

SAR Test Report

Project Number: 3044696
Report Number: 3044696EMC06 **Revision Level:** 1
Client: Intermec Technologies Corporation

Equipment Under Test: Mobile Computer with AE37 AC Adapter
Model Name: CN51 / 1015CP01

Applicable Standards: IEEE STD 1528: 2003
 EN 62209-1:2010, EN 62209-2:2010

Report issued on: 25 September 2013
Test Result: Compliant

Summary of SAR results

Equipment Class	Mode	Band	Measured Conducted Power (dBm)	SAR	
				1g Head W/kg	1g Body W/kg
DTS	WiFi	US	17.0	0.078	1.045
UNI	WiFi	US	12.8	0.118	1.103
DSS/DTS	Bluetooth	US	7.0	NA	
Simultaneous SAR per KDB 690783 D01v01r02				N/A	N/A

Tested by:


 Fabian Nica, Engineering Technician

Reviewed by:


 David Schramm, EMC 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.

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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	4
1.5	EQUIPMENT UNDER TEST	4
1.6	ANTENNA LOCATIONS	5
1.7	DUT ACCESSORIES	6
2	TEST METHODOLOGY	9
3	TEST EQUIPMENT	10
3.1	TEST SYSTEM BLOCK DIAGRAM	11
4	LIQUID PARAMETERS CHECK	12
4.1	TISSUE PARAMETER VERIFICATION	13
5	SAR MEASUREMENT SYSTEM VERIFICATION	16
5.1	PERFORMANCE CHECK MEASUREMENT CONDITIONS	16
5.2	SAR REFERENCE VALUES FOR HEAD AND BODY CALIBRATION	16
5.2.1	System Verification	17
6	SAR MEASUREMENT PROCEDURE	18
6.1	HEAD SAR CONFIGURATION	19
6.1.1	SAM Specifications	19
6.1.2	Handset Reference Points	19
6.1.3	Ear reference	20
6.1.4	Cheek positions	20
6.1.5	Tilt Position	21
7	CONDUCTED OUTPUT POWER VERIFICATION	22
8	WI-FI (DTS BAND)	24
8.1	BODY SAR MEASUREMENT RESULTS	24
8.2	HEAD SAR MEASUREMENT RESULTS	24
9	WI-FI (UNII BAND)	25
9.1	BODY SAR MEASUREMENT RESULTS	25
9.2	HEAD SAR MEASUREMENT RESULTS	25
10	SIMULTANEOUS TRANSMISSIONS	27
11	UNCERTAINTY BUDGET	28
12	SETUP PHOTOGRAPHS	31
13	PLOTS	36
14	REVISION HISTORY	50

1 GENERAL INFORMATION

1.1 CLIENT INFORMATION

Name: Intermec Technologies Corp.
 Address: 6001 36th Avenue W
 City, State, Zip, Country: Everett, WA 988203, 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

Accrediting Body: A2LA
 Type of lab: Testing Laboratory
 Certificate Number: 3212.01

1.3 GENERAL INFORMATION OF EUT

Serial Number: 328X1200019
 Build Version: Prototype P2
 Firmware Version: 1.0.0.0334
 Antenna: Integral
 Rated Voltage: 3.7 VDC Rechargeable Battery

Sample Received Date: 8 February 2013
 Dates of testing: 1 March to 16 September 2013

Equipment Class	Mode	Band	Frequency (MHz)	Operating Modes
DTS	WiFi	US	2412 - 2462	Data
DTS	WiFi	US	5180 - 5825	Data
DSS/DTS	Bluetooth	US	2402 - 2480	Data

1.4 NOMINAL AND MAXIMUM POWER SPECIFICATIONS

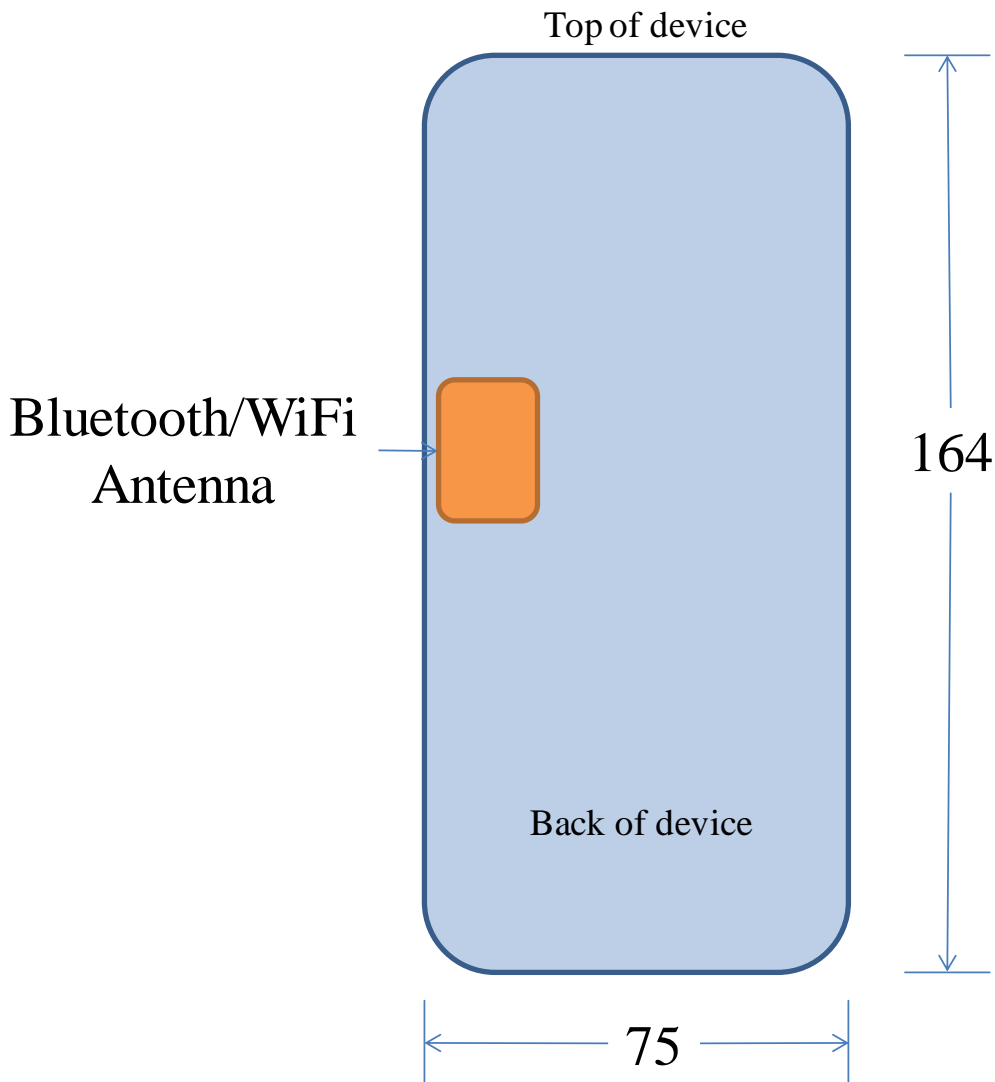
Mode / Band		Type	Modulated Average dBm
IEEE 802.11b	US/2.4GHz	Maximum	17.5
		Nominal	17.0
IEEE 802.11g	US/2.4GHz	Maximum	13.0
		Nominal	12.5
IEEE 802.11n	US/2.4GHz	Maximum	13.0
		Nominal	12.5
IEEE 802.11a	US/5GHz	Maximum	13.0
		Nominal	12.5
IEEE 802.11n	US/5GHz	Maximum	13.0
		Nominal	12.5
Bluetooth	US/2.4GHz	Maximum	7.0
		Nominal	6.5

The maximum power of the Bluetooth is 7dBm (5mW) is below the SAR exclusion threshold of KDB 447498 Appendix A at 5mm distance. There is no head or body-worn condition where the Bluetooth antenna can be closer than 5mm to the user. This is also below the Industry Canada exemption threshold of 20 mW (RSS-102, Issue 4, Clause 2.5.1).

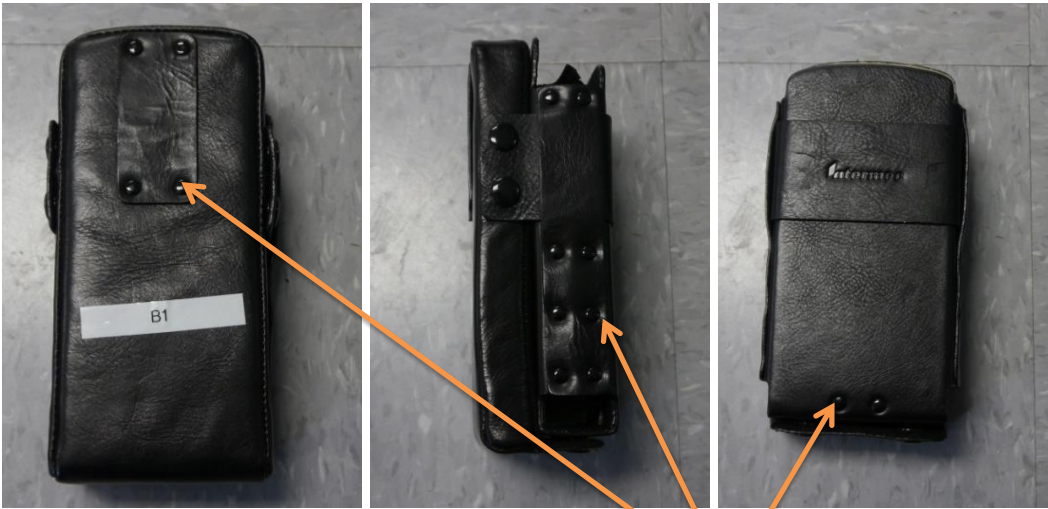
1.5 EQUIPMENT UNDER TEST

EUT	Mobile Computer
Normal operation:	Held to head, Worn on body (LCD facing-up; LCD facing-down) with 18.5 mm separation distance
Body Worn Accessory	<ol style="list-style-type: none"> Case B1 (X11148-V3), Can be worn left or right side, EUT can be seated in Position 1 (P1) screen towards body or Position 2 (P2) screen away from body Case B2 (X11956-V1) Can be worn on left or right side. EUT can be seated in only one position. Left side of EUT towards body for both left and right side of body. Case B3 (X11954-V1) Can be worn on left or right side. EUT can be seated in Position 2(P2) screen towards body or Position 1 (P1) screen away from body.
Device category:	Portable
Exposure category:	General Population/Uncontrolled Exposure

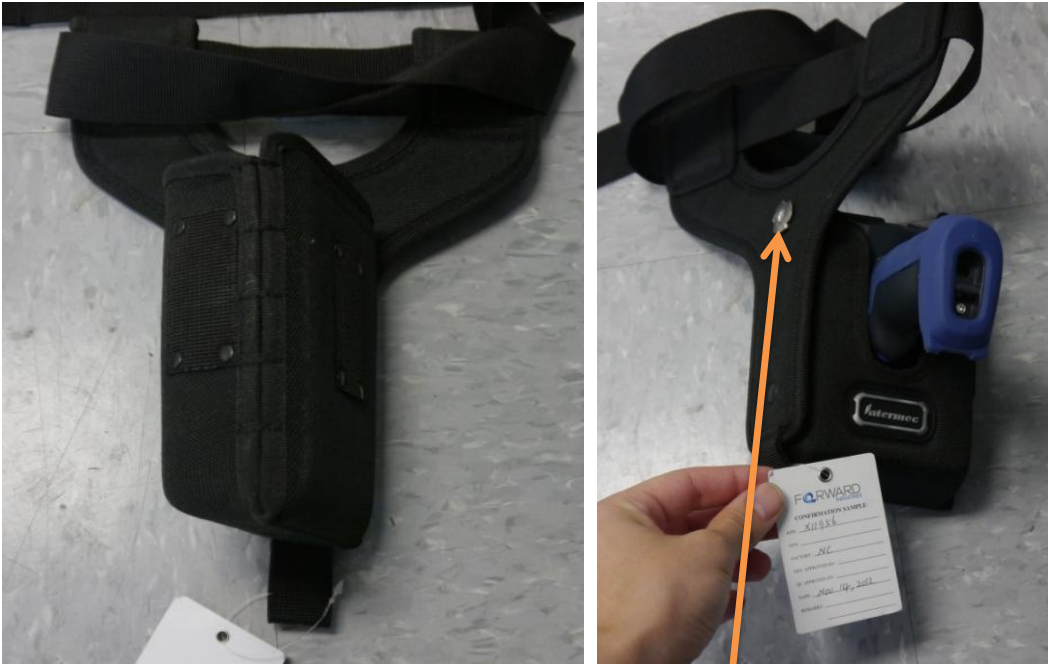
1.6 ANTENNA LOCATIONS



1.7 DUT ACCESSORIES



Designated B1 (contains metal parts)
Model: X11148-V3
28mm spacing to user



Designated B2 (contains metal parts)
Model: X11956-V1
19.8mm spacing to user



Designated B3 (Contains metal parts)
Model: X11954-V1
18.25mm spacing to user

2 TEST METHODOLOGY

Testing was performed in accordance with the FCC OET Bulletin 65 Supplement C 01-01, IEEE STD 1528: 2003, IC RSS 102 Issue 4, as well as the following:

- FCC KDB 447498 D01 General RF Exposure Guidance v05r01
- FCC KDB 248227 D01 SAR meas for 802 11 a b g v01r02
- FCC KDB 648474 D04 Handset SAR v01r01
- FCC KDB 865664 D02 RF Exposure Reporting v01r01
- FCC KDB 450824 D02 Dipole SAR Validation Verification v01r01
- IEC 62209-2

