

## **NCL Calibration Laboratories**

Division of APREL Laboratories.

### **Introduction**

This Calibration Report has been produced in line with the SSI Dipole Calibration Procedure SSI-TP-018-ALSAS. The results contained within this report are for Validation Dipole BCL-141. The calibration routine consisted of a three-step process. Step 1 was a mechanical verification of the dipole to ensure that it meets the mechanical specifications. Step 2 was an Electrical Calibration for the Validation Dipole, where the SWR, Impedance, and the Return loss were assessed. Step 3 involved a System Validation using the ALSAS-10U, along with APREL E-020 130 MHz to 26 GHz E-Field Probe Serial Number 212.

### **References**

SSI-TP-018-ALSAS Dipole Calibration Procedure  
SSI-TP-016 Tissue Calibration Procedure  
IEEE 1528 "Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques"

### **Conditions**

Dipole BCL-141 was received from customer in good condition for re-calibration, SMA connector required cleaning prior to calibration.

**Ambient Temperature of the Laboratory:** 22 °C +/- 0.5°C  
**Temperature of the Tissue:** 20 °C +/- 0.5°C

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**Dipole Calibration Results**

**Mechanical Verification**

<b>APREL Length</b>	<b>APREL Height</b>	<b>Measured Length</b>	<b>Measured Height</b>
51.5 mm	30.4 mm	51.6 mm	30.5 mm

**Tissue Validation**

<b>Head Tissue 2450 MHz</b>	<b>Measured</b>
<b>Dielectric constant, <math>\epsilon_r</math></b>	39.2
<b>Conductivity, <math>\sigma</math> [S/m]</b>	1.80

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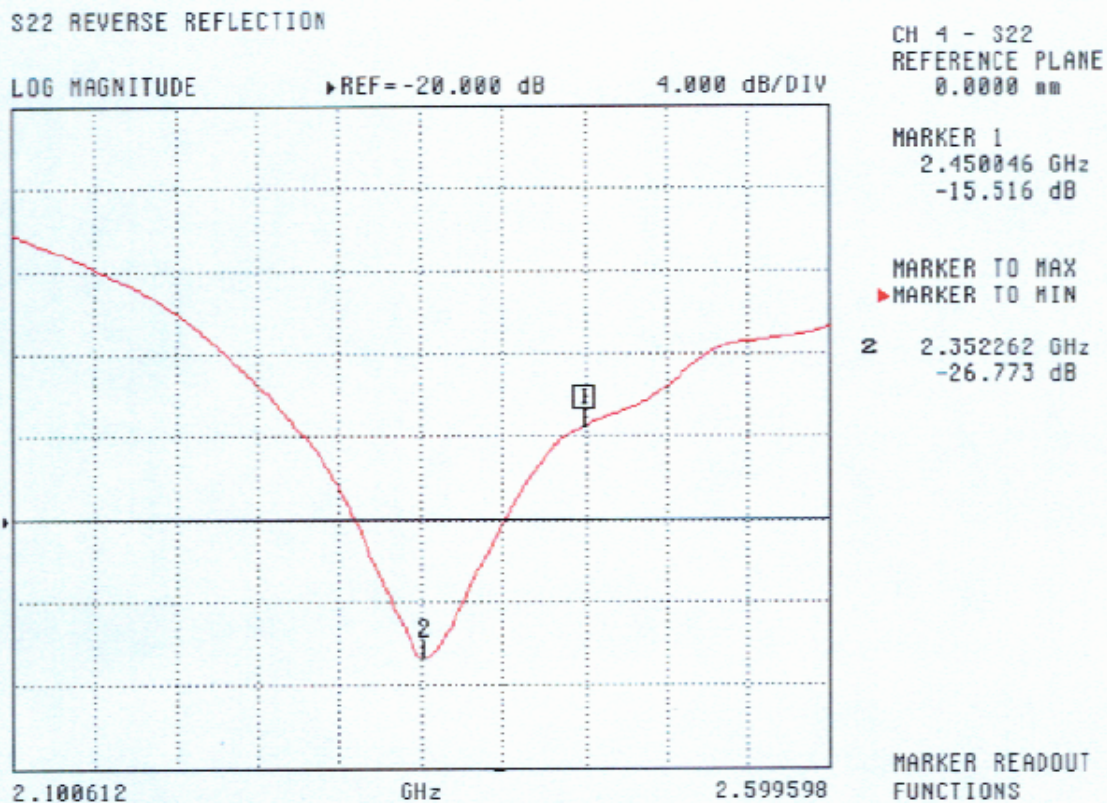
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**Electrical Calibration**

Test	Result
S11 R/L	-26.77 dB to -15.52 dB
SWR	1.095 U to 1.397 U
Impedance	47.81 Ω to 63.37 Ω

The Following Graphs are the results as displayed on the Vector Network Analyzer.

**S11 Parameter Return Loss**



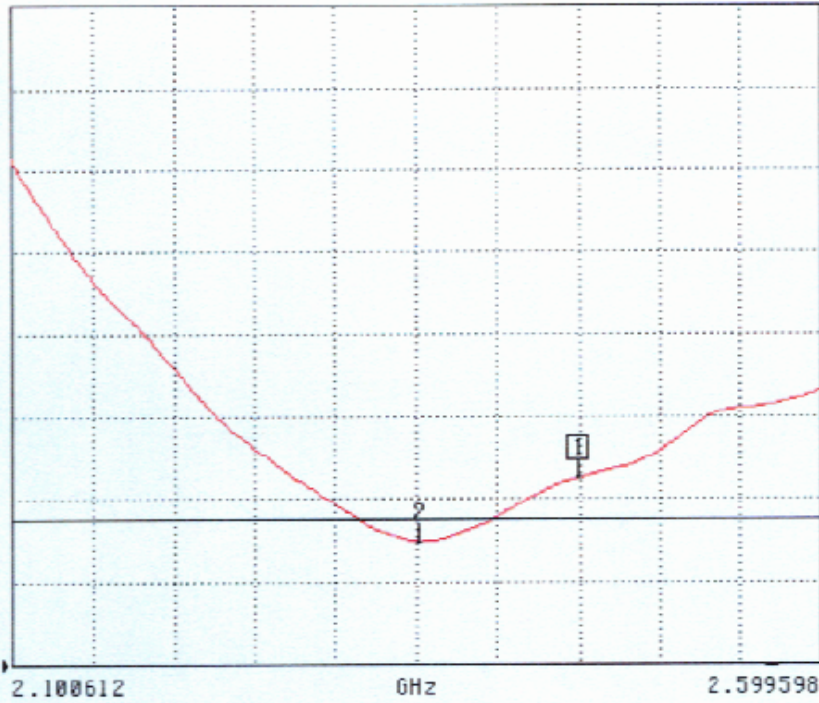
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**SWR**

S22 REVERSE REFLECTION

SWR REF=500.000 mU 400.000 mU/DIV



CH 4 - S22  
REFERENCE PLANE  
0.0000 mm

MARKER 1  
2.450046 GHz  
1.397 U

MARKER TO MAX  
▶ MARKER TO MIN  
2 2.352262 GHz  
1.895 U

MARKER READOUT  
FUNCTIONS

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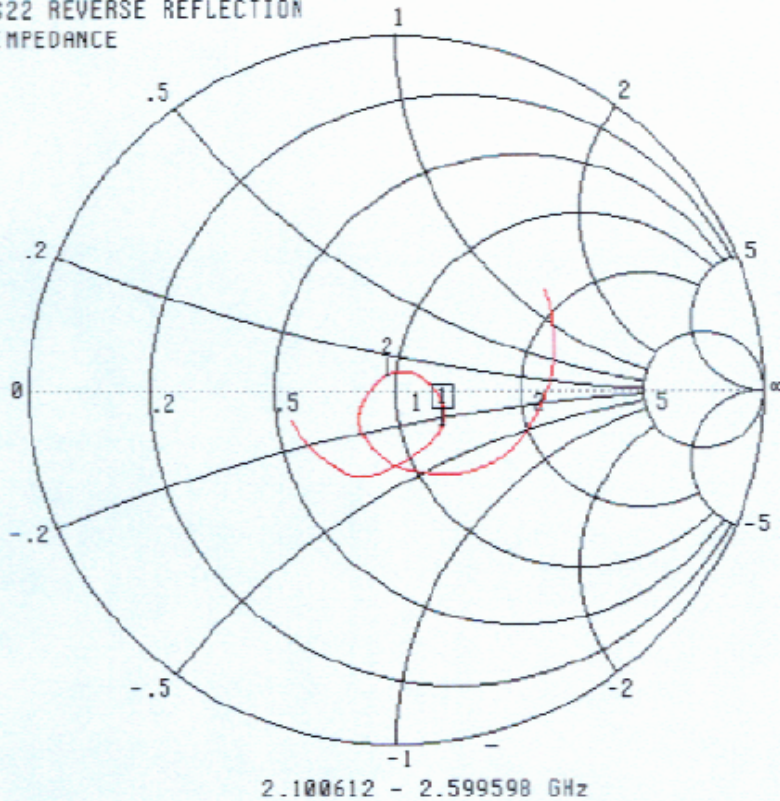


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**Smith Chart Dipole Impedance**

