured at the lowest data rate.

Ant .1+2

WLAN 2.4G 802.11n (BW 20MHz) Average Power (dBm)												
Power vs. Channel				Power vs. Data Rate								
Channel	Frequency (MHz)	Chain	MCS Index	Channel	MCS Index							
			MCS8		MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14
CH 01	2412	2	15.36	CH06	18.80	18.75	18.71	18.67	18.52	18.60	17.90
		1	15.47								
		1+2	18.43								
CH 06	2437	2	16.03								
		1	15.67								
		1+2	**18.86**								
CH 11	2462	2	15.71								
		1	15.73								
		1+2	18.73								

WLAN 2.4G 802.11n (BW 40MHz) Average Power (dBm)												
Power vs. Channel				Power vs. Data Rate								
Channel	Frequency (MHz)	Chain	MCS Index	Channel	MCS Index							
			MCS8		MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14
CH 03	2422	2	15.16	CH09	18.20	18.10	18.07	18.00	17.92	17.85	17.80
		1	14.67								
		1+2	17.93								
CH 06	2437	2	15.18								
		1	14.63								
		1+2	17.92								
CH 09	2452	2	15.61								
		1	15.12								
		1+2	**18.38**								

Note:

1. Per KDB 248227, choose the highest output power channel to test SAR and determine further SAR exclusion
2. Per KDB 248227, 11n-HT40 average output power is less than 0.25dB higher than 11b mode, thus the SAR can be excluded.
3. For each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is less than 1/4 dB higher than those measured at the lowest data rate.

<WLAN 5GHz>

Ant. 2

WLAN 5G 802.11a Average Power (dBm)											
Power vs. Channel				Power vs. Data Rate							
Channel	Frequency (MHz)	Chain	Data Rate (bps)	Channel	Data Rate (bps)						
			6M		9M	12M	18M	24M	36M	48M	54M
CH 36	5180	2	15.92	CH48	15.90	15.85	15.81	15.75	15.70	15.65	15.62
CH 40	5200	2	15.85								
CH 44	5220	2	15.94								
CH 48	5240	2	**15.97**								
CH 149	5745	2	15.56	CH157	15.70	15.64	15.66	15.74	15.69	15.50	15.43
CH 153	5765	2	15.72								
CH 157	5785	2	**15.79**								
CH 161	5805	2	15.78								
CH 165	5825	2	15.65								

Ant. 1+2

WLAN 5G 802.11n (BW 20M) Average Power (dBm)											
Power vs. Channel				Power vs. Data Rate							
Channel	Frequency (MHz)	Chain	MCS Index	Channel	MCS Index						
			MCS8		MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
CH 36	5180	2	12.87	CH 40	15.90	15.87	15.84	15.83	15.79	15.72	15.68
		1	12.92								
		1+2	15.91								
CH 40	5200	2	12.85								
		1	13.08								
		1+2	**15.98**								
CH 44	5220	2	12.81								
		1	12.64								
		1+2	15.74								
CH 48	5240	2	12.65								
		1	12.66								
		1+2	15.67								
CH 149	5745	2	19.47	CH 149	21.90	21.88	21.81	21.75	21.70	21.68	21.63
		1	18.34								
		1+2	**21.95**								
CH 153	5765	2	19.47								
		1	18.22								
		1+2	21.90								
CH 157	5785	2	19.35								
		1	18.21								
		1+2	21.83								
CH 161	5805	2	19.27								
		1	18.38								
		1+2	21.86								
CH 165	5825	2	19.33								
		1	18.27								
		1+2	21.84								

WLAN 5G 802.11n (BW 40M) Average Power (dBm)												
Power vs. Channel				Power vs. Data Rate								
Channel	Frequency (MHz)	Chain	MCS Index	Channel	MCS Index							
			MCS8		MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
CH 38	5190	2	12.18	CH 46	15.61	15.54	15.51	15.45	15.38	15.32	15.34
		1	12.84								
		1+2	15.53								
CH 46	5230	2	12.7								
		1	12.57								
		1+2	**15.65**								
CH 151	5755	2	18.75	CH 159	21.28	21.25	21.20	21.15	21.10	21.05	21.00
		1	17.56								
		1+2	21.21								
CH 159	5795	2	18.79								
		1	17.78								
		1+2	**21.32**								

WLAN 5G 802.11ac (BW 20M) Average Power (dBm)												
Power vs. Channel				Power vs. Data Rate								
Channel	Frequency (MHz)	Chain	MCS Index	Channel	MCS Index							
			MCS8		MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
CH 36	5180	2	12.91	CH 36	15.90	15.85	15.80	15.75	15.70	15.65	15.61
		1	13								
		1+2	**15.97**								
CH 40	5200	2	12.55								
		1	12.72								
		1+2	15.65								
CH 44	5220	2	12.69								
		1	12.78								
		1+2	15.75								
CH 48	5240	2	12.58								
		1	12.77								
		1+2	15.69								
CH 149	5745	2	19.32	CH 165	21.80	21.75	21.70	21.65	21.61	21.58	21.51
		1	18.20								
		1+2	21.81								
CH 153	5765	2	19.41								
		1	18.17								
		1+2	21.84								
CH 157	5785	2	19.28								
		1	18.14								
		1+2	21.76								
CH 161	5805	2	19.16								
		1	18.13								
		1+2	21.69								
CH 165	5825	2	19.35								
		1	18.30								
		1+2	**21.87**								

WLAN 5G 802.11 ac (BW 40M) Average Power (dBm)												
Power vs. Channel				Power vs. Data Rate								
Channel	Frequency (MHz)	Chain	MCS Index	Channel	MCS Index							
			MCS8		MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
CH 38	5190	2	12.68	CH 46	15.61	15.57	15.52	15.50	15.46	15.41	15.44
		1	12.51								
		1+2	15.61								
CH 46	5230	2	12.88								
		1	12.45								
		1+2	**15.68**								
CH 151	5755	2	18.79	CH 151	21.10	21.05	20.99	20.85	20.80	20.75	20.68
		1	17.34								
		1+2	**21.14**								
CH 159	5795	2	18.55								
		1	17.61								
		1+2	21.12								

WLAN 5G 802.11ac (BW 80M) Average Power (dBm)											
Power vs. Channel				Power vs. Data Rate							
Channel	Frequency (MHz)	Chain	MCS Index	Channel	MCS Index						
			MCS8		MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
CH 42	5210	2	11.55	CH 42	14.47	14.42	14.43	14.38	14.34	14.31	14.27
		1	11.42								
		1+2	**14.50**								
CH 155	5775	2	18.74	CH 155	21.25	21.20	21.15	21.10	21.02	21.00	20.97
		1	17.77								
		1+2	**21.29**								

Note:

1. The conducted power is the summation of the power of each chain
2. Per KDB 248227, choose the highest output power channel to test SAR and determine further SAR exclusion.
3. Per KDB 248227, choose the lowest order modulation mode to test SAR; therefore 11a was chosen for SAR testing.
4. For 5180MHz~5240MHz, 11n-HT20, the highest output power is more than 0.25 dB higher than 11a, thus 11n-HT20 SAR was additionally verified in the worst case found in 11a SAR testing;
5. For 5745MHz~5825MHz, 11n-HT20, the highest output power is more than 0.25 dB higher than 11a, thus 11n-HT20 SAR was additionally verified in the worst case found in 11a SAR testing;
6. For 11ac-VHT80, SAR is verified in both 5180MHz~5240MHz and 5745MHz~5825MHz due to conservative consideration for a wider bandwidth.

11. SAR Test Results

11.1 Test Records for Body SAR Test

<General Note>

Per KDB 447498 D01v05, for each exposure position, if the highest output channel reported SAR other channels SAR testing are not necessary.

<WLAN>

Plot No.	Band	Mode	Test Position	Gap (cm)	Ant.	Ch.	Freq. (MHz)	Burst Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	SAR_{1g} (W/kg)	Scaled SAR_{1g} (W/kg)
32	**WLAN2.4G**	**802.11b**	**Horizontal Up**	**0.5cm**	**Ant 2**	**11**	**2462**	**17.30**	**17.5**	**1.047**	**0.02**	**1.03**	**1.079**
33	WLAN2.4G	802.11b	Horizontal Down	0.5cm	Ant 2	11	2462	17.30	17.5	1.047	-0.06	0.979	1.025
34	WLAN2.4G	802.11b	Vertical Front	0.5cm	Ant 2	11	2462	17.30	17.5	1.047	-0.1	0.144	0.151
35	WLAN2.4G	802.11b	Vertical Back	0.5cm	Ant 2	11	2462	17.30	17.5	1.047	-0.03	0.756	0.792
36	WLAN2.4G	802.11b	Tip Mode	0.5cm	Ant 2	11	2462	17.30	17.5	1.047	-0.03	0.12	0.126
37	WLAN2.4G	802.11b	Horizontal Up	0.5cm	Ant 2	1	2412	16.70	17.5	1.202	0.01	0.726	0.873
38	WLAN2.4G	802.11b	Horizontal Up	0.5cm	Ant 2	6	2437	17.00	17.5	1.122	0.02	0.833	0.935
39	WLAN2.4G	802.11b	Horizontal Down	0.5cm	Ant 2	1	2412	16.70	17.5	1.202	0.11	0.753	0.905
40	WLAN2.4G	802.11b	Horizontal Down	0.5cm	Ant 2	6	2437	17.00	17.5	1.122	0.02	0.824	0.925
41	WLAN2.4G	802.11n-HT20	Horizontal Up	0.5cm	Ant 1+2	6	2437	18.86	19	1.032	-0.12	0.915	0.944
42	WLAN2.4G	802.11n-HT20	Horizontal Down	0.5cm	Ant 1+2	6	2437	18.86	19	1.032	-0.12	0.906	0.935
43	WLAN2.4G	802.11n-HT20	Vertical Front	0.5cm	Ant 1+2	6	2437	18.86	19	1.032	-0.034	0.388	0.400
44	WLAN2.4G	802.11n-HT20	Vertical Back	0.5cm	Ant 1+2	6	2437	18.86	19	1.032	-0.1	0.396	0.409
45	WLAN2.4G	802.11n-HT20	Tip Mode	0.5cm	Ant 1+2	6	2437	18.86	19	1.032	-0.06	0.205	0.212
46	WLAN2.4G	802.11n-HT20	Horizontal Up	0.5cm	Ant 1+2	1	2412	18.43	19	1.141	-0.04	0.934	1.066
47	**WLAN2.4G**	**802.11n-HT20**	**Horizontal Up**	**0.5cm**	**Ant 1+2**	**11**	**2462**	**18.73**	**19**	**1.064**	**-0.19**	**1.1**	**1.170**
48	WLAN2.4G	802.11n-HT20	Horizontal Down	0.5cm	Ant 1+2	1	2412	18.43	19	1.141	-0.08	0.811	0.926
49	WLAN2.4G	802.11n-HT20	Horizontal Down	0.5cm	Ant 1+2	11	2462	18.73	19	1.064	-0.09	0.916	0.975
1	WLAN5G	802.11a	Horizontal Up	0.5cm	Ant 2	48	5240	15.97	16	1.007	-0.17	0.416	0.419
2	WLAN5G	802.11a	Horizontal Down	0.5cm	An t2	48	5240	15.97	16	1.007	-0.14	0.4	0.403
3	WLAN5G	802.11a	Vertical Front	0.5cm	Ant 2	48	5240	15.97	16	1.007	-0.026	0.034	0.034
4	**WLAN5G**	**802.11a**	**Vertical Back**	**0.5cm**	**Ant 2**	**48**	**5240**	**15.97**	**16**	**1.007**	**-0.05**	**0.669**	**0.674**
5	WLAN5G	802.11a	Tip Mode	0.5cm	Ant 2	48	5240	15.97	16	1.007	-0.06	0.122	0.123
6	WLAN5G	802.11a	Horizontal Up	0.5cm	Ant 2	157	5785	15.79	16	1.050	0.03	0.63	0.661
7	WLAN5G	802.11a	Horizontal Down	0.5cm	An t2	157	5785	15.79	16	1.050	-0.05	0.55	0.577
8	WLAN5G	802.11a	Vertical Front	0.5cm	Ant 2	157	5785	15.79	16	1.050	0.04	0.022	0.023
9	**WLAN5G**	**802.11a**	**Vertical Back**	**0.5cm**	**Ant 2**	**157**	**5785**	**15.79**	**16**	**1.050**	**0.06**	**1.07**	**1.123**
10	WLAN5G	802.11a	Tip Mode	0.5cm	Ant 2	157	5785	15.79	16	1.050	-0.01	0.259	0.272
11	WLAN5G	802.11a	Vertical Back	0.5cm	Ant 2	153	5765	15.72	16	1.067	-0.06	0.981	1.046
12	WLAN5G	802.11a	Vertical Back	0.5cm	Ant 2	161	5805	15.78	16	1.052	0.01	0.914	0.961

Plot No.	Band	Mode	Test Position	Gap (cm)	Ant.	Ch.	Freq. (MHz)	Burst Average Power (dBm)	Tune-Up Limit (dBm)	Scaling Factor	Power Drift (dB)	SAR_{1g} (W/kg)	Scaled SAR_{1g} (W/kg)
13	WLAN5G	802.11n-HT20	Horizontal Up	0.5cm	Ant 1+2	40	5200	15.98	16	1.005	0.07	0.229	0.230
14	WLAN5G	802.11n-HT20	Horizontal Down	0.5cm	Ant 1+2	40	5200	15.98	16	1.005	-0.15	0.16	0.161
15	WLAN5G	802.11n-HT20	Vertical Front	0.5cm	Ant 1+2	40	5200	15.98	16	1.005	-0.01	0.284	0.286
16	**WLAN5G**	**802.11n-HT20**	**Vertical Back**	**0.5cm**	**Ant 1+2**	**40**	**5200**	**15.98**	**16**	**1.005**	**-0.07**	**0.326**	**0.328**
17	WLAN5G	802.11n-HT20	Tip Mode	0.5cm	Ant 1+2	40	5200	15.98	16	1.005	-0.05	0.071	0.071
50	WLAN5G	802.11ac-VHT80	Vertical Back	0.5cm	Ant 1+2	42	5210	14.50	15	1.123	-0.155	0.188	0.211
18	WLAN5G	802.11n-HT20	Horizontal Up	0.5cm	Ant 1+2	149	5745	21.95	22	1.011	0.19	0.847	0.856
19	WLAN5G	802.11n-HT20	Horizontal Down	0.5cm	Ant 1+2	149	5745	21.95	22	1.011	-0.09	0.843	0.852
20	WLAN5G	802.11n-HT20	Vertical Front	0.5cm	Ant 1+2	149	5745	21.95	22	1.011	0.02	0.865	0.875
21	**WLAN5G**	**802.11n-HT20**	**Vertical Back**	**0.5cm**	**Ant 1+2**	**149**	**5745**	**21.95**	**22**	**1.011**	**-0.04**	**0.986**	**0.997**
22	WLAN5G	802.11n-HT20	Tip Mode	0.5cm	Ant 1+2	149	5745	21.95	22	1.011	-0.07	0.414	0.419
30	WLAN5G	802.11n-HT20	Horizontal Up	0.5cm	Ant 1+2	157	5785	21.83	22	1.040	0.1	0.84	0.874
31	WLAN5G	802.11n-HT20	Horizontal Up	0.5cm	Ant 1+2	161	5805	21.86	22	1.033	0.05	0.805	0.832
28	WLAN5G	802.11n-HT20	Horizontal Down	0.5cm	Ant 1+2	157	5785	21.83	22	1.040	-0.14	0.787	0.819
29	WLAN5G	802.11n-HT20	Horizontal Down	0.5cm	Ant 1+2	161	5805	21.86	22	1.033	-0.17	0.757	0.782
26	WLAN5G	802.11n-HT20	Vertical Front	0.5cm	Ant 1+2	157	5785	21.83	22	1.040	0	0.821	0.854
27	WLAN5G	802.11n-HT20	Vertical Front	0.5cm	Ant 1+2	161	5805	21.86	22	1.033	0	0.799	0.826
23	WLAN5G	802.11n-HT20	Vertical Back	0.5cm	Ant 1+2	157	5785	21.83	22	1.040	-0.04	0.885	0.921
24	WLAN5G	802.11n-HT20	Vertical Back	0.5cm	Ant 1+2	161	5805	21.86	22	1.033	-0.03	0.85	0.878
25	WLAN5G	802.11ac-VHT80	Vertical Back	0.5cm	Ant 1+2	155	5775	21.29	21.5	1.049	-0.02	0.81	0.850

11.2 Repeated SAR Measurement

Plot No.	Band	Mode	Test Position	Gap (cm)	Ant.	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	SAR_{1g} (W/kg)	Tune-up Scaled 1g SAR
32	WLAN2.4G	802.11b	Horizontal Up	0.5cm	Ant 2	11	2462	17.30	17.5	1.047	0.02	1.03	1.079
51	WLAN2.4G	802.11b	Horizontal Up	0.5cm	Ant 2	11	2462	17.30	17.5	1.047	0.056	1.02	1.068
47	WLAN2.4G	802.11n-HT20	Horizontal Up	0.5cm	Ant 1+2	11	2462	18.73	19	1.064	-0.19	1.1	1.170
52	WLAN2.4G	802.11n-HT20	Horizontal Up	0.5cm	Ant 1+2	11	2462	18.73	19	1.064	-0.01	1.06	1.128
9	WLAN5G	802.11a	Vertical Back	0.5cm	Ant 2	157	5785	15.79	16	1.050	0.06	1.07	1.123
53	WLAN5G	802.11a	Vertical Back	0.5cm	Ant 2	157	5785	15.79	16	1.050	0.069	0.953	1.000
21	WLAN5G	802.11n-HT20	Vertical Back	0.5cm	Ant 1+2	149	5745	21.95	22	1.011	-0.04	0.986	0.997
54	WLAN5G	802.11n-HT20	Vertical Back	0.5cm	Ant 1+2	149	5745	21.95	22	1.011	-0.14	0.971	0.982

Note:

1. Per KDB 865664 D01v01, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/kg
2. Per KDB 865664 D01v01, if the deviation among the repeated measurement is ≤20% and the measured SAR <1.45W/kg, only one repeated measurement is required.
3. The deviation is the difference in percentage between original and repeated measured *SAR*.
4. All measured SAR result is scaled-up to account for tune-up tolerance and is compliant.

11.3 Highest SAR Plot

Plot No.	Band	BW (MHz)	Mode	Test Position	Gap (cm)	Ch.	Freq. (MHz)	Average Power (dBm)	Tune-up Limit (dBm)	Tune-up Scaling Factor	Power Drift (dB)	SAR_{1g} (W/kg)	Tune-up Scaled 1g SAR
32	WLAN2.4G	802.11b	Horizontal Up	0.5cm	Ant 2	11	2462	17.30	17.5	1.047	0.02	1.03	1.079
47	WLAN2.4G	802.11n-HT20	Horizontal Up	0.5cm	Ant 1+2	11	2462	18.73	19	1.064	-0.19	1.1	1.170
9	WLAN5G	802.11a	Vertical Back	0.5cm	Ant 2	157	5785	15.79	16	1.050	0.06	1.07	1.123
21	WLAN5G	802.11n-HT20	Vertical Back	0.5cm	Ant 1+2	149	5745	21.95	22	1.011	-0.04	0.986	0.997

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/6

#32_WLAN2.4G_802.11b_Horizontal Up_0.5cm_Ch11;Ant 2

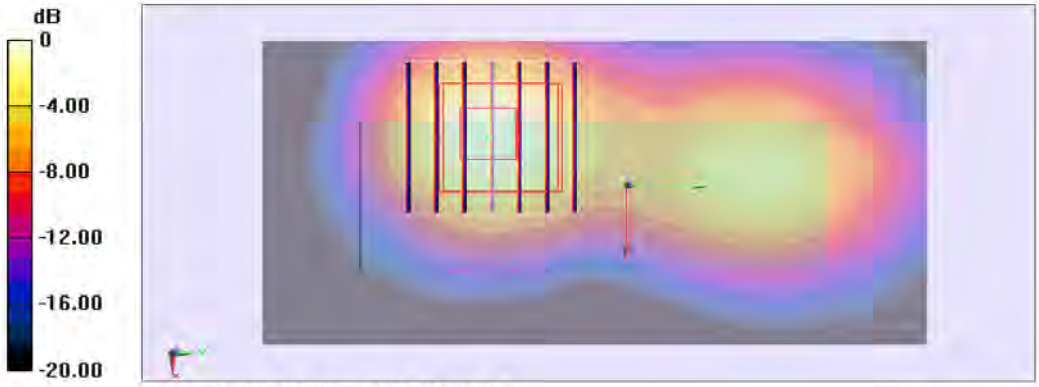
DUT: 2N0801

Communication System: 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2462 MHz; σ = 2.032 mho/m; ε_r = 53.846; ρ = 1000 kg/m^3
Ambient Temperature : 22.5 ℃; Liquid Temperature : 21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch11/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.68 mW/g

Configuration/Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.156 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 2.169 mW/g
SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.467 mW/g
Maximum value of SAR (measured) = 1.58 mW/g



0 dB = 1.58 mW/g = 3.97 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/6

#47_WLAN2.4G_802.11n-HT20_Horizontal Up_0.5cm_Ch11;Ant 1+2

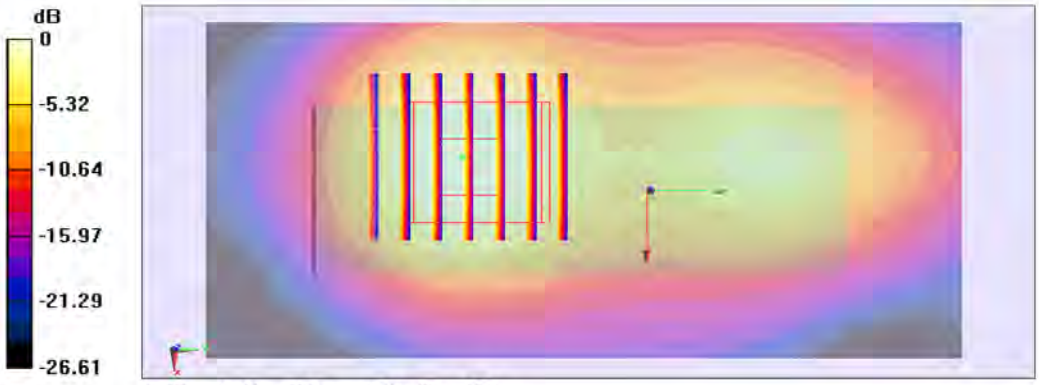
DUT: 2N0801

Communication System: 802.11n; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2462 MHz; σ = 2.032 mho/m; ε_r = 53.846; ρ = 1000 kg/m^3
Ambient Temperature : 22.5 ℃; Liquid Temperature : 21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch11/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.81 mW/g

Configuration/Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.927 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 2.268 mW/g
SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.524 mW/g
Maximum value of SAR (measured) = 1.63 mW/g



0 dB = 1.63 mW/g = 4.24 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/5

#09_WLAN5G_802.11a_Vertical Back_0.5cm_Ch157;Ant 2

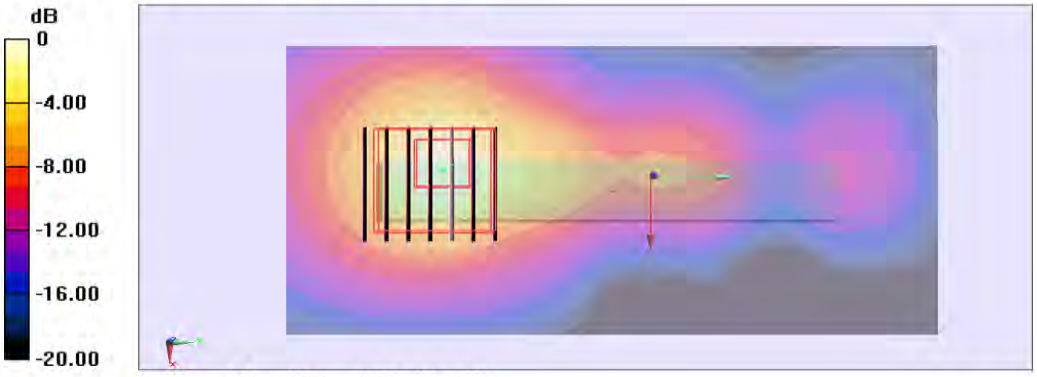
DUT: 2N0801

Communication System: 802.11a; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5785 MHz; σ = 6.23 mho/m; ε_r = 46.452; ρ = 1000 kg/m^3
Ambient Temperature : 22.6 ℃; Liquid Temperature : 21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch157/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.55 mW/g

Configuration/Ch157/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 24.398 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 4.577 mW/g
SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.340 mW/g
Maximum value of SAR (measured) = 2.64 mW/g



0 dB = 2.64 mW/g = 8.43 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/5

#21_WLAN5G_802.11n-HT20_Vertical Back_0.5cm_Ch149;Ant 1+2

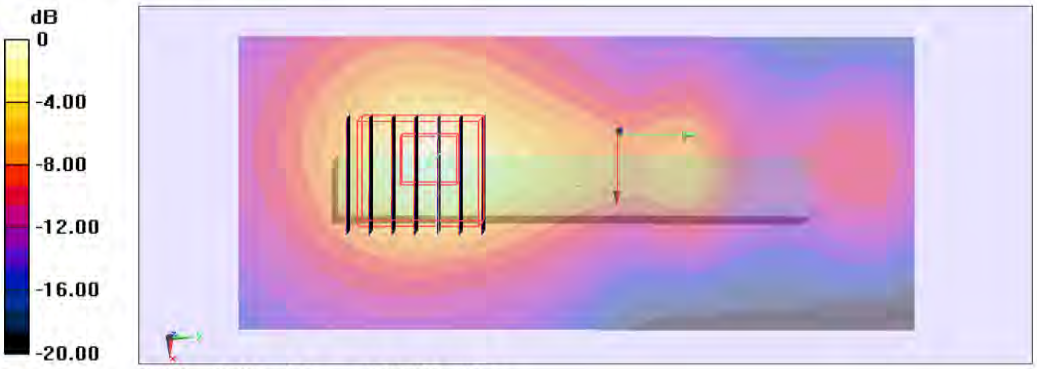
DUT: 2N0801

Communication System: 802.11n; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5745 MHz; σ = 6.184 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3
Ambient Temperature : 22.6 ℃; Liquid Temperature : 21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch149/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.18 mW/g

Configuration/Ch149/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 23.388 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 4.067 mW/g
SAR(1 g) = 0.986 mW/g; SAR(10 g) = 0.325 mW/g
Maximum value of SAR (measured) = 2.39 mW/g



0 dB = 2.39 mW/g = 7.57 dB mW/g

Test Engineer : Cona Huang and Ted Sun

12. Uncertainty Assessment

The component of uncertainly may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainly by the statistical analysis of a series of observations is termed a Type An evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience, and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in Table 12.1

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi-plying Factor[(a)]	1/k[(b)]	$1/\sqrt{3}$	$1/\sqrt{6}$	$1/\sqrt{2}$

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) κ is the coverage factor

Table 12.1 Standard Uncertainty for Assumed Distribution

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in following tables.

Error Description	Uncertainty Value (±%)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)
Measurement System							
Probe Calibration	6.0	Normal	1	1	1	± 6.0 %	± 6.0 %
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	± 3.9 %	± 3.9 %
Boundary Effects	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Linearity	4.7	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Readout Electronics	0.3	Normal	1	1	1	± 0.3 %	± 0.3 %
Response Time	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	0.4	Rectangular	√3	1	1	± 0.2 %	± 0.2 %
Probe Positioning	2.9	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Max. SAR Eval.	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Test Sample Related							
Device Positioning	2.9	Normal	1	1	1	± 2.9 %	± 2.9 %
Device Holder	3.6	Normal	1	1	1	± 3.6 %	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %
Phantom and Setup							
Phantom Uncertainty	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Normal	1	0.64	0.43	± 1.6 %	± 1.1 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Normal	1	0.6	0.49	± 1.5 %	± 1.2 %
Combined Standard Uncertainty						± 11.0 %	± 10.8 %
Coverage Factor for 95 %						K=2	
Expanded Uncertainty						**± 22.0 %**	**± 21.5 %**

Table 12.2 Uncertainty Budget of DASY for frequency range 300 MHz to 3 GHz

Error Description	Uncertainty Value (±%)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)
Measurement System							
Probe Calibration	6.55	Normal	1	1	1	± 6.55 %	± 6.55 %
Axial Isotropy	4.7	Rectangular	√3	0.7	0.7	± 1.9 %	± 1.9 %
Hemispherical Isotropy	9.6	Rectangular	√3	0.7	0.7	± 3.9 %	± 3.9 %
Boundary Effects	2.0	Rectangular	√3	1	1	± 1.2 %	± 1.2 %
Linearity	4.7	Rectangular	√3	1	1	± 2.7 %	± 2.7 %
System Detection Limits	1.0	Rectangular	√3	1	1	± 0.6 %	± 0.6 %
Readout Electronics	0.3	Normal	1	1	1	± 0.3 %	± 0.3 %
Response Time	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Integration Time	2.6	Rectangular	√3	1	1	± 1.5 %	± 1.5 %
RF Ambient Noise	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
RF Ambient Reflections	3.0	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Probe Positioner	0.8	Rectangular	√3	1	1	± 0.5 %	± 0.5 %
Probe Positioning	9.9	Rectangular	√3	1	1	± 5.7 %	± 5.7 %
Max. SAR Eval.	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Test Sample Related							
Device Positioning	2.9	Normal	1	1	1	± 2.9 %	± 2.9 %
Device Holder	3.6	Normal	1	1	1	± 3.6 %	± 3.6 %
Power Drift	5.0	Rectangular	√3	1	1	± 2.9 %	± 2.9 %
Phantom and Setup							
Phantom Uncertainty	4.0	Rectangular	√3	1	1	± 2.3 %	± 2.3 %
Liquid Conductivity (Target)	5.0	Rectangular	√3	0.64	0.43	± 1.8 %	± 1.2 %
Liquid Conductivity (Meas.)	2.5	Normal	1	0.64	0.43	± 1.6 %	± 1.1 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	2.5	Normal	1	0.6	0.49	± 1.5 %	± 1.2 %
Combined Standard Uncertainty						± 12.8 %	± 12.6 %
Coverage Factor for 95 %						K=2	
Expanded Uncertainty						**± 25.6 %**	**± 25.2 %**

Table 12.3 Uncertainty Budget of DASY for frequency range 3 GHz to 6 GHz

13. References

[1] FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”

[2] ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992

[3] IEEE Std. 1528-2003, “Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, December 2003

[4] FCC OET Bulletin 65 (Edition 97-01) Supplement C (Edition 01-01), “Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields”, June 2001

[5] SPEAG DASY System Handbook

[6] FCC KDB 248227 D01 v01r02, “SAR Measurement Procedures for 802.11 a/b/g Transmitters”, May 2007

[7] FCC KDB 447498 D01 v05, “Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies”, November 2009

[8] FCC KDB 447498 D02 v02, "SAR Measurement Procedures for USB Dongle Transmitters", November 2009

[9] FCC KDB 644545 D01 v01, "Guidance for IEEE 802.11ac and Pre-ac Device Emission Testing", June 2012

Appendix A. Plots of System Performance Check

The plots are shown as follows.

