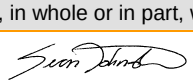
DECLARATION OF COMPLIANCE | SAR RF EXPOSURE EVALUATION | FCC & IC C2PC (LMA)

Test Lab Accreditation	**ISO 17025**	A2LA Test Lab Certificate No. 2470.01							
Test Lab Information	**Name**	**CELLTECH LABS INC.**	**Address**	21-364 Lougheed Road, Kelowna, B.C. V1X 7R8 Canada					
Company Information	**Name**	**XPLORE TECHNOLOGIES CORP.**	**Address**	14000 Summit Drive, Suite 900, Austin, Texas, 78728 USA					
Standard(s) Applied	**FCC**	47 CFR §2.1093	**IC**	Health Canada Safety Code 6					
Procedure(s) Applied	**IC**	RSS-102 Issue 4	**IEEE**	1528-2003	**IEC**	62209-1:2005; 62209-2:2010			
	FCC	OET Bulletin 65, Supplement C (01-01)	KDB 447498 D01v04	KDB 248227 D01v01r02	KDB 865664				
Device Classification(s)	**FCC**	Digital Transmission System (DTS) - §15 Subpart C (2412-2462, 5725-5850 MHz)							
	FCC	Unlicensed National Information Infrastructure TX (NII) - §15 Subpart E (5180-5320, 5470-5725 MHz)							
	IC	Low Power License-Exempt Radiocommunication Device (RSS-210 Issue 8)							
Application Type(s)	**FCC/IC**	Class II Permissive Change (Add iX104C5 Tablet PC Host under Limited Modular Approval) - FCC KDB 178919							
DUT Rcpt / Test Dates(s)	**Rcpt Date**	October 05, 2011	**Test Date(s)**	October 13, 17 & 27, 2011					
Device Identifier(s)	**FCC ID:**	Q2GI6205-XPL	**IC:**	4596A-I6205XPL					
Device Under Test (DUT)	**Module**	802.11a/b/g/n WLAN PCIe Half Mini Card	**Model**	62205ANHMW					
	Manuf.	Intel Corporation	**Serial No.**	TA: G12784-006 (Production Unit)					
DUT Host Configuration(s)	**Host PC**	Rugged Tablet PC	**Model**	iX104C5 (“Non Pump-up” MAIN Antenna Housing)					
	Manuf.	Wistron Corporation	**Serial No.**	914JP01003G110000B4M000					
Co-located Transmitter 1	**WWAN**	GPRS/EDGE/CDMA/WCDMA/HSPA Module	**Model**	GOBI3000					
	FCC ID:	Q2GGOBI3K-XPL	**IC:**	4596A-GOBI3KXPL					
	Manuf.	Qualcomm Inc.	**Co-Tx**	Does not support co-transmission with WLAN					
Co-located Transmitter 2	**Bluetooth**	Class 2	**Model**	BCM92070MD_REF					
	FCC ID:	QDS-BRCM1043	**IC:**	4324A-BRCM1043					
	Manuf.	Broadcom Corporation	**Co-Transmit**	Does support co-transmission with WLAN					
	Tx Freq.	2402 - 2480 MHz	**Cond. Pwr.**	4.27 dBm (Original TCB Cert.) = P(mW)<60/f					
	Ant. Dist.	179 mm Bluetooth-to-WLAN MAIN (Chain A) Transmit Diversity Antenna (closest WLAN Tx Ant. to Bluetooth Ant.)							
LCD Display Orientation(s)	**Host PC**	“0 Degrees Landscape”	“90 Degrees Portrait”						
Device Position(s) Tested	**Host PC**	Bottom Side Touch (WLAN MAIN & AUX Transmit Diversity Antennas)							
		Right Side Edge - “90 Degrees Portrait” (WLAN AUX Transmit Diversity Antenna - Adjacent Edge - Touch)							
Transmitter Freq. Range(s)	**WLAN**	2412 - 2462 MHz	5180 - 5240 MHz	5260 - 5320 MHz	5500 - 5700 MHz	5745 - 5825 MHz			
Antenna Type(s) Tested	**WLAN**	**MAIN - Chain A**	SkyCross P/N: 25.90A0P.001 (Supports MIMO in 802.11n mode)	Gain Spec.: -4.3 dBi (2GHz) Gain Spec.: -5.3 dBi (5GHz)					
		AUX - Chain B	SkyCross P/N: 25.90A0Q.001 (Supports MIMO in 802.11n mode)						
Antenna-to-User Distance(s)	**WLAN**	MAIN to Bottom Side = 1.6 cm	AUX to Bottom Side = 1.6 cm	AUX to Adjacent Edge (“90° Portrait’) = 5.6 cm					
Power Source(s) Tested	**Host PC**	Lithium-ion Battery	7.4V	7600mAh	Model: iX104				
Max. SAR Levels Measured	**BODY**	**802.11a**	**0.771 W/kg**	1g average	Bottom Side	**FCC/IC Spatial Peak SAR Limit**	**1.6 W/kg**	**1g average**	
		802.11b	**0.298 W/kg**	1g average	Bottom Side		**General Population / Uncontrolled Exposure**		
		802.11g	**0.359 W/kg**	1g average	Bottom Side				
		802.11n	**0.768 W/kg**	1g average	Bottom Side				

Celltech Labs Inc. declares under its sole responsibility that this wireless portable device is compliant with the Specific Absorption Rate (SAR) RF exposure requirements specified in FCC 47 CFR §2.1093 and Health Canada’s Safety Code 6 for the General Population / Uncontrolled Exposure environment. The device was tested in accordance with the measurement standards and procedures specified in FCC OET Bulletin 65, Supplement C (Edition 01-01), Industry Canada RSS-102 Issue 4, IEEE 1528-2003 and International Standard IEC 62209-2 (Edition 1.0 2010-03). All measurements were performed in accordance with the SAR system manufacturer recommendations.

I attest to the accuracy of data. All measurements were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

The results and statements contained in this report pertain only to the device(s) evaluated.

Test Report Approved By		**Sean Johnston**	**Lab Manager**	**Celltech Labs Inc.**

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REVISION HISTORY			
REVISION NO.	**DESCRIPTION**	**IMPLEMENTED BY**	**RELEASE DATE**
1.0	1st Release	Jon Hughes	January 23, 2012

TEST REPORT SIGN-OFF			
DEVICE TESTED BY	**REPORT PREPARED BY**	**QA REVIEW BY**	**REPORT APPROVED BY**
Mike Meaker	Mike Meaker	Jon Hughes	Sean Johnston

1.0 INTRODUCTION

This measurement report demonstrates compliance of the Xplore Technologies Model: 62205ANHMW WLAN PCIe Half Mini Card, installed in the Xplore Technologies iX104C5 Rugged Tablet PC, with the SAR (Specific Absorption Rate) RF exposure requirements of FCC 47 CFR §2.1093 (see reference [1]) and Health Canada's Safety Code 6 (see reference [2]) for the General Population / Uncontrolled Exposure environment. The test procedures described in FCC OET Bulletin 65, Supplement C, Edition 01-01 (see reference [3]), Industry Canada RSS-102 Issue 4 (see reference [4]), IEEE Standard 1528-2003 (see reference [5]) and IEC International Standard 62209-2 (see reference [7]) were employed. A description of the product, operating configuration, detailed summary of the test results, methodology and procedures used in the evaluation, equipment used, and the various provisions of the rules are included within this test report.

2.0 SAR MEASUREMENT SYSTEM

Celltech Labs Inc. SAR measurement facility utilizes the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY4 measurement system is comprised of the measurement server, robot controller, computer, near-field probe, probe alignment sensor, specific anthropomorphic mannequin (SAM) phantom, and various planar phantoms for head and/or body SAR evaluations. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the DASY4 measurement server. The DAE4 utilizes a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16-bit AD-converter and a command decoder and control logic unit. Transmission to the DASY4 measurement server is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. The sensor systems are also used for mechanical surface detection and probe collision detection. The robot utilizes a controller with built in VME-bus computer.

3.0 SAR PROBE CALIBRATION & MEASUREMENT FREQUENCY (150MHz - 3GHz)

The following procedures are recommended for measurements at 150 MHz - 3 GHz to minimize probe calibration and tissue dielectric parameter discrepancies. In general, SAR measurements below 300 MHz should be within $\pm$50 MHz of the probe calibration frequency. At 300 MHz to 3 GHz, measurements should be within $\pm$100 MHz of the probe calibration frequency. Measurements exceeding 50% of these intervals, $\pm$25 MHz < 300 MHz and $\pm$50 MHz $\geq$300 MHz, require additional steps (per FCC KDB 450824 D01 v01r01, SAR Probe Calibration and System Verification Considerations for Measurements at 150 MHz - 3 GHz - see reference [9]).

Probe Calibration Freq.	Device Measurement Freq.	Frequency Interval	$\pm$50 MHz $\geq$ 300 MHz
2450 MHz	2442 MHz	8 MHz	< 50 MHz
1. The probe calibration and measurement frequency interval is < 50 MHz; therefore the additional steps were not required.			

4.0 RF CONDUCTED OUTPUT POWER MEASUREMENTS

2.4 GHz Band

802.11b 1Mbps DSSS
Duty Cycle 100%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
1	2412	15.5	15.5
7	2442	15.6	15.5
11	2462	15.4	15.5

802.11g 6Mbps OFDM
Duty Cycle 99%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
1	2412	14.0	14.0
7	2442	16.5	16.8
11	2462	14.0	14.0

802.11n HT0 OFDM
Duty Cycle 99%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
1	2412	13.0	13.0
7	2442	16.5	16.5
11	2462	12.5	12.5

802.11n MIMO HT16 OFDM
Duty Cycle 98%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
1	2412	11.5	11.6
7	2442	13.5	13.5
11	2462	11.5	11.5

RF CONDUCTED OUTPUT POWER MEASUREMENTS (Cont.)

5.2 GHz Band

802.11a 6Mbps OFDM
Duty Cycle 99%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
36	5180	16.1	16.0
40	5200	16.2	16.1
44	5220	16.0	16.1
48	5240	16.1	16.1

802.11n (20 MHz) HT0 OFDM
Duty Cycle 99%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
36	5180	15.5	15.5
40	5200	16.2	16.1
44	5220	16.1	16.0
48	5240	16.1	16.1

802.11n (40 MHz) HT0 OFDM
Duty Cycle 99%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
38(F)	5190	11.1	11.3
46(F)	5230	16.1	16.0

802.11n MIMO 20M HT16 OFDM
Duty Cycle 98%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
36	5180	16	16
40	5200	16	16
44	5220	16	16
48	5240	16	16

CONDUCTED POWER MEASUREMENT SUMMARY (Cont.)

5.3 GHz Band

802.11a 6Mbps OFDM
Duty Cycle 99%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
52	5260	16.1	16.0
56	5280	16.1	16.0
60	5300	16.2	16.1
64	5320	16.0	16.0

802.11n (20 MHz) HT0 OFDM
Duty Cycle 99%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
52	5260	16.1	16.0
56	5280	16.1	16.0
60	5300	16.2	16.1
64	5320	16.0	16.1

802.11n (40 MHz) HT0 OFDM
Duty Cycle 99%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
54(F)	5270	16.0	16.0
62(F)	5310	11.1	11.1

CONDUCTED POWER MEASUREMENT SUMMARY (Cont.)

5.5-5.7 GHz Band

802.11a 6Mbps OFDM

Duty Cycle 99%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
100	5500	16.1	16.0
104	5520	16.0	16.0
108	5540	16.1	16.1
112	5560	16.0	16.0
116	5580	16.0	16.0
120	5600	16.2	16.1
124	5620	16.1	16.0
128	5640	16.0	16.0
132	5660	16.1	16.1
136	5680	16.1	16.0
140	5700	15.5	15.4

802.11n (20 MHz) HT0 OFDM

Duty Cycle 99%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
100	5500	16.0	16.0
104	5520	16.0	16.0
108	5540	16.0	16.0
112	5560	16.0	16.1
116	5580	16.0	16.0
120	5600	16.2	16.1
124	5620	16.1	16.0
128	5640	16.0	16.0
132	5660	16.0	16.0
136	5680	15.5	15.5
140	5700	15.5	15.5

802.11n (40 MHz) HT0 OFDM

Duty Cycle 99%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
102(F)	5510	13.5	13.4
118(F)	5590	16.0	16.0
134(F)	5670	16.0	16.0

CONDUCTED POWER MEASUREMENT SUMMARY (Cont.)

5.7-5.8 GHz Band

802.11a 6Mbps OFDM
Duty Cycle 99%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
149	5745	16.1	16.1
153	5765	16.1	16.0
157	5785	16.2	16.1
161	5805	16.1	16.0
165	5825	16.1	16.0

802.11n (20 MHz) HT0 OFDM
Duty Cycle 99%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
149	5745	16.0	16.0
153	5765	16.0	16.0
157	5785	16.1	16.1
161	5805	16.0	16.0
165	5825	16.0	16.0

802.11n (40 MHz) HT0 OFDM
Duty Cycle 99%

Channel	Frequency (MHz)	Conducted Average Power (dBm)	
		MAIN - Chain A	AUX - Chain B
151(F)	5755	16.0	16.0
159(F)	5795	16.0	16.0

CONDUCTED POWER MEASUREMENT SUMMARY (Cont.)

Notes
1. The RF conducted output power levels of the DUT were measured by Celltech prior to the SAR evaluations using a Gigatronics 8652A Universal Power Meter at the internal antenna connector in accordance with FCC 47 CFR §2.1046 (see reference [13]) and IC RSS-Gen (see reference [14]).
2. The RF conducted output power levels were also measured for the higher data rates and were not more than 0.25 dB > the conducted output power levels measured and reported for the lowest data rate; therefore SAR evaluations were not required for the higher data rates (per FCC KDB 248227 D01v01r02 - see reference [8]).
3. The test channels selected and evaluated for SAR are highlighted in yellow.

62205ANHMW WLAN Data Rates		
802.11a/g	**802.11b**	**802.11n**
54, 48, 36, 24, 18, 12, 9, 6 Mbps	11, 5.5, 2, 1 Mbps	300, 270, 243, 240, 180, 150, 144, 135, 130, 120, 117, 115.5, 90, 86.667, 72.2, 65, 60, 57.8, 45, 43.3, 30, 28.9, 21.7, 15, 14.4, 7.2 Mbps

5.0 FLUID DIELECTRIC PARAMETERS

FLUID DIELECTRIC PARAMETERS

Date: Oct. 13, 2011		Frequency: 2450 MHz			Tissue: Body	
Freq (GHz)	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
2.35	50.78	1.85	52.7	1.95	-3.64%	-5.13%
2.36	50.62	1.86	52.7	1.95	-3.95%	-4.62%
2.37	50.54	1.86	52.7	1.95	-4.10%	-4.62%
2.38	50.43	1.87	52.7	1.95	-4.31%	-4.10%
2.39	50.55	1.9	52.7	1.95	-4.08%	-2.56%
2.4	50.53	1.9	52.7	1.95	-4.12%	-2.56%
2.41	50.54	1.91	52.7	1.95	-4.10%	-2.05%
2.42	50.21	1.92	52.7	1.95	-4.72%	-1.54%
2.43	50.42	1.93	52.7	1.95	-4.33%	-1.03%
2.44	50.37	1.94	52.7	1.95	-4.42%	-0.51%
2.442*	50.4	1.94	52.7	1.95	-4.36%	-0.51%
2.45	50.35	1.96	52.7	1.95	-4.46%	0.51%
2.46	50.32	1.99	52.7	1.95	-4.52%	2.05%
2.47	50.52	2	52.7	1.95	-4.14%	2.56%
2.48	50.4	2	52.7	1.95	-4.36%	2.56%
2.49	50.22	2	52.7	1.95	-4.71%	2.56%
2.5	50.22	2.03	52.7	1.95	-4.71%	4.10%
2.51	50.26	2.05	52.7	1.95	-4.63%	5.13%
2.52	50.2	2.06	52.7	1.95	-4.74%	5.64%
2.53	50.19	2.08	52.7	1.95	-4.76%	6.67%
2.54	50.1	2.1	52.7	1.95	-4.93%	7.69%
2.55	50.12	2.1	52.7	1.95	-4.90%	7.69%

* Interpolated using DASY4 software

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct. 13	2450 Body	24.3 °C	22.8 °C	≥ 15 cm	101.1 kPa	33%	1000

FLUID DIELECTRIC PARAMETERS (Cont.)

FLUID DIELECTRIC PARAMETERS

Date: Oct. 17, 2011		Frequency: 5200-5800 MHz			Tissue: Body	
Freq (GHz)	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
5.2	50.88	5.27	49	5.3	3.84%	-0.57%
5.22	50.87	5.28	49	5.3	3.82%	-0.38%
5.24	51.02	5.3	49	5.3	4.12%	0.00%
5.26	50.79	5.29	49	5.3	3.65%	-0.19%
5.28	50.82	5.3	49	5.3	3.71%	0.00%
5.3	50.36	5.34	49	5.3	2.78%	0.75%
5.32	50.72	5.36	49	5.3	3.51%	1.13%
5.34	50.79	5.37	49	5.3	3.65%	1.32%
5.36	50.3	5.41	48.6	5.65	3.50%	-4.25%
5.38	50.53	5.43	48.6	5.65	3.97%	-3.89%
5.4	50.44	5.45	48.6	5.65	3.79%	-3.54%
5.42	50.35	5.47	48.6	5.65	3.60%	-3.19%
5.44	50.19	5.56	48.6	5.65	3.27%	-1.59%
5.46	50.34	5.58	48.6	5.65	3.58%	-1.24%
5.48	49.93	5.58	48.6	5.65	2.74%	-1.24%
5.5	50.29	5.59	48.6	5.65	3.48%	-1.06%
5.52	50.43	5.69	48.6	5.65	3.77%	0.71%
5.54	50.17	5.72	48.6	5.65	3.23%	1.24%
5.56	49.93	5.78	48.6	5.65	2.74%	2.30%
5.58	50.06	5.67	48.6	5.65	3.00%	0.35%
5.6	49.59	5.76	48.6	5.65	2.04%	1.95%
5.62	49.86	5.73	48.6	5.65	2.59%	1.42%
5.64	50.01	5.87	48.6	5.65	2.90%	3.89%
5.66	50.01	5.79	48.2	6	3.76%	-3.50%
5.68	49.76	5.79	48.2	6	3.24%	-3.50%
5.7	49.48	6.05	48.2	6	2.66%	0.83%
5.72	50.12	6.01	48.2	6	3.98%	0.17%
5.74	49.79	5.99	48.2	6	3.30%	-0.17%
5.76	49.5	5.95	48.2	6	2.70%	-0.83%
5.78	49.4	6.95	48.2	6	2.49%	15.83%
5.8	49.31	6.12	48.2	6	2.30%	2.00%

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct. 17	5GHz Body	23.9 °C	22.2 °C	≥ 15 cm	101.0 kPa	31%	1000

FLUID DIELECTRIC PARAMETERS (Cont.)

FLUID DIELECTRIC PARAMETERS

Date: Oct. 27, 2011		Frequency: 5200-5800 MHz			Tissue: Body	
Freq (GHz)	Test_e	Test_s	Target_e	Target_s	Deviation Permittivity	Deviation Conductivity
5.2	50.26	5.33	49	5.3	2.57%	0.57%
5.22	50.13	5.22	49	5.3	2.31%	-1.51%
5.24	50.17	5.29	49	5.3	2.39%	-0.19%
5.26	49.93	5.35	49	5.3	1.90%	0.94%
5.28	50.04	5.3	49	5.3	2.12%	0.00%
5.3	50.97	5.32	49	5.3	4.02%	0.38%
5.32	50.95	5.35	49	5.3	3.98%	0.94%
5.34	50.89	5.44	49	5.3	3.86%	2.64%
5.36	50.65	5.41	48.6	5.65	4.22%	-4.25%
5.38	50.95	5.52	48.6	5.65	4.84%	-2.30%
5.4	50.74	5.48	48.6	5.65	4.40%	-3.01%
5.42	50.7	5.52	48.6	5.65	4.32%	-2.30%
5.44	50.85	5.68	48.6	5.65	4.63%	0.53%
5.46	50.03	5.6	48.6	5.65	2.94%	-0.88%
5.48	50.65	5.59	48.6	5.65	4.22%	-1.06%
5.5	50.6	5.53	48.6	5.65	4.12%	-2.12%
5.52	50.78	5.78	48.6	5.65	4.49%	2.30%
5.54	50.68	5.83	48.6	5.65	4.28%	3.19%
5.56	50.59	5.8	48.6	5.65	4.09%	2.65%
5.58	50.63	5.76	48.6	5.65	4.18%	1.95%
5.6	50.2	5.77	48.6	5.65	3.29%	2.12%
5.62	50.55	5.69	48.6	5.65	4.01%	0.71%
5.64	50.44	5.77	48.6	5.65	3.79%	2.12%
5.66	50.34	5.7	48.2	6	4.44%	-5.00%
5.68	50.44	5.75	48.2	6	4.65%	-4.17%
5.7	50.36	5.79	48.2	6	4.48%	-3.50%
5.72	50.52	5.84	48.2	6	4.81%	-2.67%
5.74	50.55	5.88	48.2	6	4.88%	-2.00%
5.76	50.98	5.9	48.2	6	5.77%	-1.67%
5.78	50.13	6	48.2	6	4.00%	0.00%
5.785*	50.38	6.01	48.2	6	4.52%	0.17%
5.8	50.61	6.03	48.2	6	5.00%	0.50%

* Interpolated using DASY4 software

Test Date	Fluid Type	Ambient Temperature	Fluid Temperature	Fluid Depth	Atmospheric Pressure	Relative Humidity	ρ (Kg/m^3)
Oct. 27	5GHz Body	23.6 °C	22.4 °C	≥ 15 cm	101.0 kPa	31%	1000

6.0 SAR MEASUREMENT SUMMARY

BODY SAR MEASUREMENT RESULTS

Freq. Band (GHz)	Test Plot #	Test Date	Mode	Mod.	Freq.	Ch.	Data Rate	Tablet PC Position to Planar Phantom (SAM)	Tablet PC Distance to Planar Phantom (SAM)	WLAN Transmit Diversity Antenna	Cond. Power Before Test	SAR Drift During Test	Measured SAR Level	
					MHz						dBm	dB	W/kg	1g/Pk
2.4	B1	10/13	802.11b	DSSS	2442	7	1 Mbps	Bottom Side	Touch	MAIN	15.6	-0.008	0.090	1g
	B2	10/13	**802.11b**	DSSS	2442	7	1 Mbps	Bottom Side	Touch	AUX	15.5	-0.134	**0.298**	1g
	B3	10/13	802.11g	OFDM	2442	7	6 Mbps	Bottom Side	Touch	MAIN	16.5	-0.094	0.198	1g
	B4	10/13	**802.11g**	OFDM	2442	7	6 Mbps	Bottom Side	Touch	AUX	16.8	0.178	**0.359**	1g
	B5	10/13	802.11n	OFDM	2442	7	HT0	Bottom Side	Touch	MAIN	16.5	0.111	0.170	1g
	B6	10/13	802.11n	OFDM	2442	7	HT0	Bottom Side	Touch	AUX	16.5	-0.005	0.368	1g
	B7	10/13	802.11n	OFDM	2442	7	HT0	"90° Portrait"	Touch	AUX	16.5	0.107	0.055	1g
5.2	B8	10/17	802.11a	OFDM	5200	40	6 Mbps	Bottom Side	Touch	MAIN	16.2	-0.133	0.320	1g
	B9	10/17	802.11a	OFDM	5200	40	6 Mbps	Bottom Side	Touch	AUX	16.1	-0.076	0.228	1g
	B10	10/17	802.11n	OFDM	5200	40	HT0 20	Bottom Side	Touch	MAIN	16.2	0.148	0.396	1g
	B11	10/17	802.11n	OFDM	5200	40	HT0 20	Bottom Side	Touch	AUX	16.1	0.059	0.225	1g
5.3	B12	10/17	802.11a	OFDM	5300	60	6 Mbps	Bottom Side	Touch	MAIN	16.2	-0.026	0.359	1g
	B13	10/17	802.11a	OFDM	5300	60	6 Mbps	Bottom Side	Touch	AUX	16.1	-0.183	0.769	1g
	B14	10/17	802.11n	OFDM	5300	60	HT0 20	Bottom Side	Touch	MAIN	16.2	-0.136	0.328	1g
	B15	10/17	**802.11n**	OFDM	5300	60	HT0 20	Bottom Side	Touch	AUX	16.1	-0.160	**0.768**	1g
5.5-5.7	B16	10/27	802.11a	OFDM	5600	120	6 Mbps	Bottom Side	Touch	MAIN	16.2	0.112	0.567	1g
	B17	10/27	802.11a	OFDM	5600	120	6 Mbps	Bottom Side	Touch	AUX	16.1	0.149	0.739	1g
	B18	10/27	802.11n	OFDM	5600	120	HT0 20	Bottom Side	Touch	MAIN	16.2	-0.139	0.461	1g
	B19	10/27	802.11n	OFDM	5600	120	HT0 20	Bottom Side	Touch	AUX	16.1	-0.155	0.764	1g
5.7-5.8	B20	10/27	802.11a	OFDM	5785	157	6 Mbps	Bottom Side	Touch	MAIN	16.2	-0.141	0.414	1g
	B21	10/27	**802.11a**	OFDM	5785	157	6 Mbps	Bottom Side	Touch	AUX	16.1	0.031	**0.771**	1g
	B22	10/27	802.11a	OFDM	5785	157	6 Mbps	"90° Portrait"	Touch	AUX	16.1	*	0.022	Peak
	B23	10/27	802.11n	OFDM	5785	157	HT0 20	Bottom Side	Touch	MAIN	16.1	-0.036	0.377	1g
	B24	10/27	802.11n	OFDM	5785	157	HT0 20	Bottom Side	Touch	AUX	16.1	0.130	0.672	1g

SAR LIMIT(S)		BODY	SPATIAL PEAK	RF EXPOSURE CATEGORY
FCC 47 CFR 2.1093	Health Canada Safety Code 6	1.6 W/kg	averaged over 1 gram	General Population / Uncontrolled

* Note: The SAR drift of the DUT was measured at the reference point of the phantom with low SAR. The resulting drift value was inaccurate due to the SAR value at the reference point was close to the measurement noise floor and is therefore not reported.

7.0 SAR LEVEL CORRECTION FOR FLUID DEVIATION - (IC RSS-102 / IEC 62209-2)

The SAR levels are corrected for deviation of complex permittivity in accordance with Section 6.1.1 of IEC 62209-2:2010 (see reference [6]) as shown below.

Test Plot #	Test Freq. (GHz)	Target_e	Target_s	Test_e	Test_s	Deviation Permittivity	Deviation Conductivity	Measured SAR Level 1g (W/kg)	Scaled SAR Level 1g (W/kg)	Corrected SAR Level 1g (W/kg)
B1	2.442	52.7	1.95	50.4	1.94	-4.36%	-0.51%	0.090	N/A	0.091
B2	2.442	52.7	1.95	50.4	1.94	-4.36%	-0.51%	0.298	N/A	0.300
B3	2.442	52.7	1.95	50.4	1.94	-4.36%	-0.51%	0.198	N/A	0.200
B4	2.442	52.7	1.95	50.4	1.94	-4.36%	-0.51%	0.359	N/A	0.362
B5	2.442	52.7	1.95	50.4	1.94	-4.36%	-0.51%	0.170	N/A	0.171
B6	2.442	52.7	1.95	50.4	1.94	-4.36%	-0.51%	0.368	N/A	0.371
B7	2.442	52.7	1.95	50.4	1.94	-4.36%	-0.51%	0.055	N/A	0.055

SAR Correction Formula (IEC 62209-2:2010 Section 6.1.1)

$$\Delta SAR = c_\varepsilon \Delta\varepsilon_r + c_\sigma \Delta\sigma \qquad (F.1)$$

where

$c_\varepsilon = \partial(\Delta SAR)/\partial(\Delta\varepsilon)$ is the coefficients representing the sensitivity of SAR to permittivity where SAR is normalized to output power;

$c_\sigma = \partial(\Delta SAR)/\partial(\Delta\sigma)$ is the coefficients representing the sensitivity of SAR to conductivity, where SAR is normalized to output power.

The values of c_ε and c_σ have a simple relationship with frequency that can be described using polynomial equations. For the 1 g averaged SAR c_ε and c_σ are given by

$$c_\varepsilon = -7{,}854\times10^{-4} f^3 + 9{,}402\times10^{-3} f^2 - 2{,}742\times10^{-2} f - 0{,}202\,6 \qquad (F.2)$$

$$c_\sigma = 9{,}804\times10^{-3} f^3 - 8{,}661\times10^{-2} f^2 + 2{,}981\times10^{-2} f + 0{,}782\,9 \qquad (F.3)$$

where

f is the frequency in GHz.

SAR Correction Calculation

Frequency (GHz)	2.442	5.2	5.3	5.6	5.785
Ce	-0.2249	-0.2014	-0.2008	-0.1992	-0.1986
Cσ	0.4820	-0.0255	-0.0324	-0.0445	-0.0451
Δ E	-0.0436	0.0384	0.0278	0.0329	0.0457
Δσ	-0.0051	-0.0057	0.0075	0.0212	0.0017
ΔSAR	0.73%	-0.76%	-0.58%	-0.75%	-0.92%

Conclusion

1. The correction ΔSAR in the 2.4GHz frequency bands has a positive sign; therefore correction is applied to the measured SAR levels.
2. The correction ΔSAR in the 5GHz frequency bands has a negative sign; therefore correction should not be applied to the measured SAR levels.