S22 REVERSE REFLECTION  
IMPEDANCE



CH 4 - S22  
REFERENCE PLANE  
0.0000 mm

MARKER 1  
2.450046 GHz  
63.373 Ω  
-13.350 jΩ

MARKER TO MAX  
▶ MARKER TO MIN  
2 2.352262 GHz  
47.808 Ω  
3.861 jΩ

MARKER READOUT  
FUNCTIONS

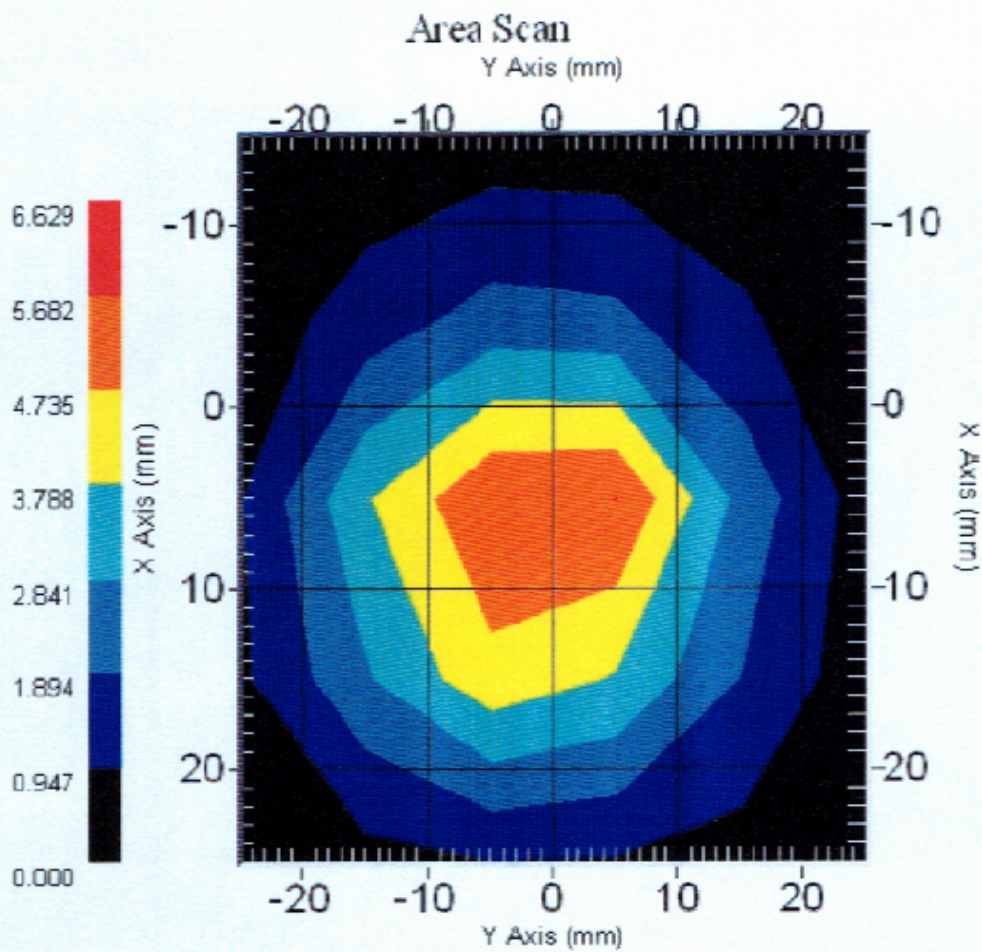
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**System Validation Results Using the Electrically Calibrated Dipole**

Head Tissue Frequency	1 Gram	10 Gram	Peak Above Feed Point
2450 MHz	5.31	2.44	10.18



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**Test Equipment**

The test equipment used during Probe Calibration, manufacturer, model number and, current calibration status are listed and located on the main APREL server R:\NCL\Calibration Equipment\Instrument List

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## APPENDIX D - TEST SYSTEM VERIFICATIONS SCANS

### Liquid Measurement Result

Testing was performed by Jimmy Nguyen on 2008-05-20.

Simulant	Freq [MHz]	Parameters	Liquid Temp [°C]	Target Value	Measured Value	Deviation [%]	Limits [%]
Head	2450	$\epsilon_r$	22	39.2	39.3	0.26	±5
		$\sigma$	22	1.80	1.88	4.44	±5
		1g SAR	22	52.4	58.2	11.06	±10

Simulant	Freq [MHz]	Parameters	Liquid Temp [°C]	Target Value	Measured Value	Deviation [%]	Limits [%]
Head	5200	$\epsilon_r$	22	36.0	37.2	3.33	±5
		$\sigma$	22	4.66	4.76	2.15	±5
		1g SAR	22	80.8	76.5	5.10	±10
	5500	$\epsilon_r$	22	35.6	36.9	3.65	±5
		$\sigma$	22	4.96	4.83	-2.62	±5
		1g SAR	22	83.3	79.6	-4.44	±10
	5800	$\epsilon_r$	22	35.3	36.3	2.83	±5
		$\sigma$	22	5.27	5.03	-4.55	±5
		1g SAR	22	78.0	82.6	5.90	±10



**Test Laboratory: Bay Area Compliance Lab Corp. (BACL)**

System Performance Check 2450MHz Head

Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: BCL-141

Communication System: GSM 2450MHz; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.88$  mho/m;  $\epsilon_r = 39.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(4.74, 4.74, 4.74); Calibrated: 8/28/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Post processing SW: SEMCAD, V1.8 Build 184

**d =10 mm, Pin = 0.5W/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 47.6 mW/g

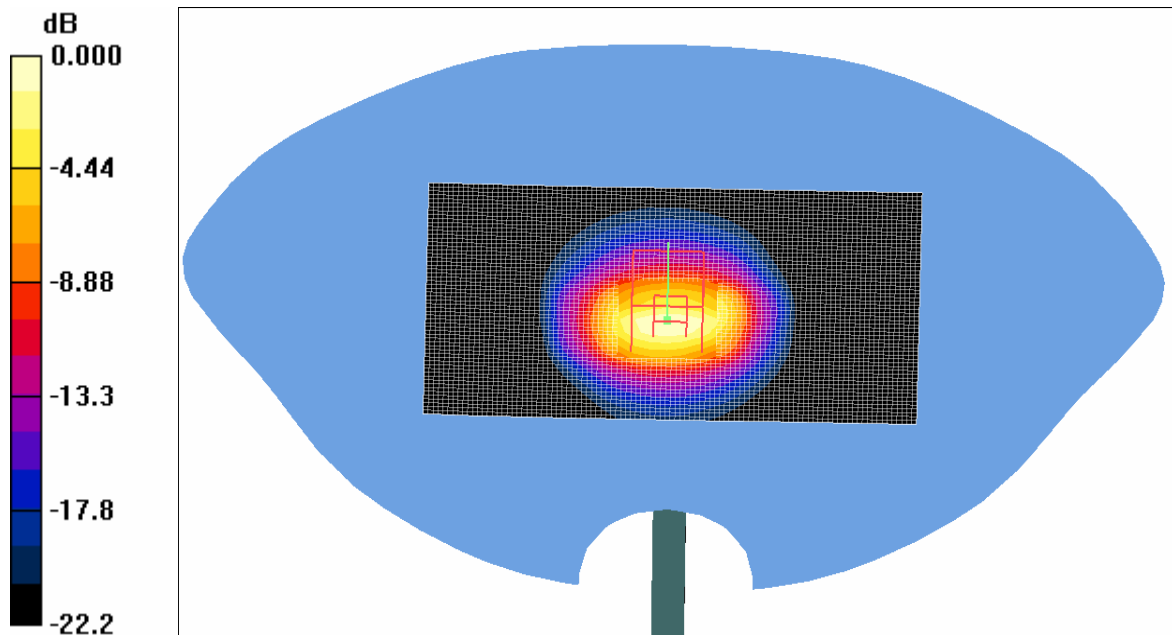
**d =10 mm, Pin = 0.5W/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 153.8 V/m; Power Drift = 0.160 dB

Peak SAR (extrapolated) = 99.8 W/kg

**SAR (1 g) = 29.1 mW/g; SAR (10 g) = 12.1 mW/g**

Maximum value of SAR (measured) = 44.3 mW/g



0 dB = 44.3 mW/g

**System Validation for Head Tissue**

**Test Laboratory: Bay Area Compliance Lab Corp. (BACL)**

5200 MHz System Validation for Head

**Dipole 5100MHZ; Type: D5100; Serial: D5100V2-SN: 1001**

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5200 \text{ MHz}$ ;  $\sigma = 4.76 \text{ mho/m}$ ;  $\epsilon_r = 37.2$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3619; ConvF(4.64, 4.64, 4.64); Calibrated: 9/10/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.6 Build 23; Post processing SW: SEMCAD, V1.8 Build 184

**d=10mm, Pin=0.5W/Area Scan (61x61x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of SAR (interpolated) = 89.8 mW/g

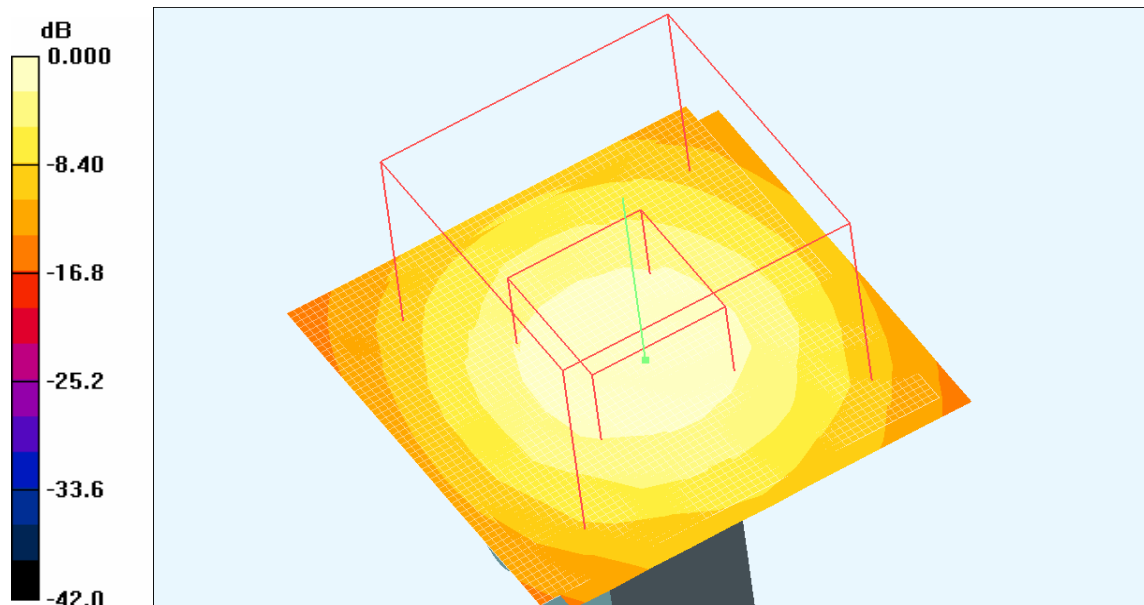
**d=10mm, Pin=0.5W/Zoom Scan (11x11x9)/Cube 0:** Measurement grid: dx=3mm, dy=3mm, dz=2.5mm

Reference Value = 99.2 V/m; Power Drift = 0.106 dB

Peak SAR (extrapolated) = 168.9 W/kg

**SAR (1 g) = 40.4 mW/g; SAR (10 g) = 11.6 mW/g**

Maximum value of SAR (measured) = 84.9 mW/g



0 dB = 84.9 mW/g

**Test Laboratory: Bay Area Compliance Lab Corp. (BACL)**

5500 MHz System Validation for Head

**Dipole 5100MHZ; Type: D5100; Serial: D5100V2-SN: 1001**

Communication System: CW; Frequency: 5500 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5500 \text{ MHz}$ ;  $\sigma = 4.83 \text{ mho/m}$ ;  $\epsilon_r = 36.9$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3619; ConvF(4.37, 4.37, 4.37); Calibrated: 9/10/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.6 Build 23; Post processing SW: SEMCAD, V1.8 Build 184