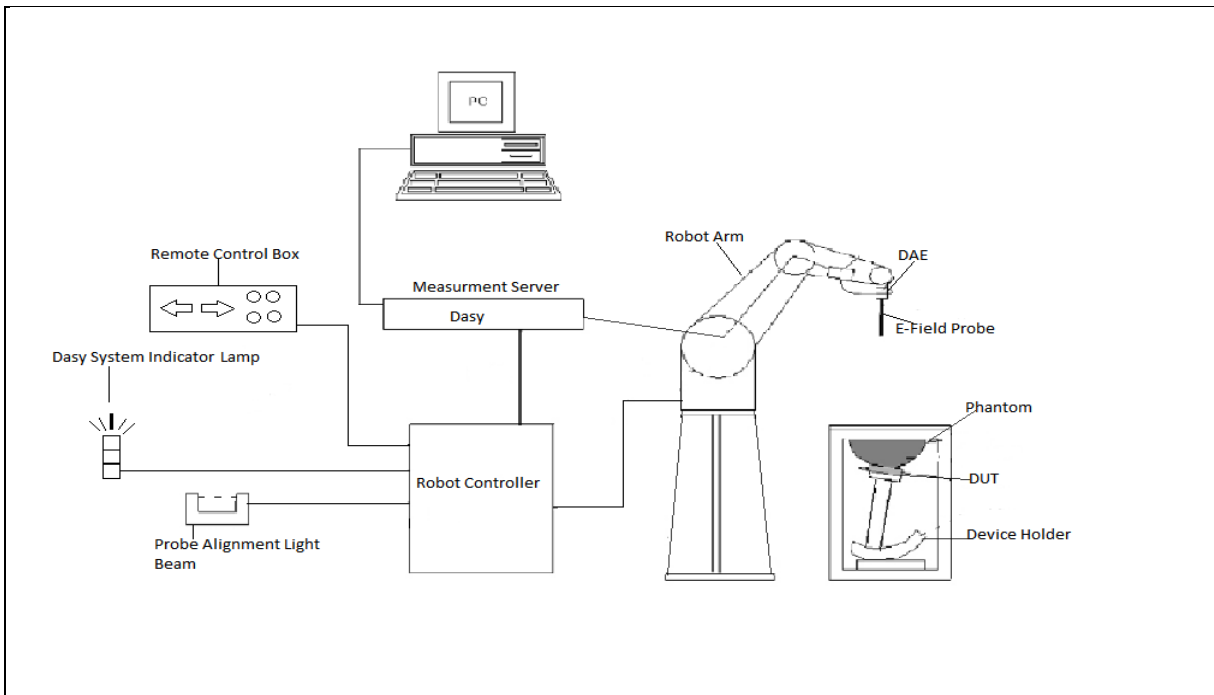
3 TEST EQUIPMENT

Equipment	Model	Manufacturer	Serial Number	Cal Due Date
Dasy5 Controller	SP1D	Stäubli	S-1188	NA
Probe Alignment Beam	LB5/80	Speag	SEUKS030AA	NA
Data Acquisition Electronics	DAE4	Speag	1287	NA
Phantom	Twin Sam	Speag	1665	NA
Oval Phantom	ELI5	Speag	1146	NA
PC	Compaq 8000 Elite	HP	CZC1231RWS	NA
Device Holder	SD 00 HO1 HA	Speag	NA	NA
System Validation Dipole	D2450V2	Speag	890	11 May 2015
System Validation Dipole	D5GV2	Speag	1149	12 March 2016
E-Field Probe	EX3DV4	Speag	3812	11 March 2014
E-Field Probe	ES3DV3	Speag	3272	20 May 2014
RF Cable	LMR-240	Times Microwave	502774	7 Jul 2014
RF Cable	SF106	Huber & Suhner	247436003	23 Oct 2014
Network Analyzer	E5062A	Agilent	MY44102097	6 Aug 2014
Network Analyzer	E5062A	Agilent	MY44202574	26 July 2014
Power Meter	E4419B	Agilent	G839511059	26 Aug 2014
Power Meter	E4419B	Agilent	MY45102376	8 Aug 2014
Power Sensor	E9300B	Agilent	MY41496367	28 Dec 2013
Power Sensor	E9300B	Agilent	MY50170001	25 Jan 2014
Dual Directional Coupler	778D	Hewlett Packard	2604A13577	22 Oct 2013
Dual Directional Coupler	11692D	Hewlett Packard	1212A02572	22 Sep 2013
Signal Generator	SMB100A	Rohde & Schwarz	104999	18 June 2014
Thermometer	DTM3000	Speag	2952	05 June 2014
Dielectric Probe Kit	85070E	Agilent	MY44300638	NA
Dielectric Probe Kit	Dak-3.5	Speag	1109	19 Mar 2014

Note: The calibration period equipment is 1 year and 3 years for Dipoles. The dipoles are validated annually according to FCC KDB 450824 D02 Dipole SAR Validation Verification v01r01.

Dipole Validation Log											
per KDB 450824 Dipole SAR validation Verification v01r01											
Date	Tester	Object	Serial Number	Temp °C	RH	Tissue Type	Reported Return Loss	Reported Impedance	Return Loss dB	Impedance	Within tolerance
5/6/2013	DJS	D2450V2	890	22.3	39%	Head	-28.6	53.8+j0.8	-25.8	53.0+j0.4	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

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 4.0-1. For frequencies in 300 MHz to just under 6 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 IEEE1528-2003 Standard and FCC KDB 865664 D01 have been incorporated in Table 4-1.

Table 4.0-1

Target dielectric properties of tissue equivalent material in the 300-2450 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	55.0	1.05
1450	40.5	1.20	54.0	1.30
1800-2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5000	36.2	4.45	49.3	5.07
5100	36.1	4.55	49.1	5.18
5200	36.0	4.66	49.0	5.30
5300	35.9	4.76	48.9	5.42
5400	35.8	4.86	48.7	5.53
5500	35.6	4.96	48.6	5.65
5600	35.5	5.07	48.5	5.77
5700	35.4	5.17	48.3	5.88
5800	35.3	5.27	48.2	6.00

Table 4.0-2

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					See Note 1	See Note 2
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 PARAMETER VERIFICATION

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
3/1/2013	2450H	2450	41.0	1.81	39.2	1.8	4.6%	0.6%
3/4/2013	2450B	2450	55.0	2.06	52.7	2.0	4.4%	5.6%
3/6/2013	2450B	2450	55.0	2.06	52.7	2.0	4.4%	5.6%
3/6/2013	2450H	2450	41.0	1.81	39.2	1.8	4.6%	0.6%
3/11/2013	2450B	2450	55.0	2.06	52.7	2.0	4.4%	5.6%
4/22/2013	5GHzH	5150	34.8	4.45	36.0	4.6	-3.3%	-3.2%
4/22/2013	5GHzH	5220	34.4	4.46	36.0	4.7	-4.4%	-5.1%
4/22/2013	5GHzH	5350	34.6	4.63	36.1	4.9	-4.0%	-5.6%
4/22/2013	5GHzH	5500	33.9	4.64	35.4	4.9	-4.4%	-5.3%
4/22/2013	5GHzH	5700	33.8	4.92	35.5	5.2	-4.7%	-5.4%
4/22/2013	5GHzH	5850	33.6	5.06	35.0	5.3	-4.0%	-4.5%
4/23/2013	5GHzH	5150	35.3	4.58	36.0	4.6	-1.8%	-0.5%
4/23/2013	5GHzH	5220	34.6	4.50	36.0	4.7	-3.8%	-4.3%
4/23/2013	5GHzH	5350	34.9	4.72	36.1	4.9	-3.4%	-3.8%
4/23/2013	5GHzH	5500	34.7	4.88	35.4	4.9	-2.0%	-0.3%
4/23/2013	5GHzH	5700	34.3	5.07	35.5	5.2	-3.4%	-2.6%
4/23/2013	5GHzH	5850	34.2	5.25	35.0	5.3	-2.3%	-1.0%
4/24/2013	5GHzH	5150	35.1	4.49	36.0	4.6	-2.5%	-2.4%
4/24/2013	5GHzH	5220	35.1	4.58	36.0	4.7	-2.4%	-1.8%
4/24/2013	5GHzH	5350	35.0	4.72	35.8	4.8	-2.2%	-1.8%
4/24/2013	5GHzH	5500	34.7	4.83	35.6	5.0	-2.7%	-2.7%
4/24/2013	5GHzH	5700	34.2	5.03	35.4	5.2	-3.5%	-2.7%
4/24/2013	5GHzH	5850	34.6	5.31	35.3	5.3	-1.9%	-0.5%
4/25/2013	5GHzH	5150	35.5	4.47	36.0	4.6	-1.6%	-2.8%
4/25/2013	5GHzH	5220	35.0	4.42	36.0	4.7	-2.9%	-5.1%
4/25/2013	5GHzH	5350	34.8	4.57	35.8	4.8	-2.9%	-5.0%
4/25/2013	5GHzH	5500	34.7	4.71	35.6	5.0	-2.6%	-5.1%
4/25/2013	5GHzH	5700	34.6	4.97	35.4	5.2	-2.2%	-3.8%
4/25/2013	5GHzH	5850	34.6	5.19	35.3	5.3	-2.0%	-2.9%
4/26/2013	5GHzH	5150	35.7	4.52	36.0	4.6	-0.9%	-1.7%
4/26/2013	5GHzH	5220	35.5	4.55	36.0	4.7	-1.3%	-2.3%
4/26/2013	5GHzH	5350	35.4	4.71	35.8	4.8	-1.1%	-2.1%
4/26/2013	5GHzH	5500	35.2	4.89	35.6	5.0	-1.1%	-1.4%
4/26/2013	5GHzH	5700	34.8	5.07	35.4	5.2	-1.7%	-1.9%
4/26/2013	5GHzH	5850	34.8	5.29	35.3	5.3	-1.4%	-0.9%
4/29/2013	5GHzH	5150	35.7	4.57	36.0	4.6	-1.0%	-0.7%
4/29/2013	5GHzH	5220	35.2	4.55	36.0	4.7	-2.2%	-2.4%
4/29/2013	5GHzH	5350	34.9	4.63	35.8	4.8	-2.6%	-3.8%
4/29/2013	5GHzH	5500	35.4	5.00	35.6	5.0	-0.8%	0.9%
4/29/2013	5GHzH	5700	35.0	5.10	35.4	5.2	-1.2%	-1.4%
4/29/2013	5GHzH	5850	34.3	5.17	35.3	5.3	-2.9%	-3.1%
4/30/2013	5GHzH	5220	36.0	4.59	36.0	4.7	0.0%	-1.5%
4/30/2013	5GHzH	5350	35.2	4.69	35.8	4.8	-1.6%	-2.5%
4/30/2013	5GHzH	5350	36.0	4.65	35.8	4.8	0.5%	-3.4%
4/30/2013	5GHzB	5350	48.9	5.62	48.9	5.5	-0.1%	1.7%
4/30/2013	5GHzH	5500	35.2	4.88	35.6	5.0	-1.4%	-1.6%
4/30/2013	5GHzH	5500	35.6	4.88	35.6	5.0	-0.1%	-1.6%
4/30/2013	5GHzB	5500	48.5	5.77	48.7	5.7	-0.4%	2.1%
4/30/2013	5GHzH	5700	34.8	5.08	35.4	5.2	-1.7%	-1.7%
4/30/2013	5GHzH	5700	35.4	5.04	35.4	5.2	-0.1%	-2.4%
4/30/2013	5GHzB	5700	47.6	5.85	48.3	5.9	-1.4%	-0.5%
4/30/2013	5GHzH	5850	34.6	5.23	35.3	5.3	-2.1%	-2.0%
4/30/2013	5GHzH	5850	35.0	5.18	35.3	5.3	-1.0%	-2.9%
4/30/2013	5GHzB	5850	47.9	6.24	48.1	6.1	-0.4%	2.9%
5/1/2013	5GHzB	5150	48.7	5.44	49.1	5.2	-0.7%	3.9%
5/1/2013	5GHzB	5220	49.4	5.36	49.2	5.3	0.4%	0.5%

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
5/1/2013	5GHzB	5350	48.8	5.75	48.9	5.5	-0.2%	4.2%
5/1/2013	5GHzB	5500	48.7	5.63	48.7	5.7	0.0%	-0.3%
5/1/2013	5GHzB	5700	48.5	5.93	48.3	5.9	0.4%	0.8%
5/1/2013	5GHzB	5850	48.0	6.10	48.1	6.1	-0.1%	0.7%
5/2/2013	5GHzB	5150	49.8	5.30	49.1	5.2	1.4%	1.2%
5/2/2013	5GHzB	5220	49.0	5.24	49.2	5.3	-0.4%	-1.6%
5/2/2013	5GHzB	5350	49.0	5.44	48.9	5.5	0.2%	-1.5%
5/2/2013	5GHzB	5500	48.7	5.65	48.7	5.7	0.0%	0.1%
5/2/2013	5GHzB	5700	48.0	5.86	48.3	5.9	-0.5%	-0.4%
5/2/2013	5GHzB	5850	48.0	6.08	48.1	6.1	-0.2%	0.3%
5/3/2013	5GHzB	5150	48.4	5.10	49.1	5.2	-1.3%	-2.6%
5/3/2013	5GHzB	5220	48.9	5.31	49.2	5.3	-0.7%	-0.3%
5/3/2013	5GHzB	5350	48.3	5.42	48.9	5.5	-1.2%	-1.9%
5/3/2013	5GHzB	5500	48.3	5.61	48.7	5.7	-0.9%	-0.7%
5/3/2013	5GHzB	5700	47.8	5.92	48.3	5.9	-1.1%	0.7%
5/3/2013	5GHzB	5850	48.2	6.26	48.1	6.1	0.1%	3.2%
5/8/2013	5GHzB	5150	48.7	5.23	49.1	5.2	-0.8%	-0.3%
5/8/2013	5GHzB	5220	49.0	5.41	49.2	5.3	-0.5%	1.5%
5/8/2013	5GHzB	5350	48.6	5.52	48.9	5.5	-0.6%	0.0%
5/8/2013	5GHzB	5500	48.4	5.76	48.7	5.7	-0.6%	2.0%
5/8/2013	5GHzB	5700	47.4	5.95	48.3	5.9	-1.8%	1.1%
5/8/2013	5GHzB	5850	47.9	6.26	48.1	6.1	-0.3%	3.3%
5/9/2013	5GHzB	5150	48.7	5.20	49.1	5.2	-0.8%	-0.7%
5/9/2013	5GHzB	5220	49.0	5.38	49.2	5.3	-0.4%	0.9%
5/9/2013	5GHzB	5350	48.8	5.54	48.9	5.5	-0.1%	0.3%
5/9/2013	5GHzB	5500	48.3	5.70	48.7	5.7	-0.8%	0.9%
5/9/2013	5GHzB	5700	47.7	5.93	48.3	5.9	-1.2%	0.8%
5/9/2013	5GHzB	5850	47.7	6.20	48.1	6.1	-0.8%	2.2%
5/13/2013	5GHzB	5150	48.7	5.24	49.1	5.2	-0.9%	-0.1%
5/13/2013	5GHzB	5220	48.4	5.27	49.2	5.3	-1.6%	-1.2%
5/13/2013	5GHzB	5350	48.5	5.51	48.9	5.5	-0.9%	-0.2%
5/13/2013	5GHzB	5500	48.3	5.75	48.7	5.7	-0.8%	1.8%
5/13/2013	5GHzB	5700	47.8	5.96	48.3	5.9	-1.0%	1.3%
5/13/2013	5GHzB	5850	47.5	6.19	48.1	6.1	-1.2%	2.1%
5/14/2013	5GHzB	5150	48.3	5.22	49.1	5.2	-1.7%	-0.4%
5/14/2013	5GHzB	5220	48.2	5.33	49.2	5.3	-2.0%	0.1%
5/14/2013	5GHzB	5350	47.8	5.44	48.9	5.5	-2.2%	-1.4%
5/14/2013	5GHzB	5500	47.8	5.73	48.7	5.7	-1.8%	1.4%
5/14/2013	5GHzB	5700	47.8	5.99	48.3	5.9	-1.0%	1.9%
5/14/2013	5GHzB	5850	46.9	6.09	48.1	6.1	-2.4%	0.5%
5/15/2013	5GHzB	5150	47.7	5.24	49.1	5.2	-2.9%	-0.1%
5/15/2013	5GHzB	5220	47.6	5.34	49.2	5.3	-3.2%	0.2%
5/15/2013	5GHzB	5350	47.4	5.47	48.9	5.5	-3.2%	-0.9%
5/15/2013	5GHzB	5500	47.2	5.69	48.7	5.7	-3.2%	0.6%
5/15/2013	5GHzB	5700	47.1	5.99	48.3	5.9	-2.5%	1.9%
5/15/2013	5GHzB	5850	46.5	6.14	48.1	6.1	-3.3%	1.3%
5/16/2013	5GHzB	5150	48.3	5.24	49.1	5.2	-1.5%	0.1%
5/16/2013	5GHzB	5220	48.1	5.28	49.2	5.3	-2.3%	-0.9%
5/16/2013	5GHzB	5350	48.0	5.49	48.9	5.5	-1.9%	-0.5%
5/16/2013	5GHzB	5500	47.4	5.61	48.7	5.7	-2.6%	-0.7%
5/16/2013	5GHzB	5700	47.6	5.97	48.3	5.9	-1.6%	1.6%
5/16/2013	5GHzB	5850	46.9	6.09	48.1	6.1	-2.6%	0.5%
5/23/2013	5GHzB	5150	47.7	5.09	49.1	5.2	-2.8%	-2.8%
5/23/2013	5GHzB	5220	48.0	5.27	49.2	5.3	-2.5%	-1.2%
5/23/2013	5GHzB	5350	48.0	5.46	48.9	5.5	-1.8%	-1.2%
5/23/2013	5GHzB	5500	47.4	5.55	48.7	5.7	-2.8%	-1.8%
5/23/2013	5GHzB	5700	47.2	5.83	48.3	5.9	-2.3%	-0.8%