8.0 DETAILS OF SAR EVALUATION

1. The iX104C5 Tablet PC contains rubber bumpers mounted to each corner of the device. The rubber bumpers provide additional separation distance from the bottom side and edges of the iX104C5 Tablet PC to the user's body and are removable by the user; therefore the rubber bumpers were removed for the SAR measurements in order to evaluate the worst-case test configuration.
2. The DUT was evaluated for body SAR (lap-held) with the bottom side of the Tablet PC parallel and touching the outer surface of the planar phantom.
3. The DUT was evaluated for body SAR with the WLAN AUX antenna (Chain B) adjacent edge (90° Portrait LCD display orientation) of the Tablet PC parallel and touching the outer surface of the planar phantom.
4. The MAIN (Chain A) and AUX (Chain B) transmit diversity antennas were evaluated for SAR individually (one at a time with the other disabled).
5. The test channels of the DUT evaluated for SAR were the maximum average output power channels selected in accordance with the procedures specified in FCC KDB Publication 248227 (see reference [8]).
6. The RF conducted output power levels measured in 802.11g mode were more than 0.25 dB > 802.11b mode; therefore SAR evaluations were required for 802.11g mode (per FCC KDB 248227 D01v01r02 - see reference [8]).
7. The WLAN was evaluated using proprietary Intel CRTU test software for continuous transmission and selection of frequency band, mode, channel/frequency, transmit antenna, output power setting and maximum duty cycle.
8. The internal battery of the Tablet PC was fully charged prior to the SAR evaluations.
9. The conducted output power levels reported in the SAR data table were measured prior to the SAR evaluations (see Section 4.0).
10. The SAR drift of the DUT was measured by the DASY4 system for the duration of the SAR evaluations.
11. The dielectric parameters of the simulated tissue mixtures were measured prior to the SAR evaluations using a Dielectric Probe Kit and a Network Analyzer (see Appendix C).
12. The fluid temperature remained within +/-2°C from the dielectric parameter measurement to the completion of the SAR evaluations.
13. The 5-6 GHz SAR evaluations were performed in accordance with the procedures of FCC KDB 865664 (see reference [10]).

Procedures applied to determine device test configurations

The procedures for determining the appropriate device test configurations were applied in accordance with FCC KDB Publication 447498 (see reference [7]) Section 4) b):

i) Each antenna is evaluated for bottom face exposure with the base/bottom of the tablet in direct contact with a flat phantom.
ii) Antennas installed along the edges of a tablet are each evaluated with the corresponding edge in direct contact with a flat phantom. The applicable edge configurations include: (A) one fixed display orientation in either portrait or landscape configuration.

(1) For edge configuration (A): SAR is required for each antenna located within 5 cm of the tablet edge closet to the user for the applicable display orientation. For antenna(s) located ≥ 5 cm from this edge, the test reduction and exclusion procedures for laptop computers in KDB 616217 are applied.

Antenna Distance to Tablet PC Edge ("90° Portrait" LCD orientation) = 5.6 cm

The procedures for determining the number of tests required for edge configuration were applied in accordance with FCC KDB Publication 616217 (see reference 15]):

When antennas are ≥ 5 cm from users, frequency, power and distance are applied to determine test requirements. If an antenna is ≥ (5 + ½·n) cm from users and nearby persons the number of tests can be reduced by evaluating SAR only on the highest output power channel. The value of n is computed according to n = P/(60/f)-1; which is the number of times the antenna output power (P) is > 60/f. Both P and ½·n should be rounded respectively to the nearest mW and cm to determine the threshold distances.

Calculated Threshold Distances

5 cm (2.4 GHz)
6 cm (5.2/5.6 GHz)
7 cm (5.3/5.8 GHz)

The DUT was evaluated in the edge configuration (90° Portrait) on the test frequency and mode that resulted in the maximum SAR level configuration from the bottom side evaluations (per 2.4 GHz and 5 GHz bands).

9.0 CO-LOCATED TRANSMITTER(S)

The Xplore Technologies 62205ANHMW can be co-located within the iX104C5 Tablet PC with the following transmitters:

Transmitter Type	Grantee	FCC ID	IC ID	Model	Co-Transmit
WWAN	Xplore Tech.	Q2GGOBI3K-XPL	4596A-GOBI3KXPL	GOBI3000	No
Class 2 Bluetooth	Broadcom	QDS-BRCM1043	4324A-BRCM1043	BCM92070MD_REF	Yes

10.0 SIMULTANEOUS TRANSMISSION ASSESSMENT

The provisions set forth in FCC KDB Publication 447498 (see reference [7]) Section 3)b)ii) were applied to determine simultaneous transmission SAR evaluations are not required based on the following:

WLAN Co-Transmission: WLAN can transmit simultaneously with Bluetooth
Bluetooth Output Power = 4.27 dBm (< 60/f mW)

Antenna-to-Antenna Distance: MAIN (Chain A) to Bluetooth = 17.9 cm
AUX (Chain B) to Bluetooth = 23.9 cm

Summary

SAR evaluation for simultaneous transmission of the WLAN and Bluetooth is not required based on the maximum conducted output power of the Bluetooth (for which stand-alone SAR evaluation not required) is < 60/f mW and the antenna-to-antenna separation distance (WLAN to Bluetooth) is > 5 cm.

11.0 SAR EVALUATION PROCEDURES

a. (i) The evaluation was performed in the applicable area of the phantom depending on the type of device being tested. For devices held to the ear during normal operation, both the left and right ear positions were evaluated using the SAM phantom.
(ii) For body-worn and face-held devices a planar phantom was used.

b. The SAR was determined by a pre-defined procedure within the DASY4 software. Upon completion of a reference and optical surface check, the exposed region of the phantom was scanned near the inner surface with a grid spacing of 15mm x 15mm.
An area scan was determined as follows:

c. Based on the defined area scan grid, a more detailed grid is created to increase the points by a factor of 10. The interpolation function then evaluates all field values between corresponding measurement points.

d. A linear search is applied to find all the candidate maxima. Subsequently, all maxima are removed that are >2 dB from the global maximum. The remaining maxima are then used to position the cube scans.
A 1g and 10g spatial peak SAR was determined as follows:

e. Extrapolation is used to determine the values between the dipole center of the probe and the surface of the phantom. This data cannot be measured because the center of the dipole sensors is 1.0 mm away from the probe tip and the distance between the probe and the boundary must be larger than 25% of the probe diameter. The probe diameter is 2.4 mm. In the DASY4 software, the distance between the sensor center and phantom surface is set to 2.0 mm. This provides a distance of 1.0 mm between the probe tip and the surface. The extrapolation of the values between the dipole center and the surface of the phantom was based on trivariate quadratics computed from the previously calculated 3D interpolated points nearest the phantom surface.

f. Interpolated data is used to calculate the average SAR over 1g and 10g cubes by spatially discretizing the entire measured cube. The volume used to determine the averaged SAR is a 1mm grid (42875 interpolated points).

g. For frequencies < 3 GHz a zoom scan volume of 24 mm x 24 mm x 24 mm (7x7x7 points) centered at the peak SAR location determined from the area scan was used and a zoom scan resolution of 5 mm x 5 mm x 5 mm was used.

h. For frequencies > 3 GHz a zoom scan volume of 24 mm x 24 mm x 20 mm (7x7x9 points) centered at the peak SAR location determined from the area scan was used and a zoom scan resolution of 4 mm x 4 mm x 2.5 mm was used.

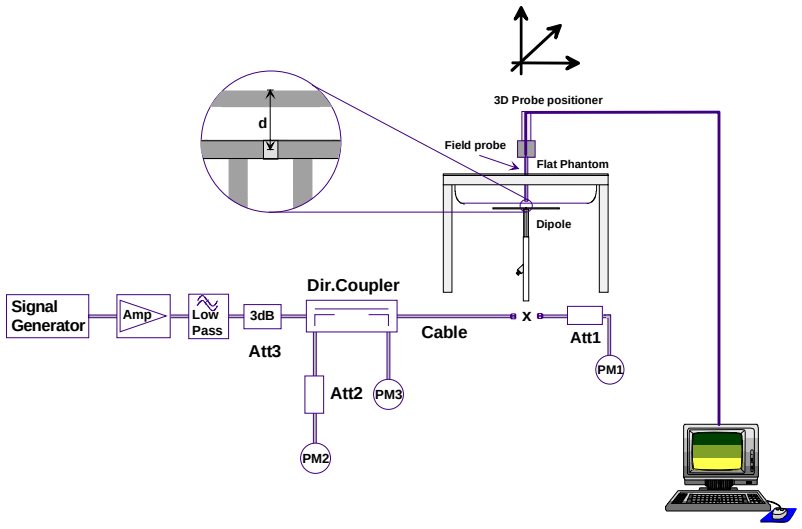
12.0 SYSTEM PERFORMANCE CHECK

Prior to the SAR evaluations, daily system checks were performed using the planar section of the SAM phantom with a SPEAG 2450 MHz validation dipole and a SPEAG 5 GHz validation dipole (see Appendix B for system performance check plots) in accordance with the procedures described in IEEE Standard 1528-2003 (see reference [5]) and IEC International Standard 62209-2:2010 (see reference [6]). The dielectric parameters of the simulated tissue mixture were measured prior to the system performance check using a Dielectric Probe Kit and a Network Analyzer (see Appendix C). The SAR measurement system was verified to a tolerance of ±10% from the system manufacturer's dipole calibration target SAR value (see Appendix G for system manufacturer's dipole calibration procedures).

SYSTEM PERFORMANCE CHECK EVALUATION SUMMARY

Test Date	Freq. (MHz) / Fluid Type	SAR 1g (W/kg) Target	SAR 1g (W/kg) 1W	SAR 1g (W/kg) Meas.	SAR 1g (W/kg) Dev.	Dielectric Constant ε_r Target	Dielectric Constant ε_r Meas.	Dielectric Constant ε_r Dev.	Conductivity σ (mho/m) Target	Conductivity σ (mho/m) Meas.	Conductivity σ (mho/m) Dev.	Amb. Temp. (°C)	Fluid Temp. (°C)	Humid. (%)	Barom. Press. (kPa)
Oct 13	2450 Body	51.6 ±10% (Norm. 1W)	56.4	14.1	+9.3%	**52.7 ±5%**	50.4	-4.4%	**1.95 ±5%**	1.96	+0.5%	24.3	22.8	33	101.1
Oct 17	5200 Body	76.3 ±10% (Norm. 1W)	76.4	19.1	+0.1%	**49.0 ±5%**	50.9	+3.8%	**5.30 ±5%**	5.27	-0.6%	23.9	22.2	31	101.0
Oct 27	5500 Body	80.1 ±10% (Norm. 1W)	80.4	20.1	+0.4%	**48.6 ±5%**	50.6	+4.1%	**5.65 ±5%**	5.53	-2.1%	23.6	22.4	31	101.0
Oct 27	5800 Body	68.2 ±10% (Norm. 1W)	76.0	19.0	+11.4%	**48.2 ±5%**	50.6	+5.0%	**6.00 ±5%**	6.03	+0.5%	23.6	22.4	31	101.0

Notes	
1.	The target SAR values are the measured values specified by the SAR system manufacturer in the dipole calibration (see Appendix G).
2.	The target dielectric parameters are the nominal values specified by the SAR system manufacturer in the dipole calibration (see Appendix G).
3.	The fluid temperature remained within +/-2°C from the dielectric parameter measurement to the completion of the system performance check.
4.	Input Power = 250 mW
5.	Fluid Depth = ≥ 15 cm; ρ (Kg/m^3) = 1000



System Performance Check Measurement Setup Diagram (IEEE 1528-2003)

2.45 GHz Validation Dipole Setup

5 GHz Validation Dipole Setup

13.0 SIMULATED EQUIVALENT TISSUES

The 2450 MHz simulated equivalent tissue recipe shown in the table below is derived from the SAR system manufacturer's suggested recipe in the DASY4 manual (see reference [11]), in accordance with the procedures and requirements specified in IEEE Standard 1528-2003 (see reference [5]) and IEC 62209-2:2010 (see reference [6]). The ingredient percentage may have been adjusted marginally in order to achieve the appropriate target dielectric parameters within the specified tolerance. The 5 GHz simulated tissue mixture was provided by SPEAG and is listed below (see also Appendix D). The dielectric parameters (permittivity and conductivity) of the tissue mixture were measured prior to the SAR evaluations.

SIMULATED TISSUE MIXTURE (2450 MHz)	
INGREDIENT	**2450 MHz BODY**
Water	69.98 %
Glycol Monobutyl	30.00 %
Salt	0.02 %

SIMULATED TISSUE MIXTURE (5 GHz)	
INGREDIENT	**5 GHz BODY**
Water	64-78%
Mineral Oil	11-18%
Emulsifiers	9-15%
Additives and Salt	2-3%

14.0 SAR LIMITS

SAR RF EXPOSURE LIMITS			
FCC 47 CFR 2.1093	**Health Canada Safety Code 6**	**(General Population / Uncontrolled Exposure)**	**(Occupational / Controlled Exposure)**
Spatial Average (averaged over the whole body)		0.08 W/kg	0.4 W/kg
Spatial Peak (averaged over any 1 g of tissue)		**1.6 W/kg**	8.0 W/kg
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)		4.0 W/kg	20.0 W/kg
The Spatial Average value of the SAR averaged over the whole body.			
The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.			
The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.			
Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.			
Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.			

15.0 ROBOT SYSTEM SPECIFICATIONS

Specifications	
Positioner	Stäubli Unimation Corp. Robot Model: RX60L
Repeatability	0.02 mm
No. of axis	6
Data Acquisition Electronic (DAE) System	
Cell Controller	
Processor	AMD Athlon XP 2400+
Clock Speed	2.0 GHz
Operating System	Windows XP Professional
Data Converter	
Features	Signal Amplifier, multiplexer, A/D converter, and control logic
Software	Measurement Software: DASY4, V4.7 Build 44
	Postprocessing Software: SEMCAD, V1.8 Build 171
Connecting Lines	Optical downlink for data and status info.; Optical uplink for commands and clock
DASY4 Measurement Server	
Function	Real-time data evaluation for field measurements and surface detection
Hardware	PC/104 166MHz Pentium CPU; 32 MB chipdisk; 64 MB RAM
Connections	COM1, COM2, DAE, Robot, Ethernet, Service Interface
E-Field Probe	
Model	EX3DV4
Serial No.	3600
Construction	Symmetrical design with triangular core
Frequency	10 MHz to 6 GHz
Linearity	±0.2 dB (30 MHz to 3 GHz)
Phantom(s)	
Type 1	Barski Planar Phantom
Shell Material	Fiberglass
Thickness	2.0 ±0.1 mm
Volume	Approx. 70 liters
Type 2	SAM V4.0C
Shell Material	Fiberglass
Thickness	2.0 ±0.1 mm
Volume	Approx. 25 liters

16.0 PROBE SPECIFICATION (EX3DV4)

Construction:	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g. DGBE)
Calibration:	Basic Broadband Calibration in air: 10-3000 MHz Conversion Factors (CF) for HSL 900 and HSL 1750
Frequency:	10 MHz to >6 GHz; Linearity: ±0.2 dB (30 MHz to 3 GHz)
Directivity:	±0.3 dB in HSL (rotation around probe axis) ±0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range:	10 μW/g to >100 mW/g; Linearity: ±0.2 dB (noise: typically < 1 μW/g)
Dimensions:	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1.0 mm
Application:	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better than 30%.

EX3DV4 E-Field Probe

17.0 BARSKI PLANAR PHANTOM

The Barski planar phantom is a fiberglass shell phantom with a 2.0 mm (+/-0.2mm) thick device measurement area at the center of the phantom for SAR evaluations of devices with a larger surface area than the planar section of the SAM phantom. The planar phantom is integrated in a wooden table. See Appendix I for dimensions and specifications of the Barski planar phantom.

Barski Planar Phantom

18.0 SAM TWIN PHANTOM V4.0C

The SAM Twin Phantom V4.0C is a fiberglass shell phantom with a 2.0 mm (+/-0.2 mm) shell thickness for left and right head and flat planar area integrated in a wooden table. The shape of the fiberglass shell corresponds to the phantom defined by SCC34-SC2. The device holder positions are adjusted to the standard measurement positions in the three sections (see Appendix J for specifications of the SAM Twin Phantom V4.0C).

SAM Twin Phantom V4.0C

19.0 DEVICE HOLDER

The DASY4 device holder has two scales for device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The plane between the ear openings and the mouth tip has a rotation angle of 65°. The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. For evaluations of larger devices a Plexiglas platform is attached to the device holder.

Device Holder

20.0 TEST EQUIPMENT LIST

TEST EQUIPMENT		ASSET NO.	SERIAL NO.	DATE CALIBRATED	CALIBRATION INTERVAL
USED	DESCRIPTION				
x	Schmid & Partner DASY4 System	-	-	-	-
x	-DASY4 Measurement Server	00158	1078	CNR	CNR
x	-Robot	00046	599396-01	CNR	CNR
x	-DAE4	00019	353	27Apr10	Biennial
x	-EX3DV4 E-Field Probe	00213	3600	23Jun11	Annual
x	-D2450V2 Validation Dipole	00219	825	17Apr09	Triennial
x	-D5GHzV2 Validation Dipole	00126	1031	29Apr09	Triennial
x	-Barski Planar Phantom	00155	03-01	CNR	CNR
x	HP 85070C Dielectric Probe Kit	00033	none	CNR	CNR
x	Gigatronics 8652A Power Meter	00007	1835272	04May10	Biennial
x	Gigatronics 80701A Power Sensor	00014	1833699	04May10	Biennial
x	Gigatronics 80701A Power Sensor	00011	1833542	04May10	Biennial
x	Pasternack PE2214-20 Directional Coupler	229	none	CNR	CNR
x	10dB Attenuator	00102	none	CNR	CNR
x	HP 8753ET Network Analyzer	00134	US39170292	04May10	Biennial
x	Rohde & Schwarz SMR20 Signal Generator	00006	100104	CNR	CNR
x	Nextec NB00383 Microwave amplifier	00151	0535	CNR	CNR
x	Amplifier Research 5S1G4 Power Amplifier	00106	26235	CNR	CNR
Abbr.	CNR = Calibration Not Required; N/A = Not Applicable				

21.0 JUSTIFICATION FOR EXTENDED SAR DIPOLE CALIBRATION

SAR dipoles calibrated less than two years ago but more than one year ago were confirmed by maintaining return loss (< -20dB, within 20% of prior calibration) and impedance (within 5Ω from prior calibration) requirements per extended calibrations in FCC KDB Publication 450824 (see reference [9]).

SPEAG VALIDATION DIPOLE							
Freq.	**TSL**	**Dipole**	**Measurement Date**	**Return Loss (dB)**	**Δ %**	**Impedance (Ω)**	**Δ Ω**
2450 MHz	Body	SPEAG Validation Dipole D2450V2 SN: 825	Apr. 17, 2009	-24.8		49.2	
			Apr. 17, 2010	-23.8	4.0%	54.2	5.0
			Apr. 17, 2011	-23.7	4.4%	54.2	5.0
5200 MHz	Body	SPEAG Validation Dipole D5GHzV2 SN: 1031	Apr. 29, 2009	-27.7		49.7	
			Apr. 29, 2010	-27.6	0.4%	48.5	1.2
			May 10, 2011	-26.5	4.4%	47.7	2.0
5500 MHz			Apr. 29, 2009	-21.4		57.2	
			Apr. 29, 2010	-22.7	6.1%	54.9	2.3
			May 10, 2011	-22.4	4.6%	54.3	2.9
5800 MHz			Apr. 29, 2009	-20.3		55.1	
			Apr. 29, 2010	-21.2	4.4%	55.2	0.1
			May 10, 2011	-21.1	4.0%	55.0	0.1

22.0 MEASUREMENT UNCERTAINTIES

UNCERTAINTY BUDGET FOR DEVICE EVALUATION (IEEE 1528-2003)

Uncertainty Component	IEEE 1528 Section	Uncertainty Value ±%	Probability Distribution	Divisor	ci 1g	ci 10g	Uncertainty Value ±% (1g)	Uncertainty Value ±% (10g)	V_i or V_{eff}
Measurement System									
Probe Calibration (2450 MHz)	E.2.1	6.0	Normal	1	1	1	6.0	6.0	∞
Axial Isotropy	E.2.2	4.7	Rectangular	1.732050808	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	E.2.2	9.6	Rectangular	1.732050808	0.7	0.7	3.9	3.9	∞
Boundary Effect	E.2.3	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Linearity	E.2.4	4.7	Rectangular	1.732050808	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	E.2.7	0.8	Rectangular	1.732050808	1	1	0.5	0.5	∞
Integration Time	E.2.8	2.6	Rectangular	1.732050808	1	1	1.5	1.5	∞
RF Ambient Conditions	E.6.1	3	Rectangular	1.732050808	1	1	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	Rectangular	1.732050808	1	1	0.2	0.2	∞
Probe Positioning wrt Phantom Shell	E.6.3	2.9	Rectangular	1.732050808	1	1	1.7	1.7	∞
Extrapolation, interpolation & integration algorithms for max. SAR evaluation	E.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	E.4.2	2.9	Normal	1	1	1	2.9	2.9	12
Device Holder Uncertainty	E.4.1	3.6	Normal	1	1	1	3.6	3.6	8
SAR Drift Measurement	6.6.2	5	Rectangular	1.732050808	1	1	2.9	2.9	∞
Phantom and Tissue Parameters									
Phantom Uncertainty	E.3.1	4	Rectangular	1.732050808	1	1	2.3	2.3	∞
Liquid Conductivity (target)	E.3.2	5	Rectangular	1.732050808	0.64	0.43	1.8	1.2	∞
Liquid Conductivity (measured)	E.3.3	0.51	Normal	1	0.64	0.43	0.3	0.2	∞
Liquid Permittivity (target)	E.3.2	5	Rectangular	1.732050808	0.6	0.49	1.7	1.4	∞
Liquid Permittivity (measured)	E.3.3	4.36	Normal	1	0.6	0.49	2.6	2.1	∞
Combined Standard Uncertainty			**RSS**				**10.95**	**10.71**	
Expanded Uncertainty (95% Confidence Interval)			**k=2**				**21.89**	**21.41**	
Measurement Uncertainty Table in accordance with IEEE Standard 1528-2003									

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

MEASUREMENT UNCERTAINTIES (Cont.)

UNCERTAINTY BUDGET FOR DEVICE EVALUATION (IEC 62209-2:2010)

Source of Uncertainty	IEC 62209-2 Section	Tolerance / Uncertainty ±%	Probability Distribution	Divisor	ci 1g	ci 10g	Standard Uncertainty ±% (1g)	Standard Uncertainty ±% (10g)	V_i or V_{eff}
Measurement System									
Probe Calibration (2450 MHz)	7.2.2.1	6.0	Normal	1	1	1	6.0	6.0	∞
Isotropy	7.2.2.2	4.7	Rectangular	1.732050808	1	1	2.7	2.7	∞
Boundary Effect	7.2.2.6	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Linearity	7.2.2.3	4.7	Rectangular	1.732050808	1	1	2.7	2.7	∞
Detection Limits	7.2.2.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Readout Electronics	7.2.2.7	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	7.2.2.8	0.8	Rectangular	1.732050808	1	1	0.5	0.5	∞
Integration Time	7.2.2.9	2.6	Rectangular	1.732050808	1	1	1.5	1.5	∞
RF Ambient Conditions	7.2.4.5	3	Rectangular	1.732050808	1	1	1.7	1.7	∞
Probe Positioner Mechanical Restrictions	7.2.3.1	0.4	Rectangular	1.732050808	1	1	0.2	0.2	∞
Probe Positioning wrt Phantom Shell	7.2.3.3	2.9	Rectangular	1.732050808	1	1	1.7	1.7	∞
Post-processing	7.2.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	7.2.3.4.3	2.9	Normal	1	1	1	2.9	2.9	12
Device Holder Uncertainty	7.2.3.4.2	3.6	Normal	1	1	1	3.6	3.6	8
Drift of Output Power (meas. SAR drift)	7.2.2.10	5	Rectangular	1.732050808	1	1	2.9	2.9	∞
Phantom and Tissue Parameters									
Phantom Uncertainty	7.2.3.2	4	Rectangular	1.732050808	1	1	2.3	2.3	∞
SAR Correction Algorithm for deviations in permittivity and conductivity	7.2.4.3	1.2	Normal	1	1	0.81	1.2	0.97	∞
Liquid Conductivity (measured)	7.2.4.3	0.51	Normal	1	0.78	0.71	0.4	0.4	∞
Liquid Permittivity (measured)	7.2.4.3	4.36	Normal	1	0.23	0.26	1.0	1.1	∞
Liquid Permittivity - temp. uncertainty	7.2.4.4	1.23	Rectangular	1.732050808	0.78	0.71	0.6	0.5	∞
Liquid Conductivity - temp. uncertainty	7.2.4.4	0.93	Rectangular	1.732050808	0.23	0.26	0.1	0.1	∞
Combined Standard Uncertainty	**7.3.1**		**RSS**				**9.90**	**9.89**	
Expanded Uncertainty (95% Confidence Interval)	**7.3.2**		**k=2**				**19.81**	**19.78**	

Measurement Uncertainty Table in accordance with International Standard IEC 62209-2:2010

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

MEASUREMENT UNCERTAINTIES (Cont.)

UNCERTAINTY BUDGET FOR DEVICE EVALUATION

Error Description	Uncertainty Value ±%	Probability Distribution	Divisor	ci 1g	ci 10g	Uncertainty Value ±% (1g)	Uncertainty Value ±% (10g)	V_i or V_{eff}
Measurement System								
Probe Calibration (5 GHz)	6.55	Normal	1	1	1	6.55	6.55	∞
Axial Isotropy	4.7	Rectangular	1.732050808	0.7	0.7	1.9	1.9	∞
Hemispherical Isotropy	9.6	Rectangular	1.732050808	0.7	0.7	3.9	3.9	∞
Boundary Effect	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Linearity	4.7	Rectangular	1.732050808	1	1	2.7	2.7	∞
System Detection Limits	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Readout Electronics	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	0.8	Rectangular	1.732050808	1	1	0.5	0.5	∞
Integration Time	2.6	Rectangular	1.732050808	1	1	1.5	1.5	∞
RF Ambient Conditions	3	Rectangular	1.732050808	1	1	1.7	1.7	∞
Probe Positioner Mechanical Restrictions	0.8	Rectangular	1.732050808	1	1	0.5	0.5	∞
Probe Positioning wrt Phantom Shell	5.7	Rectangular	1.732050808	1	1	3.3	3.3	∞
Post-processing	4	Rectangular	1.732050808	1	1	2.3	2.3	∞
Test Sample Related								
Device positioning	2.9	Normal	1	1	1	2.9	2.9	12
Device holder uncertainty	3.6	Normal	1	1	1	3.6	3.6	8
Power drift	5	Rectangular	1.732050808	1	1	2.9	2.9	∞
Phantom and Setup								
Phantom uncertainty	4	Rectangular	1.732050808	1	1	2.3	2.3	∞
Liquid conductivity (target)	5	Rectangular	1.732050808	0.64	0.43	1.8	1.2	∞
Liquid conductivity (measured)	2.12	Normal	1	0.64	0.43	1.4	0.9	∞
Liquid permittivity (target)	5	Rectangular	1.732050808	0.6	0.49	1.7	1.4	∞
Liquid permittivity (measured)	4.52	Normal	1	0.6	0.49	2.7	2.2	∞
Combined Standard Uncertainty		**RSS**				**11.92**	**11.66**	
Expanded Uncertainty (95% Confidence Interval)		**k=2**				**23.85**	**23.31**	

Measurement Uncertainty Table for the 5-6 GHz Range (SPEAG DASY4 Manual, Section 27.6, September 2005)

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

MEASUREMENT UNCERTAINTIES (Cont.)

UNCERTAINTY BUDGET FOR DEVICE EVALUATION (IEC 62209-2:2010)

Source of Uncertainty	IEC 62209-2 Section	Tolerance / Uncertainty ±%	Probability Distribution	Divisor	ci 1g	ci 10g	Standard Uncertainty ±% (1g)	Standard Uncertainty ±% (10g)	V_i or V_{eff}
Measurement System									
Probe Calibration (5 GHz)	7.2.2.1	6.55	Normal	1	1	1	6.55	6.55	∞
Isotropy	7.2.2.2	4.7	Rectangular	1.732050808	1	1	2.7	2.7	∞
Boundary Effect	7.2.2.6	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Linearity	7.2.2.3	4.7	Rectangular	1.732050808	1	1	2.7	2.7	∞
Detection Limits	7.2.2.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Readout Electronics	7.2.2.7	0.3	Normal	1	1	1	0.3	0.3	∞
Response Time	7.2.2.8	0.8	Rectangular	1.732050808	1	1	0.5	0.5	∞
Integration Time	7.2.2.9	2.6	Rectangular	1.732050808	1	1	1.5	1.5	∞
RF Ambient Conditions	7.2.4.5	3	Rectangular	1.732050808	1	1	1.7	1.7	∞
Probe Positioner Mechanical Restrictions	7.2.3.1	0.4	Rectangular	1.732050808	1	1	0.2	0.2	∞
Probe Positioning wrt Phantom Shell	7.2.3.3	2.9	Rectangular	1.732050808	1	1	1.7	1.7	∞
Post-processing	7.2.5	1	Rectangular	1.732050808	1	1	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	7.2.3.4.3	2.9	Normal	1	1	1	2.9	2.9	12
Device Holder Uncertainty	7.2.3.4.2	3.6	Normal	1	1	1	3.6	3.6	8
Drift of Output Power (meas. SAR drift)	7.2.2.10	5	Rectangular	1.732050808	1	1	2.9	2.9	∞
Phantom and Tissue Parameters									
Phantom Uncertainty	7.2.3.2	4	Rectangular	1.732050808	1	1	2.3	2.3	∞
SAR Correction Algorithm for deviations in permittivity and conductivity	7.2.4.3	1.2	Normal	1	1	0.81	1.2	0.97	∞
Liquid Conductivity (measured)	7.2.4.3	2.12	Normal	1	0.78	0.71	1.7	1.5	∞
Liquid Permittivity (measured)	7.2.4.3	4.52	Normal	1	0.23	0.26	1.0	1.2	∞
Liquid Permittivity - temp. uncertainty	7.2.4.4	0.68	Rectangular	1.732050808	0.78	0.71	0.3	0.3	∞
Liquid Conductivity - temp. uncertainty	7.2.4.4	0.38	Rectangular	1.732050808	0.23	0.26	0.1	0.1	∞
Combined Standard Uncertainty	**7.3.1**		**RSS**				**10.36**	**10.33**	
Expanded Uncertainty (95% Confidence Interval)	**7.3.2**		**k=2**				**20.73**	**20.66**	

Measurement Uncertainty Table in accordance with International Standard IEC 62209-2:2010

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

23.0 REFERENCES

[1] Federal Communications Commission - "Radiofrequency radiation exposure evaluation: portable devices", Rule Part 47 CFR §2.1093.