**d=10mm, Pin=0.5W/Area Scan (61x61x1):** Measurement grid: dx=5mm, dy=5mm

Maximum value of SAR (interpolated) = 94.5 mW/g

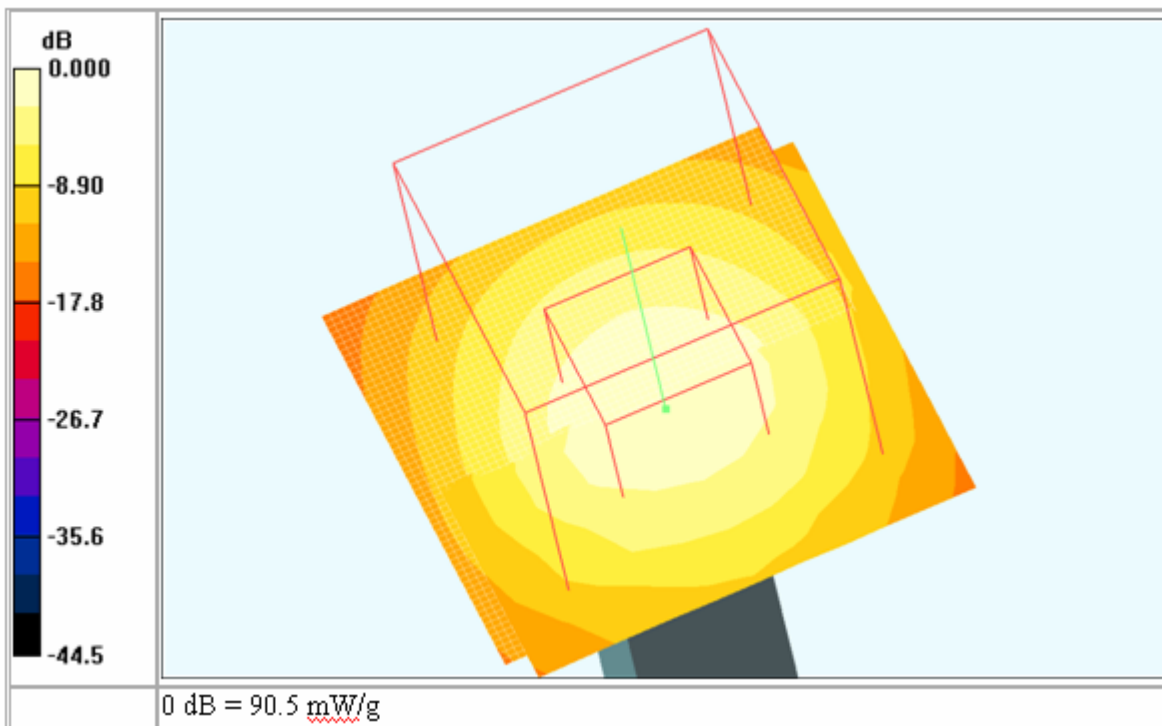
**d=10mm, Pin=0.5W/Zoom Scan (11x11x9)/Cube 0:** Measurement grid: dx=3mm, dy=3mm, dz=2.5mm

Reference Value = 99.5 V/m; Power Drift = 0.615 dB

Peak SAR (extrapolated) = 189.5 W/kg

**SAR (1 g) = 39.8 mW/g; SAR (10 g) = 11 mW/g**

Maximum value of SAR (measured) = 90.5 mW/g





**Test Laboratory: Bay Area Compliance Lab Corp. (BACL)**

5800 MHz System Validation for Head

**Dipole 5100MHZ; Type: D5100; Serial: D5100V2-SN: 1001**

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 5800 \text{ MHz}$ ;  $\sigma = 5.03 \text{ mho/m}$ ;  $\epsilon_r = 36.3$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

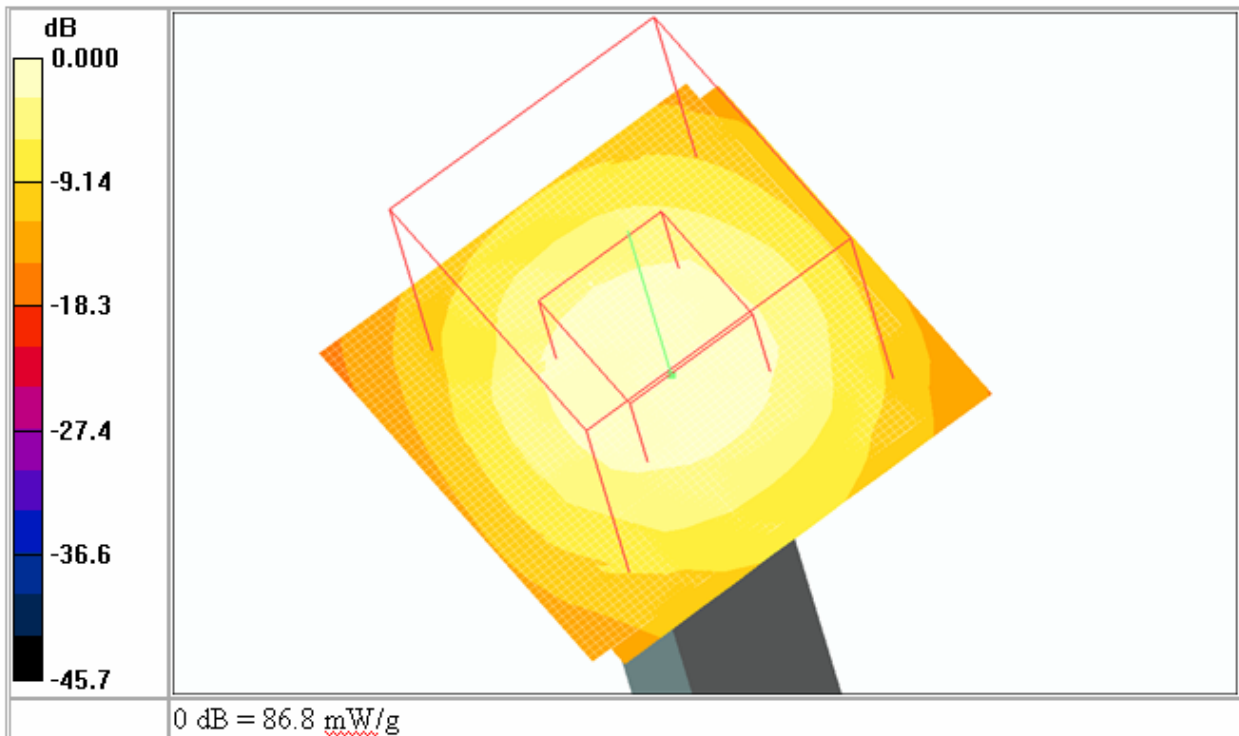
**DASY4 Configuration:**

- Probe: EX3DV4 - SN3619; ConvF(4.07, 4.07, 4.07); Calibrated: 9/10/2007
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.6 Build 23; Post processing SW: SEMCAD, V1.8 Build 184

**d=10mm, Pin=0.5W/Area Scan (61x61x1):** Measurement grid: dx=5mm, dy=5mm  
 Maximum value of SAR (interpolated) = 90.9 mW/g

**d=10mm, Pin=0.5W/Zoom Scan (11x11x9)/Cube 0:** Measurement grid: dx=3mm, dy=3mm, dz=2.5mm  
 Reference Value = 91.5 V/m; Power Drift = 0.049 dB  
 Peak SAR (extrapolated) = 193.1 W/kg

**SAR (1 g) = 41.3 mW/g; SAR (10 g) = 11.5 mW/g**  
 Maximum value of SAR (measured) = 86.8 mW/g



**System Validation for Head Tissue**

## APPENDIX E - EUT SCANS

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)  
 EUT Top Touching to the Flat Phantom 802.11b 2417MHz Body  
 DUT: Psion Teklogix; Type: 735 G2; Serial: B1785

Communication System: 802.11b; Frequency: 2417 MHz; Duty Cycle: 1:1  
 Medium parameters used (interpolated):  $f = 2417$  MHz;  $\sigma = 1.98$  mho/m;  $\epsilon_r = 50.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

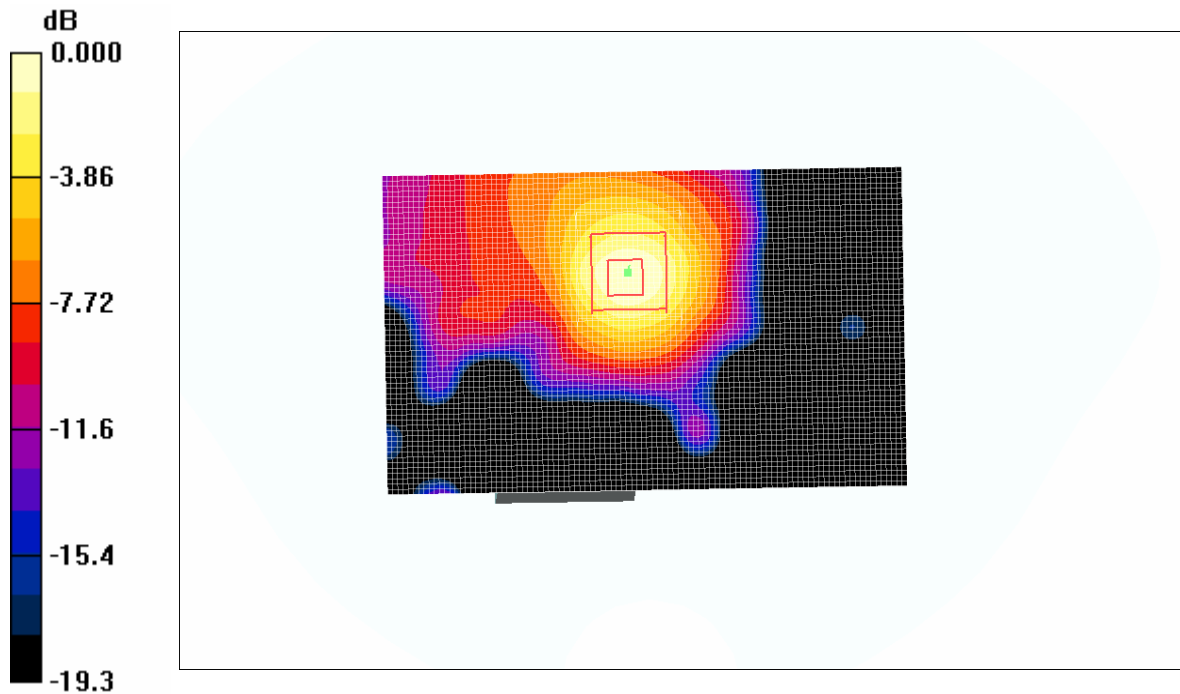
### DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(4.11, 4.11, 4.11); Calibrated: 8/28/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**EUT TopTouching to the Flat Phantom/Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.158 mW/g