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
5/23/2013	5GHzB	5850	46.9	5.99	48.1	6.1	-2.6%	-1.1%
9/13/2013	5GHzH	5200	35.5	4.51	36.0	4.7	-1.4%	-3.1%
9/13/2013	5GHzH	5300	35.3	4.61	35.8	4.7	-1.5%	-1.9%
9/13/2013	5GHzH	5500	35.2	4.90	35.7	4.9	-1.4%	-0.1%
9/13/2013	5GHzH	5600	35.0	5.01	35.5	5.0	-1.3%	0.2%
9/13/2013	5GHzH	5800	34.6	5.11	35.3	5.3	-2.1%	-3.0%
9/16/2013	5GHzB	5200	47.3	5.35	49.0	5.3	-3.5%	0.9%
9/16/2013	5GHzB	5300	47.5	5.53	48.9	5.4	-2.8%	1.9%
9/16/2013	5GHzB	5500	47.0	5.83	48.6	5.7	-3.2%	3.2%
9/16/2013	5GHzB	5600	46.5	5.87	48.5	5.8	-4.0%	1.8%
9/16/2013	5GHzB	5800	47.0	6.23	48.2	6.0	-2.5%	3.8%

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
- 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. For 5 GHz band, a grid spacing of 10mm 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 SAR REFERENCE VALUES FOR HEAD AND BODY CALIBRATION

Numerical reference SAR values (W/kg) for dipole and flat phantom
(IEEE1528-2003 Table 7)

Frequency (MHz)	1g SAR	10g SAR
300	3.0	2.0
450	4.9	3.3
835	9.5	6.2
900	10.8	6.9
1450	29.0	16.0
1800	38.1	19.8
1900	39.7	20.5
2000	41.1	21.1
2450	52.4	24.0

5.2.1 SYSTEM VERIFICATION

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 (%)	Plot #
3/1/2013	21.4	20.0	0.100	2450	890	Head	5.71	53.2	57.1	7.3%	V1
3/4/2013	20.7	20.1	0.100	2450	890	Body	5.30	50.6	53.0	4.7%	
3/7/2013	22.5	22.0	0.100	2450	890	Head	5.44	53.2	54.4	2.3%	
3/8/2013	22.7	22.2	0.100	2450	890	Head	5.55	53.2	55.5	4.3%	
4/22/2013	21.5	20.5	0.100	5200	1149	Head	7.40	80.0	74.0	-7.5%	
4/22/2013	21.9	20.2	0.100	5800	1149	Head	7.97	79.7	79.7	0.0%	
4/24/2013	23.3	22.2	0.100	5200	1149	Head	7.68	80.0	76.8	-4.0%	
4/24/2013	21.6	20.6	0.100	5500	1149	Head	8.69	85.7	86.9	1.4%	
4/24/2013	21.3	20.3	0.100	5800	1149	Head	8.50	79.7	85.0	6.6%	
4/26/2013	21.4	20.5	0.100	5200	1149	Head	8.27	80.0	82.7	3.4%	
4/26/2013	21.3	20.5	0.100	5500	1149	Head	8.89	85.7	88.9	3.7%	
4/26/2013	21.0	20.5	0.100	5800	1149	Head	8.57	79.7	85.7	7.5%	
4/29/2013	20.9	20.6	0.100	5200	1149	Head	8.47	80.0	84.7	5.9%	
4/29/2013	20.6	20.4	0.100	5500	1149	Head	9.33	85.7	93.3	8.9%	
4/29/2013	20.6	20.4	0.100	5800	1149	Head	8.68	79.7	86.8	8.9%	
5/1/2013	20.4	20.8	0.100	5200	1149	Body	7.51	74.7	75.1	0.5%	
5/1/2013	20.4	20.9	0.100	5500	1149	Body	7.51	81.0	75.1	-7.3%	
5/1/2013	20.4	21.1	0.100	5800	1149	Body	6.91	76.4	69.1	-9.6%	V2
5/8/2013	23.3	23.6	0.100	5200	1149	Body	7.31	74.7	73.1	-2.1%	
5/8/2013	23.3	23.3	0.100	5500	1149	Body	7.56	81.0	75.6	-6.7%	
5/8/2013	23.5	23.3	0.100	5800	1149	Body	6.94	76.4	69.4	-9.2%	
5/13/2013	22.0	23.8	0.100	5200	1149	Body	7.46	74.7	74.6	-0.1%	
5/13/2013	22.1	23.4	0.100	5500	1149	Body	7.85	81.0	78.5	-3.1%	
5/13/2013	22.0	23.0	0.100	5800	1149	Body	6.92	76.4	69.2	-9.4%	
5/16/2013	23.2	23.9	0.100	5200	1149	Body	7.29	74.7	72.9	-2.4%	
5/16/2013	23.5	23.9	0.100	5500	1149	Body	8.10	81.0	81.0	0.0%	
5/16/2013	23.8	23.5	0.100	5800	1149	Body	7.01	76.4	70.1	-8.2%	
5/23/2013	24.2	24.6	0.100	5200	1149	Body	7.45	74.7	74.5	-0.3%	
5/23/2013	24.4	24.5	0.100	5500	1149	Body	7.48	81.0	74.8	-7.7%	
5/23/2013	24.5	24.5	0.100	5800	1149	Body	6.96	76.4	69.6	-8.9%	
9/14/2013	23.2	22.2	0.100	5200	1149	Head	8.48	80.0	84.8	6.0%	
9/14/2013	23.2	22.2	0.100	5500	1149	Head	8.59	85.7	85.9	0.2%	
9/14/2013	23.2	22.2	0.100	5600	1149	Head	8.78	84.5	87.8	3.9%	
9/16/2013	23.4	21.5	0.100	5200	1149	Body	8.09	74.7	80.9	8.3%	
9/16/2013	23.4	21.5	0.100	5300	1149	Body	8.30	76.4	83.0	8.6%	V3
9/16/2013	23.4	21.5	0.100	5500	1149	Body	8.60	81.0	86.0	6.2%	
9/16/2013	23.4	21.5	0.100	5600	1149	Body	8.68	82.1	86.8	5.7%	
9/16/2013	23.4	21.5	0.100	5800	1149	Body	7.50	76.4	75.0	-1.8%	

6 SAR 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 dimensional 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

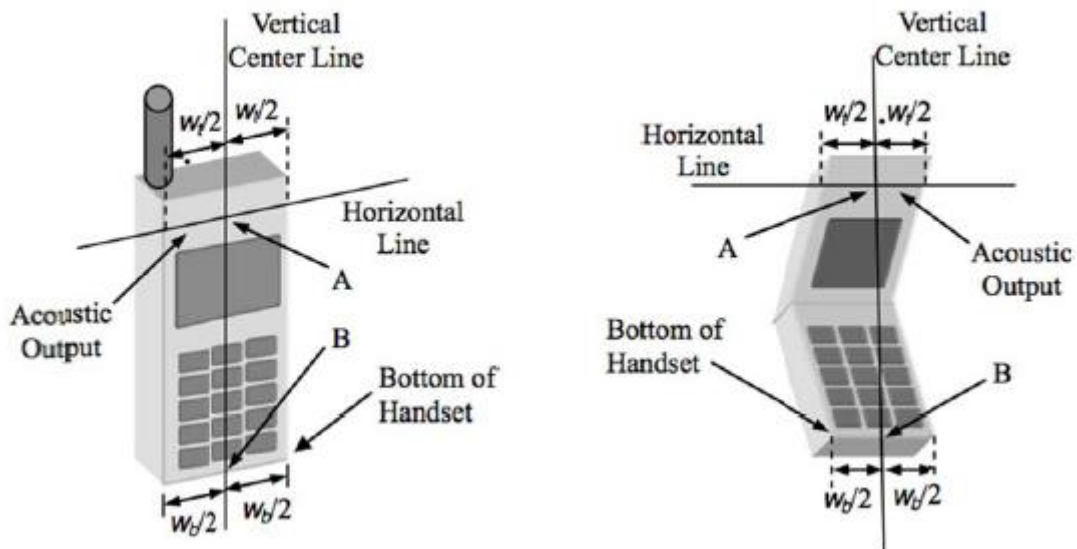
6.1.1 SAM SPECIFICATIONS

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

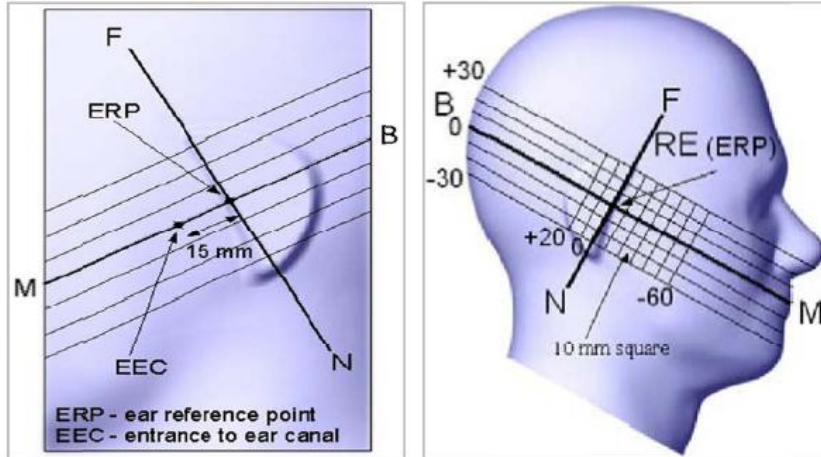
In order to identify reference points on the handset, define two imaginary lines on the handset

- 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.

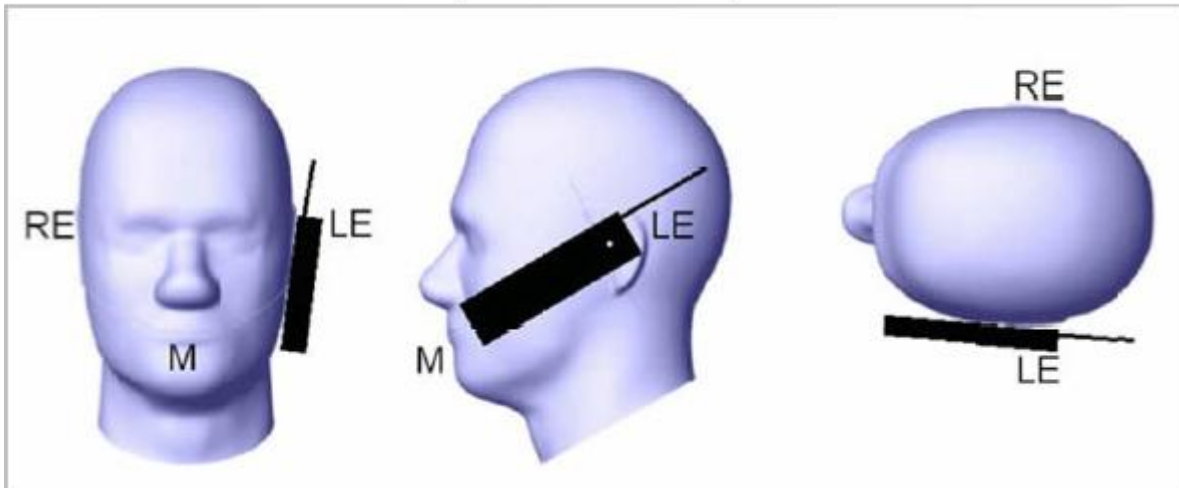


6.1.4 CHEEK POSITIONS

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

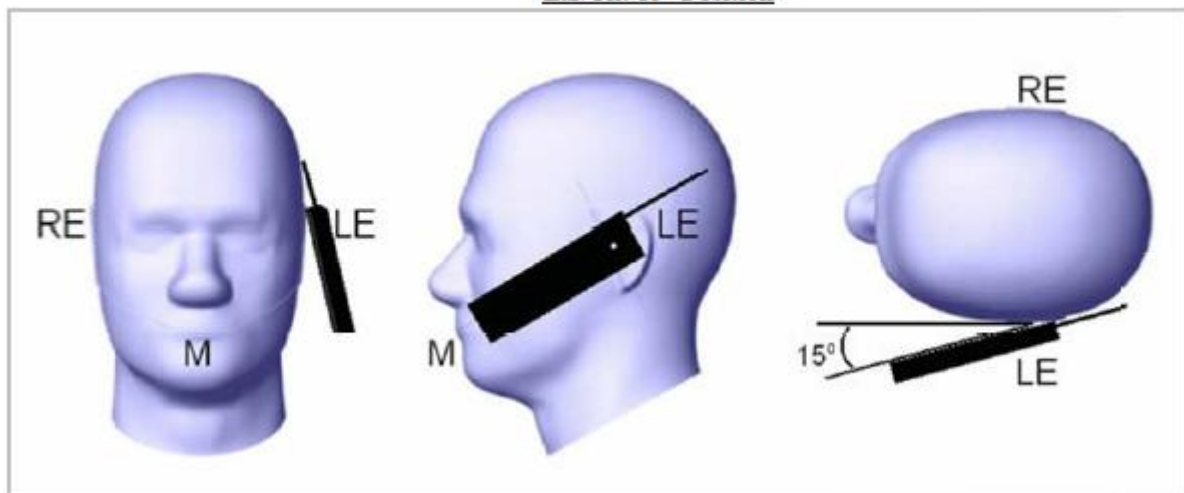


6.1.5 TILT POSITION

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

Mode	Freq (MHz)	Channel	Detector	802.11b Conducted Power (dBm)			
				Data rate (Mbps)			
				1	2	5.5	11
802.11b	2412	1	Avg	16.94	16.84	16.75	16.70
802.11b	2437	6	Avg	16.99	16.91	16.81	16.77
802.11b	2462	11	Avg	16.98	16.96	16.81	16.79