[2] Health Canada - "Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz", Safety Code 6: 1999.

[3] Federal Communications Commission - "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields", OET Bulletin 65, Supplement C (Edition 01-01), FCC, Washington, D.C.: June 2001.

[4] Industry Canada - "Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)", Radio Standards Specification RSS-102 Issue 4: March 2010.

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

[6] International Standard IEC 62209-2 Edition 1.0 2010-03 - "Human exposure to radio frequency fields from hand-held & body-mounted wireless communication devices - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)".

[7] Federal Communications Commission, Office of Engineering and Technology - "Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies"; KDB 447498 D01v04: November 2009.

[8] Federal Communications Commission, Office of Engineering and Technology - "SAR Measurement Procedures for 802.11a/b/g Transmitters"; KDB 248227 D01v01r02: May 2007.

[9] Federal Communications Commission, Office of Engineering and Technology - "Application Note: SAR Probe Calibration and System Verification Considerations for Measurements at 150 MHz - 3 GHz"; KDB 450824 D01 v01r01: January 2007.

[10] Federal Communications Commission, Office of Engineering and Technology - "SAR Measurement Requirements for 3 - 6 GHz"; KDB 865664 Rev. 1.1: October 2006.

[11] Schmid & Partner Engineering AG - DASY4 Manual V4.6, Chapter 17 Application Note, Body Tissue Recipe: Sept. 2005.

[12] ISO/IEC 17025 - "General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:2005)."

[13] Federal Communications Commission - "Measurements Required: RF Power Output"; Rule Part 47 CFR §2.1046.

[14] Industry Canada - "General Requirements and Information for the Certification of Radiocommunication Equipment", Radio Standards Specification RSS-Gen Issue 3: December 2010.

[15] Federal Communications Commission, Office of Engineering and Technology - "SAR Evaluation Considerations for Laptop Computers with Antennas Built-in on Display Screens"; KDB 616217 D01v01r01: November 2009.

APPENDIX A - SAR MEASUREMENT PLOTS

Date Tested: 10/13/2011

Test Plot #B1

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

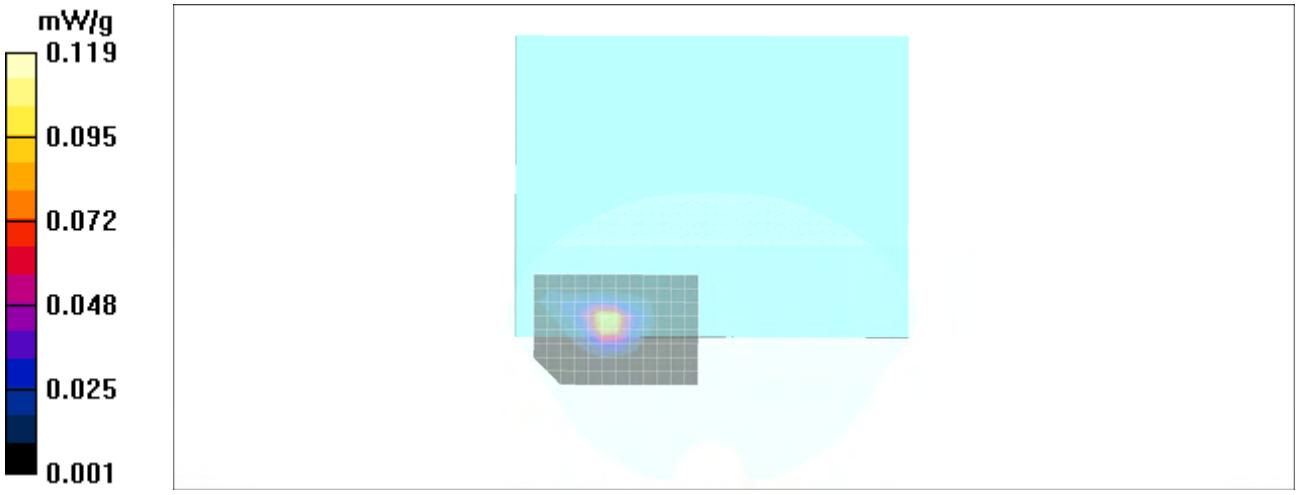
Ambient Temp: 24.3C; Fluid Temp: 22.8C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: DSSS WLAN
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2442 MHz; σ = 1.94 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(6.15, 6.15, 6.15); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11b - 1 Mbps - 2442 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.099 mW/g

WLAN - 11b - 1 Mbps - 2442 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 7.18 V/m; Power Drift = -0.008 dB
Peak SAR (extrapolated) = 0.187 W/kg
SAR(1 g) = 0.090 mW/g; SAR(10 g) = 0.041 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.119 mW/g



Date Tested: 10/13/2011

Test Plot #B2

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

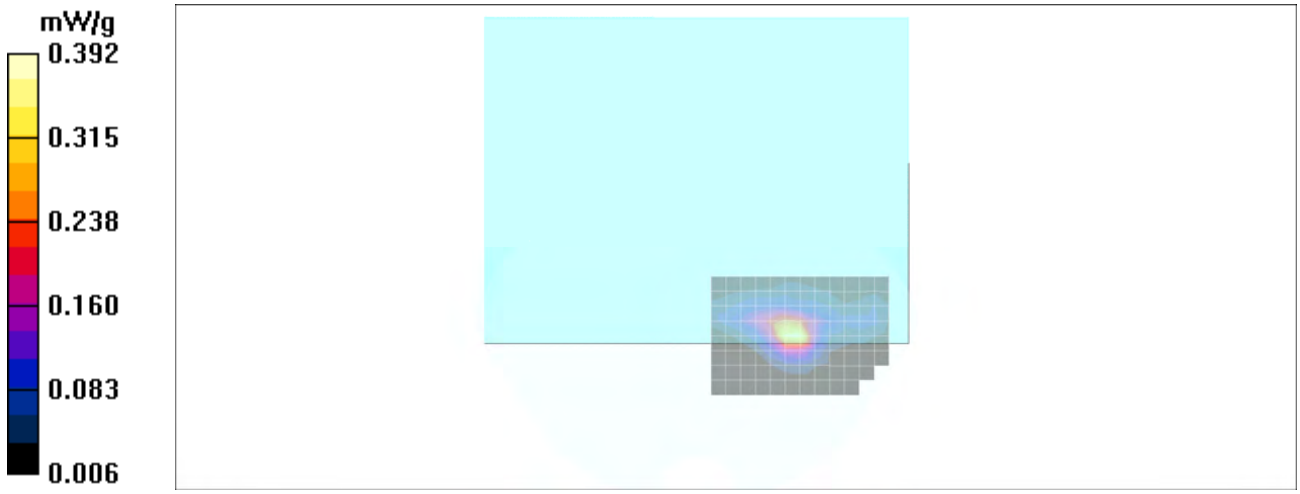
Ambient Temp: 24.3C; Fluid Temp: 22.8C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: DSSS WLAN
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2442 MHz; σ = 1.94 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(6.15, 6.15, 6.15); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11b - 1 Mbps - 2442 MHz - Aux - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.363 mW/g

WLAN - 11b - 1 Mbps - 2442 MHz - Aux - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 13.5 V/m; Power Drift = -0.134 dB
Peak SAR (extrapolated) = 0.636 W/kg
SAR(1 g) = 0.298 mW/g; SAR(10 g) = 0.134 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.392 mW/g



Date Tested: 10/13/2011

Test Plot #B3

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

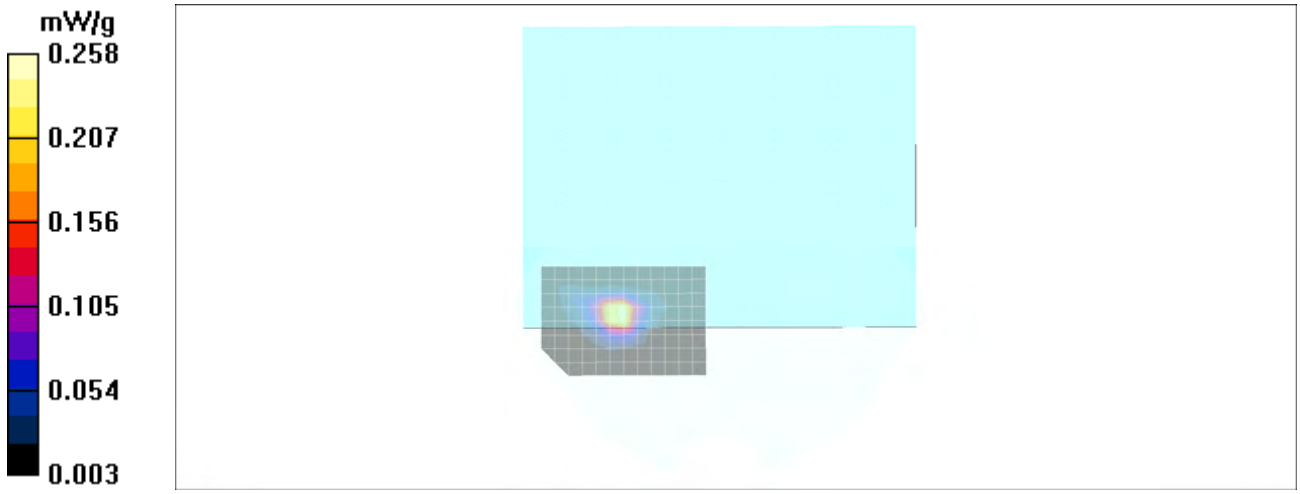
Ambient Temp: 24.3C; Fluid Temp: 22.8C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: OFDM WLAN
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2442 MHz; σ = 1.94 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(6.15, 6.15, 6.15); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11g - 6 Mbps - 2442 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.237 mW/g

WLAN - 11g - 6 Mbps - 2442 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 10.5 V/m; Power Drift = -0.094 dB
Peak SAR (extrapolated) = 0.424 W/kg
SAR(1 g) = 0.198 mW/g; SAR(10 g) = 0.090 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.258 mW/g



Date Tested: 10/13/2011

Test Plot #B4

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

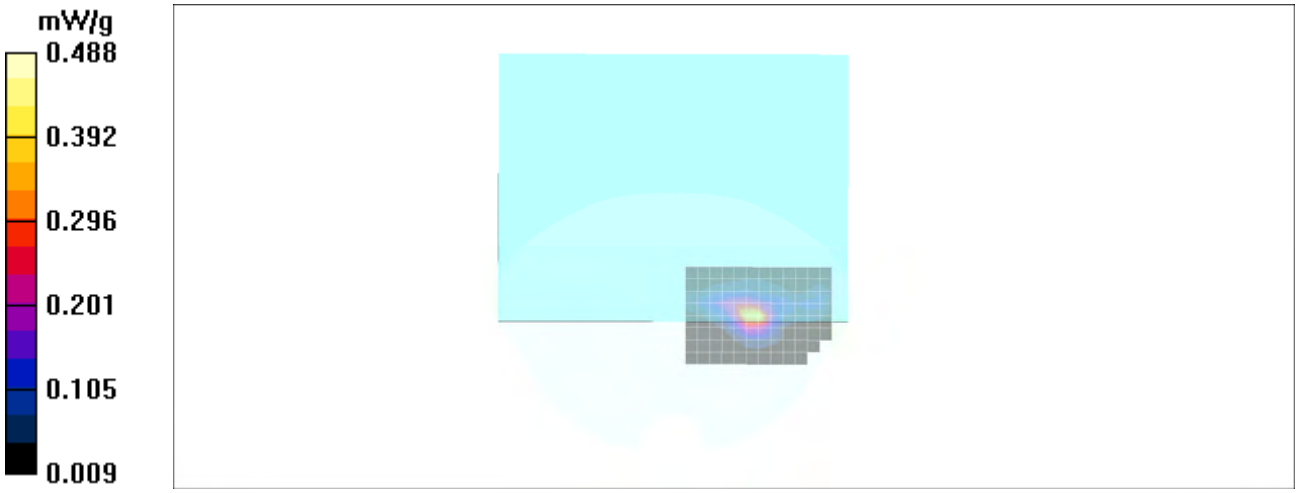
Ambient Temp: 24.3C; Fluid Temp: 22.8C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: OFDM WLAN
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2442 MHz; σ = 1.94 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(6.15, 6.15, 6.15); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11g - 6 Mbps - 2442 MHz - Aux - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.436 mW/g

WLAN - 11g - 6 Mbps - 2442 MHz - Aux - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 14.8 V/m; Power Drift = 0.178 dB
Peak SAR (extrapolated) = 0.852 W/kg
SAR(1 g) = 0.359 mW/g; SAR(10 g) = 0.166 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.488 mW/g



Date Tested: 10/13/2011

Test Plot #B5

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

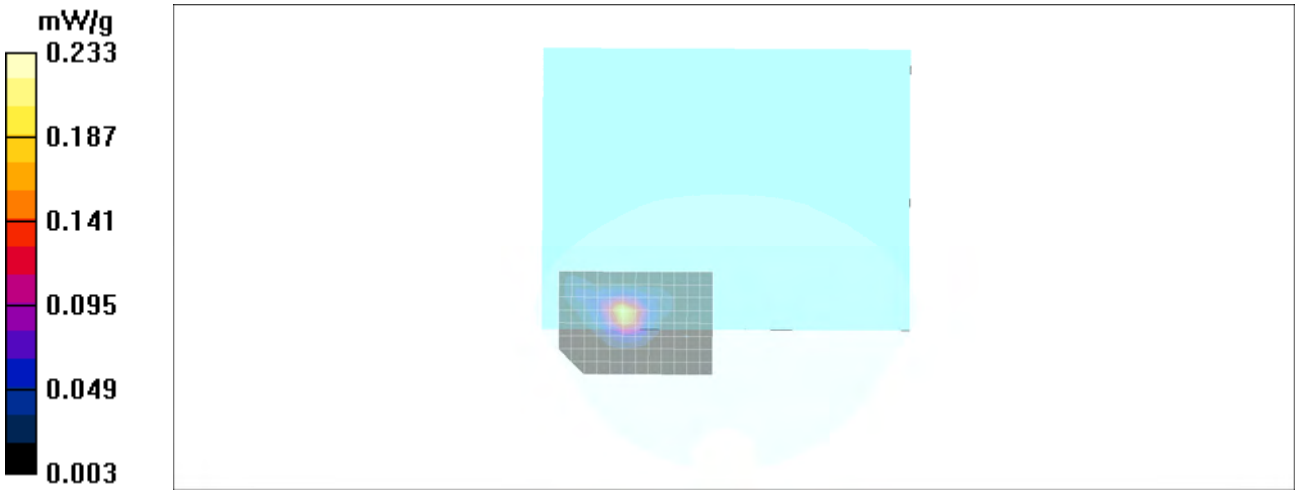
Ambient Temp: 24.3C; Fluid Temp: 22.8C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: OFDM WLAN
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2442 MHz; σ = 1.94 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(6.15, 6.15, 6.15); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11n - HT0 - 2442 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.204 mW/g

WLAN - 11n - HT0 - 2442 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 10.6 V/m; Power Drift = 0.111 dB
Peak SAR (extrapolated) = 0.387 W/kg
SAR(1 g) = 0.170 mW/g; SAR(10 g) = 0.078 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.233 mW/g



Date Tested: 10/13/2011

Test Plot #B6

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

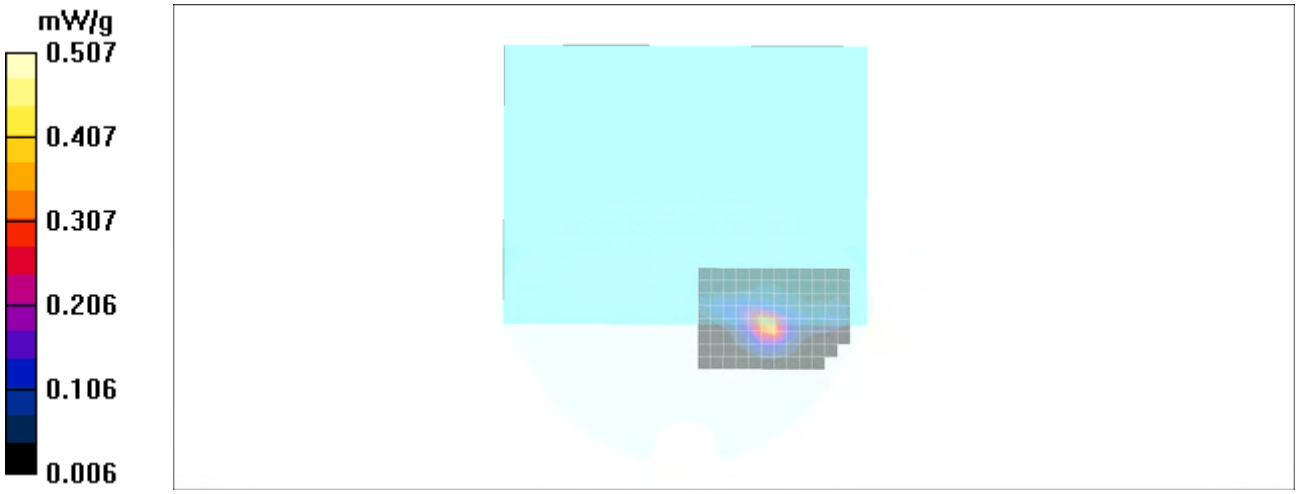
Ambient Temp: 24.3C; Fluid Temp: 22.8C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: OFDM WLAN
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2442 MHz; σ = 1.94 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

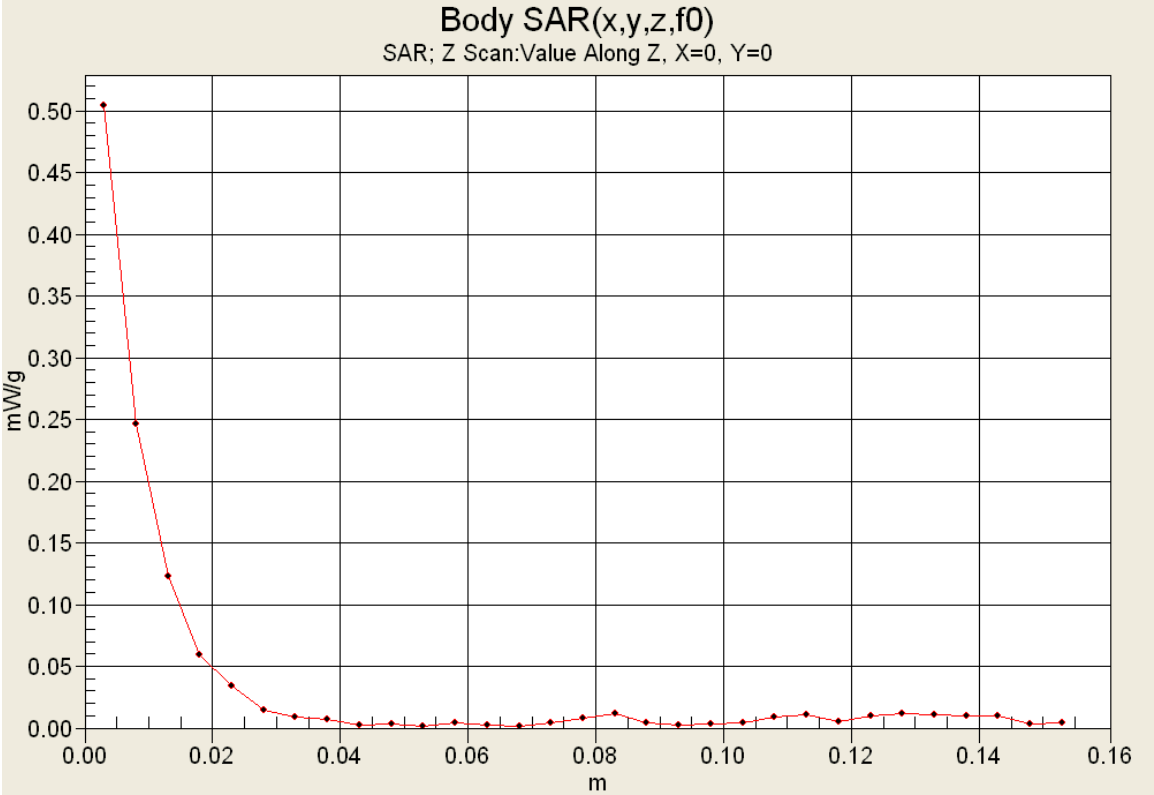
- Probe: EX3DV4 - SN3600; ConvF(6.15, 6.15, 6.15); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11n - HT0 - 2442 MHz - Aux - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.363 mW/g

WLAN - 11n - HT0 - 2442 MHz - Aux - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 12.9 V/m; Power Drift = -0.005 dB
Peak SAR (extrapolated) = 0.836 W/kg
SAR(1 g) = 0.368 mW/g; SAR(10 g) = 0.165 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.507 mW/g



Z-Axis Scan


Body SAR(x,y,z,f0)
SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Date Tested: 10/13/2011

Test Plot #B7

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

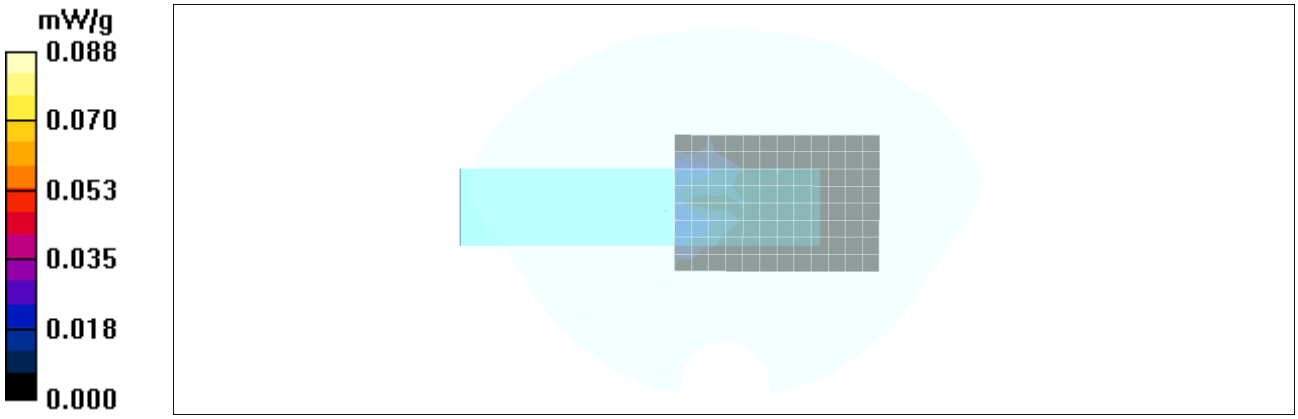
Ambient Temp: 24.3C; Fluid Temp: 22.8C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: OFDM WLAN
Frequency: 2442 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used (interpolated): f = 2442 MHz; σ = 1.94 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(6.15, 6.15, 6.15); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11n – HT0 - 2442 MHz - Aux - Edge/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.026 mW/g

WLAN - 11n – HT0 - 2442 MHz - Aux - Edge/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 3.41 V/m; Power Drift = 0.107 dB
Peak SAR (extrapolated) = 0.126 W/kg
SAR(1 g) = 0.055 mW/g; SAR(10 g) = 0.020 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.088 mW/g



Date Tested: 10/17/2011

Test Plot #B8

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

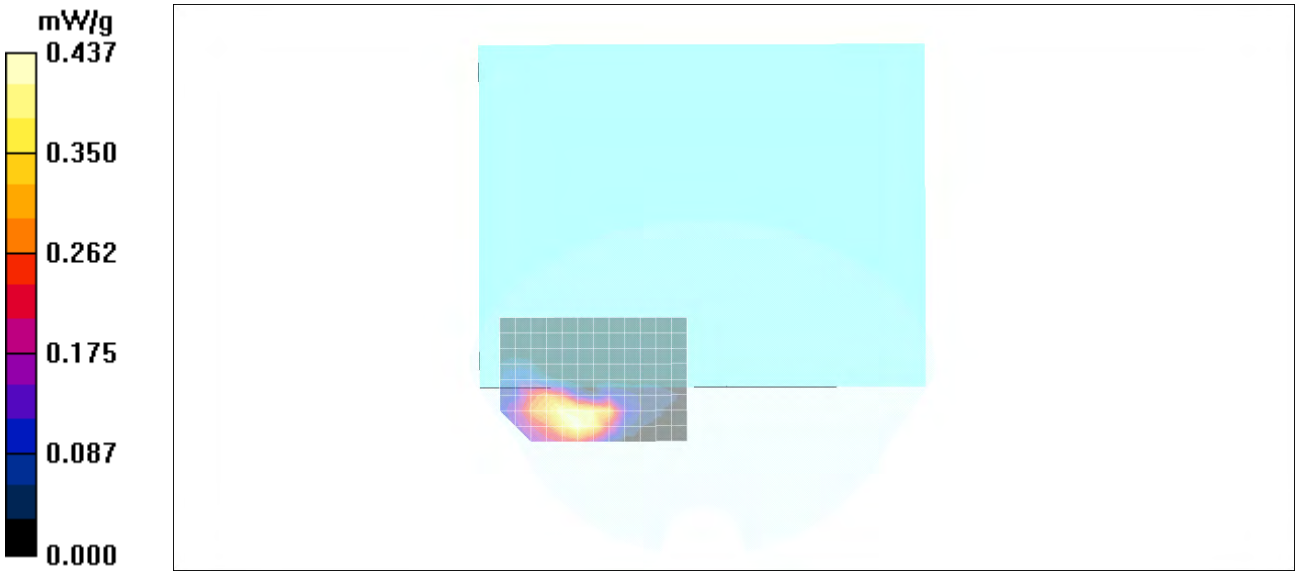
Ambient Temp: 23.9C; Fluid Temp: 22.2C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5200 MHz; σ = 5.27 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.91, 3.91, 3.91); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - 6 Mbps - 5200 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.424 mW/g

WLAN - 11a - 6 Mbps - 5200 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 9.44 V/m; Power Drift = -0.133 dB
Peak SAR (extrapolated) = 0.715 W/kg
SAR(1 g) = 0.320 mW/g; SAR(10 g) = 0.137 mW/g
Maximum value of SAR (measured) = 0.437 mW/g



Date Tested: 10/17/2011

Test Plot #B9

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

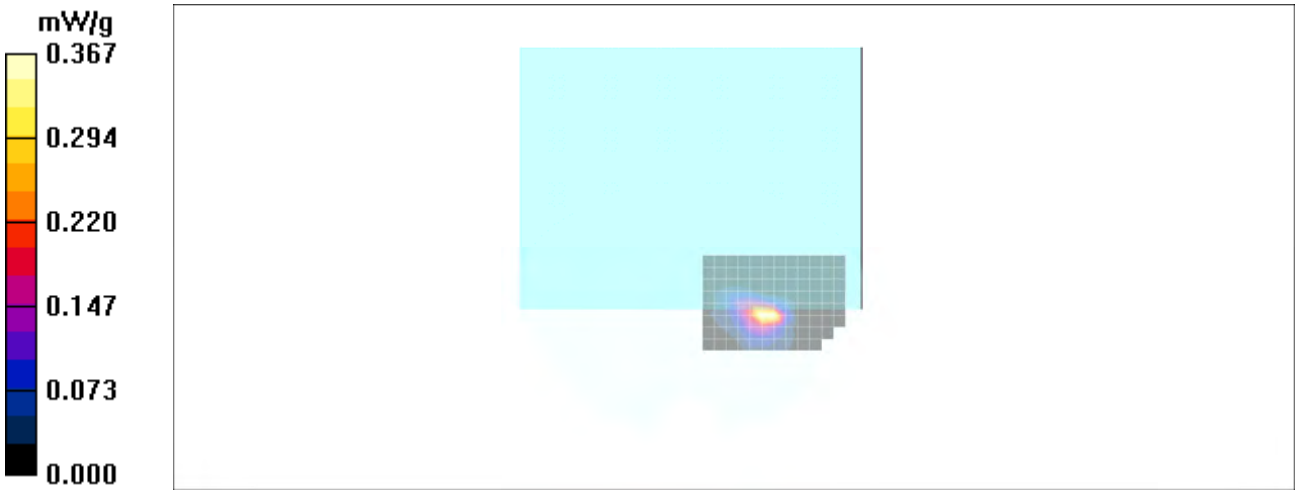
Ambient Temp: 23.9C; Fluid Temp: 22.2C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5200 MHz; σ = 5.27 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.91, 3.91, 3.91); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - 6 Mbps - 5200 MHz - Aux - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.372 mW/g

