FCC SAR Test Report

Report No.	:	**SA111215E04**
Applicant	:	**Ubee Interactive Corp.**
Address	:	**6F-9, No.38, Taiyuan St. Jhubei City Hsinchu County 302, Taiwan**
Product	:	**4G Mobile USB**
FCC ID	:	**XCNPXU1960**
Brand	:	**Ubee**
Model No.	:	**PXU1960**
Standards	:	**FCC 47 CFR Part 2 (2.1093) / IEEE C95.1:1991 / IEEE 1528:2003** **FCC OET Bulletin 65 Supplement C (Edition 01-01)** **KDB 615223 D01 v01 / KDB 447498 D01 v04 / KDB 447498 D02 v02**
Date of Testing	:	**Dec. 26, 2011 ~ Dec. 27, 2011**

CERTIFICATION: The above equipment have been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch - Taiwan HwaYa Lab**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's SAR characteristics under the conditions specified in this report.

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Testing Laboratory 2021

Table of Contents

Release Control Record

Issue No.	Reason for Change	Date Issued
R01	Original release	Jan. 06, 2012

1. Summary of Maximum SAR Value

Mode / Band	Test Position	Scaled SAR-1g (W/kg)
WiMAX 2.6GHz	Body (0.5 cm Gap)	1.155

Note:

The SAR limit **(1.6 W/kg)** for general population/uncontrolled exposure is specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1991.

2. Description of Equipment Under Test

DUT Type	4G Mobile USB
FCC ID	XCNPXU1960
Brand Name	Ubee
Model Name	PXU1960
Tx Frequency Bands (Unit: MHz)	2496 ~ 2690
Uplink Modulations	QPSK, 16QAM
Maximum AVG Conducted Power (Unit: dBm)	23.38
Antenna Type	Combined monopole antenna
DUT Stage	Identical Prototype

Note:

1. The above EUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer's specifications or User's Manual.

The 802.16e/WiMAX device and system operating parameters is as below.

Description	Parameter		Comment
FCC ID	XCNPXU1960		Identify all related FCC ID
Radio Service	Part 27 Subpart M		Rule parts
Transmit Frequency Range (MHz)	5MHz BW : 2498.5 MHz to 2687.5 MHz 10MHz BW : 2501.0 MHz to 2685.0 MHz		System parameter
System/Channel Bandwidth (MHz)	5 MHz	10 MHz	System parameter
System Profile	Revision 1.7.0		Defined by WiMAX Forum
Modulation Schemes	QPSK, 16QAM		Identify all applicable UL modulations
Sampling Factor	28/25		System parameter
Sampling Frequency (MHz)	5.6 MHz	11.2 MHz	(F_S)
Sample Time (ns)	178.57 ns	89.29 ns	($1/F_S$)
FFT Size (N_{FFT})	512	1024	(N_{FFT})
Sub-Carrier Spacing (kHz)	10.94 kHz		(Δf)
Useful Symbol Time (μs)	91.4286 μs		($T_b=1/\Delta f$)
Guard Time (μs)	11.4286 μs		(T_g=Tb/cp); cp = cyclic prefix
OFDMA Symbol Time (μs)	102.857 μs		($T_S=T_b+T_g$)
Frame Size (ms)	5 ms		System parameter
TTG + RTG (μs or number of symbols)	165.72 μs		Idle time, system parameter
Number of DL OFDMA Symbols per Frame	29		Identify the allowed & maximum symbols, including both traffic & control symbols
Number of UL OFDMA Symbols per Frame	18		
DL:UL Symbol Ratios	29:18		For determining UL duty factor
Power Class (dBm)	Power Class 2, 23.0±0.5 dBm		Identify power class and tolerance
Wave1 / Wave2	Wave2: Two antennas for Tx/Rx diversity. ANT1 and ANT2 cannot transmit simultaneously.		Describe antenna diversity info and MIMO requirements separately
UL Zone Types (FUSC, PUSC, OFUSC, OPUSC, AMC, TUSC1, TUSC2)	PUSC mode only for current FW.		Describe separately the symbol and sub-carrier/sub-channel structures applicable to each zone type
Maximum Number of UL Sub-Carriers	420	840	Identify the allowed and tested / to be tested parameters; include separate explanations on the types of control symbols and how the power levels are determined
Measured UL Burst Maximum Average Conducted Power	23.38 dBm		
UL Control Symbol Configuration	3 PUSC symbols (used for ranging, CQICH and ACK/NACK)		
UL Control Symbol Maximum Conducted Average Power	65.84 mW	31.98 mW	
UL Burst Peak-to-Average (Conducted) Power Ratio (PAPR)	PAPR is between 6.91 ~ 8.25 dB		Identify the expected range and measured/tested PAR; explain separately the methods used / to be used to address SAR probe calibration and measurement error issues
Frame Averaged UL Transmission Duty Factor (%)	UL Data Symbols x Symbol Time / Frame Size = 15 x 102.857 us / 5000 us = 30.8 % Crest Factor = 1 / Duty Cycle = 3.24 This CF was used for SAR evaluation.		Show calculations separately and explain how the applicable CF (*crest factor*) used / to be use in the SAR measurements is derived and how the control symbols are accounted for

3. SAR Measurement System

3.1 Definition of Specific Absorption Rate (SAR)

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.

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 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.

3.2 SPEAG DASY System

DASY system consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY4/5 software defined. The DASY software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (ECO). The ECO performs the conversion form the optical into digital electric signal of the DAE and transfers data to the PC.

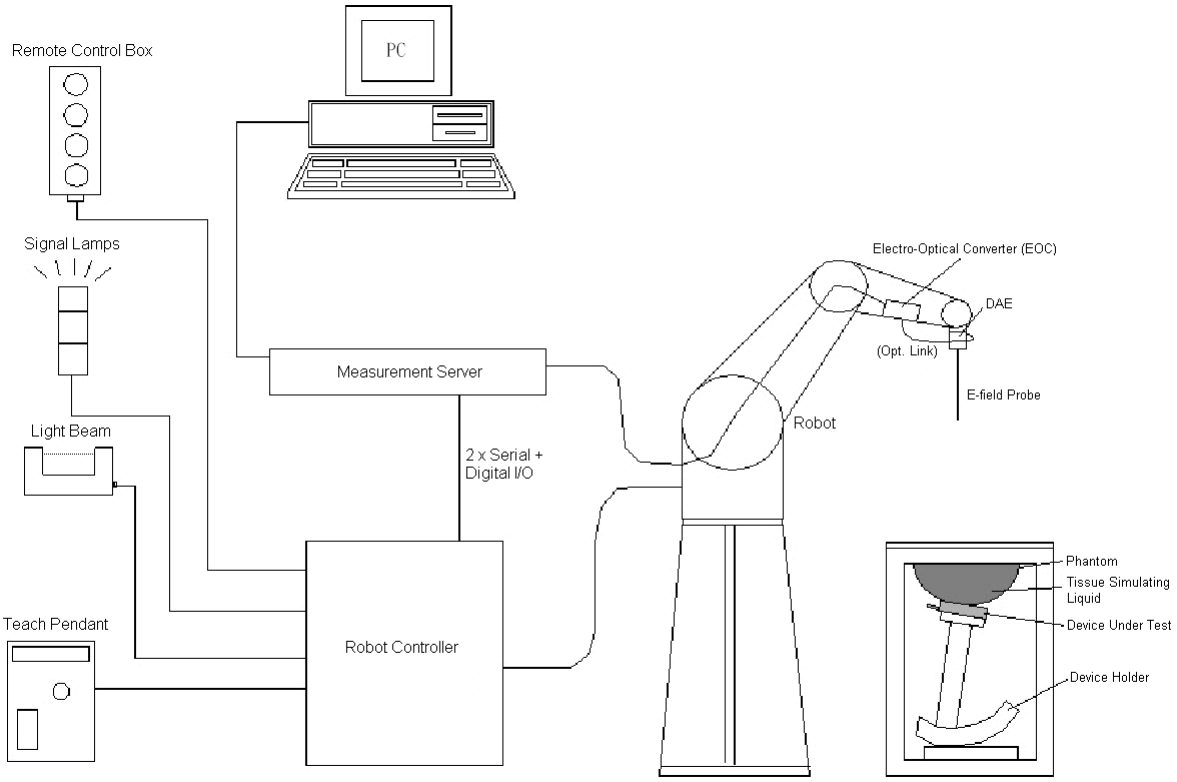


Fig-3.1 DASY System Setup

3.2.1 Robot

The DASY system uses the high precision robots 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-3.2 DASY4

Fig-3.3 DASY5

3.2.2 Probes

The SAR measurement is conducted with the dosimetric probe. 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.

Model	EX3DV4
Construction	Symmetrical design with triangular core. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE).
Frequency	10 MHz to 6 GHz Linearity: ± 0.2 dB
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: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm

Model	ES3DV3
Construction	Symmetrical design with triangular core. Interleaved sensors. Built-in shielding against static charges. PEEK enclosure material (resistant to organic solvents, e.g., DGBE).
Frequency	10 MHz to 4 GHz Linearity: ± 0.2 dB
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in tissue material (rotation normal to probe axis)
Dynamic Range	5 µW/g to 100 mW/g Linearity: ± 0.2 dB
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm

3.2.3 Data Acquisition Electronics (DAE)

Model	DAE3, DAE4
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY4/5 embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV, 400mV)
Input Offset Voltage	< 5µV (with auto zero)
Input Bias Current	< 50 fA
Dimensions	60 x 60 x 68 mm

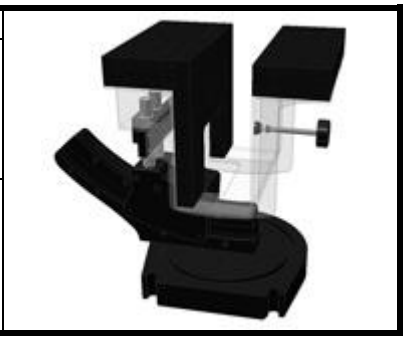
3.2.4 Phantoms

Model	Twin SAM	
Construction	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.	
Material	Vinylester, glass fiber reinforced (VE-GF)	
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)	
Dimensions	Length: 1000 mm Width: 500 mm Height: adjustable feet	
Filling Volume	approx. 25 liters	

Model	ELI	
Construction	Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.	
Material	Vinylester, glass fiber reinforced (VE-GF)	
Shell Thickness	2.0 ± 0.2 mm (bottom plate)	
Dimensions	Major axis: 600 mm Minor axis: 400 mm	
Filling Volume	approx. 30 liters	

3.2.5 Device Holder

Model	Mounting Device	
Construction	In combination with the Twin SAM Phantom or ELI4, the Mounting Device enables the rotation of the mounted transmitter device in spherical coordinates. Rotation point is the ear opening point. Transmitter devices can be easily and accurately positioned according to IEC, IEEE, FCC or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat).	
Material	POM	

Model	Laptop Extensions Kit	
Construction	Simple but effective and easy-to-use extension for Mounting Device that facilitates the testing of larger devices according to IEC 62209-2 (e.g., laptops, cameras, etc.). It is lightweight and fits easily on the upper part of the Mounting Device in place of the phone positioner.	
Material	POM, Acrylic glass, Foam	

3.2.6 System Validation Dipoles

Model	D-Serial	
Construction	Symmetrical dipole with l/4 balun. Enables measurement of feed point impedance with NWA. Matched for use near flat phantoms filled with tissue simulating solutions.	
Frequency	750 MHz to 5800 MHz	
Return Loss	> 20 dB	
Power Capability	> 100 W (f < 1GHz), > 40 W (f > 1GHz)	

3.2.7 Tissue Simulating Liquids

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. 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. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed in below table.

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

Table-3.1 Targets of Tissue Simulating Liquid

Frequency (MHz)	Target Permittivity	Range of ±5%	Target Conductivity	Range of ±5%
For Head				
750	41.9	39.8 ~ 44.0	0.89	0.85 ~ 0.93
835	41.5	39.4 ~ 43.6	0.90	0.86 ~ 0.95
900	41.5	39.4 ~ 43.6	0.97	0.92 ~ 1.02
1450	40.5	38.5 ~ 42.5	1.20	1.14 ~ 1.26
1640	40.3	38.3 ~ 42.3	1.29	1.23 ~ 1.35
1750	40.1	38.1 ~ 42.1	1.37	1.30 ~ 1.44
1800	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
1900	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
2000	40.0	38.0 ~ 42.0	1.40	1.33 ~ 1.47
2300	39.5	37.5 ~ 41.5	1.67	1.59 ~ 1.75
2450	39.2	37.2 ~ 41.2	1.80	1.71 ~ 1.89
2600	39.0	37.1 ~ 41.0	1.96	1.86 ~ 2.06
For Body				
750	55.5	52.7 ~ 58.3	0.96	0.91 ~ 1.01
835	55.2	52.4 ~ 58.0	0.97	0.92 ~ 1.02
900	55.0	52.3 ~ 57.8	1.05	1.00 ~ 1.10
1450	54.0	51.3 ~ 56.7	1.30	1.24 ~ 1.37
1640	53.8	51.1 ~ 56.5	1.40	1.33 ~ 1.47
1750	53.4	50.7 ~ 56.1	1.49	1.42 ~ 1.56
1800	53.3	50.6 ~ 56.0	1.52	1.44 ~ 1.60
1900	53.3	50.6 ~ 56.0	1.52	1.44 ~ 1.60
2000	53.3	50.6 ~ 56.0	1.52	1.44 ~ 1.60
2300	52.9	50.3 ~ 55.5	1.81	1.72 ~ 1.90
2450	52.7	50.1 ~ 55.3	1.95	1.85 ~ 2.05
2600	52.5	49.9 ~ 55.1	2.16	2.05 ~ 2.27

The following table gives the recipes for tissue simulating liquids.

Table-3.2 Recipes of Tissue Simulating Liquid

Tissue Type	Bactericide	DGBE	HEC	NaCl	Sucrose	Triton X-100	Water	Diethylene Glycol Mono-hexylether
H750	0.2	-	0.2	1.5	56.0	-	42.1	-
H835	0.2	-	0.2	1.5	57.0	-	41.1	-
H900	0.2	-	0.2	1.4	58.0	-	40.2	-
H1450	-	43.3	-	0.6	-	-	56.1	-
H1640	-	45.8	-	0.5	-	-	53.7	-
H1750	-	47.0	-	0.4	-	-	52.6	-
H1800	-	44.5	-	0.3	-	-	55.2	-
H1900	-	44.5	-	0.2	-	-	55.3	-
H2000	-	44.5	-	0.1	-	-	55.4	-
H2300	-	44.9	-	0.1	-	-	55.0	-
H2450	-	45.0	-	0.1	-	-	54.9	-
H2600	-	45.1	-	0.1	-	-	54.8	-
B750	0.2	-	0.2	0.8	48.8	-	50.0	-
B835	0.2	-	0.2	0.9	48.5	-	50.2	-
B900	0.2	-	0.2	0.9	48.2	-	50.5	-
B1450	-	34.0	-	0.3	-	-	65.7	-
B1640	-	32.5	-	0.3	-	-	67.2	-
B1750	-	31.0	-	0.2	-	-	68.8	-
B1800	-	29.5	-	0.4	-	-	70.1	-
B1900	-	29.5	-	0.3	-	-	70.2	-
B2000	-	30.0	-	0.2	-	-	69.8	-
B2300	-	31.0	-	0.1	-	-	68.9	-
B2450	-	31.4	-	0.1	-	-	68.5	-
B2600	-	31.8	-	0.1	-	-	68.1	-

3.3 SAR System Verification

The system check verifies that the system operates within its specifications. It is performed daily or before every SAR measurement. The system check uses normal SAR measurements in the flat section of the phantom with a matched dipole at a specified distance. The system verification setup is shown as below.

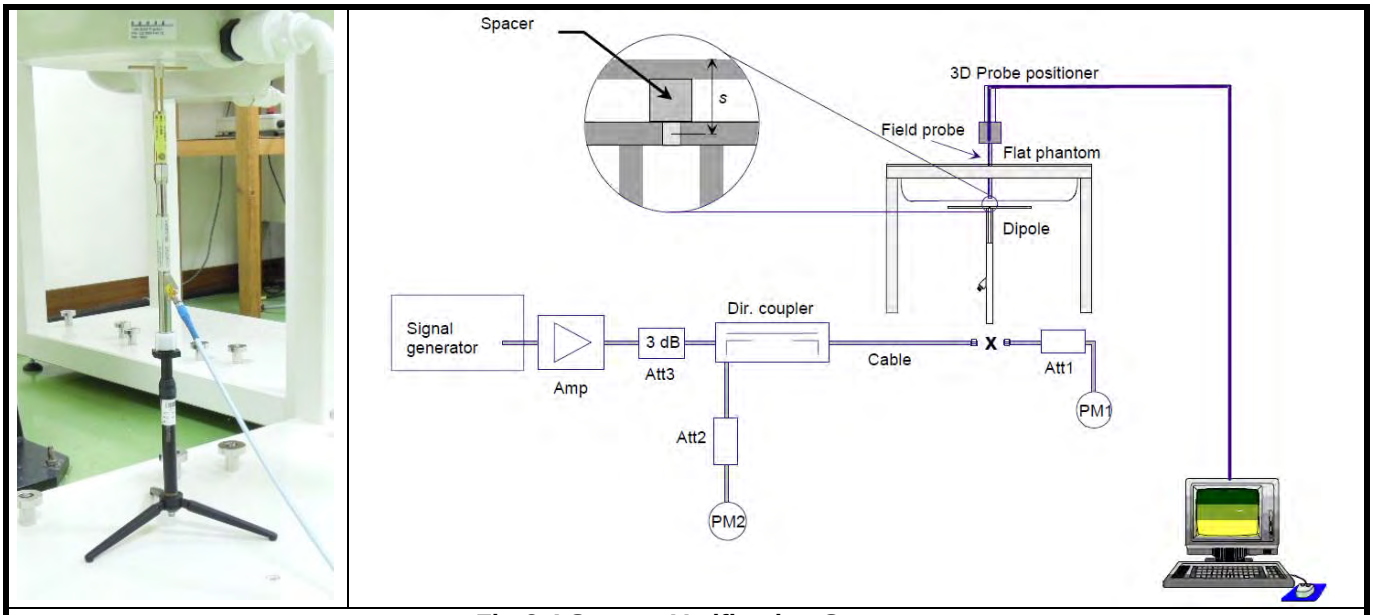


Fig-3.4 System Verification Setup

The validation dipole is placed beneath the flat phantom with the specific spacer in place. The distance spacer is touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The power meter PM1 measures the forward power at the location of the system check dipole connector. The signal generator is adjusted for the desired forward power (250 mW is used for 700 MHz to 3 GHz, 100 mW is used for 3.5 GHz to 6 GHz) at the dipole connector and the power meter PM2 is read at that level. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter PM2.

After system check testing, the SAR result will be normalized to 1W forward input power and compared with the reference SAR value derived from validation dipole certificate report. The deviation of system check should be within 10 %.

3.4 SAR Measurement Procedure

According to the SAR 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

The SAR measurement procedures for each of test conditions are as follows:

(a) Make EUT to transmit maximum output power
(b) Measure conducted output power through RF cable
(c) Place the EUT in the specific position of phantom
(d) Perform SAR testing steps on the DASY system
(e) Record the SAR value

3.4.1 Area & Zoom Scan Procedure

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 measures 5x5x7 points with step size 8, 8 and 5 mm for below 3 GHz, and 7x7x9 points with step size 4, 4 and 2.5 mm for above 5 GHz. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g.

3.4.2 Volume Scan Procedure

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 DUT 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.

3.4.3 Power Drift Monitoring

All SAR testing is under the DUT 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 DUT 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.

3.4.4 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

3.4.5 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.

4. SAR Measurement Evaluation

4.1 EUT Configuration and Setting

For WiMAX SAR testing, the EUT has installed WiMAX engineering software which can control EUT to transmit at specific channel bandwidth, modulation type, coding rate, power level and frequency without signal generator. The test mode instructs the EUT to transmit for 15 symbols in the UL data zone. This UL transmission is repeated every 5 milliseconds. The TX power of the EUT is set to maximum power. As mentioned above that all 15 symbols (no control symbols plus and 15 data symbols) were all transmitted at full power.

The device and its system are both transmitting using only PUSC zone type. This enables multiple users to transmit simultaneously within the system. FUSC, AMC and other zone types are not used by the test device for uplink transmission. The maximum DL:UL symbol ratio can be determined according to the PUSC requirements. The system transmit an odd number of symbols using DL-PUSC consisting of even multiples of traffics and control symbols plus one symbol for the preamble. Multiples of three symbols are transmitted by the device using UL-PUSC. The OFDMA symbol time allows up to 48 downlink and uplink symbols in each 5 ms frame. TTG and RTG are also included in each frame as DL/UL transmission gaps; therefore, the system can only allow 47 or less symbols per frame.

PUSC zone type

For the 10 MHz bandwidth, it has 35 sub-channels structured from 1024 subcarriers per OFDMA symbol and each sub-channel is spanned over 3 OFDMA symbols and consists of 72 subcarriers including 48 data and 24 pilot subcarriers. For each symbol, there are 184 guard subcarriers, leaving 840 available subcarriers for transmission. For the 5 MHz bandwidth, it contains 17 sub-channels using 512 subcarriers including 104 guard subcarriers per symbol and leaving 408 available subcarriers for transmission.

The control channels may occupy up to 5 slots during normal operation. A slot is a sub-channel with the duration of 3 symbols. There are a total of 35 (17) slots in the 10 MHz (5 MHz) channel configuration. The maximum power for each control symbol has been determined to be 31.98 (5/35 of 223.87 mW) for 10MHz and 65.84 (5/17 of 223.87 mW) for 5MHz. A maximum of two simultaneous CQICH reports are possible, which can occupy up to 2 slots. A maximum of three slots can be used for HARQ ACK/NAK by the five possible DL HARQ bursts in the previous DL frame. The 5 ACK/NAK bits each occupies ½ a slot. These 5 slots correspond to 5/35 (5/17) of the total number of uplink slots. When the device is transmitting at its maximum rated power of 23.5 dBm (223.87 mW), the output power for these control channels is 31.98 (5/35 of 223.87 mW) for 10MHz and 65.84 (5/17 of 223.87 mW) for 5MHz. Due to the limitation of the test mode software which cannot control the device to output typical control symbols (3 symbols with 5 slots occupied). The EUT was programmed to output full power at 23.5 dBm per symbol and this represents the max worst case power which a transmitted symbol can get (no mater it is data symbol or control symbol, the 23.5 dBm is the max output power that this device can output). Since max output power was used during the SAR test, we concluded that no further SAR scaling up is required after the SAR measurement.

The up-link sub-frame is triggered by an Allocation Start Time contained in the information of UL-MAP. This information specifies the starting times of the Uplink and Downlink frames. In any UL sub-frame, the duty factor and bandwidth information is used to ensure optimal system operation. In the real usage, the data burst power will be adjusted according to the signal strength of the communication.

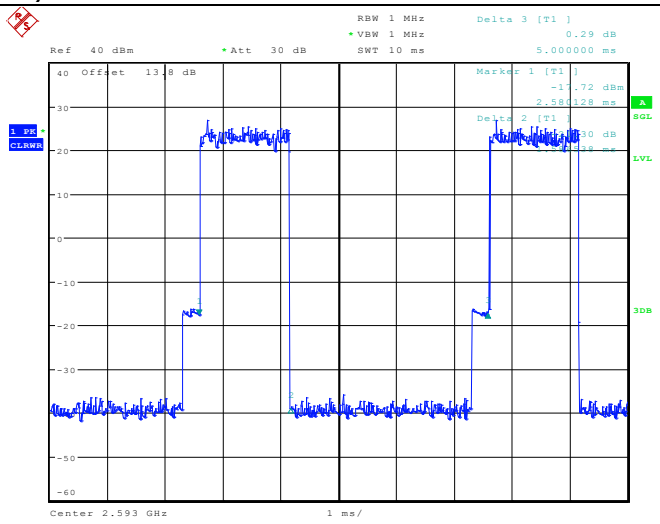
Theoretical duty cycle is

UL Data Symbols x Symbol Time / Frame Size
= 15 x 102.857 us / 5000 us
= 30.8 %

Crest Factor = 1 / Duty Cycle = 3.24
This CF was used for SAR evaluation.

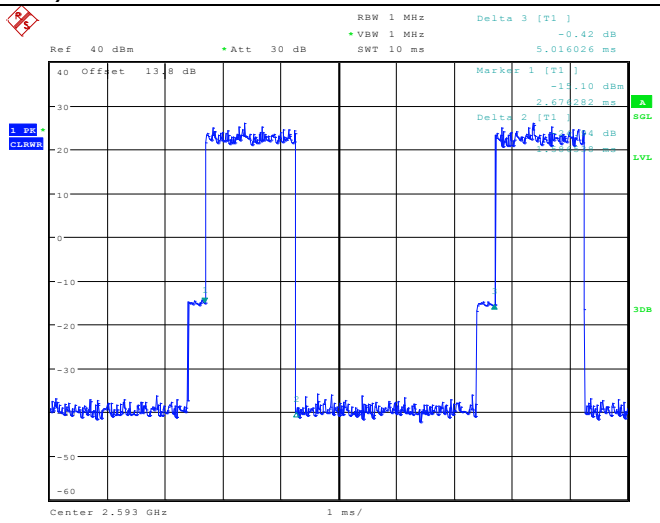
The WiMAX time domain waveform used for SAR testing is shown as below.

PUSC, QPSK, BW 5MHz, 2595.0 MHz



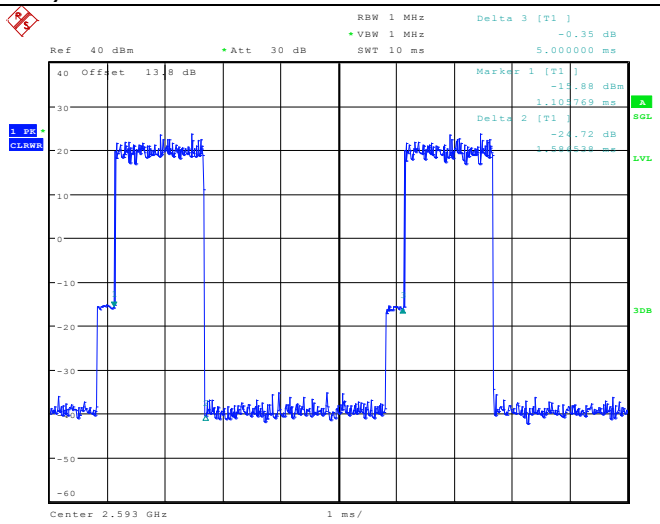
Frame Length = Mark 3 – Mark 1 = 5 ms	**UL Data Symbols (15 symbols)** = Mark 2 – Mark 1 = 1.58 ms **Duty Cycle** = 15 symbols UL time / Frame Length x 100% = 1.58 / 5 x 100% = 31.6 %

PUSC, 16QAM, BW 5MHz, 2595.0 MHz



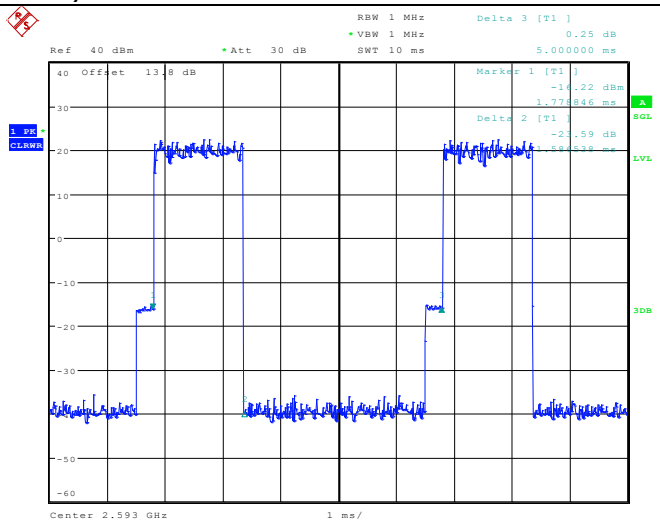
Frame Length = Mark 3 – Mark 1 = 5 ms	**UL Data Symbols (15 symbols)** = Mark 2 – Mark 1 = 1.58 ms **Duty Cycle** = 15 symbols UL time / Frame Length x 100% = 1.58 / 5 x 100% = 31.6 %

PUSC, QPSK, BW 10MHz, 2595.0 MHz



Frame Length = Mark 3 – Mark 1 = 5 ms	**UL Data Symbols (15 symbols)** = Mark 2 – Mark 1 = 1.58 ms **Duty Cycle** = 15 symbols UL time / Frame Length x 100% = 1.58 / 5 x 100% = 31.6 %

PUSC, 16QAM, BW 10MHz, 2595.0 MHz



Frame Length = Mark 3 – Mark 1 = 5 ms	**UL Data Symbols (15 symbols)** = Mark 2 – Mark 1 = 1.58 ms **Duty Cycle** = 15 symbols UL time / Frame Length x 100% = 1.58 / 5 x 100% = 31.6 %

Scaling Factor

The testing was done at DL:UL symbol ratio, 29:18 as this is the maximum achievable ratio for the product. The 18 indicates the number of uplink symbols. Inside the uplink, 15 of the symbols are used for data, and 3 of the symbols are used for sending control information to the network. During the testing, the control symbols contained no information, so did not contribute to the total energy transmitted. To compensate for the maximum energy which may presented in the 3 control symbols, following scheme is used for the up scaling.