Mode	Freq (MHz)	Channel	Detector	802.11g Conducted Power (dBm)							
				Data rate (Mbps)							
				6	9	12	18	24	36	48	54
802.11g	2412	1	Avg	12.98	12.96	12.97	12.9	12.86	12.74	12.71	12.65
802.11g	2437	6	Avg	13	12.97	12.97	12.9	12.86	12.79	12.74	12.69
802.11g	2462	11	Avg	12.94	12.91	12.93	12.89	12.86	12.84	12.79	12.71

Mode	Freq (MHz)	Channel	Detector	802.11n, 2.4GHz 800ns GI, Conducted Power (dBm)							
				Data rate (Mbps)							
				6.5	13	19.5	26	39	52	58.5	65
802.11n	2412	1	Avg	12.87	12.82	12.77	12.77	12.69	12.61	12.56	12.16
802.11n	2437	6	Avg	12.97	12.85	12.81	12.79	12.69	12.64	12.59	12.20
802.11n	2462	11	Avg	12.92	12.87	12.83	12.78	12.70	12.63	12.60	12.25

Mode	Freq (MHz)	Channel	Detector	802.11a Conducted Power (dBm)							
				Data rate (Mbps)							
				6	9	12	18	24	36	48	54
802.11a	5745	149	Avg	11.95	11.94	11.93	11.92	11.88	11.79	11.27	11.18
802.11a	5765	153	Avg	11.77	11.78	11.70	11.68	11.62	11.54	11.03	11.00
802.11a	5785	157	Avg	11.98	11.96	11.94	11.91	11.85	11.80	11.28	11.25
802.11a	5805	161	Avg	11.94	11.88	11.88	11.83	11.75	11.68	11.18	11.13
802.11a	5825	165	Avg	11.94	11.89	11.87	11.82	11.76	11.63	11.17	11.13

Mode	Freq (MHz)	Channel	Detector	802.11n, 20 MHz BW, 5GHz 800ns GI, Conducted Power (dBm)							
				Data rate (Mbps)							
				7.2	14.4	21.7	28.9	43.4	57.8	65	72.2
802.11n	5745	149	Avg	11.91	11.89	11.85	11.78	11.71	11.16	11.13	9.72
802.11n	5765	153	Avg	11.77	11.72	11.64	11.61	11.53	10.91	10.91	9.56
802.11n	5785	157	Avg	11.96	11.93	11.87	11.85	11.72	11.20	11.17	9.82
802.11n	5805	161	Avg	11.95	11.94	11.82	11.81	11.76	11.19	11.13	9.79
802.11n	5825	165	Avg	11.95	11.89	11.88	11.83	11.77	11.21	11.14	9.80

Mode	Freq (MHz)	Channel	Detector	802.11a UNII Conducted Power (dBm)							
				Data rate (Mbps)							
				6	9	12	18	24	36	48	54
802.11a	5180	36	Avg	11.41	11.35	11.33	11.32	11.22	11.16	10.61	10.53
802.11a	5200	40	Avg	11.57	11.56	11.55	11.55	11.43	11.36	10.81	10.76
802.11a	5220	44	Avg	11.72	11.70	11.70	11.63	11.56	11.49	10.98	10.93
802.11a	5240	48	Avg	11.72	11.71	11.67	11.67	11.63	11.49	11.00	10.96

802.11a	5260	52	Avg	11.91	11.89	11.87	11.85	11.78	11.70	11.20	11.13
802.11a	5280	56	Avg	11.95	11.92	11.72	11.69	11.60	11.54	11.01	10.97
802.11a	5300	60	Avg	11.91	11.86	11.85	11.84	11.76	11.69	11.17	11.12
802.11a	5320	64	Avg	11.93	11.92	11.90	11.89	11.74	11.67	11.15	11.12

802.11a	5500	100	Avg	12.69	12.66	12.64	12.61	12.57	12.49	11.91	11.92
802.11a	5520	104	Avg	12.74	12.62	12.61	12.59	12.56	12.52	11.92	11.88
802.11a	5540	108	Avg	12.71	12.65	12.62	12.59	12.51	12.45	11.94	11.92
802.11a	5560	112	Avg	12.73	12.73	12.69	12.67	12.59	12.53	11.99	11.95
802.11a	5580	116	Avg	12.76	12.78	12.78	12.72	12.65	12.58	12.06	12.02
802.11a	5600	120	Avg	12.77	12.77	12.76	12.71	12.65	12.57	12.02	12.04
802.11a	5620	124	Avg	12.78	12.77	12.75	12.70	12.64	12.58	12.03	12.02
802.11a	5640	128	Avg	12.76	12.76	12.74	12.71	12.63	12.54	12.02	12.03
802.11a	5660	132	Avg	12.78	12.78	12.74	12.72	12.62	12.59	12.06	12.03
802.11a	5680	136	Avg	12.79	12.76	12.77	12.74	12.63	12.53	12.02	11.99
802.11a	5700	140	Avg	12.55	12.51	12.51	12.48	12.38	12.30	11.80	11.77

Mode	Freq (MHz)	Channel	Detector	802.11n, 20 MHz BW, 5GHz 800ns GI, Conducted Power (dBm)							
				Data rate (Mbps)							
				7.2	14.4	21.7	28.9	43.4	57.8	65	72.2
802.11n	5180	36	Avg	11.36	11.31	11.27	11.24	11.10	10.55	10.52	9.12
802.11n	5200	40	Avg	11.53	11.51	11.44	11.40	11.33	10.74	10.68	9.33
802.11n	5220	44	Avg	11.68	11.68	11.67	11.62	11.48	10.86	10.80	9.42
802.11n	5240	48	Avg	11.69	11.68	11.65	11.64	11.55	10.97	10.93	9.54

802.11n	5260	52	Avg	11.89	11.88	11.88	11.85	11.68	11.62	11.15	9.71
802.11n	5280	56	Avg	11.91	11.90	11.86	11.83	11.66	11.61	11.14	9.74
802.11n	5300	60	Avg	11.88	11.86	11.85	11.82	11.67	11.65	11.10	9.72
802.11n	5320	64	Avg	11.90	11.89	11.88	11.88	11.70	11.65	11.17	9.80

802.11n	5500	100	Avg	12.51	12.48	12.46	12.40	12.31	11.75	11.70	10.33
802.11n	5520	104	Avg	12.48	12.46	12.44	12.33	12.29	11.73	11.72	10.28
802.11n	5540	108	Avg	12.53	12.51	12.46	12.41	12.32	11.80	11.73	10.33
802.11n	5560	112	Avg	12.55	12.54	12.50	12.41	12.40	11.85	11.80	10.41
802.11n	5580	116	Avg	12.59	12.57	12.56	12.43	12.42	11.89	11.87	10.44
802.11n	5600	120	Avg	12.76	12.72	12.70	12.61	12.58	11.96	11.94	10.52
802.11n	5620	124	Avg	12.80	12.79	12.77	12.68	12.59	12.00	11.98	10.68
802.11n	5640	128	Avg	12.82	12.81	12.80	12.71	12.64	12.01	11.97	10.65
802.11n	5660	132	Avg	12.83	12.82	12.78	12.73	12.63	12.10	12.03	10.62
802.11n	5680	136	Avg	12.77	12.77	12.75	12.68	12.59	12.08	12.02	10.61
802.11n	5700	140	Avg	12.50	12.48	12.47	12.40	12.32	11.76	11.71	10.31

8 WI-FI (DTS BAND)

8.1 BODY SAR MEASUREMENT RESULTS

Frequency		Mode	Service	Data Rate	Max Pwr	Meas Pwr	Power Drift	Test Position	Side	Duty Cycle	1g SAR	Scaling factor	Scaled SAR 1g	Plot #
MHz	CH			Mbps	dBm	dBm	dB				W/kg		W/kg	
2442	7	802.11b	DSSS	1	17.50	16.99	Note1	B1,P1	Front	1:1	0.008	1.125	0.009	
2442	7	802.11b	DSSS	1	17.50	16.99	Note1	B1,P2	Back	1:1	0.097	1.125	0.109	
2442	7	802.11b	DSSS	1	17.50	16.99	Note1	B2,P1	Side	1:1	0.055	1.125	0.062	
2442	7	802.11b	DSSS	1	17.50	16.99	0.07	B3,P1	Back	1:1	0.792	1.125	0.891	
2442	7	802.11b	DSSS	1	17.50	16.99	Note1	B3,P2	Front	1:1	0.043	1.125	0.048	
2412	1	802.11b	DSSS	1	17.50	16.94	-0.16	B3,P1	Back	1:1	0.919	1.138	1.045	1
2462	11	802.11b	DSSS	1	17.50	16.98	-0.20	B3,P1	Back	1:1	0.462	1.127	0.521	
5785	157	802.11a	OFDM	6	13.00	11.98	Note1	B1,P1	Front	1:1	0.016	1.265	0.020	
5785	157	802.11a	OFDM	6	13.00	11.98	-0.33	B1,P2	Back	1:1	0.110	1.265	0.139	
5785	157	802.11a	OFDM	6	13.00	11.98	Note1	B2,P1	Side	1:1	0.094	1.265	0.118	
5785	157	802.11a	OFDM	6	13.00	11.98	0.01	B3,P1	Back	1:1	0.361	1.265	0.457	2
5785	157	802.11a	OFDM	6	13.00	11.98	Note1	B3,P2	Front	1:1	0.016	1.265	0.020	
5745	149	802.11a	OFDM	6	13.00	11.95	-0.11	B3,P1	Back	1:1	0.168	1.274	0.214	
5825	165	802.11a	OFDM	6	13.00	11.94	0.38	B3,P1	Back	1:1	0.187	1.276	0.239	

Note 1: Drift measurement not required since area scan is less than 0.1 W/kg

8.2 HEAD SAR MEASUREMENT RESULTS

Frequency		Mode	Service	Data Rate	Max Pwr	Meas Pwr	Power Drift	Test Position		Duty Cycle	1g SAR	Scaling factor	Scaled SAR 1g	Plot #
MHz	CH			Mbps	dBm	dBm	dB				W/kg		W/kg	
2442	7	802.11b	DSSS	1	17.50	16.99	Note1	Left	Touch	1:1	0.050	1.125	0.056	
2442	7	802.11b	DSSS	1	17.50	16.99	Note1	Left	Tilt	1:1	0.051	1.125	0.057	
2442	7	802.11b	DSSS	1	17.50	16.99	Note1	Right	Touch	1:1	0.069	1.125	0.078	3
2442	7	802.11b	DSSS	1	17.50	16.99	Note1	Right	Tilt	1:1	0.061	1.125	0.069	
2442	7	802.11b	DSSS	1	17.50	16.99	Note1	Right	Touch	1:1	0.064	1.125	0.072	
5785	157	802.11a	OFDM	6	13.00	11.98	Note1	Left	Touch	1:1	0.029	1.265	0.037	
5785	157	802.11a	OFDM	6	13.00	11.98	Note1	Left	Tilt	1:1	0.038	1.265	0.048	
5785	157	802.11a	OFDM	6	13.00	11.98	Note1	Right	Touch	1:1	0.035	1.265	0.044	
5785	157	802.11a	OFDM	6	13.00	11.98	Note1	Right	Tilt	1:1	0.048	1.265	0.061	4
5785	157	802.11a	OFDM	6	13.00	11.98	Note1	Right	Touch	1:1	0.016	1.265	0.020	

Note 1: Drift measurement not required since area scan is less than 0.1 W/kg

9 WI-FI (UNII BAND)

9.1 BODY SAR MEASUREMENT RESULTS

Frequency		Mode	Service	Data Rate	Max Pwr	Meas Pwr	Power Drift	Test Position	Side	Duty Cycle	1g SAR	Scaling factor	Scaled SAR 1g	Plot #
MHz	CH			Mbps	dBm	dBm	dB				W/kg		W/kg	
5220	44	802.11a	OFDM	MCS0	13.00	11.72	Note 1	B1,P1	Front	1:1	0.014	1.343	0.019	
5220	44	802.11a	OFDM	MCS0	13.00	11.72	-0.31	B1,P2	Back	1:1	0.477	1.343	0.640	
5220	44	802.11a	OFDM	MCS0	13.00	11.72	0.07	B2,P1	Side	1:1	0.212	1.343	0.285	
5220	44	802.11a	OFDM	MCS0	13.00	11.72	0.35	B3,P1	Back	1:1	0.764	1.343	1.026	3
5220	44	802.11a	OFDM	MCS0	13.00	11.72	Note 1	B3,P2	Front	1:1	0.030	1.343	0.040	
5180	36	802.11a	OFDM	MCS0	13.00	11.41	0.28	B3,P1	Back	1:1	0.630	1.442	0.909	
5280	56	802.11a	OFDM	MCS0	13.00	11.95	Note 1	B1,P1	Front	1:1	0.020	1.274	0.026	
5280	56	802.11a	OFDM	MCS0	13.00	11.95	-0.12	B1,P2	Back	1:1	0.502	1.274	0.639	
5280	56	802.11a	OFDM	MCS0	13.00	11.95	0.00	B2,P1	Side	1:1	0.325	1.274	0.414	
5280	56	802.11a	OFDM	MCS0	13.00	11.95	0.04	B3,P1	Back	1:1	0.753	1.274	0.959	
5280	56	802.11a	OFDM	MCS0	13.00	11.95	Note 1	B3,P2	Front	1:1	0.032	1.274	0.041	
5320	64	802.11a	OFDM	MCS0	13.00	11.93	0.00	B3,P1	Back	1:1	0.862	1.279	1.103	4
5680	136	802.11a	OFDM	MCS0	13.00	12.79	Note 1	B1,P1	Front	1:1	0.011	1.050	0.012	
5680	136	802.11a	OFDM	MCS0	13.00	12.79	-0.15	B1,P2	Back	1:1	0.142	1.050	0.149	
5680	136	802.11a	OFDM	MCS0	13.00	12.79	Note 1	B2,P1	Side	1:1	0.087	1.050	0.091	
5680	136	802.11a	OFDM	MCS0	13.00	12.79	-0.34	B3,P1	Back	1:1	0.361	1.050	0.379	5
5680	136	802.11a	OFDM	MCS0	13.00	12.79	Note 1	B3,P2	Front	1:1	0.015	1.067	0.015	
5600	120	802.11a	OFDM	MCS0	13.00	12.77	Note 1	B1,P1	Front	1:1	0.018	1.054	0.019	
5600	120	802.11a	OFDM	MCS0	13.00	12.77	-0.01	B1,P2	Back	1:1	0.134	1.054	0.141	
5600	120	802.11a	OFDM	MCS0	13.00	12.77	-0.26	B2,P1	Side	1:1	0.127	1.054	0.134	
5600	120	802.11a	OFDM	MCS0	13.00	12.77	0.38	B3,P1	Back	1:1	0.280	1.054	0.295	
5600	120	802.11a	OFDM	MCS0	13.00	12.77	Note 1	B3,P2	Front	1:1	0.022	1.067	0.023	
5500	100	802.11a	OFDM	MCS0	13.00	12.69	0.24	B3,P2	Front	1:1	0.334	1.067	0.356	
5700	140	802.11a	OFDM	MCS0	13.00	12.55	-0.34	B3,P2	Front	1:1	0.114	1.067	0.122	