WLAN - 11a - 6 Mbps - 5200 MHz - Aux - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 8.24 V/m; Power Drift = -0.076 dB
Peak SAR (extrapolated) = 0.518 W/kg
SAR(1 g) = 0.228 mW/g; SAR(10 g) = 0.085 mW/g
Maximum value of SAR (measured) = 0.367 mW/g



Date Tested: 10/17/2011

Test Plot #B10

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

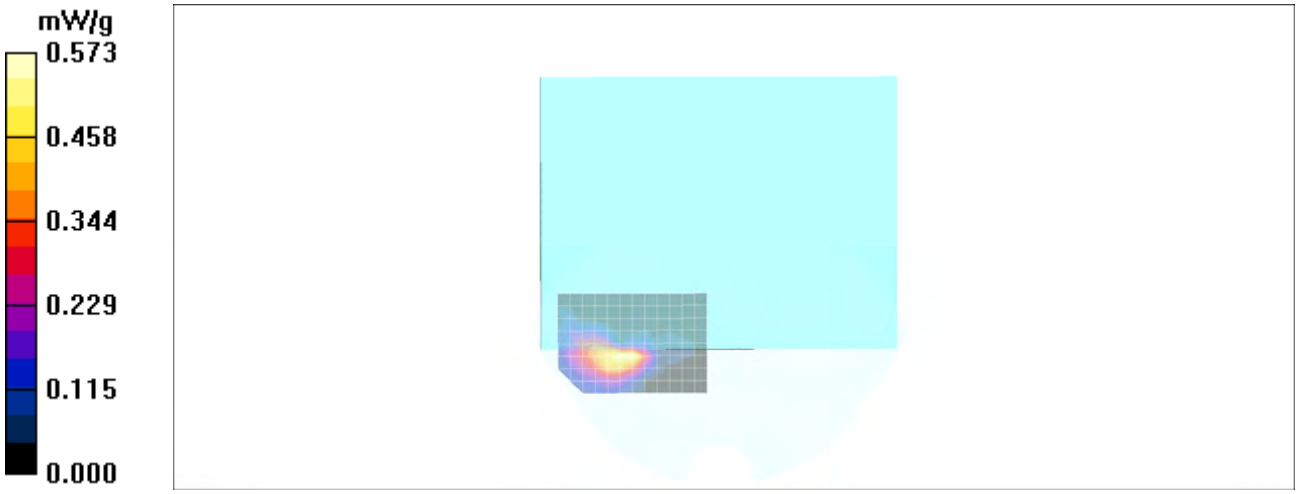
Ambient Temp: 23.9C; Fluid Temp: 22.2C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5200 MHz; σ = 5.27 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.91, 3.91, 3.91); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - HT0 - 5200 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.552 mW/g

WLAN - 11a - HT0 - 5200 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 10.6 V/m; Power Drift = 0.148 dB
Peak SAR (extrapolated) = 0.937 W/kg
SAR(1 g) = 0.396 mW/g; SAR(10 g) = 0.167 mW/g
Maximum value of SAR (measured) = 0.573 mW/g



Date Tested: 10/17/2011

Test Plot #B11

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

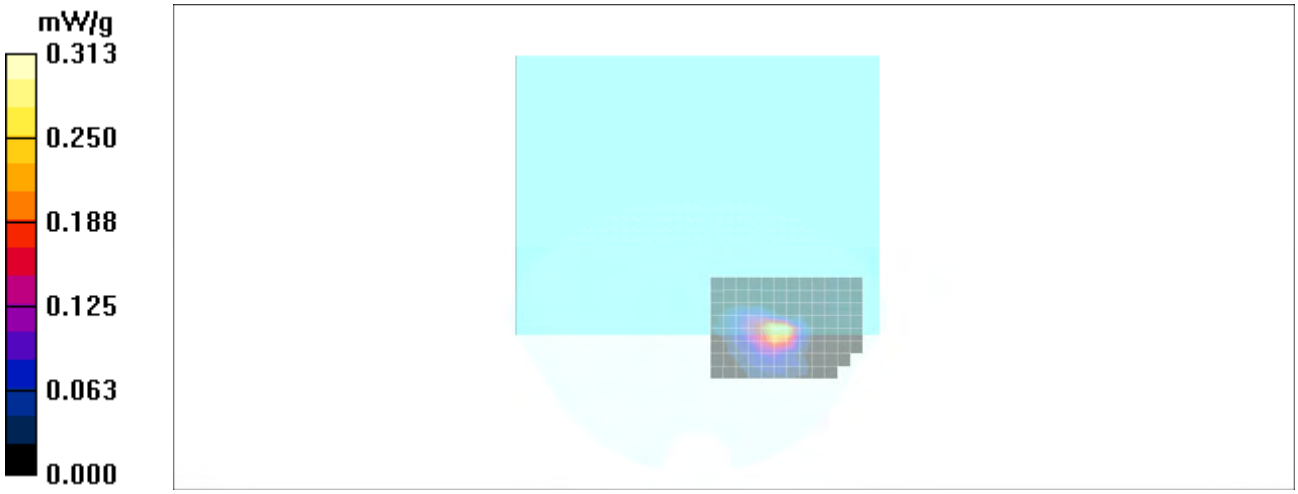
Ambient Temp: 23.9C; Fluid Temp: 22.2C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5200 MHz; σ = 5.27 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.91, 3.91, 3.91); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - HT0 - 5200 MHz - Aux - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.285 mW/g

WLAN - 11a - HT0 - 5200 MHz - Aux - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 7.53 V/m; Power Drift = 0.059 dB
Peak SAR (extrapolated) = 0.525 W/kg
SAR(1 g) = 0.225 mW/g; SAR(10 g) = 0.080 mW/g
Maximum value of SAR (measured) = 0.313 mW/g



Date Tested: 10/17/2011

Test Plot #B12

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

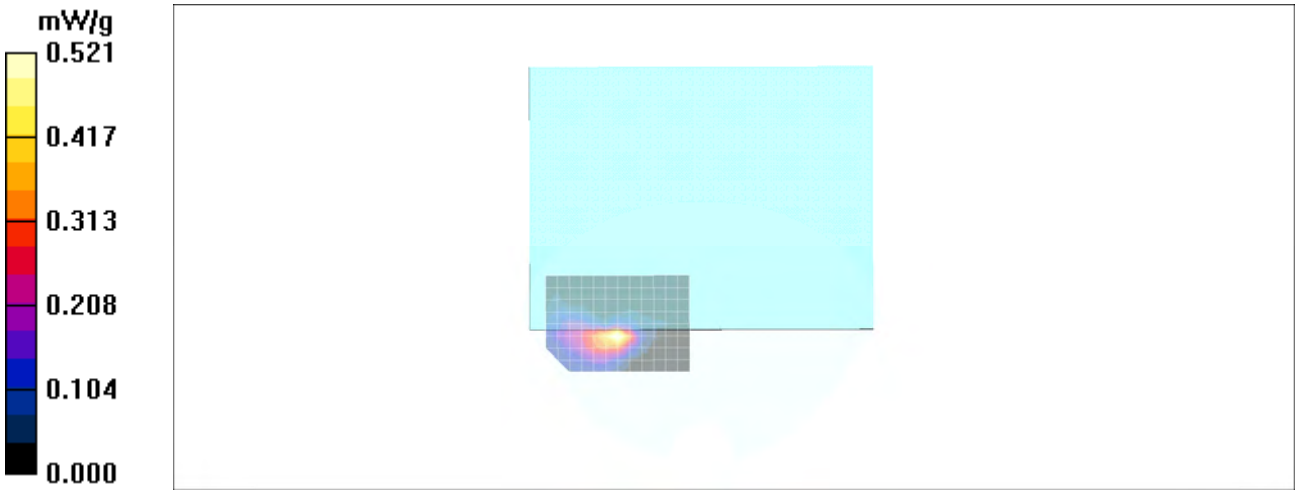
Ambient Temp: 23.9C; Fluid Temp: 22.2C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5300 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5300 MHz; σ = 5.34 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.91, 3.91, 3.91); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - 6 Mbps - 5300 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.563 mW/g

WLAN - 11a - 6 Mbps - 5300 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 10.4 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 0.955 W/kg
SAR(1 g) = 0.359 mW/g; SAR(10 g) = 0.138 mW/g
Maximum value of SAR (measured) = 0.521 mW/g



Date Tested: 10/17/2011

Test Plot #B13

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

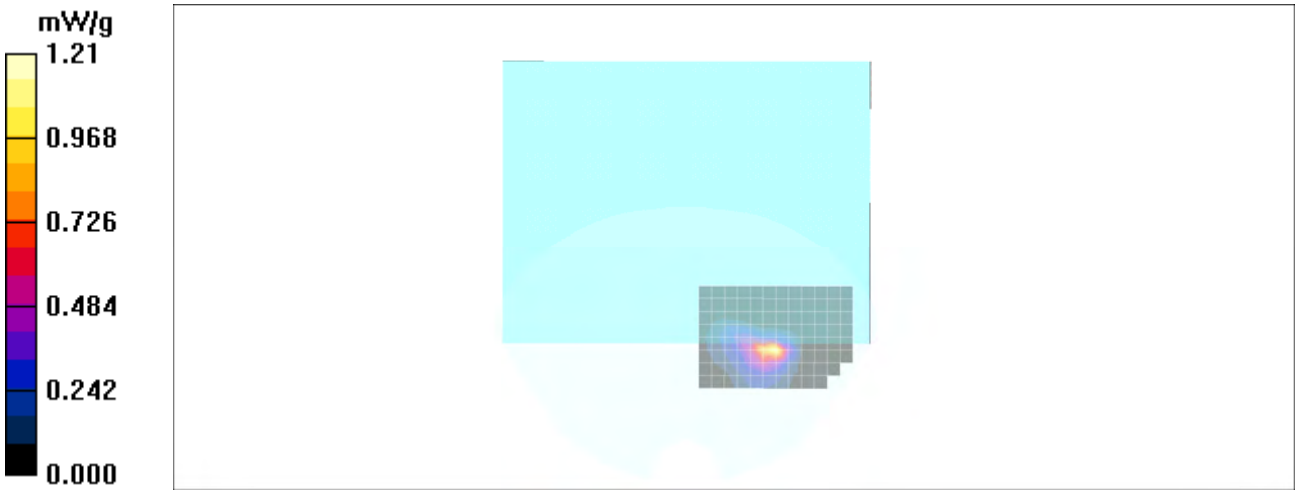
Ambient Temp: 23.9C; Fluid Temp: 22.2C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5300 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5300 MHz; σ = 5.34 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

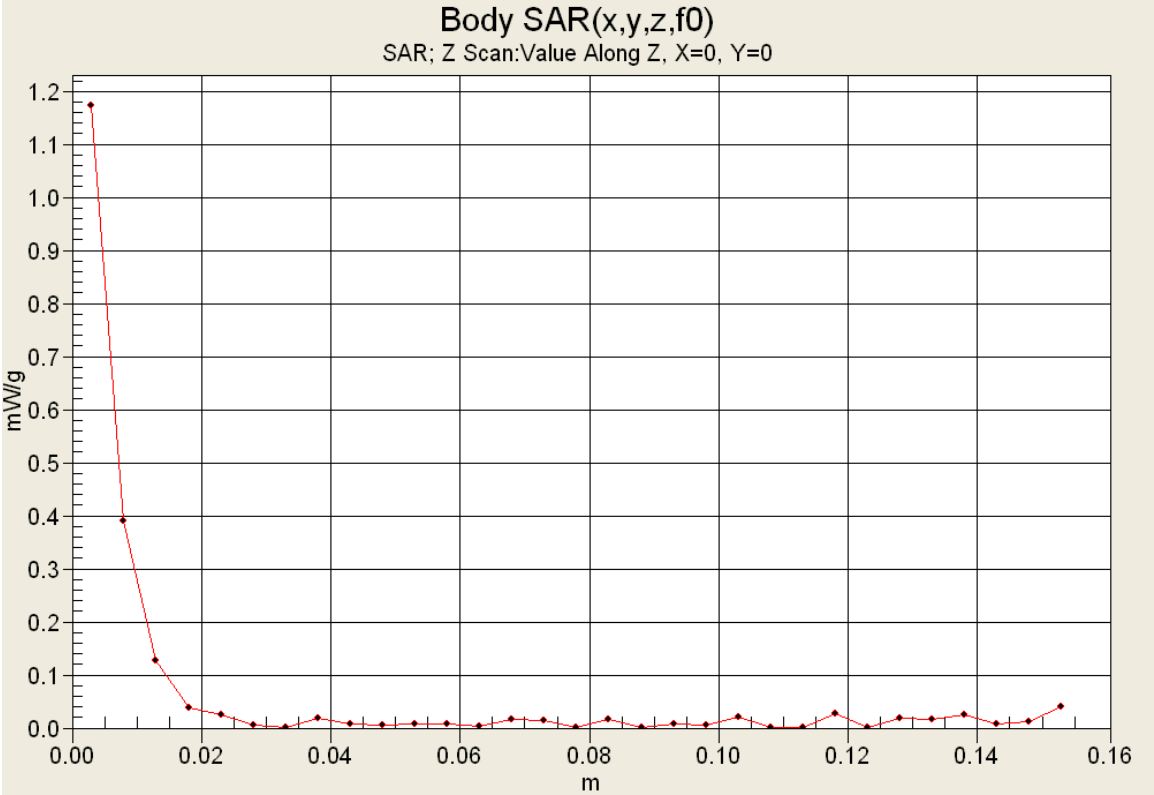
- Probe: EX3DV4 - SN3600; ConvF(3.91, 3.91, 3.91); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - 6 Mbps - 5300 MHz - Aux - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.12 mW/g

WLAN - 11a - 6 Mbps - 5300 MHz - Aux - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 15.9 V/m; Power Drift = -0.183 dB
Peak SAR (extrapolated) = 2.02 W/kg
SAR(1 g) = 0.769 mW/g; SAR(10 g) = 0.291 mW/g
Maximum value of SAR (measured) = 1.21 mW/g



Z-Axis Scan


Body SAR(x,y,z,f0)
SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.16
m

Date Tested: 10/17/2011

Test Plot #B14

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

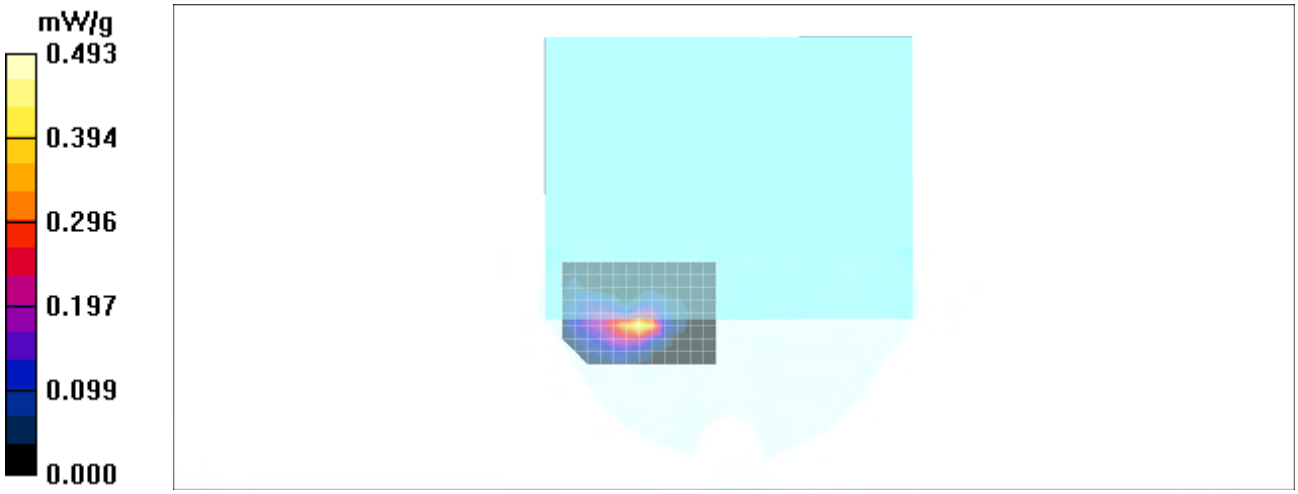
Ambient Temp: 23.9C; Fluid Temp: 22.2C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5300 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5300 MHz; σ = 5.34 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.91, 3.91, 3.91); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - HT0 - 5300 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.457 mW/g

WLAN - 11a - HT0 - 5300 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 9.92 V/m; Power Drift = -0.136 dB
Peak SAR (extrapolated) = 0.746 W/kg
SAR(1 g) = 0.328 mW/g; SAR(10 g) = 0.126 mW/g
Maximum value of SAR (measured) = 0.493 mW/g



Date Tested: 10/17/2011

Test Plot #B15

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

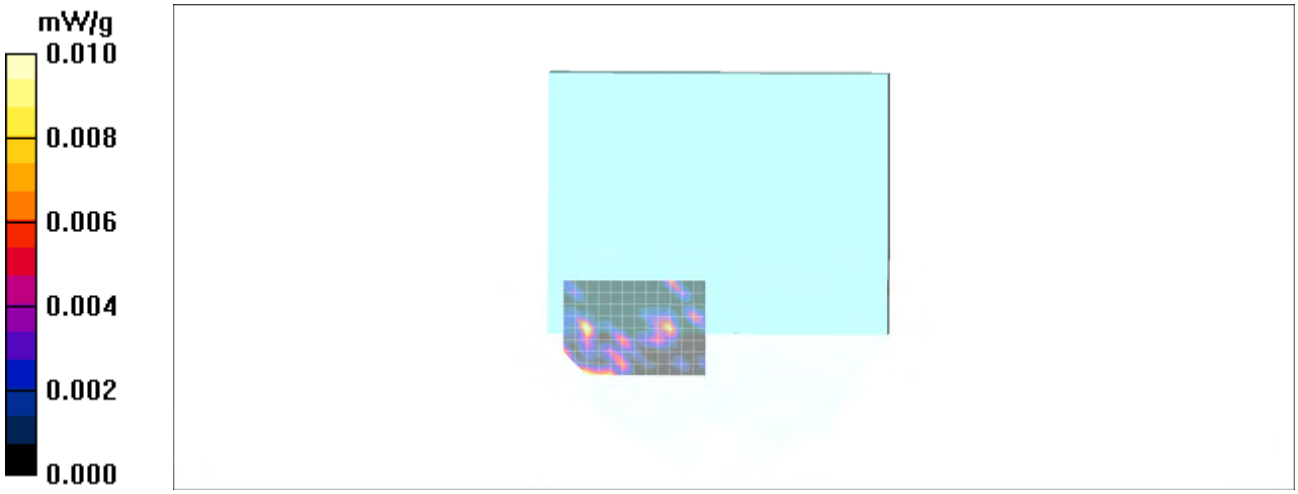
Ambient Temp: 23.9C; Fluid Temp: 22.2C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5300 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5300 MHz; σ = 5.34 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.91, 3.91, 3.91); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - HT0 - 5300 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.887 mW/g

WLAN - 11a - HT0 - 5300 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 13.5 V/m; Power Drift = -0.160 dB
Peak SAR (extrapolated) = 1.83 W/kg
SAR(1 g) = 0.768 mW/g; SAR(10 g) = 0.277 mW/g
Maximum value of SAR (measured) = 1.09 mW/g



Date Tested: 10/27/2011

Test Plot #B16

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

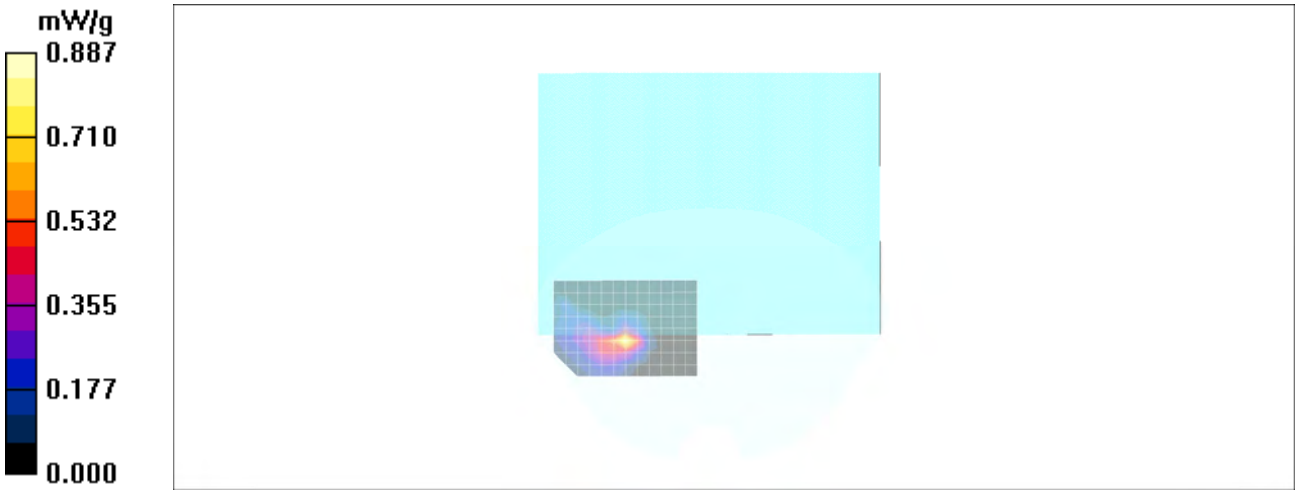
Ambient Temp: 23.6C; Fluid Temp: 22.4C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5600 MHz; σ = 5.77 mho/m; ε_r = 50.2; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.38, 3.38, 3.38); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - 6 Mbps - 5600 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.822 mW/g

WLAN - 11a - 6 Mbps - 5600 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 12.5 V/m; Power Drift = 0.112 dB
Peak SAR (extrapolated) = 1.50 W/kg
SAR(1 g) = 0.567 mW/g; SAR(10 g) = 0.212 mW/g
Maximum value of SAR (measured) = 0.887 mW/g



Date Tested: 10/27/2011

Test Plot #B17

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

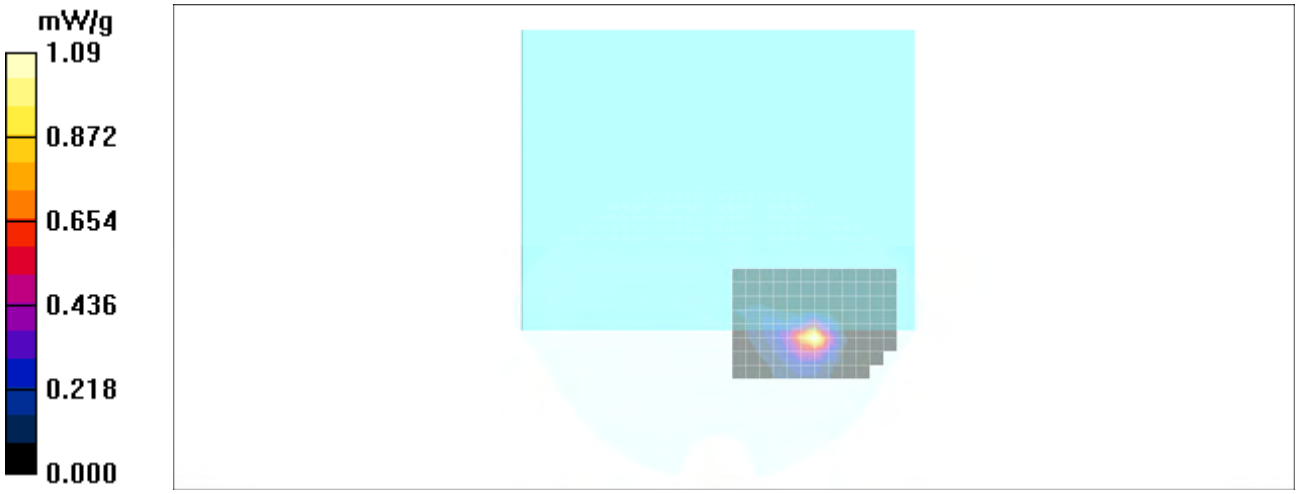
Ambient Temp: 23.6C; Fluid Temp: 22.4C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5600 MHz; σ = 5.77 mho/m; ε_r = 50.2; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.38, 3.38, 3.38); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - 6 Mbps - 5600 MHz - Aux - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.12 mW/g

WLAN - 11a - 6 Mbps - 5600 MHz - Aux - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 14.8 V/m; Power Drift = 0.149 dB
Peak SAR (extrapolated) = 2.42 W/kg
SAR(1 g) = 0.739 mW/g; SAR(10 g) = 0.260 mW/g
Maximum value of SAR (measured) = 1.09 mW/g



Date Tested: 10/27/2011

Test Plot #B18

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

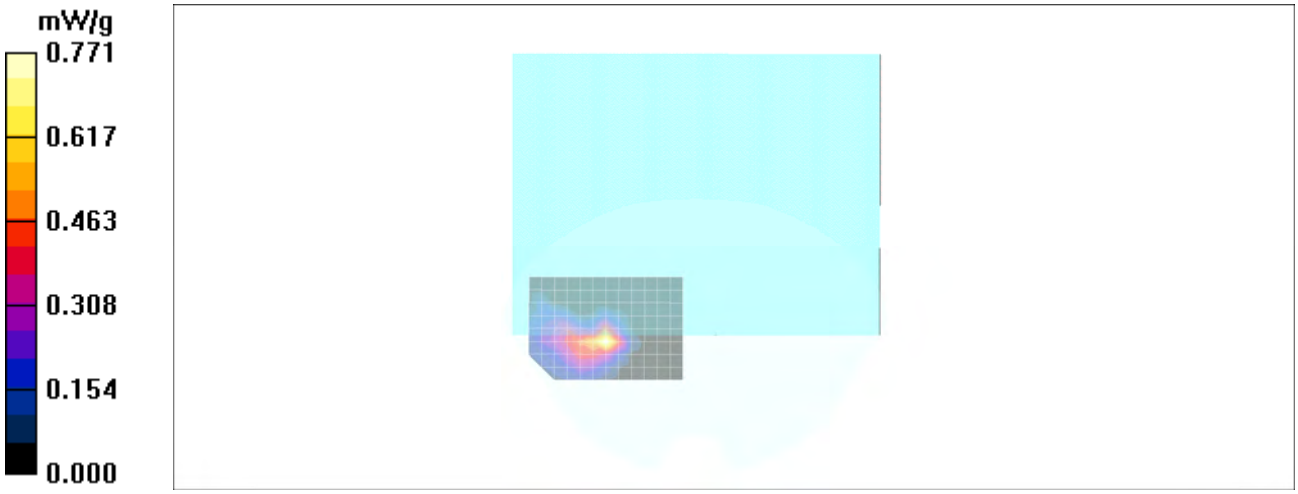
Ambient Temp: 23.6C; Fluid Temp: 22.4C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5600 MHz; σ = 5.77 mho/m; ε_r = 50.2; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.38, 3.38, 3.38); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - HT0 - 5600 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.775 mW/g

WLAN - 11a - HT0 - 5600 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 11.8 V/m; Power Drift = -0.139 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.461 mW/g; SAR(10 g) = 0.176 mW/g
Maximum value of SAR (measured) = 0.771 mW/g



Date Tested: 10/27/2011

Test Plot #B19

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

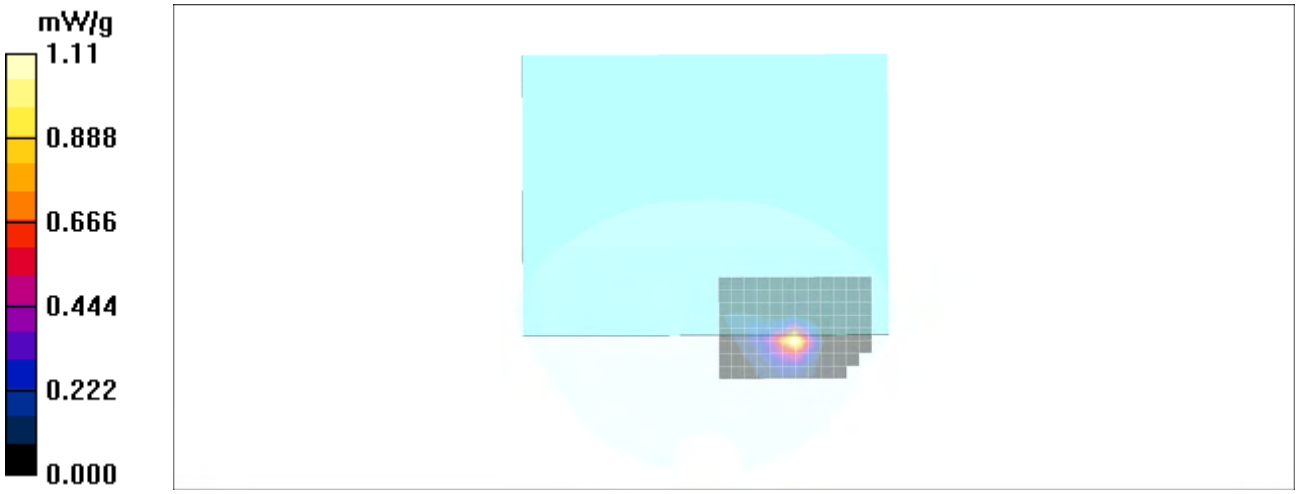
Ambient Temp: 23.6C; Fluid Temp: 22.4C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5600 MHz; σ = 5.77 mho/m; ε_r = 50.2; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.38, 3.38, 3.38); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - HT0 - 5600 MHz - Aux - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.15 mW/g

WLAN - 11a - HT0 - 5600 MHz - Aux - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 15.2 V/m; Power Drift = -0.155 dB
Peak SAR (extrapolated) = 2.29 W/kg
SAR(1 g) = 0.764 mW/g; SAR(10 g) = 0.269 mW/g
Maximum value of SAR (measured) = 1.11 mW/g