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/6

System Check_Body_2450MHz_121206

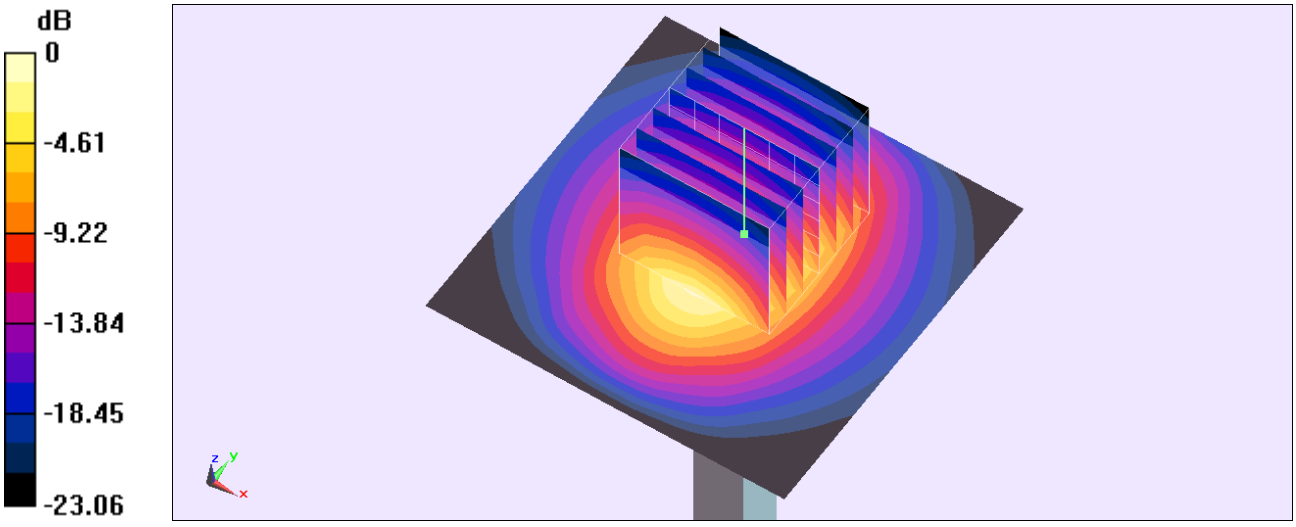
DUT: D2450V2-SN:736

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2450 MHz; σ = 2.015 mho/m; ε_r = 53.858; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 21.4 mW/g

Configuration/Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98.368 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 27.047 mW/g
SAR(1 g) = 12.4 mW/g; SAR(10 g) = 5.76 mW/g
Maximum value of SAR (measured) = 19.1 mW/g



0 dB = 19.1 mW/g = 25.62 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/5

System Check_Body_5200MHz_121205

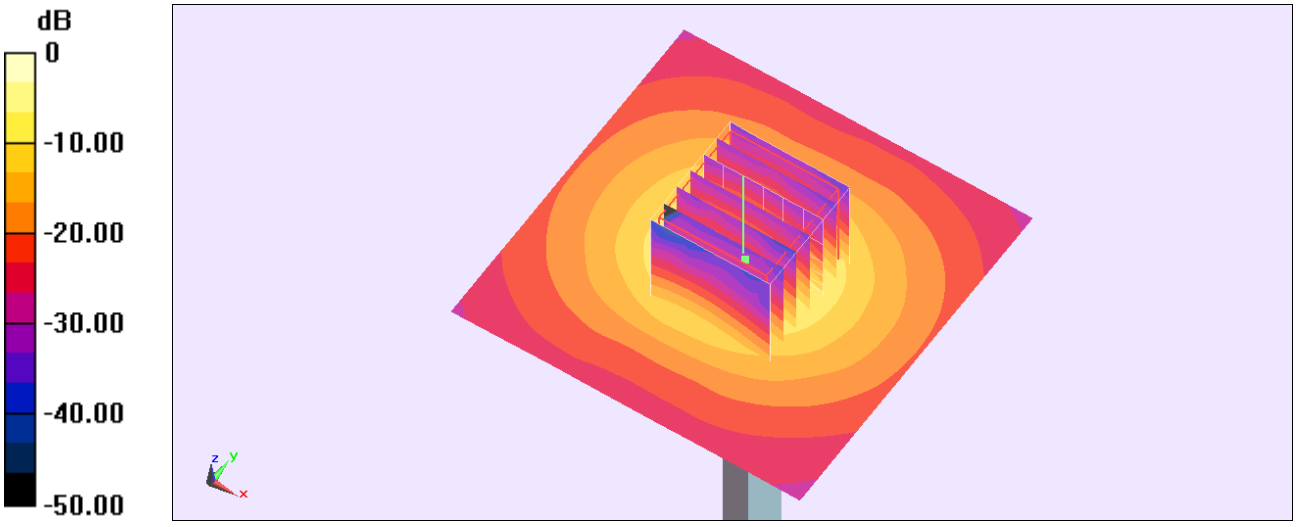
DUT: D5GHzV2-SN:1006

Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5200 MHz; σ = 5.336 mho/m; ε_r = 47.488; ρ = 1000 kg/m^3
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Pin=100mW/Area Scan (71x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 21.6 mW/g

Configuration/Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 49.906 V/m; Power Drift = -0.139 dB
Peak SAR (extrapolated) = 32.800 mW/g
SAR(1 g) = 7.36 mW/g; SAR(10 g) = 2.03 mW/g
Maximum value of SAR (measured) = 18.1 mW/g



0 dB = 18.1 mW/g = 25.15 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/5

System Check_Body_5800MHz_121205

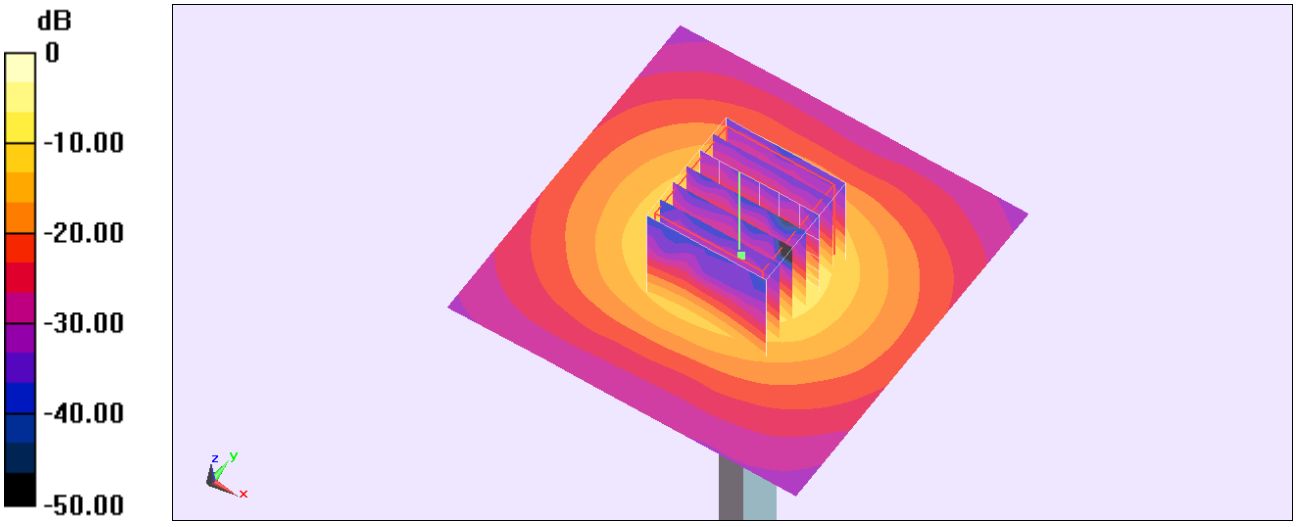
DUT: D5GHzV2-SN:1006

Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5800 MHz; σ = 6.243 mho/m; ε_r = 46.387; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Pin=100mW/Area Scan (71x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 16.9 mW/g

Configuration/Pin=100mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 38.946 V/m; Power Drift = 0.190 dB
Peak SAR (extrapolated) = 38.126 mW/g
SAR(1 g) = 7.32 mW/g; SAR(10 g) = 1.98 mW/g
Maximum value of SAR (measured) = 19.3 mW/g



0 dB = 19.3 mW/g = 25.71 dB mW/g

Appendix B. Plots of SAR Measurement

The plots are shown as follows.

#32_WLAN2.4G_802.11b_Horizontal Up_0.5cm_Ch11;Ant 2

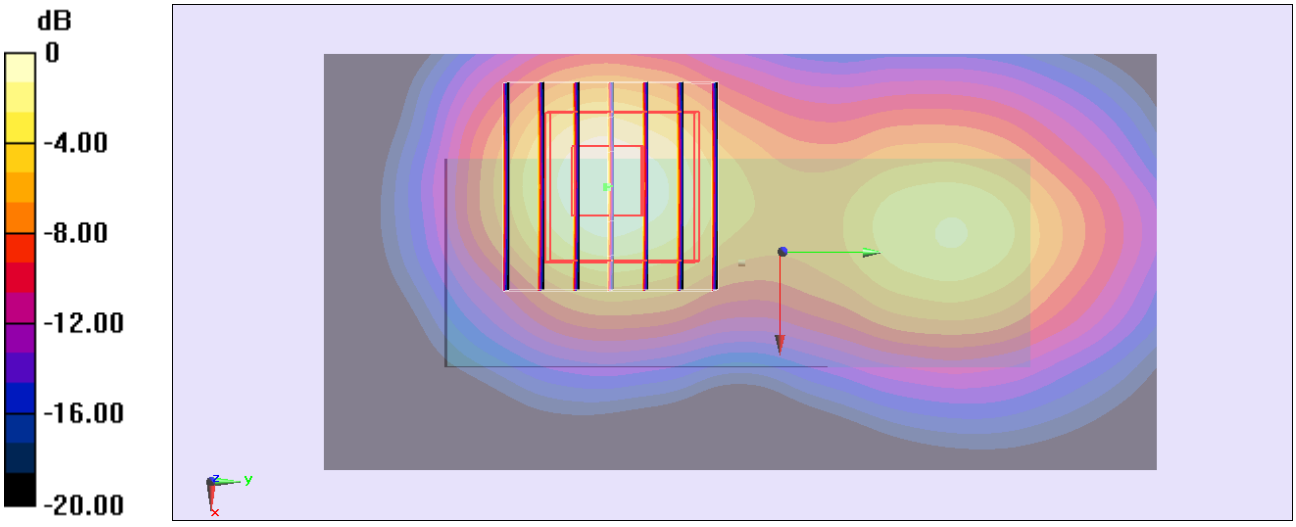
DUT: 2N0801

Communication System: 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2462 MHz; σ = 2.032 mho/m; ε_r = 53.846; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch11/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.68 mW/g

Configuration/Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.156 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 2.169 mW/g
SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.467 mW/g
Maximum value of SAR (measured) = 1.58 mW/g



0 dB = 1.58 mW/g = 3.97 dB mW/g

#32_WLAN2.4G_802.11b_Horizontal Up_0.5cm_Ch11;Ant 2_2D

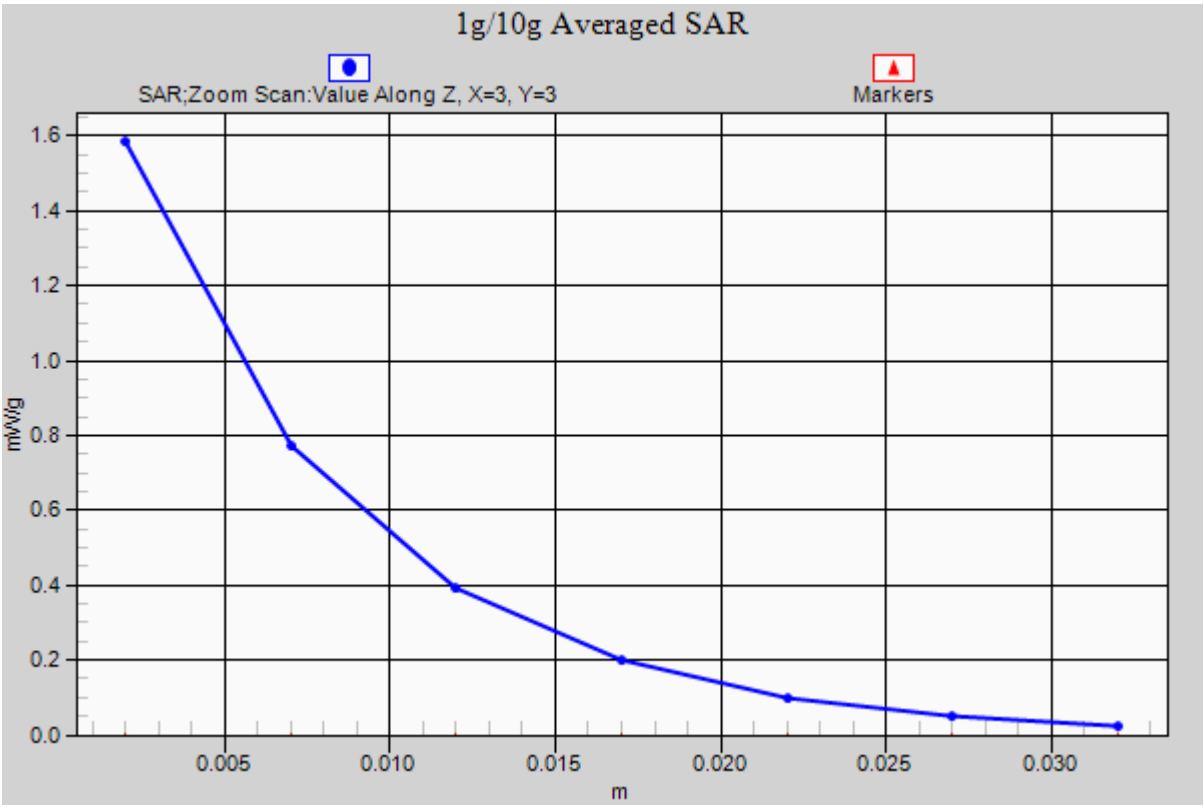
DUT: 2N0801

Communication System: 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2462 MHz; σ = 2.032 mho/m; ε_r = 53.846; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch11/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.68 mW/g

Configuration/Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.156 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 2.169 mW/g
SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.467 mW/g
Maximum value of SAR (measured) = 1.58 mW/g



#51_WLAN2.4G_802.11b_Horizontal Up_0.5cm_Ch11;Ant 2_Repeat

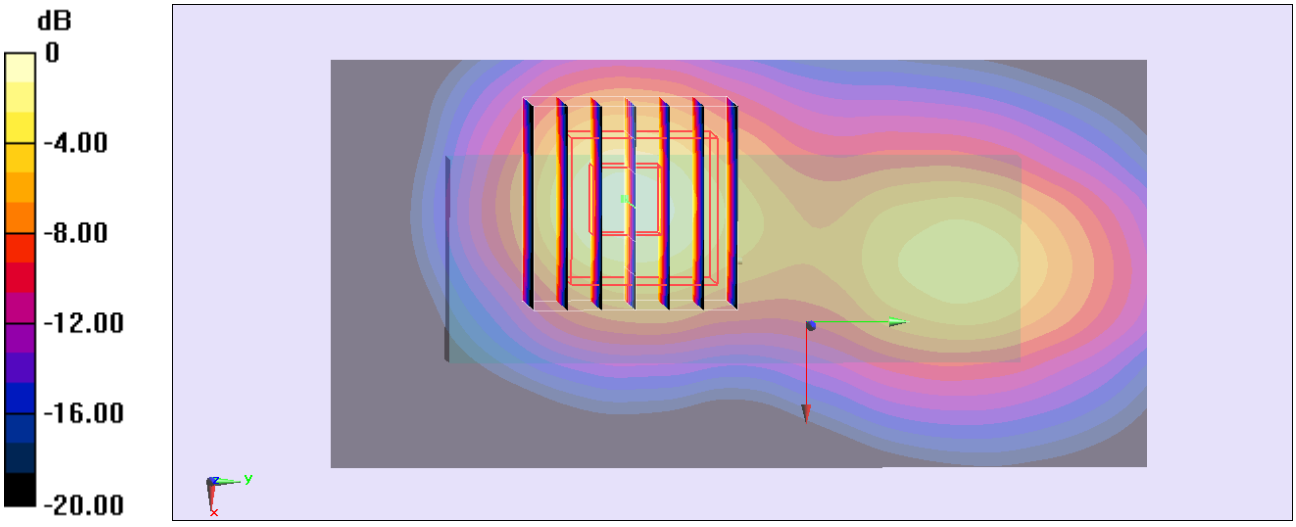
DUT: 2N0801

Communication System: 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2462 MHz; σ = 2.032 mho/m; ε_r = 53.846; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch11/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.40 mW/g

Configuration/Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.131 V/m; Power Drift = 0.056 dB
Peak SAR (extrapolated) = 2.204 mW/g
SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.459 mW/g
Maximum value of SAR (measured) = 1.60 mW/g



0 dB = 1.60 mW/g = 4.08 dB mW/g

#33_WLAN2.4G_802.11b_Horizontal Down_0.5cm_Ch11;Ant 2

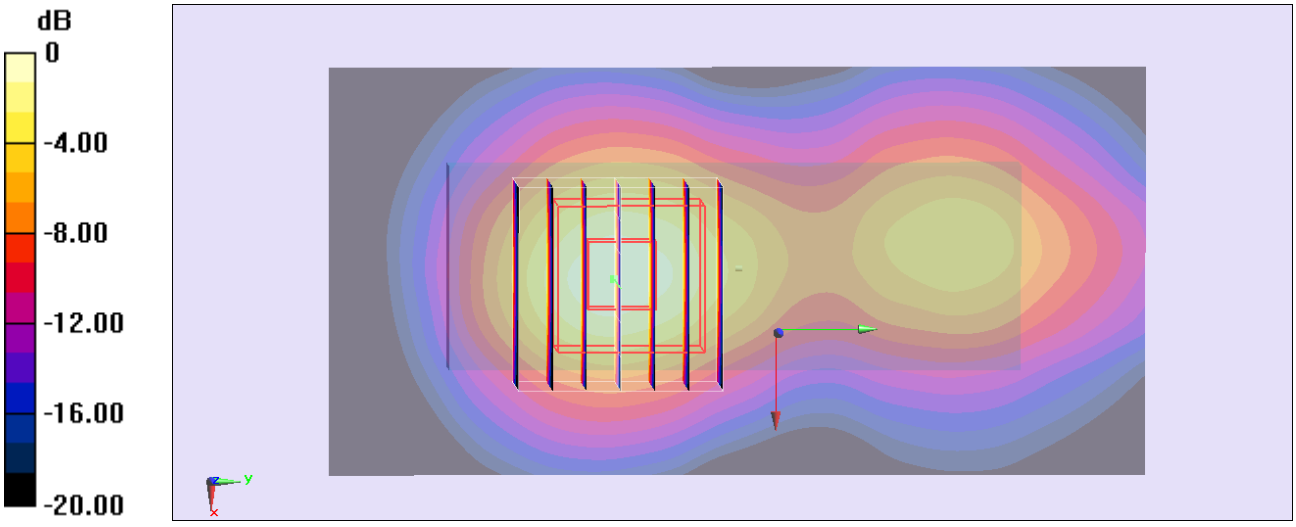
DUT: 2N0801

Communication System: 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2462 MHz; σ = 2.032 mho/m; ε_r = 53.846; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch11/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.44 mW/g

Configuration/Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.494 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 2.039 mW/g
SAR(1 g) = 0.979 mW/g; SAR(10 g) = 0.449 mW/g
Maximum value of SAR (measured) = 1.49 mW/g



0 dB = 1.49 mW/g = 3.46 dB mW/g

#34_WLAN2.4G_802.11b_Vertical Front_0.5cm_Ch11;Ant 2

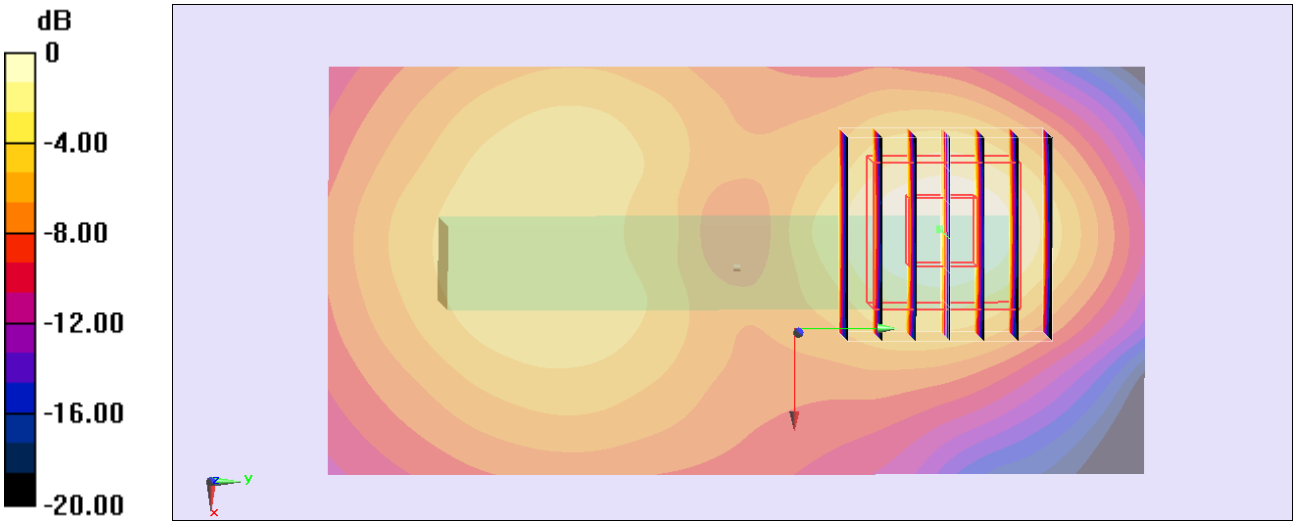
DUT: 2N0801

Communication System: 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2462 MHz; σ = 2.032 mho/m; ε_r = 53.846; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch11/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.232 mW/g

Configuration/Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.422 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.288 mW/g
SAR(1 g) = 0.144 mW/g; SAR(10 g) = 0.069 mW/g
Maximum value of SAR (measured) = 0.213 mW/g



0 dB = 0.213 mW/g = -13.43 dB mW/g

#35_WLAN2.4G_802.11b_Vertical Back_0.5cm_Ch11;Ant 2

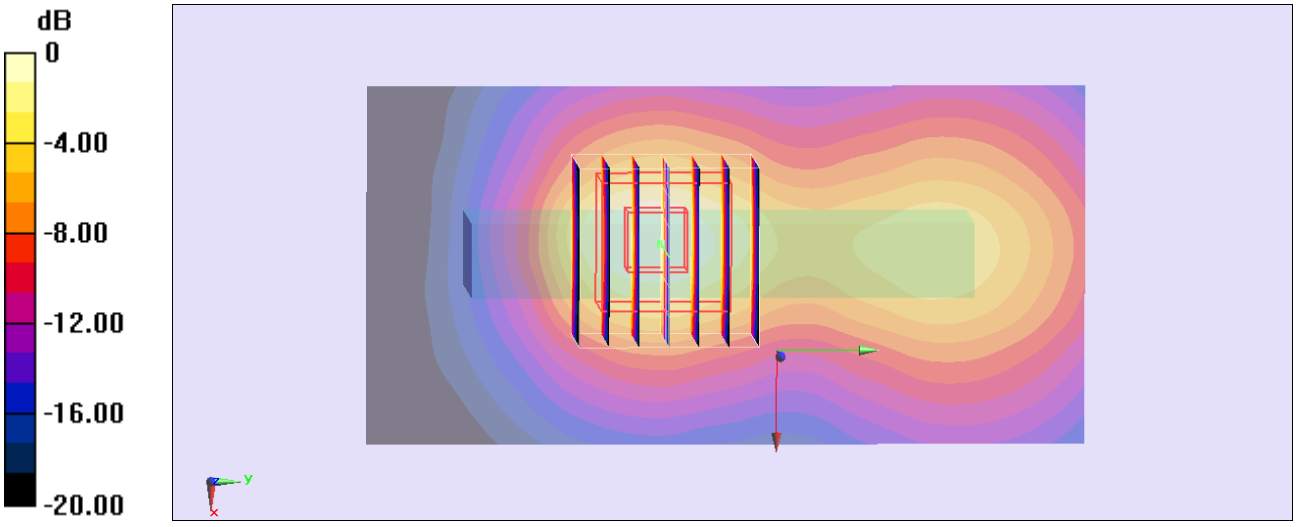
DUT: 2N0801

Communication System: 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2462 MHz; σ = 2.032 mho/m; ε_r = 53.846; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch11/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.19 mW/g

Configuration/Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.034 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.572 mW/g
SAR(1 g) = 0.756 mW/g; SAR(10 g) = 0.349 mW/g
Maximum value of SAR (measured) = 1.14 mW/g



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

#36_WLAN2.4G_802.11b_Tip Mode_0.5cm_Ch11;Ant 2

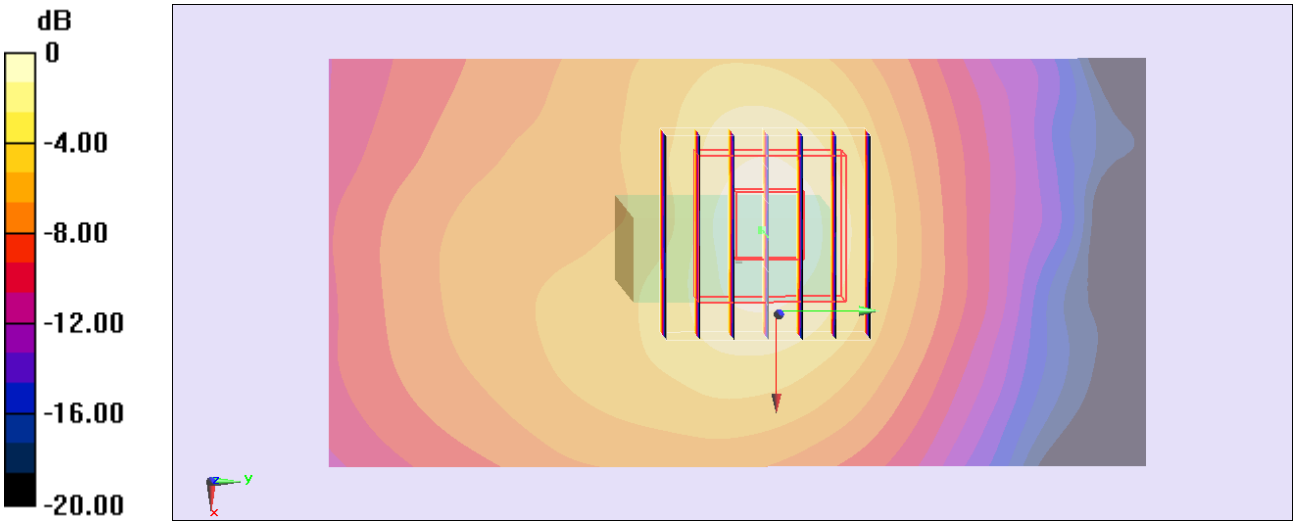
DUT: 2N0801

Communication System: 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2462 MHz; σ = 2.032 mho/m; ε_r = 53.846; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch11/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.170 mW/g

Configuration/Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.418 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.241 mW/g
SAR(1 g) = 0.120 mW/g; SAR(10 g) = 0.059 mW/g
Maximum value of SAR (measured) = 0.177 mW/g



0 dB = 0.177 mW/g = -15.04 dB mW/g

#37_WLAN2.4G_802.11b_Horizontal Up_0.5cm_Ch1;Ant 2

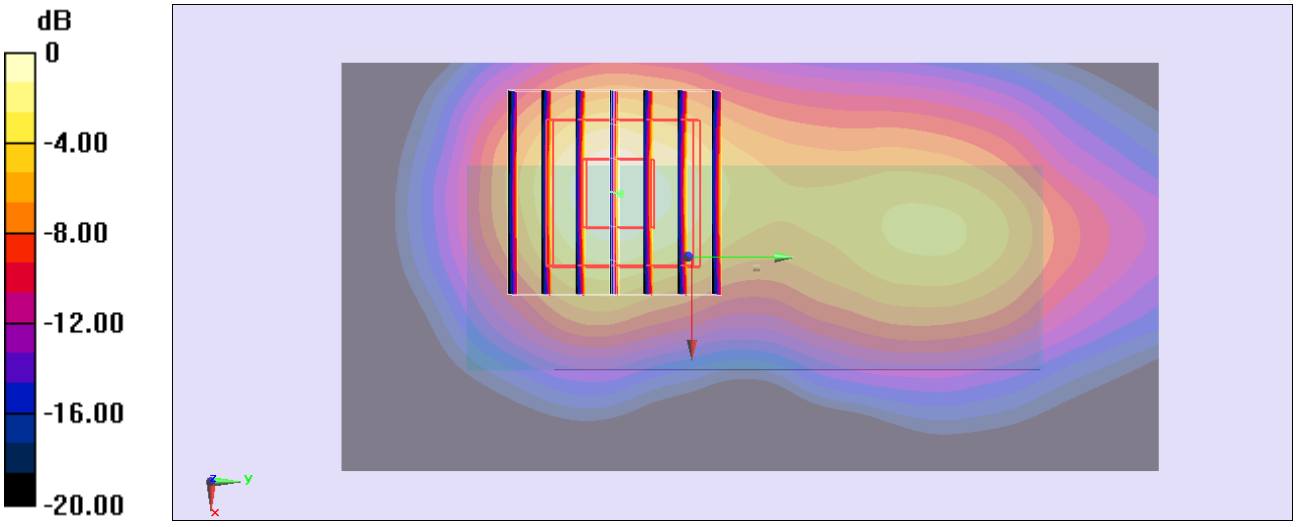
DUT: 2N0801

Communication System: 802.11b; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2412 MHz; σ = 1.959 mho/m; ε_r = 53.951; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch1/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.12 mW/g

Configuration/Ch1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.085 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.517 mW/g
SAR(1 g) = 0.726 mW/g; SAR(10 g) = 0.330 mW/g
Maximum value of SAR (measured) = 1.12 mW/g



0 dB = 1.12 mW/g = 0.98 dB mW/g

#38_WLAN2.4G_802.11b_Horizontal Up_0.5cm_Ch6;Ant 2

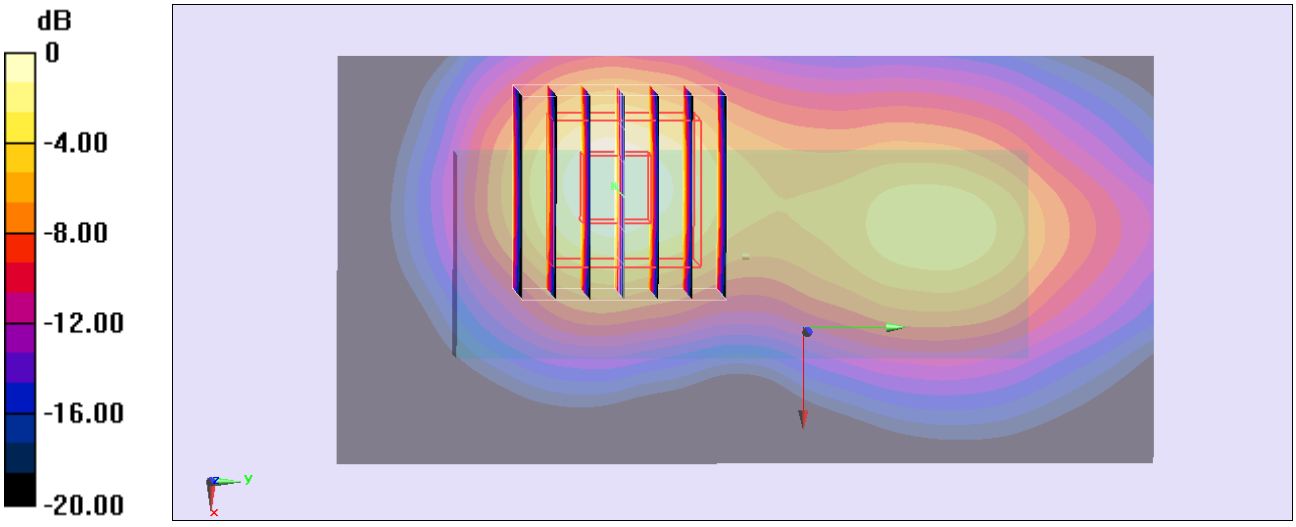
DUT: 2N0801

Communication System: 802.11b; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2437 MHz; σ = 1.996 mho/m; ε_r = 53.88; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch6/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.37 mW/g

Configuration/Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.637 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.757 mW/g
SAR(1 g) = 0.833 mW/g; SAR(10 g) = 0.376 mW/g
Maximum value of SAR (measured) = 1.28 mW/g



0 dB = 1.28 mW/g = 2.14 dB mW/g

#39_WLAN2.4G_802.11b_Horizontal Down_0.5cm_Ch1;Ant 2

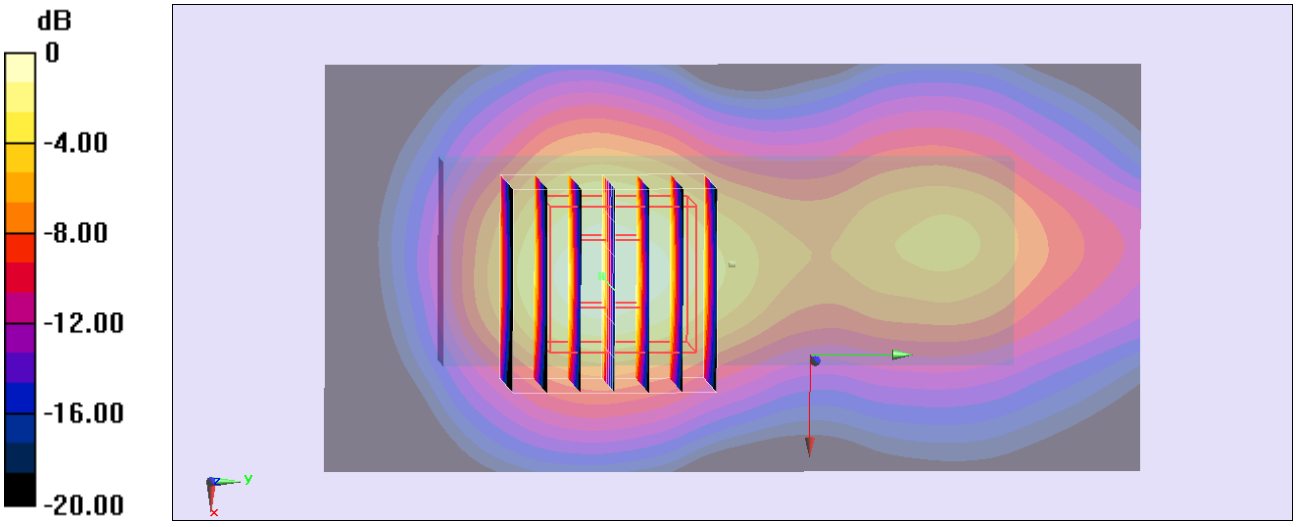
DUT: 2N0801

Communication System: 802.11b; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2412 MHz; σ = 1.959 mho/m; ε_r = 53.951; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch1/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.18 mW/g