Note 1: Drift measurement not required since area scan is less than 0.1 W/kg

9.2 HEAD SAR MEASUREMENT RESULTS

Frequency		Mode	Service	Data Rate	Max Pwr	Meas Pwr	Power Drift	Test Position		Duty Cycle	1g SAR	Scaling factor	Scaled SAR 1g	Plot #
MHz	CH			Mbps	dBm	dBm	dB				W/kg		W/kg	
5220	44	802.11a	OFDM	MCS0	13.00	11.72	Note 1	Left	Touch	1:1	0.050	1.343	0.068	
5220	44	802.11a	OFDM	MCS0	13.00	11.72	Note 1	Left	Tilt	1:1	0.072	1.343	0.096	8
5220	44	802.11a	OFDM	MCS0	13.00	11.72	Note 1	Right	Touch	1:1	0.059	1.343	0.079	
5220	44	802.11a	OFDM	MCS0	13.00	11.72	Note 1	Right	Tilt	1:1	0.056	1.343	0.075	
5280	56	802.11a	OFDM	MCS0	13.00	11.95	Note 1	Left	Touch	1:1	0.057	1.274	0.073	
5280	56	802.11a	OFDM	MCS0	13.00	11.95	Note 1	Left	Tilt	1:1	0.093	1.274	0.118	9
5280	56	802.11a	OFDM	MCS0	13.00	11.95	Note 1	Right	Touch	1:1	0.057	1.274	0.073	
5280	56	802.11a	OFDM	MCS0	13.00	11.95	Note 1	Right	Tilt	1:1	0.070	1.274	0.090	
5680	136	802.11a	OFDM	MCS0	13.00	12.79	Note 1	Left	Touch	1:1	0.028	1.050	0.029	

Frequency		Mode	Service	Data Rate	Max Pwr	Meas Pwr	Power Drift	Test Position		Duty Cycle	1g SAR	Scaling factor	Scaled SAR 1g	Plot #
MHz	CH			Mbps	dBm	dBm	dB				W/kg		W/kg	
5680	136	802.11a	OFDM	MCS0	13.00	12.79	Note 1	Left	Tilt	1:1	0.032	1.050	0.034	
5680	136	802.11a	OFDM	MCS0	13.00	12.79	Note 1	Right	Touch	1:1	0.027	1.050	0.028	
5680	136	802.11a	OFDM	MCS0	13.00	12.79	Note 1	Right	Tilt	1:1	0.033	1.050	0.034	
5600	120	802.11a	OFDM	MCS0	13.00	12.77	Note 1	Left	Touch	1:1	0.029	1.054	0.030	
5600	120	802.11a	OFDM	MCS0	13.00	12.77	Note 1	Left	Tilt	1:1	0.038	1.054	0.040	10
5600	120	802.11a	OFDM	MCS0	13.00	12.77	Note 1	Right	Touch	1:1	0.037	1.054	0.039	
5600	120	802.11a	OFDM	MCS0	13.00	12.77	Note 1	Right	Tilt	1:1	0.031	1.054	0.032	

Note 1: Drift measurement not required since area scan is less than 0.1 W/kg

10 SIMULTANEOUS TRANSMISSIONS

There are no simultaneous transmission conditions for this device.

11 UNCERTAINTY BUDGET

Test Name:	SAR IEEE 1528/ 62209-1 (0.3 to 3 GHz range)
Instrument(s) Used:	SAR Measurement Sytem
Standard(s) Reference:	IEEE 1528:2011 and IEC 62209-1:2011

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	6.0%	N1	1	1	1	6.0%	6.0%	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
	Boundary Effects	1.0%	R	1.732	1	1	0.6%	0.6%	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
	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	0.4%	R	1.732	1	1	0.2%	0.2%	inf
	Probe Positioning	2.9%	R	1.732	1	1	1.7%	1.7%	inf
	Max. SAR Eval.	2.0%	R	1.732	1	1	1.2%	1.2%	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	6.1%	R	1.732	1	1	3.5%	3.5%	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	3.4%	R	1.732	0.78	0.71	1.5%	1.4%	inf
	Temp. unc. - Permittivity	0.4%	R	1.732	0.23	0.26	0.1%	0.1%	inf
			n1	1	1	1	0.0%	0.0%	inf

uc(Fs)	Combined Standard Uncertainty	N1	1	11.3%	11.2%
U(Fs)	Expanded Uncertainty	Normal k=	2	22.6%	22.4%

The Expanded Uncertainty is 22.6% for a Normal k factor equal to 2

Test Name:	SAR IEEE 1528/ 62209-1 (3 - 6 GHz range)
Instrument(s) Used:	SAR Measurement Sytem
Standard(s) Reference:	IEEE 1528:2011 and IEC 62209-1:2011

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
	Boundary Effects	2.0%	R	1.732	1	1	1.2%	1.2%	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
	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
	Max. SAR Eval.	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	6.6%	R	1.732	1	1	3.8%	3.8%	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	3.4%	R	1.732	0.78	0.71	1.5%	1.4%	inf
	Temp. unc. - Permittivity	0.4%	R	1.732	0.23	0.26	0.1%	0.1%	inf
			n1	1	1	1	0.0%	0.0%	inf

uc(Fs)	Combined Standard Uncertainty	N1	1	12.4%	12.3%
U(Fs)	Expanded Uncertainty	Normal k=	2	24.8%	24.7%

The Expanded Uncertainty is 24.8% for a Normal k factor equal to 2

Test Name:	SAR 62209-2 (0.3 to 6 GHz range)
Instrument(s) Used:	SAR Measurement Sytem
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
			n1	1	1	1	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

12 SETUP PHOTOGRAPHS

Right Touch



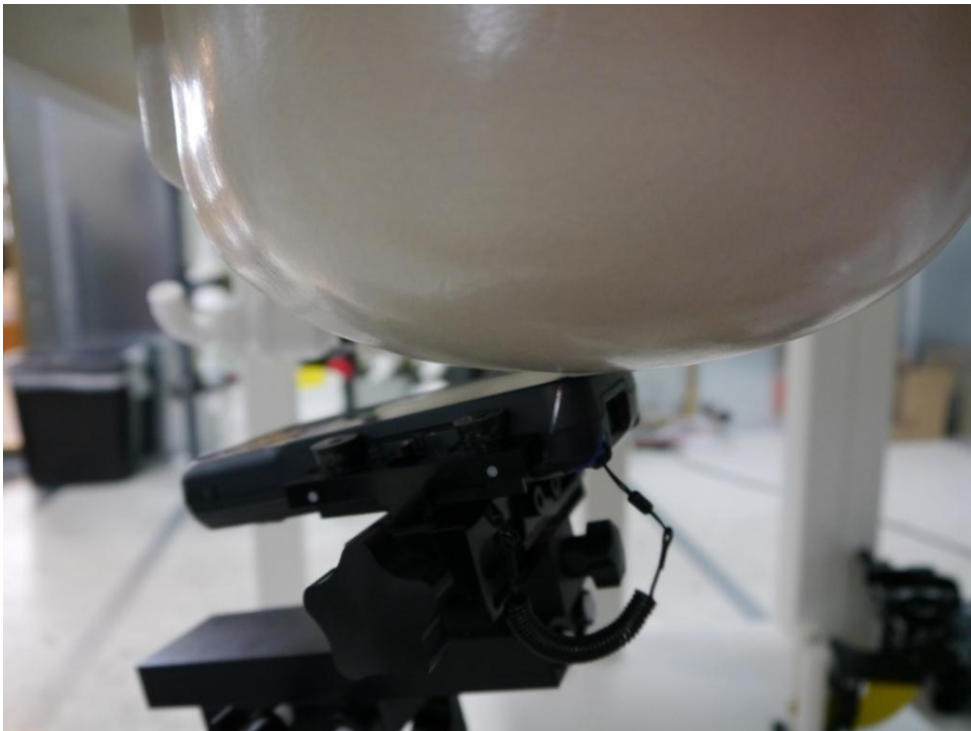
Right Tilt (15°)



Left Touch



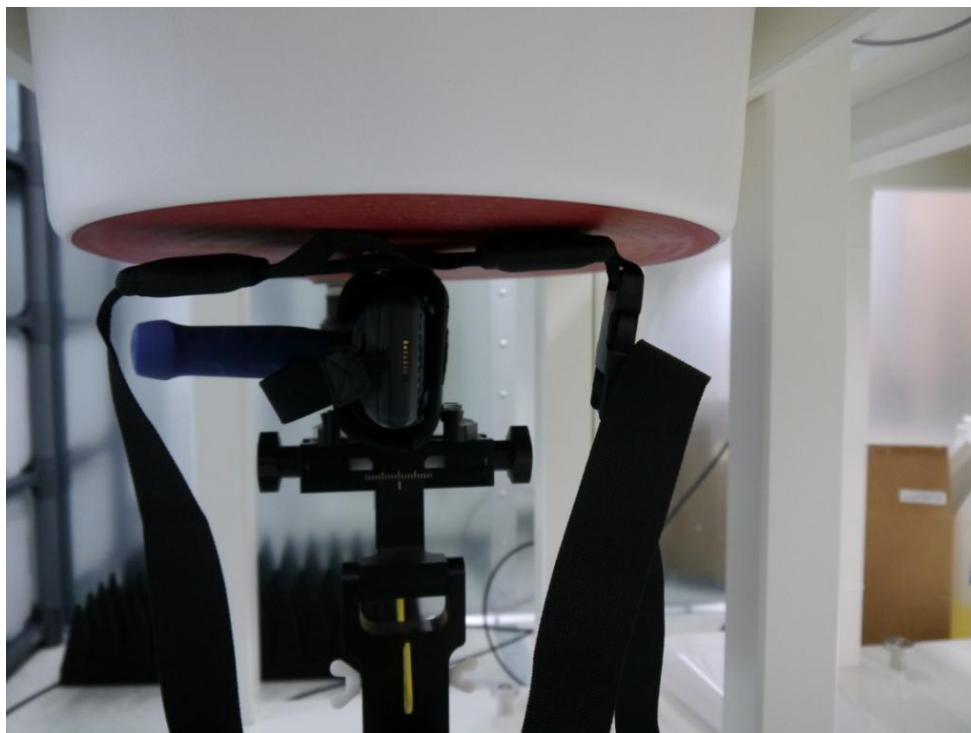
Left Tilt (15°)



Body: B1, P1 (Screen facing towards body)
Body: B1, P2 (Screen facing away from body)



B2, P1



B3, P1 (Screen facing away from body)

B3, P2 (Screen facing towards body)



13 PLOTS

Plot #1

Date/Time: 3/5/2013 9:24:57 AM

WiFi 2.4GHz

Communication System: CW; Communication System Band: CD2450 (2450.0 MHz); Frequency: 2450 MHz; Communication System PAR: 0 dB; PMF: 1

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.066$ mho/m; $\epsilon_r = 52.236$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

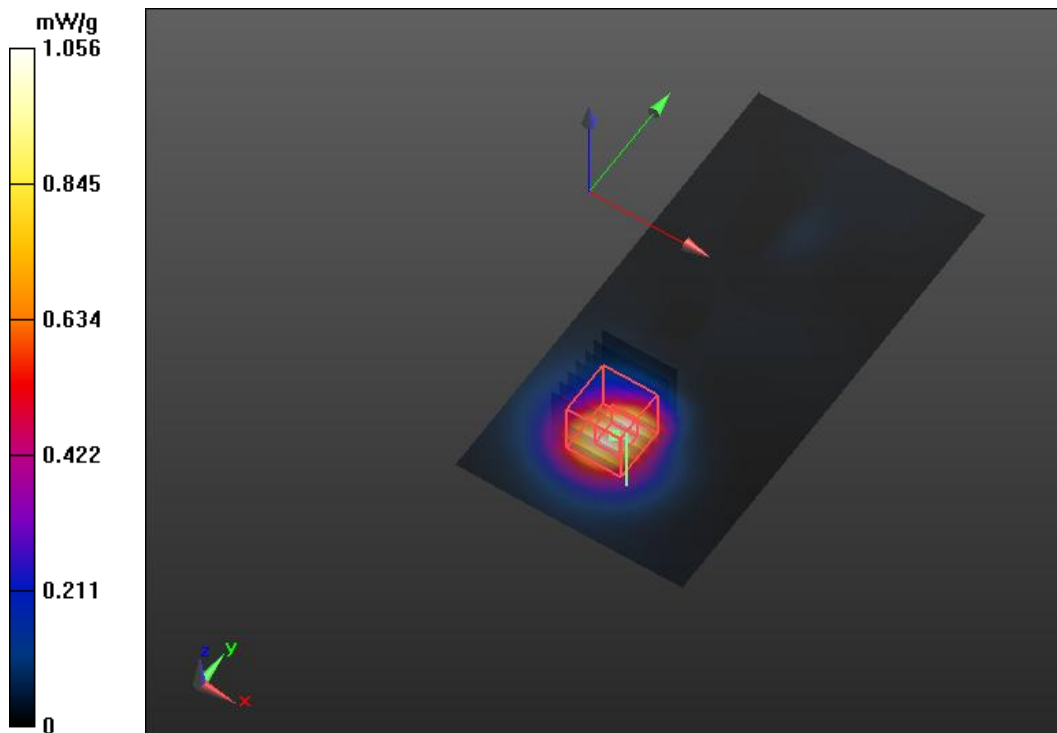
Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ES3DV3 - SN3272; ConvF(4.19, 4.19, 4.19); Calibrated: 5/15/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASYS5 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/ 2.4GHz, 802.11b, 1Mbps, Low Ch1, Case X11954-V1, screen away from body/Area Scan (91x181x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (interpolated) = 1.06 mW/g

Configuration/ 2.4GHz, 802.11b, 1Mbps, Low Ch1, Case X11954-V1, screen away from body/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 8.235 V/m; Power Drift = -0.16 dB
 Peak SAR (extrapolated) = 1.771 mW/g
SAR(1 g) = 0.919 mW/g; SAR(10 g) = 0.491 mW/g (SAR corrected for target medium)
 Maximum value of SAR (measured) = 1.04 mW/g