Date Tested: 10/27/2011

Test Plot #B20

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

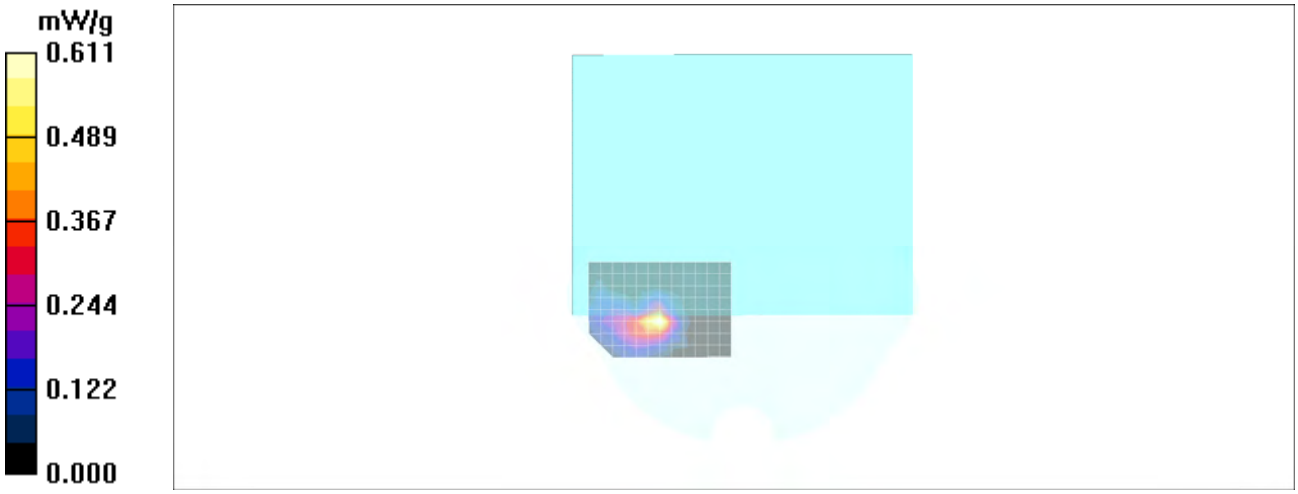
Ambient Temp: 23.6C; Fluid Temp: 22.4C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5785 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5800 MHz; σ = 6.01 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.39, 3.39, 3.39); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - 6 Mbps - 5785 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.658 mW/g

WLAN - 11a - 6 Mbps - 5785 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 10.8 V/m; Power Drift = -0.141 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.414 mW/g; SAR(10 g) = 0.155 mW/g
Maximum value of SAR (measured) = 0.611 mW/g



Date Tested: 10/27/2011

Test Plot #B21

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

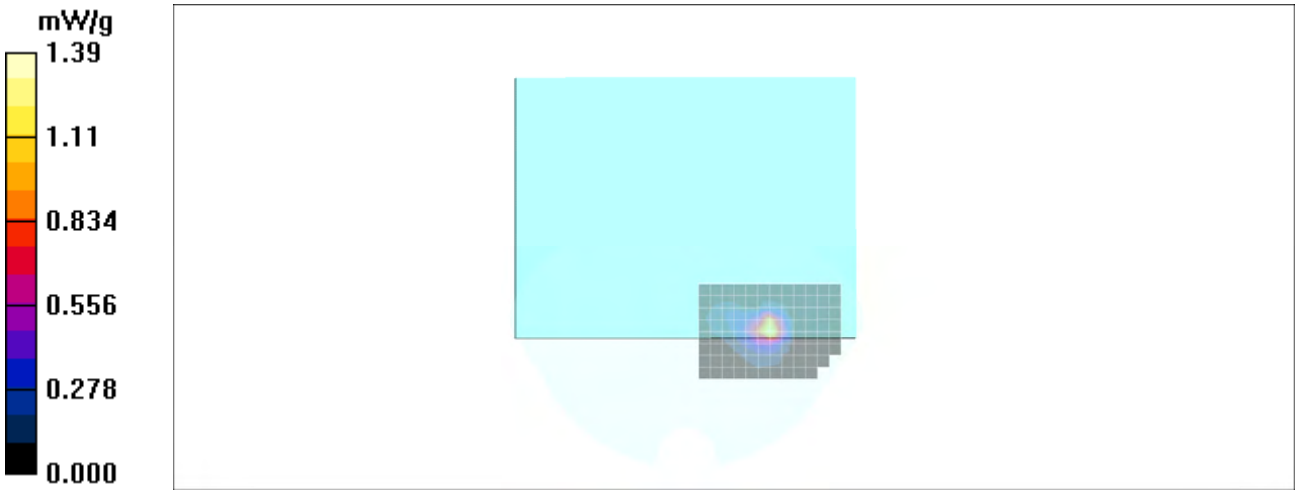
Ambient Temp: 23.6C; Fluid Temp: 22.4C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5785 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5800 MHz; σ = 6.01 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

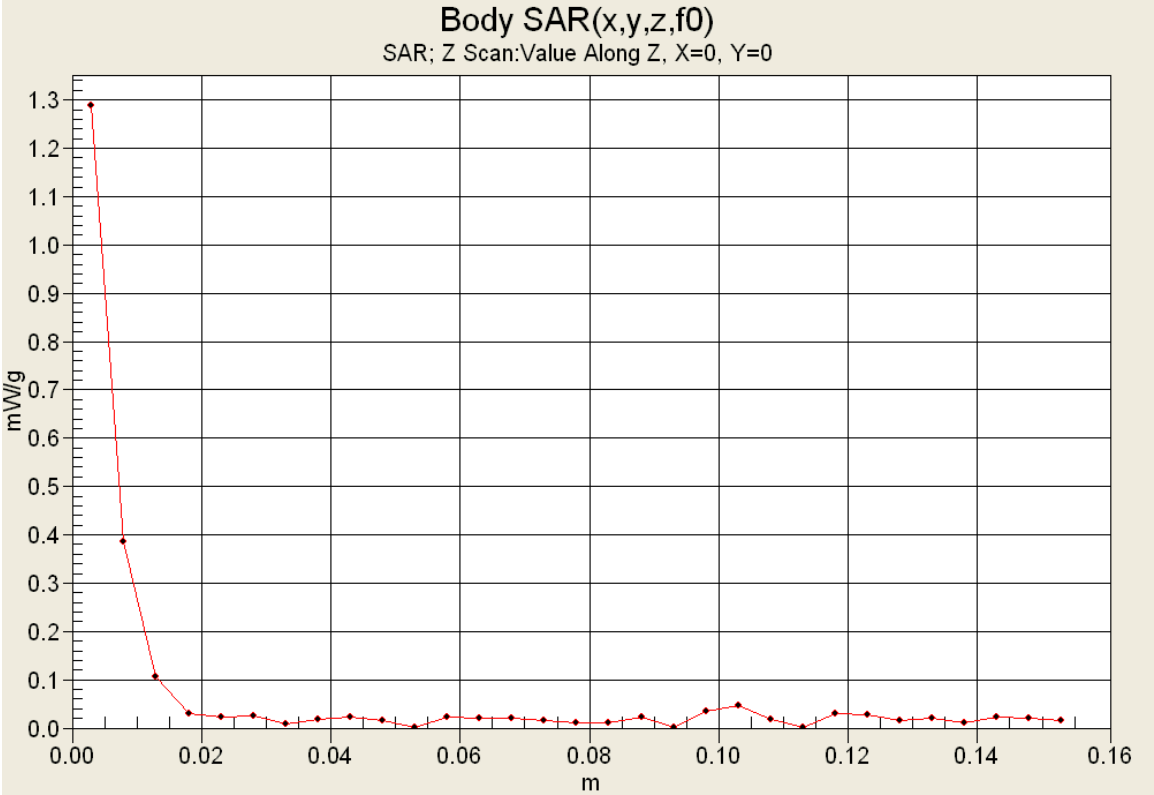
- Probe: EX3DV4 - SN3600; ConvF(3.39, 3.39, 3.39); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - 6Mbps - 5785 MHz - Aux - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.29 mW/g

WLAN - 11a - 6Mbps - 5785 MHz - Aux - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 15.3 V/m; Power Drift = 0.031 dB
Peak SAR (extrapolated) = 1.86 W/kg
SAR(1 g) = 0.771 mW/g; SAR(10 g) = 0.267 mW/g
Maximum value of SAR (measured) = 1.39 mW/g



Z-Axis Scan



Date Tested: 10/27/2011

Test Plot #B22

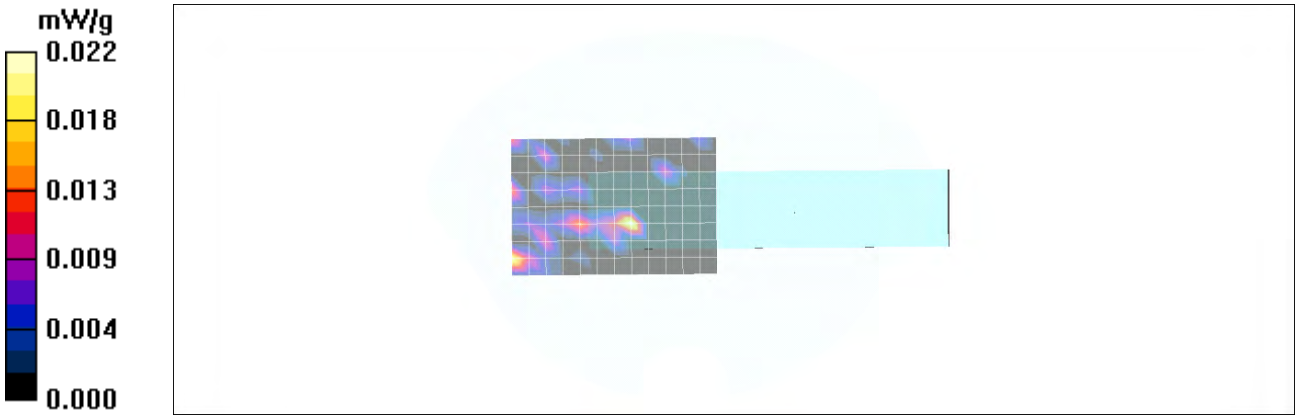
DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

Ambient Temp: 23.6C; Fluid Temp: 22.4C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5785 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5800 MHz; σ = 6.01 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.39, 3.39, 3.39); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - 6 Mbps - 5785 MHz - Aux - Edge/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.022 mW/g



Date Tested: 10/27/2011

Test Plot #B23

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

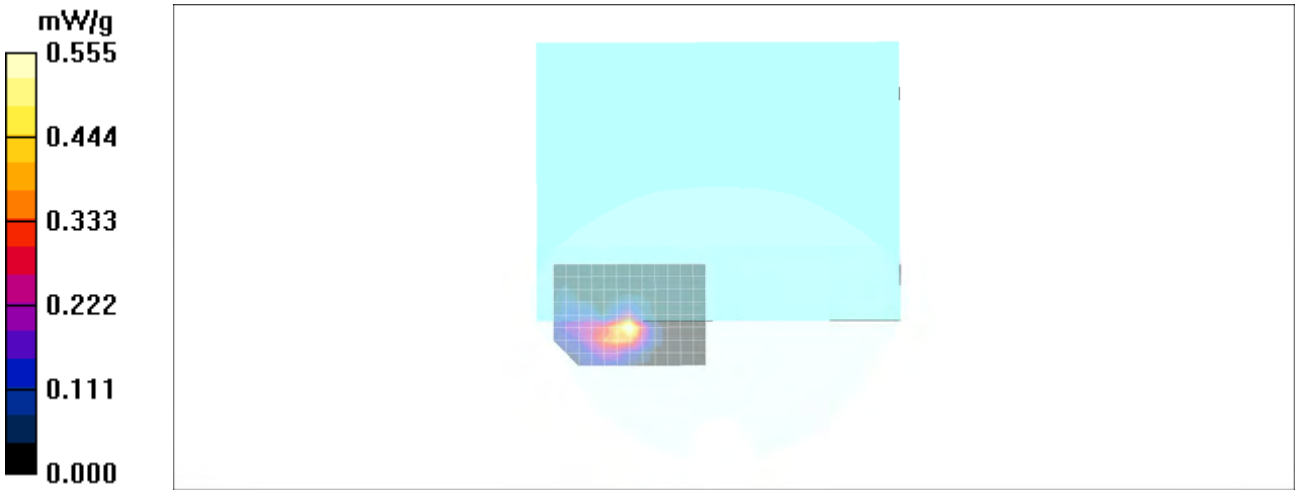
Ambient Temp: 23.6C; Fluid Temp: 22.4C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5785 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5800 MHz; σ = 6.01 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.39, 3.39, 3.39); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - HT0 - 5785 MHz - Main - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.585 mW/g

WLAN - 11a - HT0 - 5785 MHz - Main - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 10.5 V/m; Power Drift = -0.036 dB
Peak SAR (extrapolated) = 0.919 W/kg
SAR(1 g) = 0.377 mW/g; SAR(10 g) = 0.144 mW/g
Maximum value of SAR (measured) = 0.555 mW/g



Date Tested: 10/27/2011

Test Plot #B24

DUT: Xplore Technologies; Type: 62205ANHMW 802.11a/b/g/n in iX104C5; Serial: 914JP01003G110000B4M000

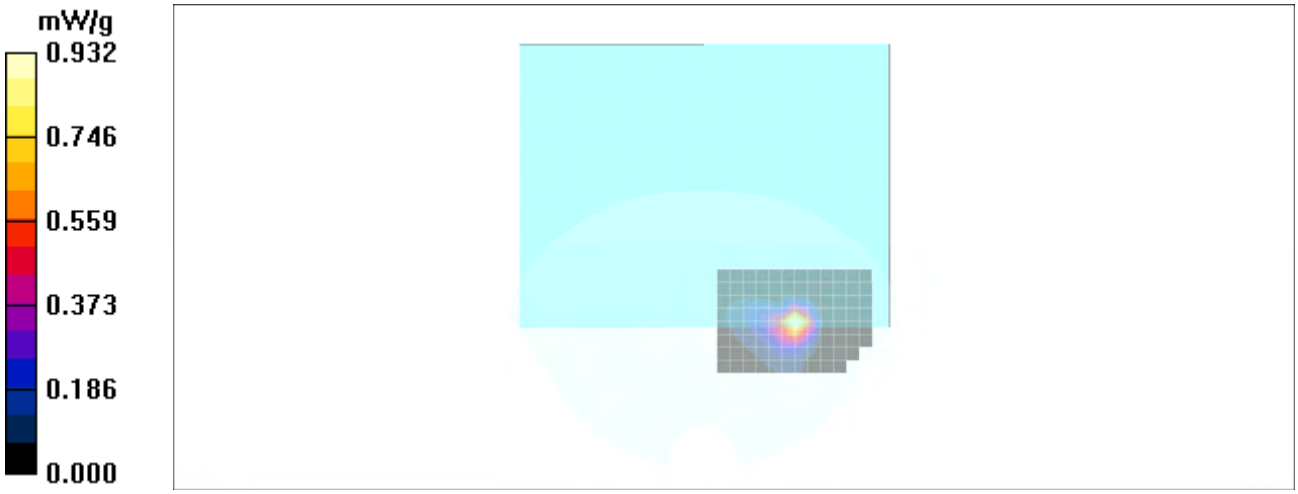
Ambient Temp: 23.6C; Fluid Temp: 22.4C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: OFDM WLAN
Frequency: 5785 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5800 MHz; σ = 6.01 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

- Probe: EX3DV4 - SN3600; ConvF(3.91, 3.91, 3.91); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection (Locations From Previous Scan Used))Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

WLAN - 11a - HT0 - 5785 MHz - Aux - Bottom Side/Area Scan (9x13x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.996 mW/g

WLAN - 11a - HT0 - 5785 MHz - Aux - Bottom Side/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=3mm
Reference Value = 14.4 V/m; Power Drift = 0.130 dB
Peak SAR (extrapolated) = 1.65 W/kg
SAR(1 g) = 0.672 mW/g; SAR(10 g) = 0.233 mW/g
Maximum value of SAR (measured) = 0.932 mW/g



APPENDIX B - SYSTEM PERFORMANCE CHECK PLOTS

Date Tested: 10/13/2011

System Performance Check - 2450 MHz Dipole - Body

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 825; Calibration: 04/17/2009

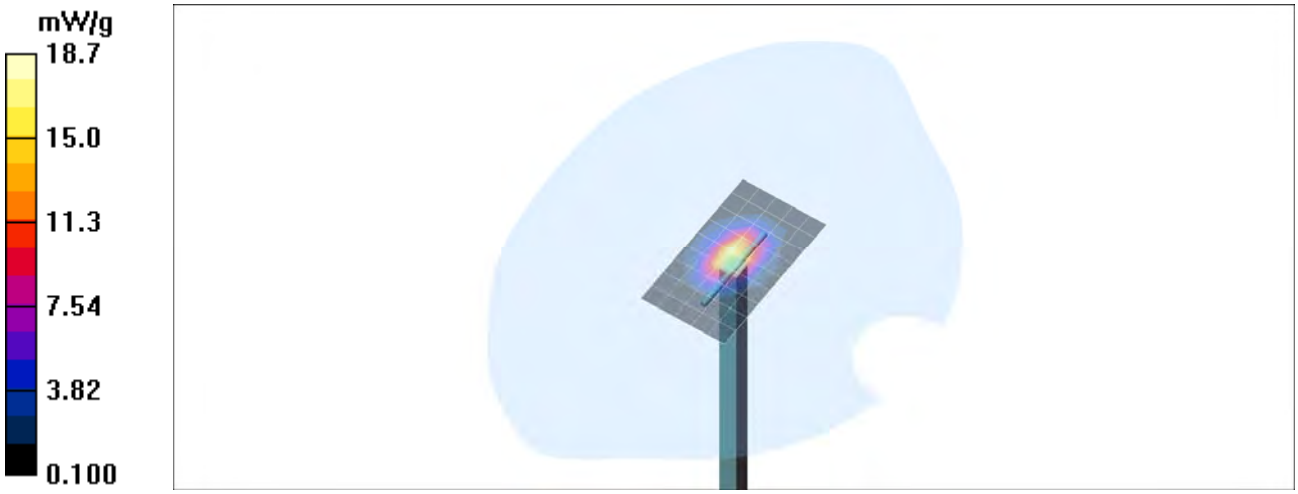
Ambient Temp: 24.3C; Fluid Temp: 22.8C; Barometric Pressure: 101.1 kPa; Humidity: 33%

Communication System: CW
Forward Conducted Power: 250 mW
Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: M2450 Medium parameters used: f = 2450 MHz; σ = 1.96 mho/m; ε_r = 50.4; ρ = 1000 kg/m^3

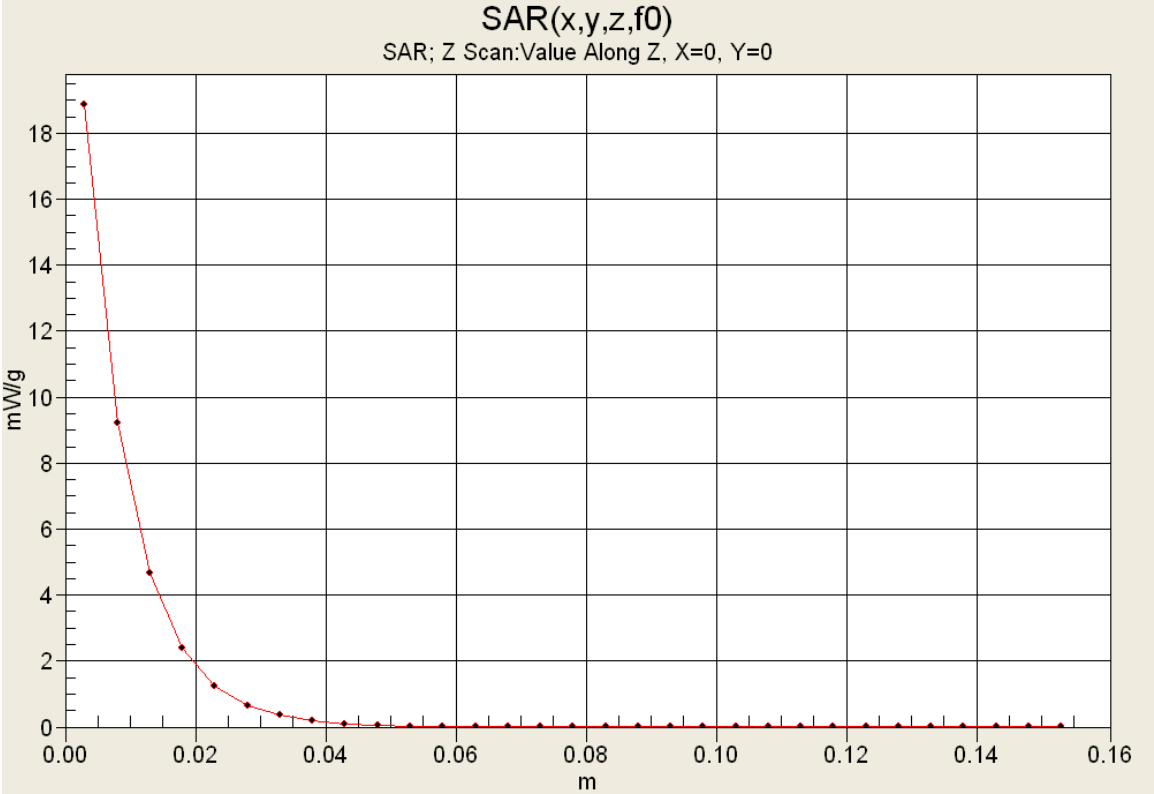
- Probe: EX3DV4 - SN3600; ConvF(6.15, 6.15, 6.15); Calibrated: 23/06/2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

2450 MHz System Performance Check/Area Scan (6x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 17.2 mW/g

2450 MHz System Performance Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.0 V/m; Power Drift = 0.005 dB
Peak SAR (extrapolated) = 29.6 W/kg
SAR(1 g) = 14.1 mW/g; SAR(10 g) = 6.46 mW/g
Maximum value of SAR (measured) = 18.7 mW/g



Z-Axis Scan



Date Tested: 10/17/2011

System Performance Check - 5200 MHz Dipole - Body

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: 1031; Calibration: 04/29/2010

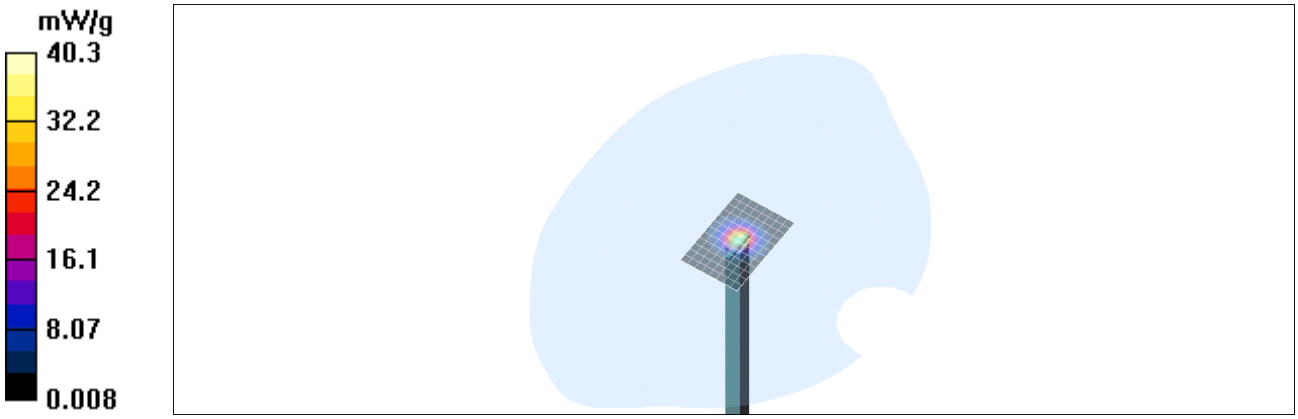
Ambient Temp: 23.9C; Fluid Temp: 22.2C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: CW
Forward Conducted Power: 50 mW
Frequency: 5200 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5200 MHz; σ = 5.27 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3

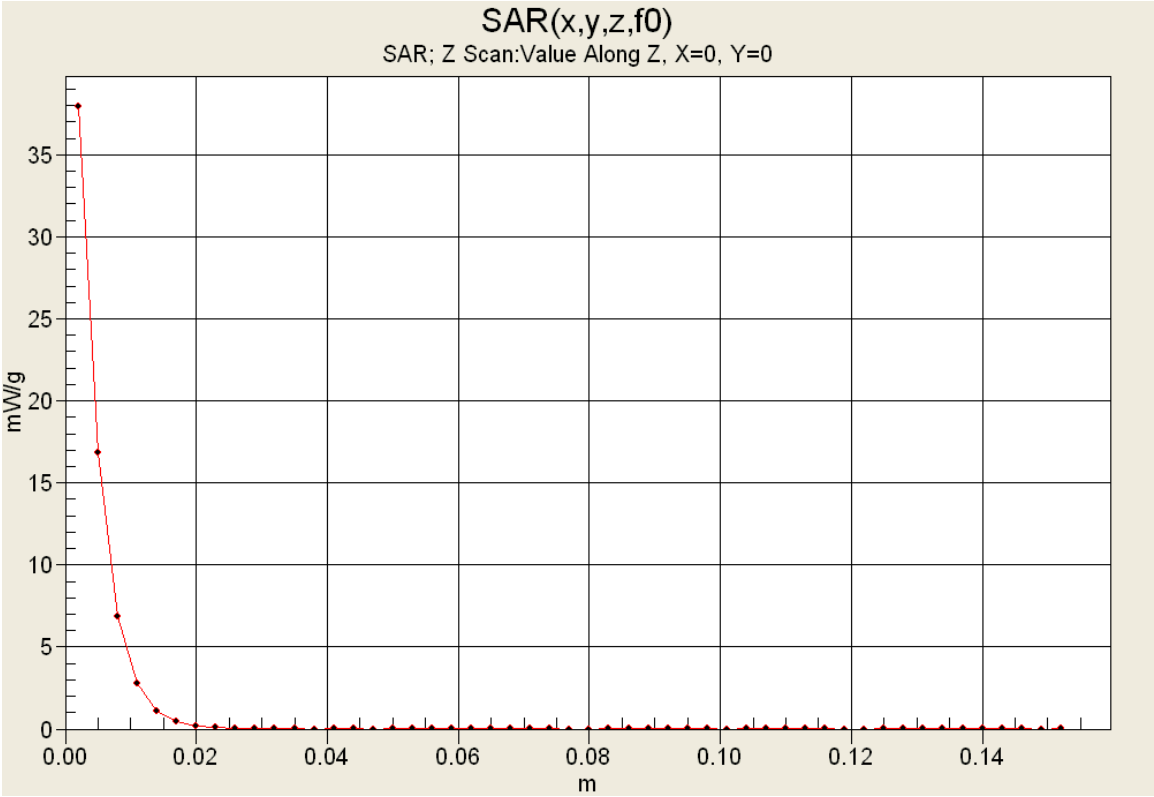
- Probe: EX3DV4 - SN3600; ConvF(3.91, 3.91, 3.91); Calibrated: 23/06/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

5200 MHz System Performance Check/Area Scan (9x13x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of SAR (measured) = 38.6 mW/g

5200 MHz System Performance Check/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 93.1 V/m; Power Drift = 0.017 dB
Peak SAR (extrapolated) = 70.4 W/kg
SAR(1 g) = 19.1 mW/g; SAR(10 g) = 5.46 mW/g
Maximum value of SAR (measured) = 40.3 mW/g



Z-Axis Scan


SAR(x,y,z,f0)
SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
35
30
25
20
15
10
5
0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
m

Date Tested: 10/27/2011

System Performance Check - 5500 MHz Dipole - Body

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: 1031; Calibration: 04/29/2010

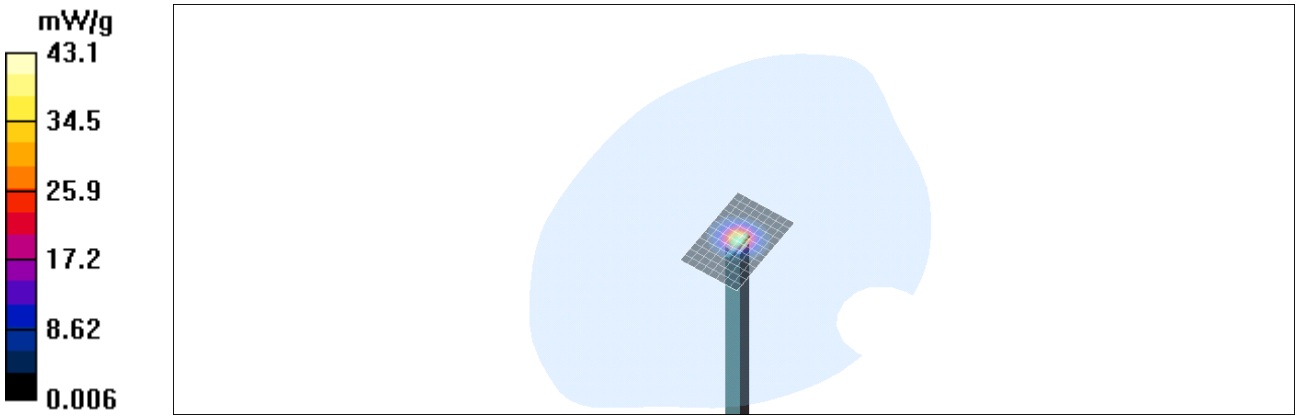
Ambient Temp: 23.6C; Fluid Temp: 22.4C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: CW
Forward Conducted Power: 100 mW
Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5500 MHz; σ = 5.53 mho/m; ε_r = 50.6; ρ = 1000 kg/m^3