Configuration/Ch1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.279 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.546 mW/g
SAR(1 g) = 0.753 mW/g; SAR(10 g) = 0.346 mW/g
Maximum value of SAR (measured) = 1.14 mW/g



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

#40_WLAN2.4G_802.11b_Horizontal Down_0.5cm_Ch6;Ant 2

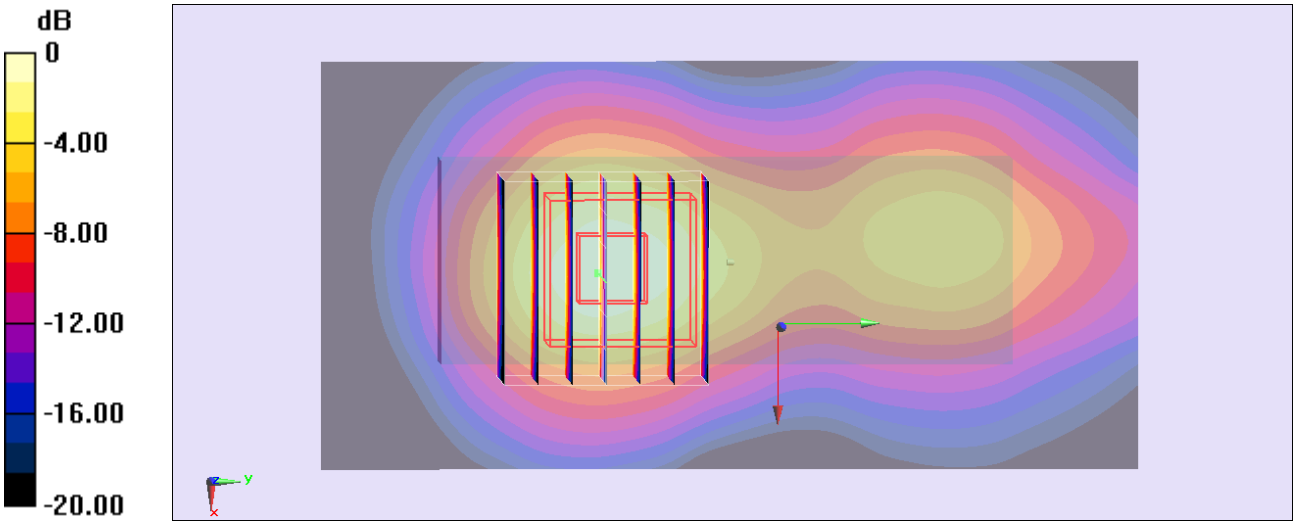
DUT: 2N0801

Communication System: 802.11b; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2437 MHz; σ = 1.996 mho/m; ε_r = 53.88; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch6/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.32 mW/g

Configuration/Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.183 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.707 mW/g
SAR(1 g) = 0.824 mW/g; SAR(10 g) = 0.378 mW/g
Maximum value of SAR (measured) = 1.24 mW/g



0 dB = 1.24 mW/g = 1.87 dB mW/g

#41_WLAN2.4G_802.11n-HT20_Horizontal Up_0.5cm_Ch6;Ant 1+2

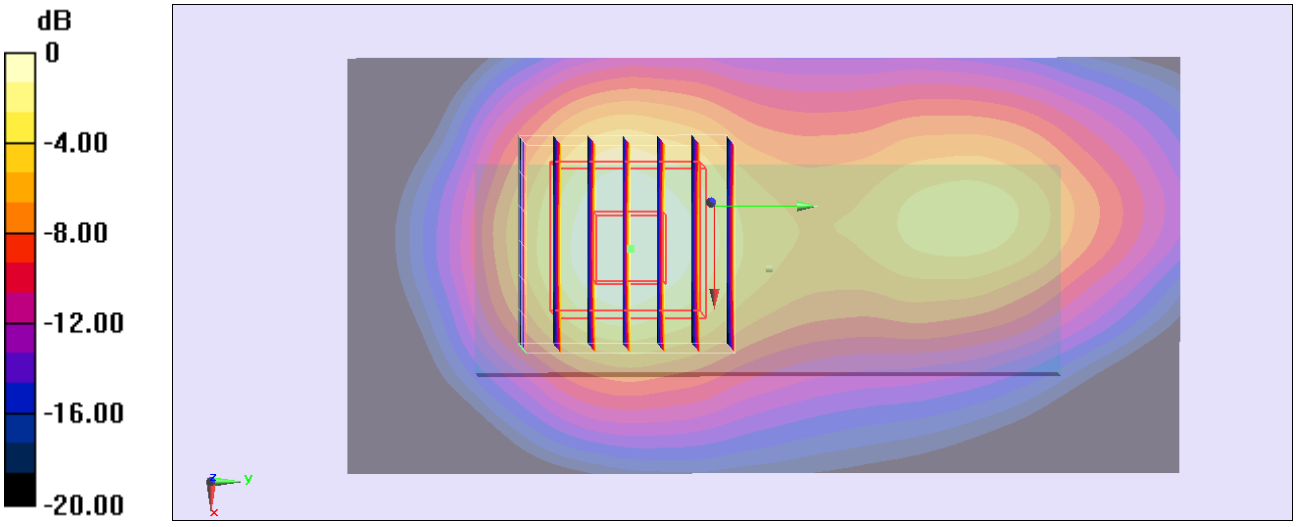
DUT: 2N0801

Communication System: 802.11n; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2437 MHz; σ = 1.996 mho/m; ε_r = 53.88; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch6/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.53 mW/g

Configuration/Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.619 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 1.873 mW/g
SAR(1 g) = 0.915 mW/g; SAR(10 g) = 0.440 mW/g
Maximum value of SAR (measured) = 1.37 mW/g



0 dB = 1.37 mW/g = 2.73 dB mW/g

#42_WLAN2.4G_802.11n-HT20_Horizontal Down_0.5cm_Ch6;Ant 1+2

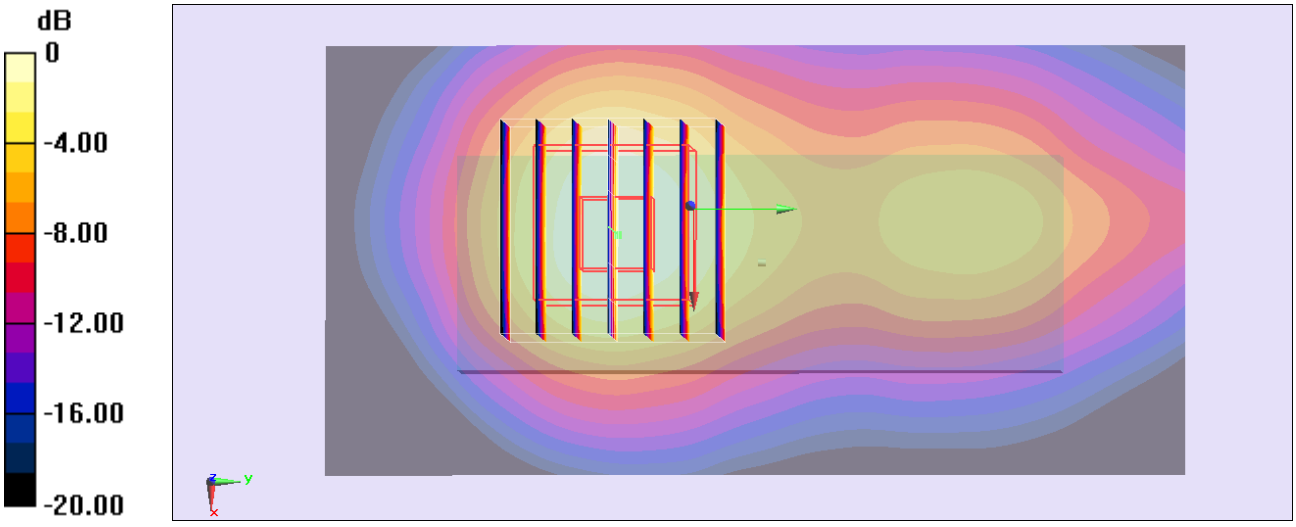
DUT: 2N0801

Communication System: 802.11n; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2437 MHz; σ = 1.996 mho/m; ε_r = 53.88; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch6/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.45 mW/g

Configuration/Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.243 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 1.810 mW/g
SAR(1 g) = 0.906 mW/g; SAR(10 g) = 0.449 mW/g
Maximum value of SAR (measured) = 1.33 mW/g



0 dB = 1.33 mW/g = 2.48 dB mW/g

#43_WLAN2.4G_802.11n-HT20_Vertical Front_0.5cm_Ch6;Ant 1+2

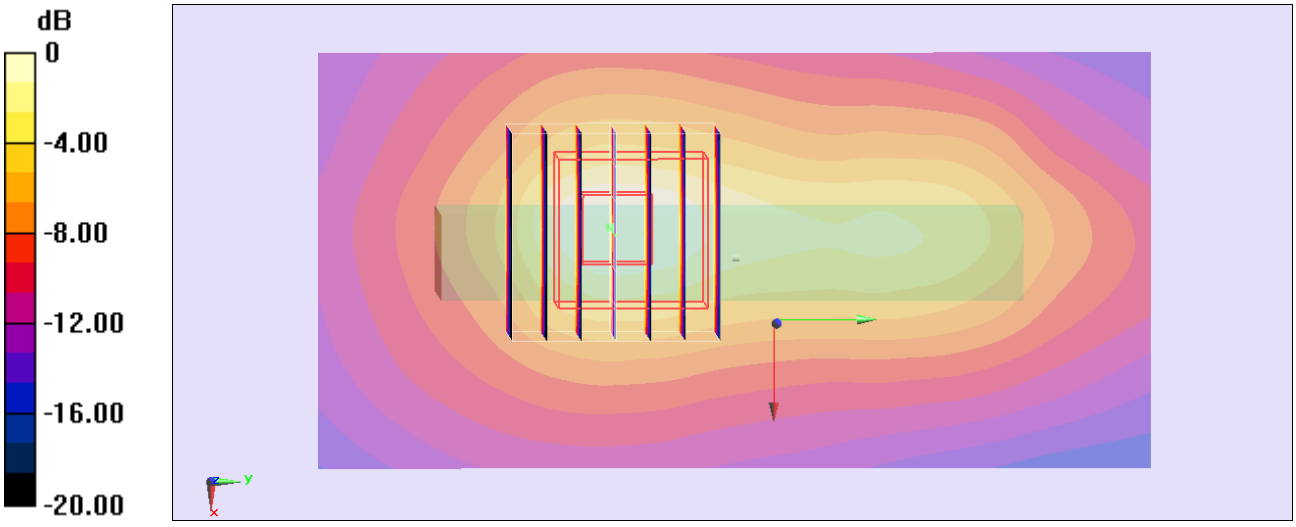
DUT: 2N0801

Communication System: 802.11n; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2437 MHz; σ = 1.996 mho/m; ε_r = 53.88; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch6/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.621 mW/g

Configuration/Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.928 V/m; Power Drift = -0.034 dB
Peak SAR (extrapolated) = 0.813 mW/g
SAR(1 g) = 0.388 mW/g; SAR(10 g) = 0.184 mW/g
Maximum value of SAR (measured) = 0.592 mW/g



0 dB = 0.592 mW/g = -4.55 dB mW/g

#44_WLAN2.4G_802.11n-HT20_Vertical Back_0.5cm_Ch6;Ant 1+2

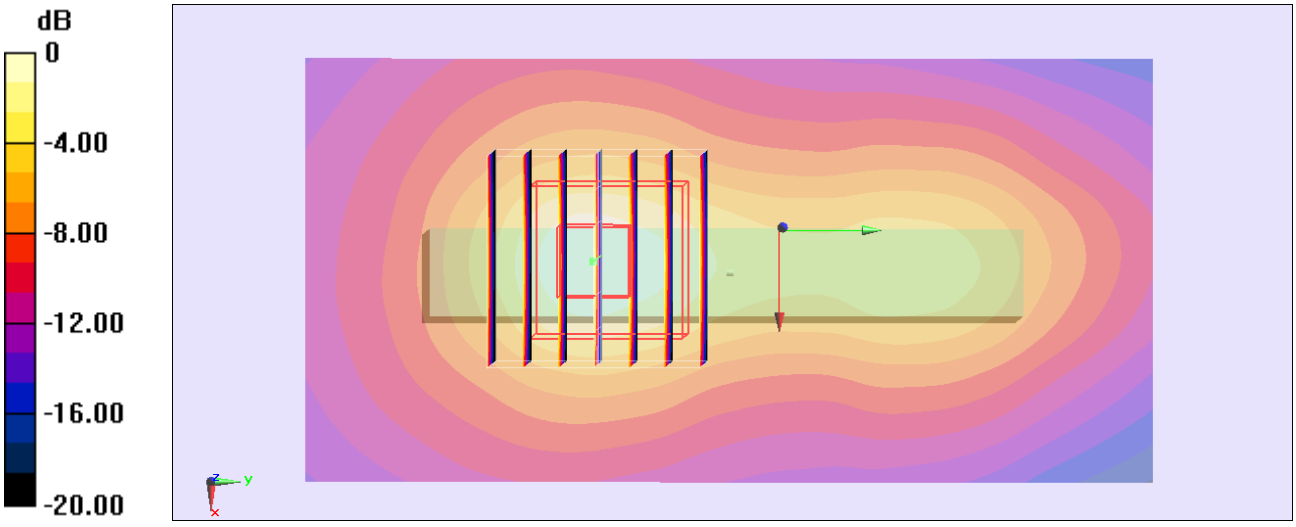
DUT: 2N0801

Communication System: 802.11n; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2437 MHz; σ = 1.996 mho/m; ε_r = 53.88; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch6/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.624 mW/g

Configuration/Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.623 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.827 mW/g
SAR(1 g) = 0.396 mW/g; SAR(10 g) = 0.187 mW/g
Maximum value of SAR (measured) = 0.603 mW/g



0 dB = 0.603 mW/g = -4.39 dB mW/g

#45_WLAN2.4G_802.11n-HT20_Tip Mode_0.5cm_Ch6;Ant 1+2

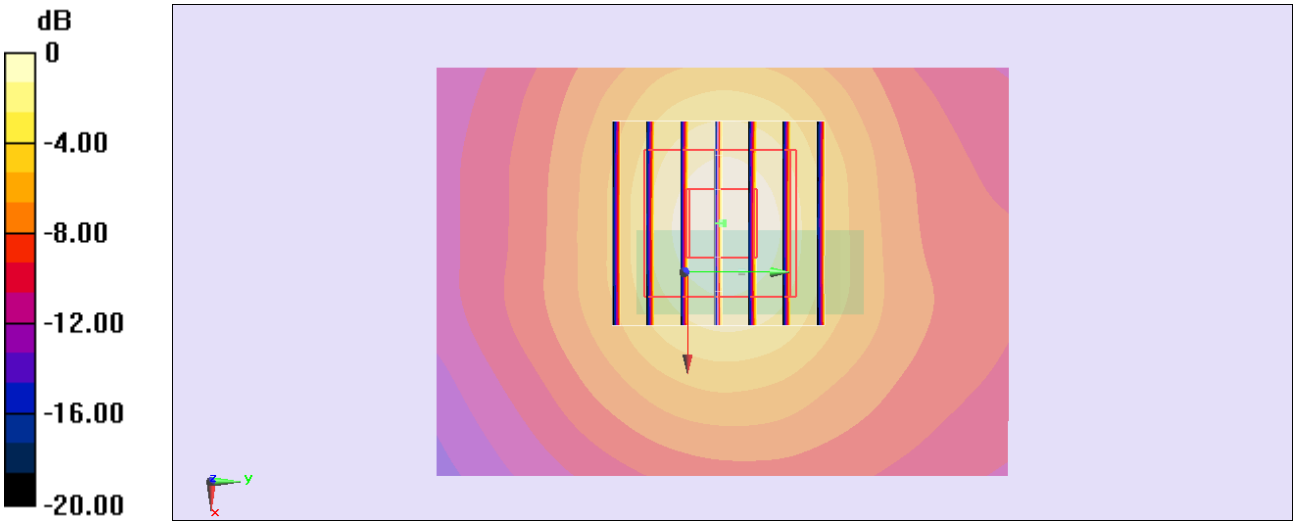
DUT: 2N0801

Communication System: 802.11n; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2437 MHz; σ = 1.996 mho/m; ε_r = 53.88; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch6/Area Scan (51x71x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 0.306 mW/g

Configuration/Ch6/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.602 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.417 mW/g
SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.100 mW/g
Maximum value of SAR (measured) = 0.307 mW/g



0 dB = 0.307 mW/g = -10.26 dB mW/g

#46_WLAN2.4G_802.11n-HT20_Horizontal Up_0.5cm_Ch1;Ant 1+2

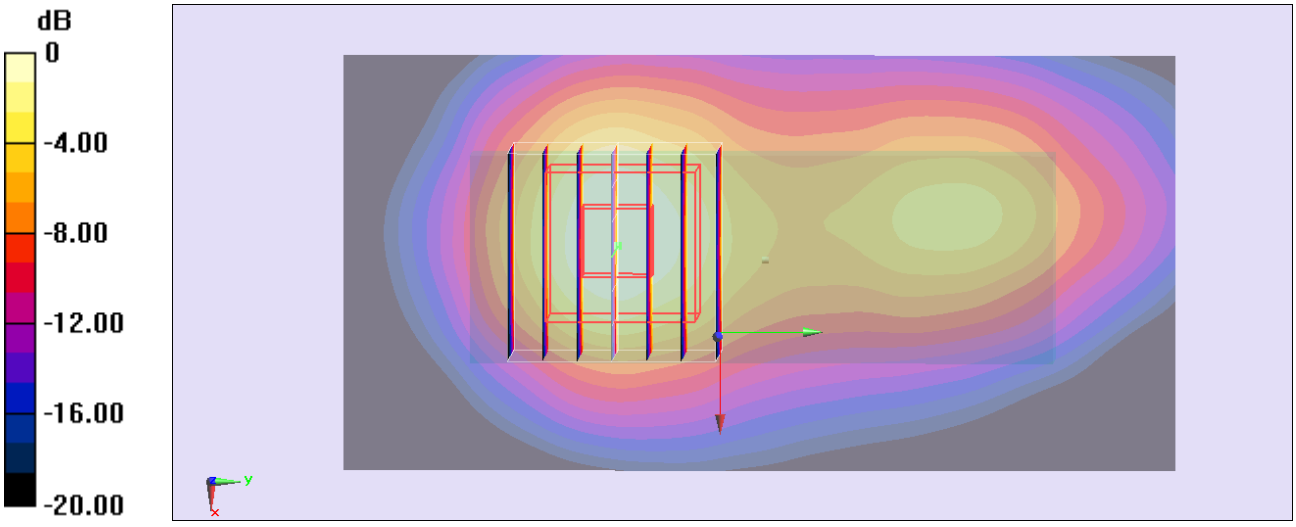
DUT: 2N0801

Communication System: 802.11n; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2412 MHz; σ = 1.959 mho/m; ε_r = 53.951; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch1/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.53 mW/g

Configuration/Ch1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.035 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.905 mW/g
SAR(1 g) = 0.934 mW/g; SAR(10 g) = 0.451 mW/g
Maximum value of SAR (measured) = 1.40 mW/g



0 dB = 1.40 mW/g = 2.92 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/6

#47_WLAN2.4G_802.11n-HT20_Horizontal Up_0.5cm_Ch11;Ant 1+2

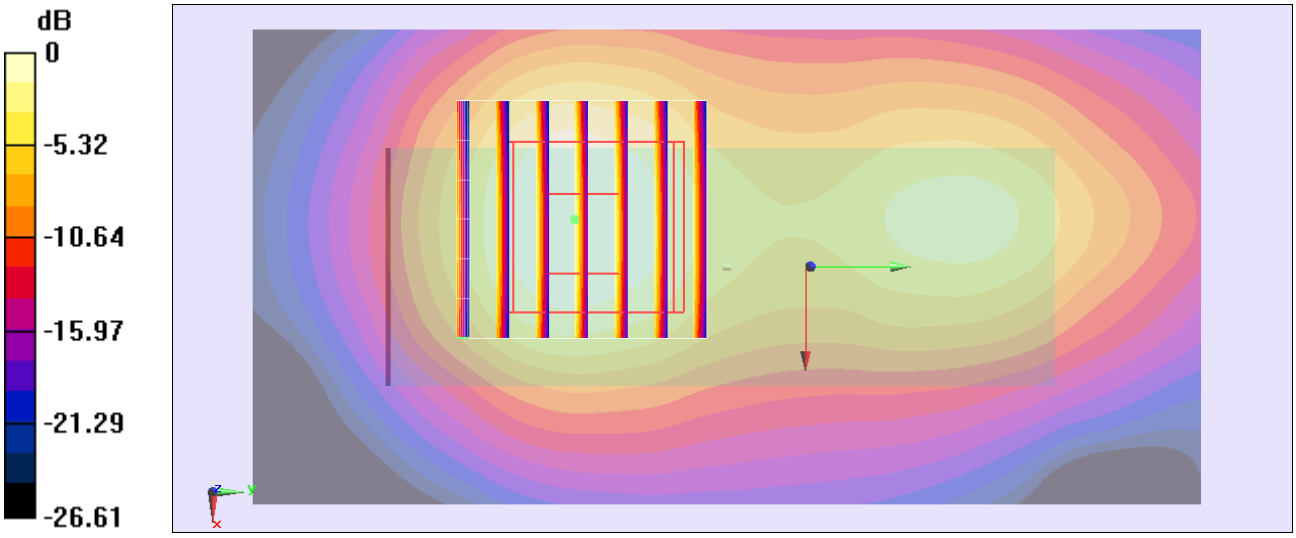
DUT: 2N0801

Communication System: 802.11n; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2462 MHz; σ = 2.032 mho/m; ε_r = 53.846; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch11/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.81 mW/g

Configuration/Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.927 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 2.268 mW/g
SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.524 mW/g
Maximum value of SAR (measured) = 1.63 mW/g



0 dB = 1.63 mW/g = 4.24 dB mW/g

#47_WLAN2.4G_802.11n-HT20_Horizontal Up_0.5cm_Ch11;Ant 1+2_2D

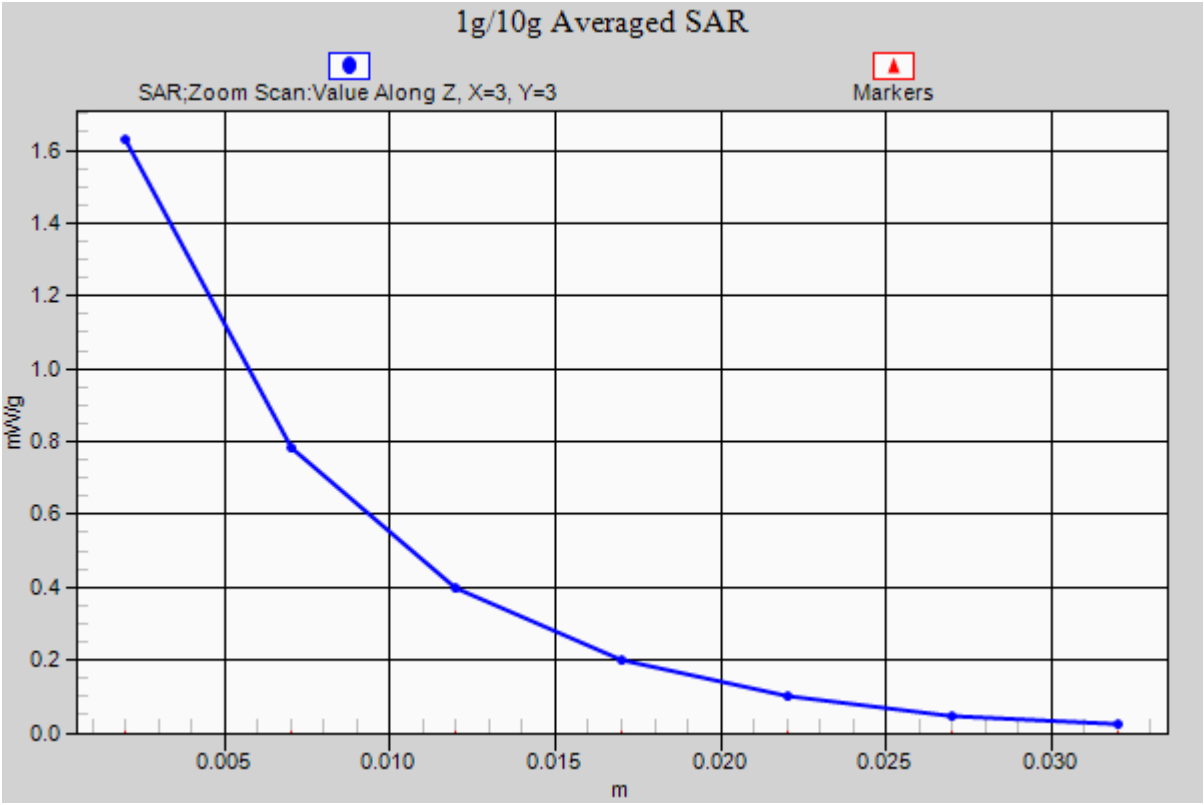
DUT: 2N0801

Communication System: 802.11n; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2462 MHz; σ = 2.032 mho/m; ε_r = 53.846; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch11/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.81 mW/g

Configuration/Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.927 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 2.268 mW/g
SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.524 mW/g
Maximum value of SAR (measured) = 1.63 mW/g



#52_WLAN2.4G_802.11n-HT20_Horizontal Up_0.5cm_Ch11;Ant 1+2_Repeat

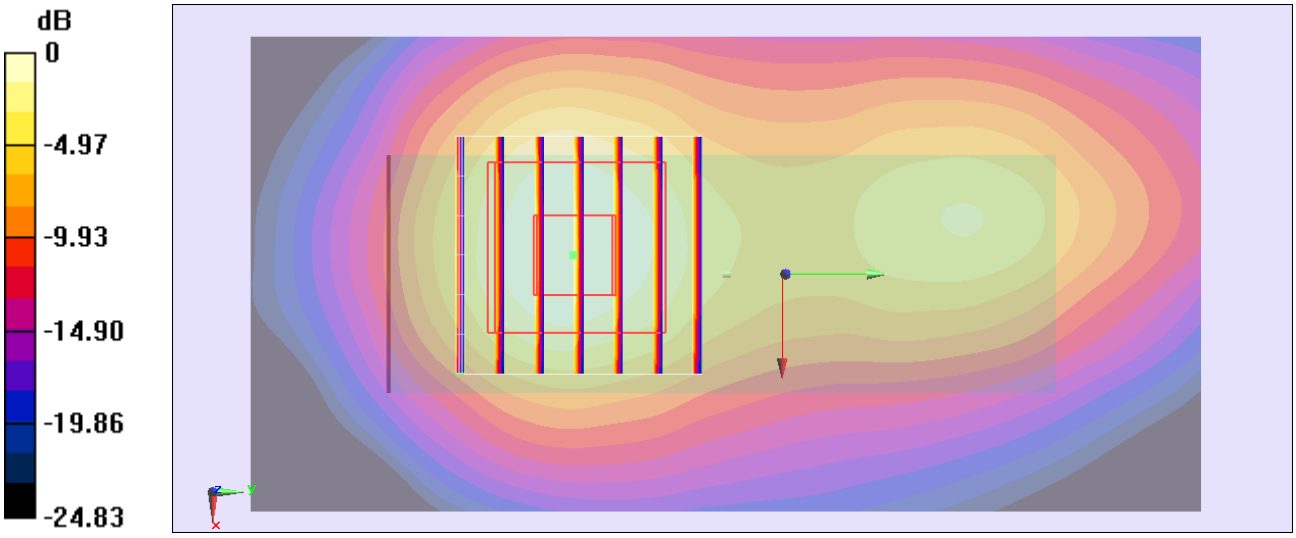
DUT: 2N0801

Communication System: 802.11n; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2462 MHz; σ = 2.032 mho/m; ε_r = 53.846; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch11/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.73 mW/g

Configuration/Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.242 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 2.170 mW/g
SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.509 mW/g
Maximum value of SAR (measured) = 1.58 mW/g



0 dB = 1.58 mW/g = 3.97 dB mW/g

#48_WLAN2.4G_802.11n-HT20_Horizontal Down_0.5cm_Ch1;Ant 1+2

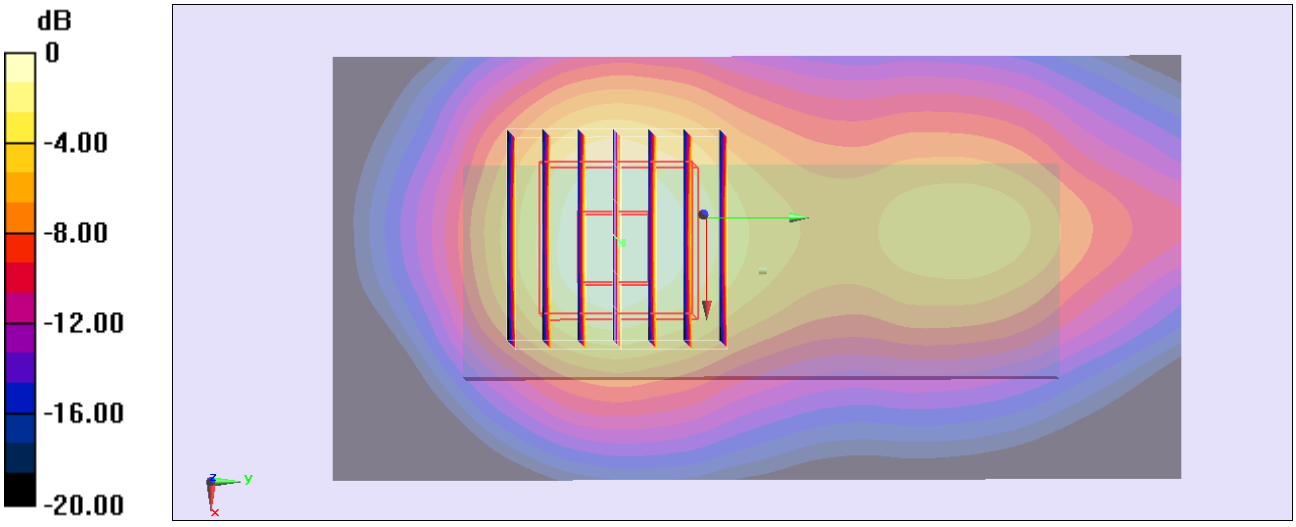
DUT: 2N0801

Communication System: 802.11n; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2412 MHz; σ = 1.959 mho/m; ε_r = 53.951; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch1/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.26 mW/g

Configuration/Ch1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.918 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.612 mW/g
SAR(1 g) = 0.811 mW/g; SAR(10 g) = 0.403 mW/g
Maximum value of SAR (measured) = 1.18 mW/g



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

#49_WLAN2.4G_802.11n-HT20_Horizontal Down_0.5cm_Ch11;Ant 1+2

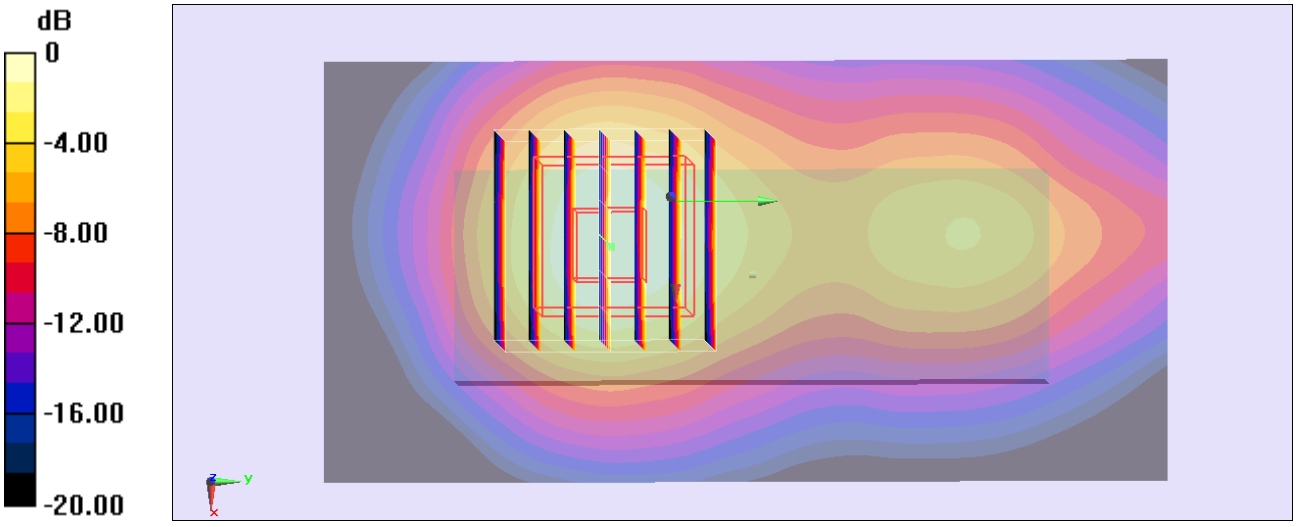
DUT: 2N0801

Communication System: 802.11n; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium: MSL_2450_121206 Medium parameters used: f = 2462 MHz; σ = 2.032 mho/m; ε_r = 53.846; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.5 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(7.1, 7.1, 7.1); Calibrated: 2012/6/21;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch11/Area Scan (51x101x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (interpolated) = 1.44 mW/g