**EUT Top Touching to the Flat Phantom/Zoom Scan (7x7x7) /Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 6.23 V/m; Power Drift = -0.174 dB  
 Peak SAR (extrapolated) = 0.316 W/kg

**SAR (1 g) = 0.140 mW/g; SAR (10 g) = 0.068 mW/g**  
 Maximum value of SAR (measured) = 0.156 mW/g



Plot # 1

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)  
 EUT Top Touching to the Flat Phantom 802.11b 2437MHz Body  
 DUT: Psion Teklogix; Type: 735 G2; Serial: B1785

Communication System: 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1  
 Medium parameters used (interpolated):  $f = 2437$  MHz;  $\sigma = 2.01$  mho/m;  $\epsilon_r = 50.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

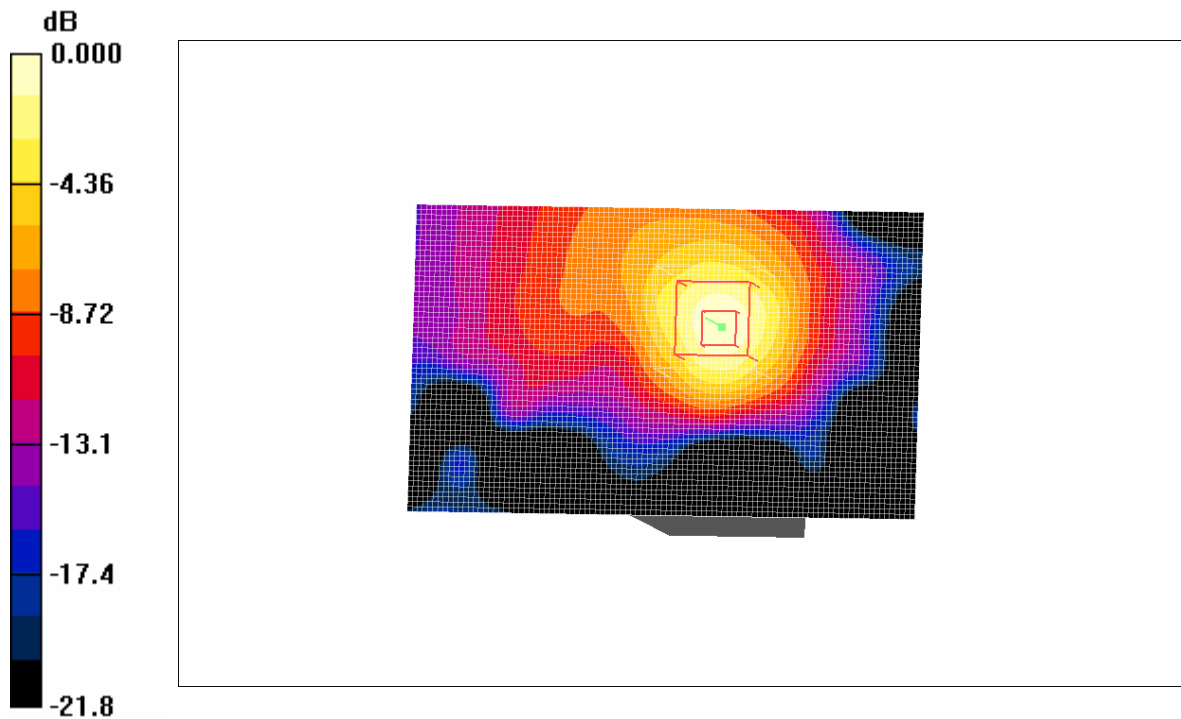
DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(4.11, 4.11, 4.11); Calibrated: 8/28/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**EUT Top Touching to the Flat Phantom /Area Scan (61x101x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.220 mW/g

**EUT Top Touching to the Flat Phantom /Zoom Scan (7x7x7) /Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 6.11 V/m; Power Drift = -0.082 dB  
 Peak SAR (extrapolated) = 0.503 W/kg

**SAR (1 g) = 0.218 mW/g; SAR (10 g) = 0.107 mW/g**  
 Maximum value of SAR (measured) = 0.239 mW/g



0 dB = 0.239mW/g

Plot # 2



Test Laboratory: Bay Area Compliance Lab Corp. (BACL)  
 EUT Top Touching to the Flat Phantom 802.11b 2452 MHz  
 DUT: Psion Teklogix; Type: 735 G2; Serial: B1785

Communication System: 802.11b; Frequency: 2452 MHz; Duty Cycle: 1:1  
 Medium parameters used (interpolated):  $f = 2452 \text{ MHz}$ ;  $\sigma = 2.02 \text{ mho/m}$ ;  $\epsilon_r = 50.5$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

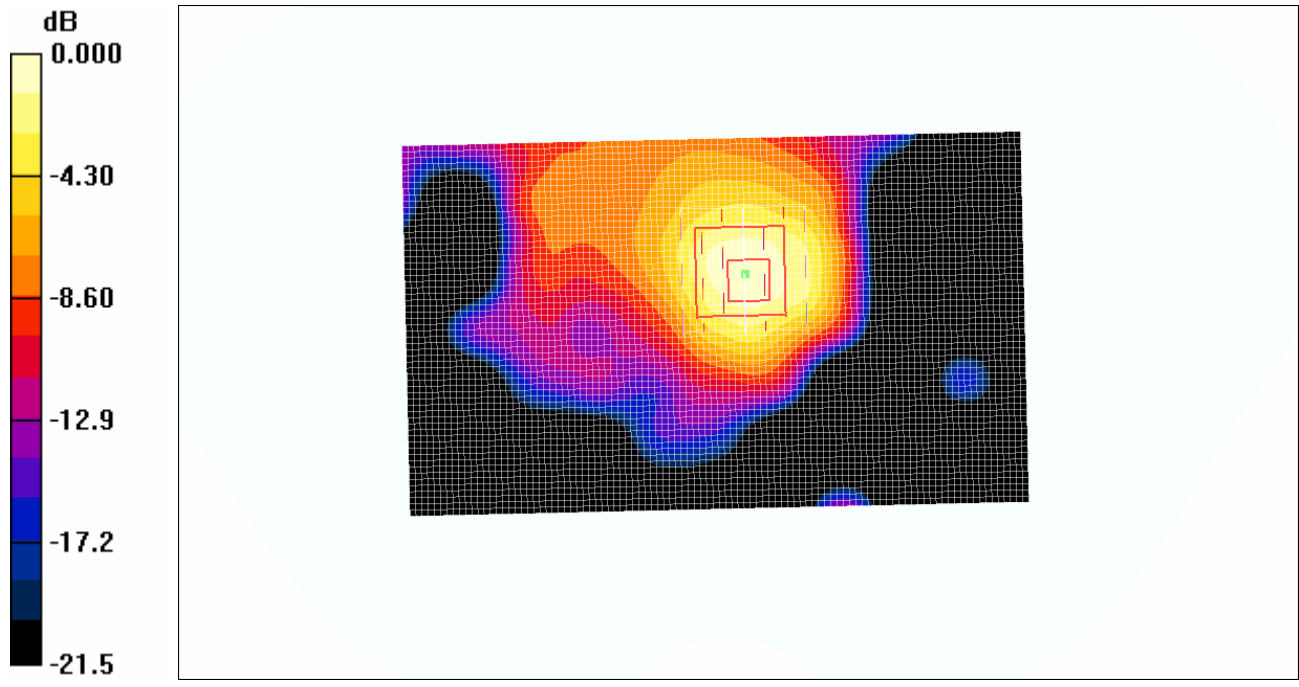
DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(4.11, 4.11, 4.11); Calibrated: 8/28/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**EUT Top Touching to the Flat Phantom/Area Scan (61x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
 Maximum value of SAR (interpolated) = 0.095 mW/g

**EUT Top Touching to the Flat Phantom/Zoom Scan (7x7x7)/Cube 0:** Measurement grid:  $dx=5\text{mm}$ ,  $dy=5\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value = 5.02 V/m; Power Drift = -0.093 dB  
 Peak SAR (extrapolated) = 0.219 W/kg

**SAR (1 g) = 0.085 mW/g; SAR (10 g) = 0.038 mW/g**  
 Maximum value of SAR (measured) = 0.098 mW/g



**Plot # 3**

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)  
 EUT Top Touch to the Flat Phantom 802.11g 2417 MHz  
 Psion Teklogix; Type: 7535 G2; Serial: B1785

Communication System: 802.11g; Frequency: 2417 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 2417 \text{ MHz}$ ;  $\sigma = 1.98 \text{ mho/m}$ ;  $\epsilon_r = 50.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