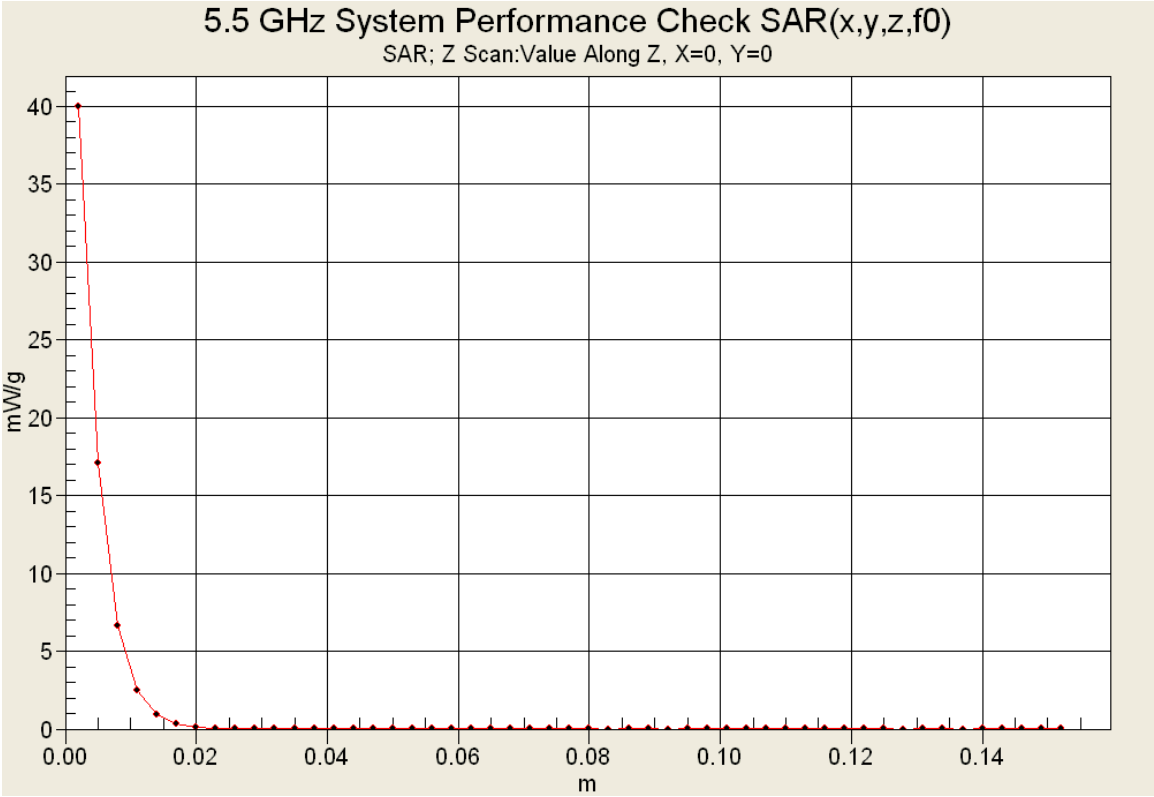
- Probe: EX3DV4 - SN3600; ConvF(3.38, 3.38, 3.38); Calibrated: 23/06/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

5500 MHz System Performance Check/Area Scan (9x13x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of SAR (measured) = 41.0 mW/g

5500 MHz System Performance Check/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 94.8 V/m; Power Drift = -0.028 dB
Peak SAR (extrapolated) = 75.2 W/kg
SAR(1 g) = 20.1 mW/g; SAR(10 g) = 5.63 mW/g
Maximum value of SAR (measured) = 43.1 mW/g



Z-Axis Scan


5.5 GHz System Performance Check SAR(x,y,z,f0)
SAR; Z Scan:Value Along Z, X=0, Y=0
mW/g
40
35
30
25
20
15
10
5
0
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
m

Date Tested: 10/27/2011

System Performance Check - 5800 MHz Dipole - Body

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: 1031; Calibration: 04/29/2010

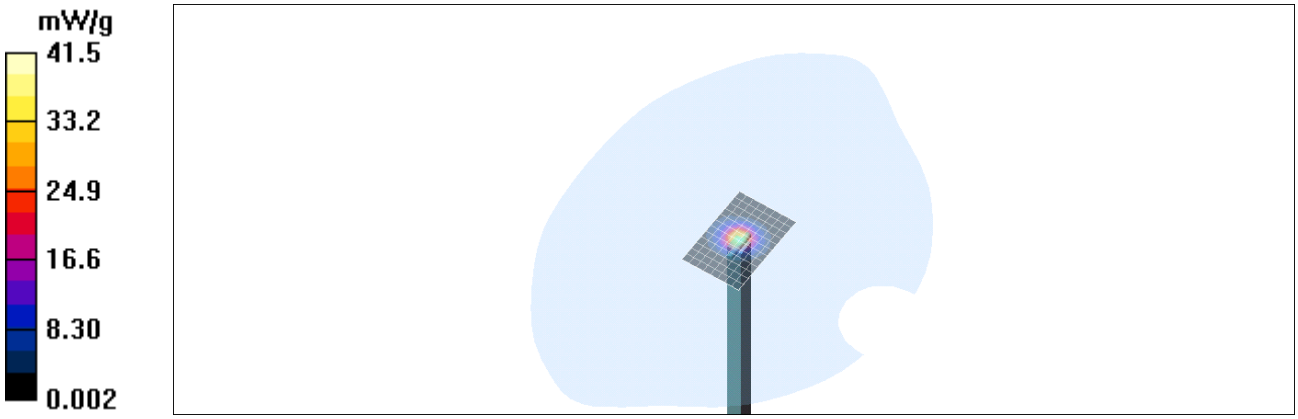
Ambient Temp: 23.9C; Fluid Temp: 22.2C; Barometric Pressure: 101.0 kPa; Humidity: 31%

Communication System: CW
Forward Conducted Power: 50 mW
Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: M5200-5800 Medium parameters used: f = 5800 MHz; σ = 6.03 mho/m; ε_r = 50.6; ρ = 1000 kg/m^3

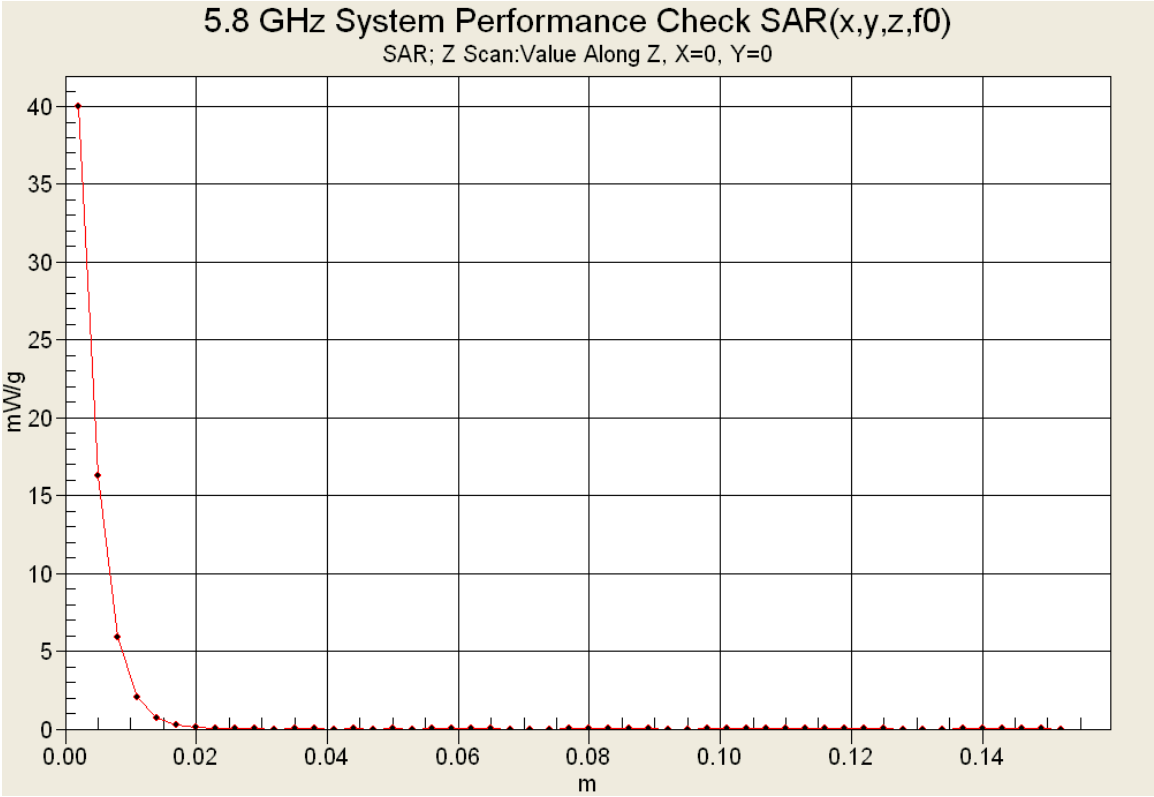
- Probe: EX3DV4 - SN3600; ConvF(3.39, 3.39, 3.39); Calibrated: 23/06/2011
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn353; Calibrated: 27/04/2010
- Phantom: SAM 4.0; Type: Fiberglas; Serial: 1033
- Measurement SW: DASY4, V4.7 Build 44; Postprocessing SW: SEMCAD, V1.8 Build 171

5800 MHz System Performance Check/Area Scan (9x13x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of SAR (measured) = 40.2 mW/g

5800 MHz System Performance Check/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 90.9 V/m; Power Drift = 0.002 dB
Peak SAR (extrapolated) = 74.6 W/kg
SAR(1 g) = 19 mW/g; SAR(10 g) = 5.34 mW/g
Maximum value of SAR (measured) = 41.5 mW/g



Z-Axis Scan



APPENDIX C - MEASURED FLUID DIELECTRIC PARAMETERS

2450 MHz (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
13/Oct/2011
Frequency (GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
2.3500	52.83	1.85	50.78	1.85
2.3600	52.82	1.86	50.62	1.86
2.3700	52.81	1.87	50.54	1.86
2.3800	52.79	1.88	50.43	1.87
2.3900	52.78	1.89	50.55	1.90
2.4000	52.77	1.90	50.53	1.90
2.4100	52.75	1.91	50.54	1.91
2.4200	52.74	1.92	50.21	1.92
2.4300	52.73	1.93	50.42	1.93
2.4400	52.71	1.94	50.37	1.94
2.4500	52.70	1.95	50.35	1.96
2.4600	52.69	1.96	50.32	1.99
2.4700	52.67	1.98	50.52	2.00
2.4800	52.66	1.99	50.40	2.00
2.4900	52.65	2.01	50.22	2.00
2.5000	52.64	2.02	50.22	2.03
2.5100	52.62	2.04	50.26	2.05
2.5200	52.61	2.05	50.20	2.06
2.5300	52.60	2.06	50.19	2.08
2.5400	52.59	2.08	50.10	2.10
2.5500	52.57	2.09	50.12	2.10

5GHz (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
17/Oct/2011
Frequency (GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
5.2000	49.01	5.30	50.88	5.27
5.2200	48.99	5.32	50.87	5.28
5.2400	48.96	5.35	51.02	5.30
5.2600	48.93	5.37	50.79	5.29
5.2800	48.91	5.39	50.82	5.30
5.3000	48.88	5.42	50.36	5.34
5.3200	48.85	5.44	50.72	5.36
5.3400	48.82	5.46	50.79	5.37
5.3600	48.80	5.49	50.30	5.41
5.3800	48.77	5.51	50.53	5.43
5.4200	48.72	5.56	50.35	5.47
5.4400	48.69	5.58	50.19	5.56
5.4600	48.66	5.60	50.34	5.58
5.4800	48.63	5.63	49.93	5.58
5.5000	48.61	5.65	50.29	5.59
5.5200	48.58	5.67	50.43	5.69
5.5400	48.55	5.70	50.17	5.72
5.5600	48.53	5.72	49.93	5.78
5.5800	48.50	5.74	50.06	5.67
5.6000	48.47	5.77	49.59	5.76
5.6200	48.44	5.79	49.86	5.73
5.6400	48.42	5.81	50.01	5.87
5.6600	48.39	5.84	50.01	5.79
5.6800	48.36	5.86	49.76	5.79
5.7000	48.34	5.88	49.48	6.05
5.7200	48.31	5.91	50.12	6.01
5.7400	48.28	5.93	49.79	5.99
5.7600	48.25	5.95	49.50	5.95
5.7800	48.23	5.98	49.40	6.95
5.8000	48.20	6.00	49.31	6.12

5GHz (Body)

****

Celltech Labs Inc.
Test Result for UIM Dielectric Parameter
27/Oct/2011
Frequency (GHz)
FCC_eH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Epsilon
FCC_sH FCC Bulletin 65 Supplement C (June 2001) Limits for Head Sigma
FCC_eB FCC Limits for Body Epsilon
FCC_sB FCC Limits for Body Sigma
Test_e Epsilon of UIM
Test_s Sigma of UIM

****

Freq	FCC_eB	FCC_sB	Test_e	Test_s
5.2000	49.01	5.30	50.26	5.33
5.2200	48.99	5.32	50.13	5.22
5.2400	48.96	5.35	50.17	5.29
5.2600	48.93	5.37	49.93	5.35
5.2800	48.91	5.39	50.04	5.30
5.3000	48.88	5.42	50.97	5.32
5.3200	48.85	5.44	50.95	5.35
5.3400	48.82	5.46	50.89	5.44
5.3600	48.80	5.49	50.65	5.41
5.3800	48.77	5.51	50.95	5.52
5.4000	48.74	5.53	50.74	5.48
5.4200	48.72	5.56	50.70	5.52
5.4400	48.69	5.58	50.85	5.68
5.4600	48.66	5.60	50.03	5.60
5.4800	48.63	5.63	50.65	5.59
5.5000	48.61	5.65	50.60	5.53
5.5200	48.58	5.67	50.78	5.78
5.5400	48.55	5.70	50.68	5.83
5.5600	48.53	5.72	50.59	5.80
5.5800	48.50	5.74	50.63	5.76
5.6000	48.47	5.77	50.20	5.77
5.6200	48.44	5.79	50.55	5.69
5.6400	48.42	5.81	50.44	5.77
5.6600	48.39	5.84	50.34	5.70
5.6800	48.36	5.86	50.44	5.75
5.7000	48.34	5.88	50.36	5.79
5.7200	48.31	5.91	50.52	5.84
5.7400	48.28	5.93	50.55	5.88
5.7600	48.25	5.95	50.98	5.90
5.7800	48.23	5.98	50.13	6.00
5.8000	48.20	6.00	50.61	6.03

APPENDIX D - MANUFACTURER'S TISSUE SIMULANT DATA SHEET (5GHz)

Schmid & Partner Engineering AG

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

Material Safety Data Sheet

1 Identification of the substance and of the manufacturer / origin

Item	Head Tissue Simulation Liquid HSL5800 Muscle Tissue Simulation Liquid MSL 5800
Type No	SL AAH 580, SL AAM 580
Series No	N/A
Manufacturer / Origin	Schmid & Partner Engineering AG Zeughausstrasse 43 8004 Zürich Switzerland Phone +41 1 245 9700, Fax +41 1 245 9779, support@speag.com

Use of the substance:
Liquid simulating physical parameters of Head or Muscle Tissue in the RF range to 6GHz.

2 Composition / Information on ingredients

The Item is composed of the following ingredients:

Water	64 - 78%
Mineral Oil	11 - 18%
Emulsifiers	9 - 15%
Additives and Salt	2 - 3%

Safety relevant ingredients according to EU directives:

CAS-No 107-41-5	< 4%	2-Methyl-2,4-pentandiol (Hexylene Glycol): Xi irritant, R36/38 irritant for eyes and skin
CAS-No 770-35-4	< 2%	1-Phenoxy-2-propanol (Propylene Glycol Phenyl Ether): Xi irritant, R36 irritant for eyes
CAS-No 93-83-4	< 2%	N,N-bis(2-Hydroxyethyl)oleamide: Xi irritant, R36/38 irritant for eyes and skin
CAS-No 9004-95-9	< 0.5%	Polyethylene glycol cetyl ether: Xi irritant, R22 harmful if swallowed, R36/38 irritant for eyes and skin R50 Very toxic to aquatic organisms

According to EU guidelines and Swiss rules, the product is not a dangerous mixture and therefore not required to be marked by symbols.

3 Hazards identification

Identification not required.

4 First aid measures

The product reacts slightly alkaline.

After skin contact:	Wash with fresh water and mild sope
After eye contact:	Rinse out with plenty of water for several minutes with the eyelid held open. Consult an ophthalmologist if necessary.
After ingestion:	Do not induce vomiting. Get medical attention.

5 Fire-fighting measures

Firefighting media	CO2, foam, dry chemical
Combustion products	Carbon oxides, nitrogen and traces of oxides of chlorine and sulfur, HCl

Due to the high water content, the liquid is self-extinguishing.

6 Accidental release measures

Person-related precaution measures: wash with water and mild soap.
Environmental-protection measures: do not allow to enter sewerage system.
Procedures for cleaning / absorption: Use oil-binding agents., forward for disposal. Spills may cause slippery conditions.

7 Handling and storage

Handling: Keep in open container only for minimum required time in order to avoid water evaporation.
Storage: tightly closed, between >0 to 40°C. Avoid direct solar irradiation of the storage containers.

8 Exposure controls / personal protection

Protection measures are not generally required. For eye protection, industrial safety glasses are recommended.
Personal hygiene and clean working practices are sufficient.

9 Physical and chemical properties

Form:	liquid
Colour:	medium to dark brown, transparent to opaque
Odour:	almost odourless / slightly oily
pH-Value:	slightly alcalic
Boiling point:	100°C
Density:	1g/cm^3

10 Stability and reactivity

Conditions to be avoided: heating above 40°C
The product contains water and is not compatible with strong oxidizers or magnesium.

11 Toxicological information

LD50 > 40 g/kg
Further data: the product should be handled with the care usual when dealing with chemicals

12 Ecological information

Contains mineral oil. Do not allow to enter waters, waste water, or soil!

13 Disposal considerations

Disposal is possible by splitting the mineral oil from the emulsion with absorbing agents, with salt or ultra-filtration. Dispose as other mineral oil containing products according to local regulations.
Product packing must be disposed of in compliance with respect national regulations.

14 Transport information

Not subject to transport regulations.

15 Regulatory information

No special labelling required.

16 Other information

Release date:	6.1.2005
Responsible:	FB

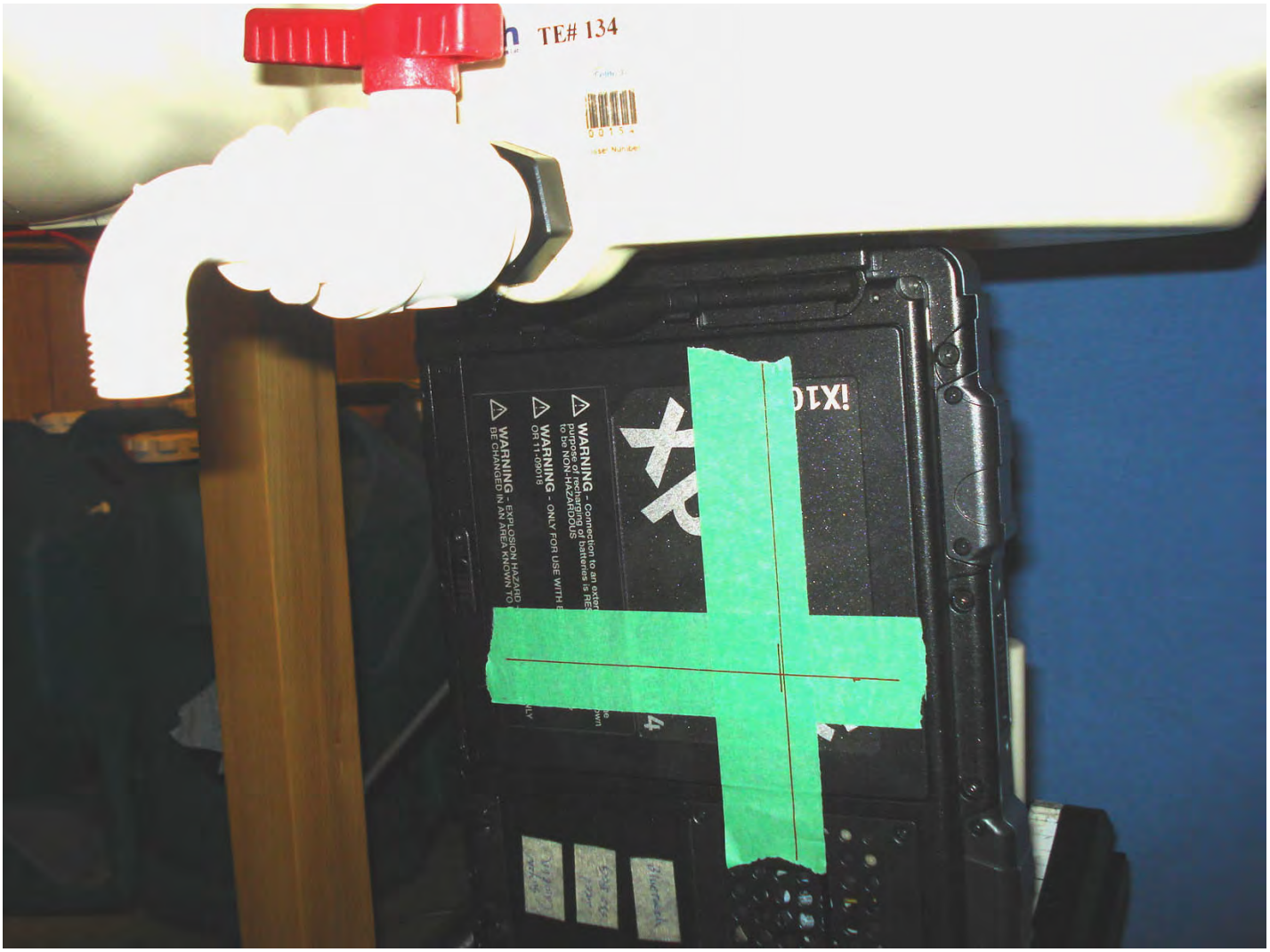
APPENDIX E - SAR TEST SETUP PHOTOGRAPHS

BODY SAR TEST SETUP PHOTOGRAPHS

Bottom Side of Tablet PC Touching Planar Section of SAM Phantom

BODY SAR TEST SETUP PHOTOGRAPHS

WLAN AUX Antenna (Chain B) Adjacent Edge of Tablet PC Touching Planar Section of SAM Phantom ("90° Portrait" Device Orientation)



2.4 GHz Evaluation

BODY SAR TEST SETUP PHOTOGRAPHS

WLAN AUX Antenna (Chain B) Adjacent Edge of Tablet PC Touching Planar Section of SAM Phantom ("90° Portrait" Device Orientation)

5.785 GHz Evaluation

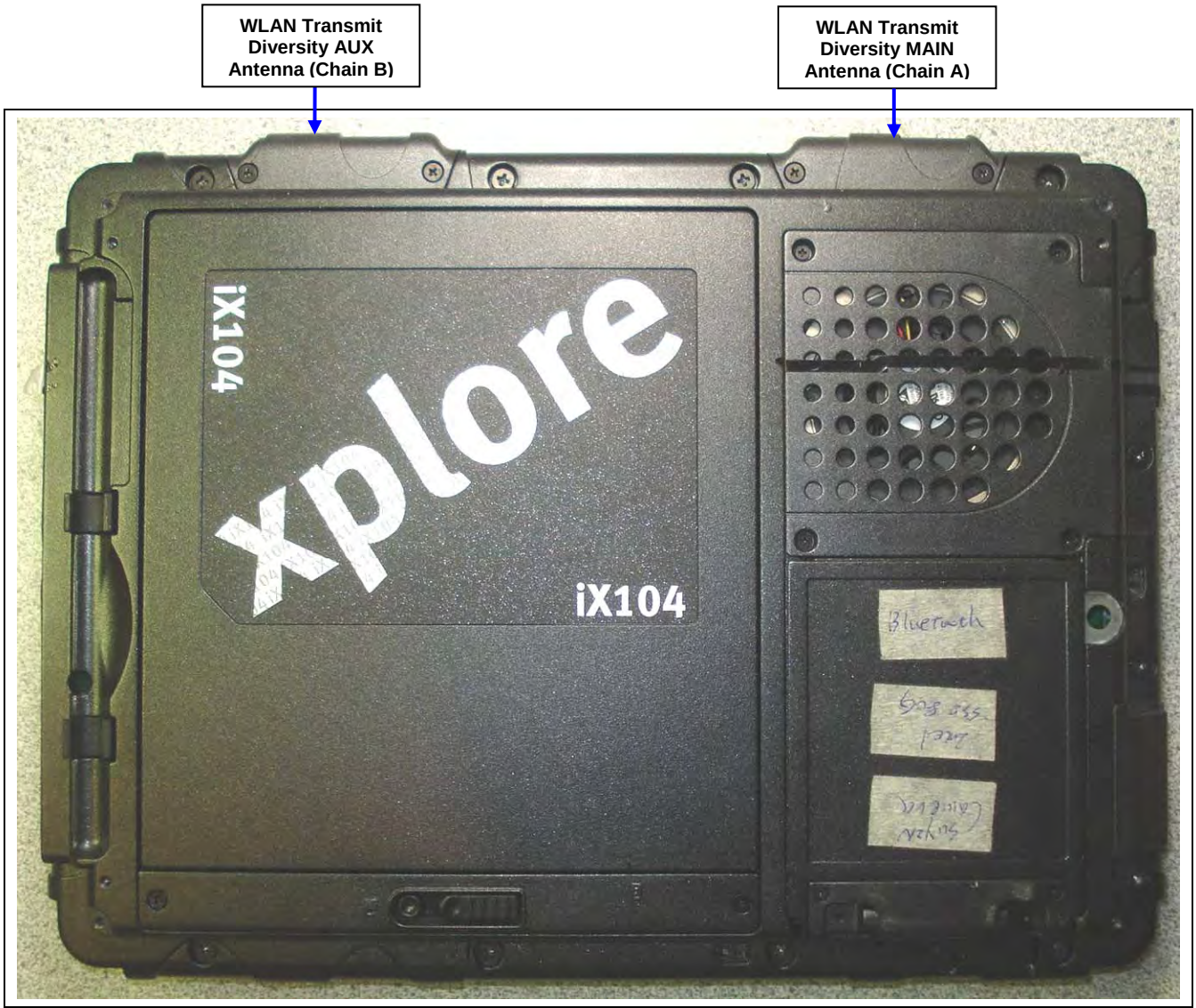
APPENDIX F - SAR DUT PHOTOGRAPHS

WLAN Transmit Diversity MAIN Antenna (Chain A) (Non Pump-up Housing)

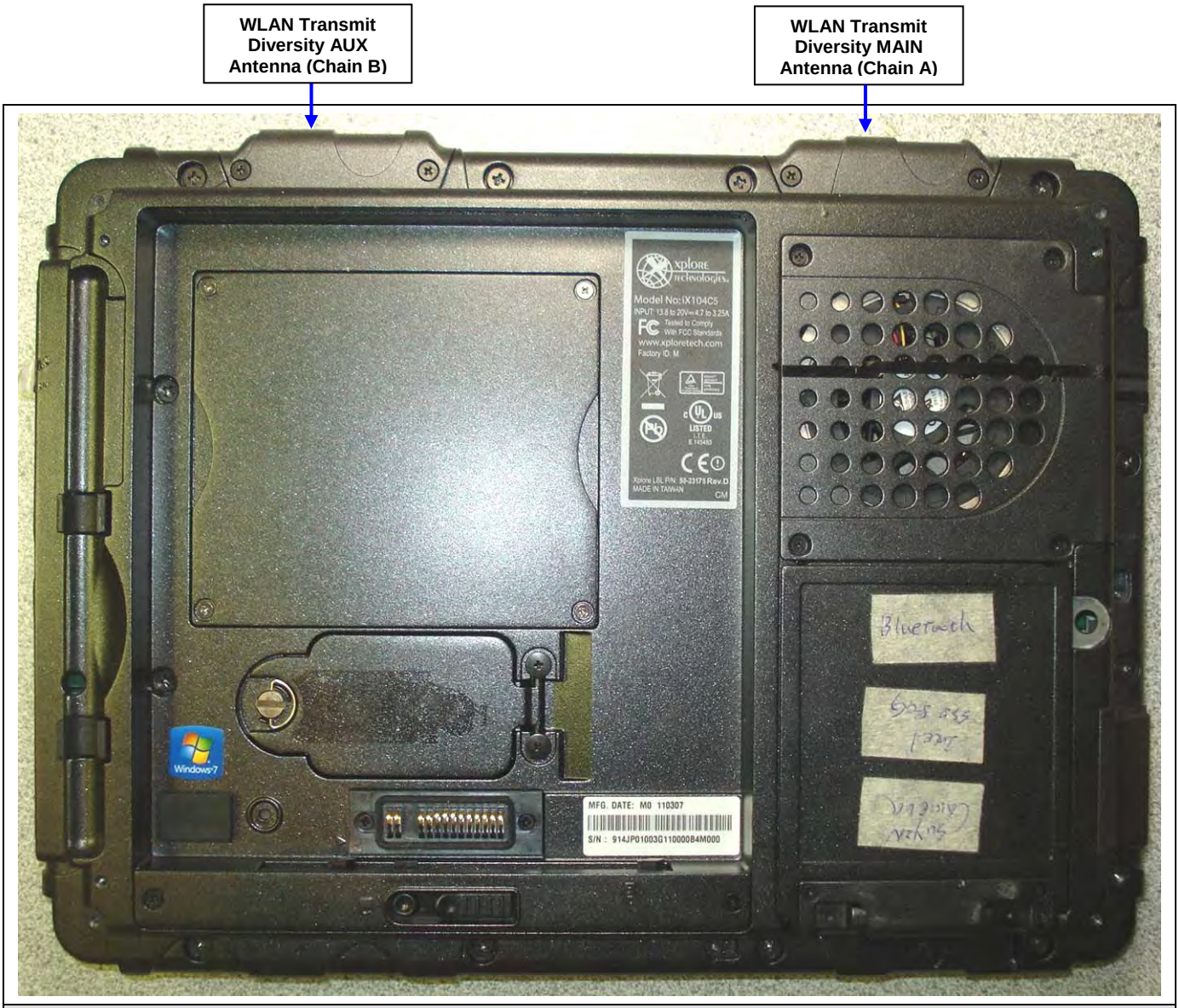
WLAN Transmit Diversity AUX Antenna (Chain B)

Tablet PC Model: iX104C5 - "0 Degrees Landscape" LCD Display Orientation

Tablet PC Model: iX104C5 - "90 Degrees Portrait" LCD Display Orientation



Tablet PC Model: iX104C5 - Bottom Side with Li-ion Battery



Tablet PC Model: iX104C5 - Bottom Side with Li-ion Battery Removed

Tablet PC Model: iX104C5 - Right Edge

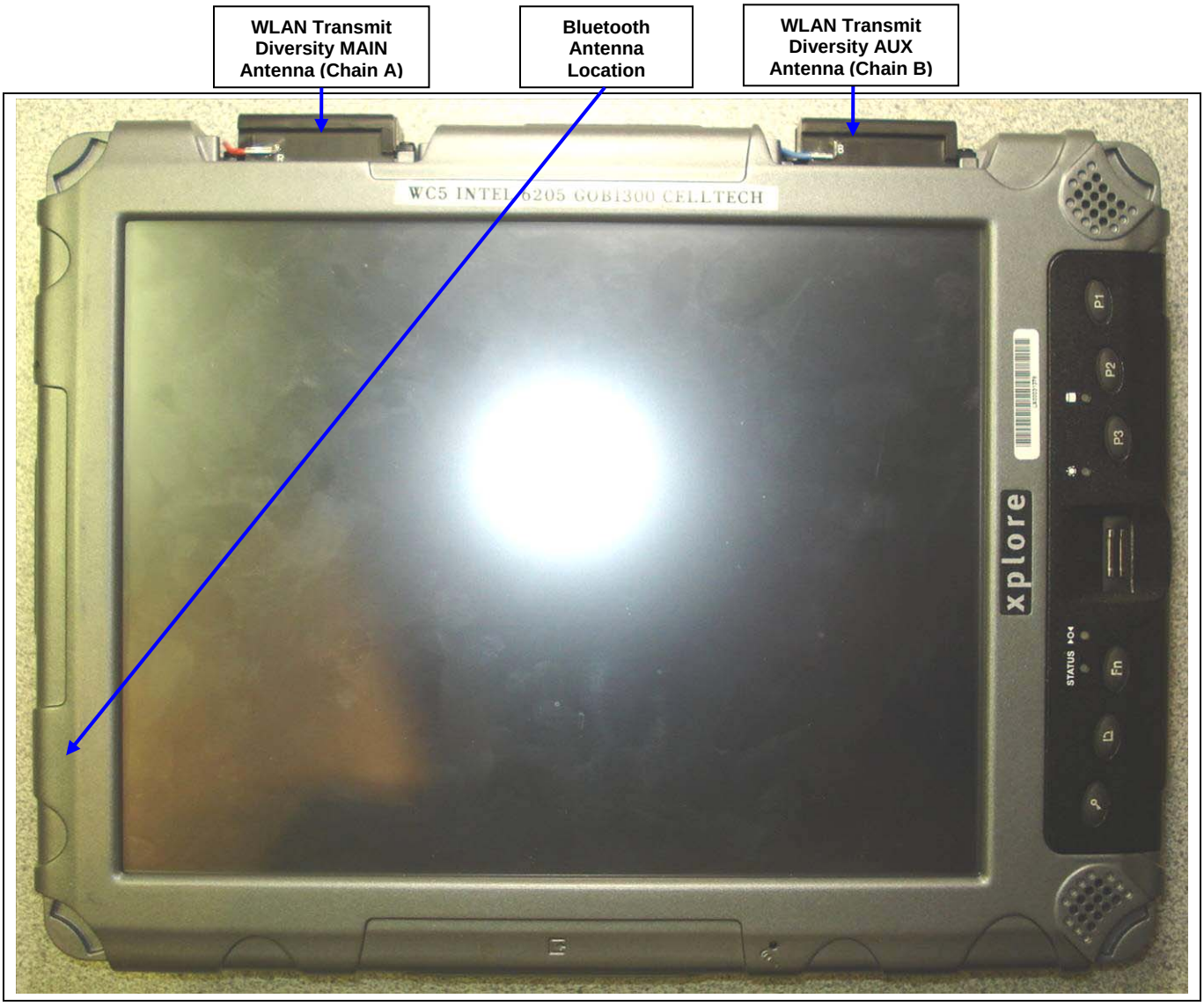
Tablet PC Model: iX104C5 - Left Edge

Tablet PC Model: iX104C5 - Top Edge (with and without antenna housing)

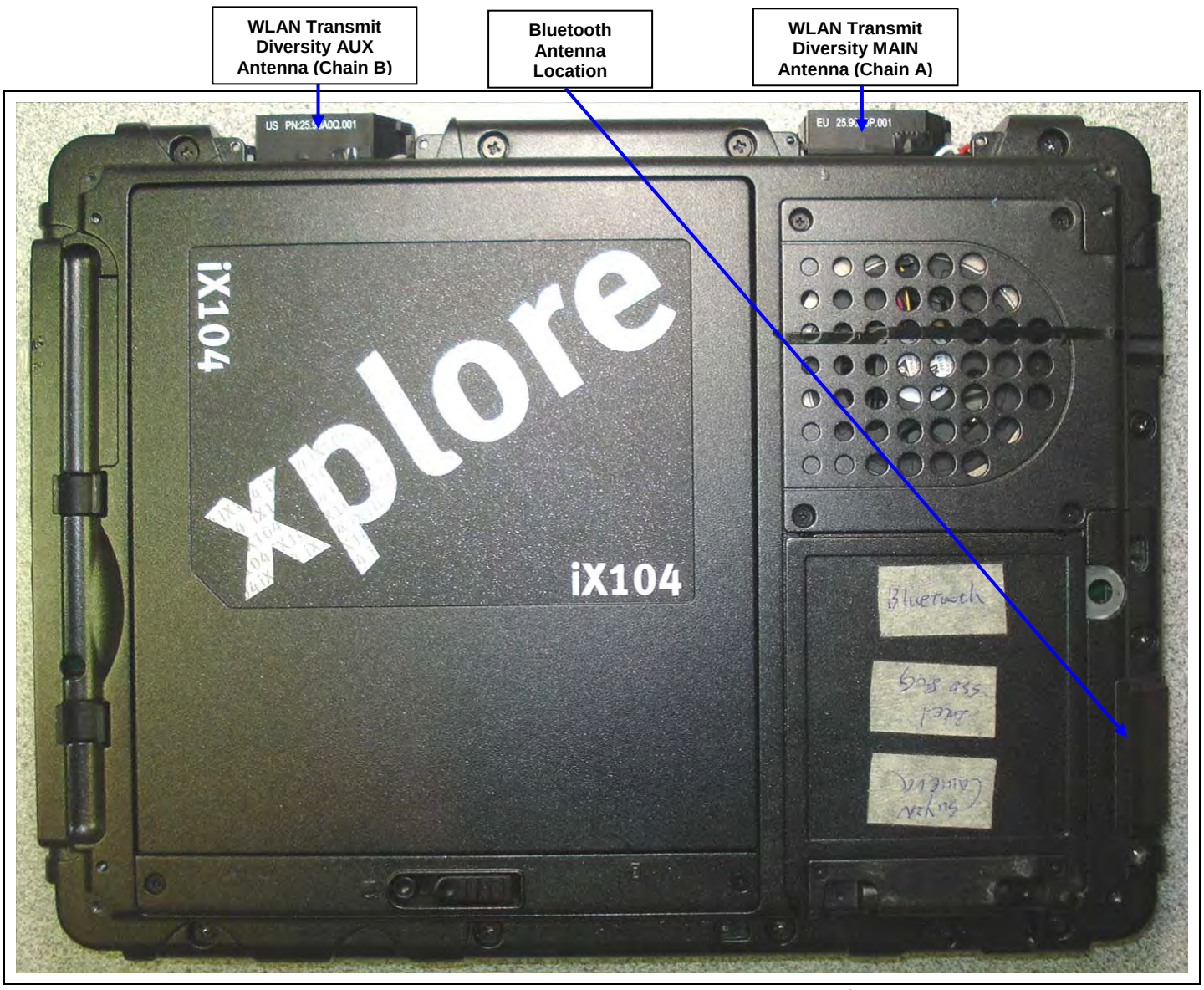
Tablet PC Model: iX104C5 - Bottom Edge

Front Side of Li-ion Battery

Back Side of Li-ion Battery

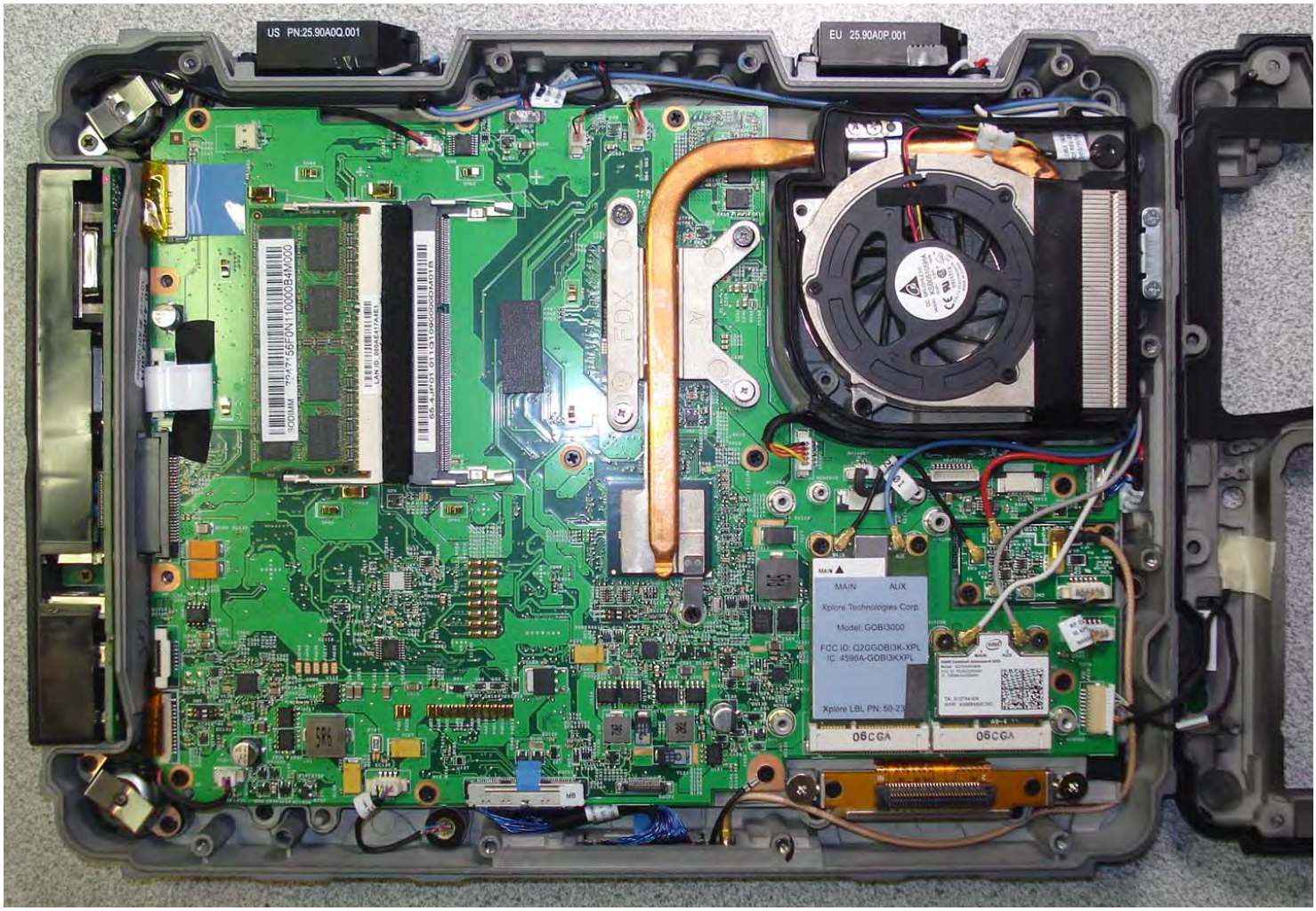


WLAN & BLUETOOTH ANTENNA LOCATIONS – TOP SIDE OF iX104C5 TABLET PC

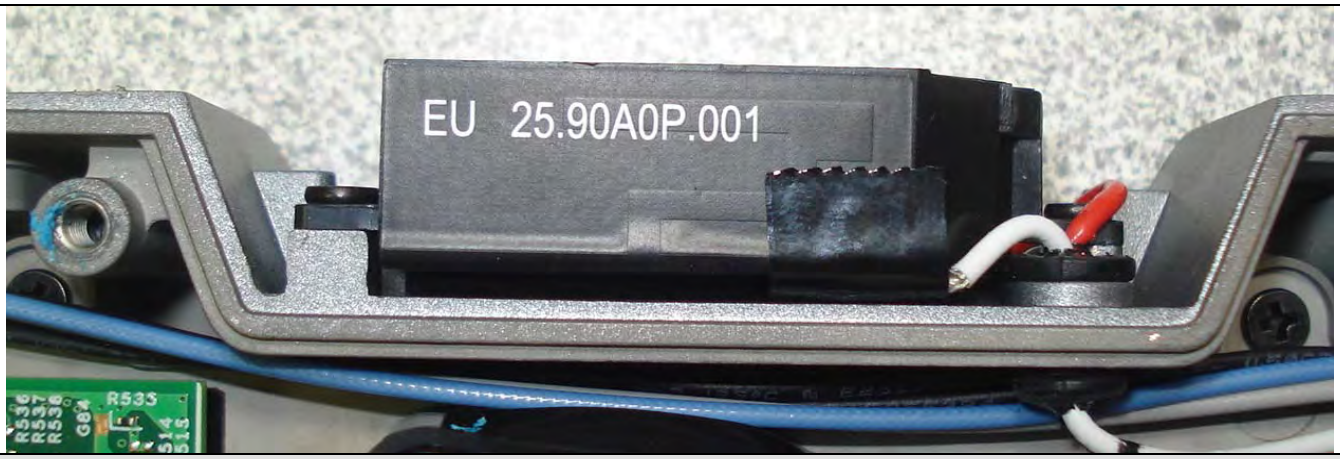


WLAN & BLUETOOTH ANTENNA LOCATIONS – BOTTOM SIDE OF iX104C5 TABLET PC

Tablet PC Model: iX104C5 - Bottom Side internal view



GOBI3000 WWAN Module	62205ANHMW WLAN PCIe Mini Card Module	Broadcom BCM92070MD_REF Bluetooth Module



WLAN MAIN (CHAIN A) TRANSMIT DIVERSITY ANTENNA

WLAN AUX (CHAIN B) TRANSMIT DIVERSITY ANTENNA HOUSING

BROADCOM BCM92070MD_REF BLUETOOTH MODULE

62205ANHMW WLAN PCIe Half Mini Card

APPENDIX G - DIPOLE CALIBRATION

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 Celltech

Certificate No: D2450V2-825_Apr09

CALIBRATION CERTIFICATE

Object: D2450V2 - SN: 825

Calibration procedure(s): QA CAL-05.v7
Calibration procedure for dipole validation kits

Calibration date: April 17, 2009

Condition of the calibrated item: In Tolerance

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 (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

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

Issued: April 22, 2009

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

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.0 ± 6 %	1.82 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.6 mW / g
SAR normalized	normalized to 1W	54.4 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**53.7 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.29 mW / g
SAR normalized	normalized to 1W	25.2 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**25.0 mW /g ± 16.5 % (k=2)**

[1] Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.4 ± 6 %	1.98 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.9 mW / g
SAR normalized	normalized to 1W	51.6 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**51.6 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.05 mW / g
SAR normalized	normalized to 1W	24.2 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**24.2 mW /g ± 16.5 % (k=2)**

[2] Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.5 Ω + 4.7 jΩ
Return Loss	- 24.1 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.2 Ω + 5.6 jΩ
Return Loss	- 24.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.160 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 11, 2008

DASY5 Validation Report for Head TSL

Date/Time: 17.04.2009 12:17:23

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN825

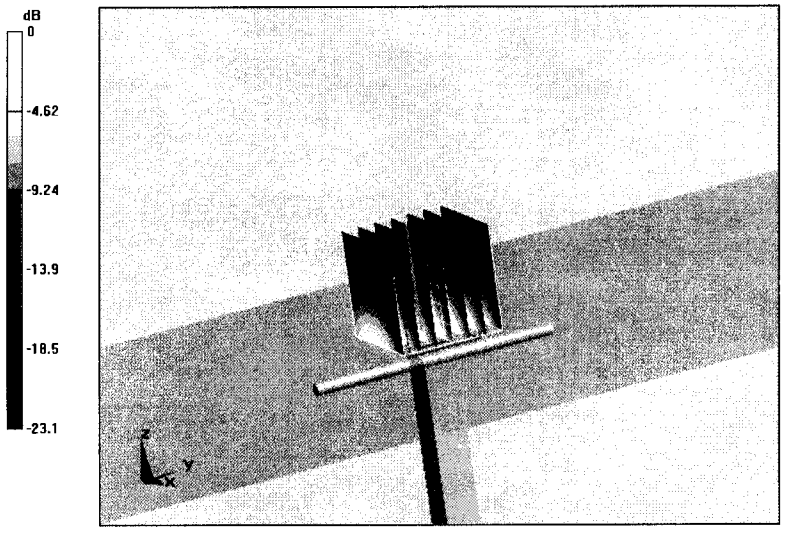
Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: HSL U10 BB
Medium parameters used: f = 2450 MHz; σ = 1.82 mho/m; ε_r = 38; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.4, 4.4, 4.4); Calibrated: 28.04.2008
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

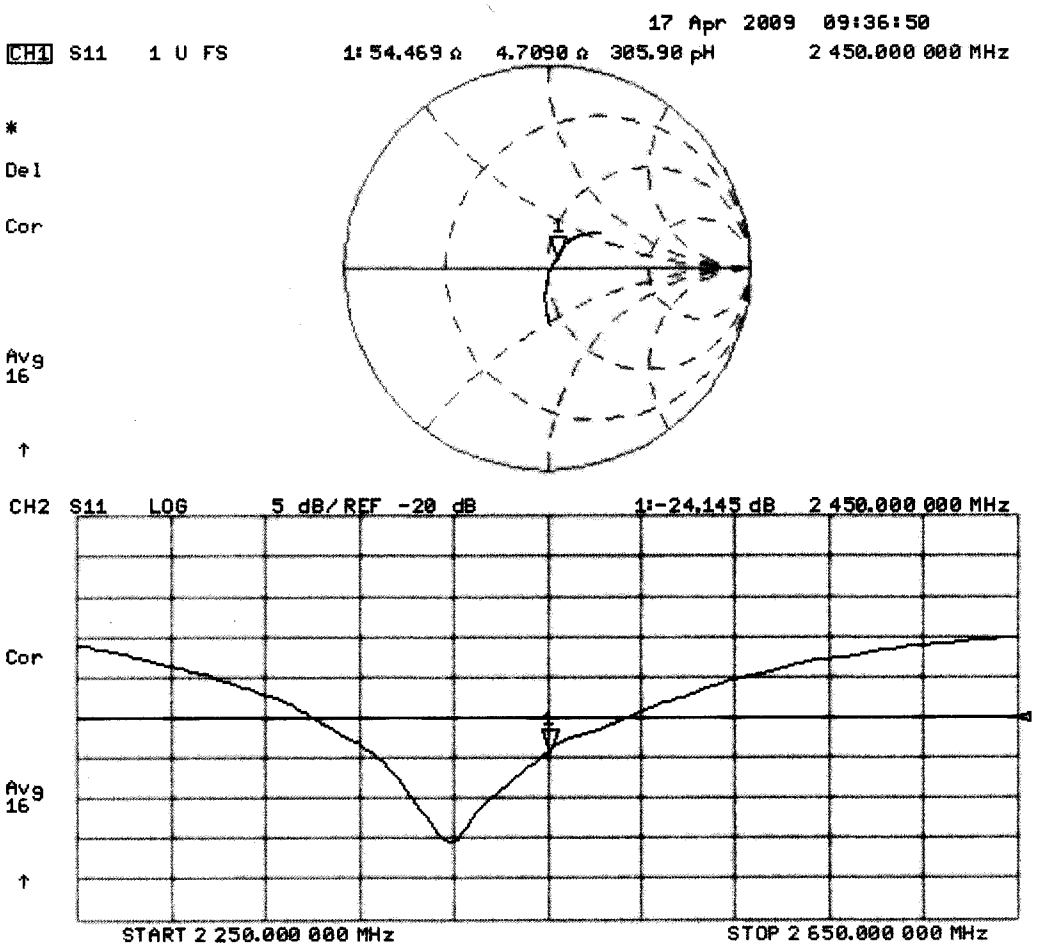
Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 97.1 V/m; Power Drift = 0.026 dB
Peak SAR (extrapolated) = 28.4 W/kg
SAR(1 g) = 13.6 mW/g; SAR(10 g) = 6.29 mW/g
Maximum value of SAR (measured) = 17.7 mW/g



0 dB = 17.7mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date/Time: 17.04.2009 14:54:34

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:825

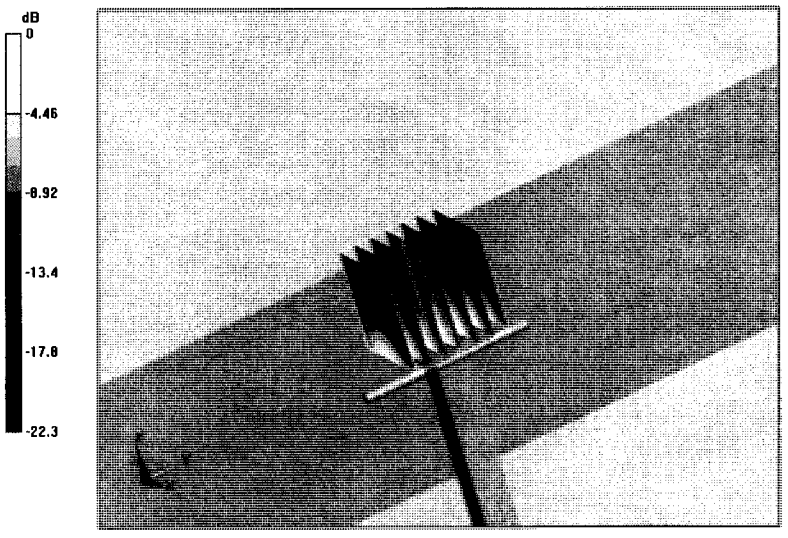
Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: MSL U10 BB
Medium parameters used: f = 2450 MHz; σ = 1.98 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.07, 4.07, 4.07); Calibrated: 28.04.2008
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

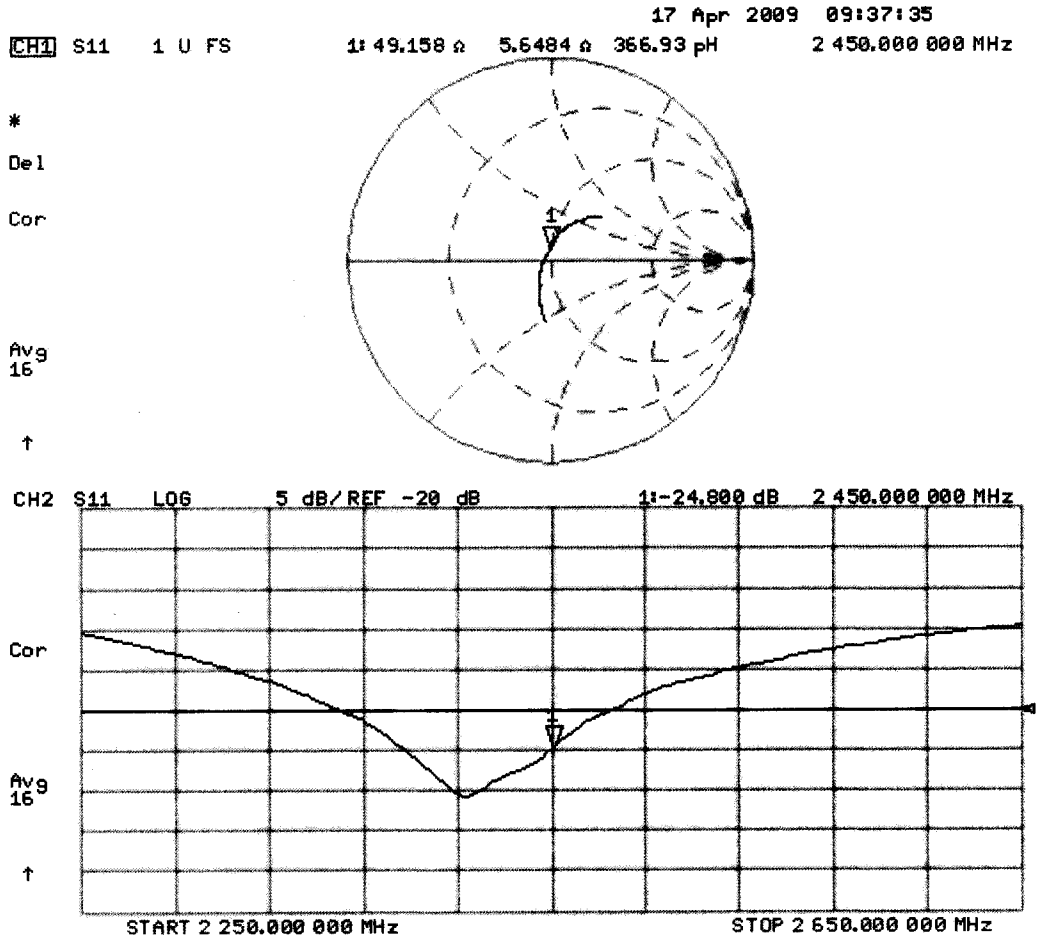
Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.6 V/m; Power Drift = 0.046 dB
Peak SAR (extrapolated) = 26.1 W/kg
SAR(1 g) = 12.9 mW/g; SAR(10 g) = 6.05 mW/g
Maximum value of SAR (measured) = 16.6 mW/g



0 dB = 16.6mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client **Caltech**

Certificate No: D5GHzV2-1031_Apr09

CALIBRATION CERTIFICATE

Object	**D5GHzV2 - SN: 1031**
Calibration procedure(s)	**QA CAL-22.v1** **Calibration procedure for dipole validation kits between 3-6 GHz**
Calibration date:	**April 29, 2009**
Condition of the calibrated item	**In Tolerance**

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	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe EX3DV4	SN: 3503	11-Mar-09 (No. EX3-3503_Mar09)	Mar-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

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

Issued: April 29, 2009

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEC Std 62209 Part 2, "Evaluation of Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices in the Frequency Range of 30 MHz to 6 GHz: Human models, Instrumentation, and Procedures"; Part 2: "Procedure to determine the Specific Absorption Rate (SAR) for including accessories and multiple transmitters", Draft Version 0.9, December 2004

b) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

c) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V5.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Area Scan resolution	dx, dy = 10 mm	
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 2.5 mm	
Frequency	5200 MHz ± 1 MHz 5500 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.5 ± 6 %	5.37 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	7.63 mW / g
SAR normalized	normalized to 1W	76.3 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**75.8 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.13 mW / g
SAR normalized	normalized to 1W	21.3 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**21.2 mW / g ± 19.5 % (k=2)**

[1] Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities

Body TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.6	5.65 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.8 ± 6 %	5.74 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	8.01 mW / g
SAR normalized	normalized to 1W	80.1 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**79.5 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.22 mW / g
SAR normalized	normalized to 1W	22.2 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**22.0 mW / g ± 19.5 % (k=2)**

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.1 ± 6 %	6.13 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	condition	
SAR measured	100 mW input power	6.82 mW / g
SAR normalized	normalized to 1W	68.2 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**67.7 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	1.89 mW / g
SAR normalized	normalized to 1W	18.9 mW / g
SAR for nominal Body TSL parameters [1]	normalized to 1W	**18.7 mW / g ± 19.5 % (k=2)**

[1] Correction to nominal TSL parameters according to c), chapter "SAR Sensitivities

Appendix

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	50.1 Ω - 6.7 jΩ
Return Loss	-23.5 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	51.6 Ω - 3.3 jΩ
Return Loss	-29.0 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	59.4 Ω - 3.5 jΩ
Return Loss	-20.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.197 ns

After long term use with 40 W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 09, 2004

DASY5 Validation Report for Body TSL

29.04.2009 13:52:12

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN:1031

Communication System: CW-5GHz; Frequency: 5200 MHzFrequency: 5500 MHzFrequency: 5800 MHz; Duty Cycle: 1:1
Medium: MSL 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 5.37 mbo/m; ε_r = 47.5; ρ = 1000 kg/m^3
Medium parameters used: f = 5500 MHz; σ = 5.74 mbo/m; ε_r = 46.8; ρ = 1000 kg/m^3
Medium parameters used: f = 5800 MHz; σ = 6.13 mho/m; ε_r = 46.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