Configuration/Ch11/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.121 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.831 mW/g
SAR(1 g) = 0.916 mW/g; SAR(10 g) = 0.455 mW/g
Maximum value of SAR (measured) = 1.35 mW/g



0 dB = 1.35 mW/g = 2.61 dB mW/g

#01_WLAN5G_802.11a_Horizontal Up_0.5cm_Ch48;Ant 2

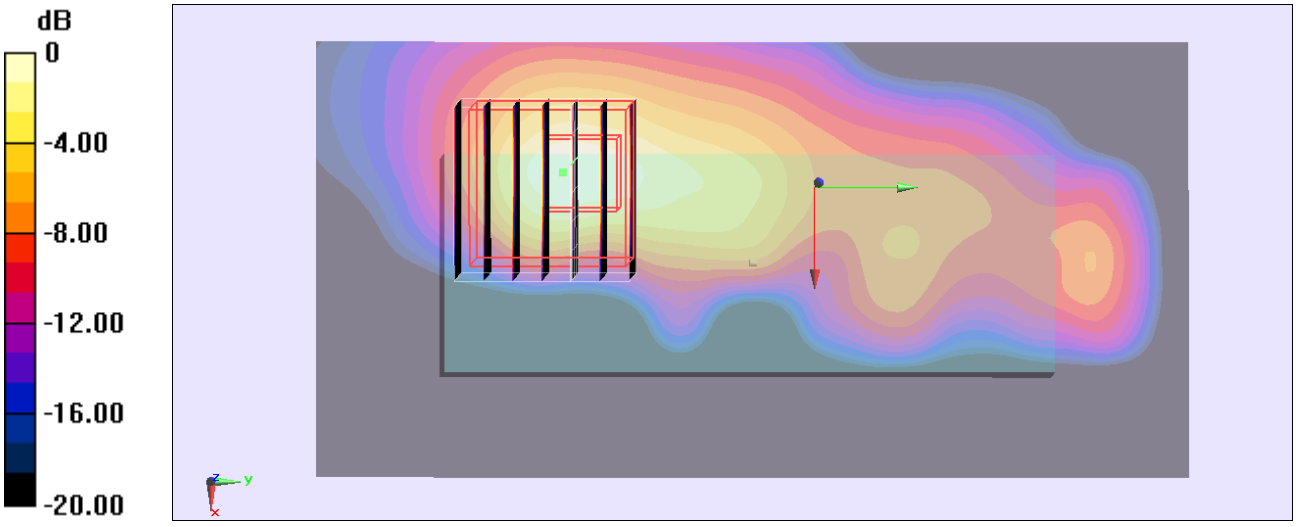
DUT: 2N0801

Communication System: 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5240 MHz; σ = 5.367 mho/m; ε_r = 47.364; ρ = 1000 kg/m^3
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch48/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.989 mW/g

Configuration/Ch48/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 15.579 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 1.712 mW/g
SAR(1 g) = 0.416 mW/g; SAR(10 g) = 0.112 mW/g
Maximum value of SAR (measured) = 0.976 mW/g



0 dB = 0.976 mW/g = -0.21 dB mW/g

#02_WLAN5G_802.11a_Horizontal Down_0.5cm_Ch48;Ant 2

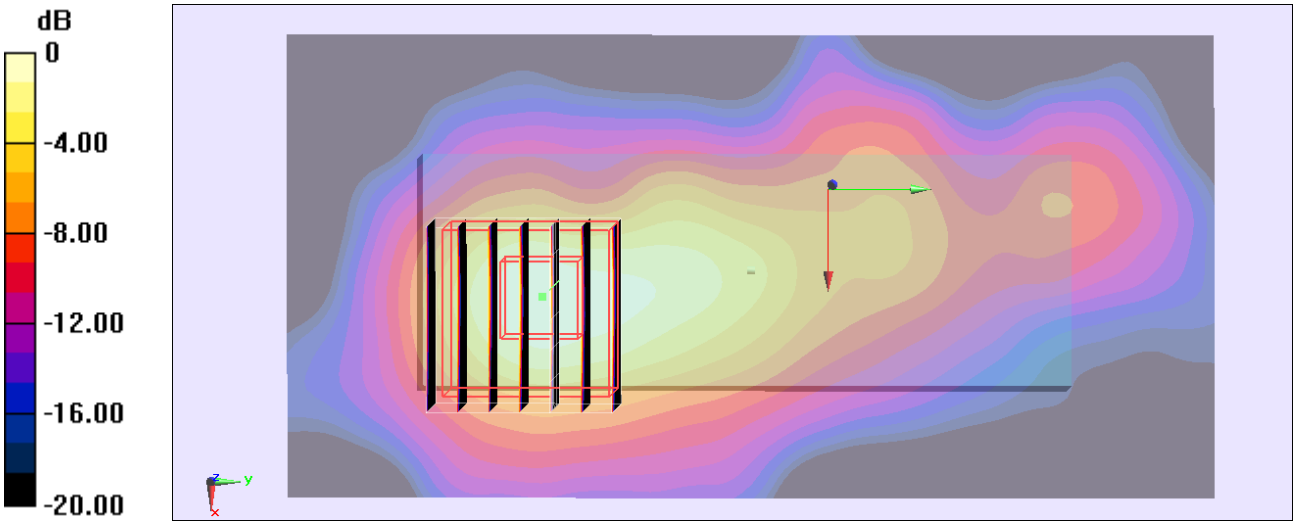
DUT: 2N0801

Communication System: 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5240 MHz; σ = 5.367 mho/m; ε_r = 47.364; ρ = 1000 kg/m^3
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch48/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.00 mW/g

Configuration/Ch48/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 15.509 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 1.566 mW/g
SAR(1 g) = 0.400 mW/g; SAR(10 g) = 0.123 mW/g
Maximum value of SAR (measured) = 0.948 mW/g



0 dB = 0.948 mW/g = -0.46 dB mW/g

#03_WLAN5G_802.11a_Vertical Front_0.5cm_Ch48;Ant 2

DUT: 2N0801

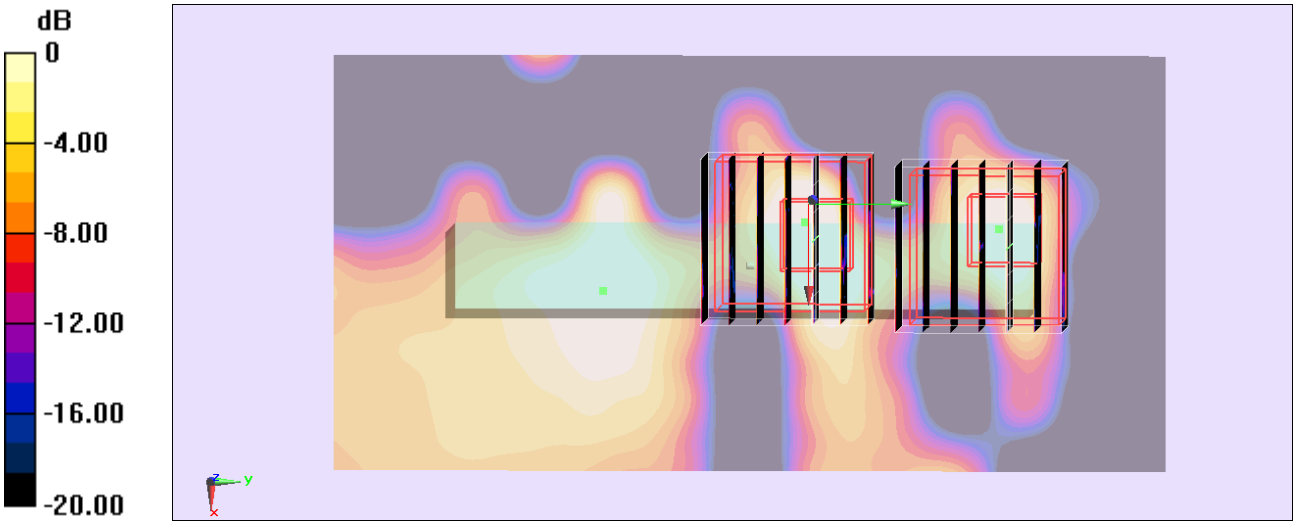
Communication System: 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5240 MHz; σ = 5.367 mho/m; ε_r = 47.364; ρ = 1000 kg/m^3
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch48/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.137 mW/g

Configuration/Ch48/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 5.107 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 0.259 mW/g
SAR(1 g) = 0.034 mW/g; SAR(10 g) = 0.00881 mW/g
Maximum value of SAR (measured) = 0.107 mW/g

Configuration/Ch48/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 5.107 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 0.233 mW/g
SAR(1 g) = 0.018 mW/g; SAR(10 g) = 0.00457 mW/g
Maximum value of SAR (measured) = 0.0565 mW/g



0 dB = 0.0565 mW/g = -24.96 dB mW/g

#04_WLAN5G_802.11a_Vertical Back_0.5cm_Ch48;Ant 2

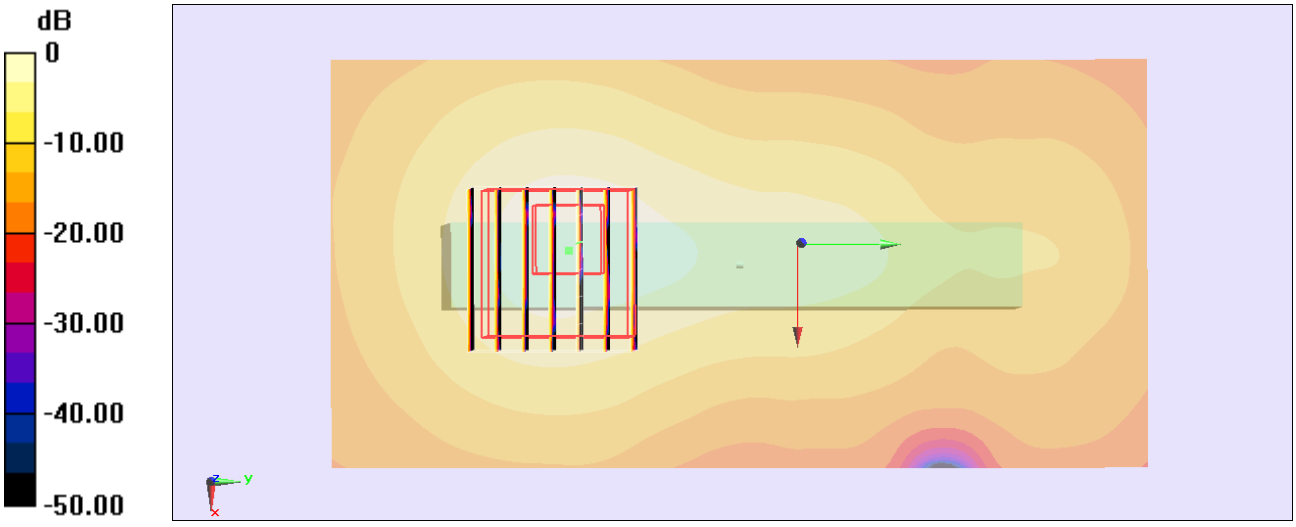
DUT: 2N0801

Communication System: 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5240 MHz; σ = 5.367 mho/m; ε_r = 47.364; ρ = 1000 kg/m^3
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch48/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.38 mW/g

Configuration/Ch48/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 19.602 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 2.588 mW/g
SAR(1 g) = 0.669 mW/g; SAR(10 g) = 0.222 mW/g
Maximum value of SAR (measured) = 1.55 mW/g



0 dB = 1.55 mW/g = 3.81 dB mW/g

#04_WLAN5G_802.11a_Vertical Back_0.5cm_Ch48;Ant 2_2D

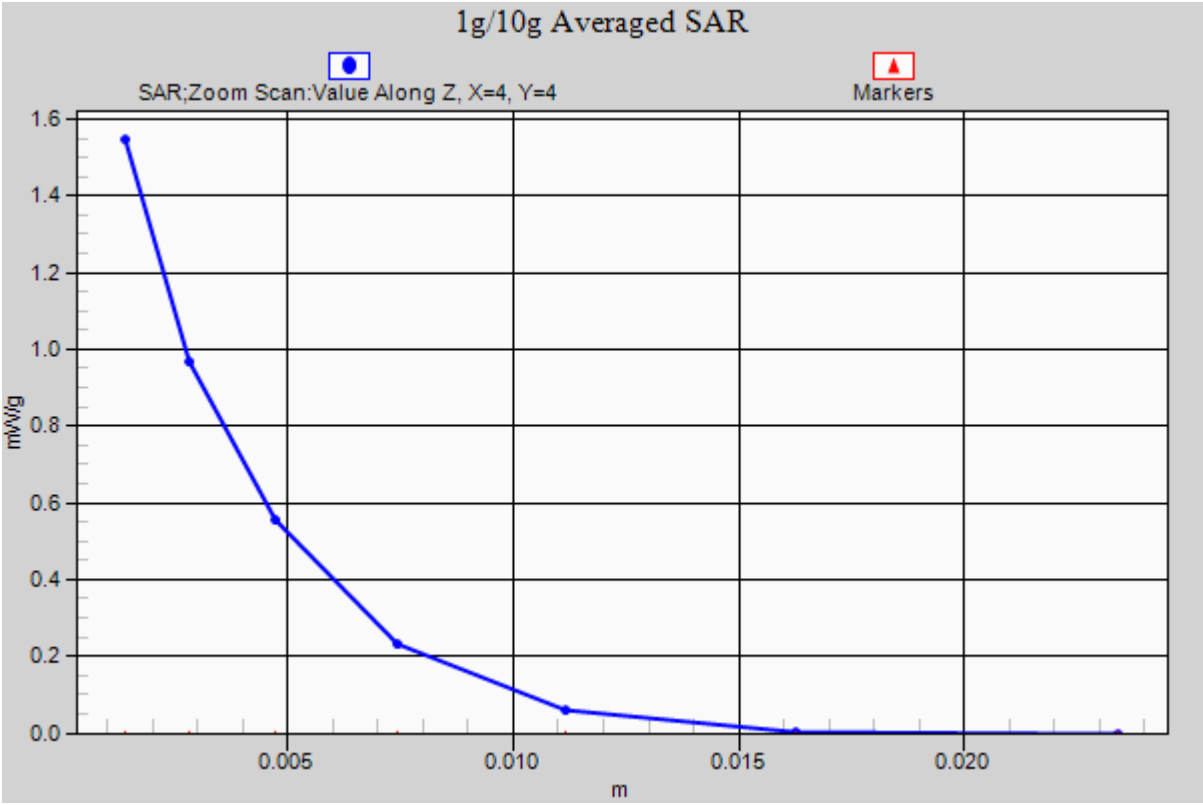
DUT: 2N0801

Communication System: 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5240 MHz; σ = 5.367 mho/m; ε_r = 47.364; ρ = 1000 kg/m^3
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch48/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.38 mW/g

Configuration/Ch48/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 19.602 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 2.588 mW/g
SAR(1 g) = 0.669 mW/g; SAR(10 g) = 0.222 mW/g
Maximum value of SAR (measured) = 1.55 mW/g



#05_WLAN5G_802.11a_Tip Mode_0.5cm_Ch48;Ant 2

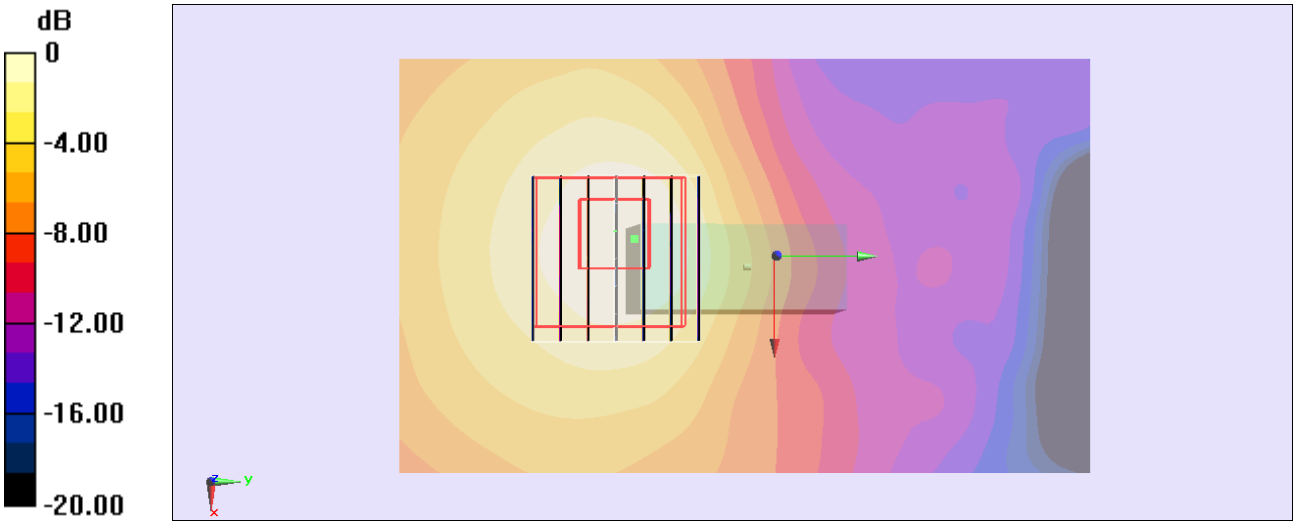
DUT: 2N0801

Communication System: 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5240 MHz; σ = 5.367 mho/m; ε_r = 47.364; ρ = 1000 kg/m^3
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch48/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.287 mW/g

Configuration/Ch48/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 8.250 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.462 mW/g
SAR(1 g) = 0.122 mW/g; SAR(10 g) = 0.047 mW/g
Maximum value of SAR (measured) = 0.284 mW/g



0 dB = 0.284 mW/g = -10.93 dB mW/g

#06_WLAN5G_802.11a_Horizontal Up_0.5cm_Ch157;Ant 2

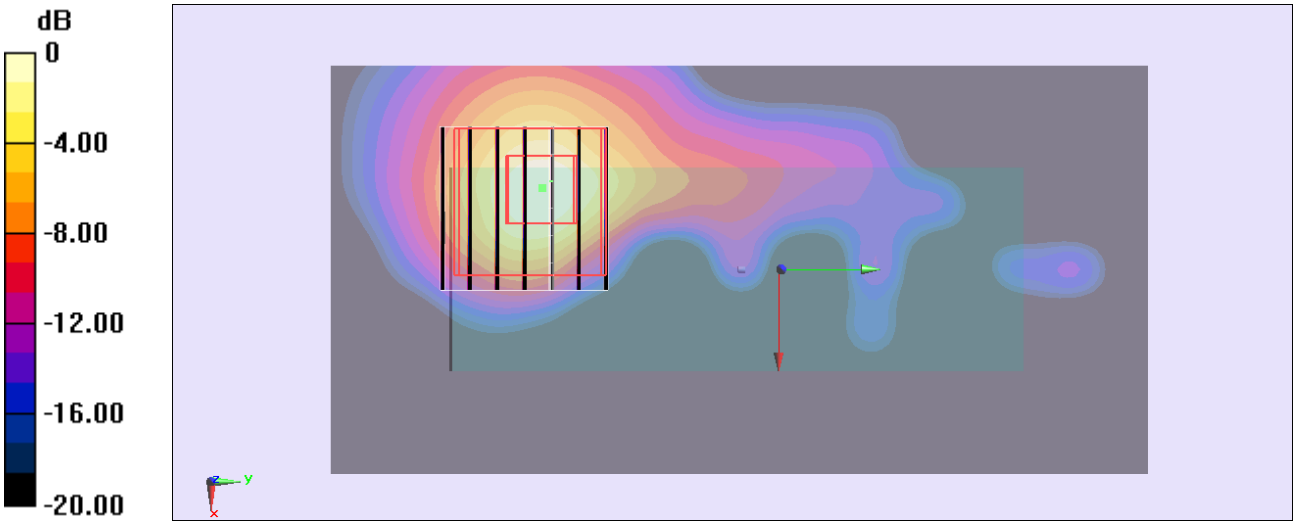
DUT: 2N0801

Communication System: 802.11a; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5785 MHz; σ = 6.23 mho/m; ε_r = 46.452; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch157/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.69 mW/g

Configuration/Ch157/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 19.302 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 2.836 mW/g
SAR(1 g) = 0.630 mW/g; SAR(10 g) = 0.173 mW/g
Maximum value of SAR (measured) = 1.60 mW/g



0 dB = 1.60 mW/g = 4.08 dB mW/g

#07_WLAN5G_802.11a_Horizontal Down_0.5cm_Ch157;Ant 2

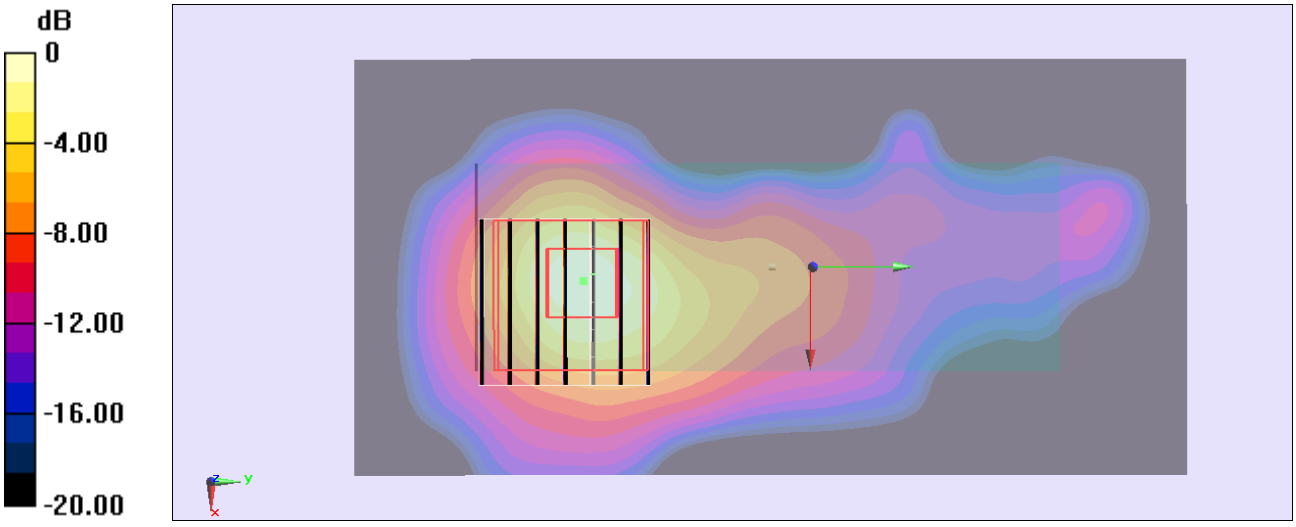
DUT: 2N0801

Communication System: 802.11a; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5785 MHz; σ = 6.23 mho/m; ε_r = 46.452; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch157/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.36 mW/g

Configuration/Ch157/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 17.951 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 2.359 mW/g
SAR(1 g) = 0.550 mW/g; SAR(10 g) = 0.158 mW/g
Maximum value of SAR (measured) = 1.40 mW/g



0 dB = 1.40 mW/g = 2.92 dB mW/g

#08_WLAN5G_802.11a_Vertical Front_0.5cm_Ch157;Ant 2

DUT: 2N0801

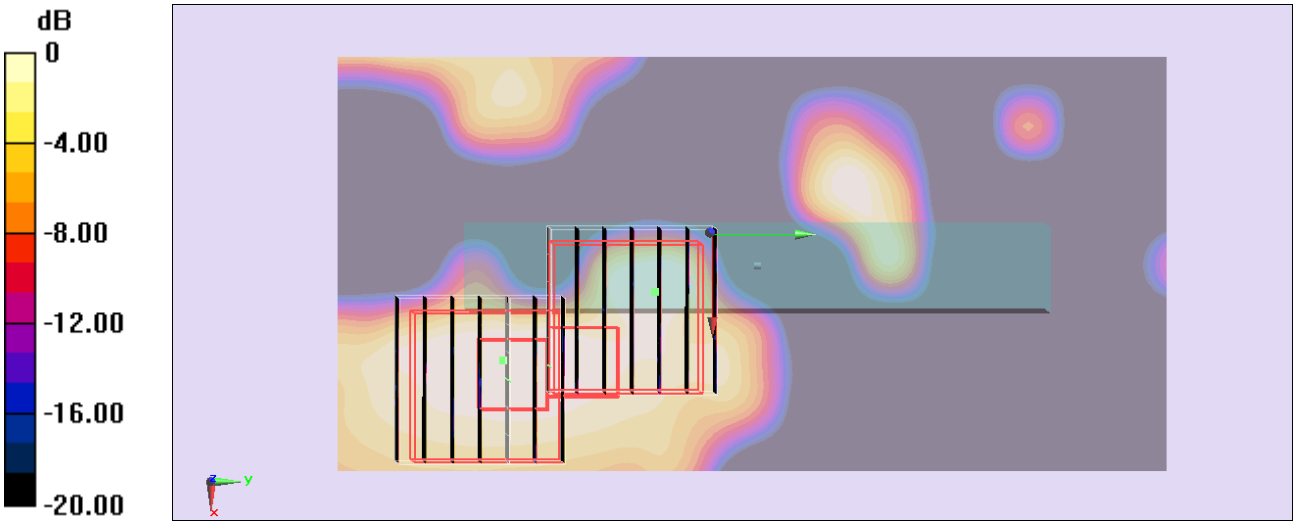
Communication System: 802.11a; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5785 MHz; σ = 6.23 mho/m; ε_r = 46.452; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch157/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.135 mW/g

Configuration/Ch157/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.995 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.248 mW/g
SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.00876 mW/g
Maximum value of SAR (measured) = 0.0696 mW/g

Configuration/Ch157/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 2.995 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.253 mW/g
SAR(1 g) = 0.019 mW/g; SAR(10 g) = 0.00604 mW/g
Maximum value of SAR (measured) = 0.0671 mW/g



0 dB = 0.0671 mW/g = -23.47 dB mW/g

#09_WLAN5G_802.11a_Vertical Back_0.5cm_Ch157;Ant 2

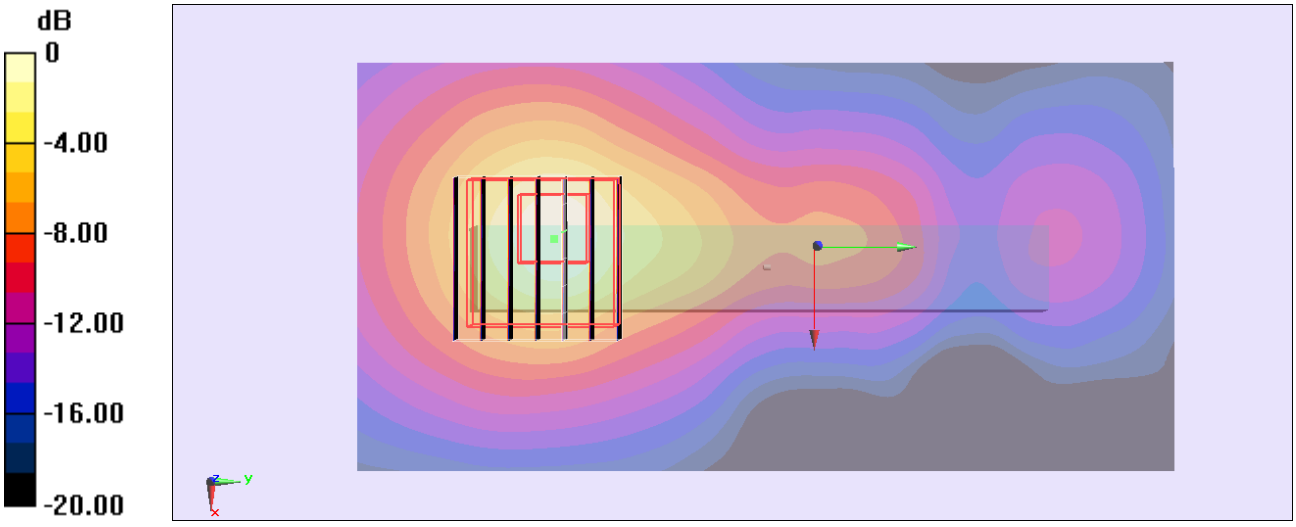
DUT: 2N0801

Communication System: 802.11a; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5785 MHz; σ = 6.23 mho/m; ε_r = 46.452; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch157/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.55 mW/g

Configuration/Ch157/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 24.398 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 4.577 mW/g
SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.340 mW/g
Maximum value of SAR (measured) = 2.64 mW/g



0 dB = 2.64 mW/g = 8.43 dB mW/g

#09_WLAN5G_802.11a_Vertical Back_0.5cm_Ch157;Ant 2_2D

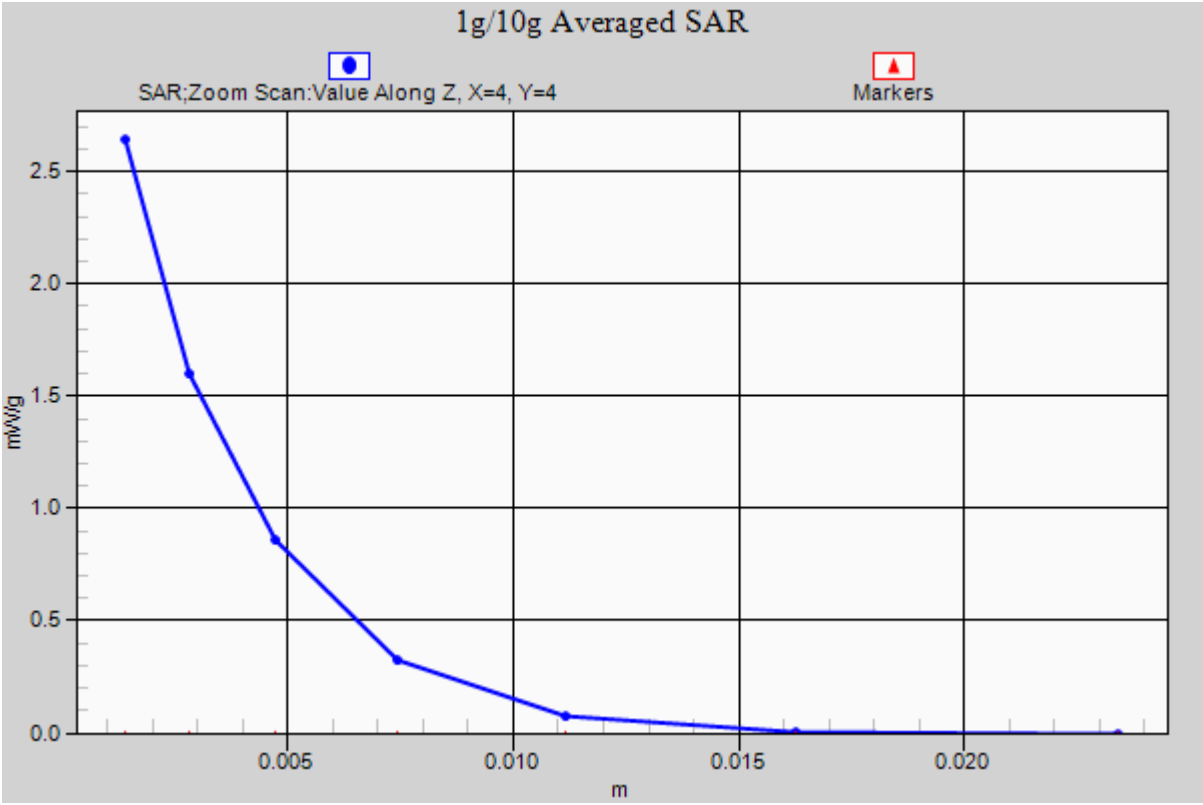
DUT: 2N0801

Communication System: 802.11a; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5785 MHz; σ = 6.23 mho/m; ε_r = 46.452; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch157/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.55 mW/g

Configuration/Ch157/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 24.398 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 4.577 mW/g
SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.340 mW/g
Maximum value of SAR (measured) = 2.64 mW/g