<Scaling Factor for 5MHz BW>

This device is power class 2 device and the maximum power tolerance is 23.0 ± 0.5 dBm.
The maximum rated output power of 5M BW is 23.50 dBm (223.87 mW).
Maximum power in 5M control traffic is 65.84 mW (5/17 of 223.87 mW).
Scaling Factor = (3 * 65.84 + 15 * 223.87) / (15 * max. measured power of the channel tested)
= 3555.57 / (15 * max. measured power of the channel tested)

For WiMAX Antenna 1

Zone Type	Modulation	Coding Rate	Frequency (MHz)	Average Power for Ant-1		Scaling Factor
				(dBm)	(mW)	
PUSC	QPSK (BW 5MHz)	1/2	2498.5	23.20	208.93	1.13
			2593.0	22.95	197.24	1.20
			2687.5	23.38	217.77	1.09
		3/4	2498.5	23.18	207.97	1.14
			2593.0	22.90	194.98	1.22
			2687.5	23.30	213.80	1.11
	16QAM (BW 5MHz)	1/2	2498.5	23.20	208.93	1.13
			2593.0	22.91	195.43	1.21
			2687.5	23.36	216.77	1.09
		3/4	2498.5	23.12	205.12	1.16
			2593.0	22.85	192.75	1.23
			2687.5	23.29	213.30	1.11

For WiMAX Antenna 2

Zone Type	Modulation	Coding Rate	Frequency (MHz)	Average Power for Ant-2		Scaling Factor
				(dBm)	(mW)	
PUSC	QPSK (BW 5MHz)	1/2	2498.5	23.18	207.97	1.14
			2593.0	22.78	189.67	1.25
			2687.5	22.73	187.50	1.26
		3/4	2498.5	23.11	204.64	1.16
			2593.0	22.79	190.11	1.25
			2687.5	22.80	190.55	1.24
	16QAM (BW 5MHz)	1/2	2498.5	23.13	205.59	1.15
			2593.0	22.76	188.80	1.26
			2687.5	22.80	190.55	1.24
		3/4	2498.5	23.05	201.84	1.17
			2593.0	22.71	186.64	1.27
			2687.5	22.75	188.36	1.26

<Scaling Factor for 10MHz BW>

This device is power class 2 device and the maximum power tolerance is 23.0 ± 0.5 dBm.

The maximum rated output power of 10M BW is 23.50 dBm (223.87 mW).

Maximum power in 10M control traffic is 31.98 mW (5/35 of 223.87 mW).

Scaling Factor = (3 * 31.98 + 15 * 223.87) / (15 * max. measured power of the channel tested)

= 3453.99 / (15 * max. measured power of the channel tested)

For WiMAX Antenna 1

Zone Type	Modulation	Coding Rate	Frequency (MHz)	Average Power for Ant-1		Scaling Factor
				(dBm)	(mW)	
PUSC	QPSK (BW 10MHz)	1/2	2501.0	23.25	211.35	1.09
			2593.0	22.87	193.64	1.19
			2685.0	23.36	216.77	1.06
		3/4	2501.0	23.20	208.93	1.10
			2593.0	22.88	194.09	1.19
			2685.0	23.35	216.27	1.06
	16QAM (BW 10MHz)	1/2	2501.0	23.21	209.41	1.10
			2593.0	22.88	194.09	1.19
			2685.0	23.30	213.80	1.08
		3/4	2501.0	23.11	204.64	1.13
			2593.0	22.82	191.43	1.20
			2685.0	23.27	212.32	1.08

For WiMAX Antenna 2

Zone Type	Modulation	Coding Rate	Frequency (MHz)	Average Power for Ant-2		Scaling Factor
				(dBm)	(mW)	
PUSC	QPSK (BW 10MHz)	1/2	2501.0	23.14	206.06	1.12
			2593.0	22.89	194.54	1.18
			2685.0	22.65	184.08	1.25
		3/4	2501.0	23.13	205.59	1.12
			2593.0	22.77	189.23	1.22
			2685.0	22.72	187.07	1.23
	16QAM (BW 10MHz)	1/2	2501.0	23.08	203.24	1.13
			2593.0	22.77	189.23	1.22
			2685.0	22.68	185.35	1.24
		3/4	2501.0	23.05	201.84	1.14
			2593.0	22.67	184.93	1.25
			2685.0	22.70	186.21	1.24

<Scaling Up SAR>

Calculating used follow scheme for scale up SAR.

Scaled SAR = Measured SAR * Scaling Factor

4.2 EUT Testing Position

This DUT was tested in four different USB configurations. They are “direct laptop plug-in for configuration 1 and 4”, “USB cable plug-in for configuration 2 and 3”, and “direct laptop plug-in for DUT Tip Mode” shown as below. Both direct laptop plug-in and USB cable plug-in test configurations are tested with 0.5 cm separation between the particular dongle orientation and the flat phantom.

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

Fig-4.1 Illustration for USB Connector Orientations

4.3 Tissue Verification

The measuring results for tissue simulating liquid are shown as below.

Tissue Type	Frequency (MHz)	Liquid Temp. (℃)	Measured Conductivity (σ)	Measured Permittivity (ε_r)	Target Conductivity (σ)	Target Permittivity (ε_r)	Conductivity Deviation (%)	Permittivity Deviation (%)	Test Date
B2600	2600	21.4	2.26	51.4	2.16	52.5	4.63	-2.10	Dec. 26, 2011
B2600	2600	21.4	2.21	51.1	2.16	52.5	2.31	-2.67	Dec. 27, 2011

Note:

The dielectric properties of the tissue simulating liquid must be measured within 24 hours before the SAR testing and within ±5% of the target values. Liquid temperature during the SAR testing must be within ±2 ℃.

4.4 System Verification

The measuring results for system check are shown as below.

Test Date	Frequency (MHz)	1W Target SAR-1g (W/kg)	Measured SAR-1g (W/kg)	Normalized to 1W SAR-1g (W/kg)	Deviation (%)	Dipole S/N	Probe S/N	DAE S/N
Dec. 26, 2011	B2600	58.10	14.70	58.80	1.20	1003	3650	579
Dec. 27, 2011	B2600	58.10	14.40	57.60	-0.86	1003	3650	579

Note:

Comparing to the reference SAR value provided by SPEAG, the validation data should be within its specification of 10 %. The result indicates the system check can meet the variation criterion and the plots can be referred to Appendix A of this report.

4.5 Conducted Power Results

The measuring conducted power (Unit: dBm) are shown as below.

Modulation	Coding Rate	Frequency (MHz)	WiMAX Antenna-1			WiMAX Antenna-2		
			Peak Power	Average Power	PAPR	Peak Power	Average Power	PAPR
QPSK (BW 5MHz)	1/2	**2498.5**	30.89	23.20	7.69	30.85	23.18	7.72
		2593.0	30.70	22.95	7.75	31.03	22.78	8.25
		2687.5	30.45	23.38	7.15	30.79	22.73	8.06
	3/4	**2498.5**	30.65	23.18	7.47	30.64	23.11	7.53
		2593.0	30.50	22.90	7.60	30.83	22.79	8.04
		2687.5	30.32	23.30	7.02	30.64	22.80	7.84
16QAM (BW 5MHz)	1/2	**2498.5**	30.62	23.20	7.42	30.61	23.13	7.43
		2593.0	30.43	22.91	7.52	30.75	22.76	7.99
		2687.5	30.29	23.36	6.91	30.57	22.80	7.77
	3/4	**2498.5**	30.81	23.12	7.69	30.78	23.05	7.73
		2593.0	30.64	22.85	7.79	30.95	22.71	8.24
		2687.5	30.38	23.29	7.08	30.73	22.75	7.98
QPSK (BW 10MHz)	1/2	**2501.0**	30.62	23.25	7.37	30.65	23.14	7.57
		2593.0	30.51	22.87	7.64	30.91	22.89	8.02
		2685.0	30.32	23.36	7.02	30.60	22.65	7.95
	3/4	**2501.0**	30.78	23.20	7.58	30.75	23.13	7.61
		2593.0	30.61	22.88	7.73	30.90	22.77	8.13
		2685.0	30.34	23.35	6.98	30.70	22.72	7.98
16QAM (BW 10MHz)	1/2	**2501.0**	30.63	23.21	7.42	30.60	23.08	7.47
		2593.0	30.44	22.88	7.56	30.74	22.77	7.97
		2685.0	30.27	23.30	6.92	30.53	22.68	7.85
	3/4	**2501.0**	30.72	23.11	7.61	30.71	23.05	7.66
		2593.0	30.53	22.82	7.71	30.85	22.67	8.18
		2685.0	30.32	23.27	7.05	30.64	22.70	7.94

4.6 SAR Testing Results

4.6.1 SAR Results for Body

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Channel	Antenna Status	Measured SAR-1g (W/kg)	Scaling Factor	Scaled SAR-1g (W/kg)
1	802.16e_5M	QPSK 1/2	Horizontal Up	0.5	2	1	0.94	1.09	1.025
2	802.16e_5M	QPSK 1/2	Horizontal Down	0.5	2	1	0.962	1.09	1.049
3	802.16e_5M	QPSK 1/2	Vertical Front	0.5	2	1	0.502	1.09	0.547
4	802.16e_5M	QPSK 1/2	Vertical Back	0.5	2	1	1.06	1.09	**1.155**
5	802.16e_5M	QPSK 1/2	Tip Mode	0.5	2	1	0.196	1.09	0.214
49	802.16e_5M	QPSK 1/2	Horizontal Up	0.5	0	1	0.774	1.13	0.875
50	802.16e_5M	QPSK 1/2	Horizontal Up	0.5	1	1	0.66	1.20	0.792
51	802.16e_5M	QPSK 1/2	Horizontal Down	0.5	0	1	0.799	1.13	0.903
52	802.16e_5M	QPSK 1/2	Horizontal Down	0.5	1	1	0.631	1.20	0.757
53	802.16e_5M	QPSK 1/2	Vertical Back	0.5	0	1	0.885	1.13	1.000
54	802.16e_5M	QPSK 1/2	Vertical Back	0.5	1	1	0.923	1.20	1.108
24	802.16e_5M	16QAM 1/2	Vertical Back	0.5	2	1	1.05	1.09	1.144
6	802.16e_5M	QPSK 1/2	Horizontal Up	0.5	0	2	0.646	1.14	0.736
7	802.16e_5M	QPSK 1/2	Horizontal Down	0.5	0	2	0.824	1.14	0.939
8	802.16e_5M	QPSK 1/2	Vertical Front	0.5	0	2	0.534	1.14	0.609
9	802.16e_5M	QPSK 1/2	Vertical Back	0.5	0	2	0.644	1.14	0.734
10	802.16e_5M	QPSK 1/2	Tip Mode	0.5	0	2	0.412	1.14	0.470
47	802.16e_5M	QPSK 1/2	Horizontal Down	0.5	1	2	0.795	1.25	0.994
48	802.16e_5M	QPSK 1/2	Horizontal Down	0.5	2	2	0.501	1.26	0.631
43	802.16e_5M	16QAM 1/2	Horizontal Down	0.5	1	2	0.784	1.26	0.988
11	802.16e_10M	QPSK 1/2	Horizontal Up	0.5	2	1	0.941	1.06	0.997
12	802.16e_10M	QPSK 1/2	Horizontal Down	0.5	2	1	1.02	1.06	1.081
13	802.16e_10M	QPSK 1/2	Vertical Front	0.5	2	1	0.401	1.06	0.425
14	802.16e_10M	QPSK 1/2	Vertical Back	0.5	2	1	1.06	1.06	1.124
15	802.16e_10M	QPSK 1/2	Tip Mode	0.5	2	1	0.213	1.06	0.226
55	802.16e_10M	QPSK 1/2	Horizontal Up	0.5	0	1	0.632	1.09	0.689
56	802.16e_10M	QPSK 1/2	Horizontal Up	0.5	1	1	0.569	1.19	0.677
57	802.16e_10M	QPSK 1/2	Horizontal Down	0.5	0	1	0.799	1.09	0.871
58	802.16e_10M	QPSK 1/2	Horizontal Down	0.5	1	1	0.618	1.19	0.735
59	802.16e_10M	QPSK 1/2	Vertical Back	0.5	0	1	0.837	1.09	0.912
60	802.16e_10M	QPSK 1/2	Vertical Back	0.5	1	1	0.892	1.19	1.061
34	802.16e_10M	16QAM 1/2	Vertical Back	0.5	2	1	1.04	1.08	1.123
16	802.16e_10M	QPSK 1/2	Horizontal Up	0.5	0	2	0.612	1.12	0.685
17	802.16e_10M	QPSK 1/2	Horizontal Down	0.5	0	2	0.816	1.12	0.914
18	802.16e_10M	QPSK 1/2	Vertical Front	0.5	0	2	0.512	1.12	0.573
19	802.16e_10M	QPSK 1/2	Vertical Back	0.5	0	2	0.616	1.12	0.690
20	802.16e_10M	QPSK 1/2	Tip Mode	0.5	0	2	0.406	1.12	0.455
45	802.16e_10M	QPSK 1/2	Horizontal Down	0.5	1	2	0.856	1.18	1.010
46	802.16e_10M	QPSK 1/2	Horizontal Down	0.5	2	2	0.471	1.25	0.589
41	802.16e_10M	16QAM 1/2	Horizontal Down	0.5	1	2	0.782	1.22	0.954

Note: SAR for WiMAX 16QAM is only for highest SAR channel in QPSK because its maximum power is less than 1/4 dB higher than QPSK and QPSK SAR is between 0.8 and 1.2 W/kg per 2010 TCB workshop.

Test Engineer： Morrison Huang, Isaac Liao and Sam Onn

<WiMAX Linearity Response Check>

Setup and Calculation Procedure

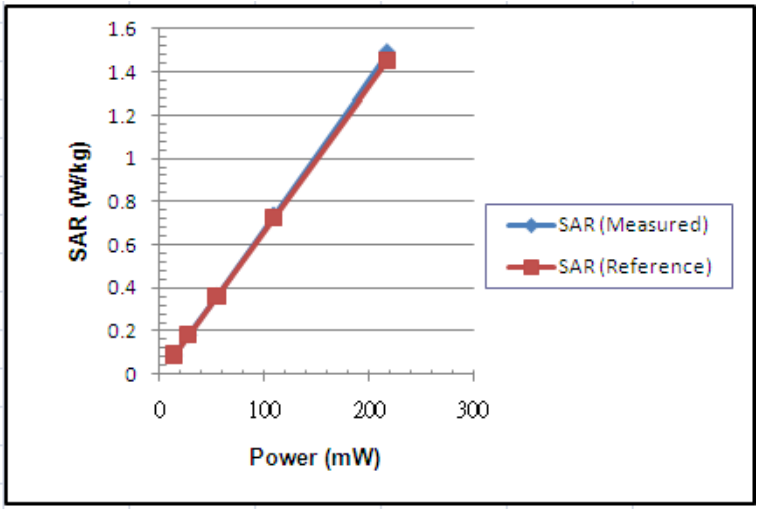
Set up the DUT in the position of the worst SAR, i.e. Vertical Back of DUT, and keep the separation distance as 0.5 cm. The channel of maximum SAR for each Modulation/Bandwidth is chosen for single point peak SAR testing. Using the same setup as complete 1g SAR and set the device to transmit at specified power and check by Anritus wideband power meter.

The reference line is based on the SAR at the power of 13.6 mW, and the proportional SARs of its multiples of 13.6 mW. The measured SAR at different multiple power of 13.6 mW is also plotted. The deviation is the difference between the reference line and the measured SAR.

The example for QPSK 1/2, BW 5M, 2687.5MHz is as below:
Base value = SAR measured at power of 13.6 mW = 0.091
2nd point (27.3 mW) = SAR value of 0.091 * (27.3 / 13.6) = 0.182
3rd point (54.5 mW) = SAR value of 0.091 * (54.5 / 13.6) = 0.364
4th point (109 mW) = SAR value of 0.091 * (109 / 13.6) = 0.728
5th point (218 mW) = SAR value of 0.091 * (218 / 13.6) = 1.456

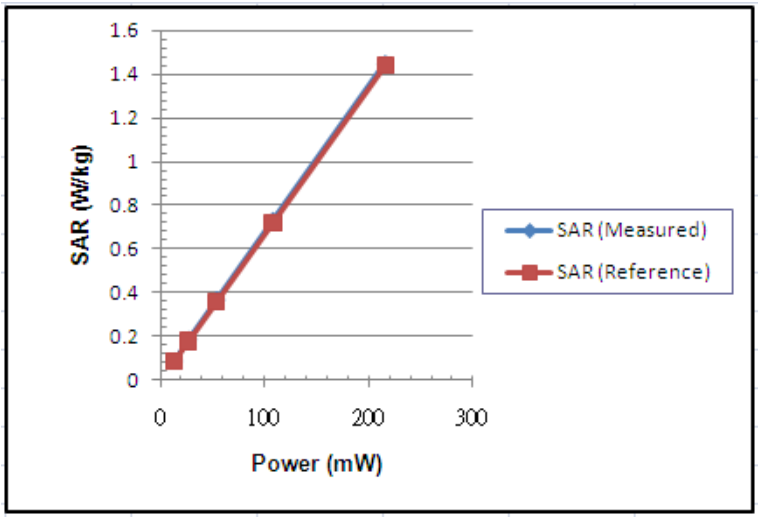
For QPSK, 1/2, BW 5M, 2687.5MHz, Vertical Back, WiMAX Ant-1, Configuration #04

Average Power (mW)	13.6	27.3	54.5	109	218
Single Point SAR (W/kg)	0.091	0.187	0.367	0.741	1.49
Reference Line (W/kg)	0.091	0.182	0.364	0.728	1.456
Deviation (%)	**0.00%**	**2.75%**	**0.82%**	**1.79%**	**2.34%**



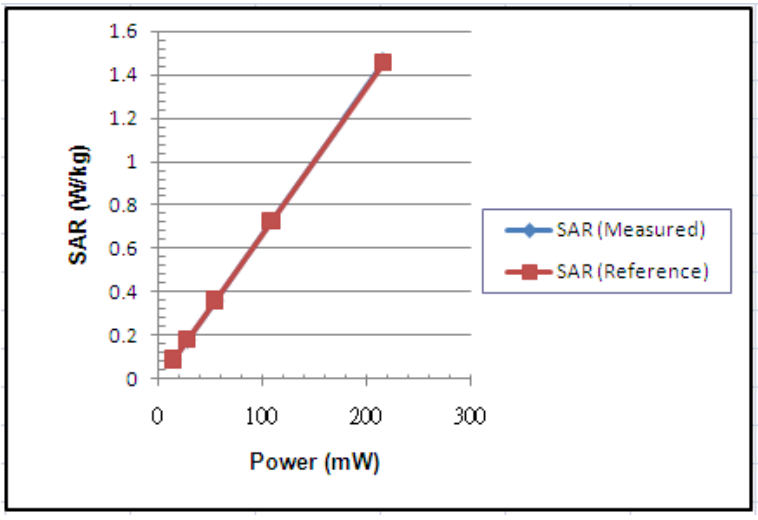
For 16QAM, 1/2, BW 5M, 2687.5MHz, Vertical Back, WiMAX Ant-1, Configuration #24

Average Power (mW)	13.5	27	54	108	216
Single Point SAR (W/kg)	0.09	0.188	0.37	0.732	1.45
Reference Line (W/kg)	0.09	0.18	0.36	0.72	1.44
Deviation (%)	**0.00%**	**4.44%**	**2.78%**	**1.67%**	**0.69%**



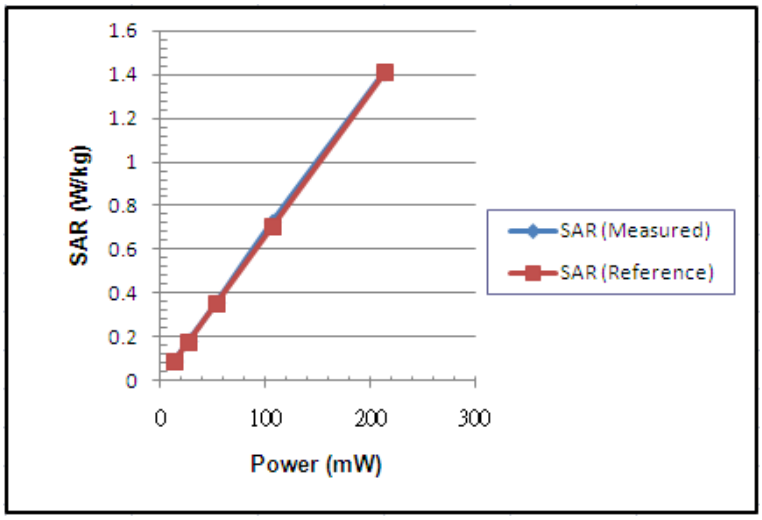
For QPSK, 1/2, BW 10M, 2685.0MHz, Vertical Back, WiMAX Ant-1, Configuration #14

Average Power (mW)	13.5	27	54	108	216
Single Point SAR (W/kg)	0.091	0.183	0.364	0.732	1.46
Reference Line (W/kg)	0.091	0.182	0.364	0.728	1.456
Deviation (%)	**0.00%**	**0.55%**	**0.00%**	**0.55%**	**0.27%**



For 16QAM, 1/2, BW 10M, 2685.0MHz, Vertical Back, WiMAX Ant-1, Configuration #34

Average Power (mW)	13.4	26.8	53.5	107	214
Single Point SAR (W/kg)	0.088	0.179	0.355	0.725	1.41
Reference Line (W/kg)	0.088	0.176	0.352	0.704	1.408
Deviation (%)	**0.00%**	**1.70%**	**0.85%**	**2.98%**	**0.14%**



Conclusion

From the above test results, the SAR probe can measure SAR correctly under high PAPR of OFDM/OFDMA, and the pretest SAR is not underestimated.

<WiMAX Compare with Different Scan Resolution>

Retest the maximum raw 1g SAR with the same DUT setting on the different scan resolution. The test results are shown as below.

Scan Resolution (mm)	Measured SAR_{1g} (W/kg)
8 x 8 x 5	1.06
4 x 4 x 2.5	0.993

Conclusion

From the above test results, the different scan resolution has no significant change.

5. Calibration of Test Equipment

Equipment	Manufacturer	Model	SN	Cal. Date	Cal. Interval
Dosimetric E-Field Probe	SPEAG	EX3DV4	3590	Feb. 25, 2011	Annual
Dosimetric E-Field Probe	SPEAG	EX3DV4	3650	Oct. 26, 2011	Annual
Dosimetric E-Field Probe	SPEAG	EX3DV4	3800	Aug. 05, 2011	Annual
System Validation Kit	SPEAG	D750V3	1013	May 25, 2011	Annual
System Validation Kit	SPEAG	D835V2	4d021	Mar. 23, 2011	Annual
System Validation Kit	SPEAG	D900V2	156	Jan. 27, 2011	Annual
System Validation Kit	SPEAG	D1450V2	1028	Aug. 31, 2011	Annual
System Validation Kit	SPEAG	D1640V2	326	Mar. 08, 2011	Annual
System Validation Kit	SPEAG	D1750V2	1055	Aug. 09, 2011	Annual
System Validation Kit	SPEAG	D1800V2	2d041	Jan. 26, 2011	Annual
System Validation Kit	SPEAG	D1900V2	5d022	Jan. 26, 2011	Annual
System Validation Kit	SPEAG	D2000V2	1013	Aug. 29, 2011	Annual
System Validation Kit	SPEAG	D2300V2	1004	Jan. 26, 2011	Annual
System Validation Kit	SPEAG	D2450V2	716	Jan. 26, 2011	Annual
System Validation Kit	SPEAG	D2600V2	1003	Jan. 27, 2011	Annual
System Validation Kit	SPEAG	D3500V2	1007	Jan. 20, 2011	Annual
System Validation Kit	SPEAG	D5GHzV2	1019	Jan. 25, 2011	Annual
Data Acquisition Electronics	SPEAG	DAE3	579	Sep. 23, 2011	Annual
Data Acquisition Electronics	SPEAG	DAE4	861	Aug. 29, 2011	Annual
Data Acquisition Electronics	SPEAG	DAE4	1277	Jul. 29, 2011	Annual
SAM Phantom	SPEAG	QD 000 P40	N/A	N/A	N/A
ELI Phantom	SPEAG	QD OVA 001B	N/A	N/A	N/A
Radio Communication Tester	Agilent	E5515C	MY50266628	Sep. 26, 2011	Biennial
Radio Communication Tester	Agilent	E5515C	MY50266653	Sep. 28, 2011	Biennial
Radio Communication Tester	Agilent	E5515C	MY50260642	Oct. 25, 2011	Biennial
Universal Radio Communication Tester	R&S	CMU200	101372	Oct. 11, 2010	Biennial
WiMAX Communication Tester	Agilent	E6651A	MY47310146	Mar. 18, 2011	Biennial
LTE Communication Tester	R&S	CMW500	101503	Jan. 12, 2011	Biennial
ENA Series Network Analyzer	Agilent	E5071C	MY46107999	Mar. 25, 2011	Annual
Signal Generator	Agilent	E8257C	MY43320668	Dec. 20, 2011	Annual
Power Meter	Anritsu	ML2487A	6K00001571	May 25, 2011	Annual
Power Sensor	Anritsu	MA2491A	030954	May 25, 2011	Annual
Dielectric Probe Kit	Agilent	85070D	N/A	N/A	N/A

6. Measurement Uncertainty

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	0.6	Normal	1	1	1	± 0.6 %	± 0.6 %
Response Time	0.0	Rectangular	√3	1	1	± 0.0 %	± 0.0 %
Integration Time	1.7	Rectangular	√3	1	1	± 1.0 %	± 1.0 %
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	0.5	Rectangular	√3	1	1	± 0.3 %	± 0.3 %
Probe Positioning	2.9	Rectangular	√3	1	1	± 1.7 %	± 1.7 %
Max. SAR Eval.	2.3	Rectangular	√3	1	1	± 1.3 %	± 1.3 %
Test Sample Related							
Device Positioning	3.9 / 3.6	Normal	1	1	1	± 2.9 %	± 3.6 %
Device Holder	2.7 / 4.3	Normal	1	1	1	± 2.7 %	± 4.3 %
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.)	0.2	Normal	1	0.64	0.43	± 0.1 %	± 0.1 %
Liquid Permittivity (Target)	5.0	Rectangular	√3	0.6	0.49	± 1.7 %	± 1.4 %
Liquid Permittivity (Meas.)	0.3	Normal	1	0.6	0.49	± 0.2 %	± 0.1 %
Combined Standard Uncertainty						± 10.8 %	± 11.1 %
Expanded Uncertainty (K=2)						**± 21.7 %**	± 22.2 %

Uncertainty budget for frequency range 300 MHz to 3 GHz

7. Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

Copies of accreditation and authorization certificates of our laboratories obtained from approval agencies can be downloaded from our web site. If you have any comments, please feel free to contact us at the following:

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Email: service.adt@tw.bureauveritas.com
Web Site: www.adt.com.tw

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

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Appendix A. SAR Plots of System Verification

The plots for system verification are shown as follows.