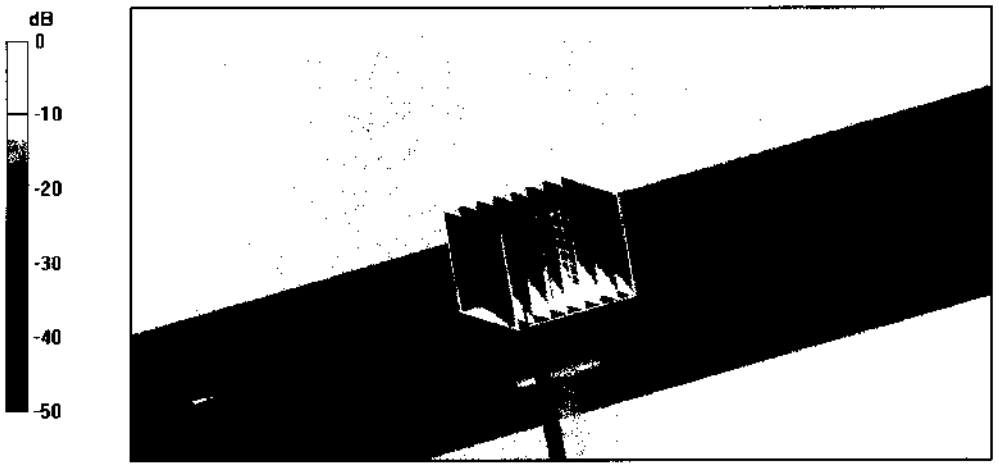
DASY5 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.88, 4.88, 4.88)ConvF(4.37, 4.37, 4.37)ConvF(4.57, 4.57, 4.57); Calibrated: 11.03.2009
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

d=10mm, Pin=100mW, f=5200 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 49.6 V/m; Power Drift = 0.00494 dB
Peak SAR (extrapolated) = 28.5 W/kg
SAR(1 g) = 7.63 mW/g; SAR(10 g) = 2.13 mW/g
Maximum value of SAR (measured) = 15.7 mW/g

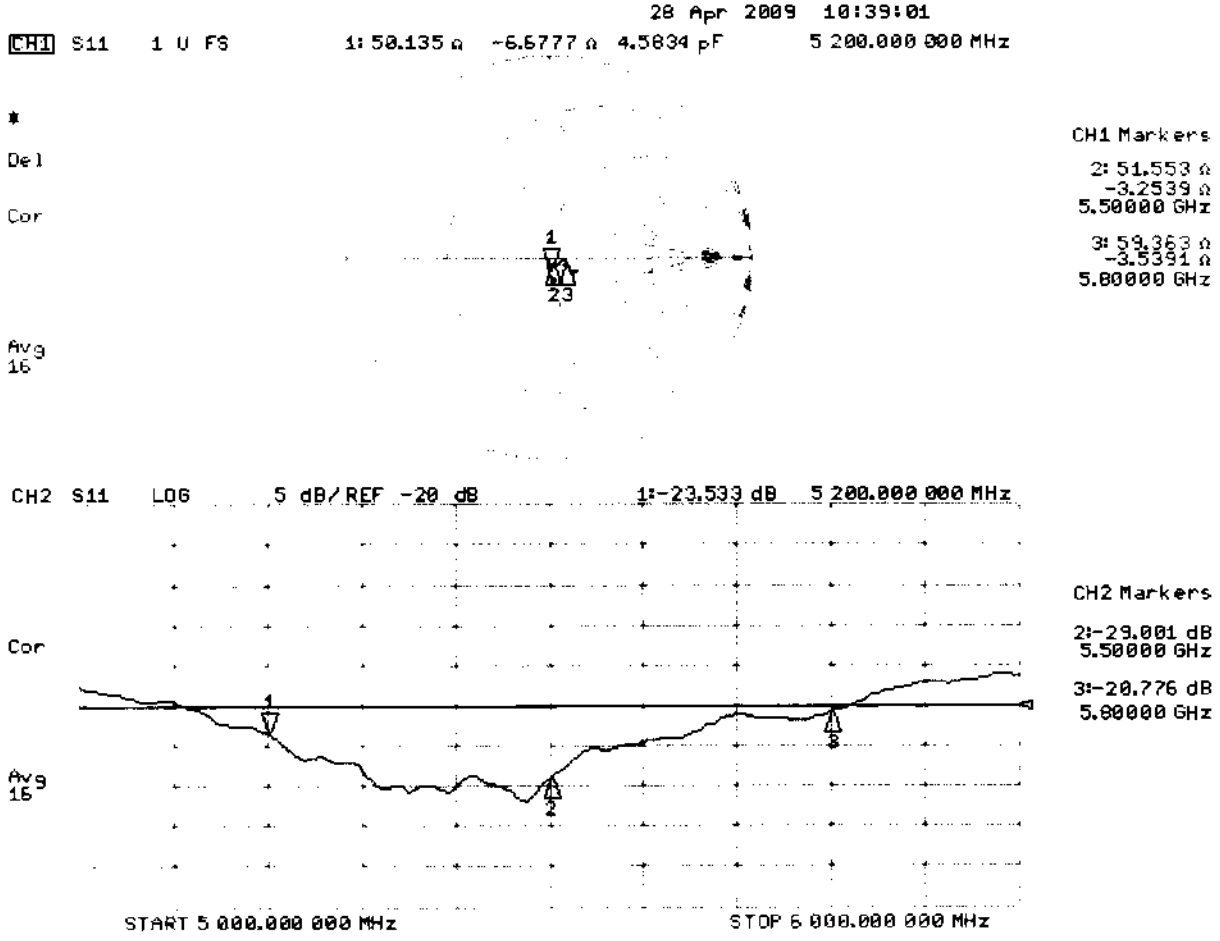
d=10mm, Pin=100mW, f=5500 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 49 V/m; Power Drift = -0.016 dB
Peak SAR (extrapolated) = 32 W/kg
SAR(1 g) = 8.01 mW/g; SAR(10 g) = 2.22 mW/g
Maximum value of SAR (measured) = 16.8 mW/g

d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (8x8x10), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 43.7 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 28.9 W/kg
SAR(1 g) = 6.82 mW/g; SAR(10 g) = 1.89 mW/g
Maximum value of SAR (measured) = 14.4 mW/g



0 dB = 14.4mW/g

Impedance Measurement Plot for Body TSL



APPENDIX H - PROBE CALIBRATION

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Schmid & Partner
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Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Client Celltech

Certificate No: EX3-3600_Jun11

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3600

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

Calibration date: June 23, 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 Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: June 23, 2011

Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland

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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:3600

Manufactured: January 10, 2007
Calibrated: June 23, 2011

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3600

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.50	0.49	0.39	± 10.1 %
DCP (mV)[B]	97.5	102.4	99.3	

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	119.9	±3.0 %
			Y	0.00	0.00	1.00	105.4	
			Z	0.00	0.00	1.00	102.1	

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:3600

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)
1810	40.0	1.40	7.38	7.38	7.38	0.69	0.66	± 12.0 %
1950	40.0	1.40	7.10	7.10	7.10	0.71	0.64	± 12.0 %
2450	39.2	1.80	6.55	6.55	6.55	0.56	0.73	± 12.0 %

[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.

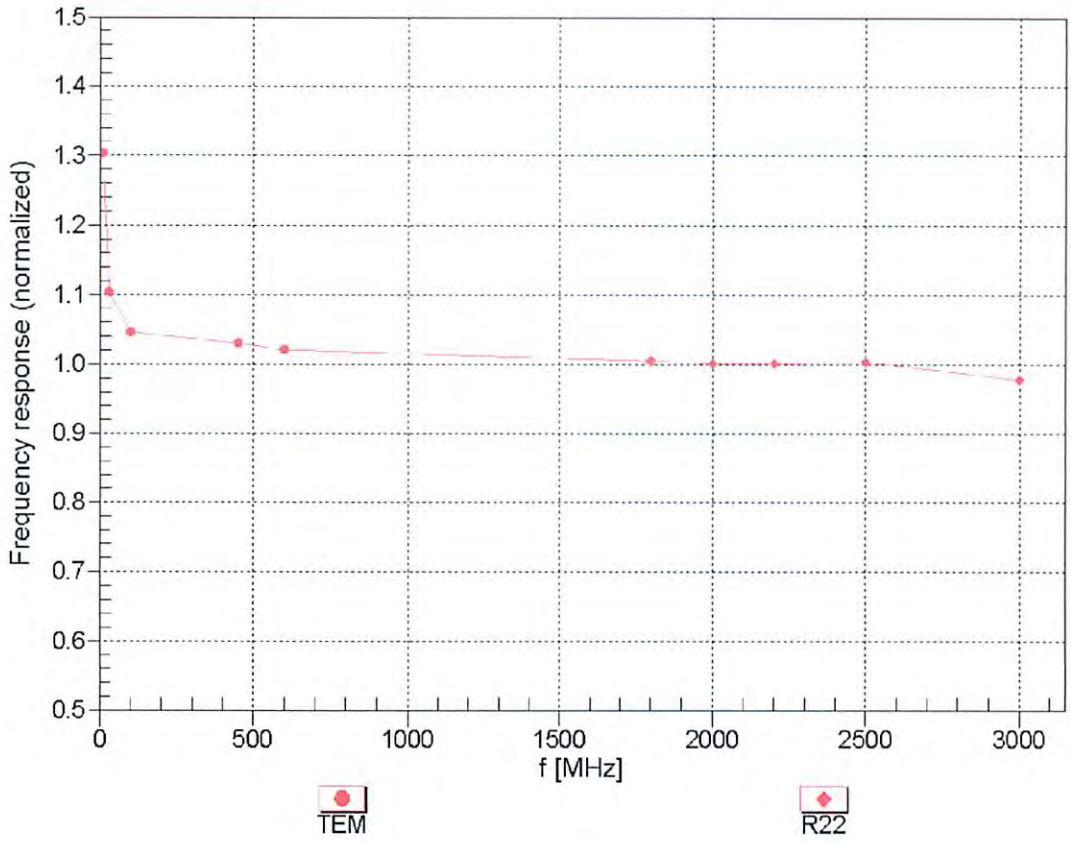
DASY/EASY - Parameters of Probe: EX3DV4- SN:3600

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)
1810	53.3	1.52	6.71	6.71	6.71	0.79	0.66	± 12.0 %
1950	53.3	1.52	6.61	6.61	6.61	0.79	0.64	± 12.0 %
2450	52.7	1.95	6.15	6.15	6.15	0.79	0.61	± 12.0 %
5200	49.0	5.30	3.91	3.91	3.91	0.50	1.90	± 13.1 %
5500	48.6	5.65	3.38	3.38	3.38	0.55	1.90	± 13.1 %
5800	48.2	6.00	3.39	3.39	3.39	0.60	1.90	± 13.1 %

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

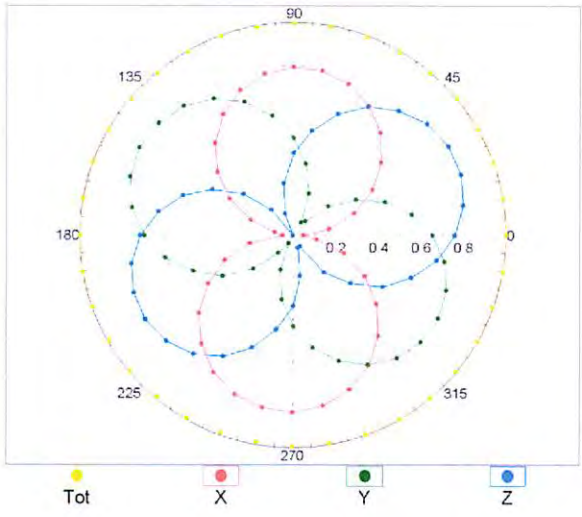
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



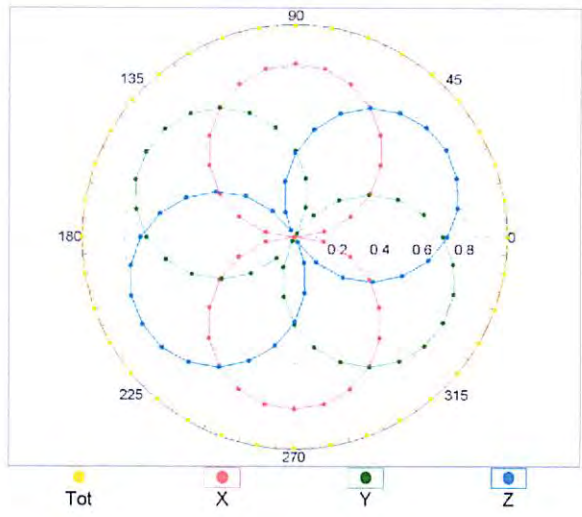
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

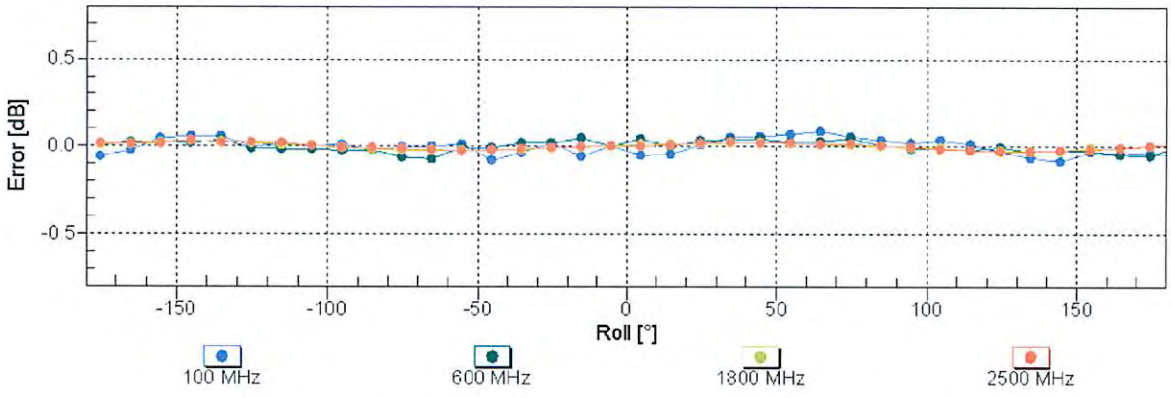
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



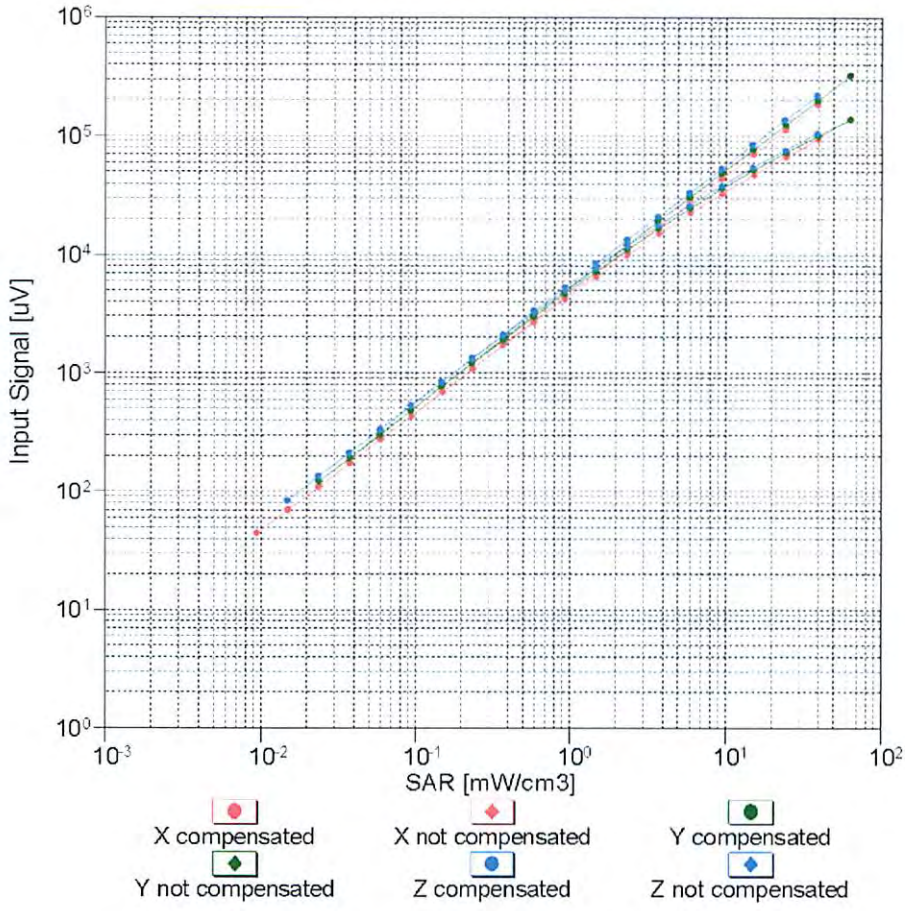
f=1800 MHz,R22

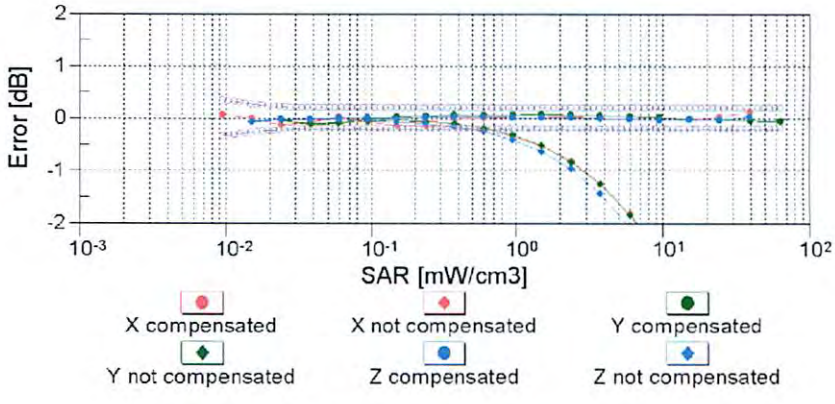




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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

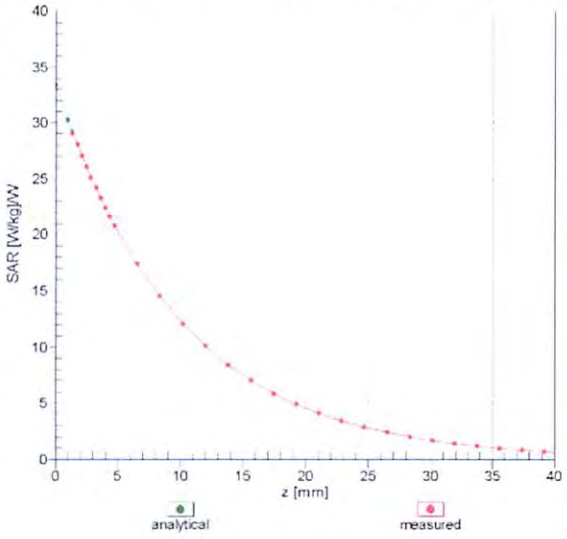




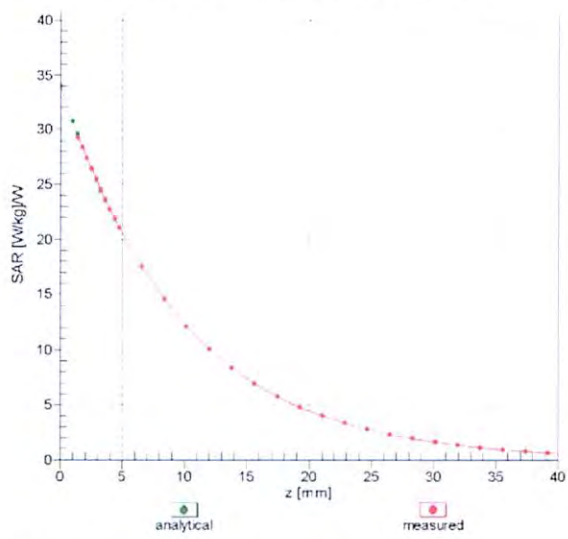
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 2450 MHz,WGLS R22 (H_convF)

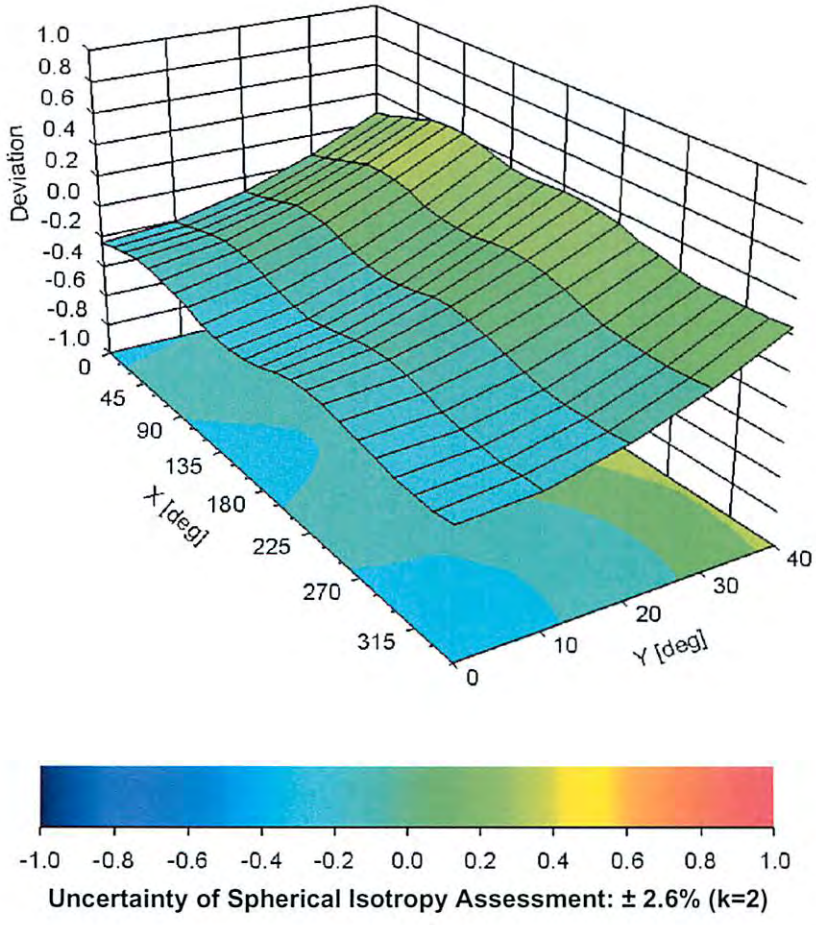


f = 2450 MHz,WGLS R22 (M_convF)



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:3600

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

APPENDIX I - BARSKI PLANAR PHANTOM CERTIFICATE OF CONFORMITY

2378 Westlake Road
Kelowna, B.C. Canada
V1Z-2V2

BARSKI INDUSTRIES (1985) LTD.

Ph. # 250-769-6848
Fax # 250-769-6334
E-mail: barskiind@shaw.ca
Web: www.bcfiberglass.com

FIBERGLASS FABRICATORS

Certificate of Conformity

Item : Flat Planar Phantom Unit # 03-01
Date: June 16, 2003
Manufacturer: Barski Industries (1985 Ltd)

Test	Requirement	Details
Shape	Compliance to geometry according to drawing	Supplied CAD drawing
Material Thickness	Compliant with the requirements	2mm +/- 0.2mm in measurement area
Material Parameters	Dielectric parameters for required frequencies Based on Dow Chemical technical data	100 MHz-5 GHz Relative permittivity<5 Loss Tangent<0.05

Conformity

Based on the above information, we certify this product to be compliant to the requirements specified.

Signature: _____

Daniel Chailler

Fiberglass Planar Phantom - Top View

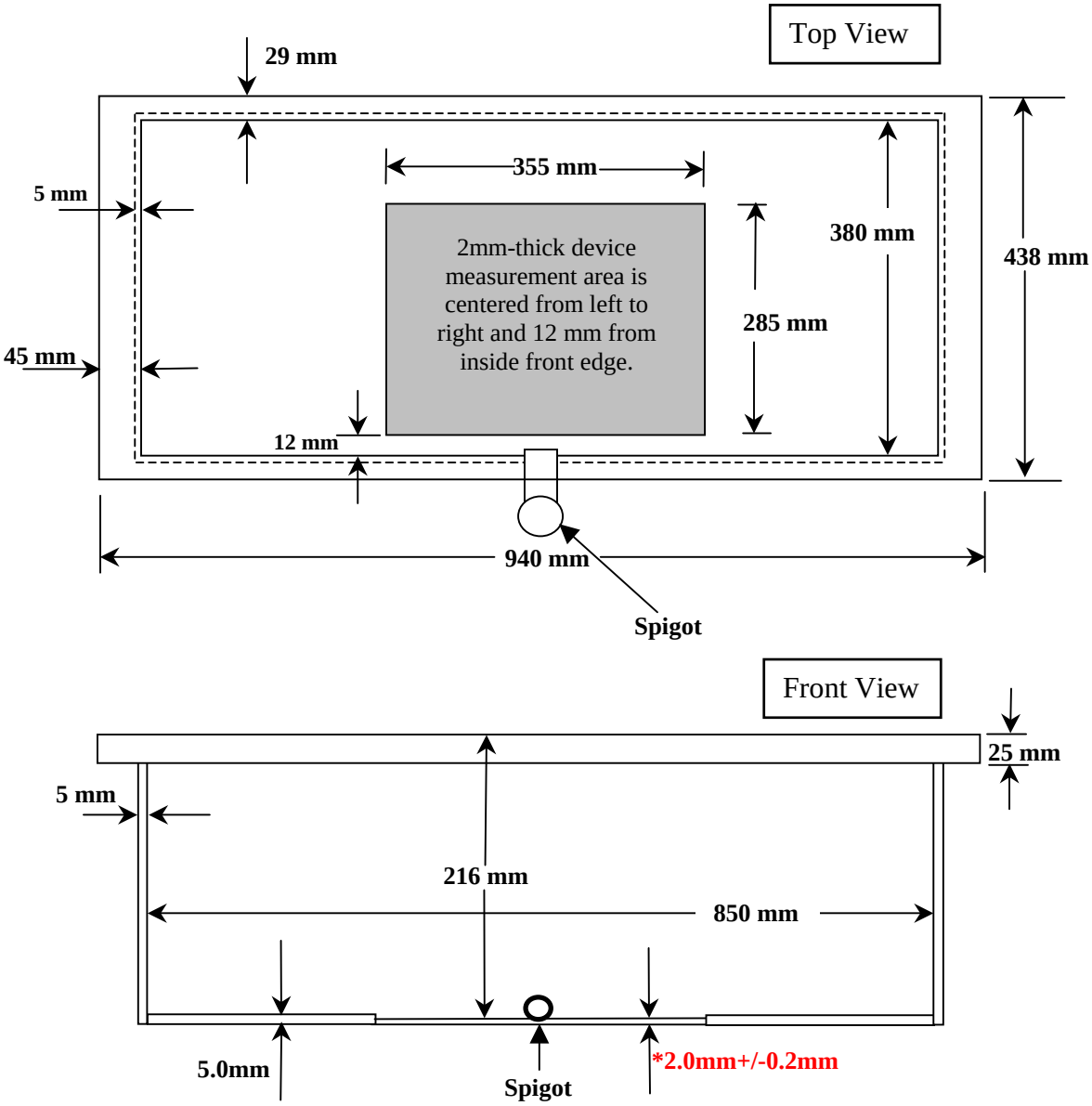
Fiberglass Planar Phantom - Front View

Fiberglass Planar Phantom - Back View

Fiberglass Planar Phantom - Bottom View

Dimensions of Fiberglass Planar Phantom

(Manufactured by Barski Industries Ltd. - Unit# 03-01)



Note: Measurements that aren't repeated for the opposite sides are the same as the side measured. This drawing is not to scale.

APPENDIX J - SAM TWIN PHANTOM V4.0C CERTIFICATE OF CONFORMITY

Schmid & Partner
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Certificate of conformity / First Article Inspection

Item	SAM Twin Phantom V4.0
Type No	QD 000 P40 BA
Series No	TP-1002 and higher
Manufacturer / Origin	Untersee Composites Hauptstr. 69 CH-8559 Fruthwilen Switzerland

Tests

The series production process used allows the limitation to test of first articles.
Complete tests were made on the pre-series Type No. QD 000 P40 AA, Serial No. TP-1001 and on the series first article Type No. QD 000 P40 BA, Serial No. TP-1006. Certain parameters have been retested using further series units (called samples).

Test	Requirement	Details	Units tested
Shape	Compliance with the geometry according to the CAD model.	IT'IS CAD File (*)	First article, Samples
Material thickness	Compliant with the requirements according to the standards	2mm +/- 0.2mm in specific areas	First article, Samples
Material parameters	Dielectric parameters for required frequencies	200 MHz – 3 GHz Relative permittivity < 5 Loss tangent < 0.05.	Material sample TP 104-5
Material resistivity	The material has been tested to be compatible with the liquids defined in the standards	Liquid type HSL 1800 and others according to the standard.	Pre-series, First article

Standards

[1] CENELEC EN 50361
[2] IEEE P1528-200x draft 6.5
[3] IEC PT 62209 draft 0.9
(*) The IT'IS CAD file is derived from [2] and is also within the tolerance requirements of the shapes of [1] and [3].

Conformity

Based on the sample tests above, we certify that this item is in compliance with the uncertainty requirements of SAR measurements specified in standard [1] and draft standards [2] and [3].

Date 18.11.2001

Signature / Stamp Schmid & Partner Engineering AG
Zeughausstrasse 43, CH-8004 Zurich
Tel. +41 1 245 97 00, Fax +41 1 245 97 79