#53_WLAN5G_802.11a_Vertical Back_0.5cm_Ch157;Ant 2_Repeat

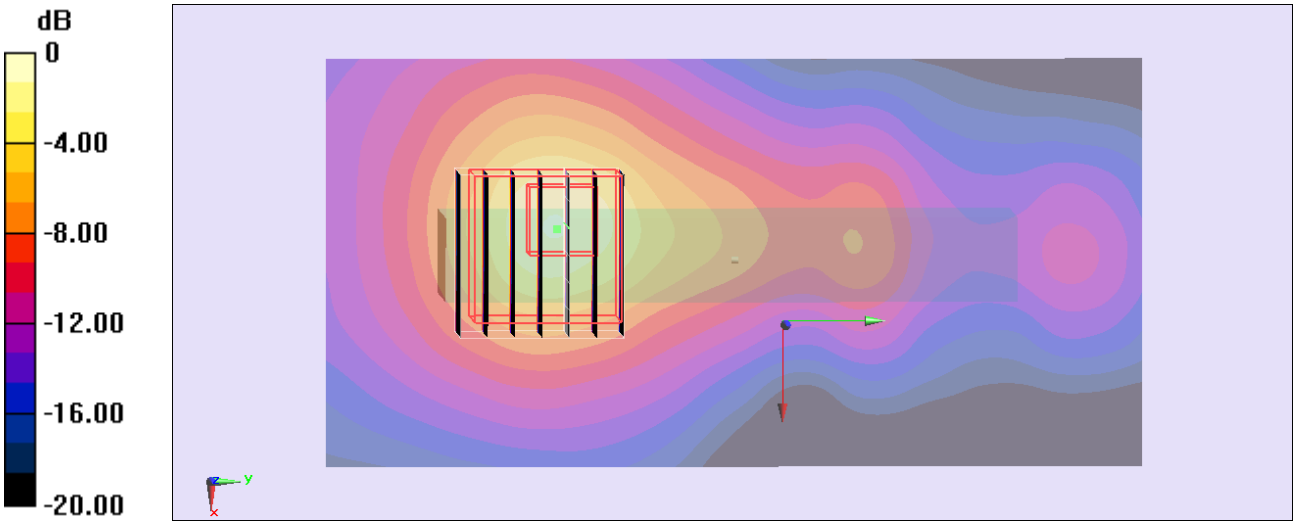
DUT: 2N0801

Communication System: 802.11a; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5785 MHz; σ = 6.23 mho/m; ε_r = 46.452; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch157/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.81 mW/g

Configuration/Ch157/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 21.344 V/m; Power Drift = 0.069 dB
Peak SAR (extrapolated) = 4.060 mW/g
SAR(1 g) = 0.953 mW/g; SAR(10 g) = 0.292 mW/g
Maximum value of SAR (measured) = 2.40 mW/g



0 dB = 2.40 mW/g = 7.60 dB mW/g

#10_WLAN5G_802.11a_Tip Mode_0.5cm_Ch157;Ant 2

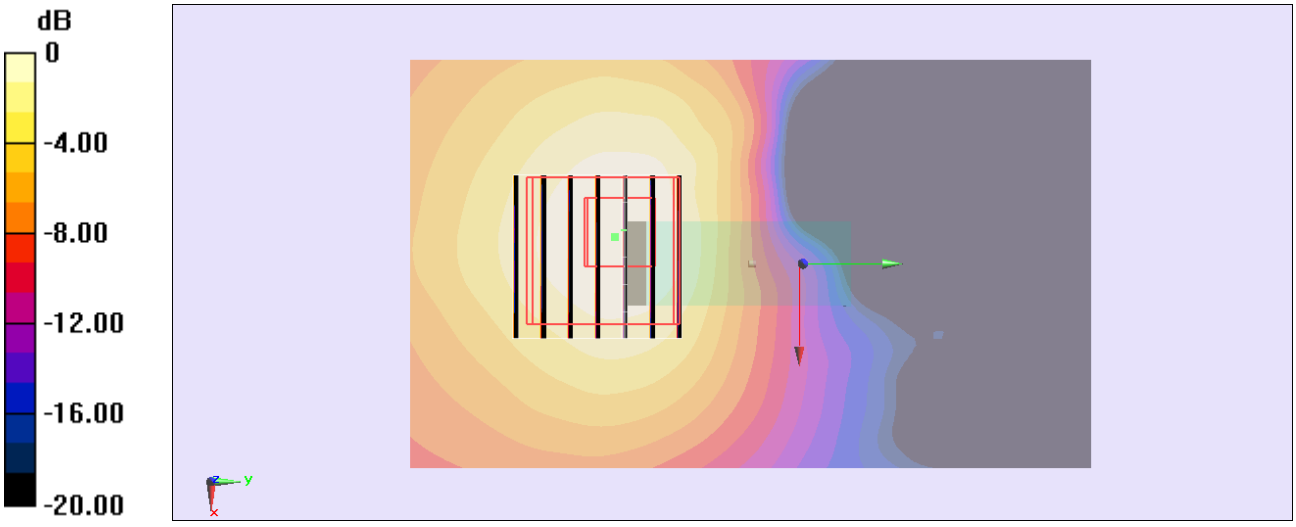
DUT: 2N0801

Communication System: 802.11a; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5785 MHz; σ = 6.23 mho/m; ε_r = 46.452; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch157/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.665 mW/g

Configuration/Ch157/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 11.761 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.048 mW/g
SAR(1 g) = 0.259 mW/g; SAR(10 g) = 0.101 mW/g
Maximum value of SAR (measured) = 0.621 mW/g



0 dB = 0.621 mW/g = -4.14 dB mW/g

#11_WLAN5G_802.11a_Vertical Back_0.5cm_Ch153;Ant 2

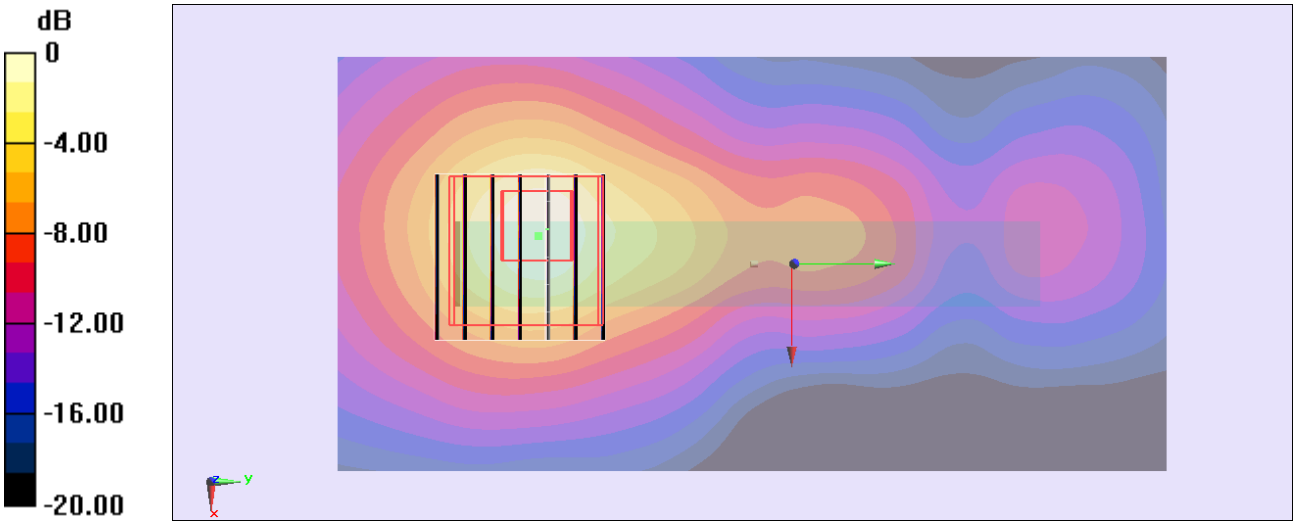
DUT: 2N0801

Communication System: 802.11a; Frequency: 5765 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5765 MHz; σ = 6.212 mho/m; ε_r = 46.539; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch153/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.41 mW/g

Configuration/Ch153/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 23.413 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 4.180 mW/g
SAR(1 g) = 0.981 mW/g; SAR(10 g) = 0.310 mW/g
Maximum value of SAR (measured) = 2.42 mW/g



0 dB = 2.42 mW/g = 7.68 dB mW/g

#12_WLAN5G_802.11a_Vertical Back_0.5cm_Ch161;Ant 2

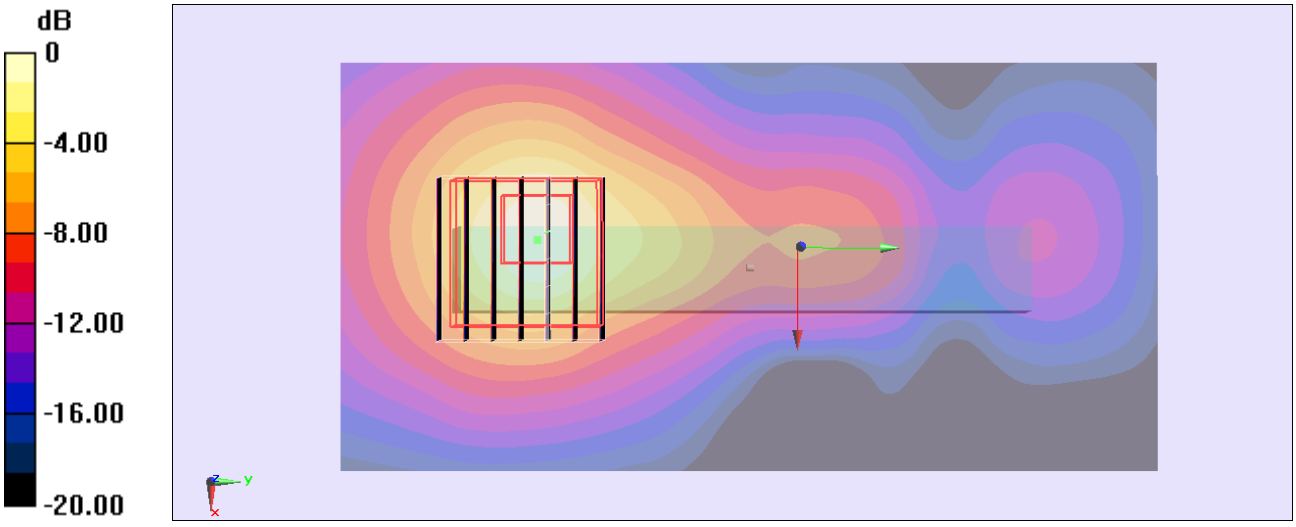
DUT: 2N0801

Communication System: 802.11a; Frequency: 5805 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5805 MHz; σ = 6.25 mho/m; ε_r = 46.374; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch161/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.19 mW/g

Configuration/Ch161/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 22.531 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.924 mW/g
SAR(1 g) = 0.914 mW/g; SAR(10 g) = 0.288 mW/g
Maximum value of SAR (measured) = 2.25 mW/g



0 dB = 2.25 mW/g = 7.04 dB mW/g

#13_WLAN5G_802.11n-HT20_Horizontal Up_0.5cm_Ch40;Ant 1+2

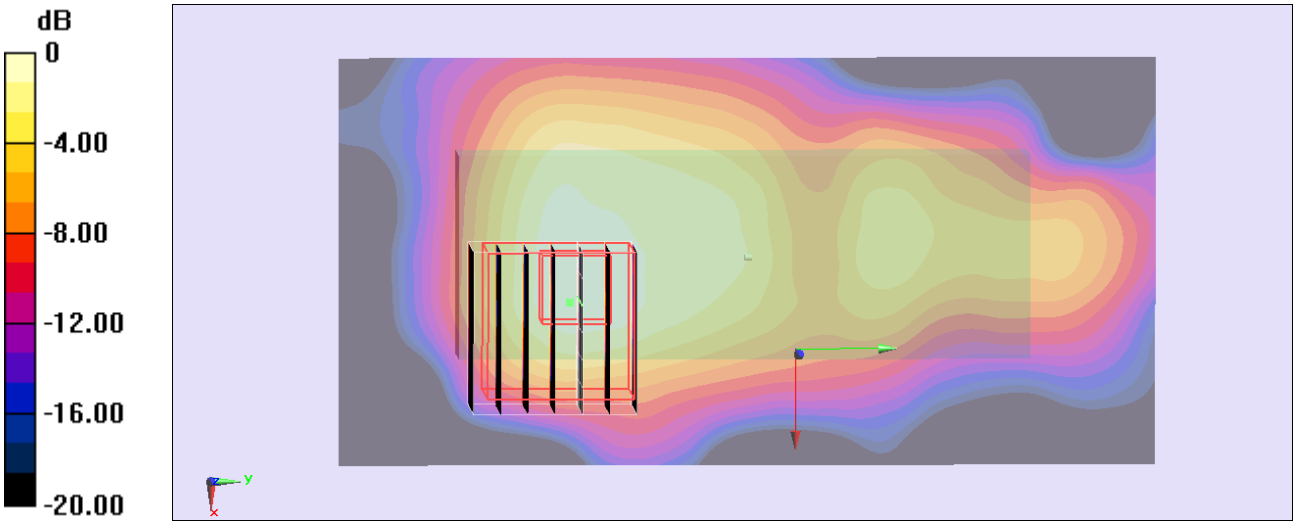
DUT: 2N0801

Communication System: 802.11n; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5200 MHz; σ = 5.336 mho/m; ε_r = 47.488; ρ = 1000 kg/m^3
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch40/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.524 mW/g

Configuration/Ch40/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 11.633 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.884 mW/g
SAR(1 g) = 0.229 mW/g; SAR(10 g) = 0.064 mW/g
Maximum value of SAR (measured) = 0.560 mW/g



0 dB = 0.560 mW/g = -5.04 dB mW/g

#14_WLAN5G_802.11n-HT20_Horizontal Down_0.5cm_Ch40;Ant 1+2

DUT: 2N0801

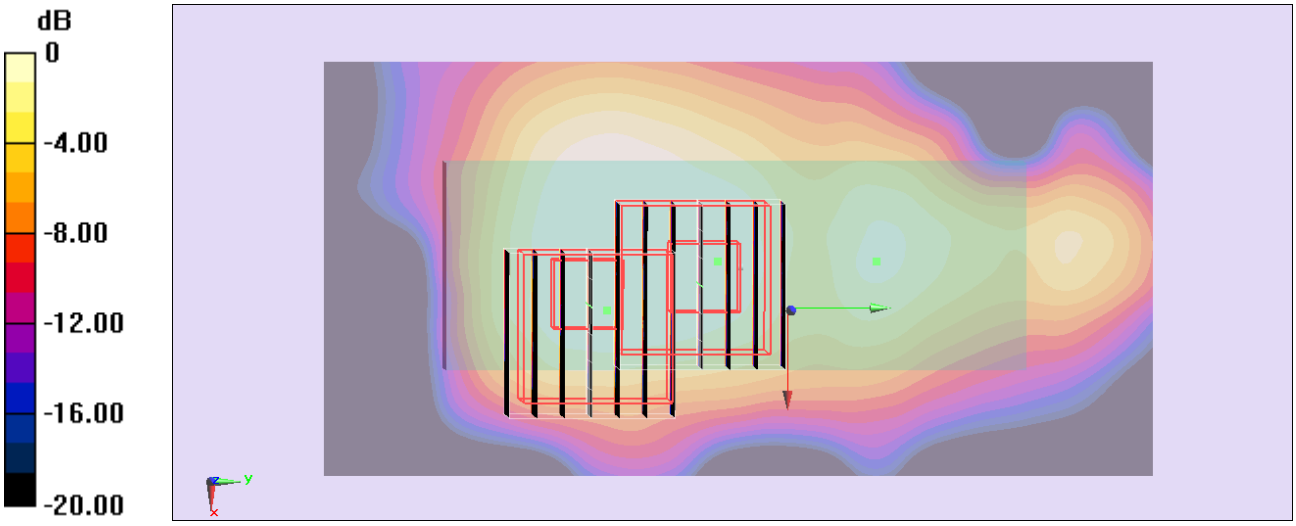
Communication System: 802.11n; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5200 MHz; σ = 5.336 mho/m; ε_r = 47.488; ρ = 1000 kg/m^3
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch40/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.380 mW/g

Configuration/Ch40/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 9.714 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.603 mW/g
SAR(1 g) = 0.160 mW/g; SAR(10 g) = 0.052 mW/g
Maximum value of SAR (measured) = 0.383 mW/g

Configuration/Ch40/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 9.714 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.620 mW/g
SAR(1 g) = 0.154 mW/g; SAR(10 g) = 0.060 mW/g
Maximum value of SAR (measured) = 0.363 mW/g



0 dB = 0.363 mW/g = -8.80 dB mW/g

#15_WLAN5G_802.11n-HT20_Vertical Front_0.5cm_Ch40;Ant 1+2

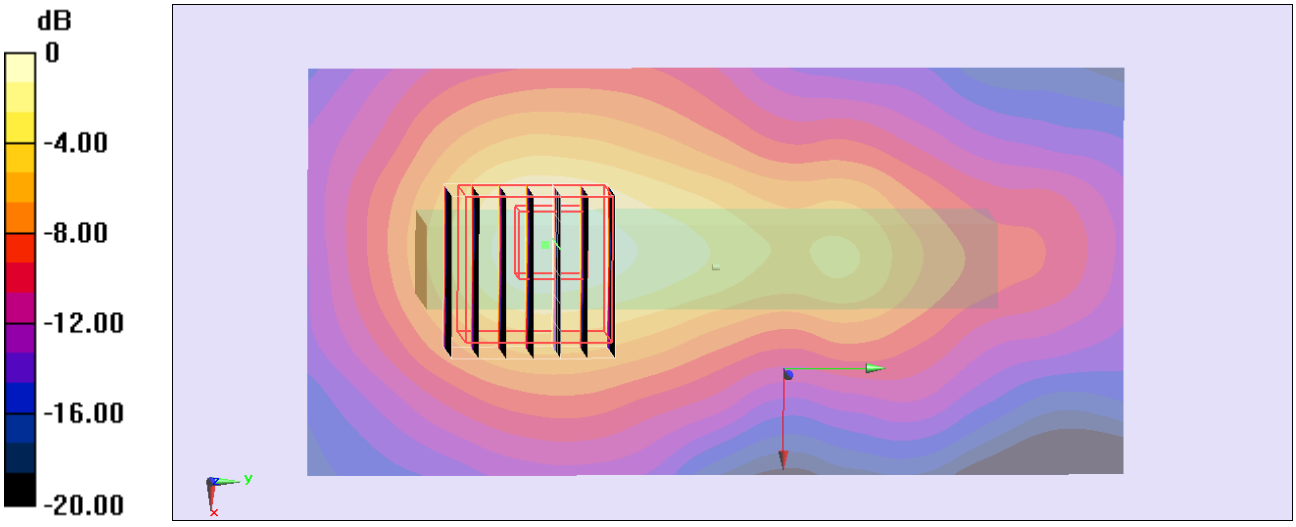
DUT: 2N0801

Communication System: 802.11n; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5200 MHz; σ = 5.336 mho/m; ε_r = 47.488; ρ = 1000 kg/m^3
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch40/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.669 mW/g

Configuration/Ch40/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 13.046 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.126 mW/g
SAR(1 g) = 0.284 mW/g; SAR(10 g) = 0.096 mW/g
Maximum value of SAR (measured) = 0.674 mW/g



0 dB = 0.674 mW/g = -3.43 dB mW/g

#16_WLAN5G_802.11n-HT20_Vertical Back_0.5cm_Ch40;Ant 1+2

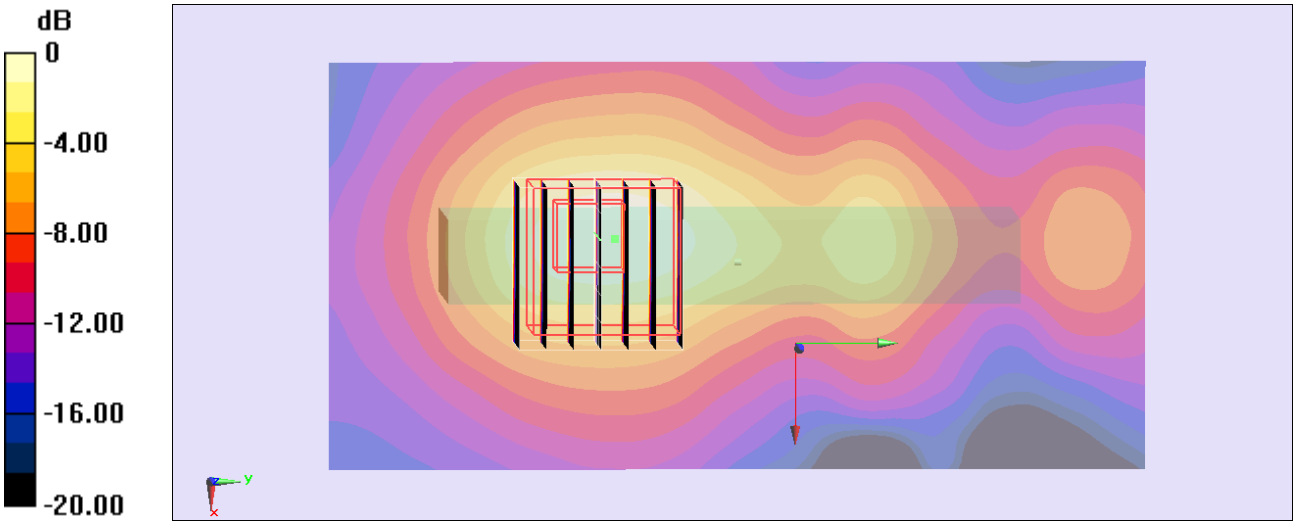
DUT: 2N0801

Communication System: 802.11n; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5200 MHz; σ = 5.336 mho/m; ε_r = 47.488; ρ = 1000 kg/m^3
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch40/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.728 mW/g

Configuration/Ch40/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 13.392 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.237 mW/g
SAR(1 g) = 0.326 mW/g; SAR(10 g) = 0.118 mW/g
Maximum value of SAR (measured) = 0.747 mW/g



0 dB = 0.747 mW/g = -2.53 dB mW/g

#16_WLAN5G_802.11n-HT20_Vertical Back_0.5cm_Ch40;Ant 1+2_2D

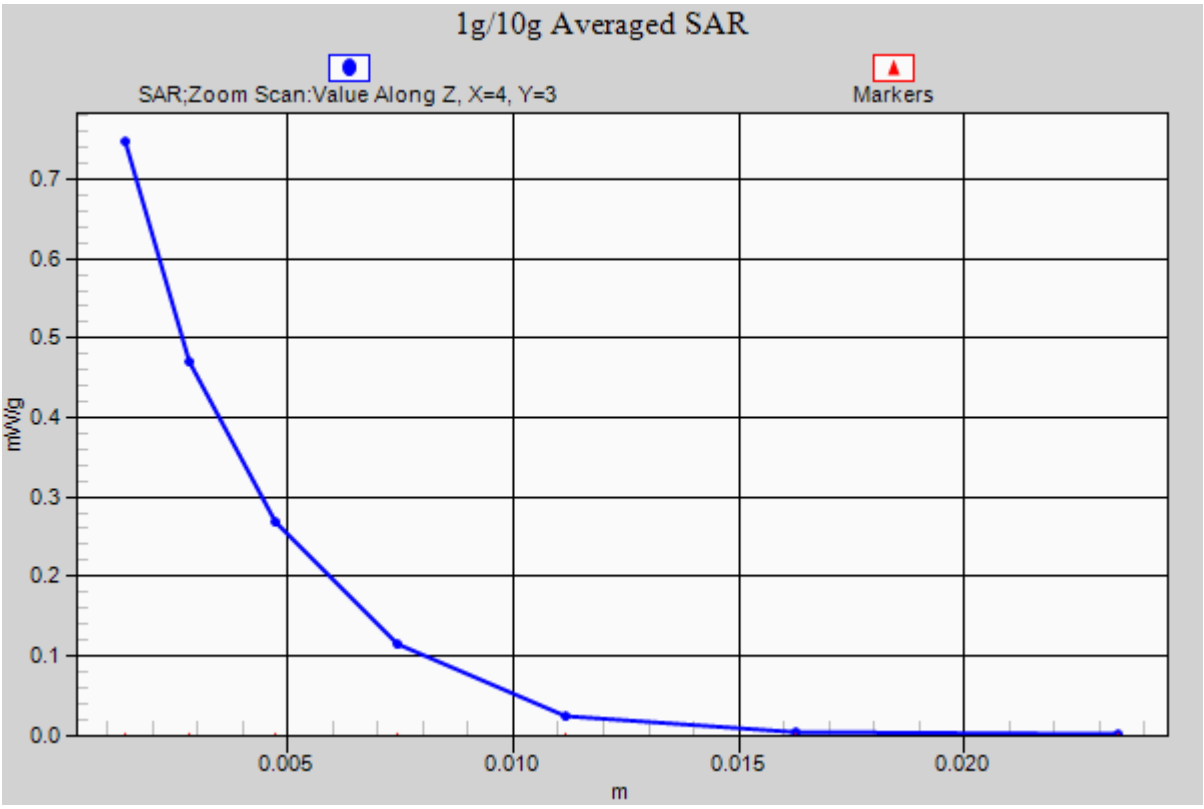
DUT: 2N0801

Communication System: 802.11n; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5200 MHz; σ = 5.336 mho/m; ε_r = 47.488; ρ = 1000 kg/m^3
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch40/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.728 mW/g

Configuration/Ch40/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 13.392 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.237 mW/g
SAR(1 g) = 0.326 mW/g; SAR(10 g) = 0.118 mW/g
Maximum value of SAR (measured) = 0.747 mW/g



#17_WLAN5G_802.11n-HT20_Tip Mode_0.5cm_Ch40;Ant 1+2

DUT: 2N0801

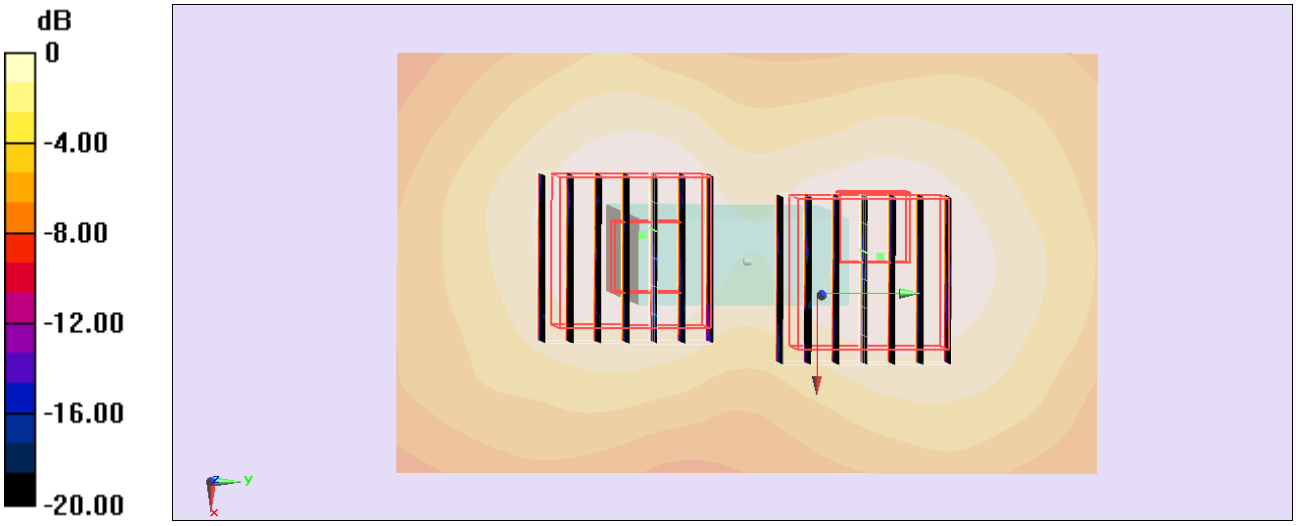
Communication System: 802.11n; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5200 MHz; σ = 5.336 mho/m; ε_r = 47.488; ρ = 1000 kg/m^3
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch40/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.201 mW/g

Configuration/Ch40/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 6.468 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.258 mW/g
SAR(1 g) = 0.071 mW/g; SAR(10 g) = 0.028 mW/g
Maximum value of SAR (measured) = 0.194 mW/g

Configuration/Ch40/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 6.468 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.215 mW/g
SAR(1 g) = 0.060 mW/g; SAR(10 g) = 0.024 mW/g
Maximum value of SAR (measured) = 0.170 mW/g



0 dB = 0.170 mW/g = -15.39 dB mW/g

#50_WLAN5G_802.11ac-VHT80_Vertical Back_0.5cm_Ch42;Ant 1+2

DUT: 2N0801

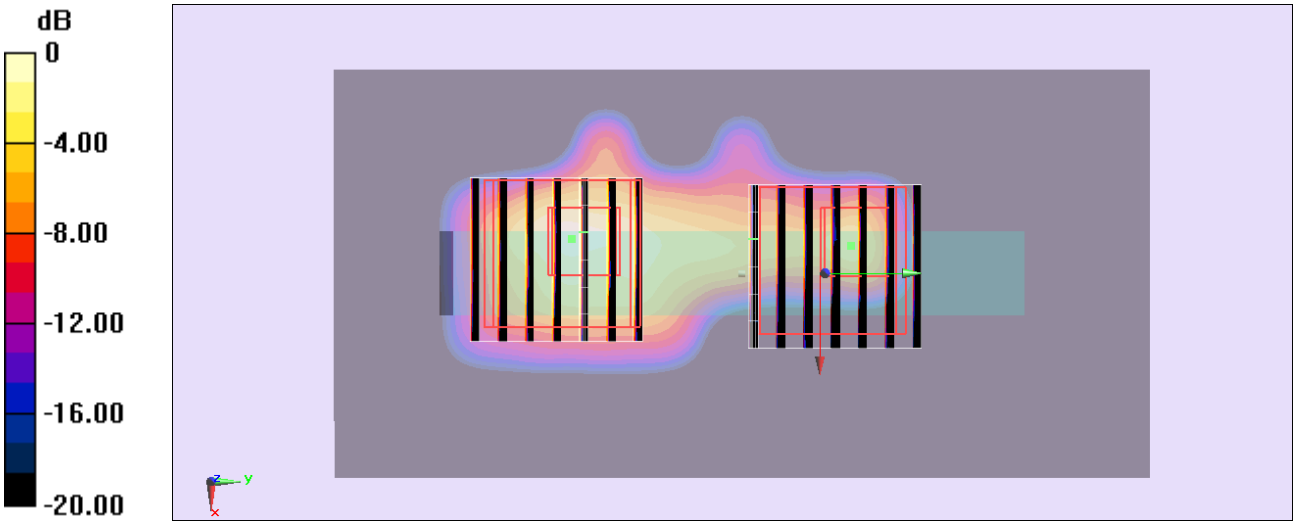
Communication System: 802.11n; Frequency: 5210 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5210 MHz; σ = 5.344 mho/m; ε_r = 47.457; ρ = 1000 kg/m^3
Ambient Temperature：22.7 ℃; Liquid Temperature：21.7 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch42/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.154 mW/g

Configuration/Ch42/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 11.329 V/m; Power Drift = -0.155 dB
Peak SAR (extrapolated) = 0.780 mW/g
SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.057 mW/g
Maximum value of SAR (measured) = 0.459 mW/g

Configuration/Ch42/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 11.329 V/m; Power Drift = -0.155 dB
Peak SAR (extrapolated) = 0.305 mW/g
SAR(1 g) = 0.063 mW/g; SAR(10 g) = 0.021 mW/g
Maximum value of SAR (measured) = 0.182 mW/g



0 dB = 0.182 mW/g = -14.80 dB mW/g

#18_WLAN5G_802.11n-HT20_Horizontal Up_0.5cm_Ch149;Ant 1+2

DUT: 2N0801

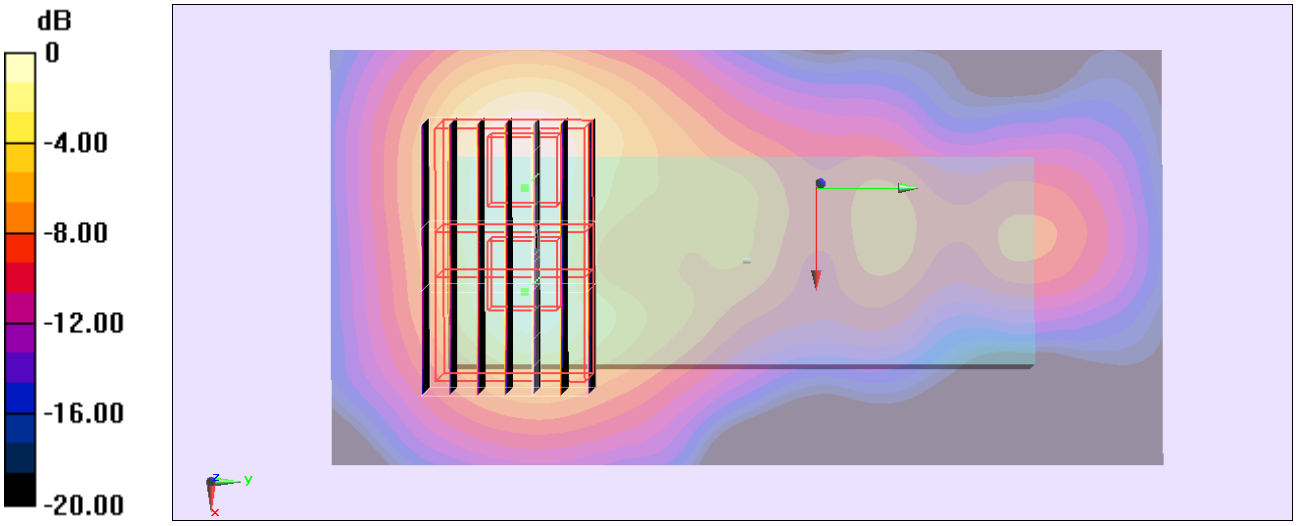
Communication System: 802.11n; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5745 MHz; σ = 6.184 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch149/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.07 mW/g