System Check_B2600_111226

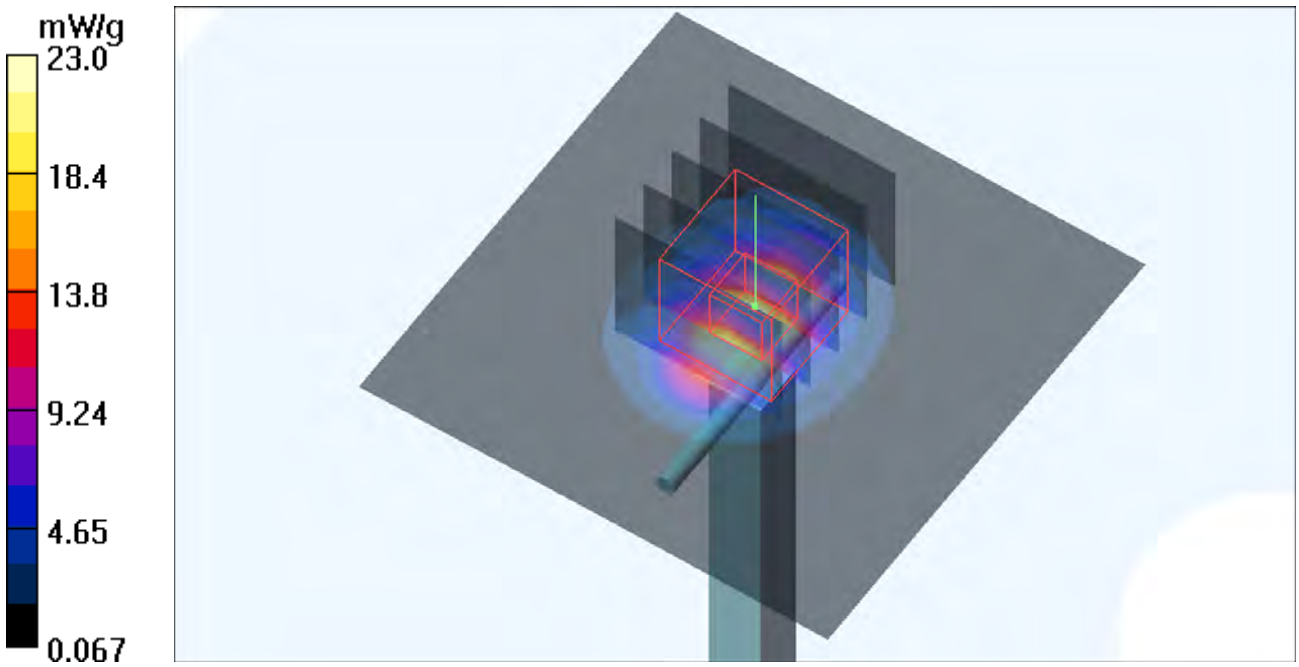
DUT: Dipole 2600 MHz; Type: D2600V2; SN: 1003

Communication System: CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: B2600_1226 Medium parameters used: f = 2600 MHz; σ = 2.26 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 23.5 mW/g

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 102.3 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 32.3 W/kg
SAR(1 g) = 14.7 mW/g; SAR(10 g) = 6.52 mW/g
Maximum value of SAR (measured) = 23.0 mW/g



System Check_B2600_111227

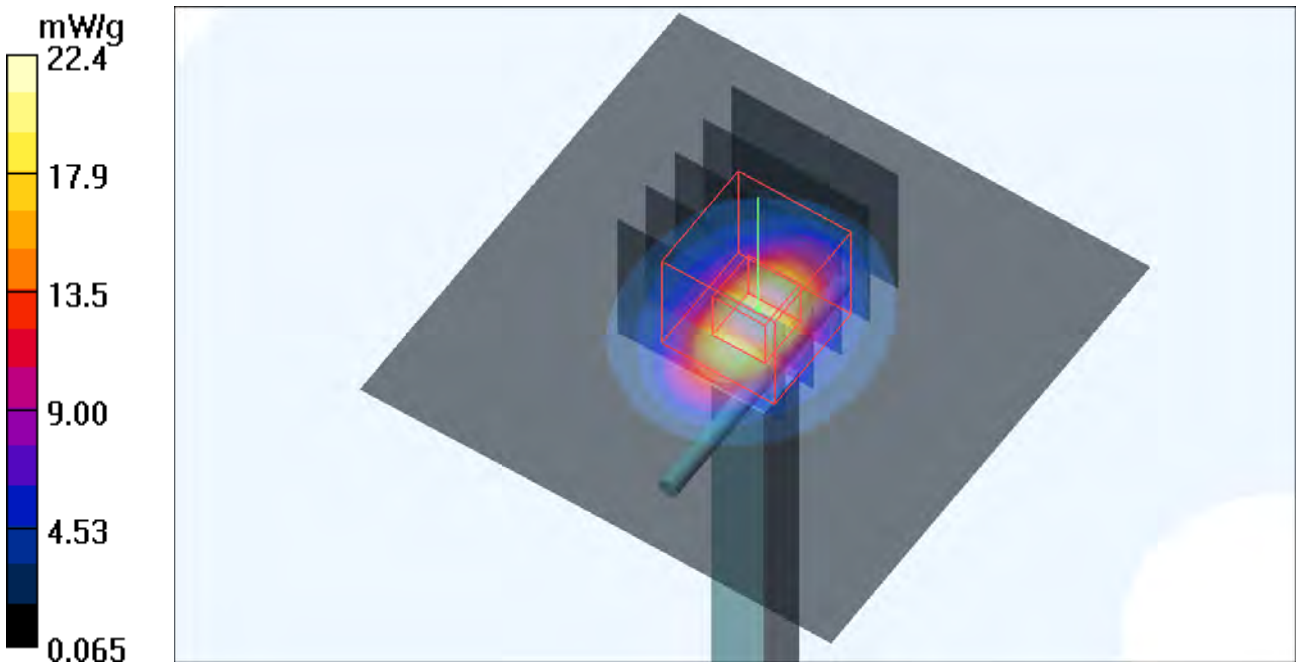
DUT: Dipole 2600 MHz; Type: D2600V2; SN: 1003

Communication System: CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: B2600_1227 Medium parameters used: f = 2600 MHz; σ = 2.21 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=250mW/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 22.9 mW/g

Pin=250mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 101.6 V/m; Power Drift = 0.035 dB
Peak SAR (extrapolated) = 31.5 W/kg
SAR(1 g) = 14.4 mW/g; SAR(10 g) = 6.34 mW/g
Maximum value of SAR (measured) = 22.4 mW/g



Appendix B. SAR Plots of SAR Measurement

The plots for SAR measurement are shown as follows.

P01 802.16e_5M_QPSK1_2_Horizontal Up_0.5cm_Ch2_Ant1

DUT: 111215E04

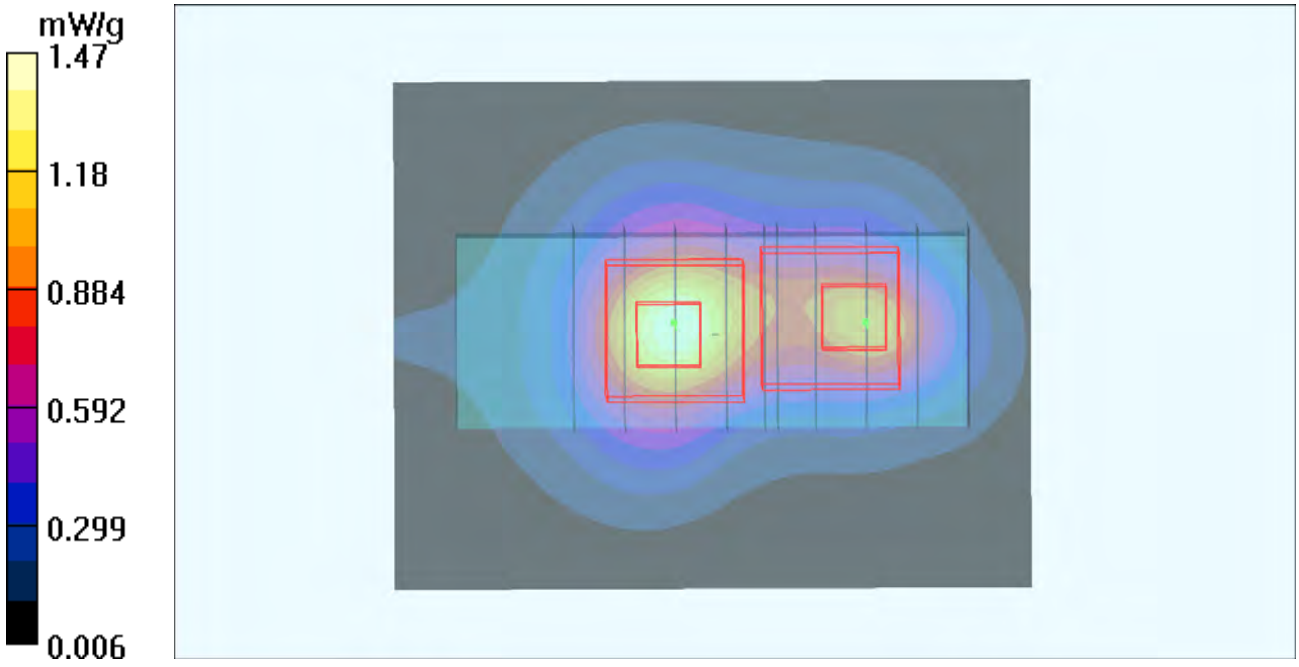
Communication System: Wimax_2.6GHz 5M; Frequency: 2687.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used : f = 2687.5 MHz; σ = 2.26 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2687.5/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.47 mW/g

Ch2687.5/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.3 V/m; Power Drift = -0.119 dB
Peak SAR (extrapolated) = 1.88 W/kg
SAR(1 g) = 0.940 mW/g; SAR(10 g) = 0.467 mW/g
Maximum value of SAR (measured) = 1.36 mW/g

Ch2687.5/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.3 V/m; Power Drift = -0.119 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.686 mW/g; SAR(10 g) = 0.339 mW/g
Maximum value of SAR (measured) = 1.04 mW/g



P02 802.16e_5M_QPSK1_2_Horizontal Down_0.5cm_Ch2_Ant1

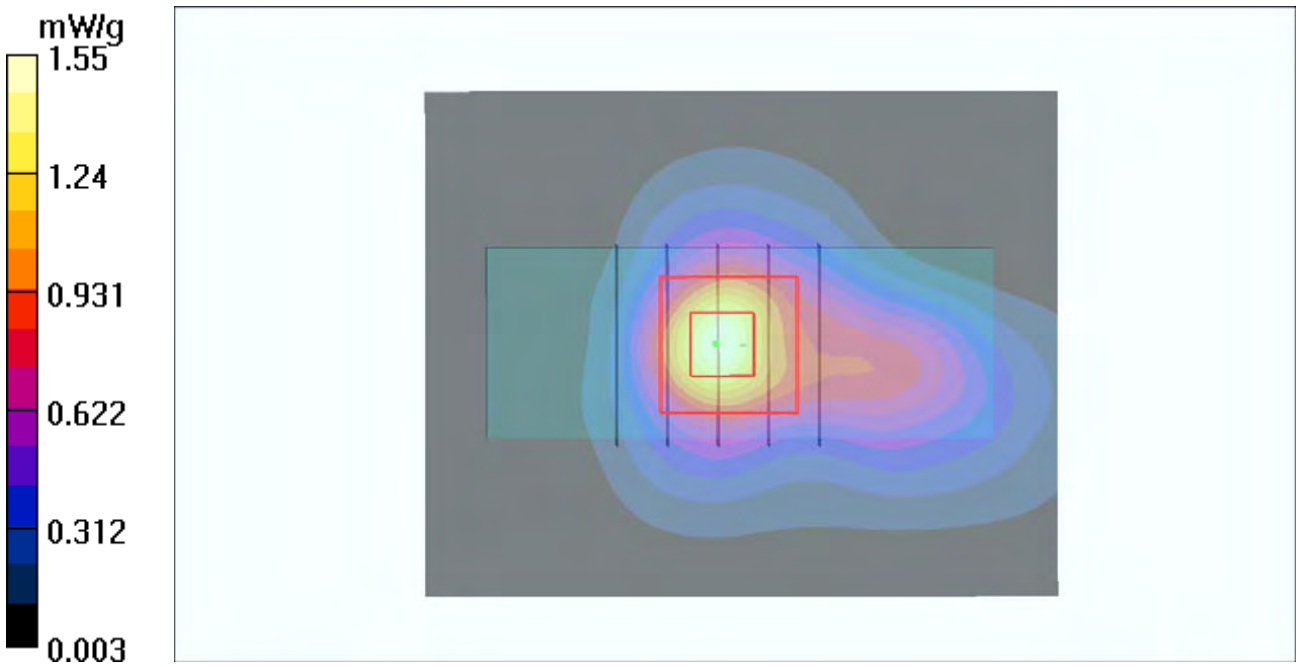
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2687.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used : f = 2687.5 MHz; σ = 2.26 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2687.5/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.55 mW/g

Ch2687.5/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.0 V/m; Power Drift = -0.083 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 0.962 mW/g; SAR(10 g) = 0.471 mW/g
Maximum value of SAR (measured) = 1.39 mW/g



P03 802.16e_5M_QPSK1_2_Vertical Front_0.5cm_Ch2_Ant1

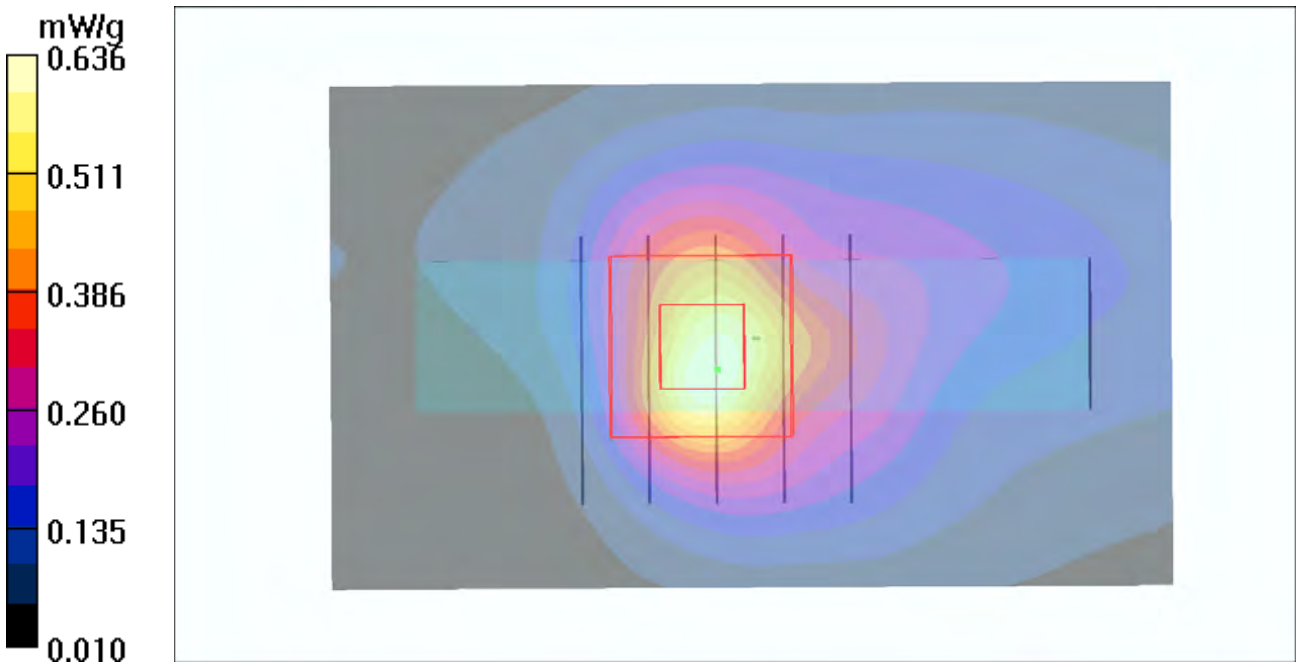
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2687.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used : f = 2687.5 MHz; σ = 2.26 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2687.5/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.636 mW/g

Ch2687.5/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.5 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.502 mW/g; SAR(10 g) = 0.234 mW/g
Maximum value of SAR (measured) = 0.725 mW/g



P04 802.16e_5M_QPSK1_2_Vertical Back_0.5cm_Ch2_Ant1

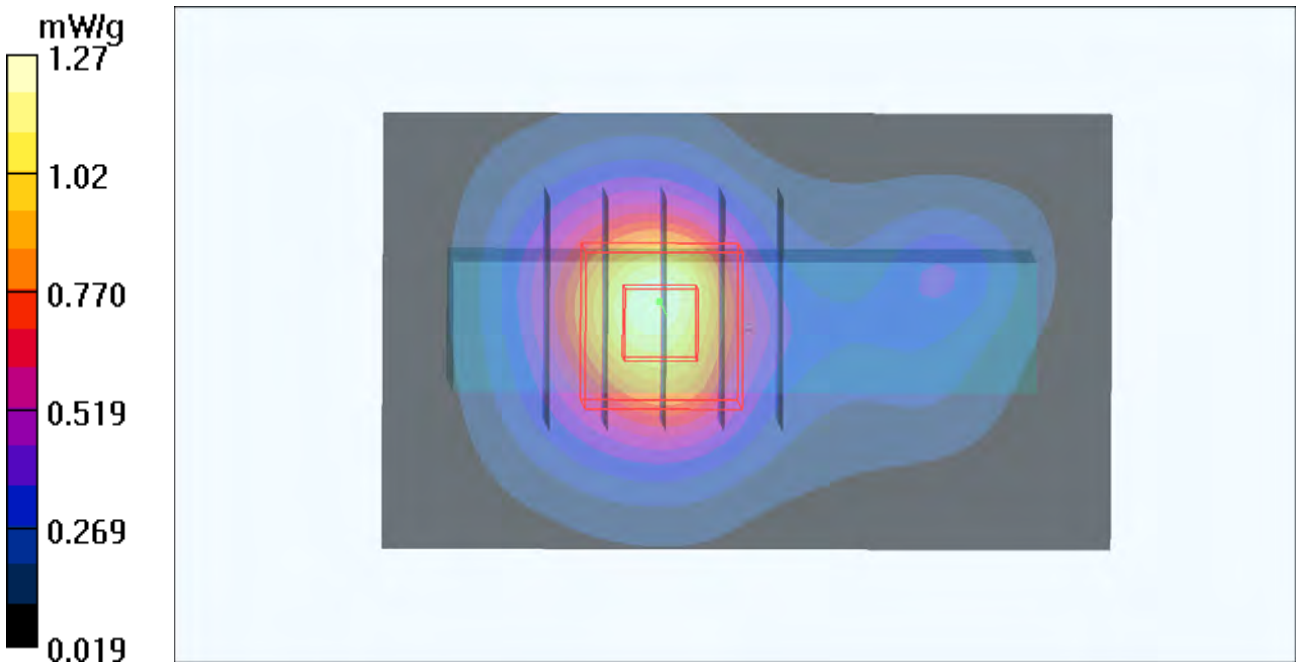
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2687.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used : f = 2687.5 MHz; σ = 2.26 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2687.5/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.27 mW/g

Ch2687.5/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.7 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 2.25 W/kg
SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.488 mW/g
Maximum value of SAR (measured) = 1.56 mW/g



P05 802.16e_5M_QPSK1_2_Tip Mode_0.5cm_Ch2_Ant1

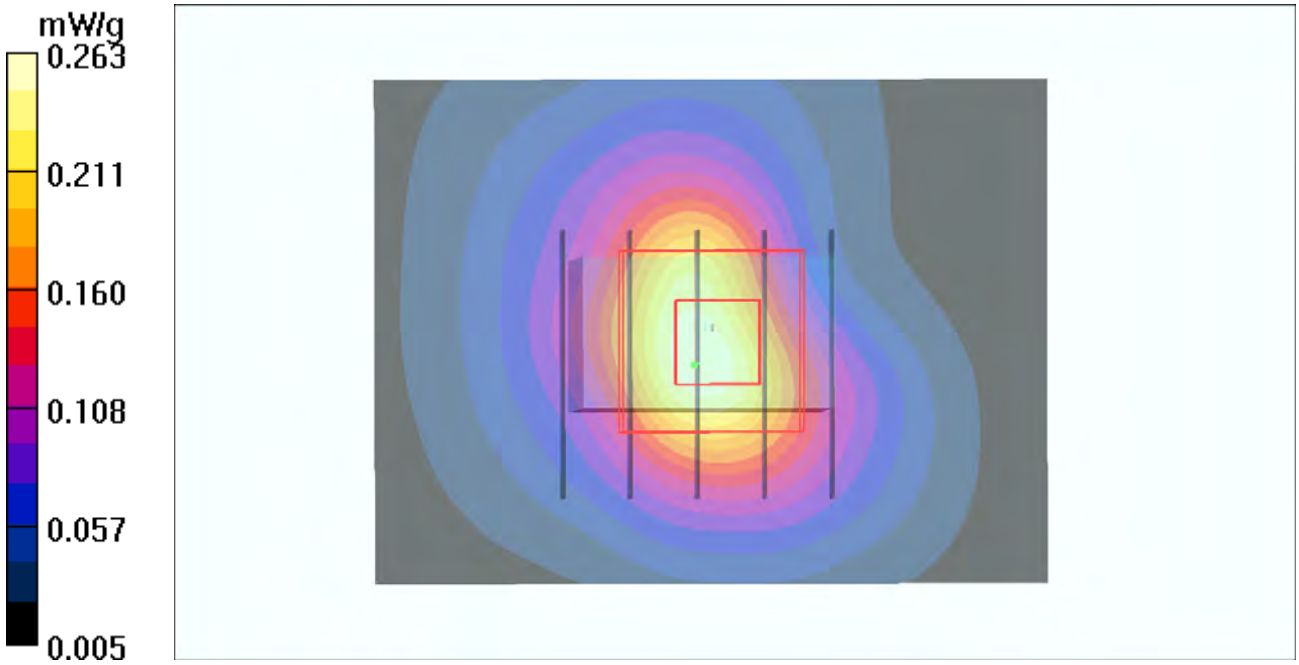
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2687.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used : f = 2687.5 MHz; σ = 2.26 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2687.5/Area Scan (31x41x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.263 mW/g

Ch2687.5/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.7 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 0.436 W/kg
SAR(1 g) = 0.196 mW/g; SAR(10 g) = 0.092 mW/g
Maximum value of SAR (measured) = 0.281 mW/g



P49 802.16e_5M_QPSK1_2_Horizontal Up_0.5cm_Ch0_Ant1

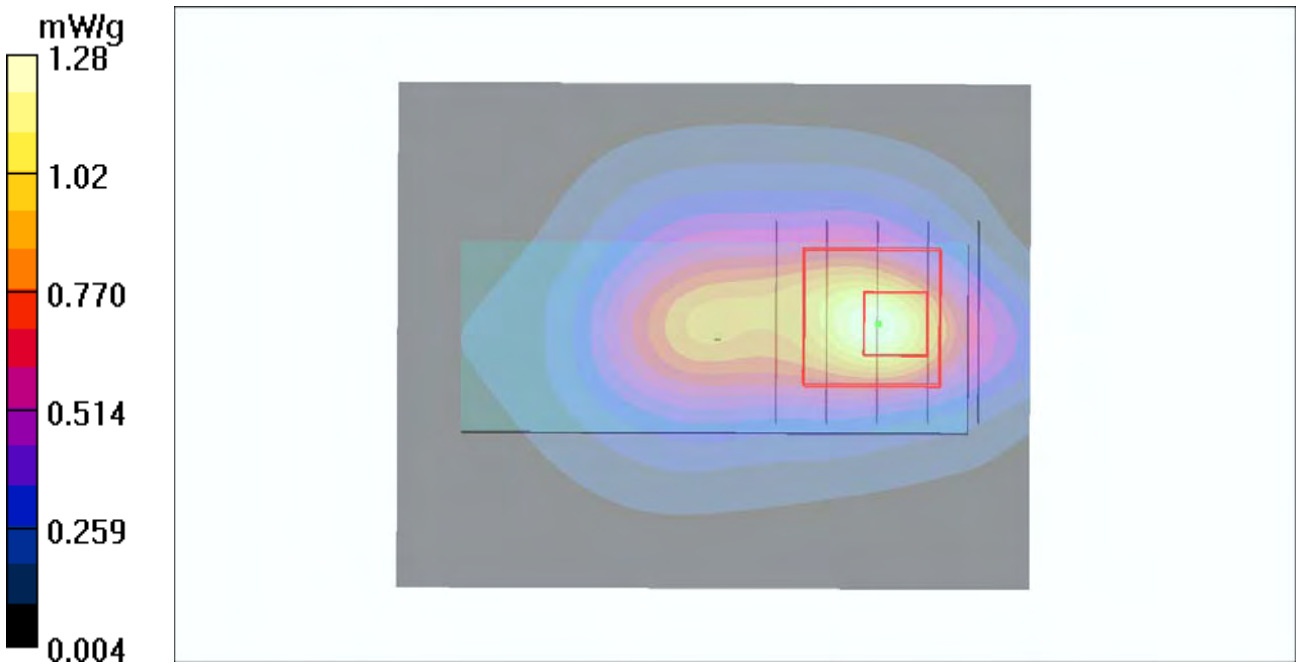
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2498.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used : f = 2498.5 MHz; σ = 2.1 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.89, 6.89, 6.89); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2498.5/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.28 mW/g

Ch2498.5/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.7 V/m; Power Drift = -0.128 dB
Peak SAR (extrapolated) = 1.59 W/kg
SAR(1 g) = 0.774 mW/g; SAR(10 g) = 0.387 mW/g
Maximum value of SAR (measured) = 1.11 mW/g



P50 802.16e_5M_QPSK1_2_Horizontal Up_0.5cm_Ch1_Ant1

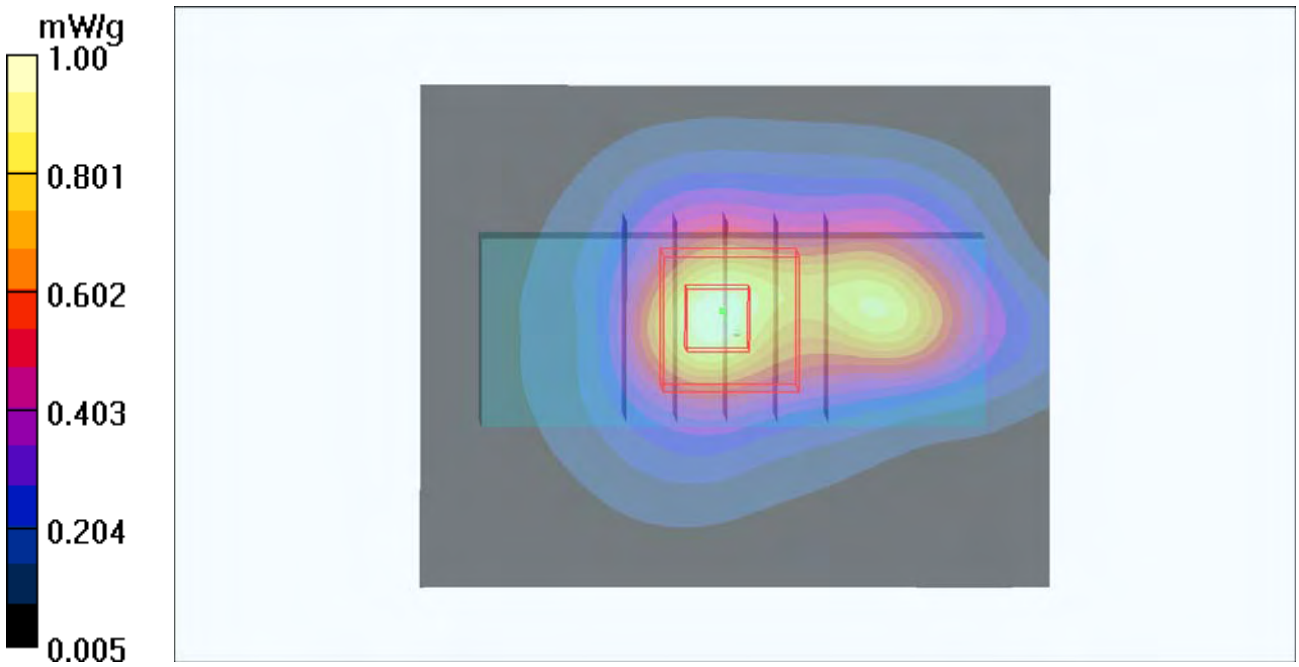
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2593 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2593 MHz; σ = 2.2 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2593/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.00 mW/g

Ch2593/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.5 V/m; Power Drift = -0.007 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.660 mW/g; SAR(10 g) = 0.340 mW/g
Maximum value of SAR (measured) = 0.950 mW/g



P51 802.16e_5M_QPSK1_2_Horizontal Down_0.5cm_Ch0_Ant1

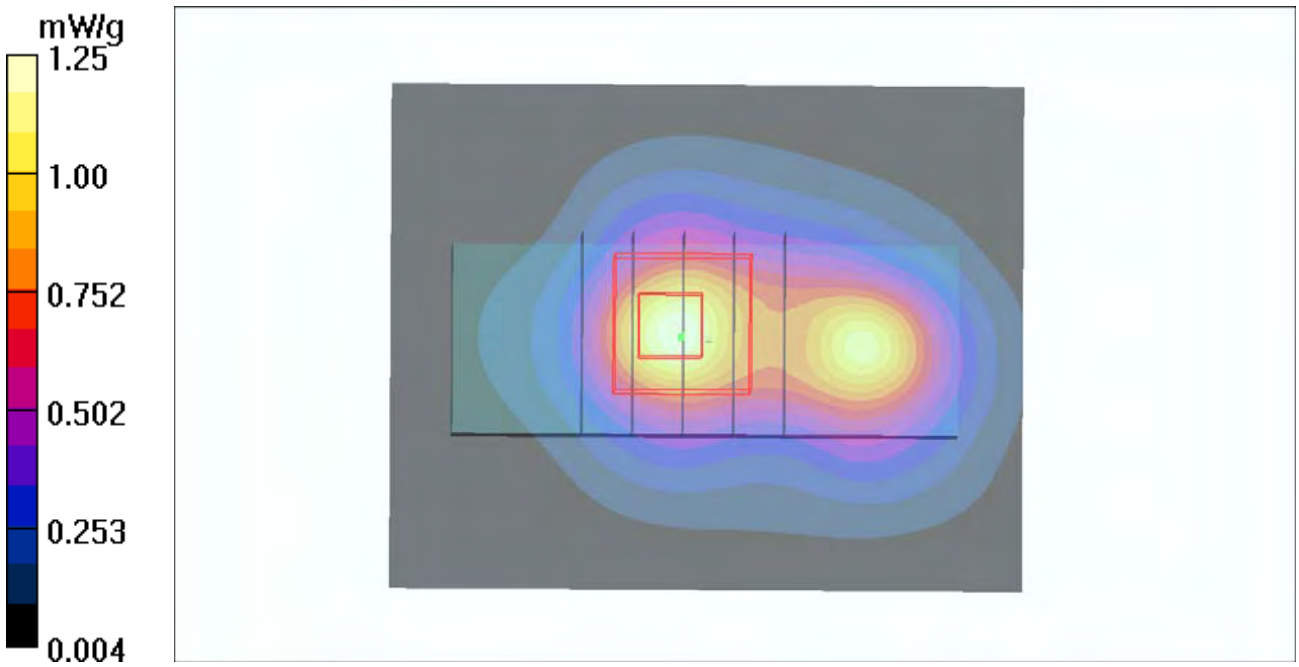
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2498.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2498.5 MHz; σ = 2.1 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.89, 6.89, 6.89); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2498.5/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.25 mW/g

Ch2498.5/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.5 V/m; Power Drift = -0.019 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.799 mW/g; SAR(10 g) = 0.416 mW/g
Maximum value of SAR (measured) = 1.09 mW/g



P52 802.16e_5M_QPSK1_2_Horizontal Down_0.5cm_Ch1_Ant1

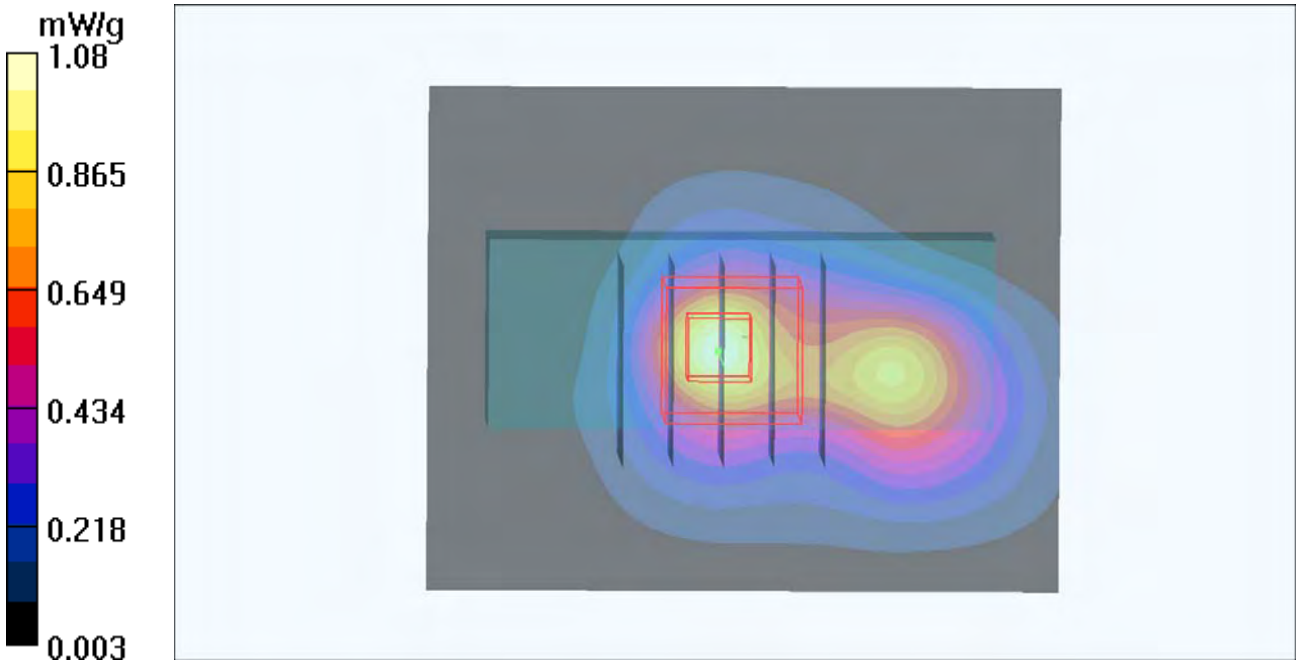
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2593 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2593 MHz; σ = 2.2 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2593/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.08 mW/g

Ch2593/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.5 V/m; Power Drift = -0.165 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.631 mW/g; SAR(10 g) = 0.318 mW/g
Maximum value of SAR (measured) = 0.898 mW/g



P53 802.16e_5M_QPSK1_2_Vertical Back_0.5cm_Ch0_Ant1

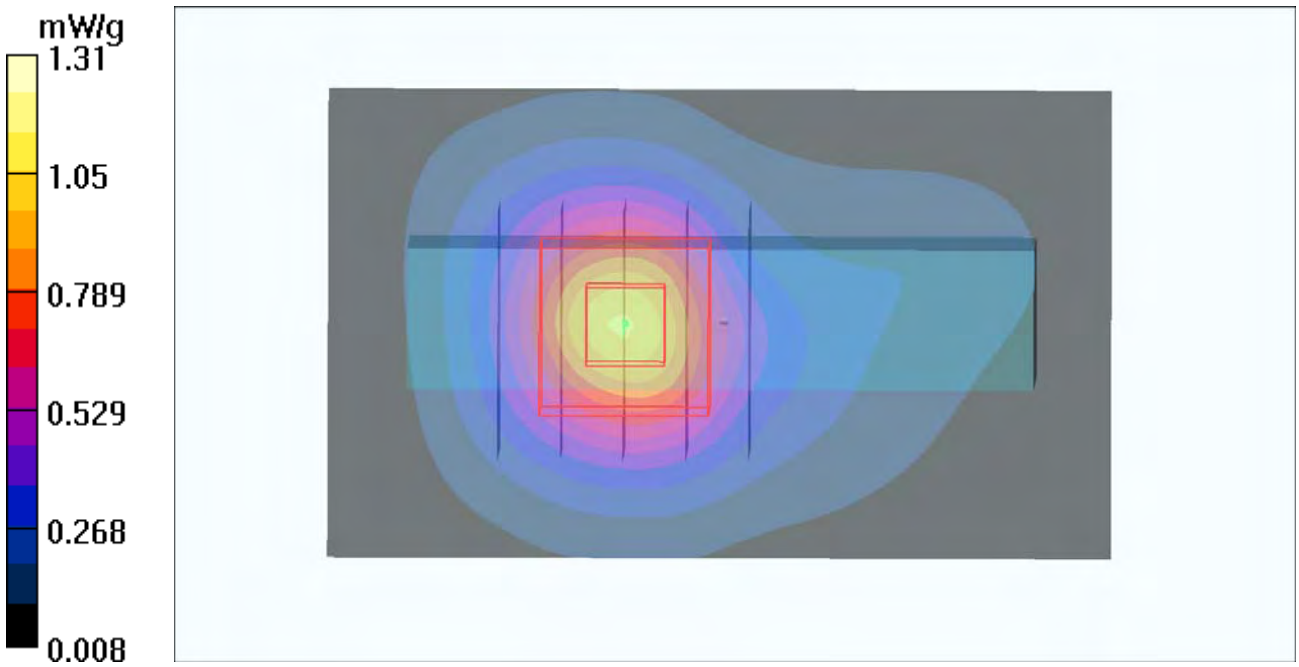
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2498.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used : f = 2498.5 MHz; σ = 2.1 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.89, 6.89, 6.89); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2498.5/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.07 mW/g

Ch2498.5/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.6 V/m; Power Drift = -0.045 dB
Peak SAR (extrapolated) = 1.76 W/kg
SAR(1 g) = 0.885 mW/g; SAR(10 g) = 0.427 mW/g
Maximum value of SAR (measured) = 1.31 mW/g



P54 802.16e_5M_QPSK1_2_Vertical Back_0.5cm_Ch1_Ant1

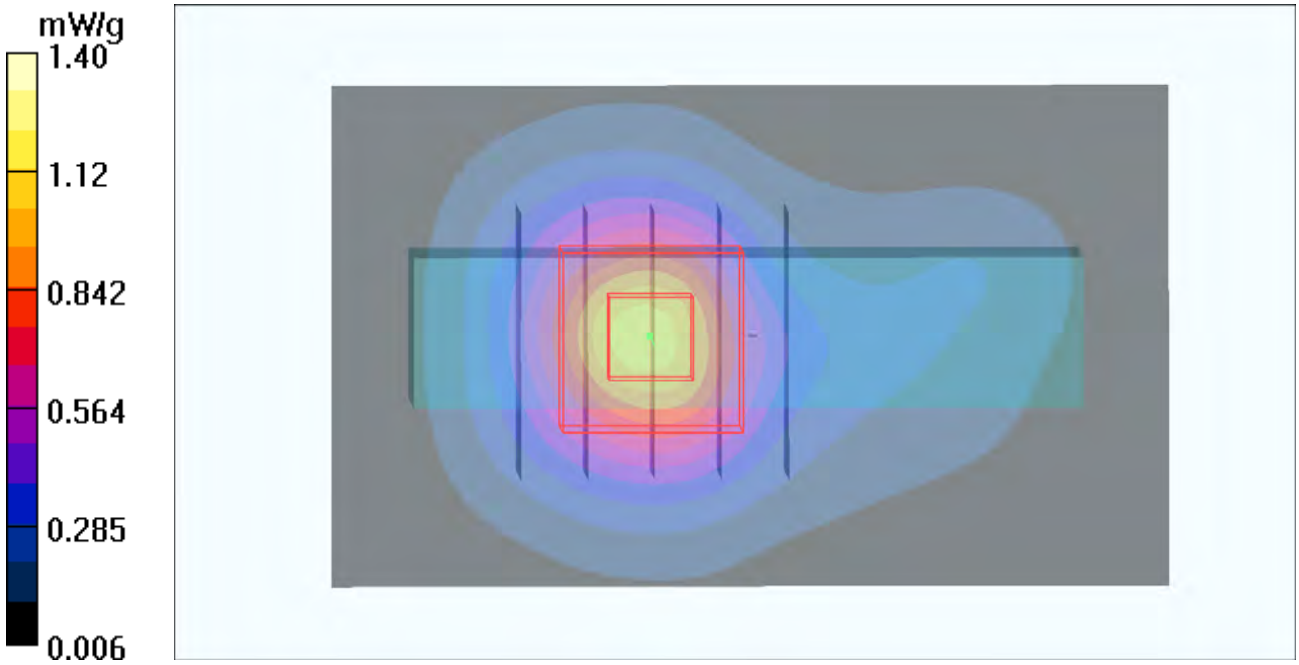
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2593 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2593 MHz; σ = 2.2 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2593/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.11 mW/g

Ch2593/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.9 V/m; Power Drift = -0.068 dB
Peak SAR (extrapolated) = 1.92 W/kg
SAR(1 g) = 0.923 mW/g; SAR(10 g) = 0.432 mW/g
Maximum value of SAR (measured) = 1.40 mW/g



P24 802.16e_5M_16QAM1_2_Vertical Back_0.5cm_Ch2_Ant1

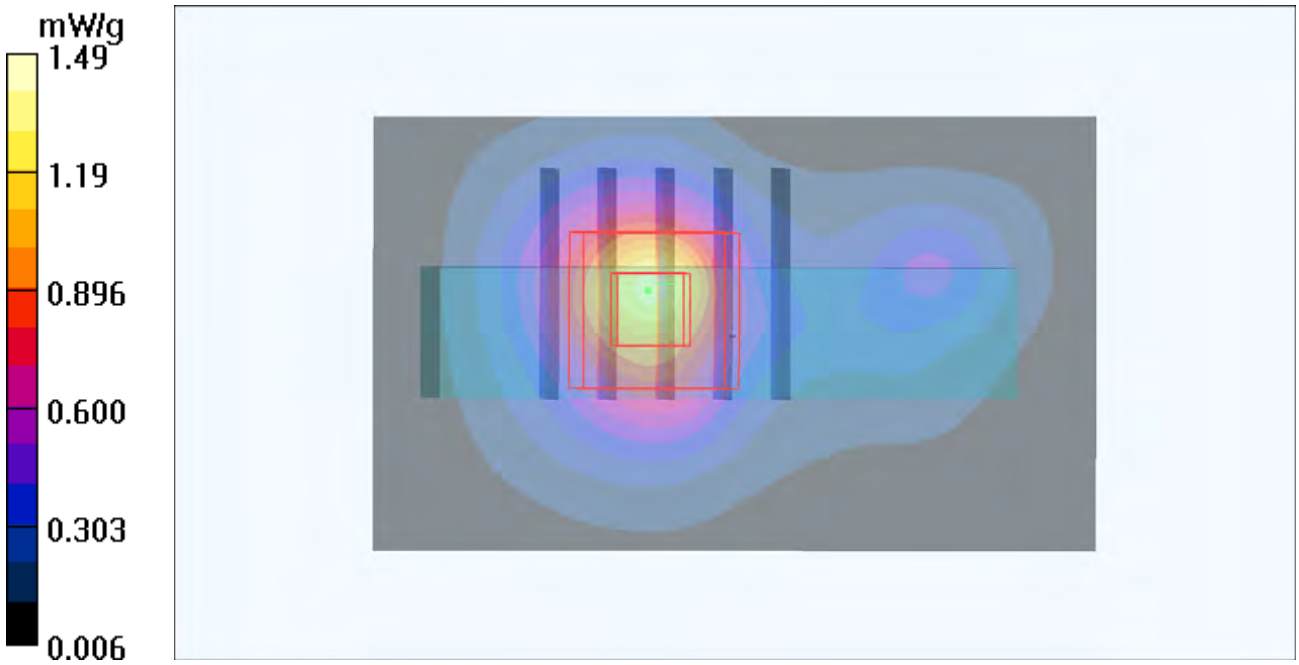
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2687.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2687.5 MHz; σ = 2.26 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2687.5/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.34 mW/g

Ch2687.5/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.0 V/m; Power Drift = -0.085 dB
Peak SAR (extrapolated) = 2.29 W/kg
SAR(1 g) = 1.05 mW/g; SAR(10 g) = 0.483 mW/g
Maximum value of SAR (measured) = 1.49 mW/g



P06 802.16e_5M_QPSK1_2_Horizontal Up_0.5cm_Ch0_Ant2

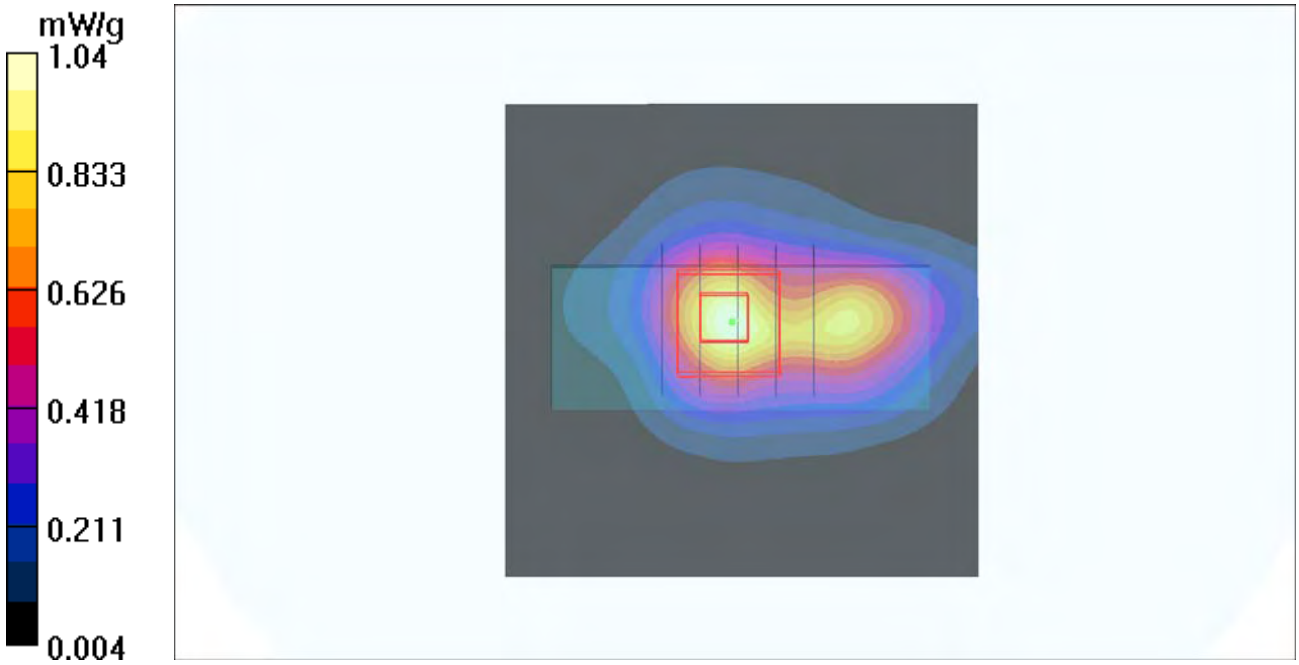
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2498.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1226 Medium parameters used : f = 2498.5 MHz; σ = 2.13 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.89, 6.89, 6.89); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch0/Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.04 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.4 V/m; Power Drift = 0.068 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.646 mW/g; SAR(10 g) = 0.343 mW/g
Maximum value of SAR (measured) = 0.900 mW/g



P07 802.16e_5M_QPSK1_2_Horizontal Down_0.5cm_Ch0_Ant2

DUT: 111215E04

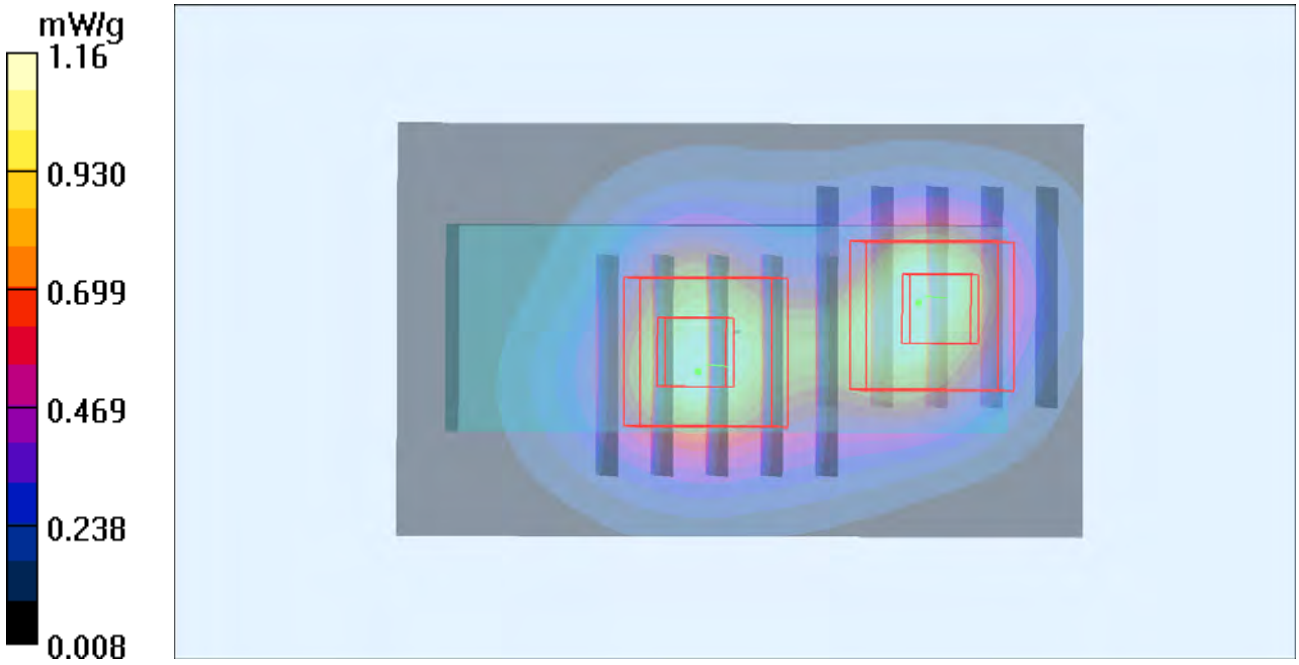
Communication System: Wimax_2.6GHz 5M; Frequency: 2498.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1226 Medium parameters used: f = 2498.5 MHz; σ = 2.13 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.89, 6.89, 6.89); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch0/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.27 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.2 V/m; Power Drift = -0.121 dB
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.824 mW/g; SAR(10 g) = 0.421 mW/g
Maximum value of SAR (measured) = 1.16 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.2 V/m; Power Drift = -0.121 dB
Peak SAR (extrapolated) = 1.74 W/kg
SAR(1 g) = 0.802 mW/g; SAR(10 g) = 0.368 mW/g
Maximum value of SAR (measured) = 1.21 mW/g



P08 802.16e_5M_QPSK1_2_Vertical Front_0.5cm_Ch0_Ant2

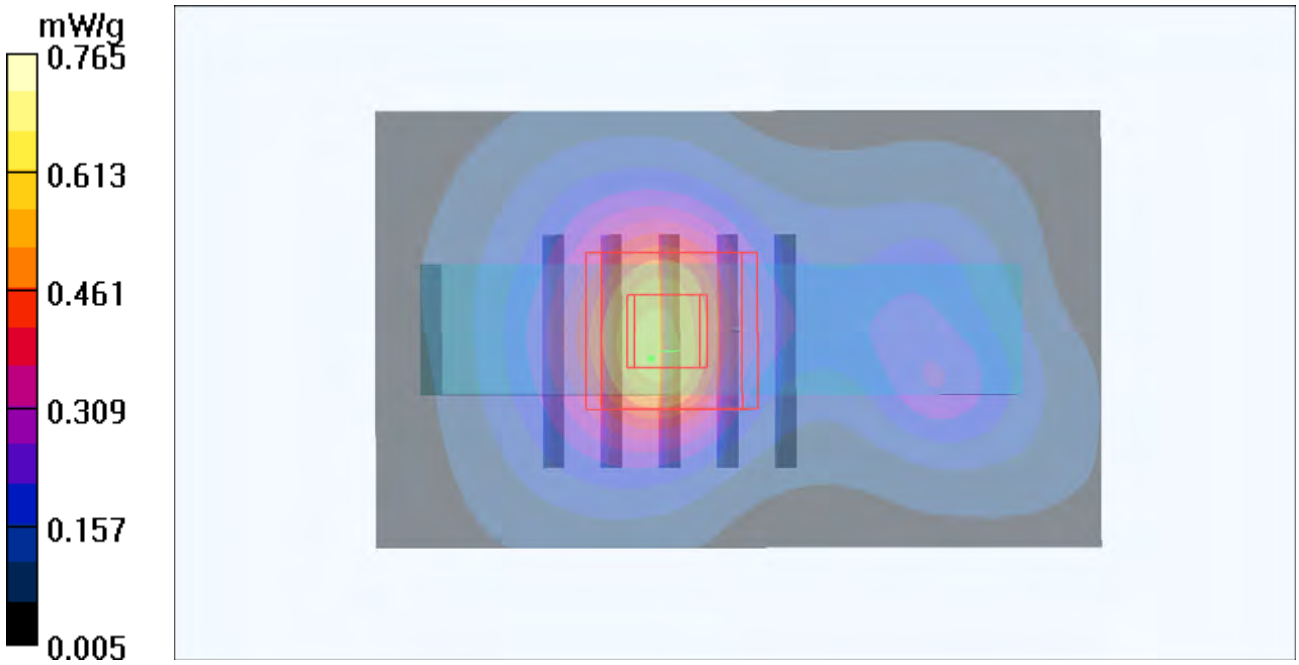
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2498.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1226 Medium parameters used (interpolated): f = 2498.5 MHz; σ = 2.13 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.89, 6.89, 6.89); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch0/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.594 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.6 V/m; Power Drift = 0.101 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.534 mW/g; SAR(10 g) = 0.258 mW/g
Maximum value of SAR (measured) = 0.765 mW/g



P09 802.16e_5M_QPSK1_2_Vertical Back_0.5cm_Ch0_Ant2

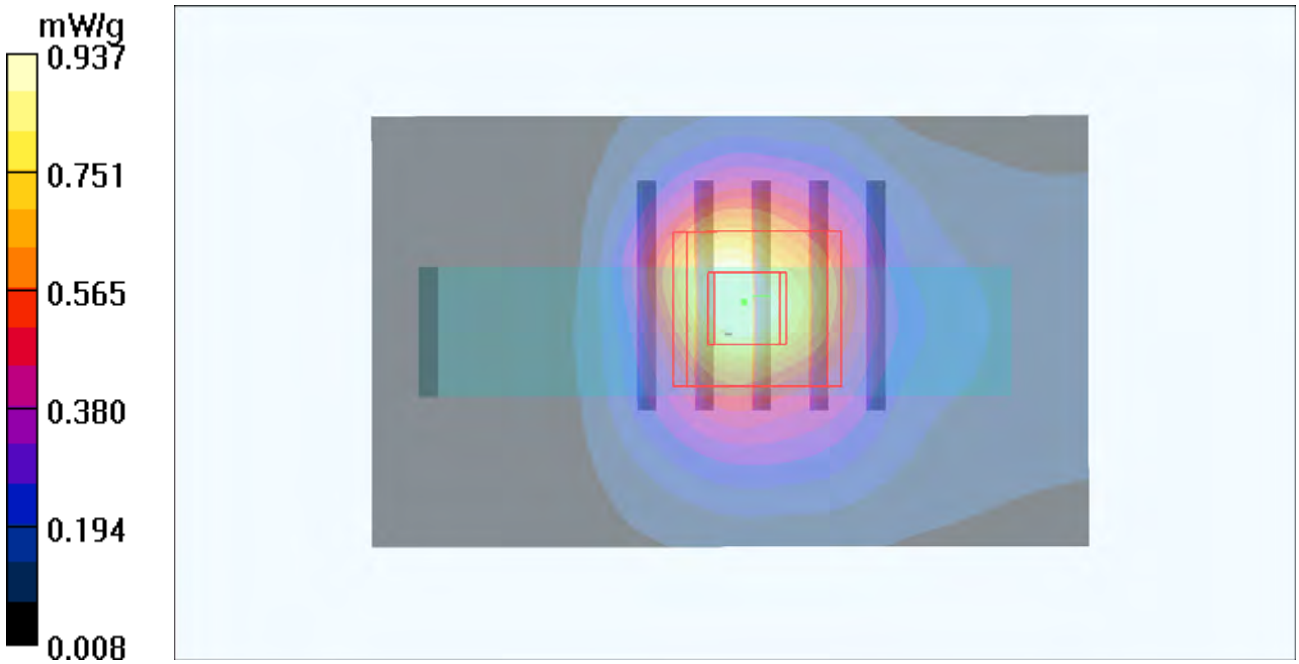
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2498.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1226 Medium parameters used: f = 2498.5 MHz; σ = 2.13 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.89, 6.89, 6.89); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch0/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.996 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.7 V/m; Power Drift = -0.018 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.644 mW/g; SAR(10 g) = 0.320 mW/g
Maximum value of SAR (measured) = 0.937 mW/g



P10 802.16e_5M_QPSK1_2_Tip Mode_0.5cm_Ch0_Ant2

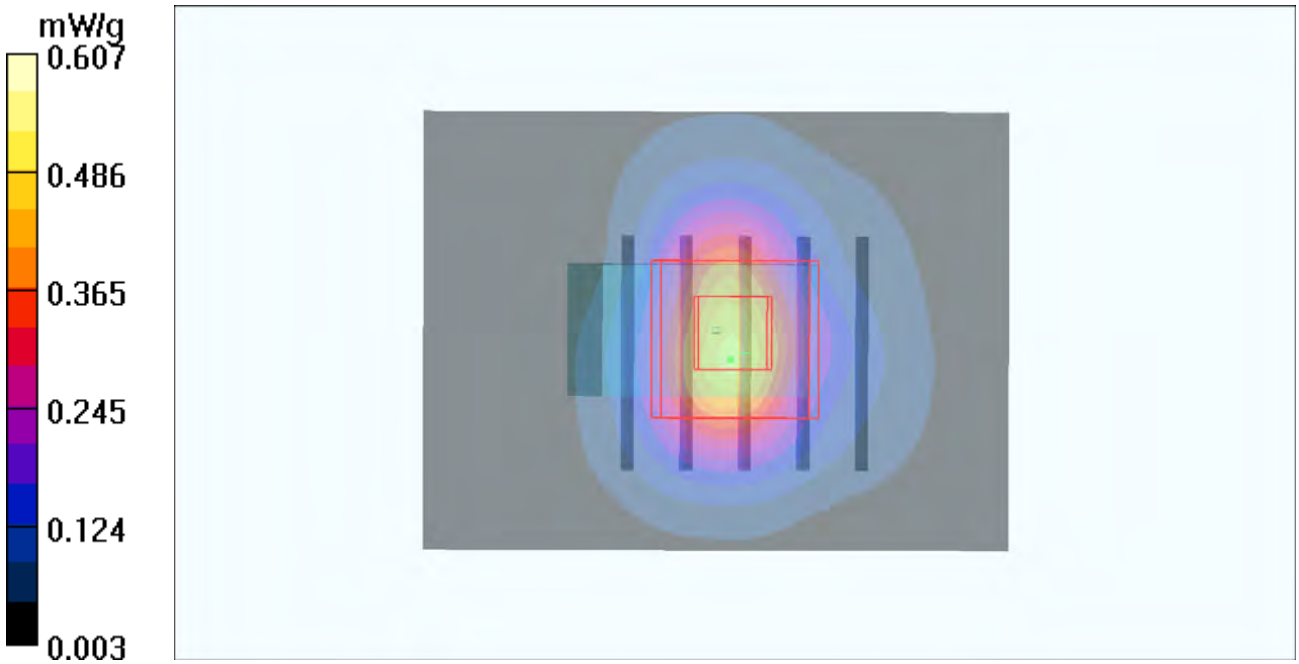
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2498.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1226 Medium parameters used: f = 2498.5 MHz; σ = 2.13 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃； Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.89, 6.89, 6.89); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch0/Area Scan (31x41x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.502 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.5 V/m; Power Drift = -0.129 dB
Peak SAR (extrapolated) = 0.886 W/kg
SAR(1 g) = 0.412 mW/g; SAR(10 g) = 0.185 mW/g
Maximum value of SAR (measured) = 0.607 mW/g



P47 802.16e_5M_QPSK1_2_Horizontal Down_0.5cm_Ch1_Ant2

DUT: 111215E04

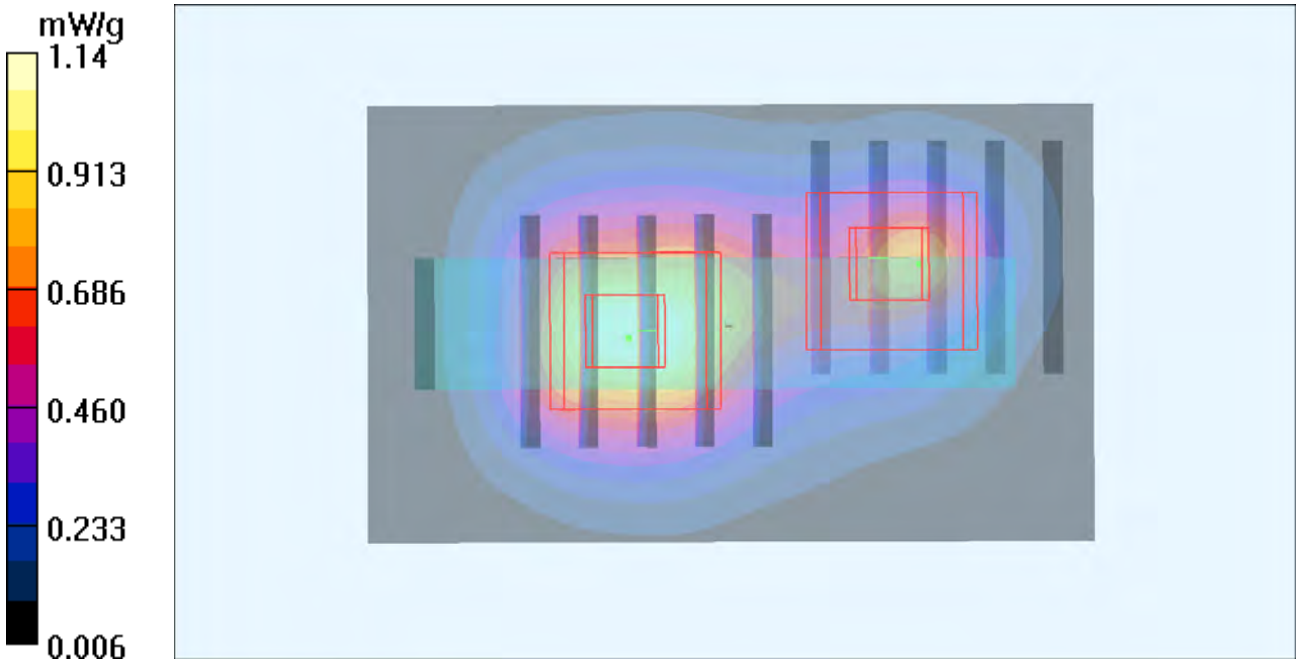
Communication System: Wimax_2.6GHz 5M; Frequency: 2593 MHz;Duty Cycle: 1:3.24
Medium: B2600_1226 Medium parameters used: f = 2593 MHz; σ = 2.26 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.17 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.7 V/m; Power Drift = -0.049 dB
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.795 mW/g; SAR(10 g) = 0.394 mW/g
Maximum value of SAR (measured) = 1.14 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.7 V/m; Power Drift = -0.049 dB
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 0.641 mW/g; SAR(10 g) = 0.281 mW/g
Maximum value of SAR (measured) = 0.957 mW/g



P48 802.16e_5M_QPSK1_2_Horizontal Down_0.5cm_Ch2_Ant2

DUT: 111215E04

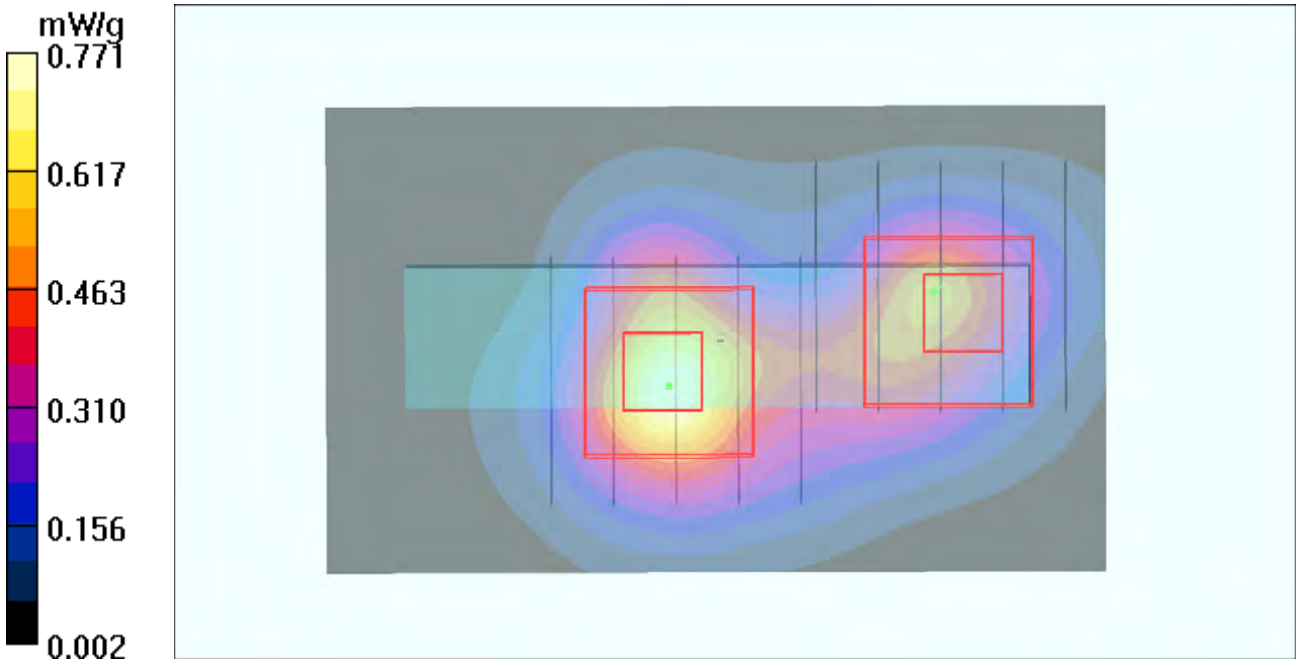
Communication System: Wimax_2.6GHz 5M; Frequency: 2687.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used : f = 2687.5 MHz; σ = 2.26 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.771 mW/g

Ch2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.4 V/m; Power Drift = -0.177 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.501 mW/g; SAR(10 g) = 0.243 mW/g
Maximum value of SAR (measured) = 0.722 mW/g

Ch2/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.4 V/m; Power Drift = -0.177 dB
Peak SAR (extrapolated) = 0.861 W/kg
SAR(1 g) = 0.370 mW/g; SAR(10 g) = 0.159 mW/g
Maximum value of SAR (measured) = 0.531 mW/g



P43 802.16e_5M_16QAM1_2_Horizontal Down_0.5cm_Ch1_Ant2

DUT: 111215E04

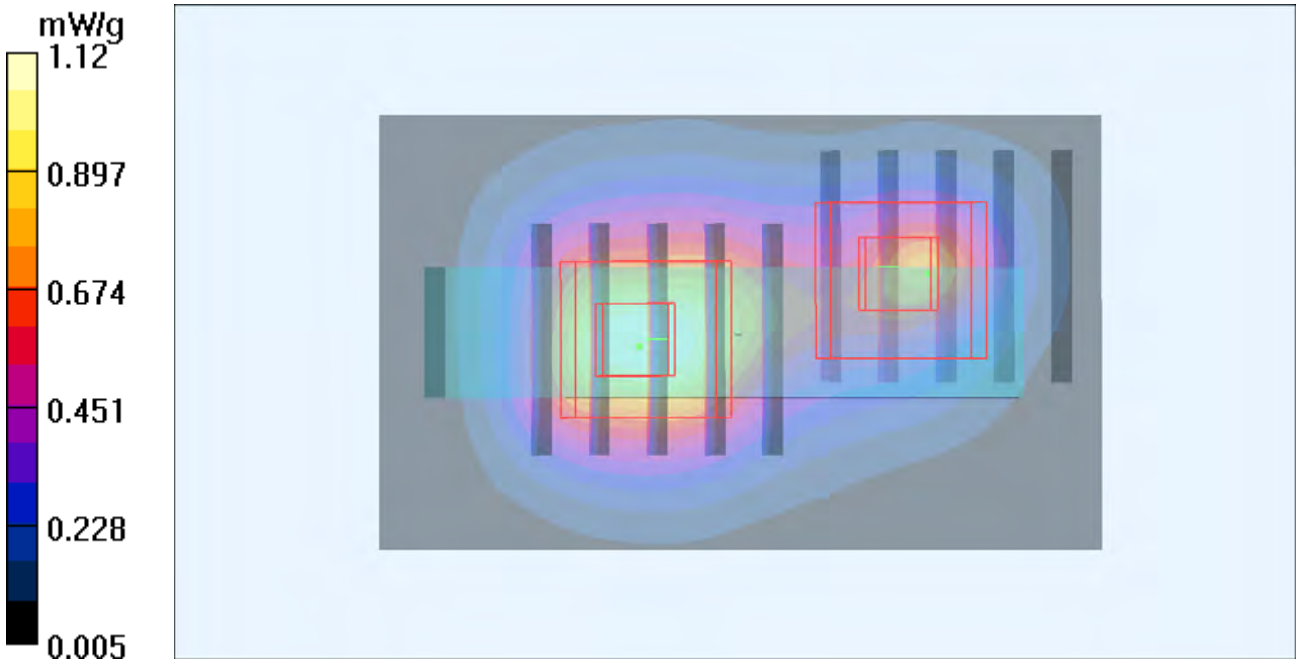
Communication System: Wimax_2.6GHz 5M; Frequency: 2593 MHz;Duty Cycle: 1:3.24
Medium: B2600_1226 Medium parameters used: f = 2593 MHz; σ = 2.26 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.15 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.6 V/m; Power Drift = -0.022 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 0.784 mW/g; SAR(10 g) = 0.389 mW/g
Maximum value of SAR (measured) = 1.12 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.6 V/m; Power Drift = -0.022 dB
Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 0.640 mW/g; SAR(10 g) = 0.280 mW/g
Maximum value of SAR (measured) = 0.963 mW/g



P11 802.16e_10M_QPSK1_2_Horizontal Up_0.5cm_Ch2_Ant1

DUT: 111215E04

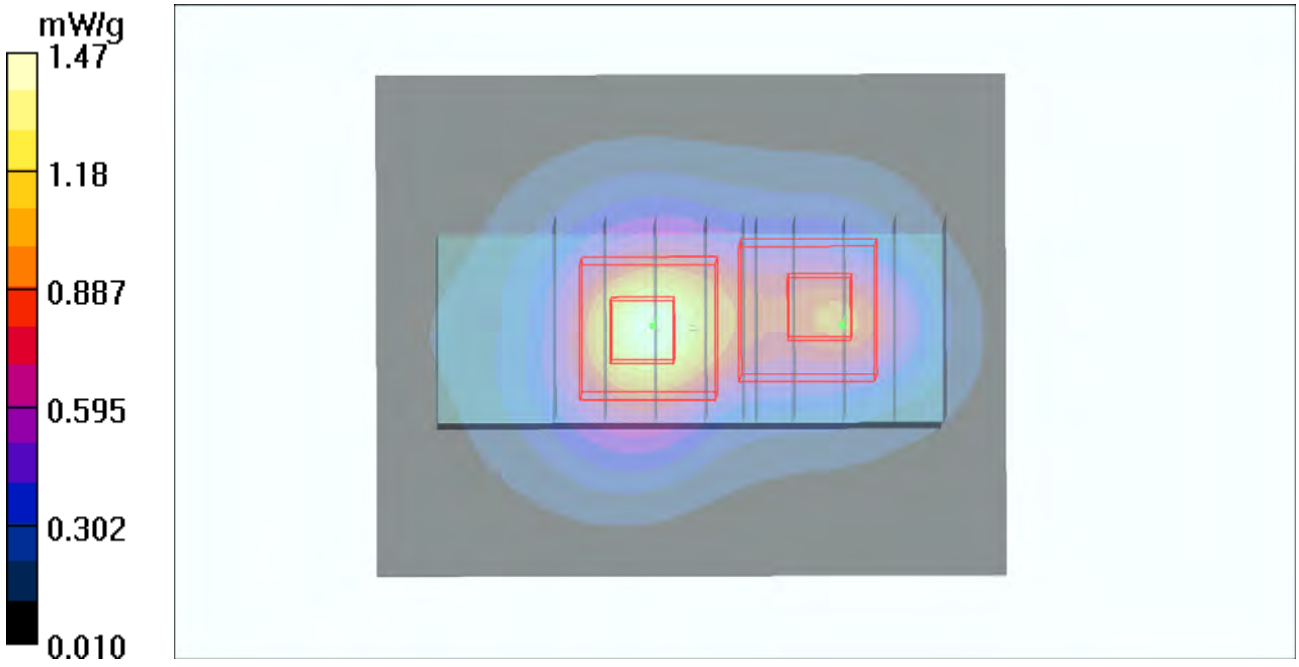
Communication System: Wimax_2.6GHz 10M; Frequency: 2685 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2685 MHz; σ = 2.25 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.47 mW/g

Ch2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.8 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.89 W/kg
SAR(1 g) = 0.941 mW/g; SAR(10 g) = 0.463 mW/g
Maximum value of SAR (measured) = 1.36 mW/g

Ch2/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.8 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.585 mW/g; SAR(10 g) = 0.294 mW/g
Maximum value of SAR (measured) = 0.860 mW/g



P12 802.16e_10M_QPSK1_2_Horizontal Down_0.5cm_Ch2_Ant1

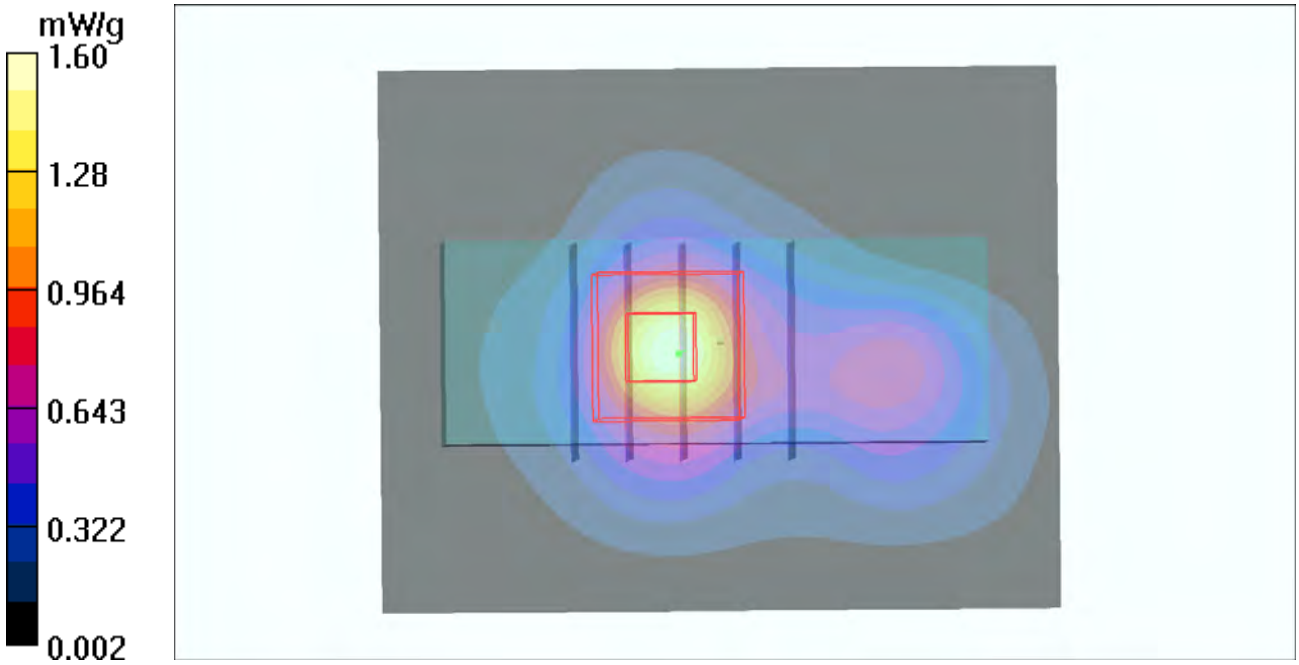
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2685 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2685 MHz; σ = 2.25 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.60 mW/g

Ch2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.3 V/m; Power Drift = -0.092 dB
Peak SAR (extrapolated) = 2.06 W/kg
SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.490 mW/g
Maximum value of SAR (measured) = 1.44 mW/g



P13 802.16e_10M_QPSK1_2_Vertical Front_0.5cm_Ch2_Ant1

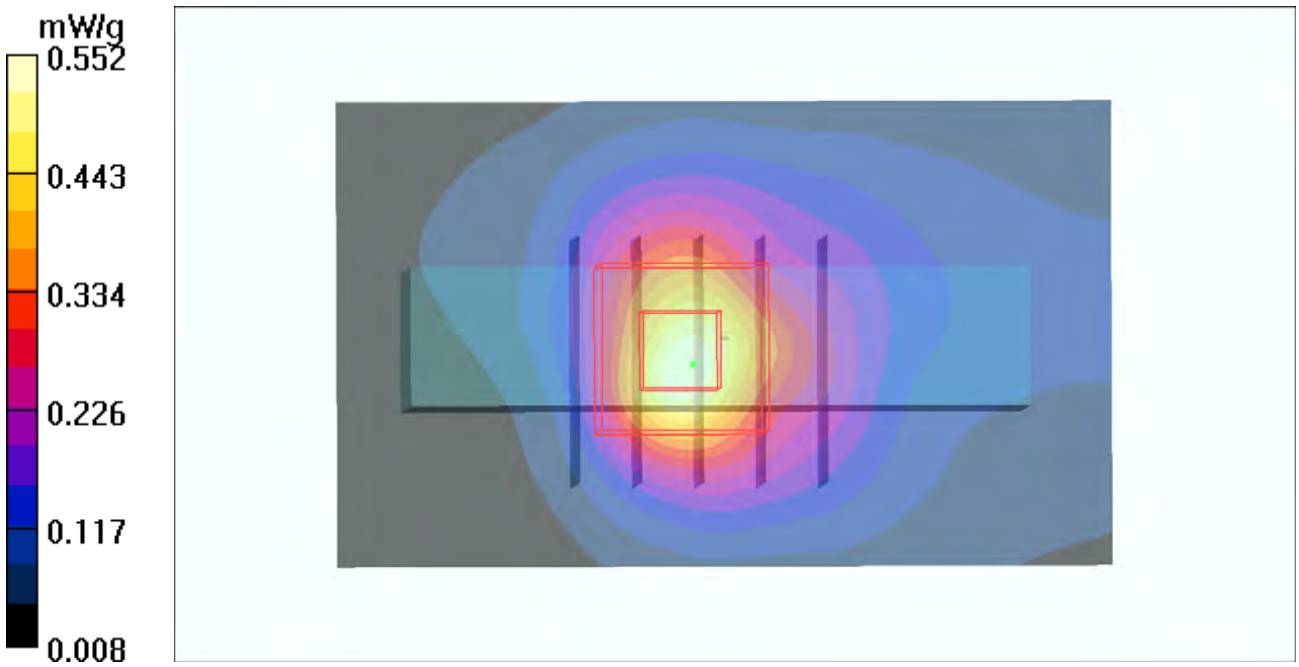
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2685 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2685 MHz; σ = 2.25 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.552 mW/g

Ch2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.8 V/m; Power Drift = -0.003 dB
Peak SAR (extrapolated) = 0.855 W/kg
SAR(1 g) = 0.401 mW/g; SAR(10 g) = 0.190 mW/g
Maximum value of SAR (measured) = 0.595 mW/g



P14 802.16e_10M_QPSK1_2_Vertical Back_0.5cm_Ch2_Ant1

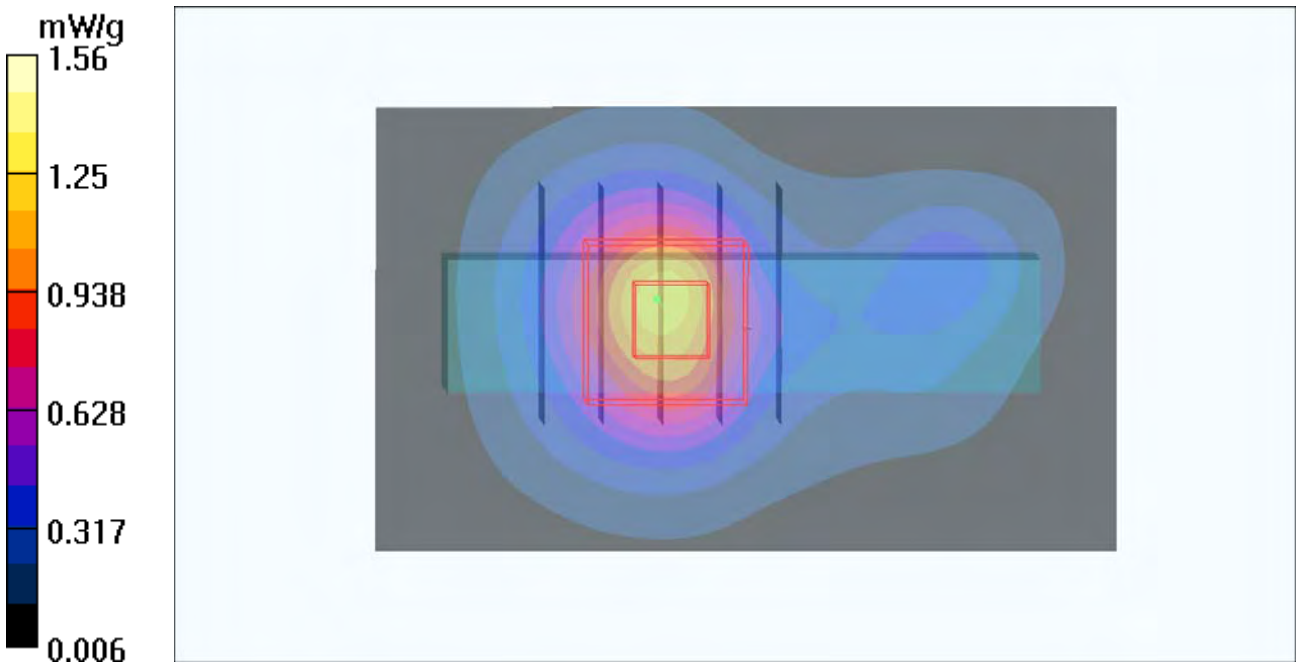
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2685 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2685 MHz; σ = 2.25 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.23 mW/g

Ch2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.2 V/m; Power Drift = -0.023 dB
Peak SAR (extrapolated) = 2.29 W/kg
SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.480 mW/g
Maximum value of SAR (measured) = 1.56 mW/g



P15 802.16e_10M_QPSK1_2_Tip Mode_0.5cm_Ch2_Ant1

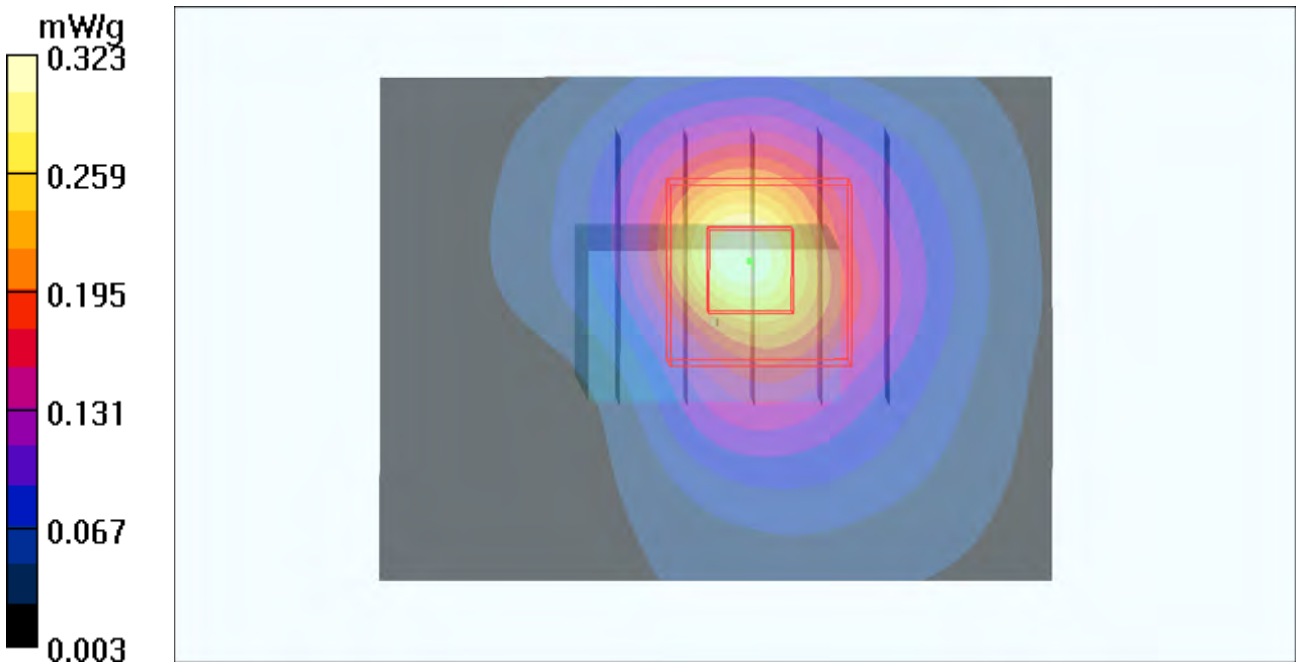
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2685 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2685 MHz; σ = 2.25 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2/Area Scan (31x41x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.323 mW/g

Ch2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.5 V/m; Power Drift = 0.043 dB
Peak SAR (extrapolated) = 0.476 W/kg
SAR(1 g) = 0.213 mW/g; SAR(10 g) = 0.098 mW/g
Maximum value of SAR (measured) = 0.331 mW/g



P55 802.16e_10M_QPSK1_2_Horizontal Up_0.5cm_Ch0_Ant1

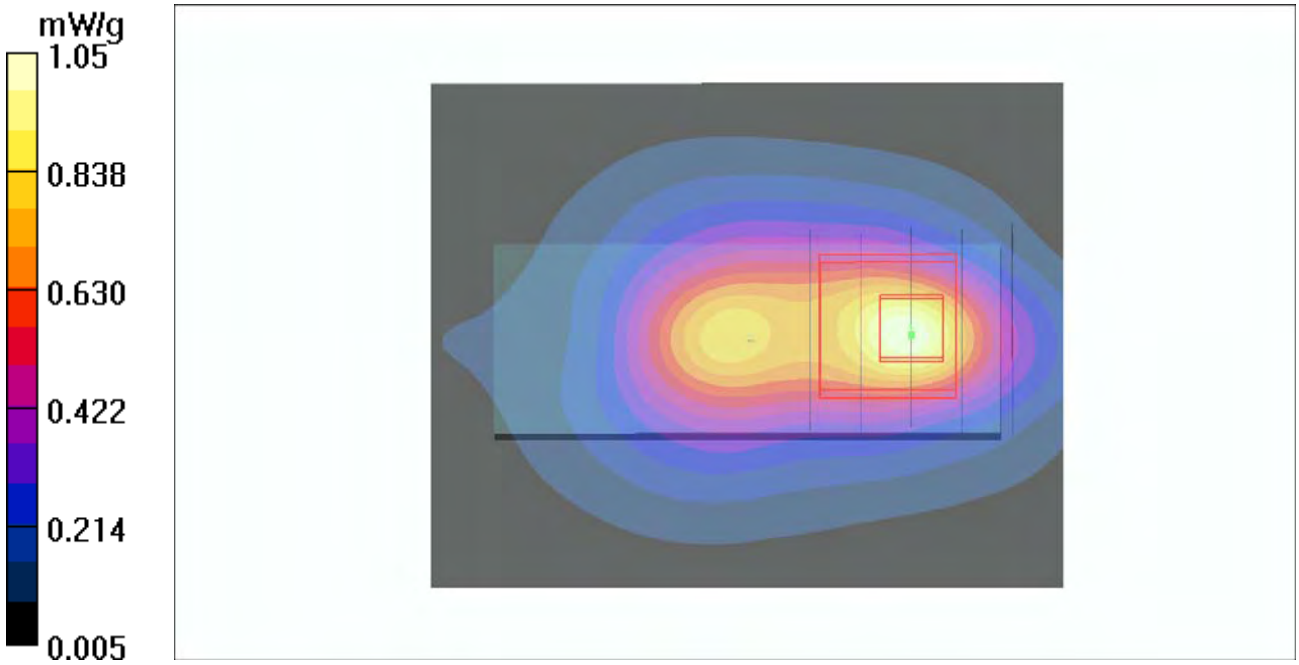
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2501 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2501 MHz; σ = 2.1 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- ; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch0/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.05 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.6 V/m; Power Drift = -0.070 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.632 mW/g; SAR(10 g) = 0.321 mW/g
Maximum value of SAR (measured) = 0.927 mW/g



P56 802.16e_10M_QPSK1_2_Horizontal Up_0.5cm_Ch1_Ant1

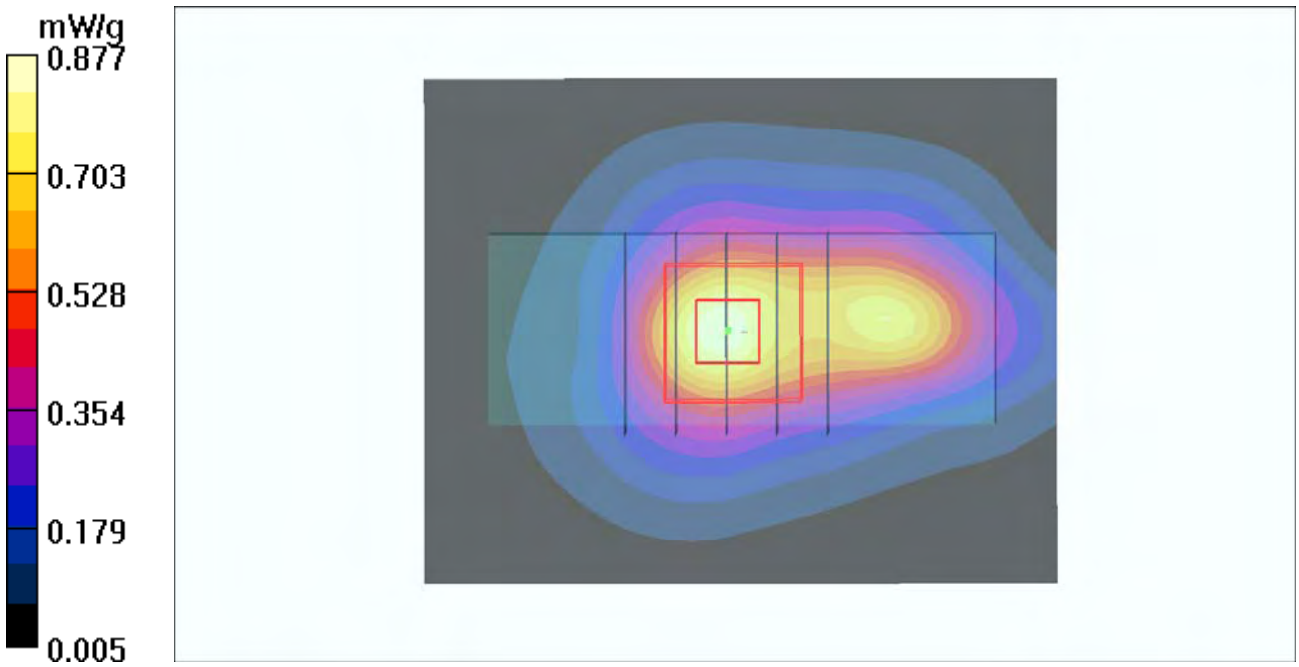
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2593 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2593 MHz; σ = 2.2 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.877 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.6 V/m; Power Drift = -0.143 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.569 mW/g; SAR(10 g) = 0.296 mW/g
Maximum value of SAR (measured) = 0.817 mW/g



P57 802.16e_10M_QPSK1_2_Horizontal Down_0.5cm_Ch0_Ant1

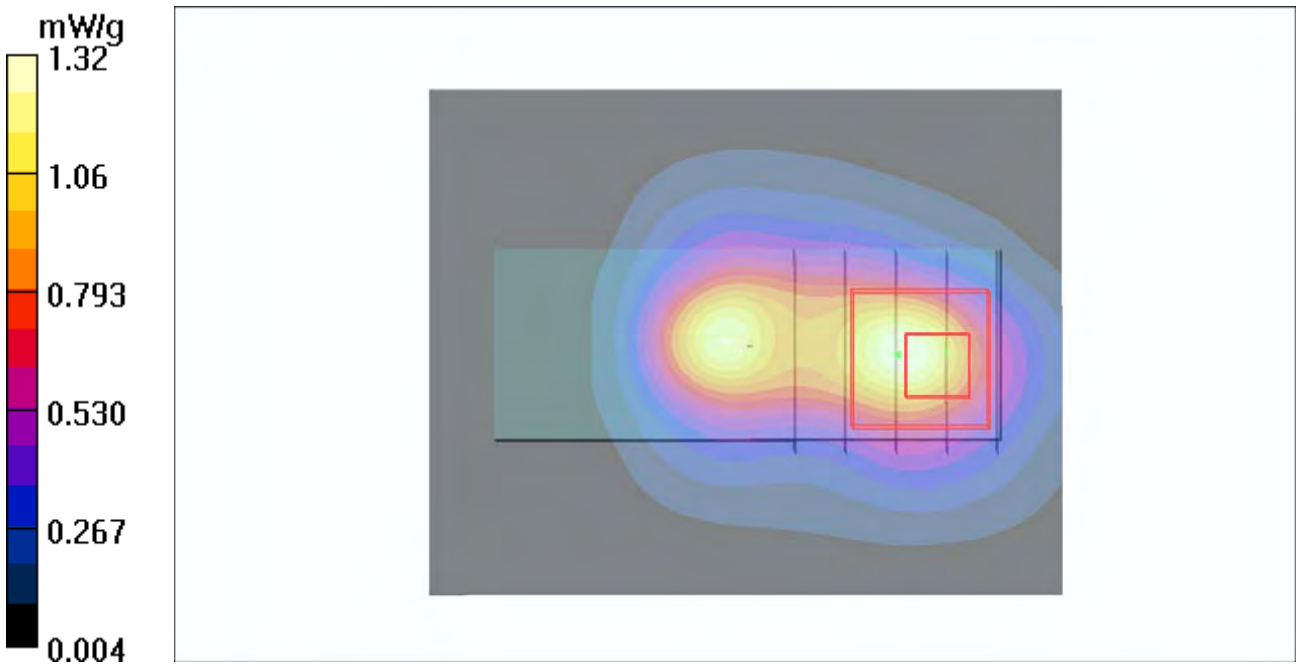
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2501 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2501 MHz; σ = 2.1 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch0/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.32 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.6 V/m; Power Drift = -0.024 dB
Peak SAR (extrapolated) = 1.69 W/kg
SAR(1 g) = 0.799 mW/g; SAR(10 g) = 0.385 mW/g
Maximum value of SAR (measured) = 1.19 mW/g



P58 802.16e_10M_QPSK1_2_Horizontal Down_0.5cm_Ch1_Ant1

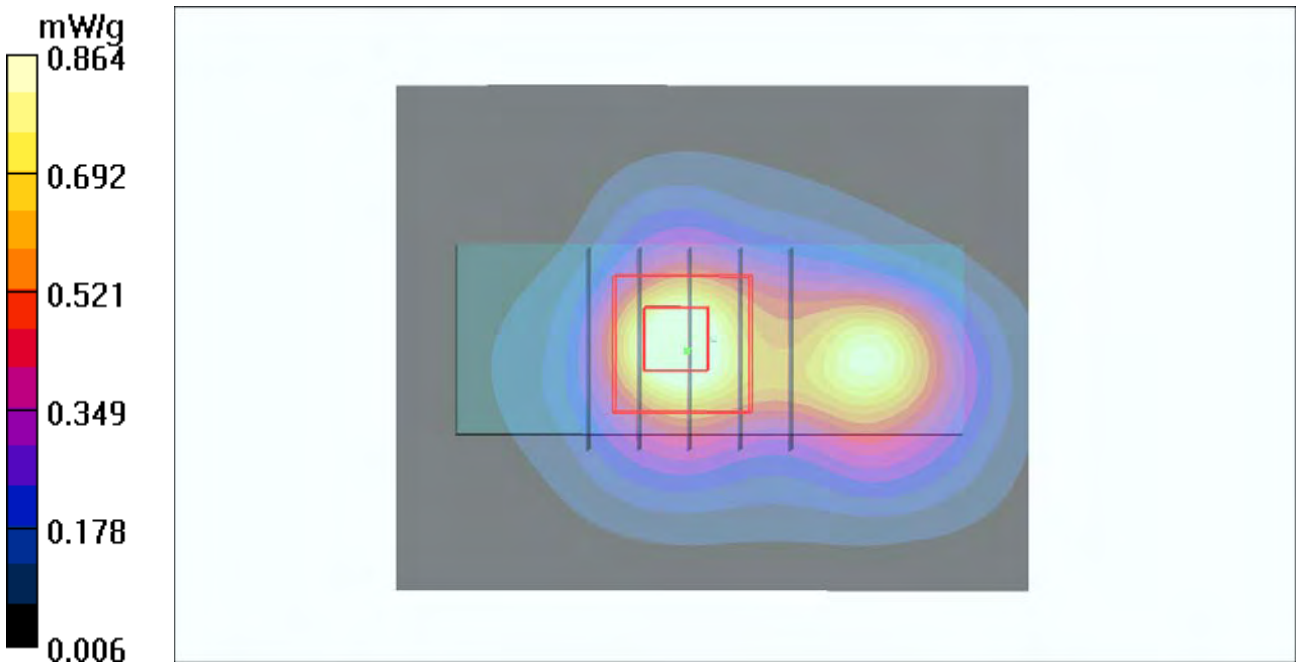
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2593 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2593 MHz; σ = 2.2 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (41x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.02 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.5 V/m; Power Drift = -0.068 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.618 mW/g; SAR(10 g) = 0.310 mW/g
Maximum value of SAR (measured) = 0.864 mW/g



P59 802.16e_10M_QPSK1_2_Vertical Back_0.5cm_Ch0_Ant1

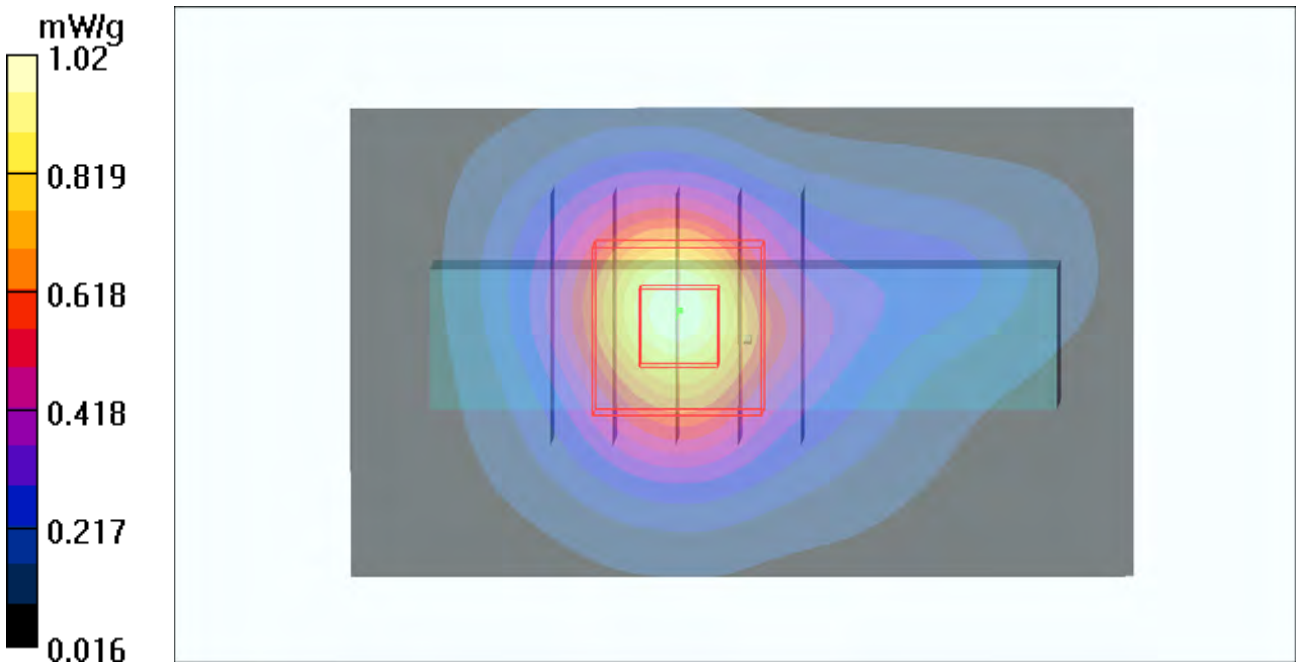
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2501 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2501 MHz; σ = 2.1 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch0/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.02 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.2 V/m; Power Drift = -0.004 dB
Peak SAR (extrapolated) = 1.68 W/kg
SAR(1 g) = 0.837 mW/g; SAR(10 g) = 0.402 mW/g
Maximum value of SAR (measured) = 1.21 mW/g



P60 802.16e_10M_QPSK1_2_Vertical Back_0.5cm_Ch1_Ant1

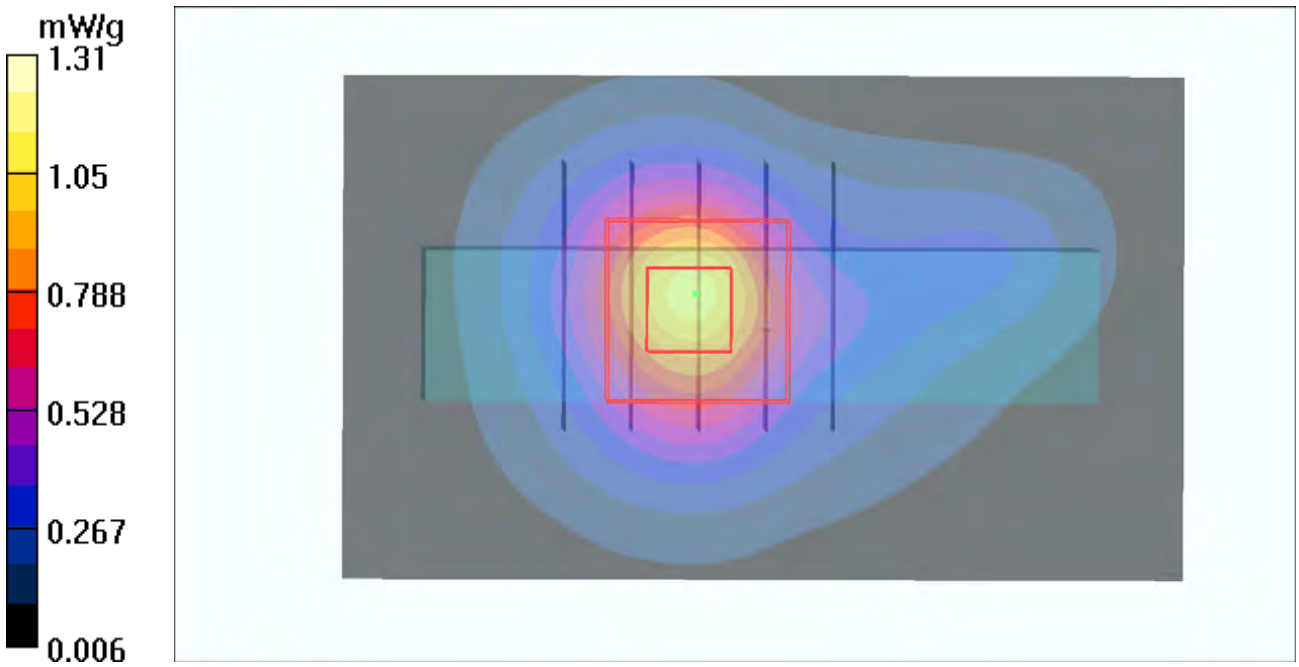
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2593 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2593 MHz; σ = 2.2 mho/m; ε_r = 51.1; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.10 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.1 V/m; Power Drift = 0.025 dB
Peak SAR (extrapolated) = 1.85 W/kg
SAR(1 g) = 0.892 mW/g; SAR(10 g) = 0.415 mW/g
Maximum value of SAR (measured) = 1.31 mW/g



P34 802.16e_10M_16QAM1_2_Vertical Back_0.5cm_Ch2685_Ant1

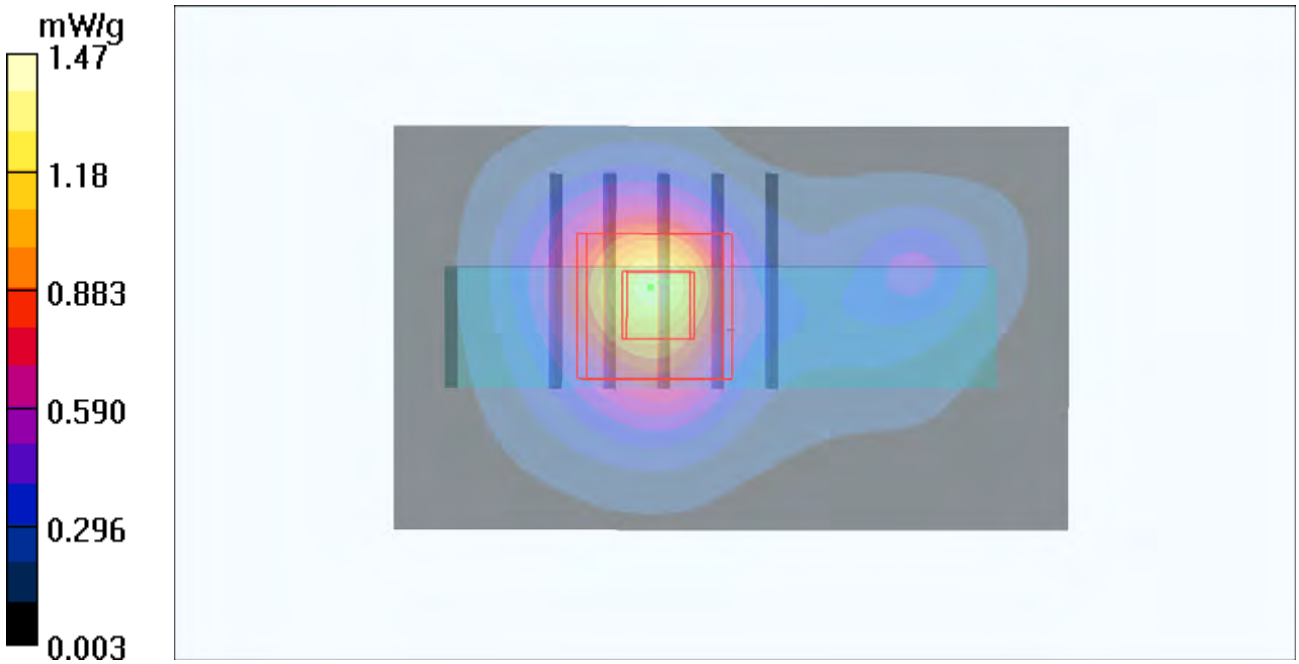
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2685 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2685 MHz; σ = 2.25 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY5 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2685/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.34 mW/g

Ch2685/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.1 V/m; Power Drift = -0.111 dB
Peak SAR (extrapolated) = 2.26 W/kg
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.474 mW/g
Maximum value of SAR (measured) = 1.47 mW/g



P16 802.16e_10M_QPSK1_2_Horizontal Up_0.5cm_Ch0_Ant2

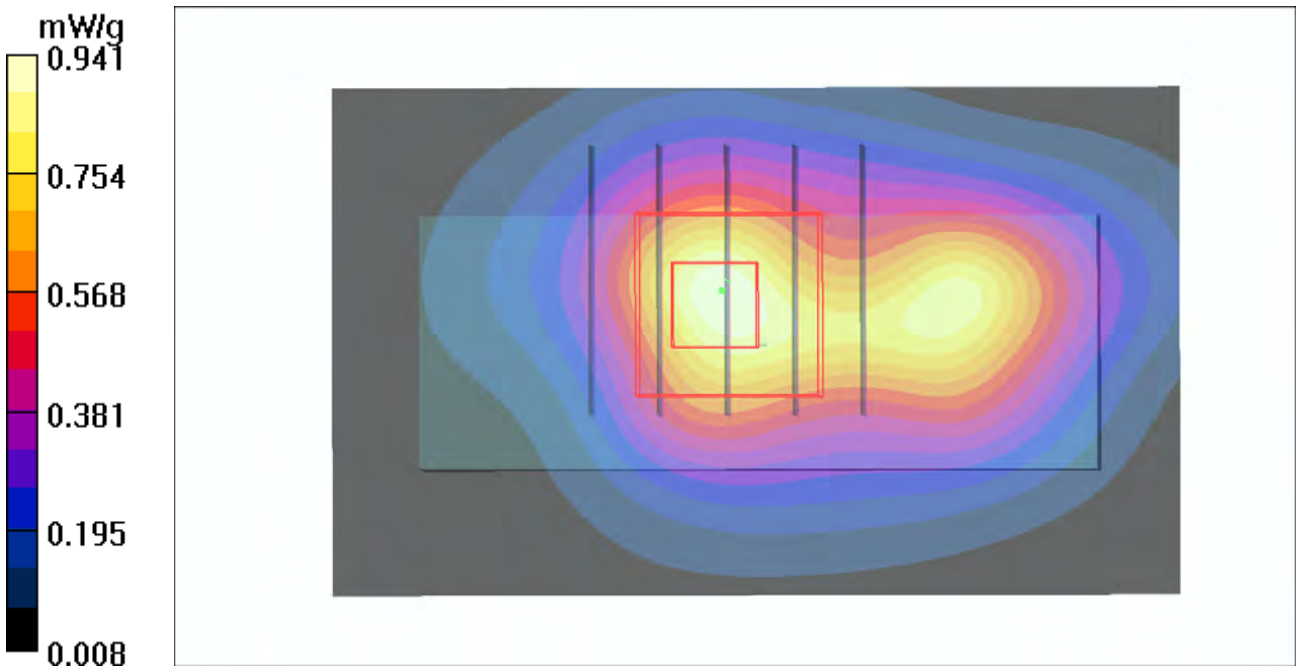
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2501 MHz;Duty Cycle: 1:3.24
Medium: B2600_1226 Medium parameters used: f = 2501 MHz; σ = 2.13 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Ambient Temperature：22.3 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch0/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.941 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.4 V/m; Power Drift = 0.069 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.612 mW/g; SAR(10 g) = 0.324 mW/g
Maximum value of SAR (measured) = 0.851 mW/g



P17 802.16e_10M_QPSK1_2_Horizontal Down_0.5cm_Ch0_Ant2

DUT: 111215E04

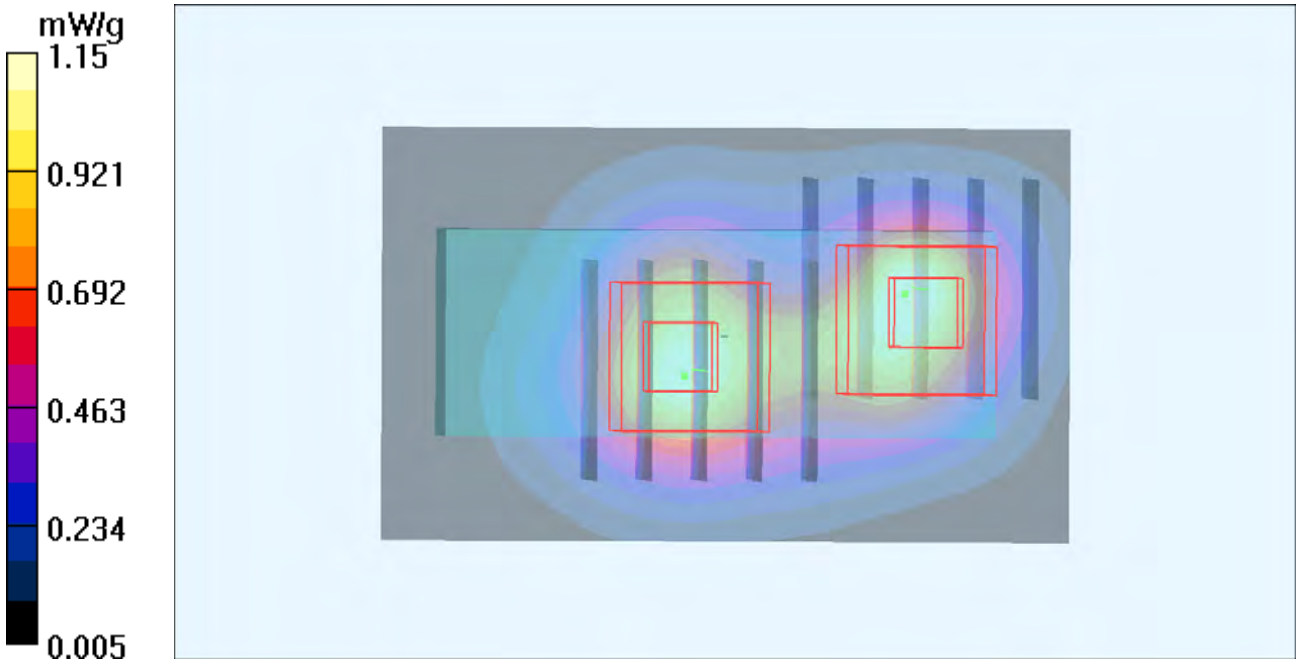
Communication System: Wimax_2.6GHz 10M; Frequency: 2501 MHz;Duty Cycle: 1:3.24
Medium: B2600_1226 Medium parameters used: f = 2501 MHz; σ = 2.13 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch0/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.21 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.1 V/m; Power Drift = -0.137 dB
Peak SAR (extrapolated) = 1.56 W/kg
SAR(1 g) = 0.816 mW/g; SAR(10 g) = 0.417 mW/g
Maximum value of SAR (measured) = 1.15 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.1 V/m; Power Drift = -0.137 dB
Peak SAR (extrapolated) = 1.73 W/kg
SAR(1 g) = 0.786 mW/g; SAR(10 g) = 0.359 mW/g
Maximum value of SAR (measured) = 1.14 mW/g



P18 802.16e_10M_QPSK1_2_Vertical Front_0.5cm_Ch0_Ant2

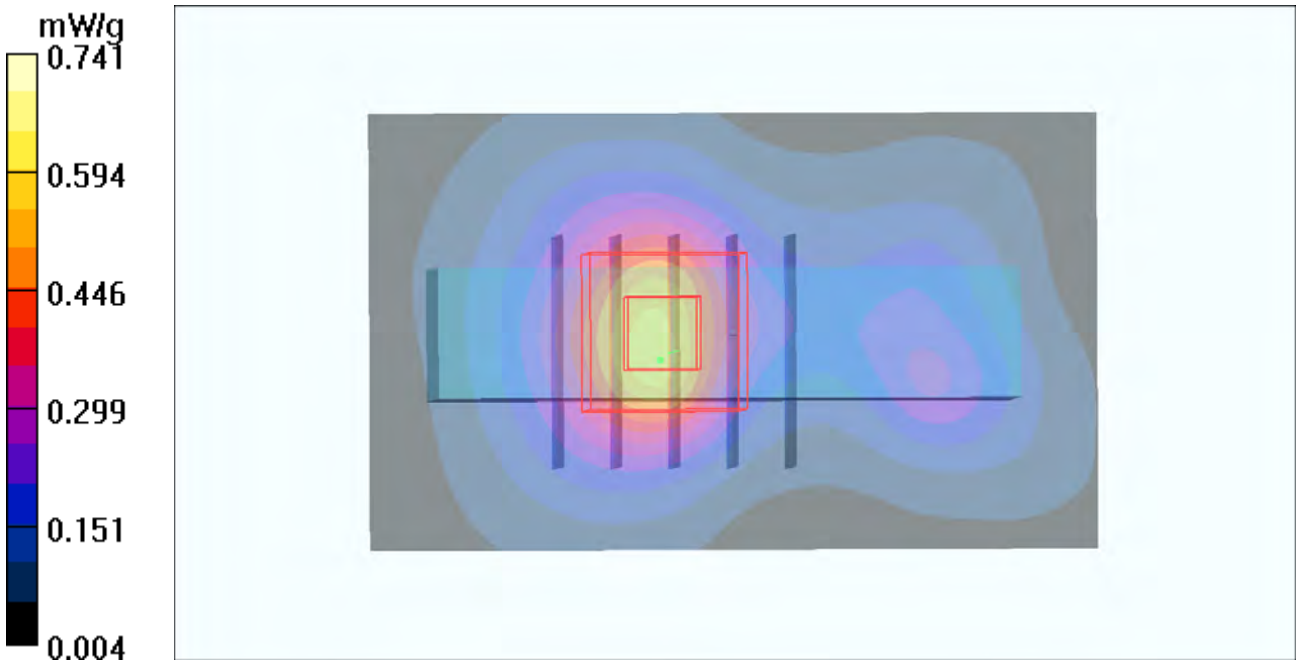
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2501 MHz;Duty Cycle: 1:3.24
Medium: B2600_1226 Medium parameters used: f = 2501 MHz; σ = 2.13 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃； Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch0/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.578 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.3 V/m; Power Drift = 0.007 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.512 mW/g; SAR(10 g) = 0.247 mW/g
Maximum value of SAR (measured) = 0.741 mW/g



P19 802.16e_10M_QPSK1_2_Vertical Back_0.5cm_Ch0_Ant2

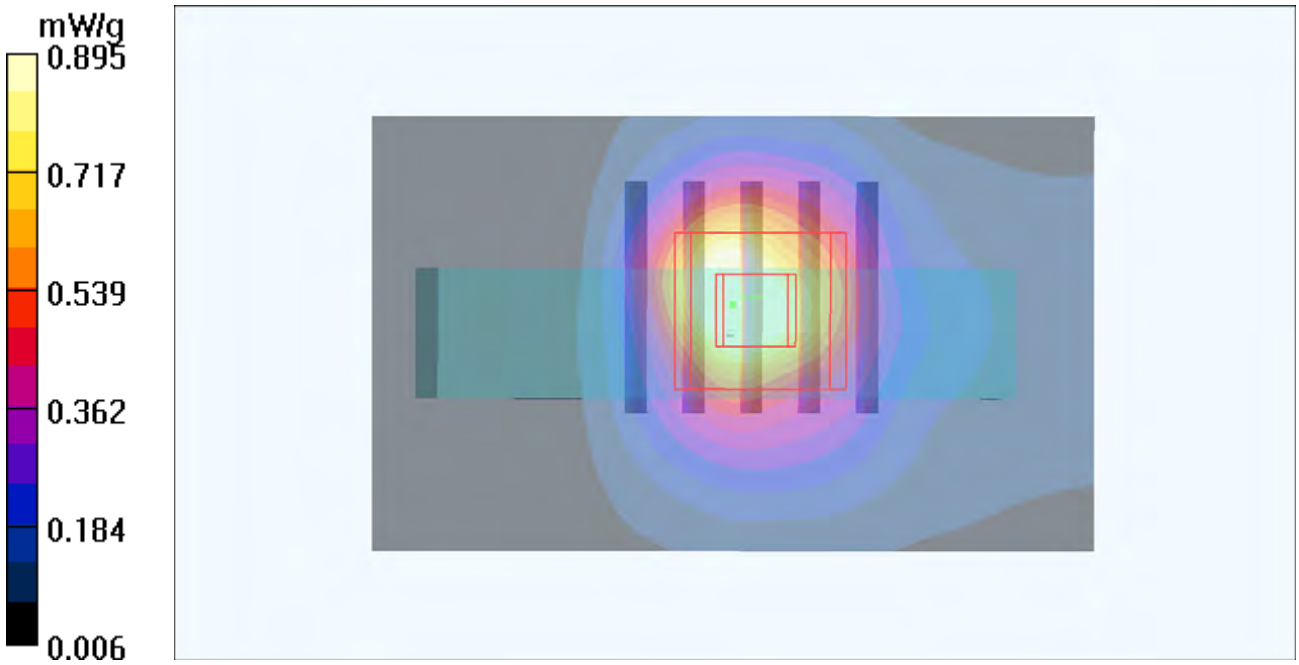
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2501 MHz;Duty Cycle: 1:3.24
Medium: B2600_1226 Medium parameters used: f = 2501 MHz; σ = 2.13 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch0/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.04 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.3 V/m; Power Drift = -0.056 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.616 mW/g; SAR(10 g) = 0.307 mW/g
Maximum value of SAR (measured) = 0.895 mW/g



P20 802.16e_10M_QPSK1_2_Tip Mode_0.5cm_Ch0_Ant2

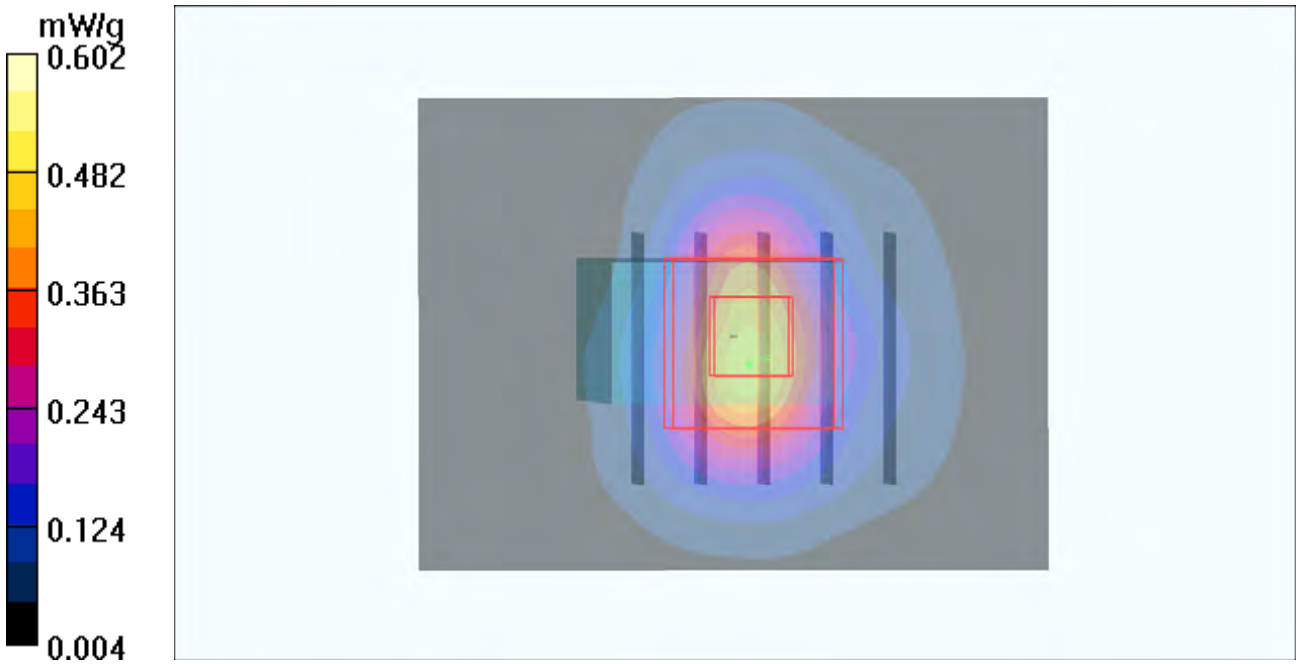
DUT: 111215E04

Communication System: Wimax_2.6GHz 10M; Frequency: 2501 MHz;Duty Cycle: 1:3.24
Medium: B2600_1226 Medium parameters used: f = 2501 MHz; σ = 2.13 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch0/Area Scan (31x41x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.477 mW/g

Ch0/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.0 V/m; Power Drift = -0.071 dB
Peak SAR (extrapolated) = 0.883 W/kg
SAR(1 g) = 0.406 mW/g; SAR(10 g) = 0.181 mW/g
Maximum value of SAR (measured) = 0.602 mW/g



P45 802.16e_10M_QPSK1_2_Horizontal Down_0.5cm_Ch1_Ant2

DUT: 111215E04

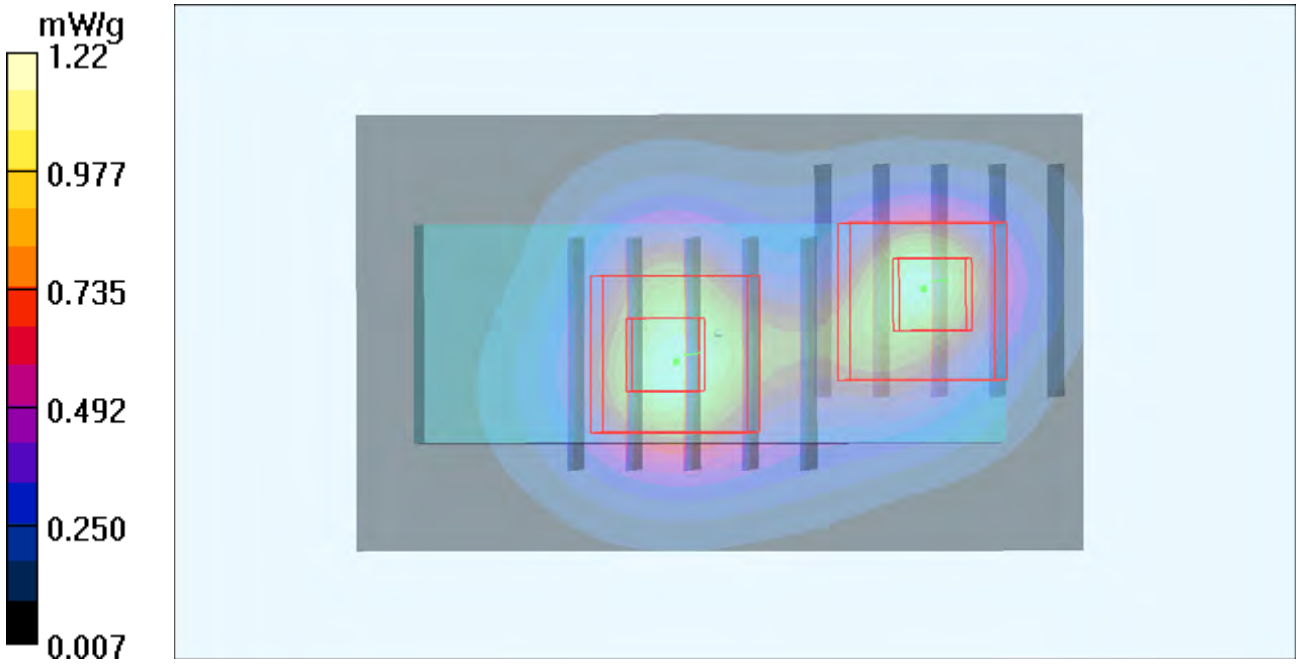
Communication System: Wimax_2.6GHz 10M; Frequency: 2593 MHz;Duty Cycle: 1:3.24
Medium: B2600_1226 Medium parameters used: f = 2593 MHz; σ = 2.26 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.23 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.4 V/m; Power Drift = -0.101 dB
Peak SAR (extrapolated) = 1.69 W/kg
SAR(1 g) = 0.856 mW/g; SAR(10 g) = 0.422 mW/g
Maximum value of SAR (measured) = 1.22 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.4 V/m; Power Drift = -0.101 dB
Peak SAR (extrapolated) = 1.60 W/kg
SAR(1 g) = 0.689 mW/g; SAR(10 g) = 0.303 mW/g
Maximum value of SAR (measured) = 1.09 mW/g



P46 802.16e_10M_QPSK1_2_Horizontal Down_0.5cm_Ch2_Ant2

DUT: 111215E04

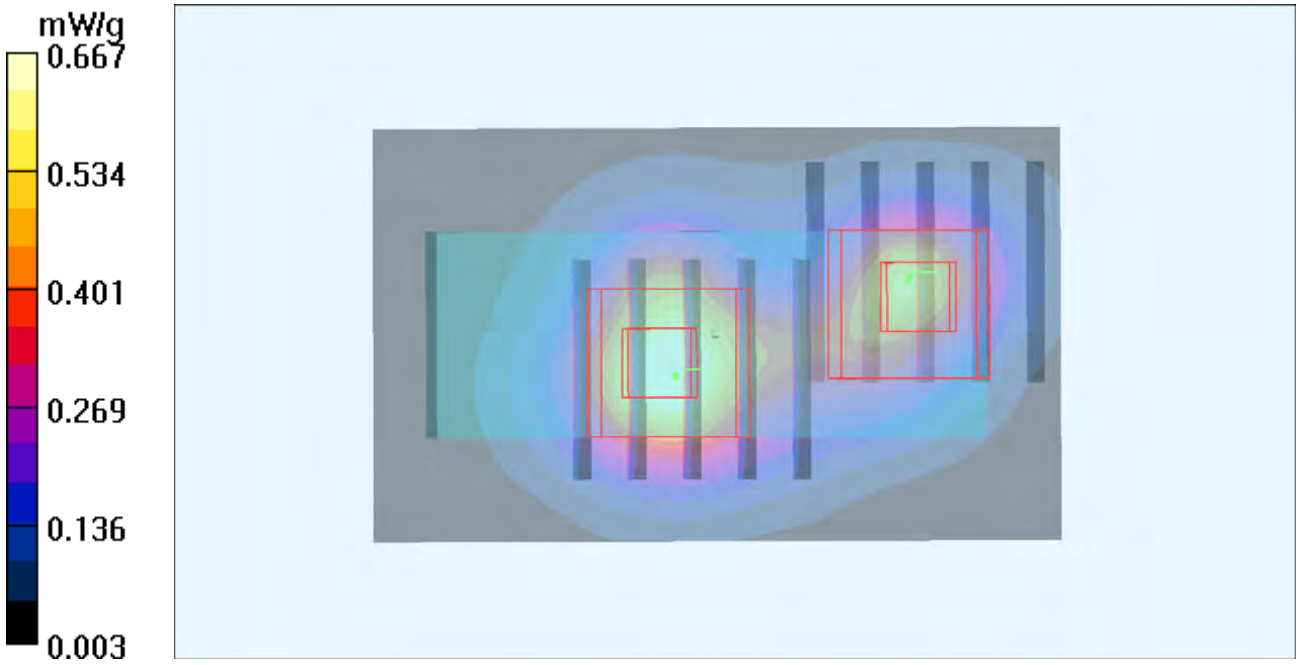
Communication System: Wimax_2.6GHz 10M; Frequency: 2685 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used: f = 2685 MHz; σ = 2.25 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.5 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.726 mW/g

Ch2/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.6 V/m; Power Drift = -0.103 dB
Peak SAR (extrapolated) = 0.963 W/kg
SAR(1 g) = 0.471 mW/g; SAR(10 g) = 0.227 mW/g
Maximum value of SAR (measured) = 0.667 mW/g

Ch2/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.6 V/m; Power Drift = -0.103 dB
Peak SAR (extrapolated) = 0.776 W/kg
SAR(1 g) = 0.335 mW/g; SAR(10 g) = 0.147 mW/g
Maximum value of SAR (measured) = 0.500 mW/g



P41 802.16e_10M_16OAM1_2_Horizontal Down_0.5cm_Ch1_Ant2

DUT: 111215E04

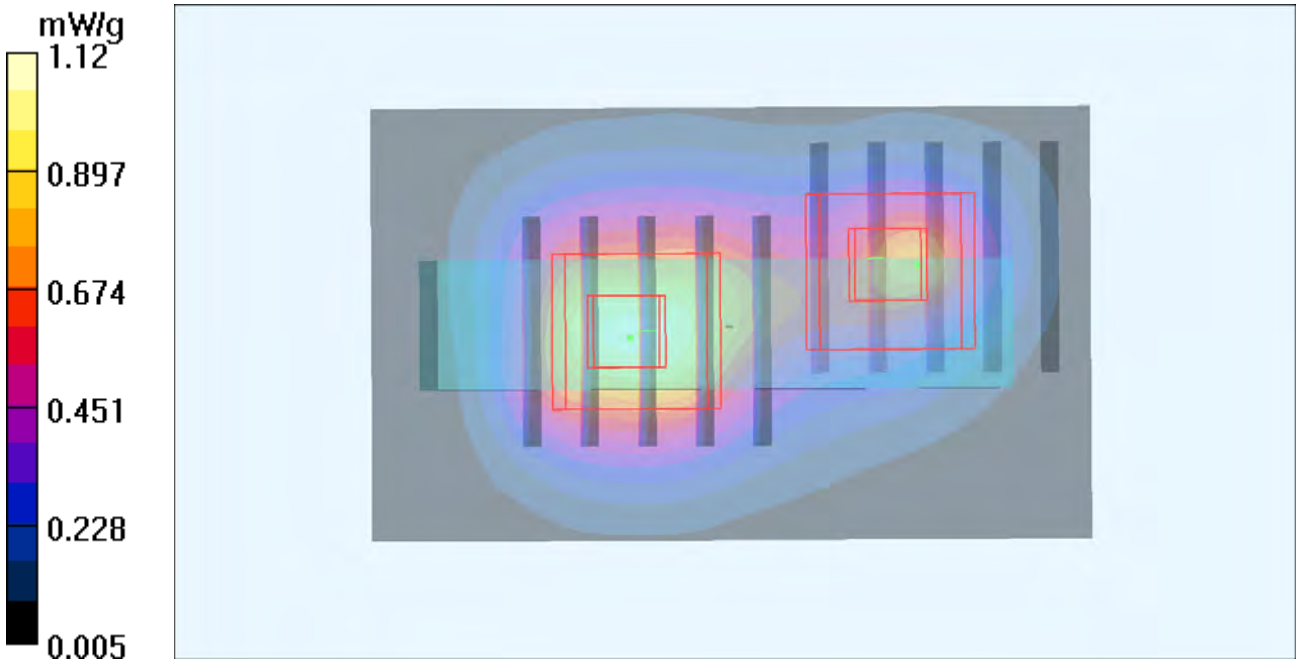
Communication System: Wimax_2.6GHz 10M; Frequency: 2593 MHz;Duty Cycle: 1:3.24
Medium: B2600_1226 Medium parameters used: f = 2593 MHz; σ = 2.26 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Ambient Temperature：22.4 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch1/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.09 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.5 V/m; Power Drift = -0.099 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 0.782 mW/g; SAR(10 g) = 0.388 mW/g
Maximum value of SAR (measured) = 1.12 mW/g

Ch1/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.5 V/m; Power Drift = -0.099 dB
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 0.639 mW/g; SAR(10 g) = 0.279 mW/g
Maximum value of SAR (measured) = 0.963 mW/g



P73 802.16e_5M_QPSK1_2_Vertical Back_0.5cm_Ch2_Ant1

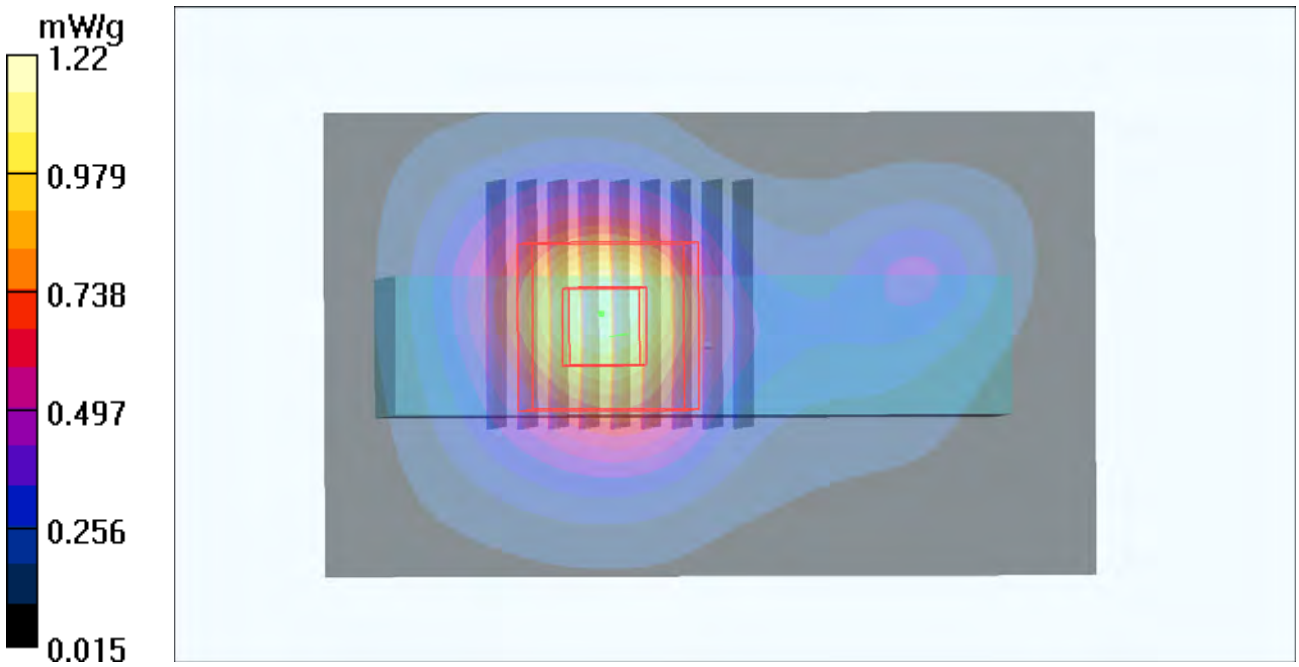
DUT: 111215E04

Communication System: Wimax_2.6GHz 5M; Frequency: 2687.5 MHz;Duty Cycle: 1:3.24
Medium: B2600_1227 Medium parameters used : f = 2687.5 MHz; σ = 2.26 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Ambient Temperature：22.3 ℃; Liquid Temperature：21.4 ℃

DASY4 Configuration:
- Probe: EX3DV4 - SN3650; ConvF(6.79, 6.79, 6.79); Calibrated: 2011/10/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2011/09/23
- Phantom: SAM Phantom_Left; Type: SAM V4.0; Serial: TP 1652
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Ch2/Area Scan (31x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 1.22 mW/g

Ch2/Zoom Scan (9x9x13)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 18.6 V/m; Power Drift = -0.050 dB
Peak SAR (extrapolated) = 2.18 W/kg
SAR(1 g) = 0.993 mW/g; SAR(10 g) = 0.451 mW/g
Maximum value of SAR (measured) = 1.53 mW/g



Appendix C. Calibration Certificate for Probe and Dipole

The SPEAG 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 B.V. ADT (Auden)

Certificate No: EX3-3650_Oct11

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3650

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: October 26, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

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

Issued: October 27, 2011

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

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:3650

Manufactured: March 18, 2008
Calibrated: October 26, 2011

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3650

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.36	0.37	0.46	± 10.1 %
DCP (mV)[B]	98.5	94.0	98.2	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	94.9	±2.5 %
			Y	0.00	0.00	1.00	90.7	
			Z	0.00	0.00	1.00	114.0	

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:3650

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)
750	41.9	0.89	9.20	9.20	9.20	0.79	0.69	± 12.0 %
835	41.5	0.90	8.87	8.87	8.87	0.79	0.69	± 12.0 %
1450	40.5	1.20	8.32	8.32	8.32	0.79	0.65	± 12.0 %
1750	40.1	1.37	7.92	7.92	7.92	0.70	0.63	± 12.0 %
1950	40.0	1.40	7.40	7.40	7.40	0.79	0.54	± 12.0 %
2450	39.2	1.80	6.80	6.80	6.80	0.59	0.62	± 12.0 %
2600	39.0	1.96	6.68	6.68	6.68	0.50	0.74	± 12.0 %
5200	36.0	4.66	5.05	5.05	5.05	0.35	1.80	± 13.1 %
5300	35.9	4.76	4.71	4.71	4.71	0.40	1.80	± 13.1 %
5500	35.6	4.96	4.56	4.56	4.56	0.45	1.80	± 13.1 %
5600	35.5	5.07	4.42	4.42	4.42	0.45	1.80	± 13.1 %
5800	35.3	5.27	4.30	4.30	4.30	0.50	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.

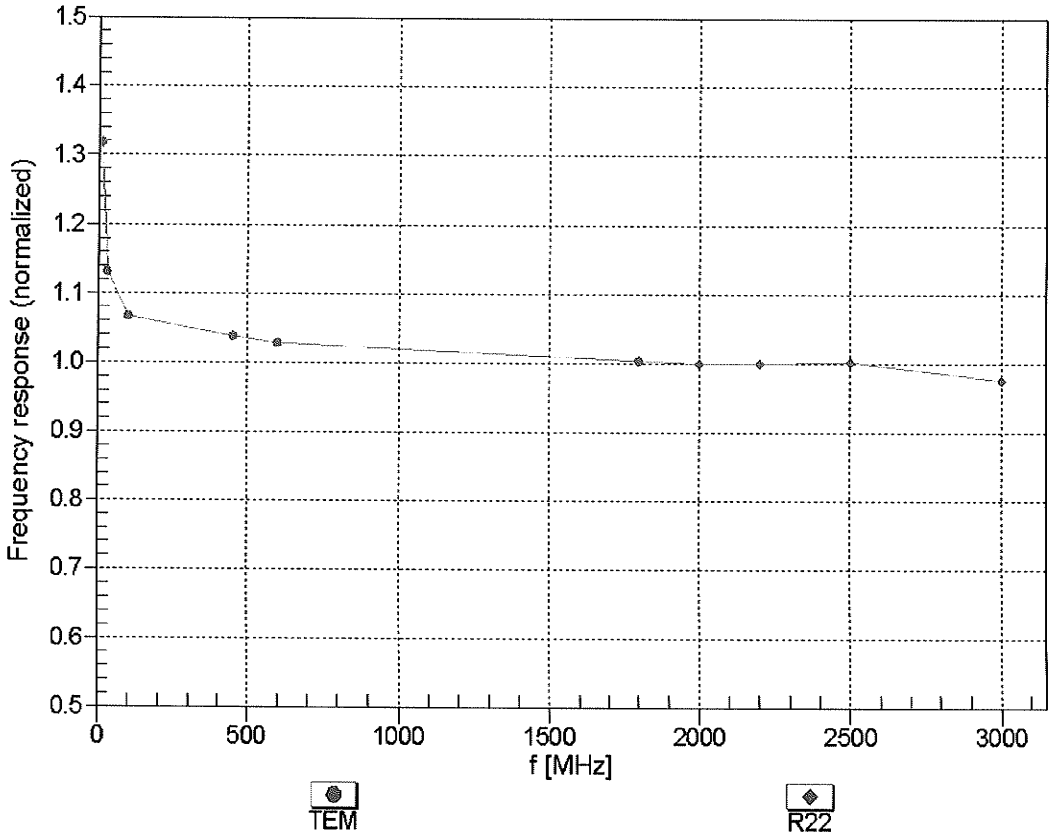
DASY/EASY - Parameters of Probe: EX3DV4 - SN:3650

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)
750	55.5	0.96	9.21	9.21	9.21	0.78	0.69	± 12.0 %
835	55.2	0.97	9.12	9.12	9.12	0.79	0.67	± 12.0 %
1450	54.0	1.30	8.09	8.09	8.09	0.79	0.63	± 12.0 %
1750	53.4	1.49	7.49	7.49	7.49	0.79	0.64	± 12.0 %
1950	53.3	1.52	7.46	7.46	7.46	0.79	0.65	± 12.0 %
2450	52.7	1.95	6.89	6.89	6.89	0.79	0.60	± 12.0 %
2600	52.5	2.16	6.79	6.79	6.79	0.72	0.58	± 12.0 %
5200	49.0	5.30	4.28	4.28	4.28	0.50	1.95	± 13.1 %
5300	48.9	5.42	4.11	4.11	4.11	0.50	1.95	± 13.1 %
5500	48.6	5.65	3.73	3.73	3.73	0.60	1.95	± 13.1 %
5600	48.5	5.77	3.57	3.57	3.57	0.60	1.95	± 13.1 %
5800	48.2	6.00	3.81	3.81	3.81	0.60	1.95	± 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.

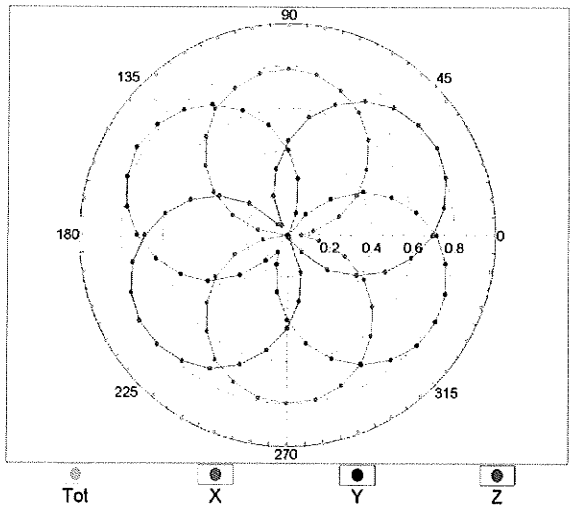
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



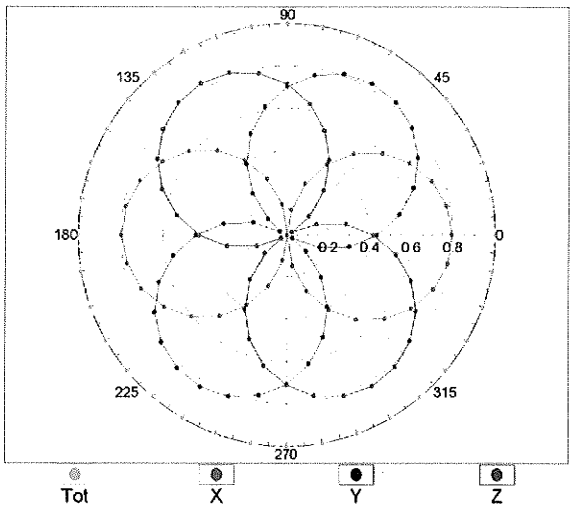
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

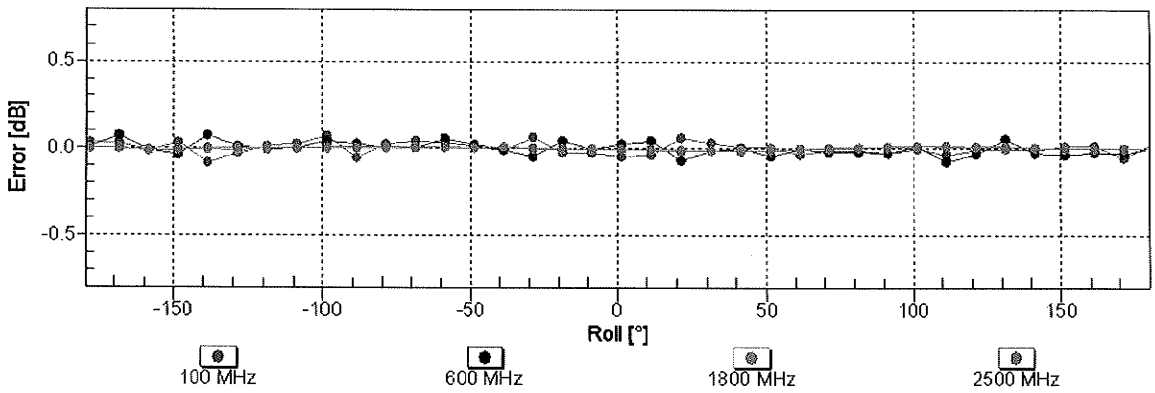
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



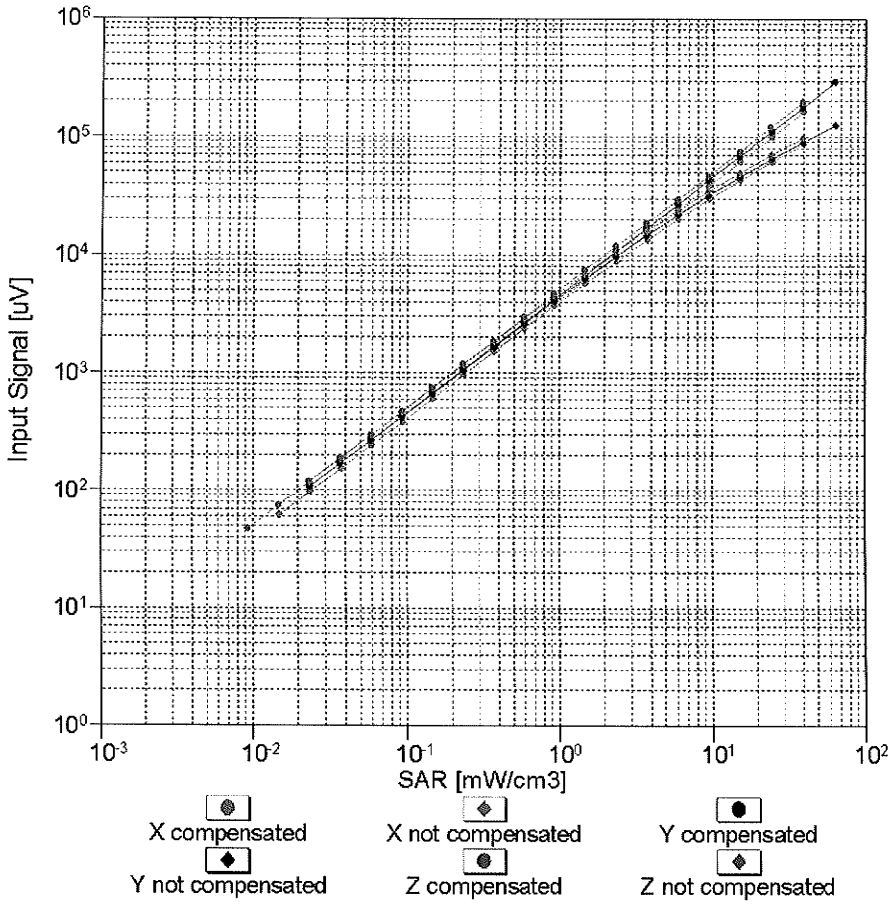
f=1800 MHz,R22

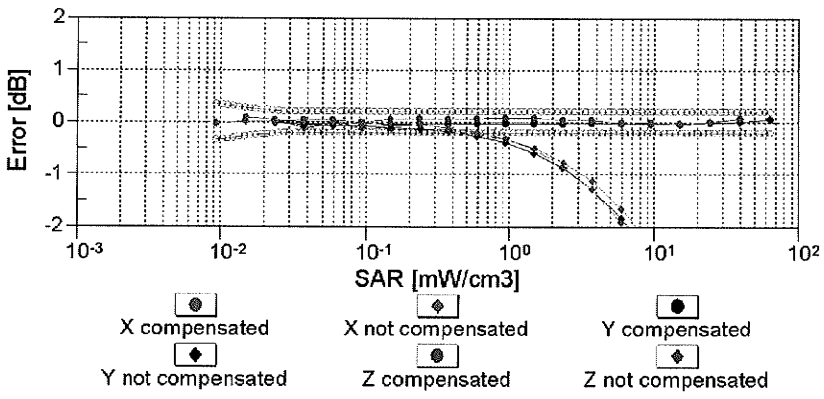




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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

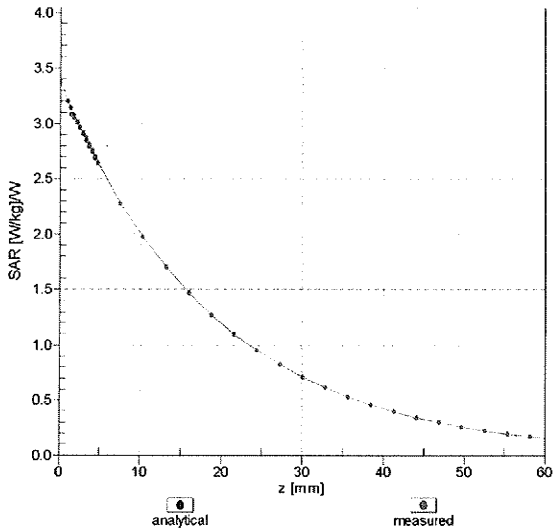




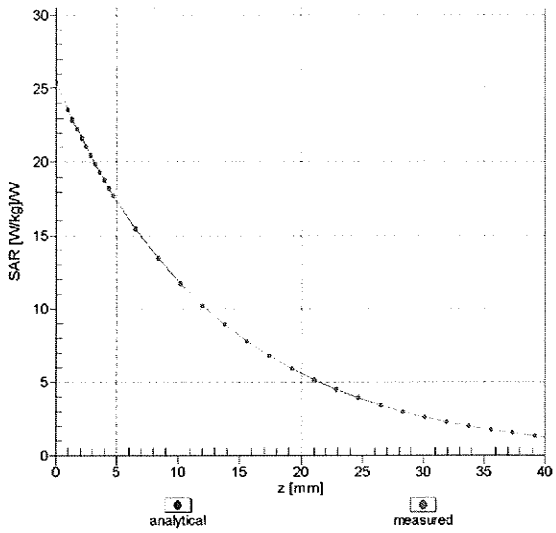
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

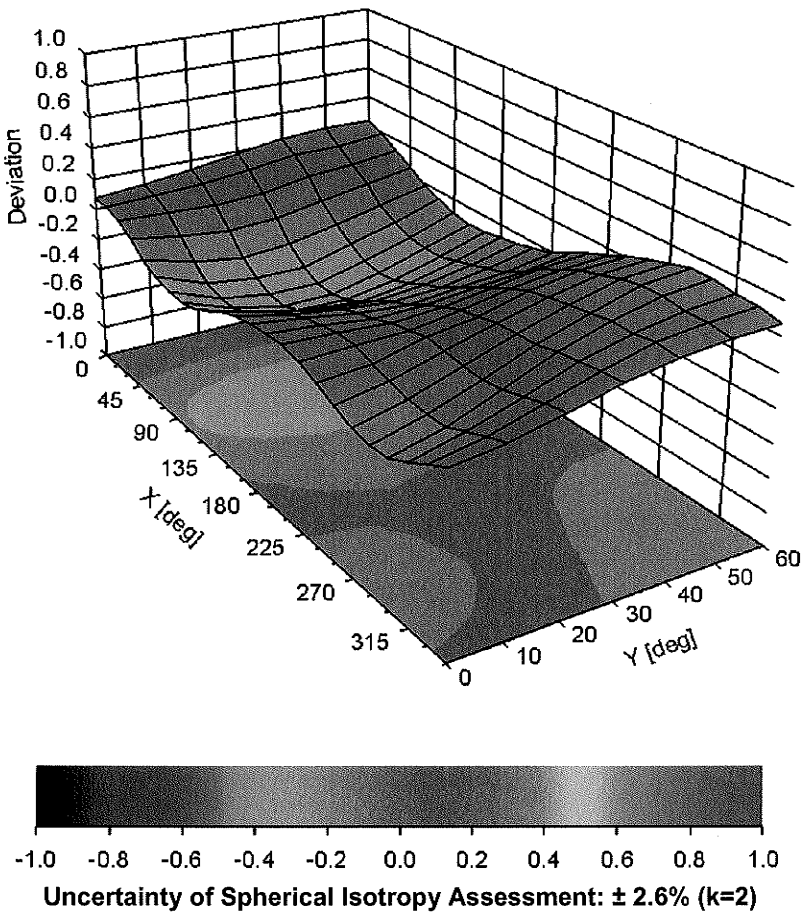


f = 1750 MHz,WGLS R22 (H_convF)



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:3650

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip 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

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

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Accredited by the Swiss Accreditation Service (SAS)
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Accreditation No.: SCS 108

Client **B.V. ADT (Auden)**

Certificate No: D2600V2_1003_Jan11

CALIBRATION CERTIFICATE

Object	D2600V2 - SN: 1003
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits
Calibration date:	January 27, 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-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

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

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

Issued: January 27, 2011

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**

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
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2600 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.0	1.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.9 ± 6 %	2.03 mho/m ± 6 %
Head TSL temperature during test	(21.5 ± 0.2) °C	-------	-------

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	15.0 mW / g
SAR normalized	normalized to 1W	60.0 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**58.9 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.57 mW / g
SAR normalized	normalized to 1W	26.3 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**26.1 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	52.5	2.16 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.3 ± 6 %	2.10 mho/m ± 6 %
Body TSL temperature during test	(20.8 ± 0.2) °C	-------	------

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	condition	
SAR measured	250 mW input power	14.4 mW / g
SAR normalized	normalized to 1W	57.6 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**58.1 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.41 mW / g
SAR normalized	normalized to 1W	25.6 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**25.7 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.5 Ω - 0.4 jΩ
Return Loss	- 44.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.2 Ω + 0.0 jΩ
Return Loss	- 28.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.147 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	December 23, 2006

DASY5 Validation Report for Head TSL

Date/Time: 27.01.2011 15:40:46

Test Laboratory: SPEAG, Zurich, Switzerland

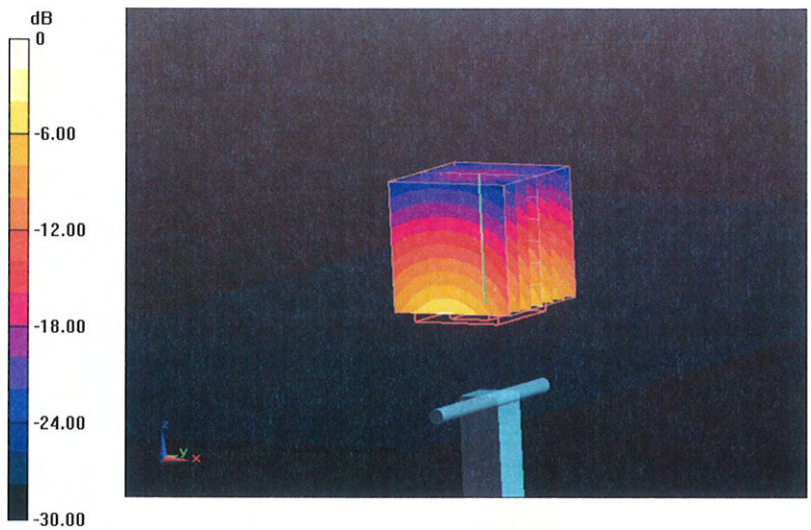
DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1003

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: HSL BB1.9
Medium parameters used: f = 2600 MHz; σ = 2.04 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

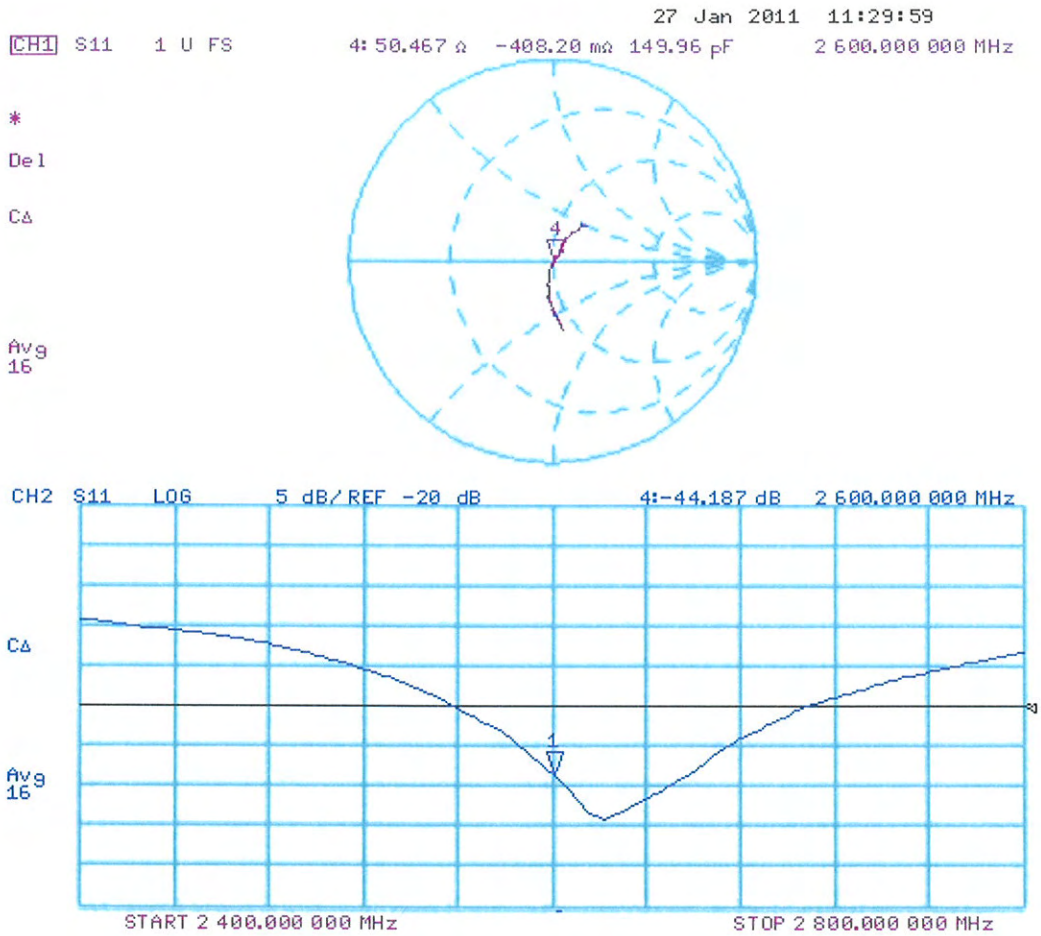
- Probe: ES3DV3 - SN3205; ConvF(4.47, 4.47, 4.47); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.6.1 Build (408)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2595)

Pin=250 mW/d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 102.3 V/m; Power Drift = 0.00081 dB
Peak SAR (extrapolated) = 32.976 W/kg
SAR(1 g) = 15 mW/g; SAR(10 g) = 6.57 mW/g
Maximum value of SAR (measured) = 19.719 mW/g



0 dB = 19.720mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date/Time: 05.01.2011 14:25:38

Test Laboratory: SPEAG, Zurich, Switzerland

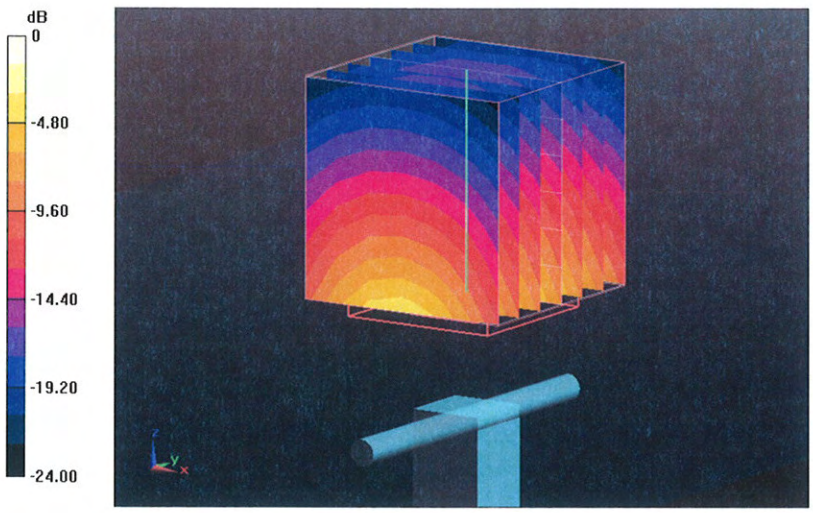
DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1003

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: MSL U12 BB
Medium parameters used: f = 2600 MHz; σ = 2.12 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

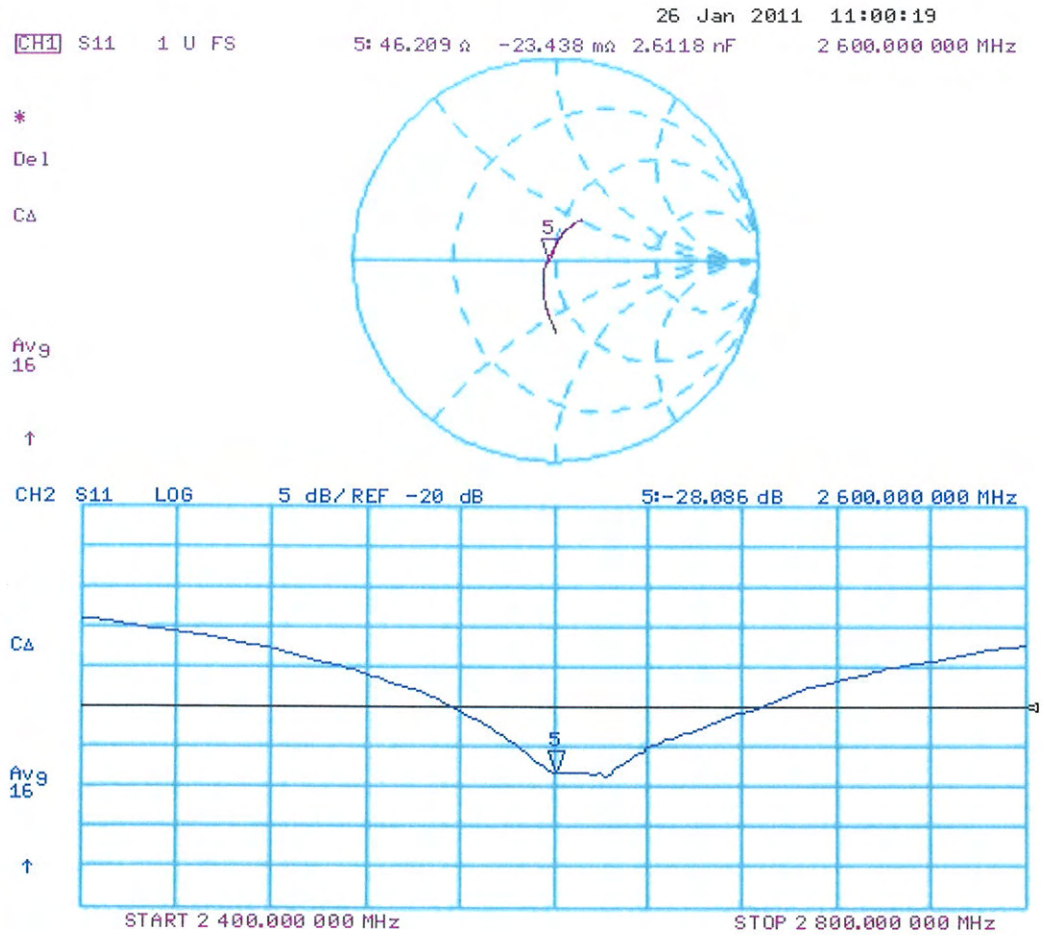
- Probe: ES3DV3 - SN3205; ConvF(4.18, 4.18, 4.18); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.1 Build (408)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2595)

Pin=250 mW/d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 97.717 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 31.466 W/kg
SAR(1 g) = 14.4 mW/g; SAR(10 g) = 6.41 mW/g
Maximum value of SAR (measured) = 19.133 mW/g



0 dB = 19.130mW/g

Impedance Measurement Plot for Body TSL



Appendix D. Photographs of EUT and Setup