Plot #2

Date/Time: 9/16/2013 5:15:32 PM

WiFi 5.8GHz

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
 Frequency: 5785 MHz; Communication System PAR: 0 dB; PMF: 1
 Medium parameters used: $f = 5785$ MHz; $\sigma = 6.247$ mho/m; $\epsilon_r = 47.045$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(4.16, 4.16, 4.16); Calibrated: 3/11/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASYS 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/BSL 5GHz, 802.11A, 6Mbps, Ch157 5785MHz, B3, P1/Area Scan (91x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.04 mW/g

Configuration/BSL 5GHz, 802.11A, 6Mbps, Ch157 5785MHz, B3, P1/Zoom Scan (7x7x12)/Cube 0:

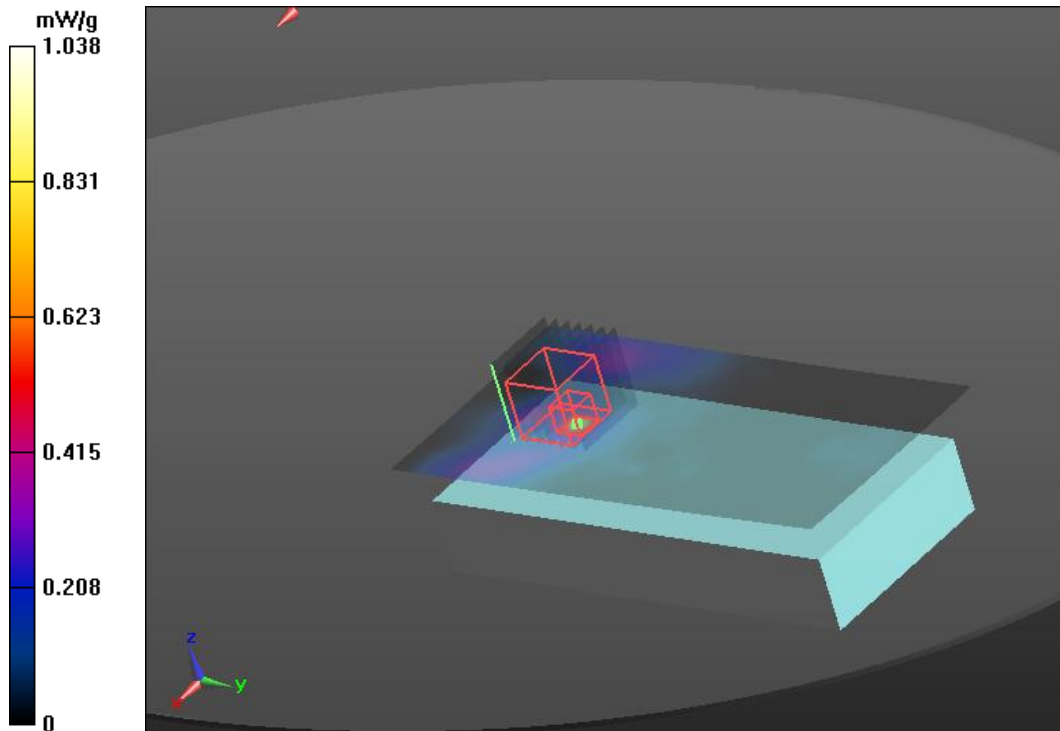
Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 3.166 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.629 mW/g

SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.088 mW/g (SAR corrected for target medium)

Maximum value of SAR (measured) = 1.10 mW/g



Plot #3

Date/Time: 3/7/2013 11:31:48 AM

WiFi 2.4 GHz

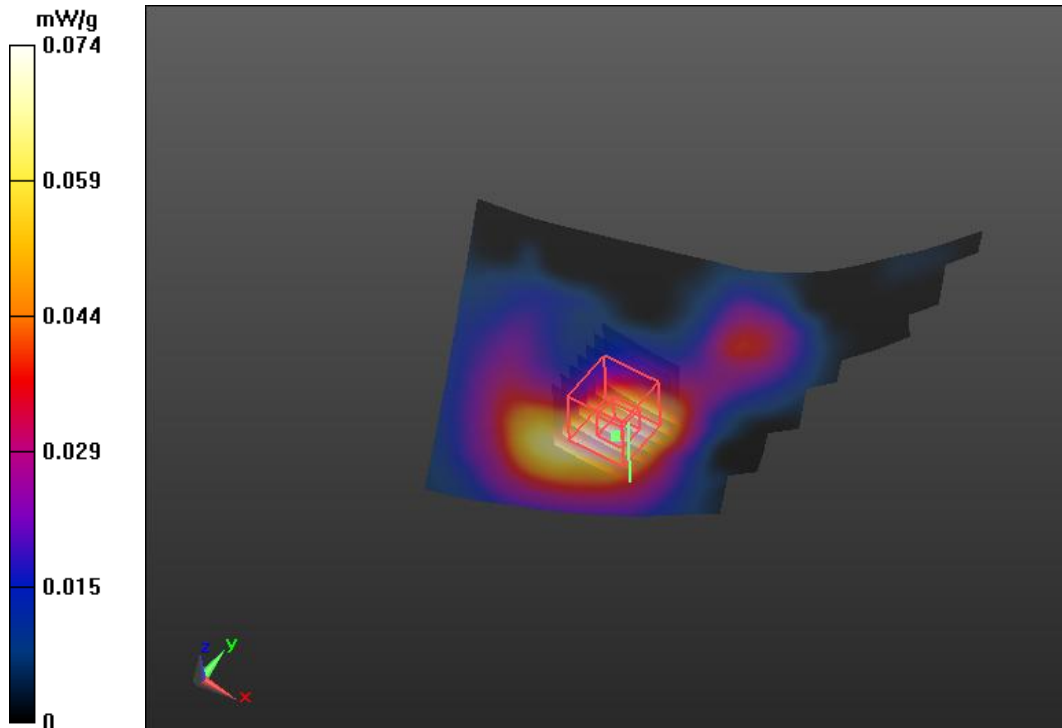
Communication System: CW; Communication System Band: CD2450 (2450.0 MHz);
 Frequency: 2450 MHz; Communication System PAR: 0 dB; PMF: 1
 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.737$ mho/m; $\epsilon_r = 39.16$; $\rho = 1000$ kg/m³
 Phantom section: Right Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ES3DV3 - SN3272; ConvF(4.27, 4.27, 4.27); Calibrated: 5/15/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1665
- DASYS2 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/ 2.4GHz, 802.11b, 1Mbps, Mid Ch7, Right Touch/Area Scan (111x191x1): Measurement grid:
 dx=10mm, dy=10mm
 Maximum value of SAR (interpolated) = 0.0735 mW/g

Configuration/ 2.4GHz, 802.11b, 1Mbps, Mid Ch7, Right Touch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 3.426 V/m; Power Drift = 0.60 dB
 Peak SAR (extrapolated) = 0.116 mW/g
SAR(1 g) = 0.069 mW/g; SAR(10 g) = 0.040 mW/g (SAR corrected for target medium)
 Maximum value of SAR (measured) = 0.0731 mW/g



Plot #4

Date/Time: 9/14/2013 1:36:32 PM

WiFi 5.8GHz

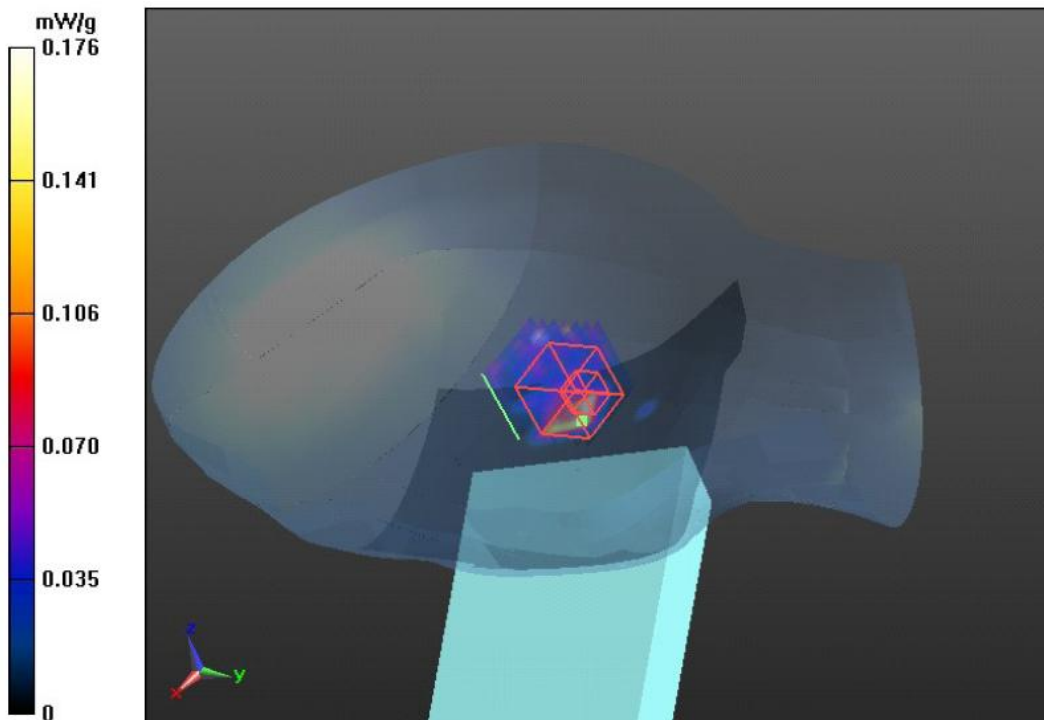
Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
 Frequency: 5785 MHz; Communication System PAR: 0 dB; PMF: 1
 Medium parameters used: $f = 5785$ MHz; $\sigma = 5.185$ mho/m; $\epsilon_r = 35.083$; $\rho = 1000$ kg/m³
 Phantom section: Right Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(4.19, 4.19, 4.19); Calibrated: 3/11/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1665
- DASYS2 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/ 5GHz, 802.11a, 6Mbps, Ch157, Right Tilt/Area Scan (111x191x1): Measurement grid:
 $dx=10$ mm, $dy=10$ mm
 Maximum value of SAR (interpolated) = 0.176 mW/g

Configuration/ 5GHz, 802.11a, 6Mbps, Ch157, Right Tilt/Zoom Scan (7x7x12)/Cube 0: Measurement grid:
 $dx=5$ mm, $dy=5$ mm, $dz=2$ mm
 Reference Value = 1.910 V/m; Power Drift = -0.12 dB
 Peak SAR (extrapolated) = 0.248 mW/g
SAR(1 g) = 0.048 mW/g; SAR(10 g) = 0.011 mW/g (SAR corrected for target medium)
 Maximum value of SAR (measured) = 0.0676 mW/g



Plot #5

Date/Time: 9/16/2013 2:30:03 PM

UNII 5.2GHz

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
 Frequency: 5220 MHz; Communication System PAR: 0 dB; PMF: 1
 Medium parameters used: $f = 5220$ MHz; $\sigma = 5.452$ mho/m; $\epsilon_r = 47.541$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(4.48, 4.48, 4.48); Calibrated: 3/11/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASYS 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/ 5GHz, 802.11A, 6Mbps, Ch44 5220MHz, B3, P1/Area Scan (91x181x1): Measurement grid:
 $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (interpolated) = 1.68 mW/g

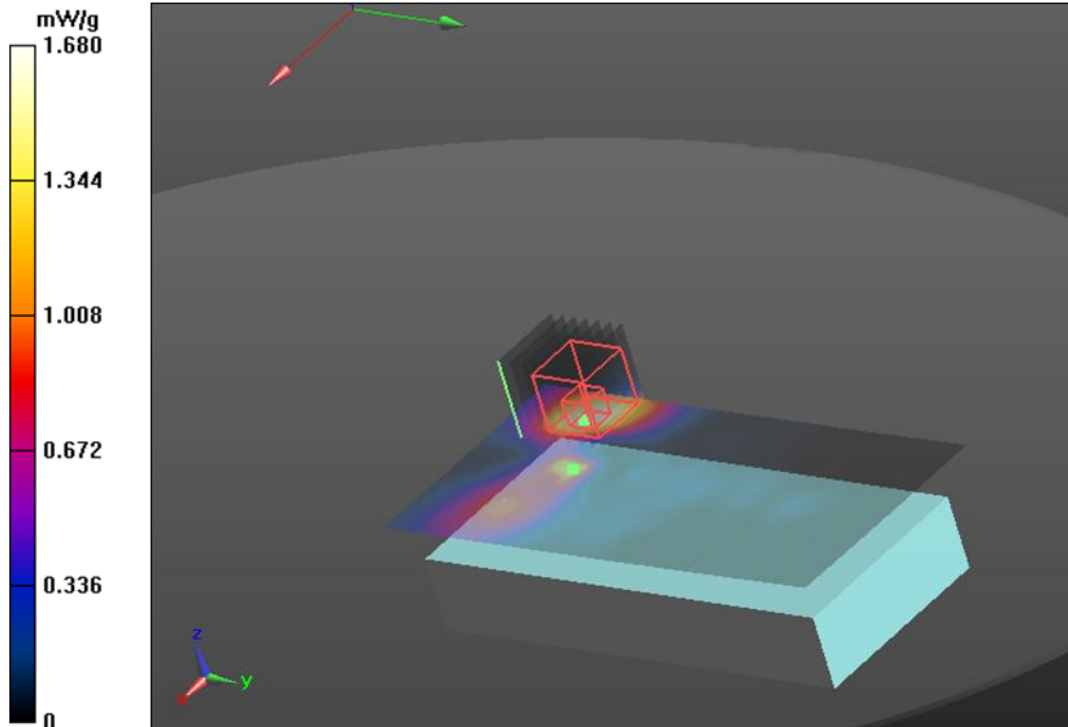
Configuration/ 5GHz, 802.11A, 6Mbps, Ch44 5220MHz, B3, P1/Zoom Scan (7x7x12)/Cube 0: Measurement grid:
 $dx=5$ mm, $dy=5$ mm, $dz=2$ mm

Reference Value = 3.970 V/m; Power Drift = 0.35 dB

Peak SAR (extrapolated) = 2.501 mW/g

SAR(1 g) = 0.764 mW/g; SAR(10 g) = 0.329 mW/g (SAR corrected for target medium)

Maximum value of SAR (measured) = 1.61 mW/g



Plot #6

Date/Time: 9/16/2013 4:00:11 PM

UNII 5.3 GHz

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
 Frequency: 5320 MHz; Communication System PAR: 0 dB; PMF: 1
 Medium parameters used: $f = 5320$ MHz; $\sigma = 5.52$ mho/m; $\epsilon_r = 47.146$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(4.29, 4.29, 4.29); Calibrated: 3/11/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASYS 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/BSL 5GHz, 802.11A, 6Mbps, Ch64 5320MHz, B3, P1/Area Scan (91x181x1): Measurement grid: dx=10mm, dy=10mm