Configuration/Ch149/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 21.325 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 3.457 mW/g
SAR(1 g) = 0.847 mW/g; SAR(10 g) = 0.282 mW/g
Maximum value of SAR (measured) = 2.04 mW/g

Configuration/Ch149/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 21.325 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 2.673 mW/g
SAR(1 g) = 0.670 mW/g; SAR(10 g) = 0.205 mW/g
Maximum value of SAR (measured) = 1.61 mW/g



0 dB = 1.61 mW/g = 4.14 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/5

#19_WLAN5G_802.11n-HT20_Horizontal Down_0.5cm_Ch149;Ant 1+2

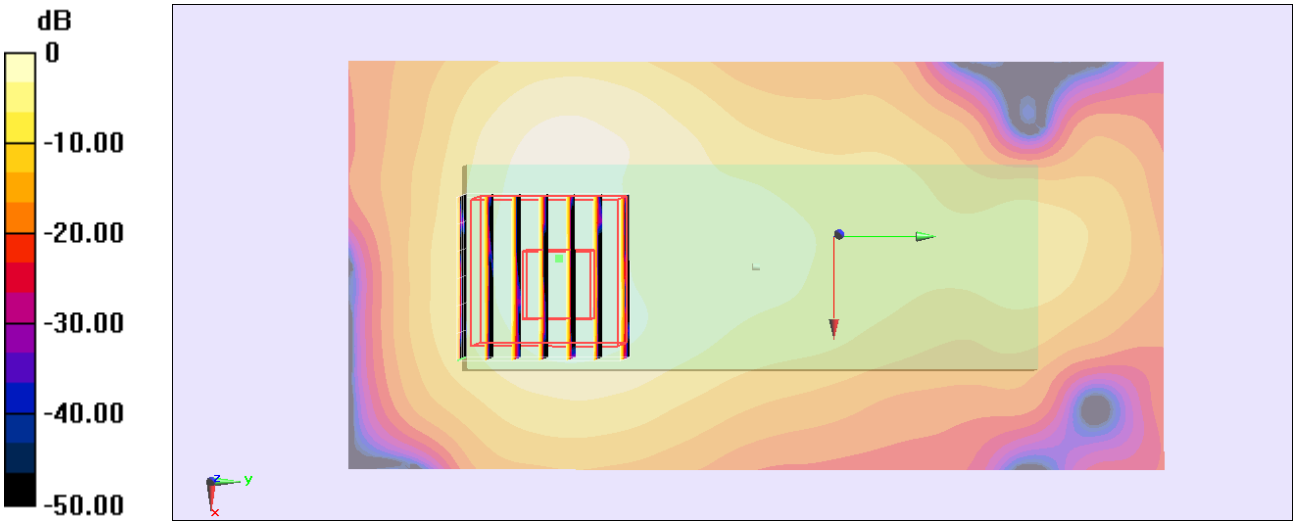
DUT: 2N0801

Communication System: 802.11n; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5745 MHz; σ = 6.184 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch149/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.91 mW/g

Configuration/Ch149/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 20.683 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 3.332 mW/g
SAR(1 g) = 0.843 mW/g; SAR(10 g) = 0.287 mW/g
Maximum value of SAR (measured) = 2.02 mW/g



0 dB = 2.02 mW/g = 6.11 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/5

#20_WLAN5G_802.11n-HT20_Vertical Front_0.5cm_Ch149;Ant 1+2

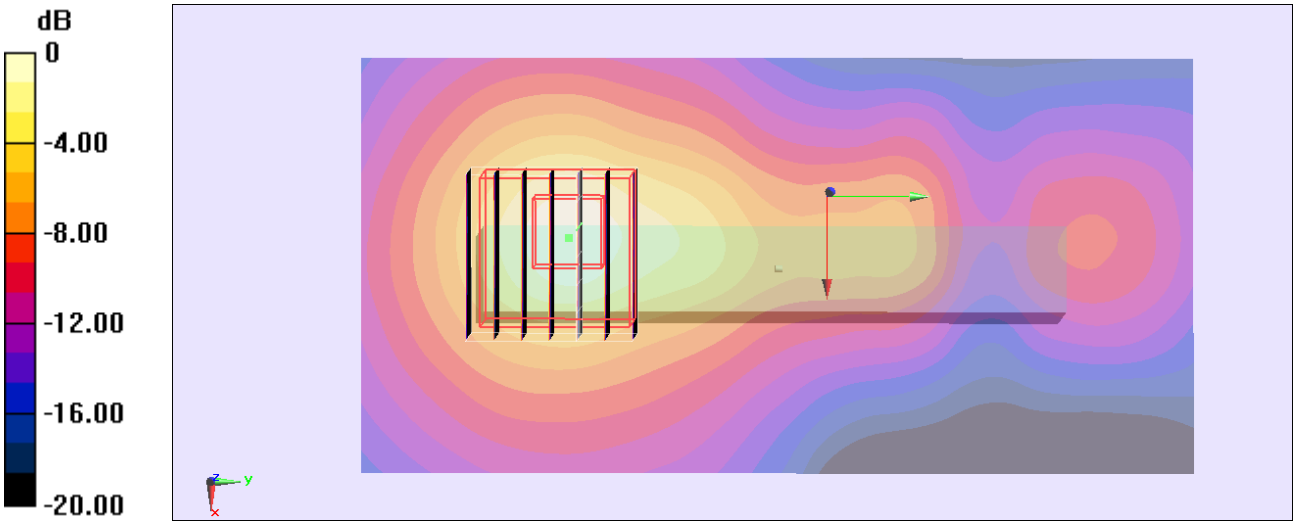
DUT: 2N0801

Communication System: 802.11n; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5745 MHz; σ = 6.184 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch149/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.04 mW/g

Configuration/Ch149/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 21.862 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.586 mW/g
SAR(1 g) = 0.865 mW/g; SAR(10 g) = 0.288 mW/g
Maximum value of SAR (measured) = 2.10 mW/g



0 dB = 2.10 mW/g = 6.44 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/5

#21_WLAN5G_802.11n-HT20_Vertical Back_0.5cm_Ch149;Ant 1+2

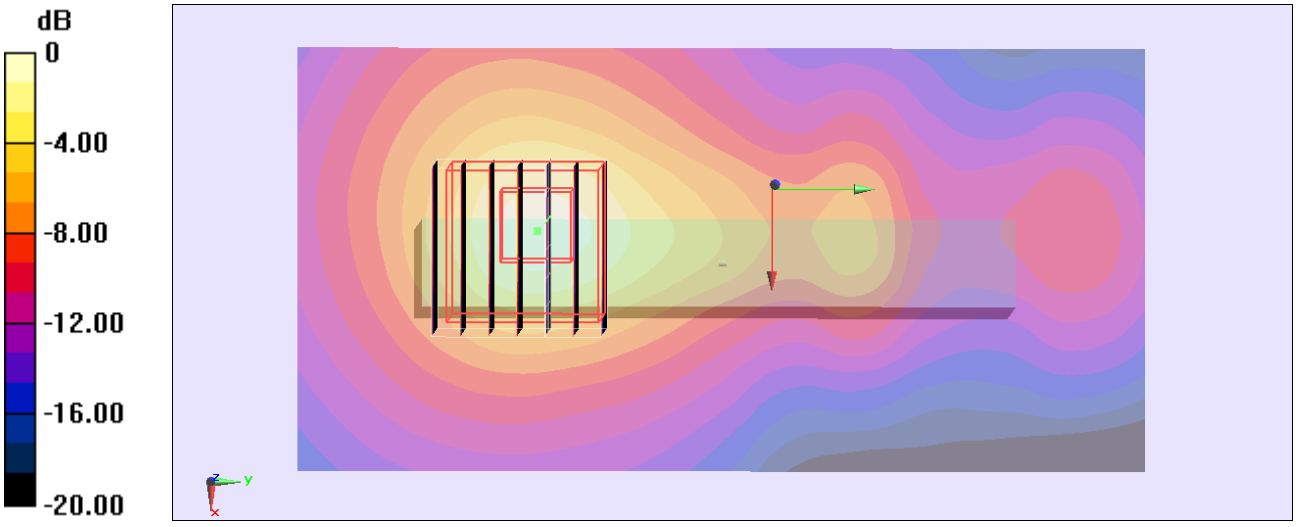
DUT: 2N0801

Communication System: 802.11n; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5745 MHz; σ = 6.184 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch149/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.18 mW/g

Configuration/Ch149/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 23.388 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 4.067 mW/g
SAR(1 g) = 0.986 mW/g; SAR(10 g) = 0.325 mW/g
Maximum value of SAR (measured) = 2.39 mW/g



0 dB = 2.39 mW/g = 7.57 dB mW/g

#21_WLAN5G_802.11n-HT20_Vertical Back_0.5cm_Ch149;Ant 1+2_2D

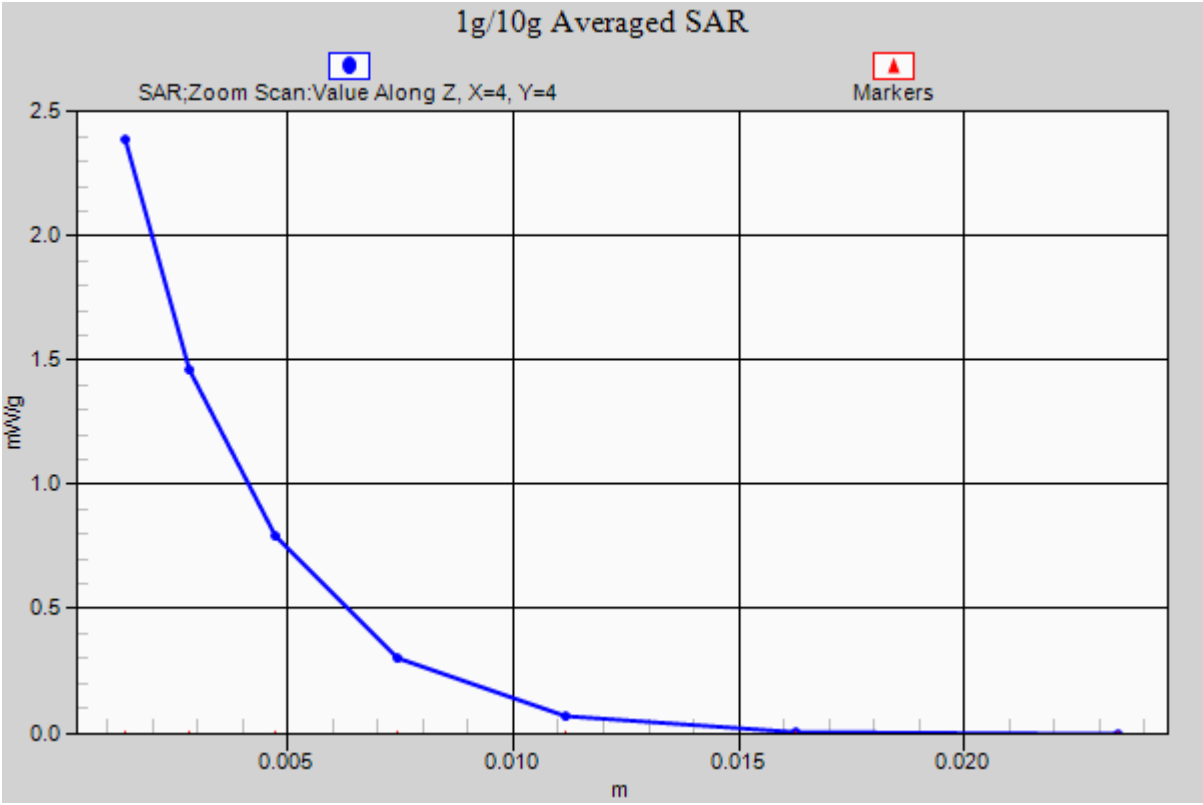
DUT: 2N0801

Communication System: 802.11n; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5745 MHz; σ = 6.184 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch149/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.18 mW/g

Configuration/Ch149/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 23.388 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 4.067 mW/g
SAR(1 g) = 0.986 mW/g; SAR(10 g) = 0.325 mW/g
Maximum value of SAR (measured) = 2.39 mW/g



Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/5

#54_WLAN5G_802.11n-HT20_Vertical Back_0.5cm_Ch149;Ant 1+2_Repeat

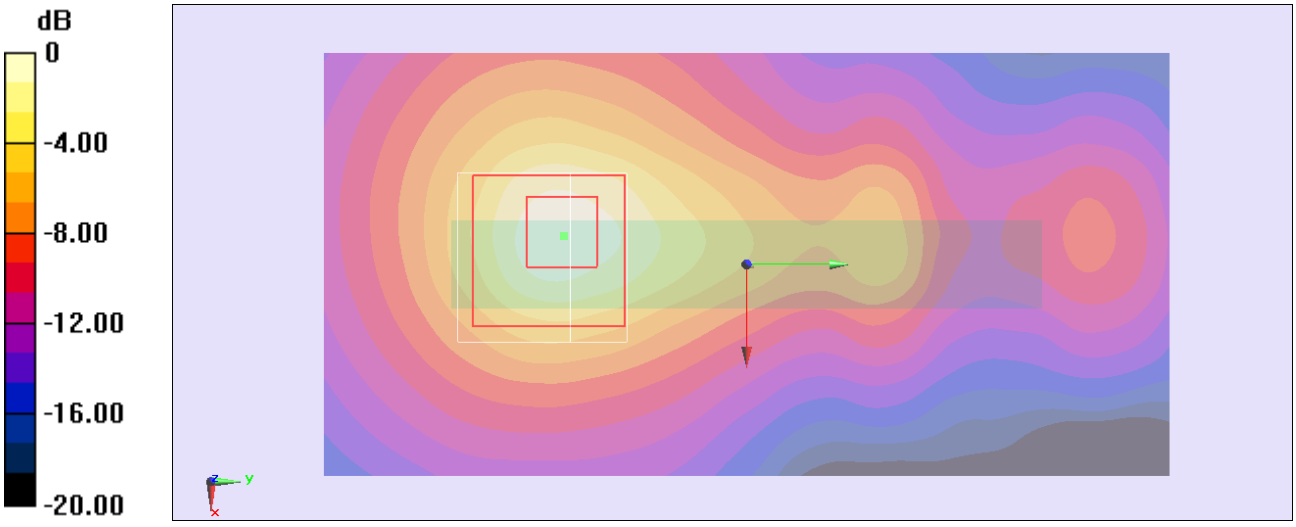
DUT: 2N0801

Communication System: 802.11n; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used (interpolated): f = 5745 MHz; σ = 6.184 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch149/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.23 mW/g

Configuration/Ch149/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 23.435 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 4.001 mW/g
SAR(1 g) = 0.971 mW/g; SAR(10 g) = 0.321 mW/g
Maximum value of SAR (measured) = 2.35 mW/g



0 dB = 2.35 mW/g = 7.42 dB mW/g

#22_WLAN5G_802.11n-HT20_Tip Mode_0.5cm_Ch149;Ant 1+2

DUT: 2N0801

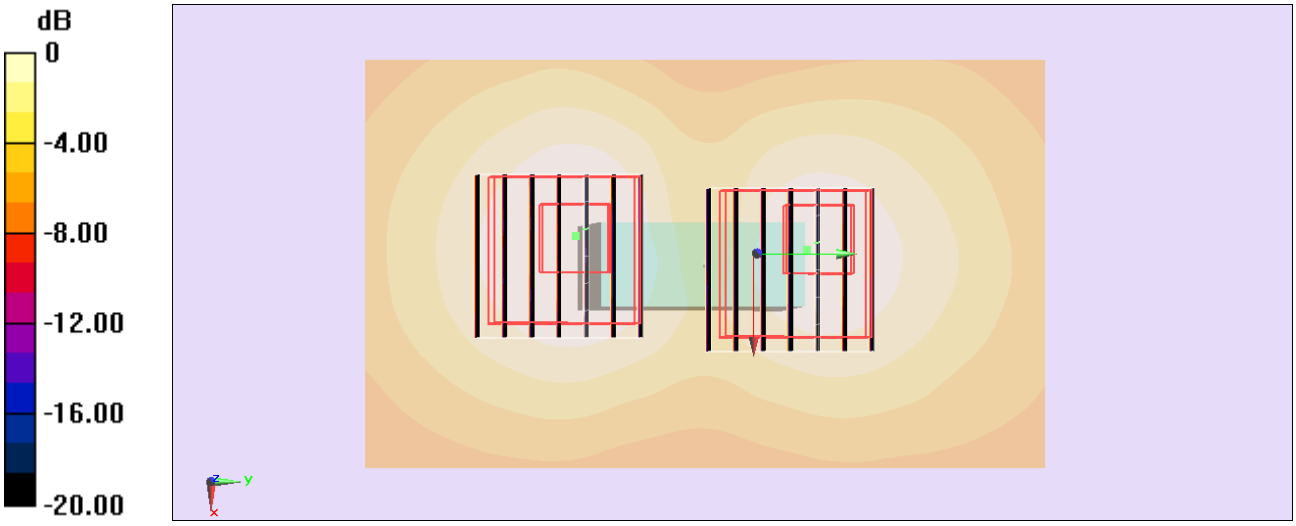
Communication System: 802.11n; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5745 MHz; σ = 6.184 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch149/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.945 mW/g

Configuration/Ch149/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 14.880 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.649 mW/g
SAR(1 g) = 0.414 mW/g; SAR(10 g) = 0.162 mW/g
Maximum value of SAR (measured) = 0.977 mW/g

Configuration/Ch149/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 14.880 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.298 mW/g
SAR(1 g) = 0.329 mW/g; SAR(10 g) = 0.127 mW/g
Maximum value of SAR (measured) = 0.776 mW/g



0 dB = 0.776 mW/g = -2.20 dB mW/g

#30_WLAN5G_802.11n-HT20_Horizontal Up_0.5cm_Ch157;Ant 1+2

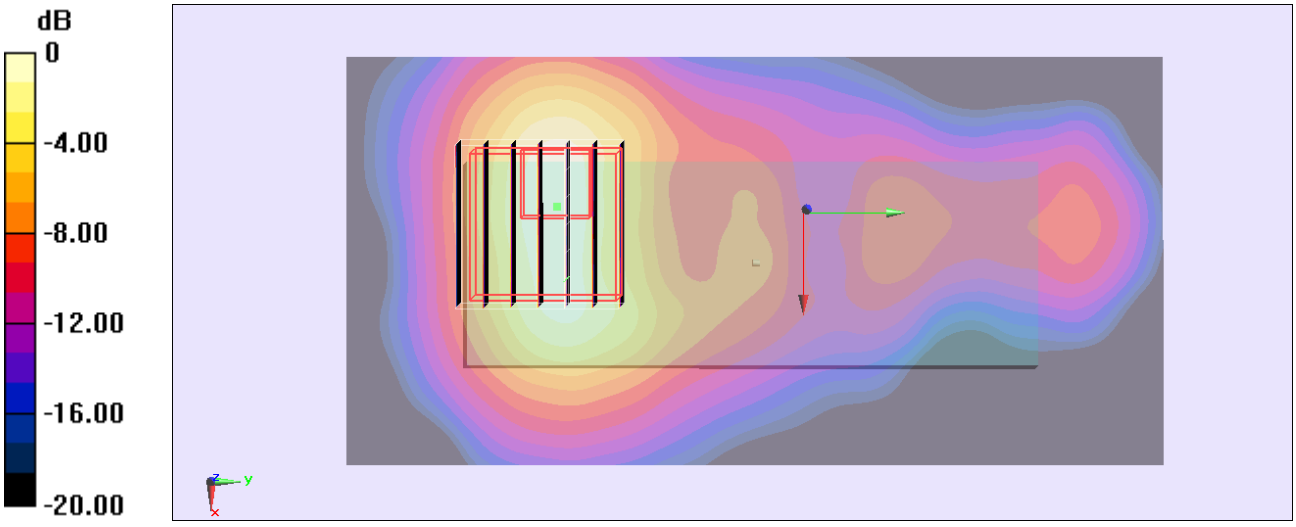
DUT: 2N0801

Communication System: 802.11n; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5785 MHz; σ = 6.23 mho/m; ε_r = 46.452; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch157/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.12 mW/g

Configuration/Ch157/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 20.899 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 3.517 mW/g
SAR(1 g) = 0.840 mW/g; SAR(10 g) = 0.297 mW/g
Maximum value of SAR (measured) = 2.12 mW/g



0 dB = 2.12 mW/g = 6.53 dB mW/g

#31_WLAN5G_802.11n-HT20_Horizontal Up_0.5cm_Ch161;Ant 1+2

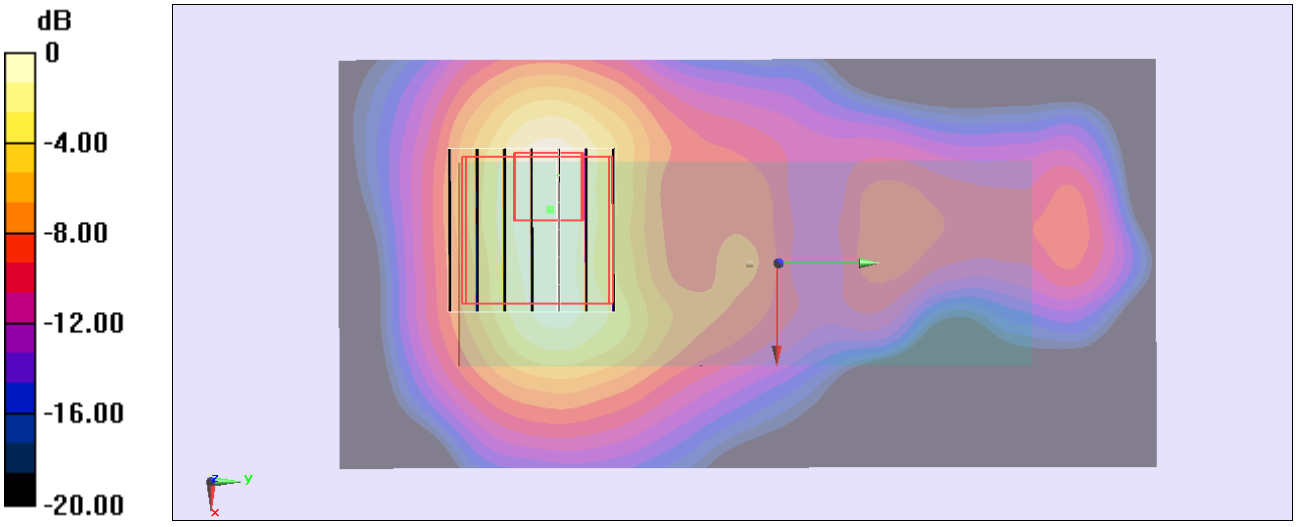
DUT: 2N0801

Communication System: 802.11n; Frequency: 5805 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5805 MHz; σ = 6.25 mho/m; ε_r = 46.374; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch161/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.07 mW/g

Configuration/Ch161/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 20.433 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 3.424 mW/g
SAR(1 g) = 0.805 mW/g; SAR(10 g) = 0.283 mW/g
Maximum value of SAR (measured) = 2.01 mW/g



0 dB = 2.01 mW/g = 6.06 dB mW/g

#28_WLAN5G_802.11n-HT20_Horizontal Down_0.5cm_Ch157;Ant 1+2

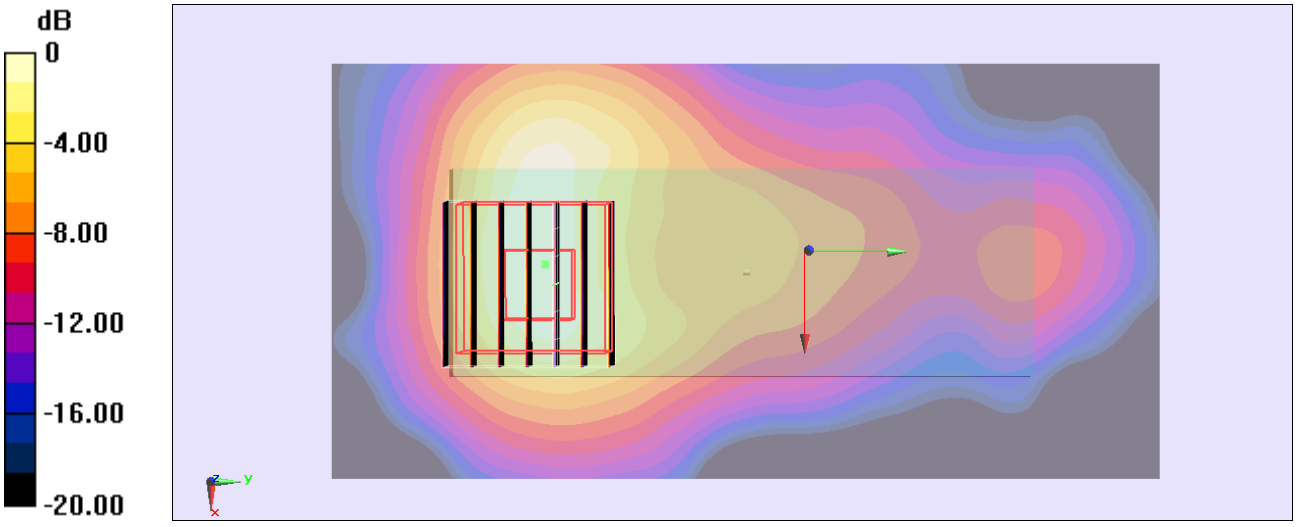
DUT: 2N0801

Communication System: 802.11n; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5785 MHz; σ = 6.23 mho/m; ε_r = 46.452; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch157/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.87 mW/g

Configuration/Ch157/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 20.046 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 3.159 mW/g
SAR(1 g) = 0.787 mW/g; SAR(10 g) = 0.269 mW/g
Maximum value of SAR (measured) = 1.87 mW/g



0 dB = 1.87 mW/g = 5.44 dB mW/g

#29_WLAN5G_802.11n-HT20_Horizontal Down_0.5cm_Ch161;Ant 1+2

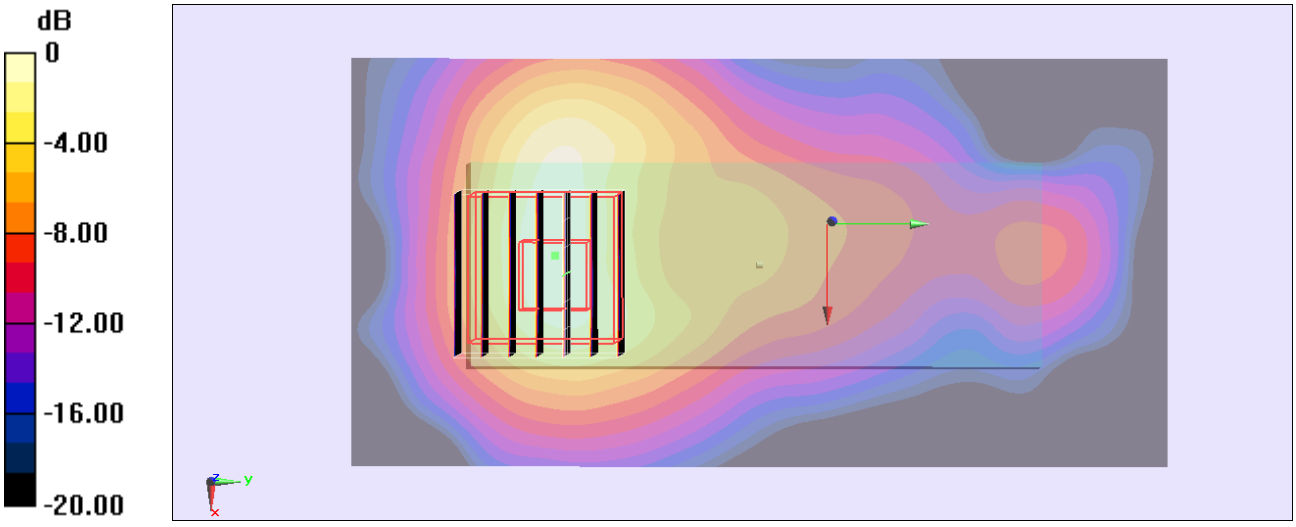
DUT: 2N0801

Communication System: 802.11n; Frequency: 5805 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5805 MHz; σ = 6.25 mho/m; ε_r = 46.374; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch161/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.76 mW/g

Configuration/Ch161/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 19.754 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 3.072 mW/g
SAR(1 g) = 0.757 mW/g; SAR(10 g) = 0.254 mW/g
Maximum value of SAR (measured) = 1.85 mW/g



0 dB = 1.85 mW/g = 5.34 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/5

#26_WLAN5G_802.11n-HT20_Vertical Front_0.5cm_Ch157;Ant 1+2

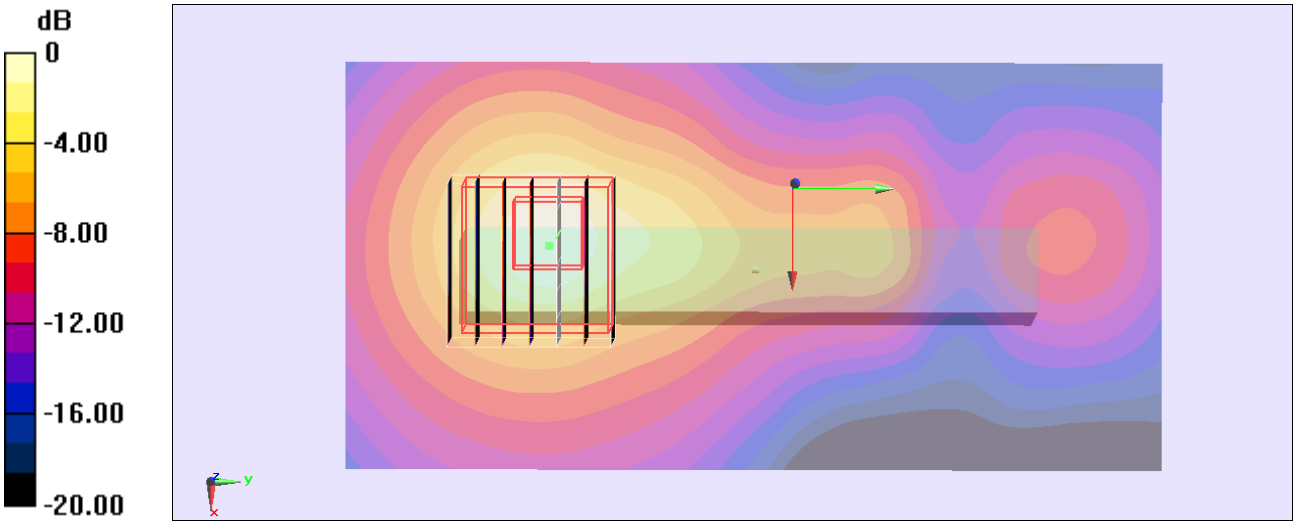
DUT: 2N0801

Communication System: 802.11n; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5785 MHz; σ = 6.23 mho/m; ε_r = 46.452; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch157/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.96 mW/g

Configuration/Ch157/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 21.135 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 3.436 mW/g
SAR(1 g) = 0.821 mW/g; SAR(10 g) = 0.268 mW/g
Maximum value of SAR (measured) = 1.99 mW/g