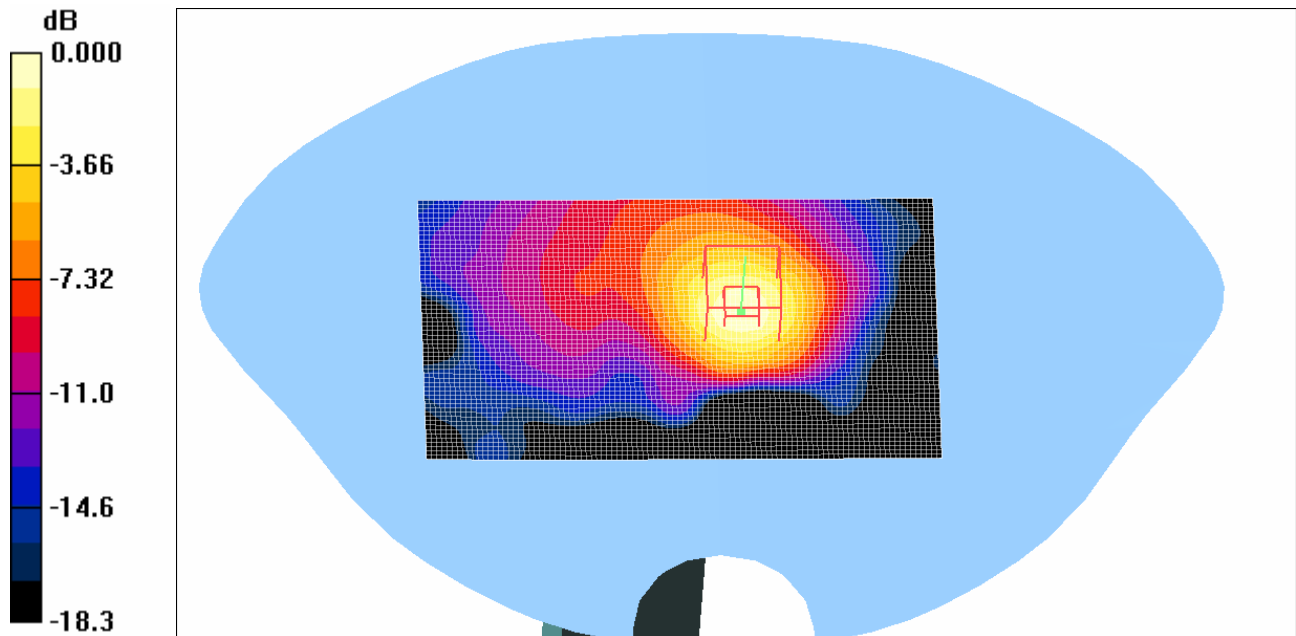
DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(4.11, 4.11, 4.11); Calibrated: 8/28/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Post processing SW: SEMCAD, V1.8 Build 184

**EUT Top Touching to the Phantom/Area Scan (101x121x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.180 mW/g

**EUT Top Touching to the Phantom/Zoom Scan (11x11x11)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 8.32 V/m; Power Drift = -0.013 dB  
 Peak SAR (extrapolated) = 0.309 W/kg

**SAR (1 g) = 0.160 mW/g; SAR (10 g) = 0.078 mW/g**  
 Maximum value of SAR (measured) = 0.186 mW/g



0 dB = 0.186 mW/g

**Plot # 4**

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)  
EUT Top Touch to the Flat Phantom 802.11g 2437 MHz  
Psion Teklogix; Type: 7535 G2; Serial: B1785

Communication System: 802.11g; Frequency: 2437 MHz; Duty Cycle: 1:1  
Medium parameters used:  $f = 2437$  MHz;  $\sigma = 2.01$  mho/m;  $\epsilon_r = 50.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section

DASY4 Configuration:

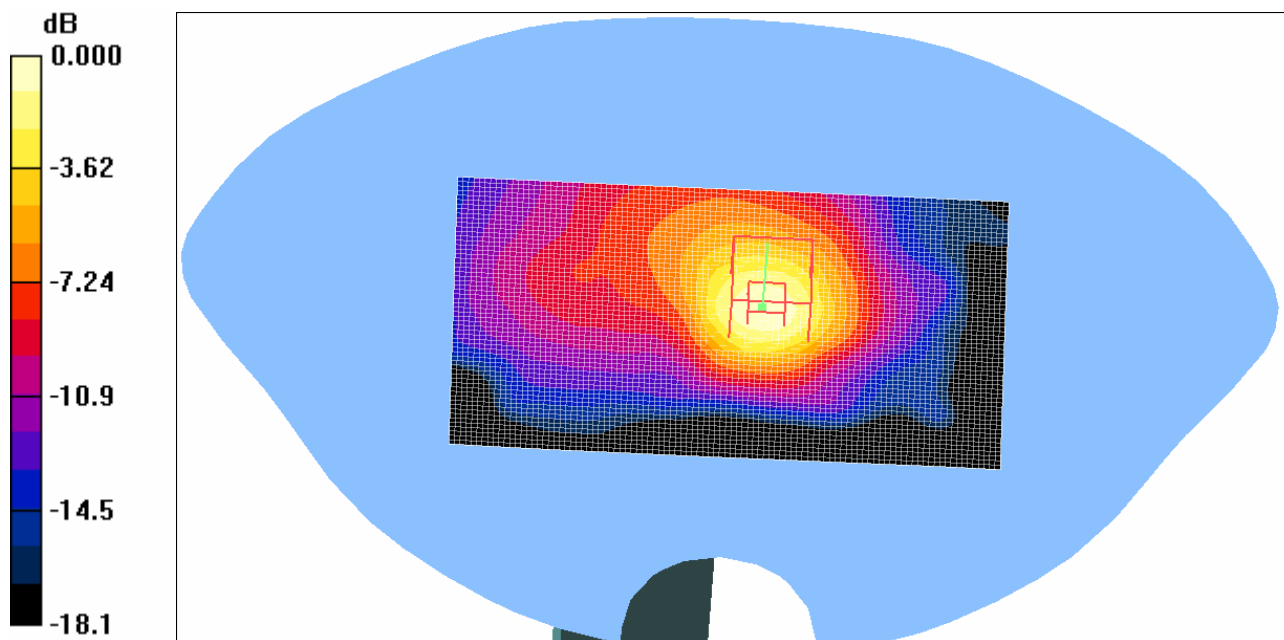
- Probe: ET3DV6 - SN1604; ConvF(4.11, 4.11, 4.11); Calibrated: 8/28/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Post processing SW: SEMCAD, V1.8 Build 184

**EUT Top Touching to the Flat Phantom/Area Scan (101x121x1):** Measurement grid: dx=15mm, dy=15mm  
Maximum value of SAR (interpolated) = 0.258 mW/g

**EUT Top Touching to the Flat Phantom/Zoom Scan (11x11x11)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.81 V/m; Power Drift = -0.095 dB  
Peak SAR (extrapolated) = 0.625 W/kg

**SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.116 mW/g**  
Maximum value of SAR (measured) = 0.262 mW/g



0 dB = 0.262 mW/g

Plot # 5



Test Laboratory: Bay Area Compliance Lab Corp. (BACL)  
 EUT Top Touch to the Flat Phantom 802.11g 2452 MHz  
 Psion Teklogix; Type: 7535 G2; Serial: B1785

Communication System: 802.11g; Frequency: 2452 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 2452 \text{ MHz}$ ;  $\sigma = 2.02 \text{ mho/m}$ ;  $\epsilon_r = 50.5$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

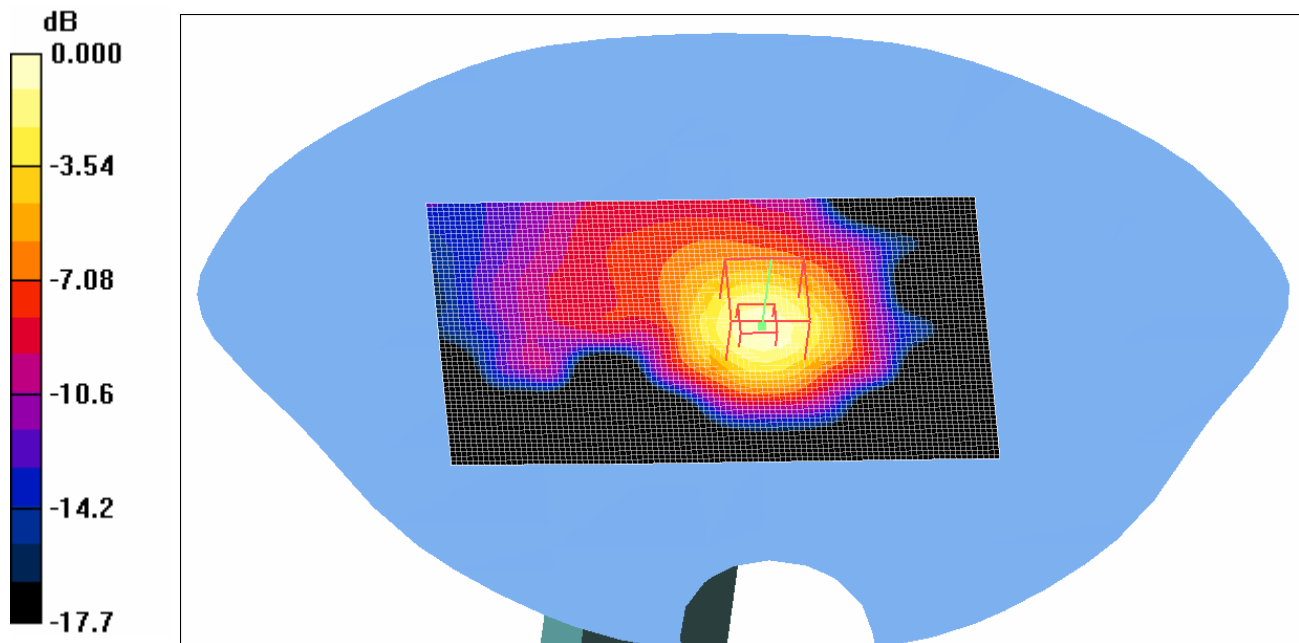
DASY4 Configuration:

- Probe: ET3DV6 - SN1604; ConvF(4.11, 4.11, 4.11); Calibrated: 8/28/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Post processing SW: SEMCAD, V1.8 Build 184

**EUT Top Touching to the Flat Phantom/Area Scan (101x121x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.150 mW/g

**EUT Top Touching to the Flat Phantom/Zoom Scan (11x11x11)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
 Reference Value = 9.06 V/m; Power Drift = -0.045 dB  
 Peak SAR (extrapolated) = 0.469 W/kg

**SAR (1 g) = 0.134 mW/g; SAR (10 g) = 0.062 mW/g**  
 Maximum value of SAR (measured) = 0.149 mW/g



0 dB = 0.149 mW/g

**Plot # 6**

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)  
 EUT Top Touch to the Flat Phantom 5180MHz  
 Psion Teklogix; Type: 7535 G2; Serial: B1785

Communication System: 802.11a; Frequency: 5180 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 5180 \text{ MHz}$ ;  $\sigma = 5.22 \text{ mho/m}$ ;  $\epsilon_r = 48.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