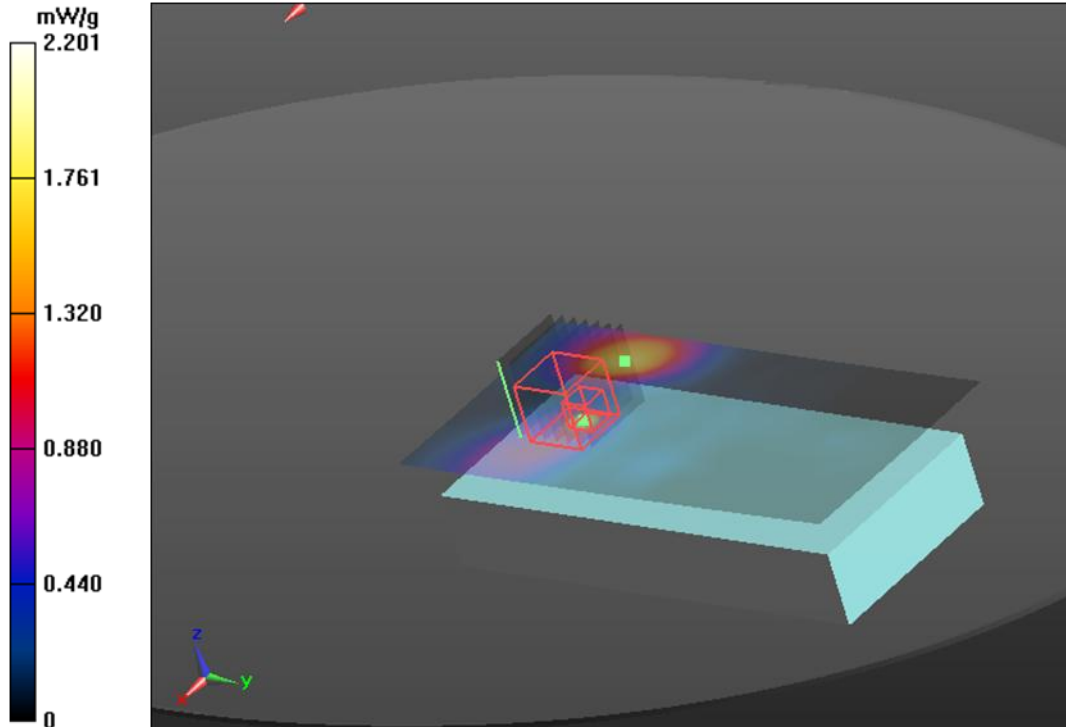
Maximum value of SAR (interpolated) = 2.20 mW/g

Configuration/BSL 5GHz, 802.11A, 6Mbps, Ch64 5320MHz, B3, P1/Zoom Scan (7x7x12)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=2mm
 Reference Value = 4.763 V/m; Power Drift = -0.00 dB
 Peak SAR (extrapolated) = 3.515 mW/g

SAR(1 g) = 0.862 mW/g; SAR(10 g) = 0.252 mW/g (SAR corrected for target medium)

Maximum value of SAR (measured) = 2.08 mW/g



Plot #7

Date/Time: 9/16/2013 4:38:43 PM

UNII 5.6 GHz

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
 Frequency: 5680 MHz; Communication System PAR: 0 dB; PMF: 1
 Medium parameters used: $f = 5680$ MHz; $\sigma = 6.034$ mho/m; $\epsilon_r = 46.589$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(4.17, 4.17, 4.17); Calibrated: 3/11/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASYS 52.8.1(838); SEMCAD X 14.6.5(6469)

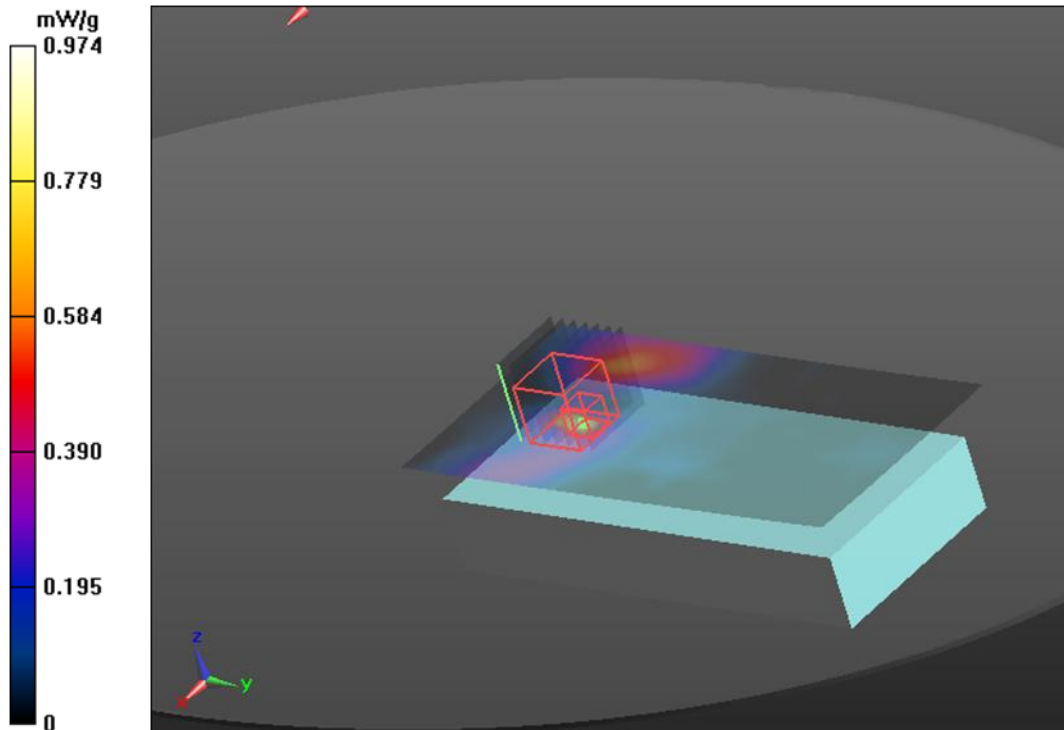
Configuration/BSL 5GHz, 802.11A, 6Mbps, Ch136 5680MHz, B3, P1/Area Scan (91x181x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.974 mW/g

Configuration/BSL 5GHz, 802.11A, 6Mbps, Ch136 5680MHz, B3, P1/Zoom Scan (7x7x12)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=2mm
 Reference Value = 2.335 V/m; Power Drift = -0.34 dB
 Peak SAR (extrapolated) = 1.533 mW/g

SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.103 mW/g (SAR corrected for target medium)
 Maximum value of SAR (measured) = 0.935 mW/g



Plot #8

Date/Time: 4/22/2013 4:48:23 PM

UNII 5.2 GHz

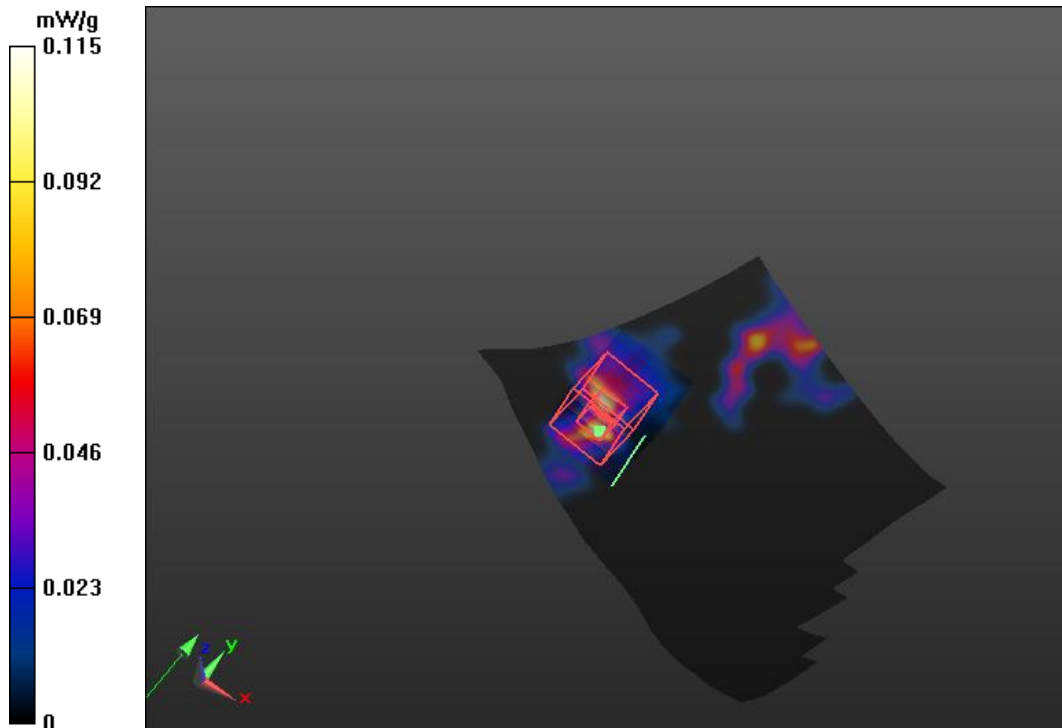
Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
 Frequency: 5220 MHz; Communication System PAR: 0 dB; PMF: 1
 Medium parameters used: $f = 5220$ MHz; $\sigma = 4.462$ mho/m; $\epsilon_r = 34.428$; $\rho = 1000$ kg/m³
 Phantom section: Left Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(4.82, 4.82, 4.82); Calibrated: 3/11/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1665
- DASYS2 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/ 5GHz, 802.11a, 6Mbps, Ch44, Left Tilt/Area Scan (111x201x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (interpolated) = 0.115 mW/g

Configuration/ 5GHz, 802.11a, 6Mbps, Ch44, Left Tilt/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm
 Reference Value = 0.958 V/m; Power Drift = 4.41 dB
 Peak SAR (extrapolated) = 0.276 mW/g
SAR(1 g) = 0.069 mW/g; SAR(10 g) = 0.024 mW/g (SAR corrected for target medium)
 Maximum value of SAR (measured) = 0.0717 mW/g



Plot #9

Date/Time: 9/14/2013 12:15:00 PM

UNII 5.3 GHz

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
 Frequency: 5280 MHz; Communication System PAR: 0 dB; PMF: 1
 Medium parameters used: $f = 5280$ MHz; $\sigma = 4.629$ mho/m; $\epsilon_r = 35.468$; $\rho = 1000$ kg/m³
 Phantom section: Left Section
 Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(4.52, 4.52, 4.52); Calibrated: 3/11/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1665
- DASYS52 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/ 5GHz, 802.11a, 6Mbps, Ch56, Left Tilt/Area Scan (111x191x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.361 mW/g

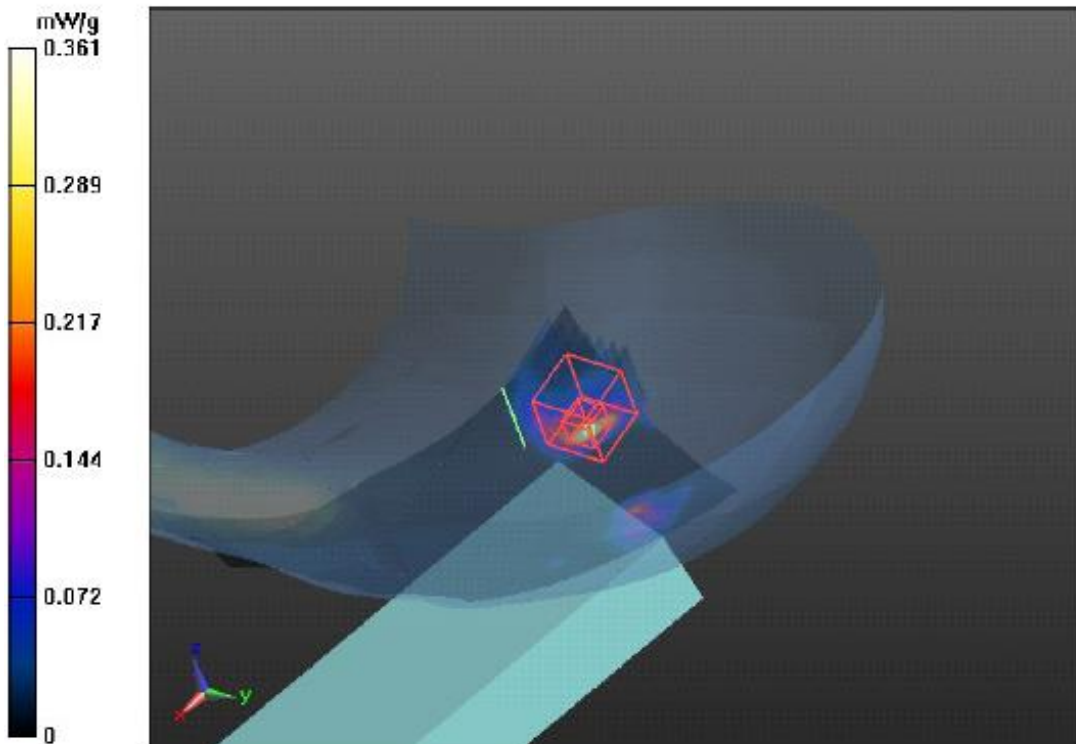
Configuration/ 5GHz, 802.11a, 6Mbps, Ch56, Left Tilt/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm

Reference Value = 2.226 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.289 mW/g

SAR(1 g) = 0.093 mW/g; SAR(10 g) = 0.038 mW/g (SAR corrected for target medium)