0 dB = 1.99 mW/g = 5.98 dB mW/g

#27_WLAN5G_802.11n-HT20_Vertical Front_0.5cm_Ch161;Ant 1+2

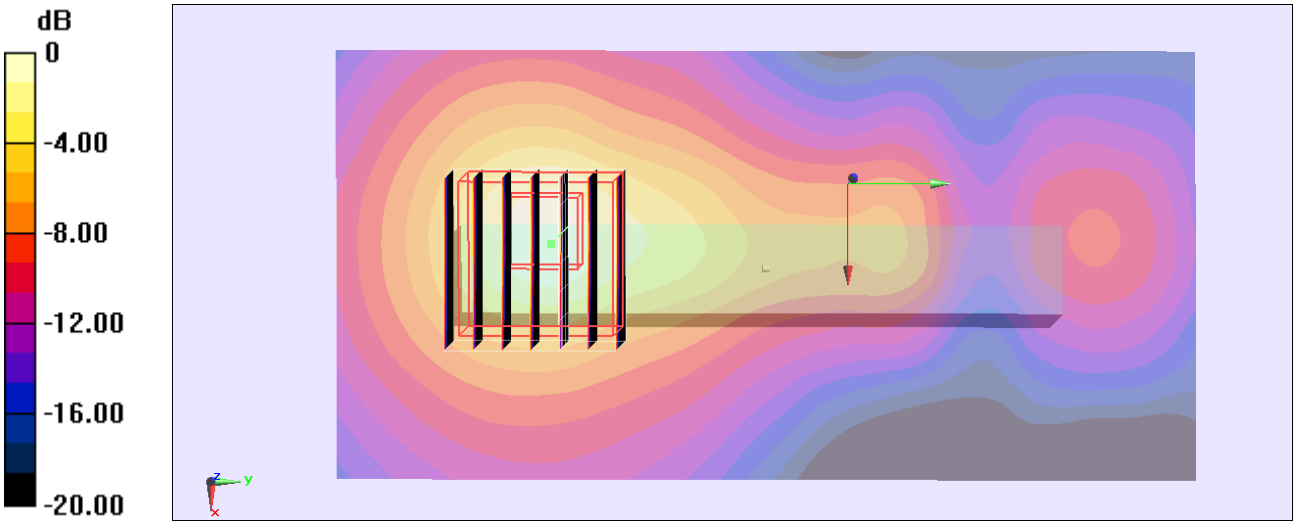
DUT: 2N0801

Communication System: 802.11n; Frequency: 5805 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5805 MHz; σ = 6.25 mho/m; ε_r = 46.374; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch161/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.89 mW/g

Configuration/Ch161/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 20.796 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 3.413 mW/g
SAR(1 g) = 0.799 mW/g; SAR(10 g) = 0.260 mW/g
Maximum value of SAR (measured) = 1.94 mW/g



0 dB = 1.94 mW/g = 5.76 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/5

#23_WLAN5G_802.11n-HT20_Vertical Back_0.5cm_Ch157;Ant 1+2

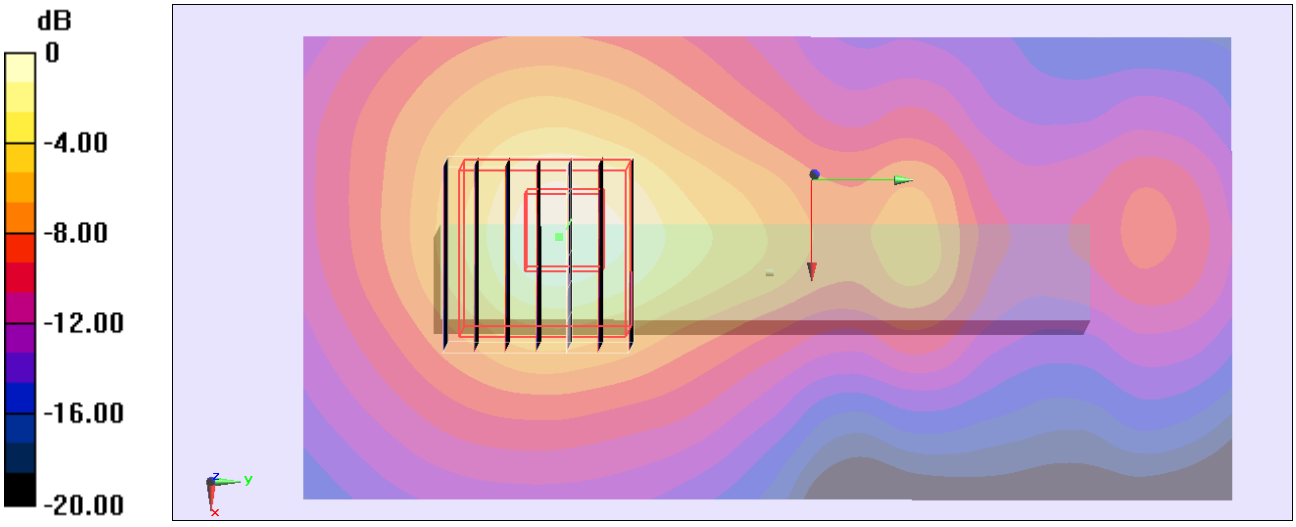
DUT: 2N0801

Communication System: 802.11n; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5785 MHz; σ = 6.23 mho/m; ε_r = 46.452; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch157/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.14 mW/g

Configuration/Ch157/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 22.232 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.738 mW/g
SAR(1 g) = 0.885 mW/g; SAR(10 g) = 0.285 mW/g
Maximum value of SAR (measured) = 2.20 mW/g



0 dB = 2.20 mW/g = 6.85 dB mW/g

Test Laboratory: Sporton International Inc. SAR/HAC Testing Lab Date: 2012/12/5

#24_WLAN5G_802.11n-HT20_Vertical Back_0.5cm_Ch161;Ant 1+2

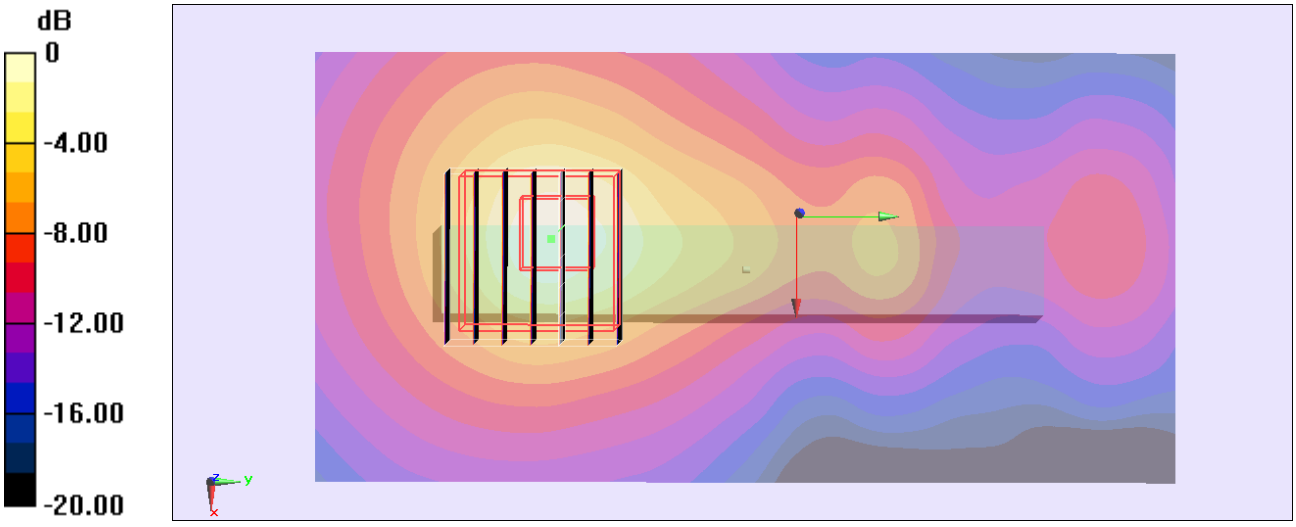
DUT: 2N0801

Communication System: 802.11n; Frequency: 5805 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5805 MHz; σ = 6.25 mho/m; ε_r = 46.374; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch161/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.97 mW/g

Configuration/Ch161/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 21.807 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.560 mW/g
SAR(1 g) = 0.850 mW/g; SAR(10 g) = 0.275 mW/g
Maximum value of SAR (measured) = 2.09 mW/g



0 dB = 2.09 mW/g = 6.40 dB mW/g

#25_WLAN5G_802.11ac-VHT80_Vertical Back_0.5cm_Ch155;Ant 1+2

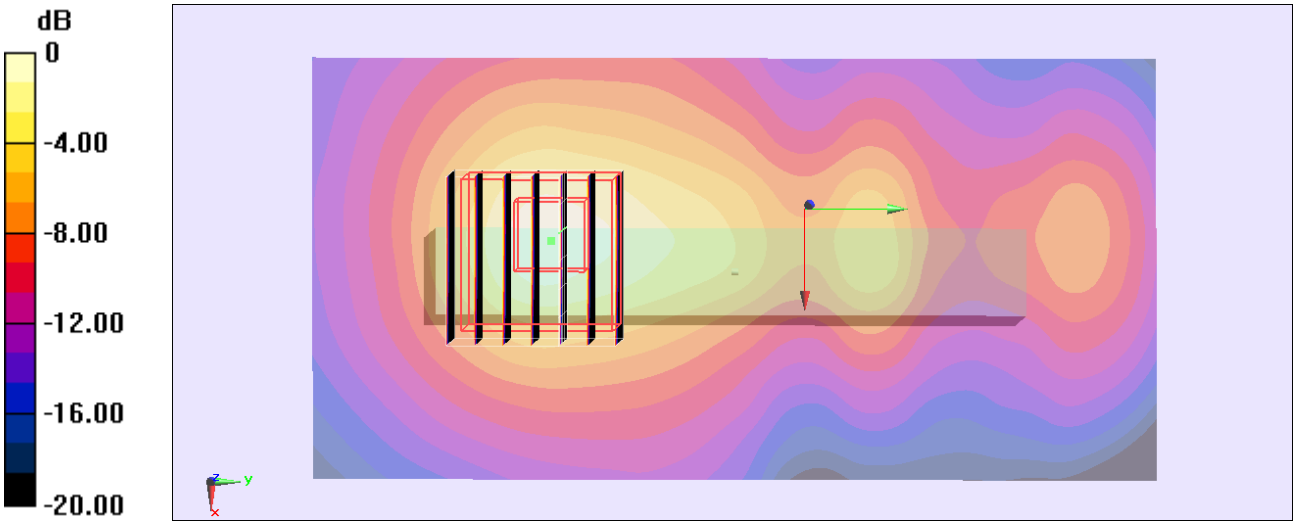
DUT: 2N0801

Communication System: 802.11ac; Frequency: 5775 MHz;Duty Cycle: 1:1
Medium: MSL_5G_121205 Medium parameters used: f = 5775 MHz; σ = 6.221 mho/m; ε_r = 46.496; ρ = 1000 kg/m^3
Ambient Temperature：22.6 ℃; Liquid Temperature：21.6 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3792; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/6/21;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1338; Calibrated: 2012/6/12
- Phantom: ELI 4.0_Front; Type: QDOVA001BB; Serial: 1026
- Measurement SW: DASY52, Version 52.8 (3);SEMCAD X Version 14.6.5 (6469)

Configuration/Ch155/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.87 mW/g

Configuration/Ch155/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 21.270 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 3.336 mW/g
SAR(1 g) = 0.810 mW/g; SAR(10 g) = 0.265 mW/g
Maximum value of SAR (measured) = 1.98 mW/g



0 dB = 1.98 mW/g = 5.93 dB mW/g

Appendix C. DASY Calibration Certificate

The DASY calibration certificates are shown as follows.

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

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

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

Accreditation No.: SCS 108

Client **Sporton (Auden)**

Certificate No: D2450V2-736_Jul11

CALIBRATION CERTIFICATE

Object: D2450V2 - SN: 736

Calibration procedure(s): QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: July 25, 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: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

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	04-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: July 25, 2011

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	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

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

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.9 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**54.8 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.44 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**25.6 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.7 ± 6 %	2.00 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.3 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**52.3 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.18 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**24.5 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.4 Ω + 1.5 jΩ
Return Loss	- 27.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.8 Ω + 2.8 jΩ
Return Loss	- 30.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.159 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	August 26, 2003

DASY5 Validation Report for Head TSL

Date: 25.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 736

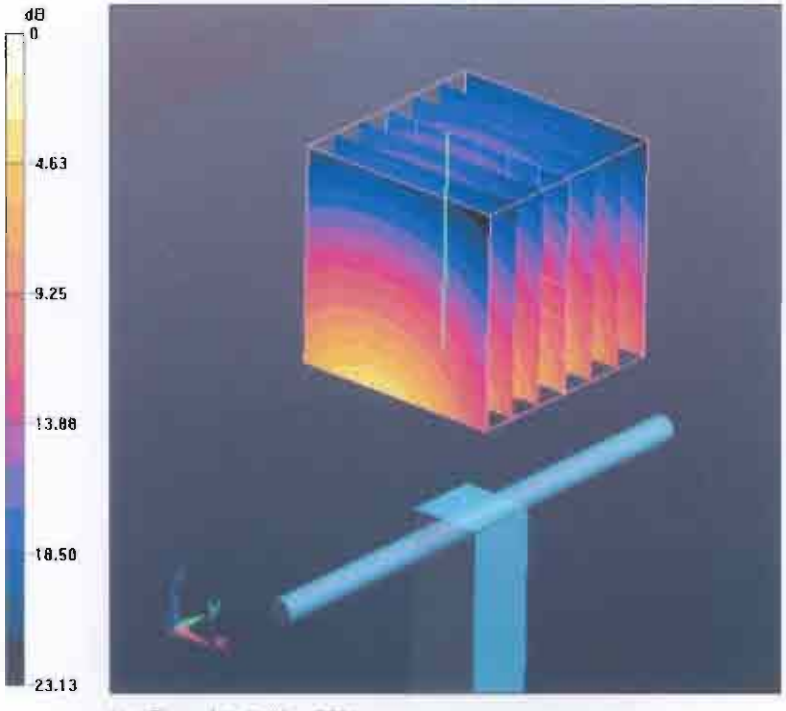
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.85 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

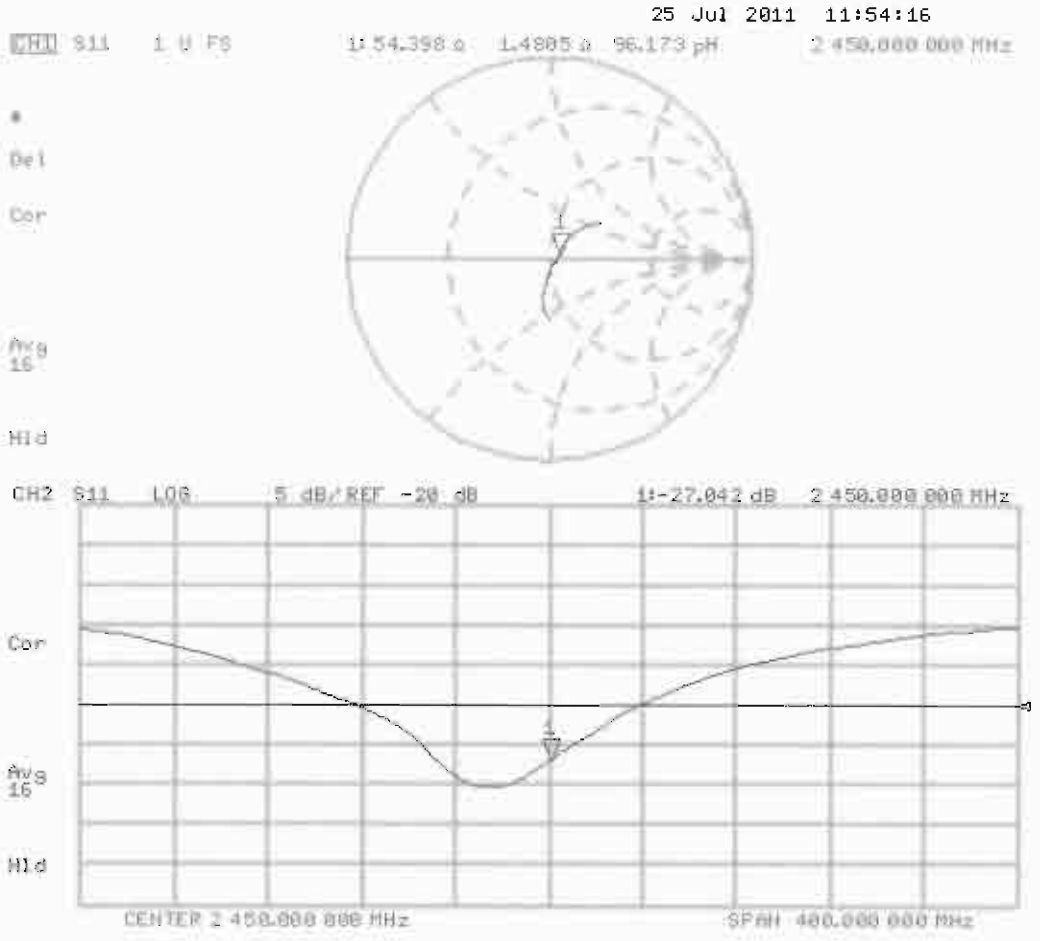
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98.095 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 28.615 W/kg
SAR(1 g) = 13.9 mW/g; SAR(10 g) = 6.44 mW/g
Maximum value of SAR (measured) = 18.121 mW/g



0 dB = 18.120mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 25.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 736

Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

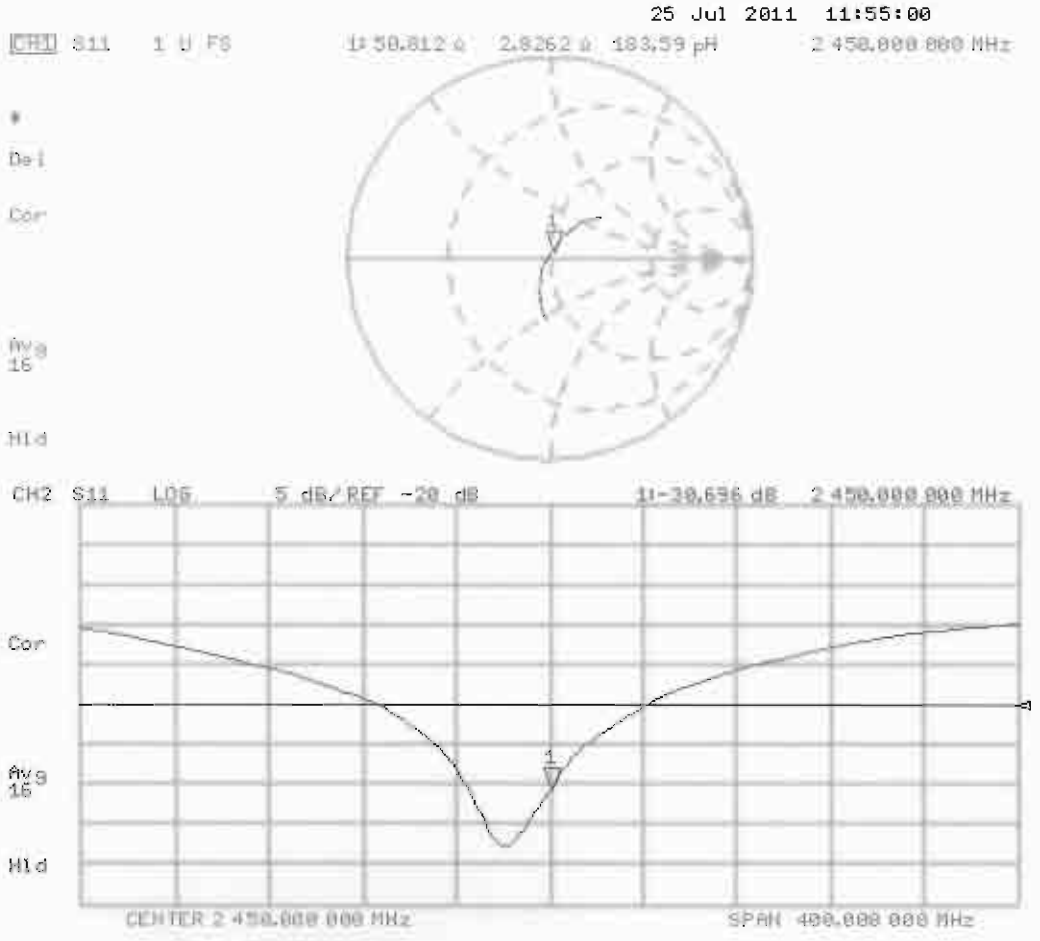
- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.550 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 27.432 W/kg
SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.18 mW/g
Maximum value of SAR (measured) = 17.294 mW/g

0 dB = 17.290mW/g

Impedance Measurement Plot for Body TSL



D2450V2, serial no. 736 Extended Dipole Calibrations

Referring to KDB 450824, if dipoles are verified in return loss (<-20dB, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

<Justification Procedure of Extended Dipole Calibration>

1. Setup a Network Analyzer (Agilent N5230A) and set the start frequency and stop frequency to Network Analyzer according to the dipole frequency, at least +/- 200MHz around the calibration point.
2. Using calibration kit to perform Network Analyzer Open, Short and Load calibration.
3. Connect the dipole with the calibrated Network Analyzer.
4. Place the dipole underneath the phantom which is filled with head-simulating or body-simulating liquid.
5. Set the Network Analyzer frequency by the dipole calibration frequency. Monitor the return-loss and impedance results with Log Magnitude format and Smith Chart, respectively.
6. Record the result and compare with the prior calibration. Please check the Appendix C for detail records.

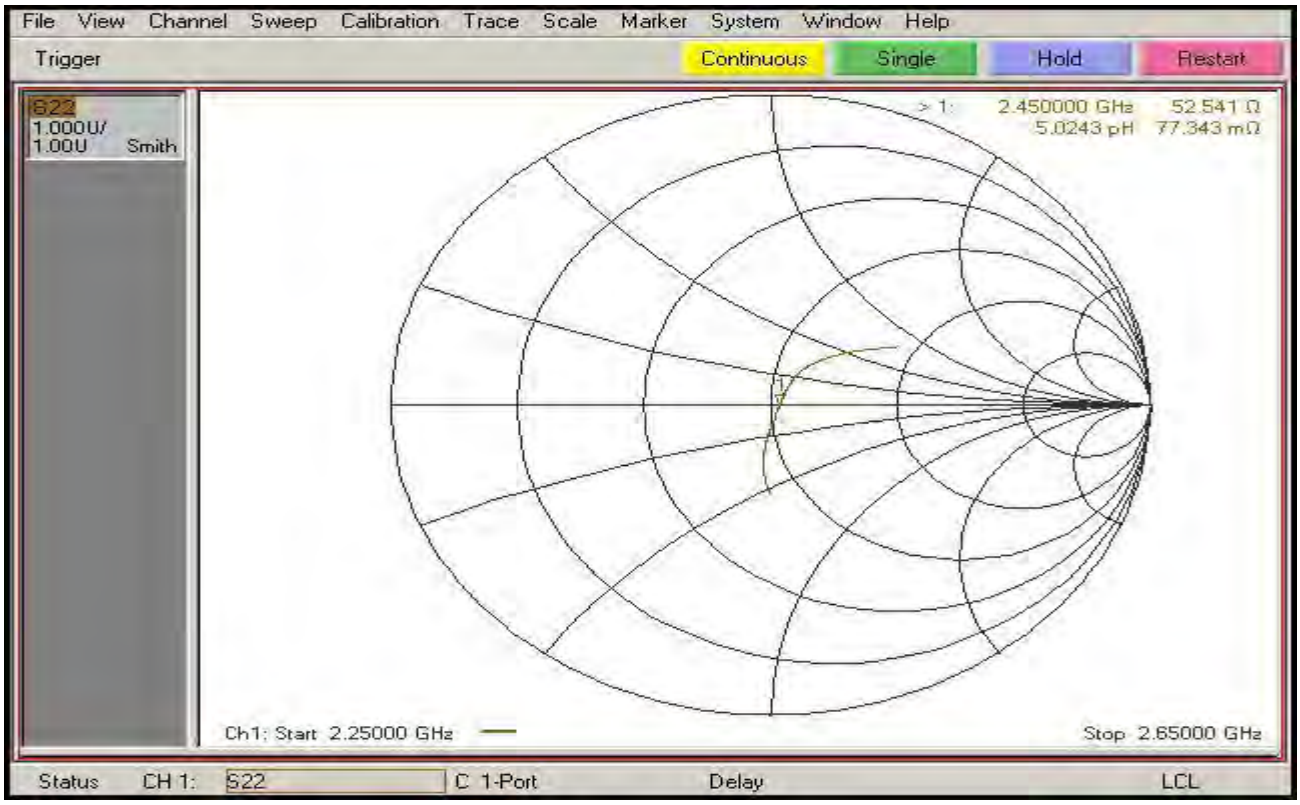
<Justification of the extended calibration>

D**2450**V2 – serial no. **736**												
	2450 Head						**2450** Body					
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
7.25.2011	-27.042		54.398		1.4805		-30.696		50.812		2.8262	
7.25.2012	-27.950	-3.365	52.541	1.857	0.77343	0.707	-31.781	-3.535	50.572	0.24	1.5953	1.2309

The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

<Dipole Verification Data> - D2450 V2, serial no. 736 (Date of Measurement : 7.25.2012)

2450 MHz - Head

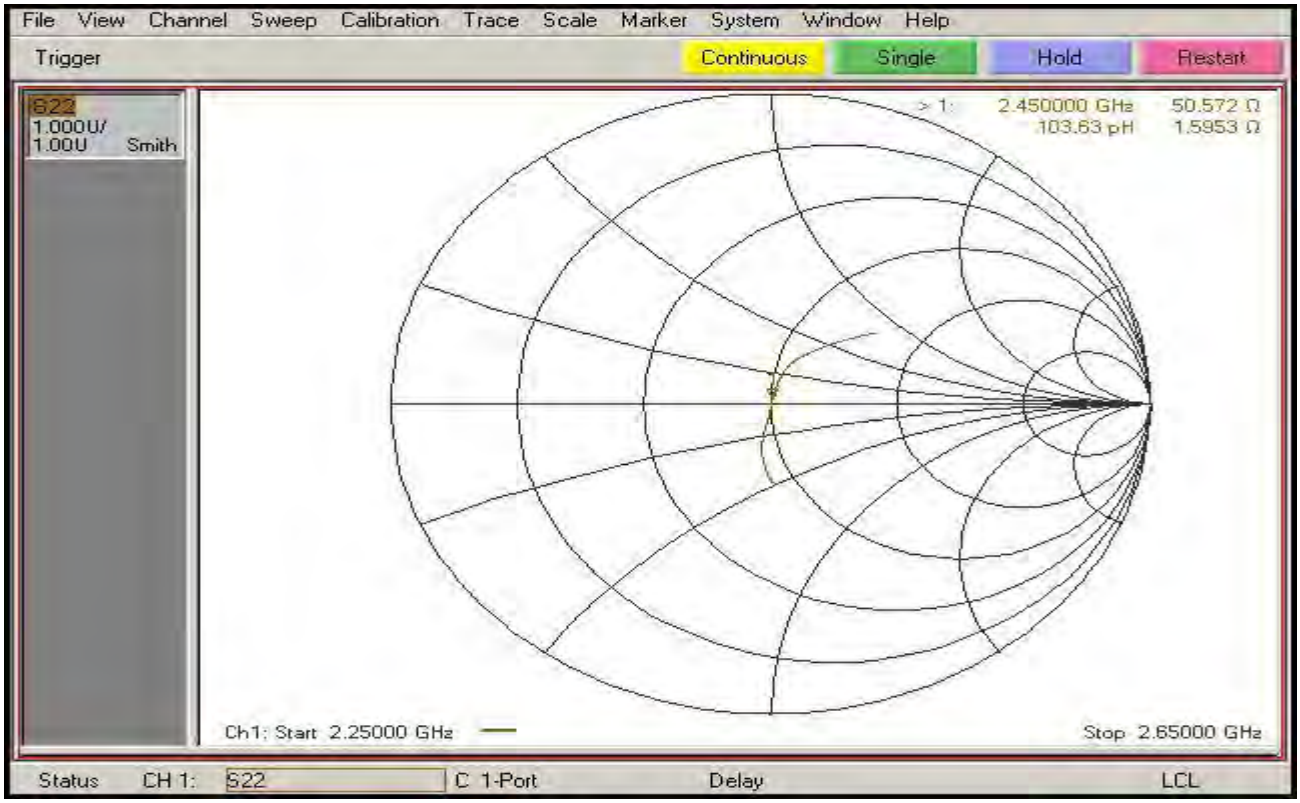


SPORTON INTERNATIONAL INC.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

2450 MHz – Body



SPORTON INTERNATIONAL INC.
TEL : 886-3-327-3456
FAX : 886-3-328-4978

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

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

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

Accreditation No.: **SCS 108**

Client **Sporton (Auden)**

Certificate No: **D5GHzV2-1006_Jan12**

CALIBRATION CERTIFICATE

Object: D5GHzV2 - SN: 1006

Calibration procedure(s): QA CAL-22.v1
Calibration procedure for dipole validation kits between 3-6 GHz

Calibration date: January 18, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 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 EX3DV4	SN: 3503	30-Dec-11 (No. EX3-3503_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

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

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

Issued: January 18, 2012

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	V52.8.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
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	36.3 ± 6 %	4.60 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.91 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**79.2 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.26 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**22.6 mW /g ± 16.5 % (k=2)**

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	35.8 ± 6 %	4.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.52 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**85.2 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.42 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**24.2 mW / g ± 16.5 % (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	35.3 ± 6 %	5.22 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.90 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**79.0 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.24 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**22.4 mW / g ± 16.5 % (k=2)**

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	49.2 ± 6 %	5.46 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.25 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**72.6 mW / g ± 18.1 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.04 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**20.5 mW / g ± 17.6 % (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	48.7 ± 6 %	5.86 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.86 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**78.8 mW / g ± 18.1 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.19 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.9 mW / g ± 17.6 % (k=2)**

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	48.2 ± 6 %	6.28 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °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	7.30 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**73.1 mW / g ± 18.1 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.03 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**20.3 mW / g ± 17.6 % (k=2)**

Appendix

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	52.3 Ω - 9.6 jΩ
Return Loss	- 20.3 dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	50.8 Ω - 2.8 jΩ
Return Loss	- 30.7 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	58.1 Ω + 1.6 jΩ
Return Loss	- 22.4 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	52.7 Ω - 9.1 jΩ
Return Loss	- 20.7 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	48.9 Ω + 0.1 jΩ
Return Loss	- 39.3 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	60.1 Ω - 1.1 jΩ
Return Loss	- 20.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.104 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	August 28, 2003

DASY5 Validation Report for Head TSL

Date: 17.01.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1006

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 4.6 mho/m; ε_r = 36.3; ρ = 1000 kg/m^3 , Medium parameters used: f = 5500 MHz; σ = 4.9 mho/m; ε_r = 35.8; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 5.22 mho/m; ε_r = 35.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

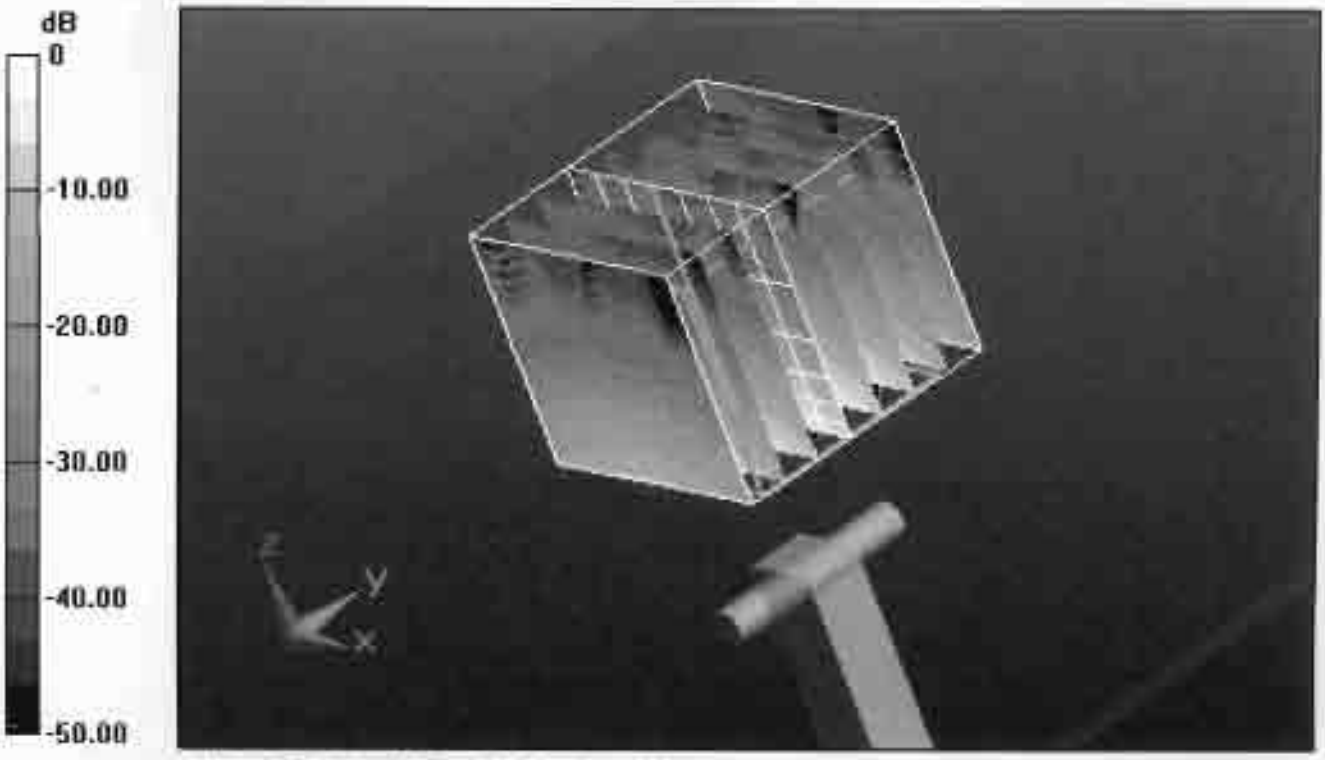
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.41, 5.41, 5.41), ConvF(4.91, 4.91, 4.91), ConvF(4.81, 4.81, 4.81); Calibrated: 30.12.2011
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 63.826 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 29.2570
SAR(1 g) = 7.91 mW/g; SAR(10 g) = 2.26 mW/g
Maximum value of SAR (measured) = 17.937 mW/g