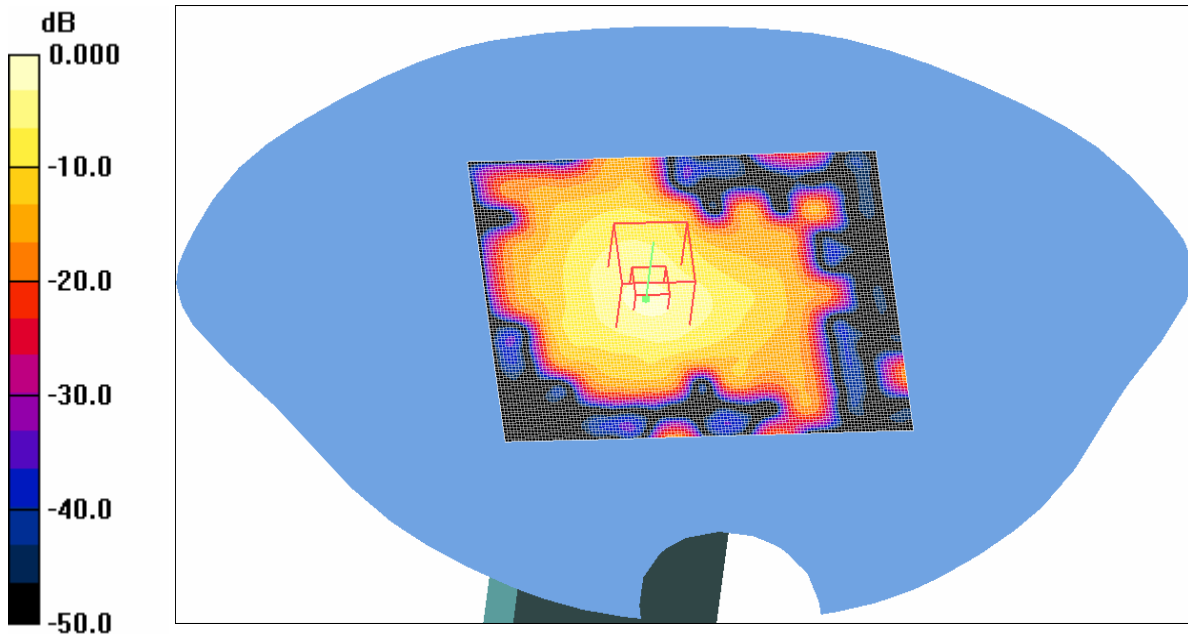
DASY4 Configuration:

- Probe: EX3DV4 - SN3619; ConvF(4.11, 4.11, 4.11); Calibrated: 9/10/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection) Sensor-Surface:
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Post processing SW: SEMCAD, V1.8 Build 184

**EUT Top Touching to the Flat Phantom /Area Scan (101x121x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (interpolated) = 0.499 mW/g

**EUT Top Touching to the Flat Phantom /Zoom Scan (11x11x11)/Cube 0:** Measurement grid: dx=3mm, dy=3mm, dz=2.5mm  
 Reference Value = 7.46 V/m; Power Drift = 0.045 dB  
 Peak SAR (extrapolated) = 1.68 W/kg

**SAR (1 g) = 0.489 mW/g; SAR (10 g) = 0.191 mW/g**  
 Maximum value of SAR (measured) = 0.906 mW/g



0 dB = 0.906 mW/g

**Plot # 7**

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)  
 EUT Top Touch to the Flat Phantom 5260MHz  
 Psion Teklogix; Type: 7535 G2; Serial: B1785

Communication System: 802.11a; Frequency: 5260 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 5260 \text{ MHz}$ ;  $\sigma = 5.28 \text{ mho/m}$ ;  $\epsilon_r = 48$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3619; ConvF(4.11, 4.11, 4.11); Calibrated: 9/10/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 10/18/2005
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Post processing SW: SEMCAD, V1.8 Build 184

**EUT Top Touching to the Flat Phantom/Area Scan (101x121x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.486 mW/g

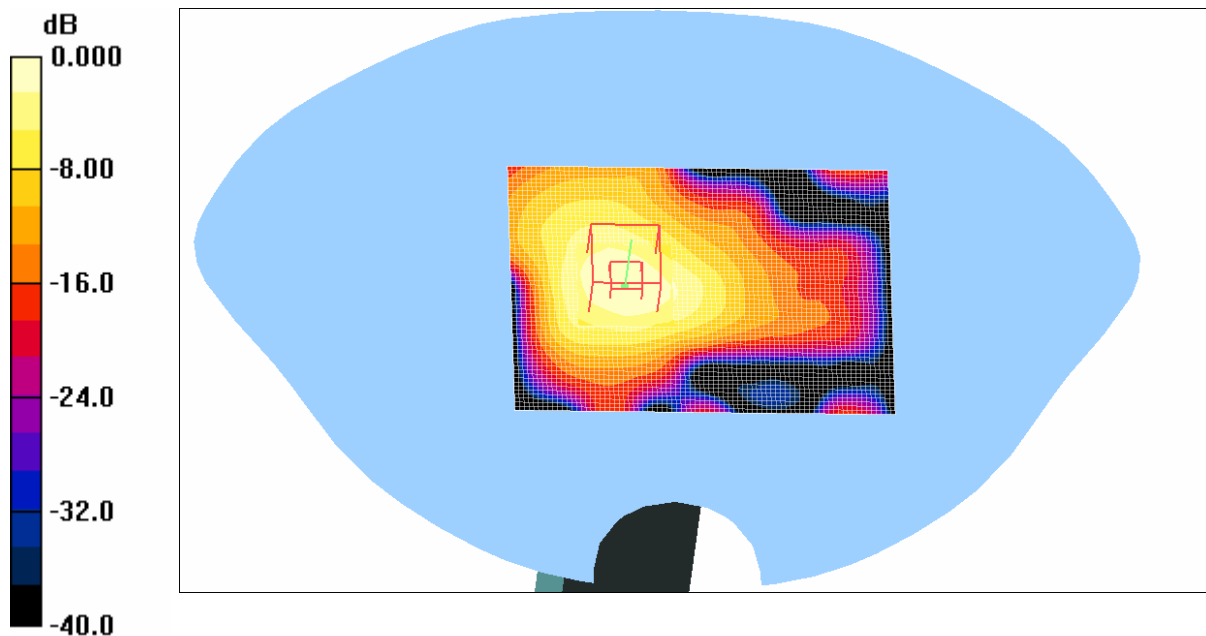
**EUT Top Touching to the Flat Phantom/Zoom Scan (11x11x11)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=7mm

Reference Value = 7.00 V/m; Power Drift = 0.545 dB

Peak SAR (extrapolated) = 1.19 W/kg

**SAR(1 g) = 0.444 mW/g; SAR(10 g) = 0.175 mW/g**

Maximum value of SAR (measured) = 0.509 mW/g



0 dB = 0.509 mW/g

**Plot # 8**

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)  
 EUT Top Touch to the Flat Phantom 5500 MHz  
 Psion Teklogix; Type: 7535 G2; Serial: B1785

Communication System: 802.11a; Frequency: 5500 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 5500$  MHz;  $\sigma = 5.72$  mho/m;  $\epsilon_r = 47.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3619; ConvF(3.8, 3.8, 3.8); Calibrated: 9/10/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection) Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

**EUT Top Touching to the Flat Phantom /Area Scan (101x121x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (interpolated) = 0.772 mW/g

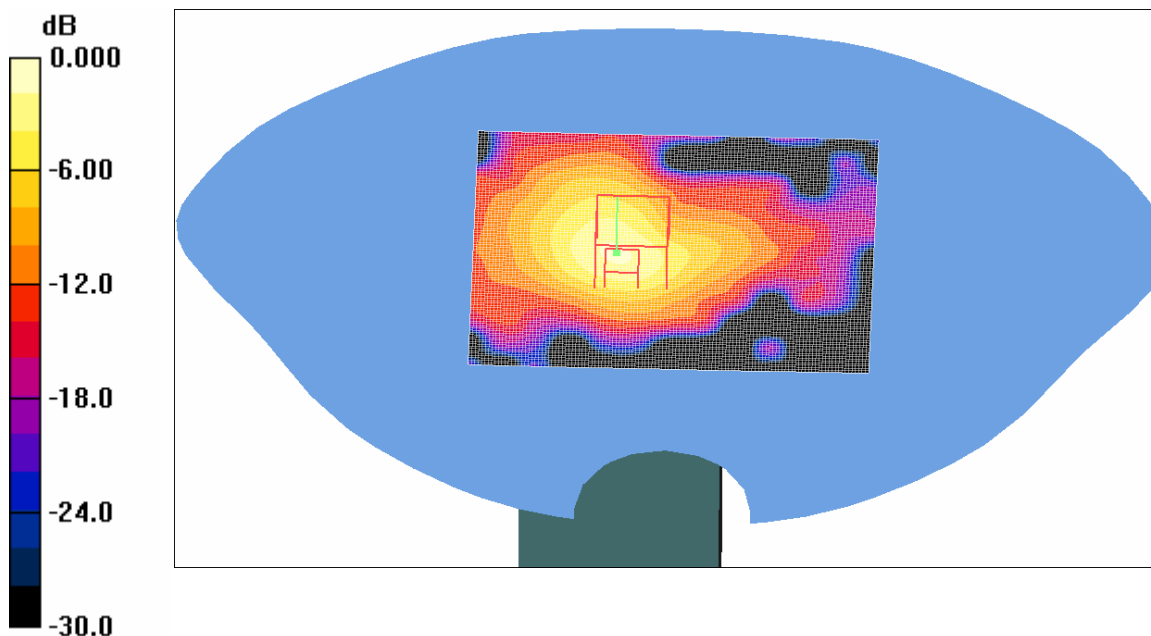
**EUT Top Touching to the Flat Phantom /Zoom Scan (11x11x11)/Cube 0:** Measurement grid: dx=3mm, dy=3mm, dz=2.5mm

Reference Value = 7.98 V/m; Power Drift = 0.255 dB

Peak SAR (extrapolated) = 4.30 W/kg

**SAR (1 g) = 0.403 mW/g; SAR (10 g) = 0.090 mW/g**

Maximum value of SAR (measured) = 1.14 mW/g



0 dB = 1.14 mW/g

**Plot # 9**



Test Laboratory: Bay Area Compliance Lab Corp. (BACL)  
 EUT Top Touch to the Flat Phantom 5600 MHz  
 Psion Teklogix; Type: 7535 G2; Serial: B1785

Communication System: 802.11a; Frequency: 5600 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.83$  mho/m;  $\epsilon_r = 47.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 - SN3619; ConvF(3.8, 3.8, 3.8); Calibrated: 9/10/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Post processing SW: SEMCAD, V1.8 Build 184

**EUT Top Touching to the Flat Phantom /Area Scan (101x121x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (interpolated) = 0.648 mW/g