Maximum value of SAR (measured) = 0.114 mW/g



Plot #10

Date/Time: 4/23/2013 3:23:45 PM

UNII 5.6 GHz

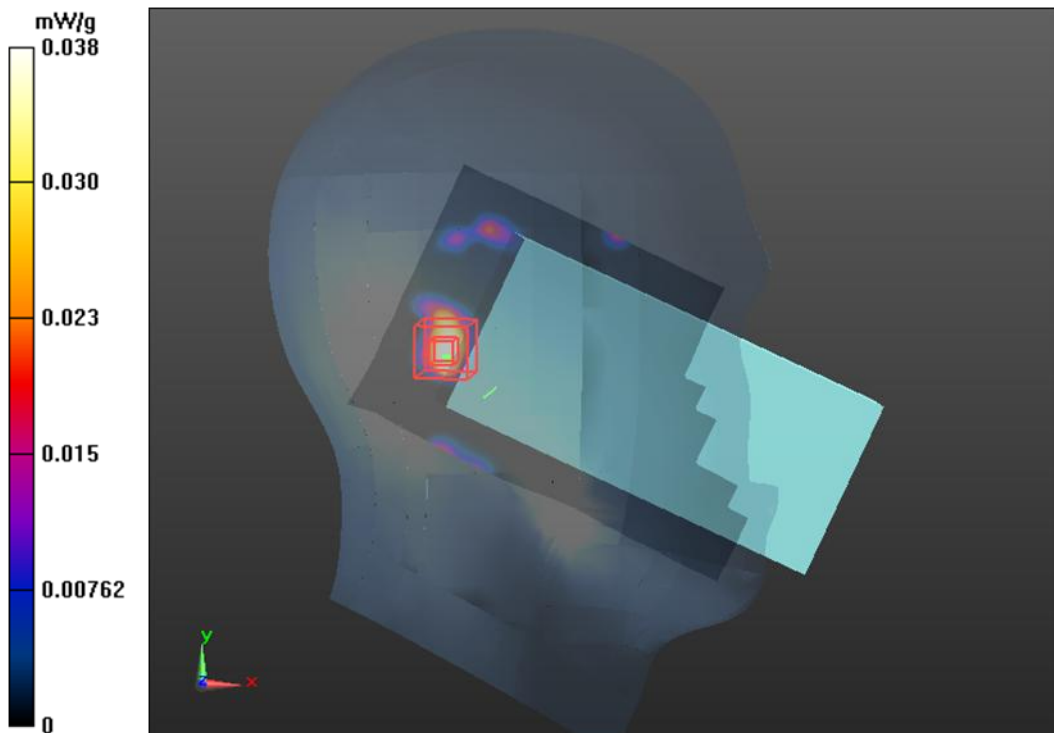
Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
 Frequency: 5600 MHz; Communication System PAR: 0 dB; PMF: 1
 Medium parameters used: $f = 5600$ MHz; $\sigma = 4.902$ mho/m; $\epsilon_r = 34.067$; $\rho = 1000$ kg/m³
 Phantom section: Left Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(4.34, 4.34, 4.34); Calibrated: 3/11/2013;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1665
- DASYS2 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/ 5GHz, 802.11a, 6Mbps, Ch120 Mid 5600 Left Tilt/Area Scan (111x201x1): Measurement grid:
 dx=10mm, dy=10mm
 Maximum value of SAR (interpolated) = 0.0475 mW/g

Configuration/ 5GHz, 802.11a, 6Mbps, Ch120 Mid 5600 Left Tilt/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=2mm
 Reference Value = 1.441 V/m; Power Drift = 3.69 dB
 Peak SAR (extrapolated) = 0.225 mW/g
SAR(1 g) = 0.042 mW/g; SAR(10 g) = 0.012 mW/g (SAR corrected for target medium)
 Maximum value of SAR (measured) = 0.0381 mW/g



Plot # V1

Date/Time: 3/1/2013 10:34:04 AM

2450MHz System validation, DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2

Communication System: CW; Communication System Band: CD2450 (2450.0 MHz);
 Frequency: 2450 MHz; Communication System PAR: 0 dB; PMF: 1
 Medium parameters used: $f = 2450$ MHz; $\sigma = 1.815$ mho/m; $\epsilon_r = 38.565$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section
 Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ES3DV3 - SN3272; ConvF(4.27, 4.27, 4.27); Calibrated: 5/15/2012;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1665
- DASYS52 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/2450MHz System Validation/Area Scan (31x61x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (interpolated) = 6.51 mW/g

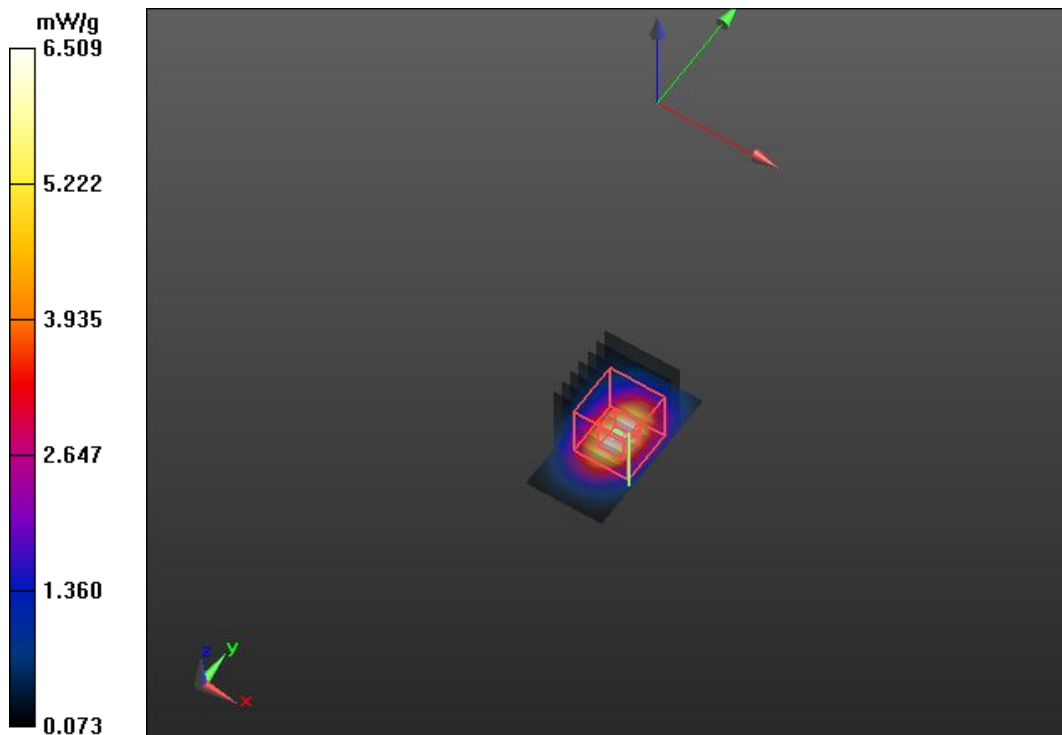
Configuration/2450MHz System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

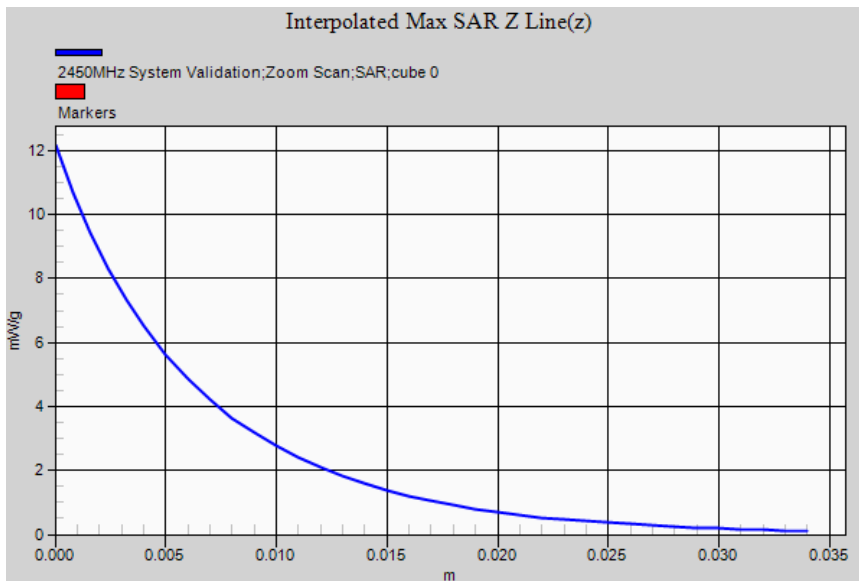
Reference Value = 60.174 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 12.173 mW/g

SAR(1 g) = 5.71 mW/g; SAR(10 g) = 2.61 mW/g (SAR corrected for target medium)

Maximum value of SAR (measured) = 6.53 mW/g





Plot # V2

Date/Time: 5/1/2013 1:19:51 PM

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: 1149

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
 Frequency: 5800 MHz; Communication System PAR: 0 dB; PMF: 1
 Medium parameters used: $f = 5800$ MHz; $\sigma = 6.282$ mho/m; $\epsilon_r = 47.192$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

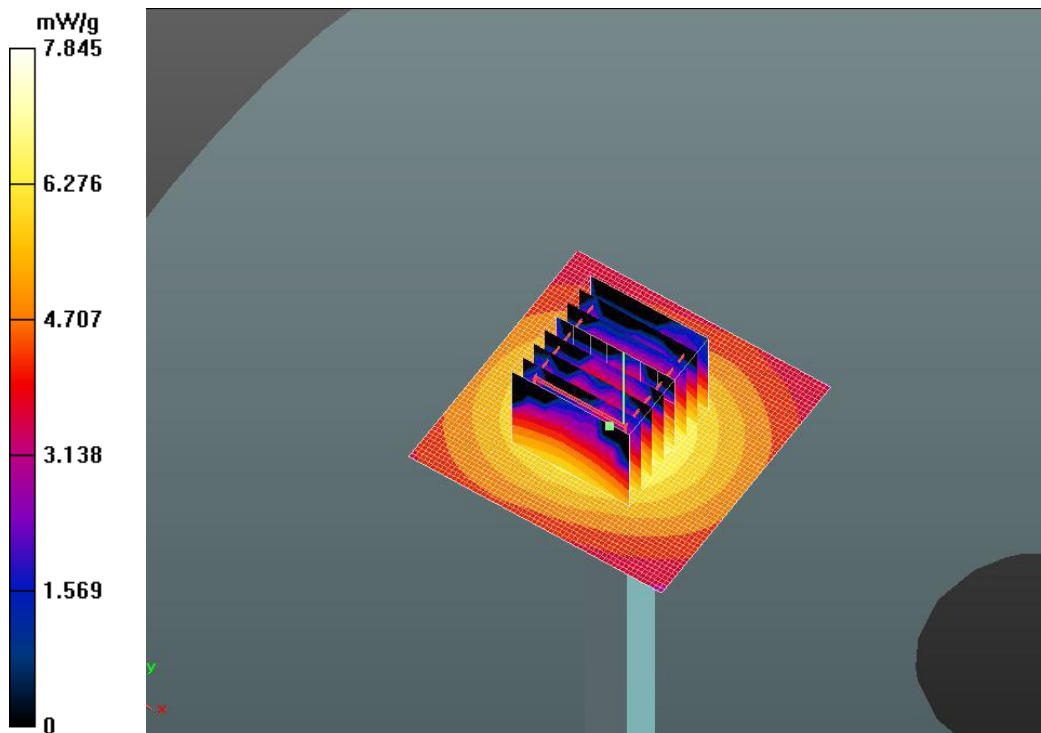
- Probe: EX3DV4 - SN3812; ConvF(4.16, 4.16, 4.16); Calibrated: 3/11/2013;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP:1146
- DASYS2 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/22Apr2013 5GHz, High Ch. 2, 5800MHz System Validation/Area Scan (31x41x1):

Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (interpolated) = 7.85 mW/g

Configuration/22Apr2013 5GHz, High Ch. 2, 5800MHz System Validation/Zoom Scan (8x8x7)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
 Reference Value = 37.069 V/m; Power Drift = -0.09 dB
 Peak SAR (extrapolated) = 54.278 mW/g
SAR(1 g) = 7.97 mW/g; SAR(10 g) = 2.14 mW/g (SAR corrected for target medium)
 Maximum value of SAR (measured) = 7.01 mW/g



Plot # V3

Date/Time: 9/16/2013 11:42:06 AM

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: 1149

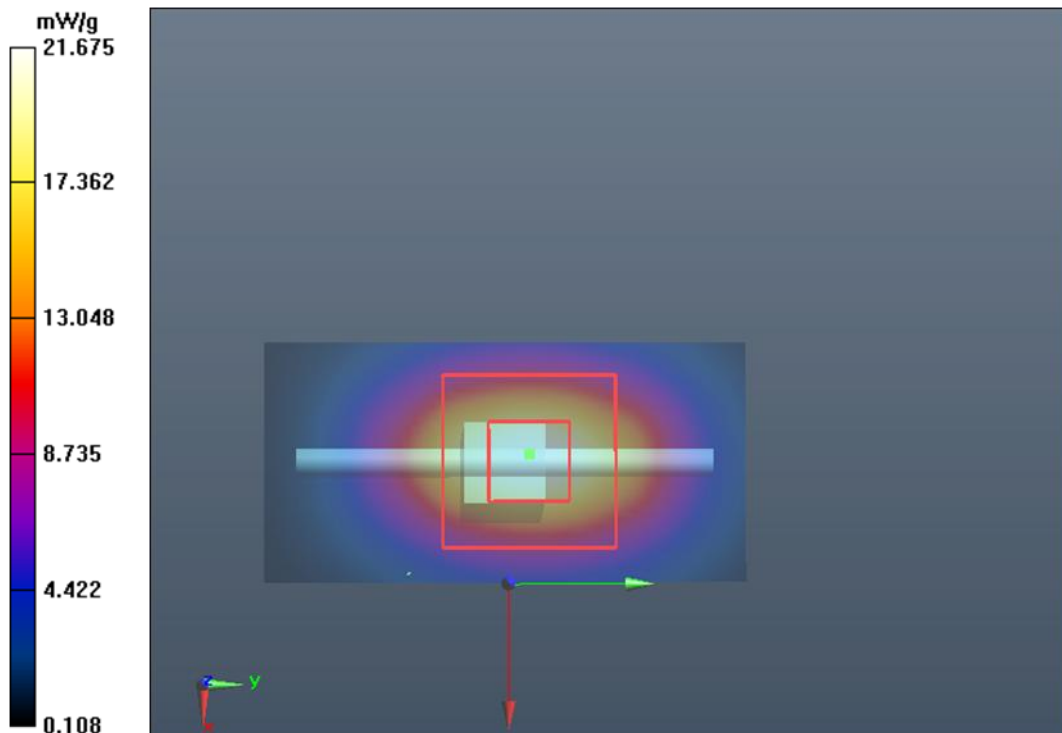
Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);
 Frequency: 5300 MHz; Communication System PAR: 0 dB; PMF: 1
 Medium parameters used: $f = 5300$ MHz; $\sigma = 5.525$ mho/m; $\epsilon_r = 47.502$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3812; ConvF(4.29, 4.29, 4.29); Calibrated: 3/11/2013;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1287; Calibrated: 10/4/2011
- Phantom: ELI v5.0; Type: QDOVA002AA; Serial: 1146
- DASYS2 52.8.1(838); SEMCAD X 14.6.5(6469)

Configuration/5300MHz BSL System Validation/Area Scan (31x61x1): Measurement grid: dx=10mm, dy=10mm
 Maximum value of SAR (interpolated) = 21.7 mW/g

Configuration/5300MHz BSL System Validation/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
 Reference Value = 67.891 V/m; Power Drift = -0.03 dB
 Peak SAR (extrapolated) = 35.280 mW/g
SAR(1 g) = 8.3 mW/g; SAR(10 g) = 2.31 mW/g (SAR corrected for target medium)
 Maximum value of SAR (measured) = 21.5 mW/g



14 REVISION HISTORY

Revision Level	Description of changes	Revision Date
0	Initial release	20 September 2013
1	Corrected list of test equipment in Section 3. Corrected refereces to Notes 1 and 2 in Table 4.0-1. Section 1.4: Added justification for exclusion of Bluetooth from RF Exposure evaluation. Section 11: Added uncertainty budget for Industry Canada.	25 September 2013