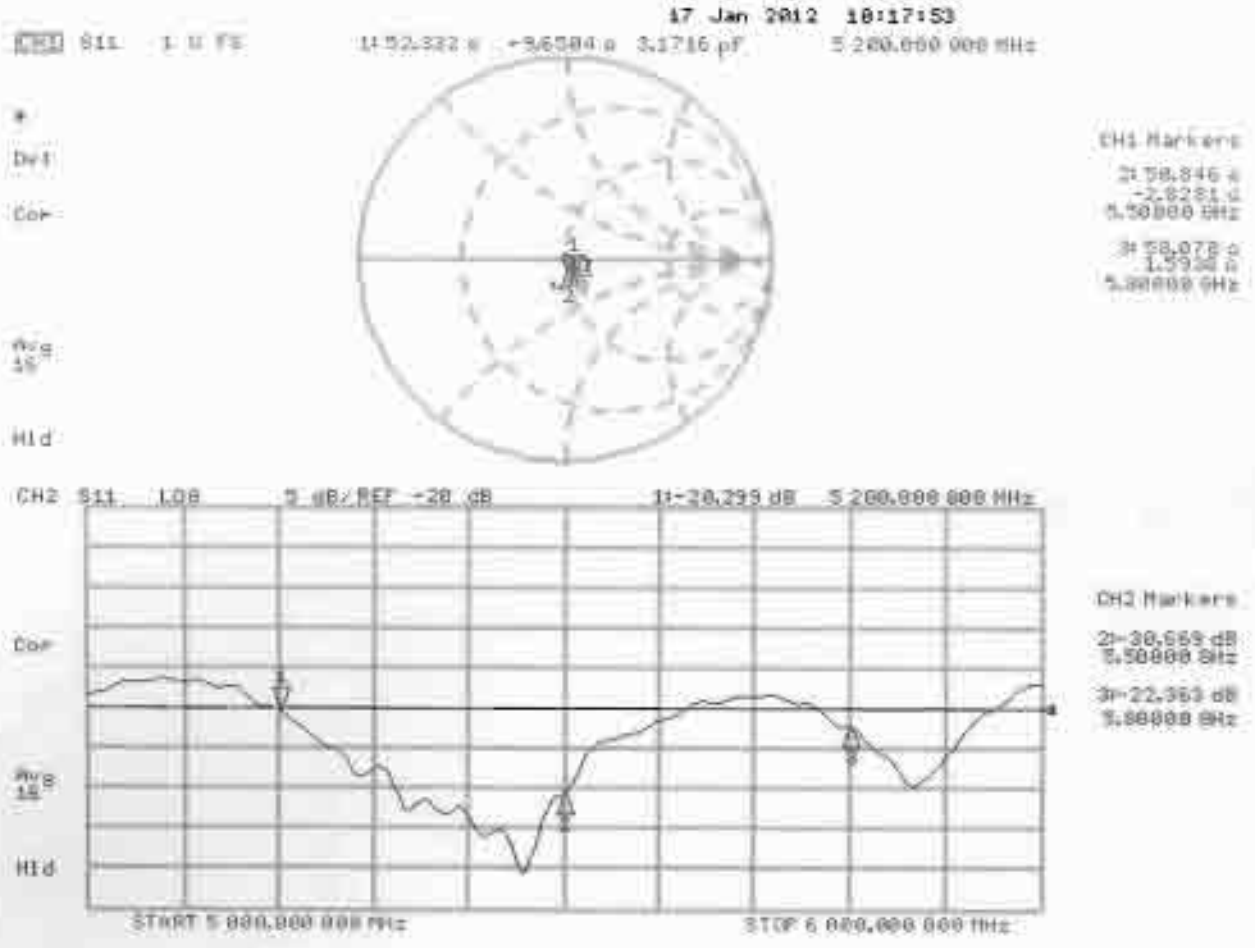
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 64.861 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 33.9880
SAR(1 g) = 8.52 mW/g; SAR(10 g) = 2.42 mW/g
Maximum value of SAR (measured) = 19.922 mW/g

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 61.585 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 33.3960
SAR(1 g) = 7.9 mW/g; SAR(10 g) = 2.24 mW/g
Maximum value of SAR (measured) = 18.961 mW/g



0 dB = 18.960mW/g = 25.56 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 18.01.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1006

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 5.46 mho/m; ε_r = 49.2; ρ = 1000 kg/m^3 , Medium parameters used: f = 5500 MHz; σ = 5.86 mho/m; ε_r = 48.7; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 6.28 mho/m; ε_r = 48.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

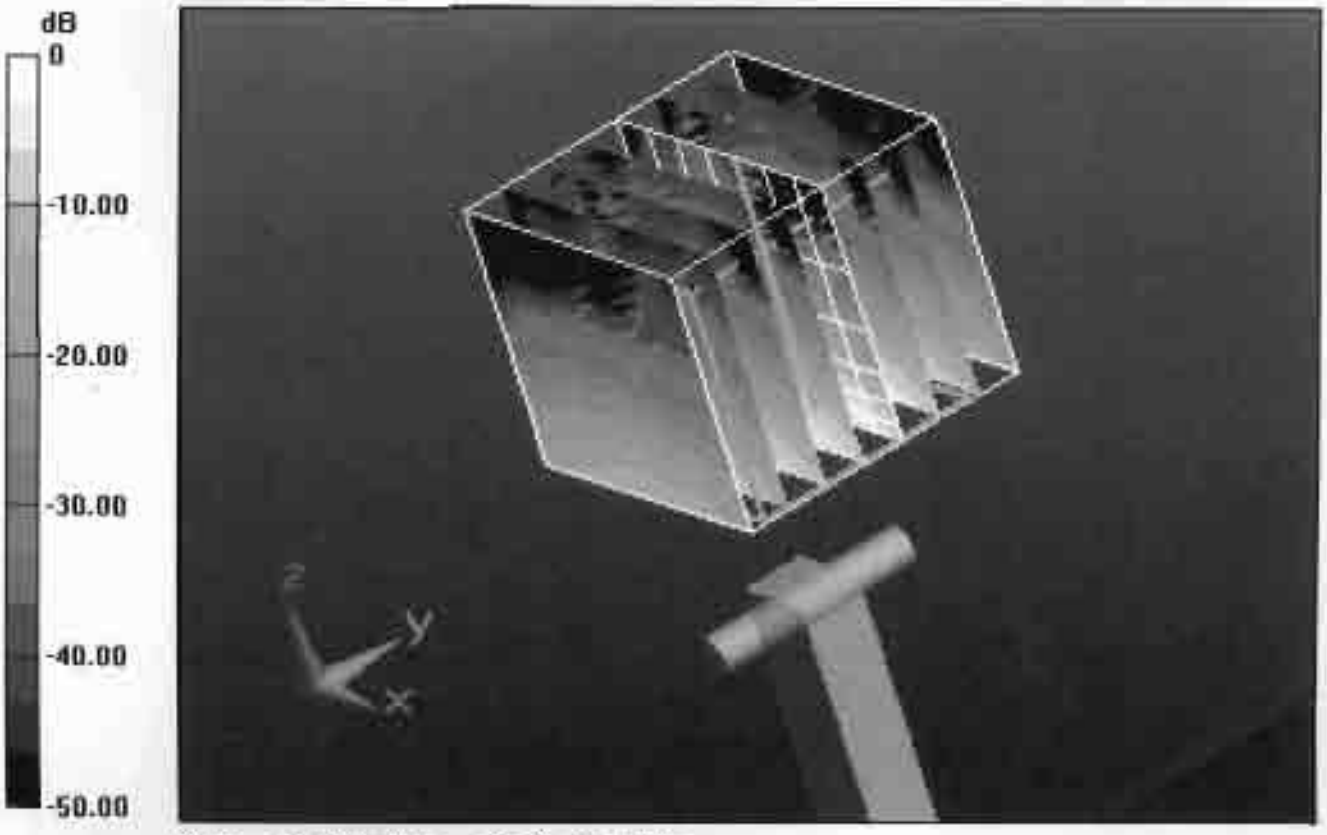
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.91, 4.91, 4.91), ConvF(4.43, 4.43, 4.43), ConvF(4.38, 4.38, 4.38); Calibrated: 30.12.2011
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 57.425 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 28.4360
SAR(1 g) = 7.25 mW/g; SAR(10 g) = 2.04 mW/g
Maximum value of SAR (measured) = 17.037 mW/g

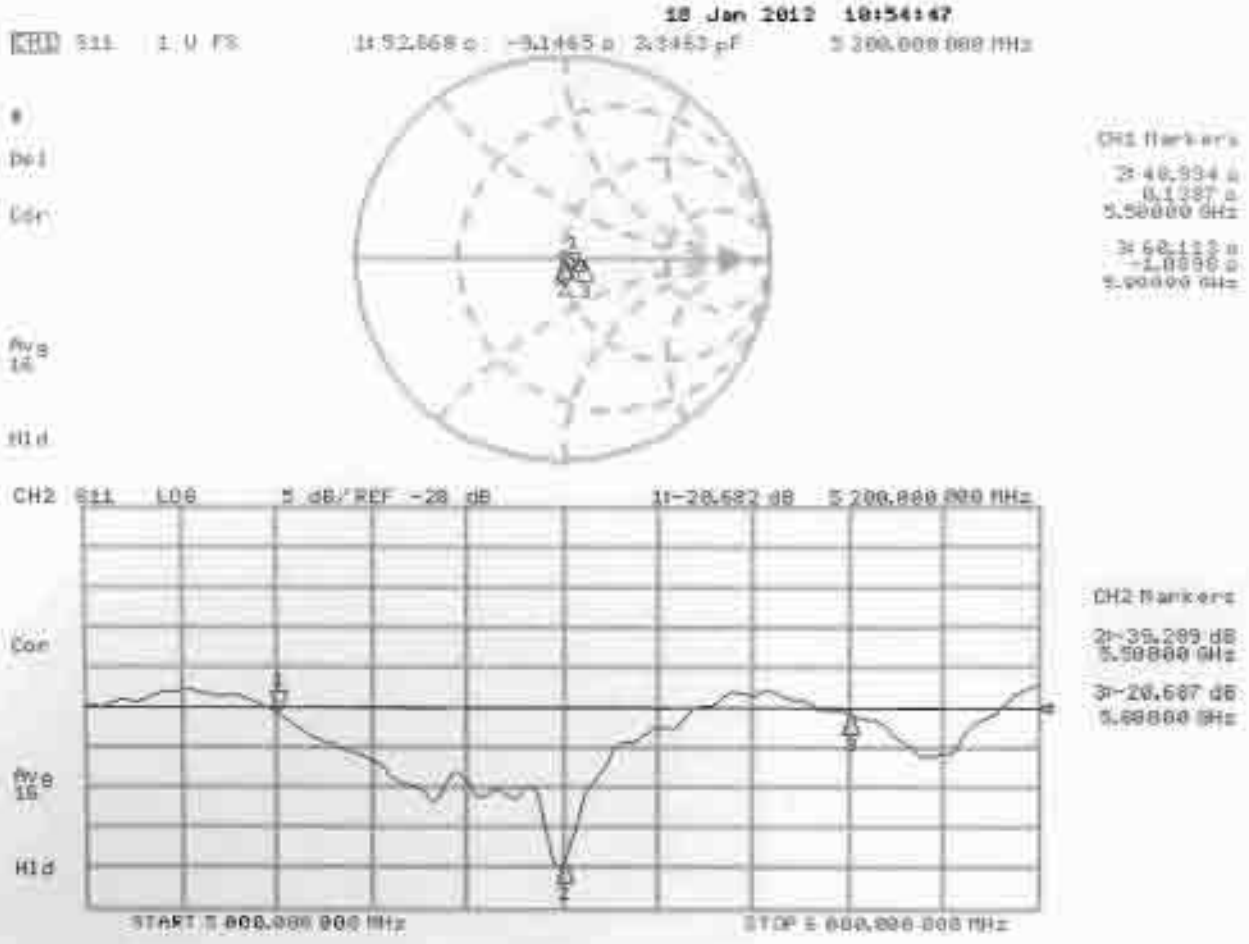
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 57.904 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 33.5870
SAR(1 g) = 7.86 mW/g; SAR(10 g) = 2.19 mW/g
Maximum value of SAR (measured) = 19.044 mW/g

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 54.193 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 33.8240
SAR(1 g) = 7.3 mW/g; SAR(10 g) = 2.03 mW/g
Maximum value of SAR (measured) = 18.191 mW/g



0 dB = 18.190mW/g = 25.20 dB mW/g

Impedance Measurement Plot for Body TSL



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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client Sporton – TW (Auden)

Certificate No: DAE4-1338_Jun12

CALIBRATION CERTIFICATE

Object: DAE4 - SD 000 D04 BJ - SN: 1338

Calibration procedure(s): QA CAL-06.v24
Calibration procedure for the data acquisition electronics (DAE)

Calibration date: June 12, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

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

	Name	Function	Signature
Calibrated by:	Eric Hainfeld	Technician	
Approved by:	Fin Bomholt	R&D Director	

Issued: June 12, 2012

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

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S Swiss Calibration Service

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

Accreditation No.: **SCS 108**

Glossary

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

Methods Applied and Interpretation of Parameters

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

DC Voltage Measurement

A/D - Converter Resolution nominal

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

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

Calibration Factors	X	Y	Z
High Range	404.366 ± 0.1% (k=2)	404.310 ± 0.1% (k=2)	404.168 ± 0.1% (k=2)
Low Range	3.99870 ± 0.7% (k=2)	3.95735 ± 0.7% (k=2)	3.96903 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	293 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	200001.31	3.63	0.00
Channel X	+ Input	20003.03	1.95	0.01
Channel X	- Input	-19999.40	0.63	-0.00
Channel Y	+ Input	200001.67	3.96	0.00
Channel Y	+ Input	19999.92	-0.95	-0.00
Channel Y	- Input	-20002.00	-1.71	0.01
Channel Z	+ Input	199999.59	2.13	0.00
Channel Z	+ Input	19998.38	-2.33	-0.01
Channel Z	- Input	-20000.67	-0.23	0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2002.42	1.05	0.05
Channel X	+ Input	201.78	-0.10	-0.05
Channel X	- Input	-198.09	-0.02	0.01
Channel Y	+ Input	2002.29	1.07	0.05
Channel Y	+ Input	201.72	-0.00	-0.00
Channel Y	- Input	-198.35	-0.09	0.05
Channel Z	+ Input	2002.89	1.58	0.08
Channel Z	+ Input	200.81	-0.86	-0.43
Channel Z	- Input	-199.74	-1.50	0.76

2. Common mode sensitivity

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

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	-3.02	-4.63
	- 200	5.76	3.48
Channel Y	200	-14.73	-14.79
	- 200	13.33	13.35
Channel Z	200	22.85	22.46
	- 200	-26.37	-25.59

3. Channel separation

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

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	3.62	-2.93
Channel Y	200	8.50	-	4.83
Channel Z	200	9.97	5.98	-

4. AD-Converter Values with inputs shorted

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

	High Range (LSB)	Low Range (LSB)
Channel X	16034	14839
Channel Y	15828	15515
Channel Z	15288	15751

5. Input Offset Measurement

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

Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.33	-0.86	1.85	0.54
Channel Y	-0.48	-2.47	1.00	0.54
Channel Z	-1.66	-3.08	-0.24	0.50

6. Input Offset Current

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

7. Input Resistance (Typical values for information)

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

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

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

9. Power Consumption (Typical values for information)

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

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

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

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

Accreditation No.: SCS 108

Client Sporton-TW (Auden)

Certificate No: EX3-3792_Jun12

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3792

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

Calibration date: June 21, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41498087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 660	10-Jan-12 (No. DAE4-660_Jan12)	Jan-13
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

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

Issued: June 22, 2012

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., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

Probe EX3DV4

SN:3792

Manufactured: April 5, 2011
Calibrated: June 21, 2012

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3792

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.64	0.54	0.53	± 10.1 %
DCP (mV)[B]	99.0	99.4	103.0	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
0	CW	0.00	X	0.00	0.00	1.00	136.2	±3.3 %
			Y	0.00	0.00	1.00	131.7	
			Z	0.00	0.00	1.00	165.7	

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

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3792

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	41.5	0.90	9.02	9.02	9.02	0.41	0.85	± 12.0 %
900	41.5	0.97	8.89	8.89	8.89	0.57	0.73	± 12.0 %
1750	40.1	1.37	8.16	8.16	8.16	0.75	0.61	± 12.0 %
1900	40.0	1.40	7.73	7.73	7.73	0.41	0.83	± 12.0 %
2000	40.0	1.40	7.68	7.68	7.68	0.44	0.78	± 12.0 %
2300	39.5	1.67	7.27	7.27	7.27	0.65	0.64	± 12.0 %
2450	39.2	1.80	6.82	6.82	6.82	0.36	0.87	± 12.0 %
2600	39.0	1.96	6.72	6.72	6.72	0.44	0.78	± 12.0 %
3500	37.9	2.91	6.83	6.83	6.83	0.41	0.93	± 13.1 %
5200	36.0	4.66	5.07	5.07	5.07	0.30	1.80	± 13.1 %
5300	35.9	4.76	4.96	4.96	4.96	0.38	1.80	± 13.1 %
5500	35.6	4.96	4.71	4.71	4.71	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.66	4.66	4.66	0.40	1.80	± 13.1 %
5800	35.3	5.27	4.48	4.48	4.48	0.48	1.80	± 13.1 %

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

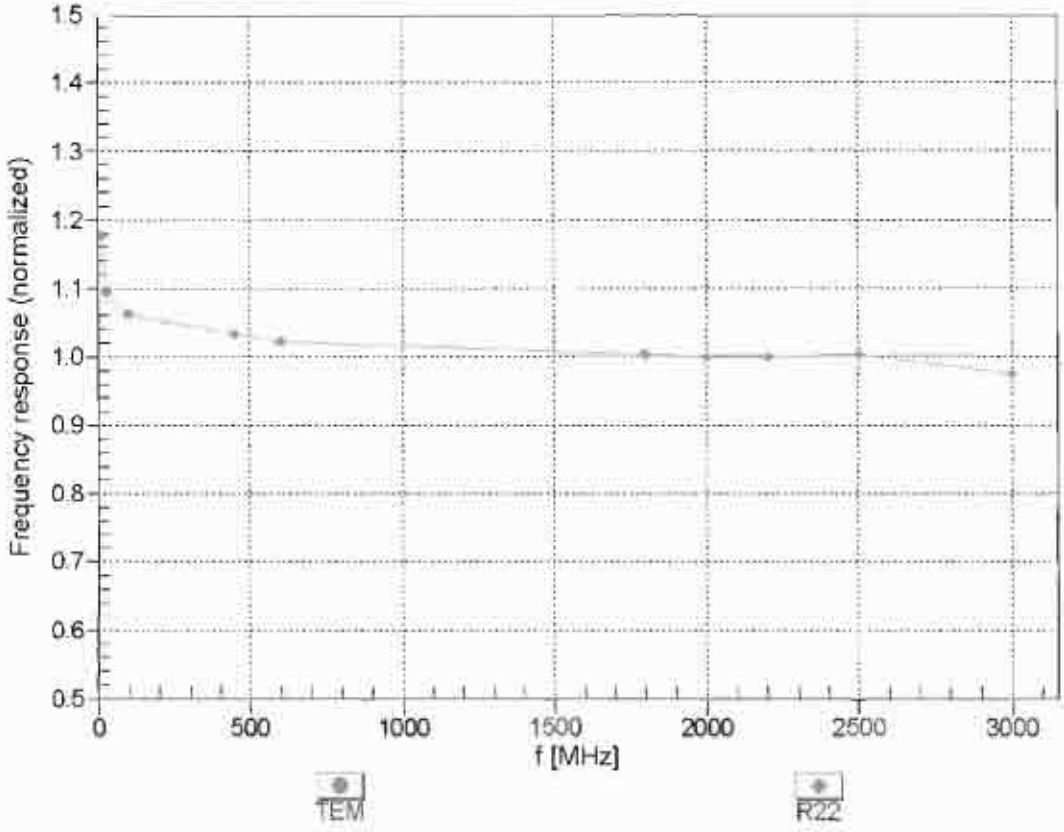
DASY/EASY - Parameters of Probe: EX3DV4 - SN:3792

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	55.2	0.97	8.99	8.99	8.99	0.80	0.62	± 12.0 %
900	55.0	1.05	8.98	8.98	8.98	0.66	0.67	± 12.0 %
1750	53.4	1.49	7.71	7.71	7.71	0.37	0.92	± 12.0 %
1900	53.3	1.52	7.29	7.29	7.29	0.40	0.88	± 12.0 %
2000	53.3	1.52	7.44	7.44	7.44	0.40	0.89	± 12.0 %
2300	52.9	1.81	7.14	7.14	7.14	0.57	0.72	± 12.0 %
2450	52.7	1.95	7.10	7.10	7.10	0.80	0.55	± 12.0 %
2600	52.5	2.16	6.84	6.84	6.84	0.80	0.50	± 12.0 %
3500	51.3	3.31	6.13	6.13	6.13	0.37	1.15	± 13.1 %
5200	49.0	5.30	4.20	4.20	4.20	0.50	1.90	± 13.1 %
5300	48.9	5.42	4.01	4.01	4.01	0.50	1.90	± 13.1 %
5500	48.6	5.65	3.81	3.81	3.81	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.72	3.72	3.72	0.50	1.90	± 13.1 %
5800	48.2	6.00	3.89	3.89	3.89	0.60	1.90	± 13.1 %

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

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

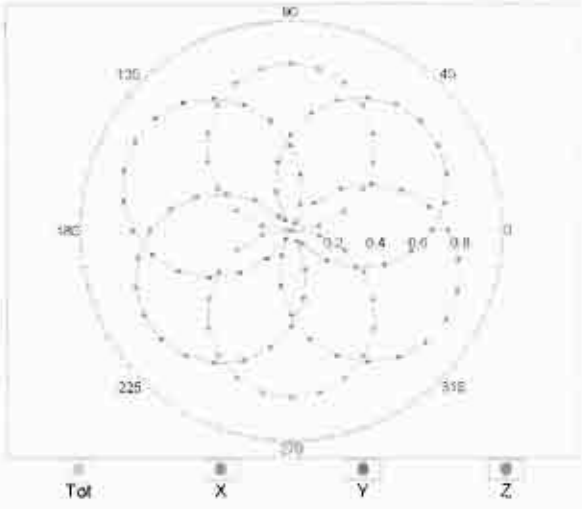


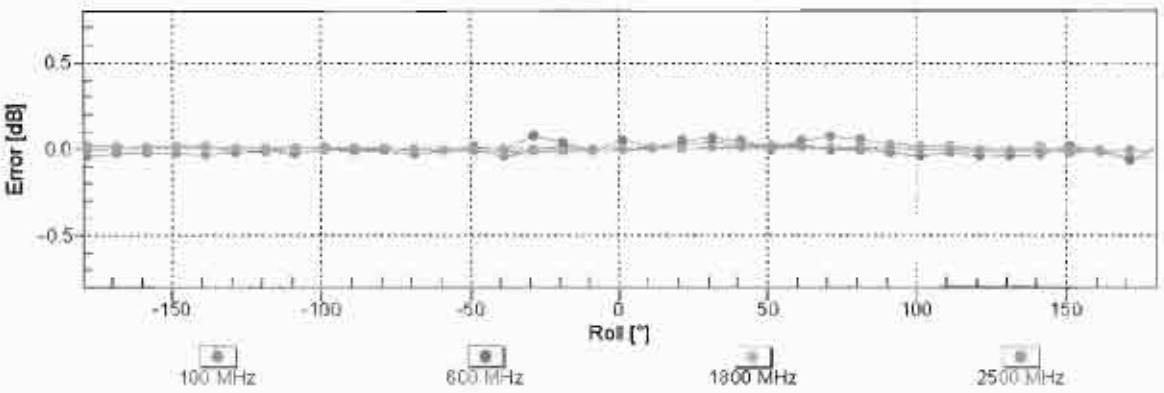
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM

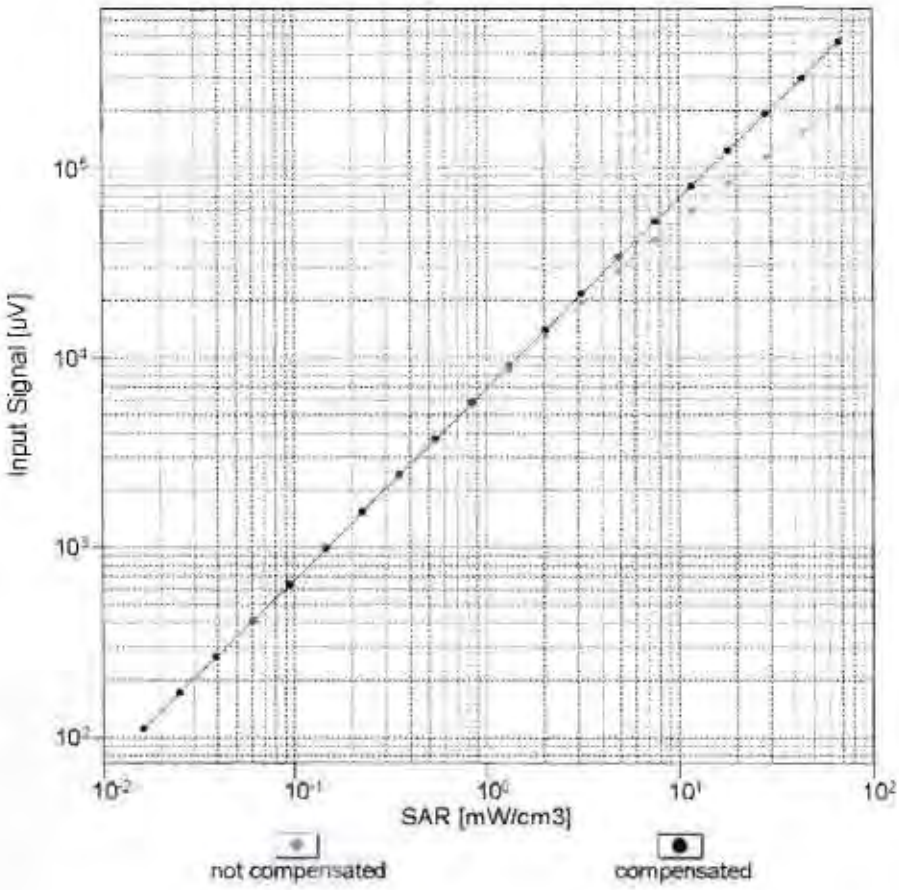
f=1800 MHz,R22

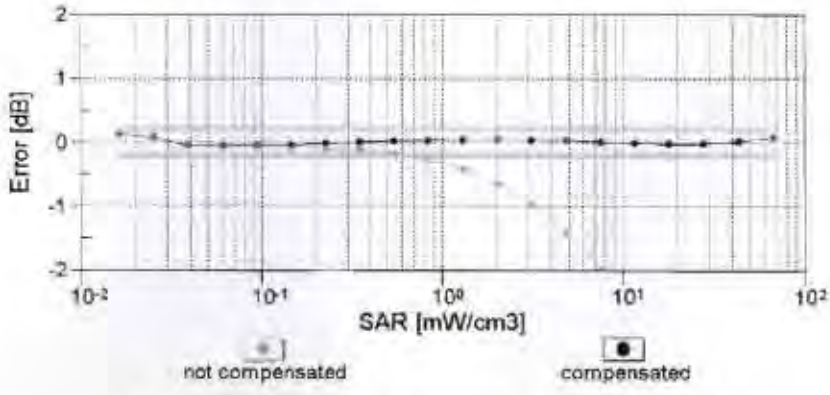




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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

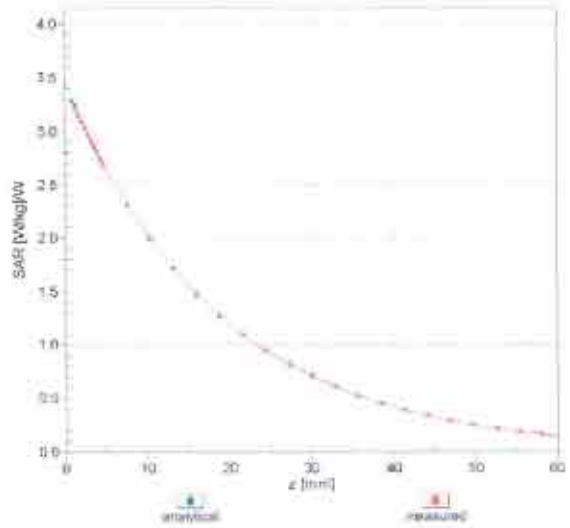




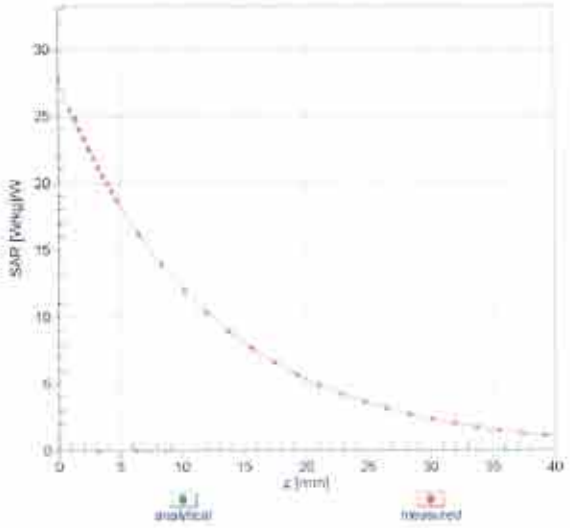
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

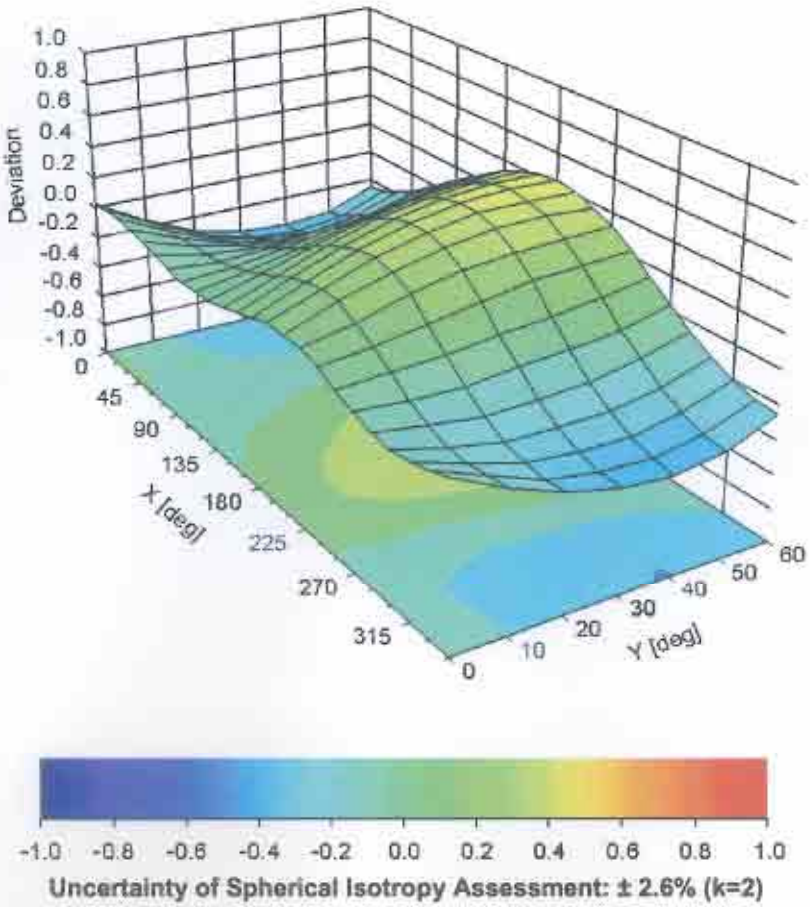


f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3792

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	31.3
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm