

SAR TEST REPORT

Project Number: 3564654

Report Number: 3564654EMC07 **Revision Level:** 1

Client: Paul Raley and Associates Inc.

Equipment Under Test: Wireless Guitar / Amplifier Communication Device

Product Name: WIC1 Transmitter

Applicable Standards: IEEE STD 1528: 2013

EN 62209-1:2010, EN 62209-2:2010

Report issued on: 9 April 2015

Test Result: Compliant

Tested by:



Fabian Nica, Senior Engineering Technician

Reviewed by:



David Schramm, EMC/RF/SAR/HAC Manager

Remarks:

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

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

Table of Contents

1 GENERAL INFORMATION	3
1.1 CLIENT INFORMATION	3
1.2 TEST LABORATORY.....	3
1.3 GENERAL INFORMATION OF EUT	3
1.4 NOMINAL AND MAXIMUM POWER SPECIFICATIONS.....	3
2 TEST METHODOLOGY	4
3 TEST EQUIPMENT	5
3.1 TEST SYSTEM BLOCK DIAGRAM.....	6
4 LIQUID PARAMETERS CHECK	8
4.1 TISSUE VERIFICATION.....	8
5 SAR MEASUREMENT SYSTEM VERIFICATION	9
5.1 PERFORMANCE CHECK MEASUREMENT CONDITIONS.....	9
5.2 SYSTEM VERIFICATION	9
6 MEASUREMENT PROCEDURE	10
6.1 HEAD SAR CONFIGURATION.....	11
6.1.1 SAM Specifications	11
6.1.2 Handset Reference Points.....	11
6.1.3 Ear reference	12
6.1.4 Cheek positions.....	12
6.1.5 Tilt Position.....	13
7 CONDUCTED OUTPUT POWER VERIFICATION	14
8 WI-FI BODY SAR MEASUREMENT RESULTS.....	15
9 UNCERTAINTY BUDGET	16
10 SAR PLOTS.....	17
11 SYSTEM CHECK PLOT	21
12 SETUP PHOTOGRAPHS	23
13 REVISION HISTORY.....	28

1 General Information

1.1 Client Information

Name: Paul Raley and Associates Inc
Address: 1825 Eagle Summit Court
City, State, Zip, Country: Lawrenceville GA, 30043, USA

1.2 Test Laboratory

Name: SGS North America, Inc.
Address: 620 Old Peachtree Road NW, Suite 100
City, State, Zip, Country: Suwanee, GA 30024, USA

1.3 General Information of EUT

Product Name: WIC1 Transmitter
Serial Number: 2014-07-18_0001
Hardware Version: Revision D
Firmware Version: 1.4.2.38775.1
Frequency Range: 2406 to 2470 MHz
Modulation type: Q-QPSK
Channel spacing: 4 MHz
Antenna: Integral
Rated Voltage: 3.7Vdc, 1150mAh

Sample Received Date: 23 September 2014
Date of testing: 23 September 2014

Normal operation: Worn on body with 5 mm separation distance
Body Worn Accessory: None supplied
Antenna-to-antenna separation distances: Not applicable as there is only one antenna in the EUT
Simultaneous transmission: Not applicable as there is only one transmitter in the device
Device category: Portable
Exposure category: General Population/Uncontrolled Exposure
Air Interfaces: Proprietary

1.4 Nominal and Maximum Power Specifications

Mode / Band	Type		Modulated Average dBm
Q-QPSK	2406-2470 MHz	Maximum	18.0
		Nominal	16.0

2 Test Methodology

Testing was performed in accordance with IEEE STD 1528: 2013, RSS 102 Issue 4, and the following:

- IEC 62209-2
- FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03
- FCC KDB 865664 D02 RF Exposure Reporting v01r01
- FCC KDB 447498 D01 General RF Exposure Guidance v05r02

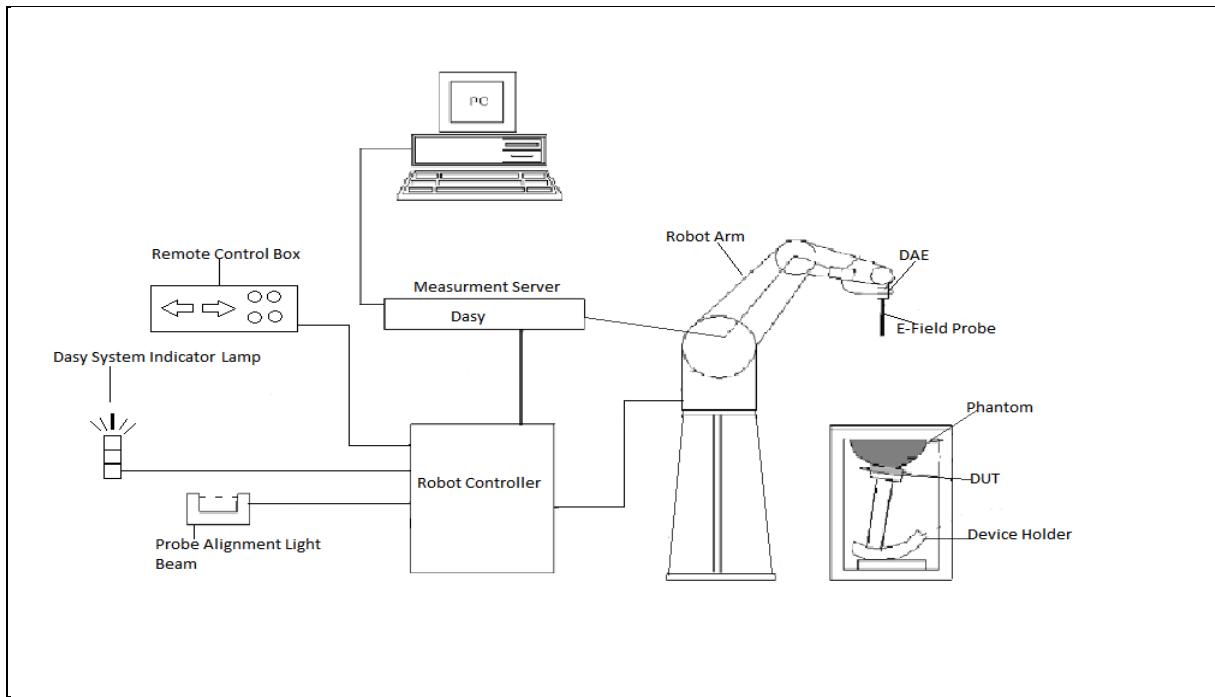
3 Test Equipment

Equipment	Model	Manufacturer	Serial Number	Cal Date	Cal Int
Dasy5 Controller	SP1D	Stäubli	S-1188	NA	
PC	Compaq 8000 Elite	HP	CZC1231RWS	NA	
Probe Alignment Beam	LB5/80	Speag	SEUKS030AA	NA	
Data Acquisition Electronics	DAE4	Speag	1287	NA	
Oval Phantom	ELI5	Speag	1146	NA	
Device Holder	SD 00 HO1 HA	Speag	NA	NA	
System Validation Dipole	D2450V2	Speag	890	5/11/12	3yr
E-Field Probe	EX3DV4	Speag	3812	1/24/14	1yr
RF Cable	HS84133232	Huber & Suhner	247436006	8/4/14	1yr
RF Cable	SF106	Huber & Suhner	247439001	8/4/14	1yr
Network Analyzer	ZVL	Rohde & Schwarz	1303.6509K06-101584-DZ	9/27/2013	1yr
Power Meter	E4419B	Agilent	G839511059	8/8/14	1yr
Power Sensor	E9300B	Agilent	2702A61269	8/8/14	1yr
Power Sensor	E9300B	Agilent	MY41094585	8/8/14	1yr
Dual Directional Coupler	11692D	Hewlett Packard	1212A02572	8/6/14	2yr
Signal Generator	SMB100A	Rohde & Schwarz	104999	6/18/13	3yr
Thermometer	DTM3000	LKM Electronic	2952	6/16/14	1yr
Dielectric Probe Kit	Dak-3.5	Speag	1109	1/19/14	1yr

Note: Calibration dates are specified in the mm/dd/yy format. The dipoles are validated annually according to FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03.

Dipole Validation Log											
per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r03											
Date	Tester	Object	Serial Number	Temp °C	RH	Tissue Type	Reported Return Loss	Reported Impedance	Measured Return Loss dB	Measured Impedance	Within tolerance
5/2/2014	DJS	D2450V2	890	23.4	42%	Head	-28.6	53.8+j0.8	-25.4	54.1+j0.5	Yes

3.1 Test System Block Diagram



The Dasy5 SAR test system consists of:

- 1 Stäubli Robot and system controller cabinet
- 1 Electro Optical Converter mounted on robots arm
- Robot stand
- Robot remote controller
- Light beam for E-field probe alignment
- DASY5 measurement server
- SAM Twin Phantom
- Hand-Held/ Laptop device holder
- HP PC with DASY5 software
- Data Acquisition Electronics(DAE)
- System validation dipole kit
- Head/Body simulating liquid
- E-field probe
- Warning lamps

Specifications listed below correspond with defined parameters in IEEE 1528 and IEC 62209-1

Twin SAM Phantom:	Specific Anthropomorphic Mannequin
Material:	Vinylester, fiber glass reinforced
Shell Thickness:	2 ± 0.2mm (6 ± 0.2mm at ear point)
Dimensions (wooden support incl):	1000mm length, 500mm width, adjustable feet for height
Filling Volume:	approx. 25L
ELI Phantom	
Material:	Vinylester, fiber glass reinforced
Shell Thickness:	2.0 ± 0.2mm (bottom plate)
Dimensions:	Major axis: 600, Minor axis: 400
Filling Volume:	approx. 30L
EX3DV4 Probe:	Isotropic E-Field Probe
Directivity:	±0.3dB in TSL(rotation around probe axis), ±0.5 dB in TSL (roation normal to probe axis)
Dimensions:	Overall length: 337mm (tip 20mm), Tip diameter: 2.5mm (Body: 12mm), Typical distance from probe tip to dipole centers: 1mm
Mounting Device for Hand-Held Transmitters:	Enables mounting and enables rotation of the mounted transmitter to specified spherical coordinates
	Transmitter devices can be accurately positioned according to IEC 62209-1, IEEE 1528, FCC or other specifications
Material:	Polyoxymethylene

4 Liquid parameters Check

The tissue dielectric parameters shall be measured at the beginning of the test or within 24 hours of the first SAR test. All dielectric parameters should be within the tolerance values shown in Table 1. For frequencies in 300 MHz to just under 3 GHz, the measured conductivity and relative permittivity should be within $\pm 5\%$ of the target values in table 1. The measured permittivity tolerances can be relaxed to no more than the $\pm 10\%$. All efforts should be made to obtain the target values as closely as possible.

The head tissue dielectric parameters recommended by the IEEE1528-2013 Standard have been incorporated in Table 1.

Table 1

Target dielectric properties of tissue equivalent material in the 300-3000 MHz frequency range

Frequency (MHz)	Head		Body	
	Relative permittivity (ϵ_r)	Conductivity(σ) (S/m)	Relative permittivity (ϵ_r)	Conductivity(σ) (S/m)
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55	1.05
1450	40.5	1.20	54	1.3
1800-2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52	2.73

Tissue Simulating Liquid Formulations

	835 MHz		1900 MHz		2450 MHz		5200-5800 MHz	
	Head	Body	Head	Body	Head	Body	Head	Body
Bactericide	0.10	0.10						
DGBE								
HEC	1.00	1.00						
NaCL	1.45	0.94	1.03	0.70	0.00	0.30		
Sucrose	57.00	44.90						
Polysorbate (Tween) 20			46.10	28.00	45.25	28.00		
Water	40.45	53.06	52.87	71.30	55.75	71.70		

Note 1: Speag proprietary - Water 50-65%; Mineral Oil 10-30%; Emulsifiers 8-25%; NaCL 0-1.5%; Hexylene Glycol 1.0-2.8%

Note 2: Speag proprietary - Water 60-80%; Esters, Emulsifiers, Inhibitors 20-40%; NaCL 0-1.5%; Oleic acid 10-28%

4.1 Tissue Verification

Note: Per KDB 865664 Section 2.4, SAR error compensation algorithms have been implemented.

Tissue Verification TARGET & MEASURED									
Liquid Temp °C	Date	Tissue Type	Measured Frequency (MHz)	Measured Dielectric Constant, ϵ	Measured Conductivity, σ S/m	Target Dielectric Constant, ϵ	Target Conductivity, σ S/m	% deviation, σ	% deviation, ϵ
23.24	9/23/2014	2450B	2406	49.450	1.98	52.7	1.95	-6.2%	1.5%
			2442	49.250	2.03	52.7	1.95	-6.5%	4.1%
			2470	49.010	2.05	52.7	1.95	-7.0%	5.1%

5 SAR measurement system verification

The system performance verification verifies the system operates within the $\pm 10\%$ limit. Each performance check is performed prior to any SAR testing to measure accuracy.

5.1 Performance check measurement conditions

- Measurements are performed in the flat section of the SAM phantom
- Phantom is filled with Head or Body simulating liquids
- DASY5 system parameters are tested using a Isotropic E-field probe ES3DV3
- The dipole is mounted on an extendable tripod that is positioned below the flat phantom center. The dipole is oriented parallel with the body's axis. The standard measuring distance is 10 mm above 1 GHz or 15 mm below 1 GHz from the dipole to the simulating liquids surface.
- A grid spacing of 15 mm is aligned with the dipole
- 7x7x7 cube is selected for a zoom scan
- A 4 mm distance is set between the probe and phantom surface
- Dipole input power(forward power) is set to 100 mW
- Results are normalized to 1 W input power

5.2 System Verification

System Verification TARGET & MEASURED												
Scan #	Date	Ambient Temp (°C)	Liquid Temp (°C)	Input Power (W)	Tissue Frequency (MHz)	Dipole SN	Tissue Type	Measured SAR _{1g} (W/kg)	1W Target SAR _{1g} (W/kg)	1W Normalized SAR ₁₀ (W/kg)	Deviation (%)	Validation Time
C1	9/23/2014	24	23.2	0.100	2450	890	Body	5.18	50.60	51.80	2.4%	9:45AM

6 Measurement Procedure

- Area Scan is used for a fast scan in two dimension to find the area of high field values before any finer measurement around the hotspot. The routines implemented in the DASY5 software can find the maximum locations.
- Zoom Scan is used to assess the peak spatial values within a cubic averaging volume containing 1g and 10g of simulated tissue. The scan measures a 7x7x7 area within the cube. Once measurement is done the values are displayed within the job's label.
- Power Drift will measure the field at the same location as the most recent power reference measurement within the same procedure and settings. The Power Drift Measurement gives the field difference in dB.
- Z- Scan measure points along a straight vertical line. The lines run along the z-axis of a one dimensial grid. To get a reasonable extrapolation the extrapolated distance should not be larger than the step size in z direction.

6.1 Head SAR Configuration

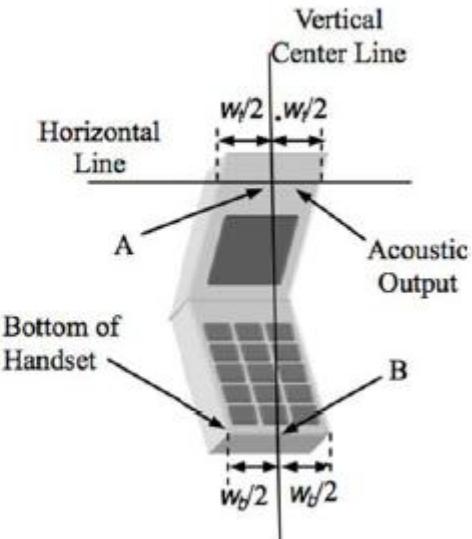
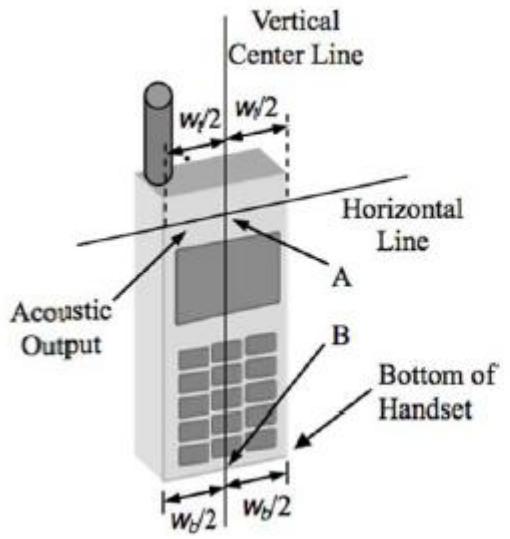
6.1.1 SAM Specifications

The Specific Anthropomorphic Mannequin (SAM) phantom corresponds to specifications defined in IEEE 1528 and IEC 62209-1. It allows dosimetric evaluation of the left, right, hand phone usage as well as body mounted usage at the flat region of the phantom

6.1.2 Handset Reference Points

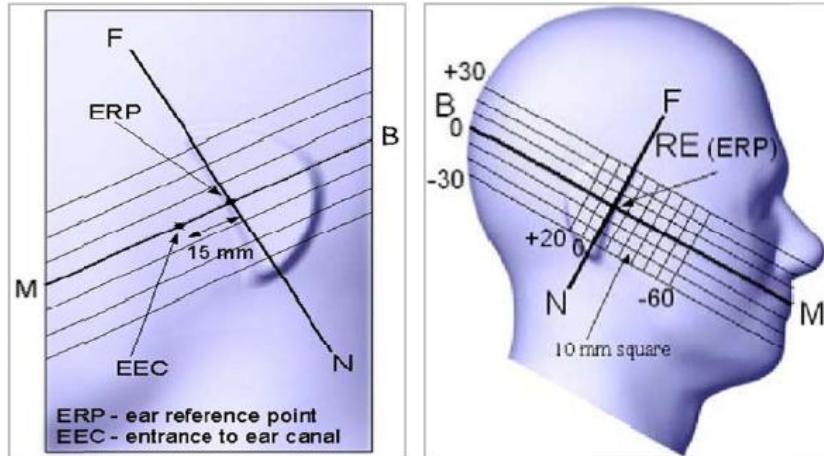
In order to identify reference points on the handset, define two imaginary lines on the handset

- The vertical centreline passes through two points on the front side of the handset. The midpoint of the width at the acoustic output and the midpoint of the width of the bottom of handset.
- The horizontal line is perpendicular to the vertical centreline and passes through the center of the acoustic output.
- The two lines intersect at point A.



6.1.3 Ear reference

This category includes most wireless handsets. The handset should have its earpieces located within the upper part of the device or along the centerline. The handset should be positioned with the earpiece region pressed against the ear spacer of the phantom.



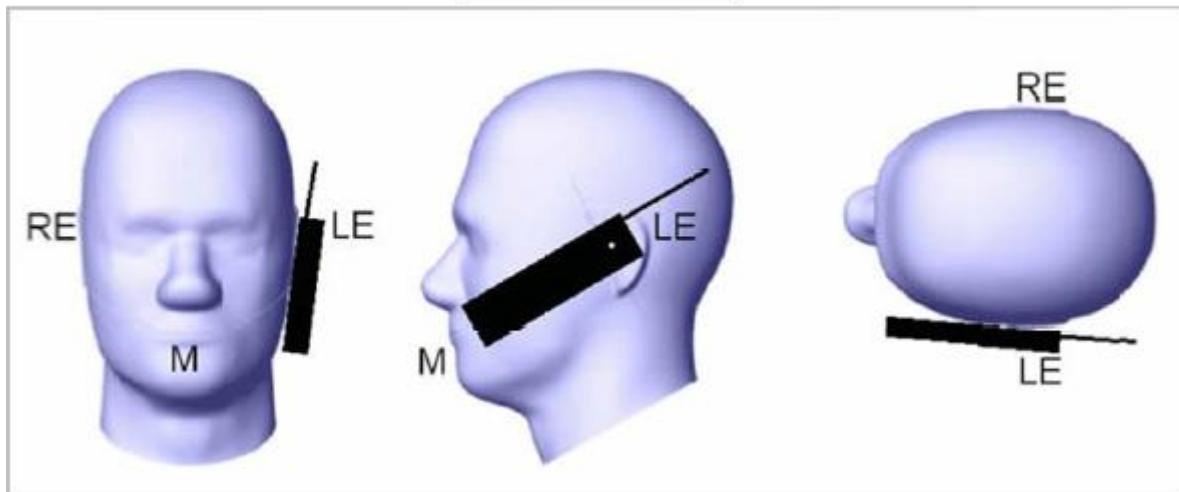
6.1.4 Cheek positions

The device is attached toward the mouth part of the phantom by pivoting against the ear reference point

The test position is established when:

- Any point on the display, keypad or mouthpiece portion of the EUT is in contact with the phantom

Cheek / Touch Position

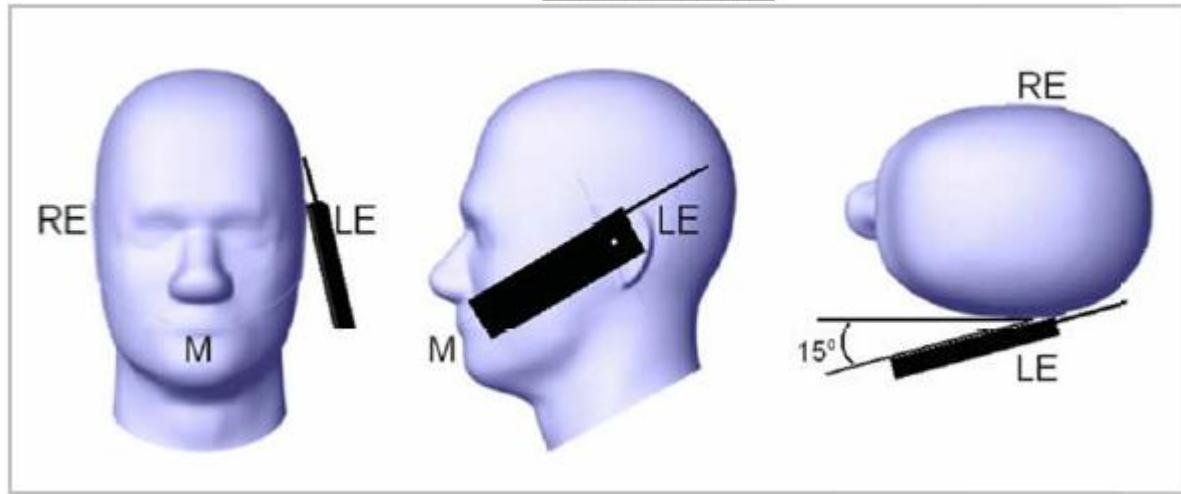


6.1.5 Tilt Position

The test position is established when:

- Repeat the cheek touch position setup
- While maintaining the orientation of the handset move the handset away from the pinna along the line passing through RE and LE far enough to allow a rotation of the handset away from the cheek by 15°.
- Rotate the handset around the horizontal line by 15°
- While maintain the orientation of the handset move the handset towards the phantom on the line passing through RE and LE until any part of the handset touches the ear.
- The tilt position is obtained when the contact point is on the pinna and the antenna is at the back of the phantoms head.

Ear/Tilt 15° Position



7 Conducted Output power verification

Frequency, MHz	Mode	Type	Average Power, dBm
2406	Q-QPSK	DATA	16.8
2442	Q-QPSK	DATA	16.6
2470	Q-QPSK	DATA	16.3

8 Wi-Fi BODY SAR measurement Results

Date	Frequency MHz	CH	Mode	Service	Max Pwr dBm	Meas Pwr dBm	Power Drift dB	Position	Duty Cycle	1g SAR W/kg	Scaled SAR 1g W/kg	Plot #
9/23/2014	2442.0	Mid	Q-QPSK	Data	18.00	16.56	0.27	P1	1:1	0.011	0.015	
	2442.0	Mid	Q-QPSK	Data	18.00	16.56	4.89	P2	1:1	0.001	0.001	
	2442.0	Mid	Q-QPSK	Data	18.00	16.56	-999.90	P3	1:1	0.000	0.001	
	2442.0	Mid	Q-QPSK	Data	18.00	16.56	2.22	P4	1:1	0.001	0.001	
	2442.0	Mid	Q-QPSK	Data	18.00	16.56	0.61	P5	1:1	0.000	0.001	
	2442.0	Mid	Q-QPSK	Data	18.00	16.56	0.09	P1	1:1	0.017	0.024	1
	2406.0	Lowest	Q-QPSK	Data	18.00	16.80	0.09	P1	1:1	0.036	0.047	2
	2470.0	Highest	Q-QPSK	Data	18.00	16.33	0.21	P1	1:1	0.007	0.010	3

Note: When the measured SAR value is less than 0.1 W/kg, the power drift may be greater than 0.4 dB.

9 Uncertainty Budget

Test Name:	SAR 62209-2 (0.3 to 6 GHz range)							
Instrument(s) Used:	SAR Measurement System							
Standard(s) Reference:	IEC 62209-2:2010							

Symbol	Source of Uncertainty	Value	Probability Distribution	Divisor	ci (1g)	ci (10g)	Std. Unc. (1g)	Std. Unc. (10g)	vi or veff
MEASUREMENT DESCRIPTION									
	Probe Calibration	6.6%	N1	1	1	1	6.6%	6.6%	inf
	Axial Isotropy	4.7%	R	1.732	0.7	0.7	1.9%	1.9%	inf
	Hemispherical Isotropy	9.6%	R	1.732	0.7	0.7	3.9%	3.9%	inf
	Linearity	4.7%	R	1.732	1	1	2.7%	2.7%	inf
	System Detection Limits	1.0%	R	1.732	1	1	0.6%	0.6%	inf
	Modulation Response	2.4%	R	1.732	1	1	1.4%	1.4%	inf
	Boundary Effects	2.0%	R	1.732	1	1	1.2%	1.2%	inf
	Readout Electronics	0.3%	N1	1	1	1	0.3%	0.3%	inf
	Response Time	0.8%	R	1.732	1	1	0.5%	0.5%	inf
	Integration Time	2.6%	R	1.732	1	1	1.5%	1.5%	inf
	RF Ambient Noise	3.0%	R	1.732	1	1	1.7%	1.7%	inf
	RF Ambient Reflections	3.0%	R	1.732	1	1	1.7%	1.7%	inf
	Probe Positioner	0.8%	R	1.732	1	1	0.5%	0.5%	inf
	Probe Positioning	6.7%	R	1.732	1	1	3.9%	3.9%	inf
	Post Processing	4.0%	R	1.732	1	1	2.3%	2.3%	inf
TEST SAMPLE RELATED									
	Device Positioning	2.9%	N1	1	1	1	2.9%	2.9%	inf
	Device Holder	3.6%	N1	1	1	1	3.6%	3.6%	inf
	Power Drift	5.0%	R	1.732	1	1	2.9%	2.9%	inf
	Power Scaling	0.0%	R	1.732	1	1	0.0%	0.0%	inf
PHANTOM AND SETUP									
	Phantom Uncertainty	7.9%	R	1.732	1	1	4.6%	4.6%	inf
	SAR correction	1.9%	R	1.732	1	0.84	1.1%	0.9%	inf
	Liquid Conductivity(meas.)	2.5%	N1	1	0.78	0.71	2.0%	1.8%	inf
	Liquid Permittivity(meas.)	2.5%	N1	1	0.26	0.26	0.7%	0.7%	inf
	Temp. unc. - Conductivity	1.7%	R	1.732	0.78	0.71	0.8%	0.7%	inf
	Temp. unc. - Permittivity	0.3%	R	1.732	0.23	0.26	0.0%	0.0%	inf

uc(Fs)	Combined Standard Uncertainty	N1	1	12.6%	12.5%
U(Fs)	Expanded Uncertainty	Normal k=	2	25.1%	25.1%

The Expanded Uncertainty is 25.1% for a Normal k factor equal to 2



Test Report Number:3564654EMC07 Rev: 1

Paul Raley and Associates Inc / WiC-1

Page: 17 of 28

10 SAR plots

Plot 1

Communication System: UID 0, CW (0); Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 2442 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 2442$ MHz; $\sigma = 1.939$ S/m; $\epsilon_r = 52.71$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(7.01, 7.01, 7.01); Calibrated: 12/12/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

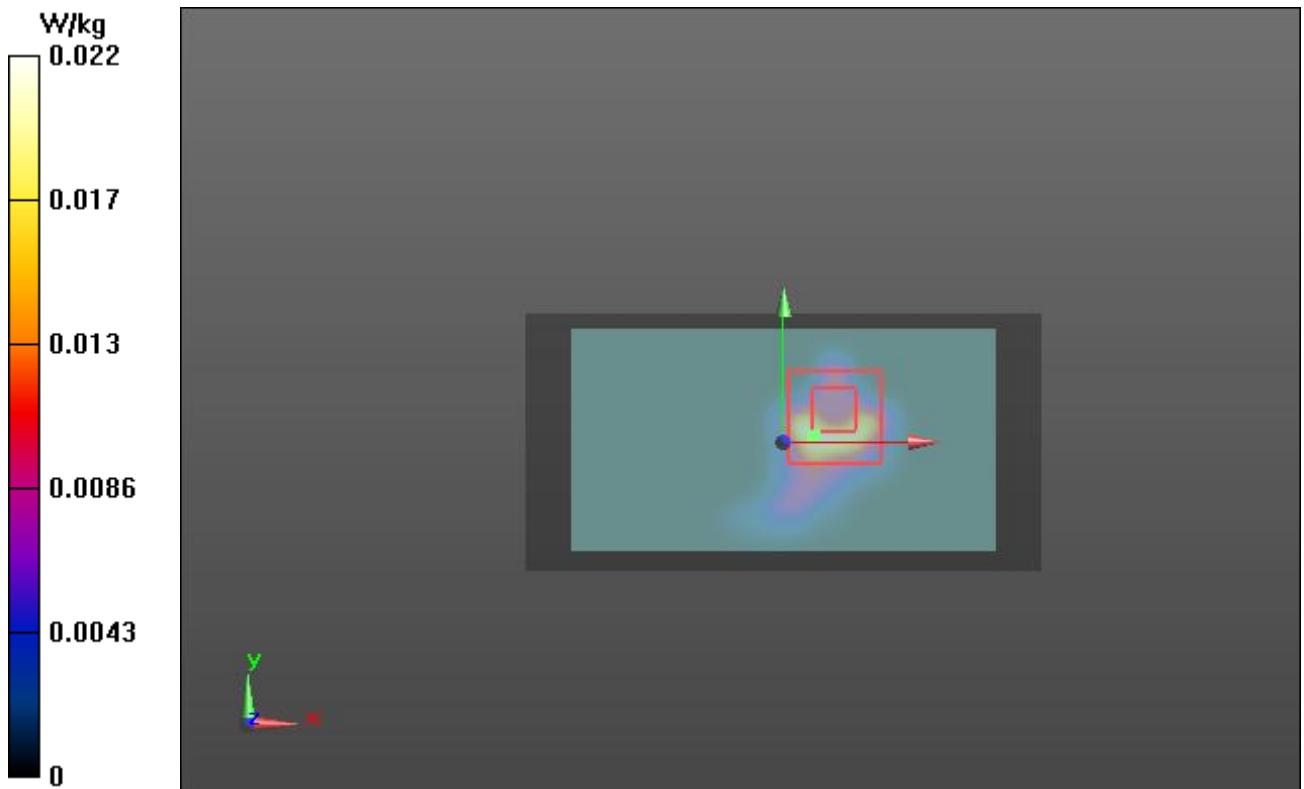
Configuration/2442MHz Body Position 1z/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.891 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.0300 W/kg

SAR(1 g) = 0.017 W/kg; SAR(10 g) = 0.00823 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 0.0215 W/kg

Configuration/2442MHz Body Position 1z/Area Scan (51x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0409 W/kg



Plot 2

Communication System: UID 0, CW (0); Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 2406 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 2406$ MHz; $\sigma = 1.893$ S/m; $\epsilon_r = 52.757$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(7.01, 7.01, 7.01); Calibrated: 12/12/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

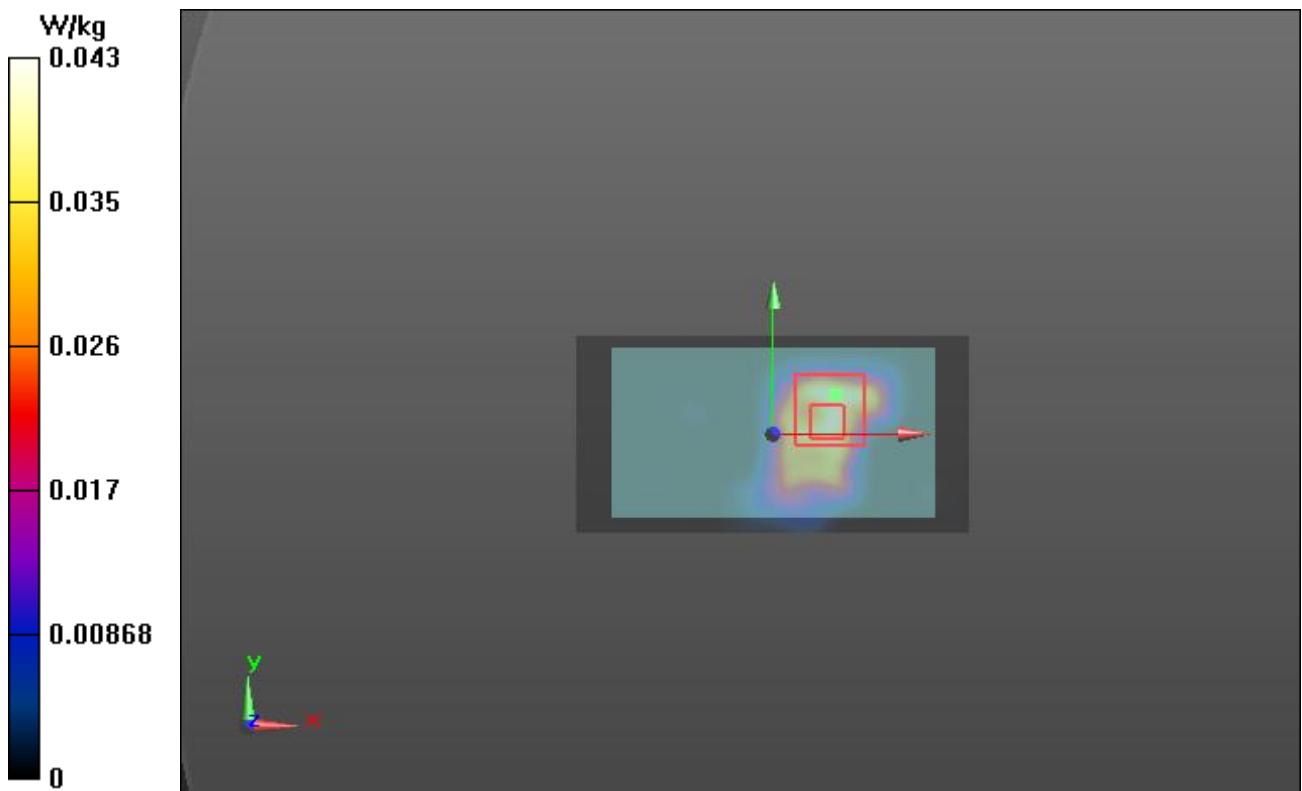
Configuration/2406MHz Body Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.524 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.0620 W/kg

SAR(1 g) = 0.036 W/kg; SAR(10 g) = 0.019 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 0.0434 W/kg

Configuration/2406MHz Body Position 1z/Area Scan (51x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0547 W/kg



Plot 3

Communication System: UID 0, CW (0); Communication System Band: FullSpan (0.0 - 6000.0 MHz); Frequency: 2470 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 2470$ MHz; $\sigma = 1.977$ S/m; $\epsilon_r = 52.675$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(7.01, 7.01, 7.01); Calibrated: 12/12/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection), z = 31.0
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

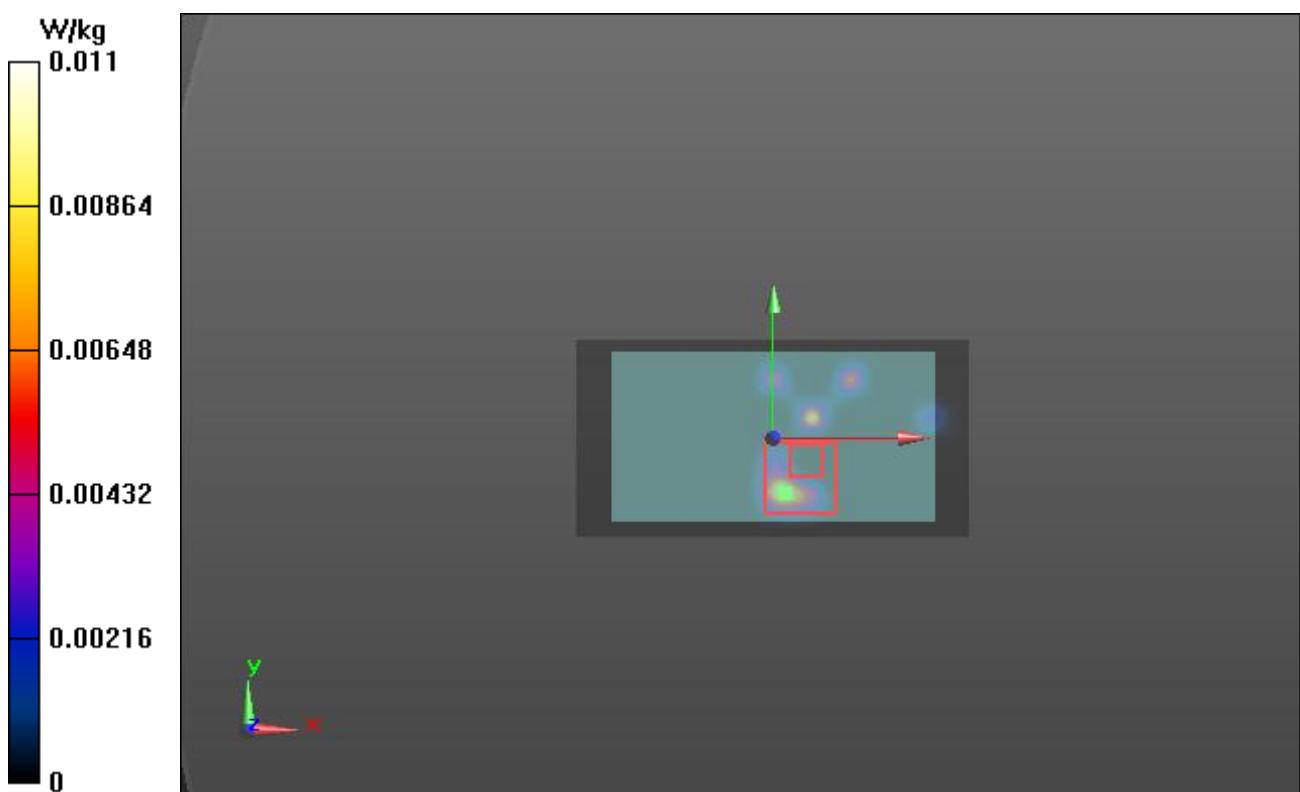
Configuration/2470MHz Body Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.971 V/m; Power Drift = 0.21 dB

Peak SAR (extrapolated) = 0.0350 W/kg

SAR(1 g) = 0.00692 W/kg; SAR(10 g) = 0.00188 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 0.0108 W/kg

Configuration/2470MHz Body Position 1/Area Scan (51x101x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.00559 W/kg



11 System Check plot

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:890

Communication System: UID 0, CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.95 \text{ S/m}$; $\epsilon_r = 52.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(7.01, 7.01, 7.01); Calibrated: 12/12/2012;
- Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 1.0, 16.0$
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Configuration/2450MHz BSL System Validation/Area Scan (51x51x1): Interpolated grid:

$dx=1.200 \text{ mm}$, $dy=1.200 \text{ mm}$

Maximum value of SAR (interpolated) = 7.49 W/kg

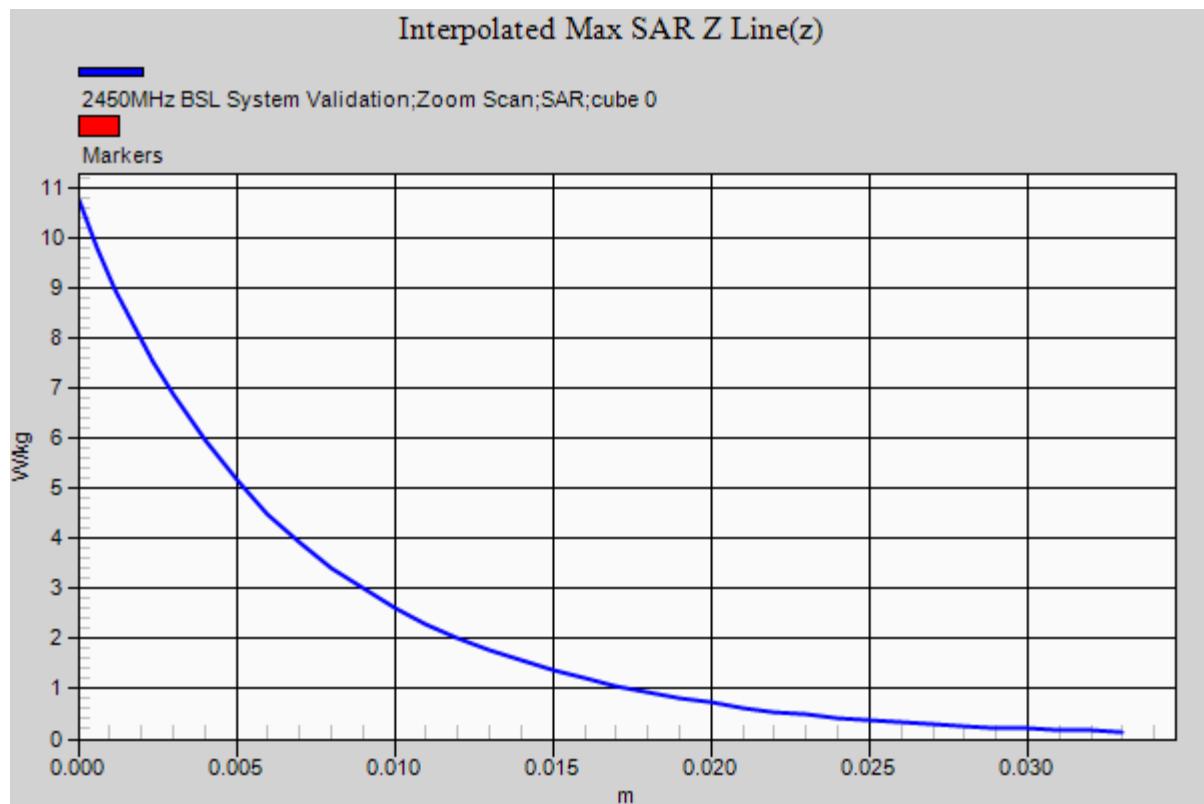
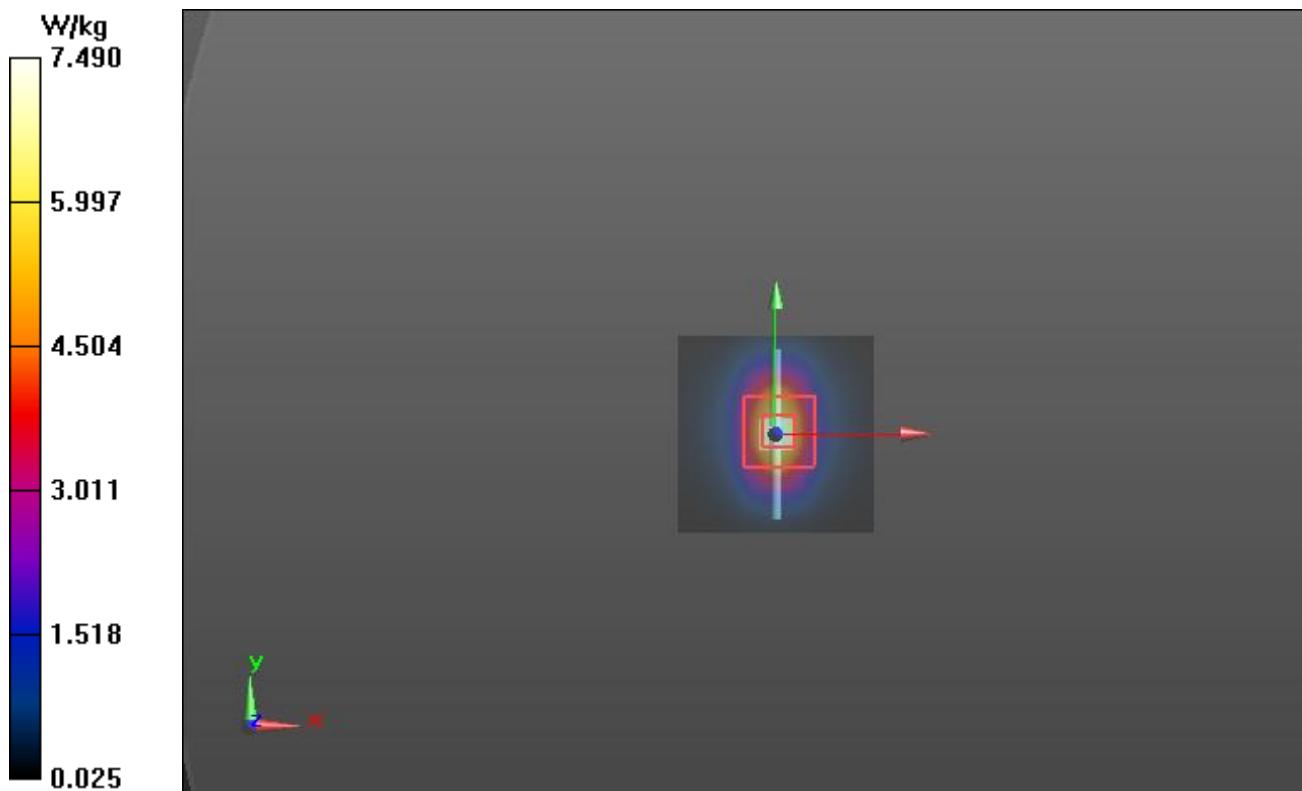
Configuration/2450MHz BSL System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 61.95 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 10.8 W/kg

SAR(1 g) = 5.18 W/kg; SAR(10 g) = 2.38 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 6.86 W/kg



12 Setup Photographs

Position 1



Position 2



Position 3



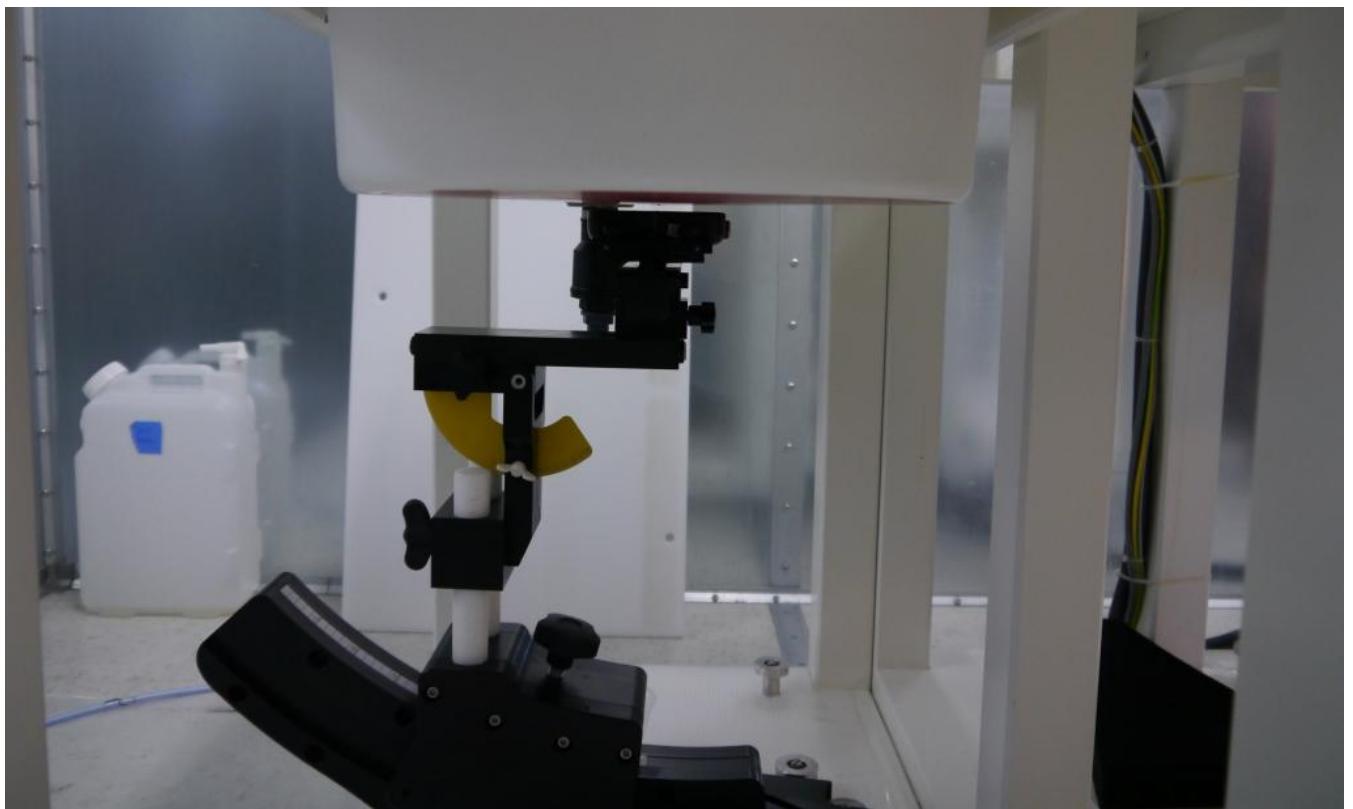
Position 4



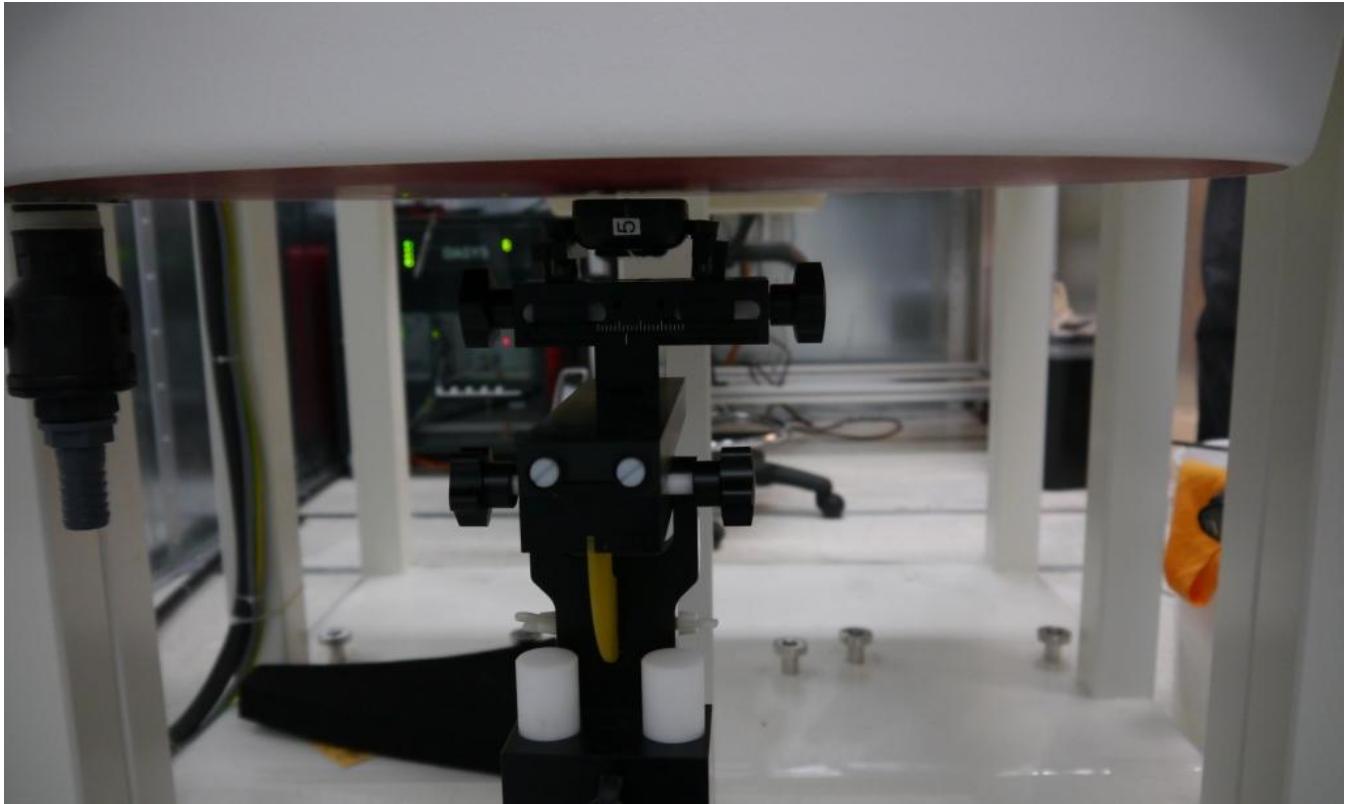
Position 5



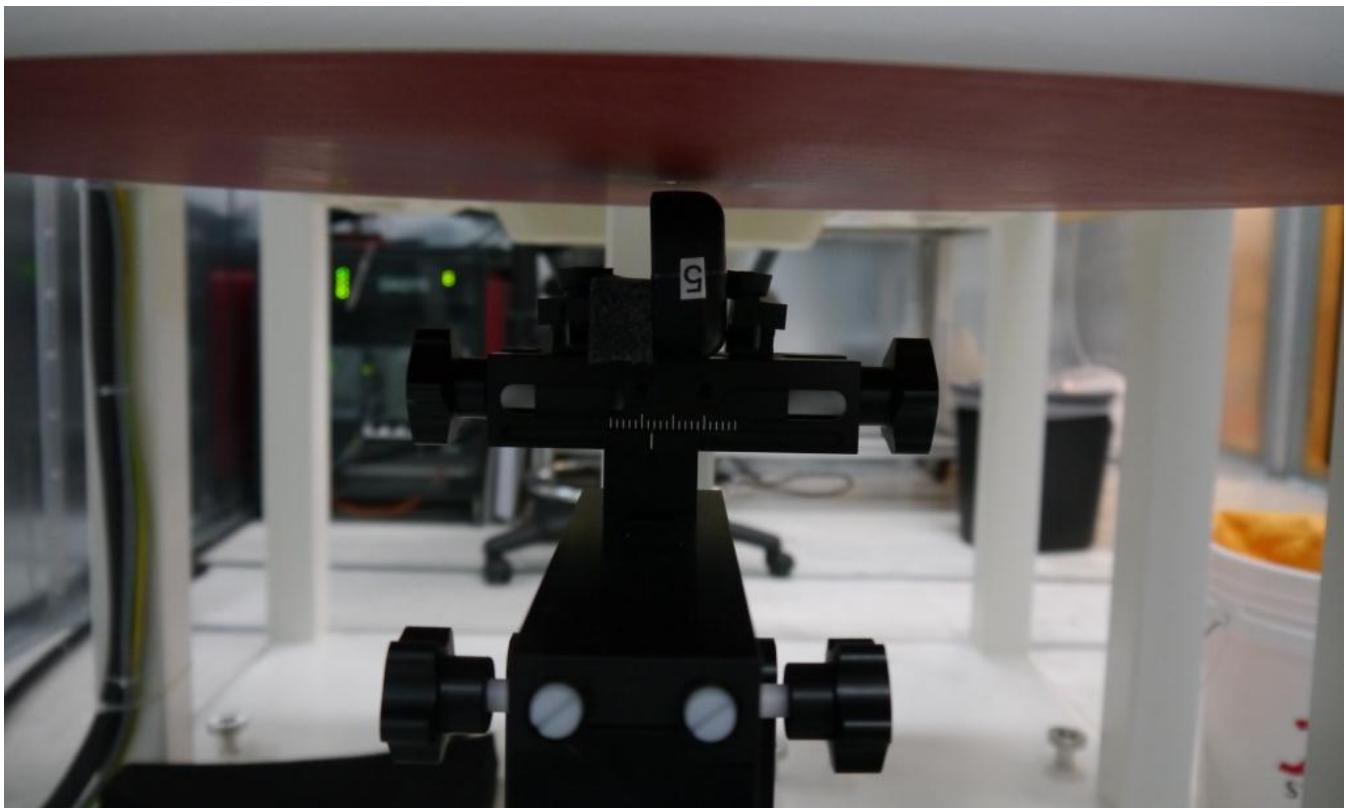
Position 1(EUT front side facing user) for position 2, EUT was rotated 180° horizontally and scan was performed on the EUT back side



Position 1



Position 3(EUT right side facing user) for position 4 EUT was rotated 180° horizontally



Position 5(EUT bottom side towards user)



13 Revision History

Revision Level	Description of changes	Revision Date
0	Initial release	28 OCT 2014
1	Updated KDB references	9 April 2015