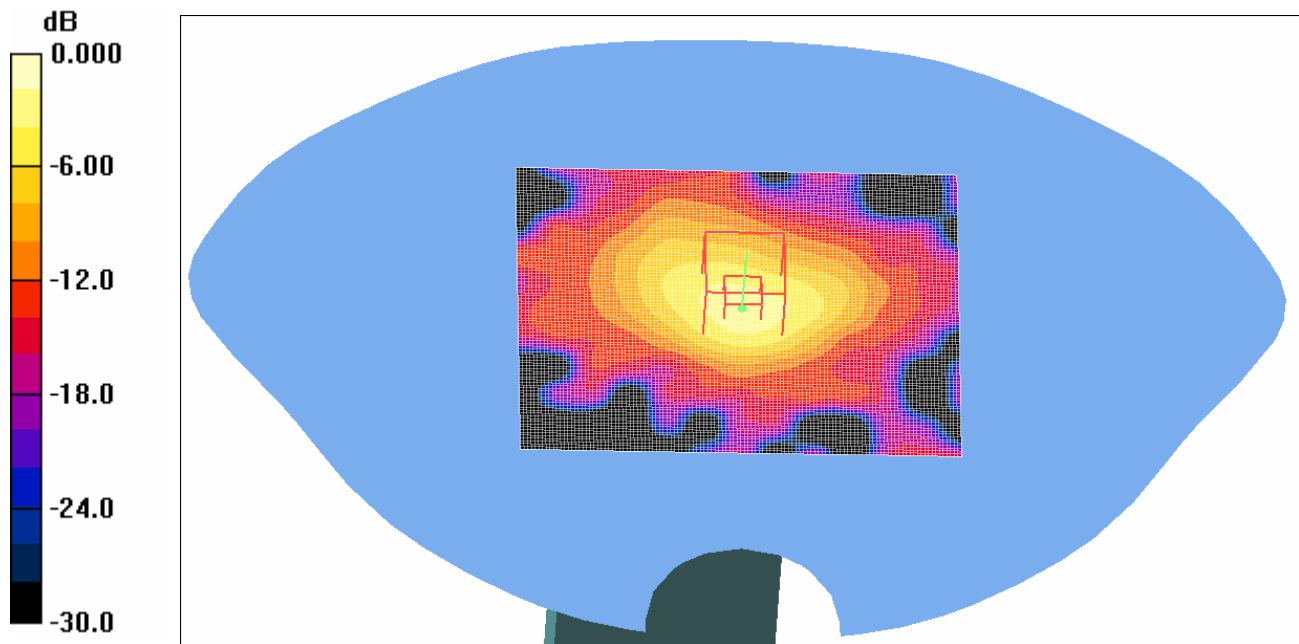
**EUT Top Touching to the Flat Phantom /Zoom Scan (11x11x11)/Cube 0:** Measurement grid: dx=3mm, dy=3mm, dz=2.5mm

Reference Value = 9.59 V/m; Power Drift = -0.077 dB

Peak SAR (extrapolated) = 2.21 W/kg

**SAR (1 g) = 0.632 mW/g; SAR (10 g) = 0.255 mW/g**

Maximum value of SAR (measured) = 1.18 mW/g



0 dB = 1.18 mW/g

**Plot # 10**

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)  
 EUT Top Touch to the Flat Phantom 5700 MHz  
 Psion Teklogix; Type: 7535 G2; Serial: B1785

Communication System: 802.11a; Frequency: 5700 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 5700 \text{ MHz}$ ;  $\sigma = 5.94 \text{ mho/m}$ ;  $\epsilon_r = 47.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

DASY4 Configuration:

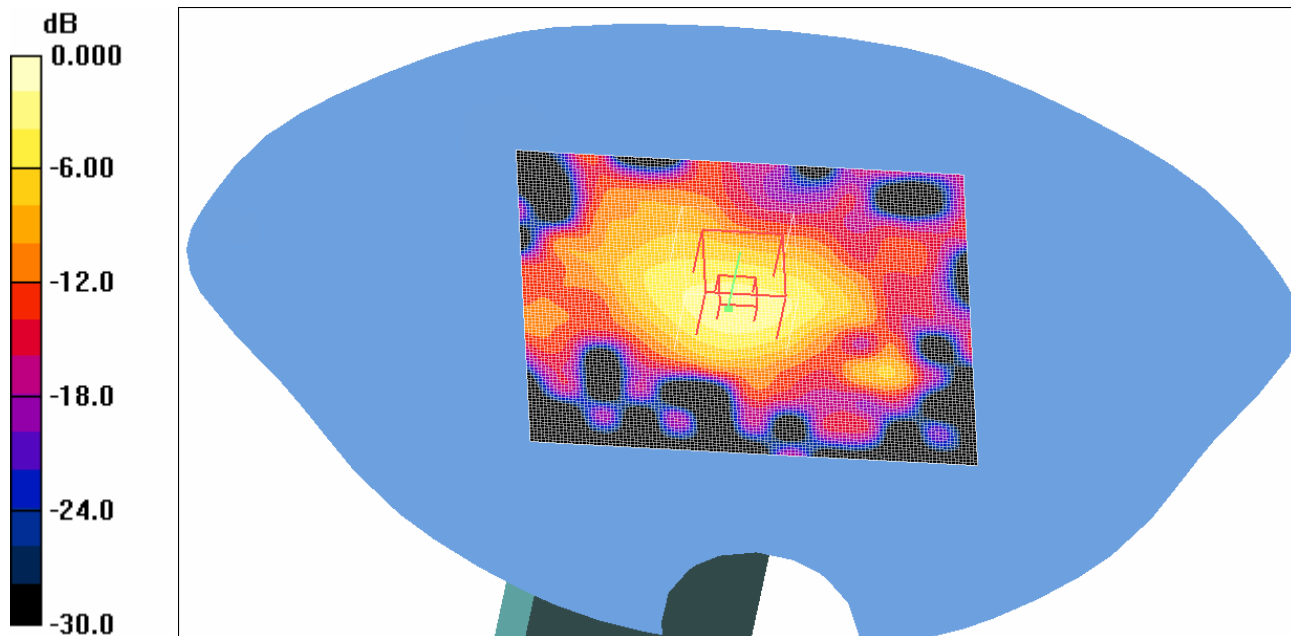
- Probe: EX3DV4 - SN3619; ConvF(4.08, 4.08, 4.08); Calibrated: 9/10/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Post processing SW: SEMCAD, V1.8 Build 184

**EUT Top Touching to the Flat Phantom /Area Scan (101x121x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (interpolated) = 0.428 mW/g

**EUT Top Touching to the Flat Phantom /Zoom Scan (11x11x11)/Cube 0:** Measurement grid: dx=3mm, dy=3mm, dz=2.5mm

Reference Value = 8.32 V/m; Power Drift = -0.703 dB  
 Peak SAR (extrapolated) = 1.58 W/kg

**SAR (1 g) = 0.430 mW/g; SAR (10 g) = 0.175 mW/g**  
 Maximum value of SAR (measured) = 0.785 mW/g



0 dB = 0.785 mW/g

**Plot # 11**

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)  
 EUT Top Touch to the Flat Phantom 5745 MHz  
 Psion Teklogix; Type: 7535 G2; Serial: B1785

Communication System: 802.11a; Frequency: 5745 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 5745 \text{ MHz}$ ;  $\sigma = 6.08 \text{ mho/m}$ ;  $\epsilon_r = 47.5$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

DASY4 Configuration:

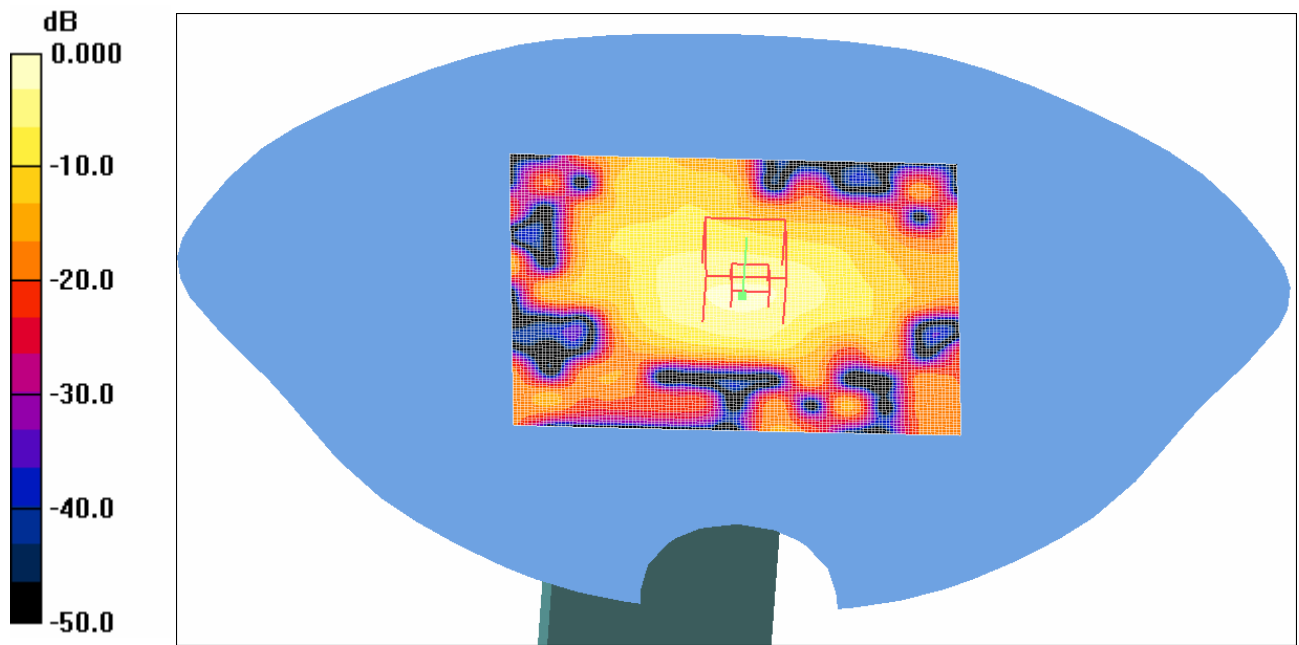
- Probe: EX3DV4 - SN3619; ConvF(4.08, 4.08, 4.08); Calibrated: 9/10/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Post processing SW: SEMCAD, V1.8 Build 184

**EUT Top Touching to the Flat Phantom /Area Scan (101x121x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (interpolated) = 0.392 mW/g

**EUT Top Touching to the Flat Phantom /Zoom Scan (11x11x11)/Cube 0:** Measurement grid: dx=3mm, dy=3mm, dz=2.5mm

Reference Value = 7.79 V/m; Power Drift = -0.036 dB  
 Peak SAR (extrapolated) = 1.48 W/kg

**SAR (1 g) = 0.402 mW/g; SAR (10 g) = 0.161 mW/g**  
 Maximum value of SAR (measured) = 0.742 mW/g



0 dB = 0.742 mW/g

**Plot # 12**

Test Laboratory: Bay Area Compliance Lab Corp. (BACL)  
 EUT Top Touch to the Flat Phantom 5785 MHz  
 Psion Teklogix; Type: 7535 G2; Serial: B1785

Communication System: 802.11a; Frequency: 5785 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 5785 \text{ MHz}$ ;  $\sigma = 6.09 \text{ mho/m}$ ;  $\epsilon_r = 47.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

DASY4 Configuration:

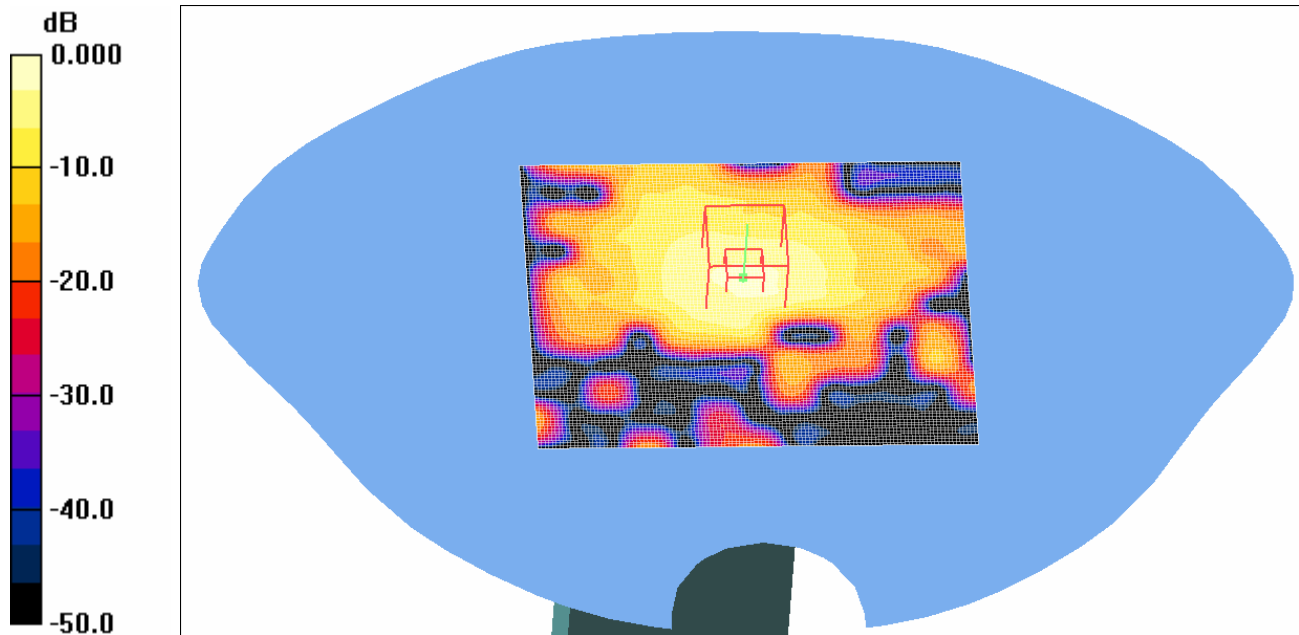
- Probe: EX3DV4 - SN3619; ConvF(4.08, 4.08, 4.08); Calibrated: 9/10/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Post processing SW: SEMCAD, V1.8 Build 184

**EUT Top Touching to the Flat Phantom /Area Scan (101x121x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (interpolated) = 0.337 mW/g

**EUT Top Touching to the Flat Phantom /Zoom Scan (11x11x11)/Cube 0:** Measurement grid: dx=3mm, dy=3mm, dz=2.5mm

Reference Value = 5.72 V/m; Power Drift = -0.687 dB  
 Peak SAR (extrapolated) = 1.32 W/kg

**SAR(1 g) = 0.337 mW/g; SAR(10 g) = 0.135 mW/g**  
 Maximum value of SAR (measured) = 0.636 mW/g



0 dB = 0.636 mW/g

**Plot # 13**



Test Laboratory: Bay Area Compliance Lab Corp. (BACL)  
 EUT Top Touch to the Flat Phantom 5825MHz  
 Psion Teklogix; Type: 7535 G2; Serial: B1785

Communication System: 802.11a; Frequency: 5825 MHz; Duty Cycle: 1:1  
 Medium parameters used:  $f = 5825 \text{ MHz}$ ;  $\sigma = 6.10 \text{ mho/m}$ ;  $\epsilon_r = 47.4$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section

DASY4 Configuration:

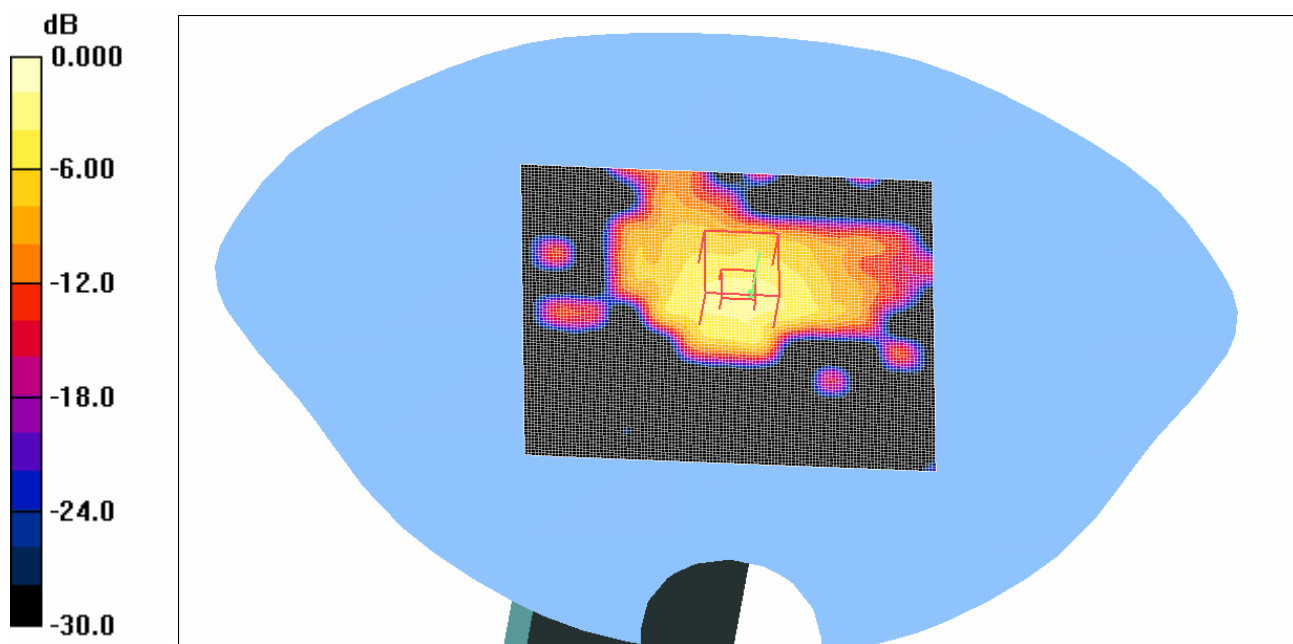
- Probe: EX3DV4 - SN3619; ConvF(4.08, 4.08, 4.08); Calibrated: 9/10/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn456; Calibrated: 11/8/2007
- Phantom: SAM with CRP; Type: Twin SAM; Serial: TP-1032
- Measurement SW: DASY4, V4.7 Build 71; Post processing SW: SEMCAD, V1.8 Build 184

**EUT Top Touching to the Flat Phantom /Area Scan (101x121x1):** Measurement grid: dx=10mm, dy=10mm  
 Maximum value of SAR (interpolated) = 0.273 mW/g

**EUT Top Touching to the Flat Phantom /Zoom Scan (11x11x11)/Cube 0:** Measurement grid: dx=3mm, dy=3mm, dz=2.5mm

Reference Value = 5.13 V/m; Power Drift = -0.005 dB  
 Peak SAR (extrapolated) = 1.16 W/kg

**SAR(1 g) = 0.299 mW/g; SAR(10 g) = 0.120 mW/g.**  
 Maximum value of SAR (measured) = 0.580 mW/g



0 dB = 0.580 mW/g

Plot # 14

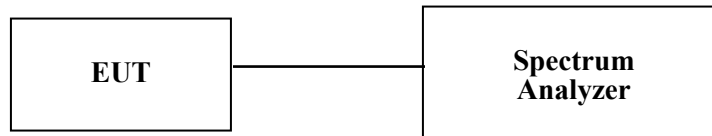
## APPENDIX F – CONDUCTED OUTPUT POWER MEASUREMENT

### Provision Applicable

The measured peak output power should be greater and within 5% than EMI measurement.

### Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.



### Test Equipment List

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Analyzer, Spectrum	E4440A	MY44303352	2008-04-28

### Test Results

#### 802.11b Mode (2.4GHz):

Channel No.	Frequency (MHz)	Measured Output Power	
		(dBm)	(mW)
2	2417	18	63.1
6	2437	19	79.43
9	2452	19.4	87.1

#### 802.11g Mode (2.4GHz):

Channel No.	Frequency (MHz)	Measured Output Power	
		(dBm)	(mW)
2	2417	17.5	56.2
6	2437	20	100
9	2452	18.8	55.0

**802.11a Mode:**

Channel No.	Frequency (MHz)	Measured Output Power	
		(dBm)	(mW)
36	5180	17	26.5
52	5260	24	27.7
100	5500	15.79	37.9
126	5600	15.6	36.3
140	5700	15.41	34.8
149	5745	18.2	66.1
157	5785	17.8	60.3
165	5825	17.6	57.5

## APPENDIX G – EUT TEST POSITION PHOTOS

### EUT Top Touching to the Flat Phantom





# APPENDIX H- EUT PHOTO

## EUT – Front View



## EUT – Bottom Side View



**EUT – Right Side View**



**EUT – Top Side View**



## APPENDIX I - INFORMATIVE REFERENCES

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\*\*\*\*\* END OF REPORT \*\*\*\*\*