

**WLAN 11a 6Mbps 5660MHz Rear 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n; Frequency: 5660 MHz;Duty Cycle: 1:1  
Medium parameters used:  $f = 5660$  MHz;  $\sigma = 5.771$  mho/m;  $\epsilon_r = 46.26$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.85, 3.85, 3.85); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

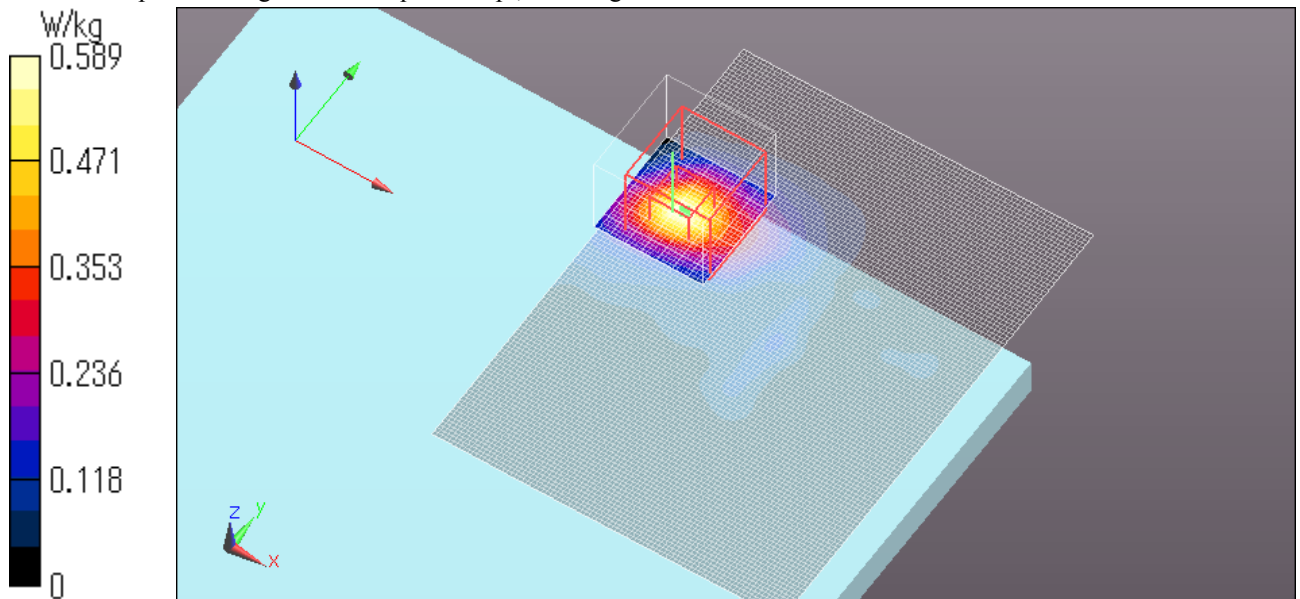
**Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 0.594 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm  
Reference Value = 0.587 V/m; Power Drift = 0.06 dB  
Peak SAR (extrapolated) = 1.12 W/kg  
**SAR(1 g) = 0.287 W/kg; SAR(10 g) = 0.095 W/kg**

Maximum value of SAR (measured) = 0.589 W/kg

Date: 2013/06/10

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n20 HT4 5580MHz Right side 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n; Frequency: 5580 MHz;Duty Cycle: 1:1  
Medium parameters used:  $f = 5580$  MHz;  $\sigma = 5.658$  mho/m;  $\epsilon_r = 46.446$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.85, 3.85, 3.85); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan(91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.740 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 11.566 V/m; Power Drift = -0.20 dB

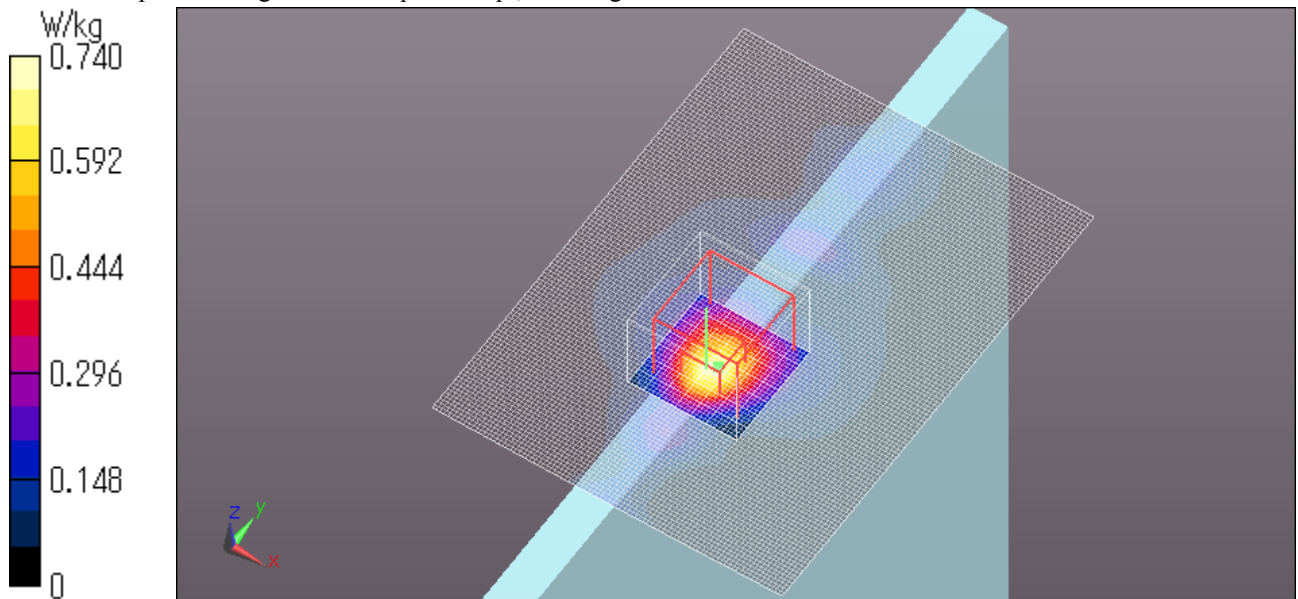
Peak SAR (extrapolated) = 1.42 W/kg

**SAR(1 g) = 0.355 W/kg; SAR(10 g) = 0.114 W/kg**

Maximum value of SAR (measured) = 0.743 W/kg

Date: 2013/06/10

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n40 HT4 5550MHz Right side 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n; Frequency: 5550 MHz; Duty Cycle: 1:1  
Medium parameters used:  $f = 5550$  MHz;  $\sigma = 5.64$  mho/m;  $\epsilon_r = 46.411$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.941 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 13.868 V/m; Power Drift = -0.17 dB

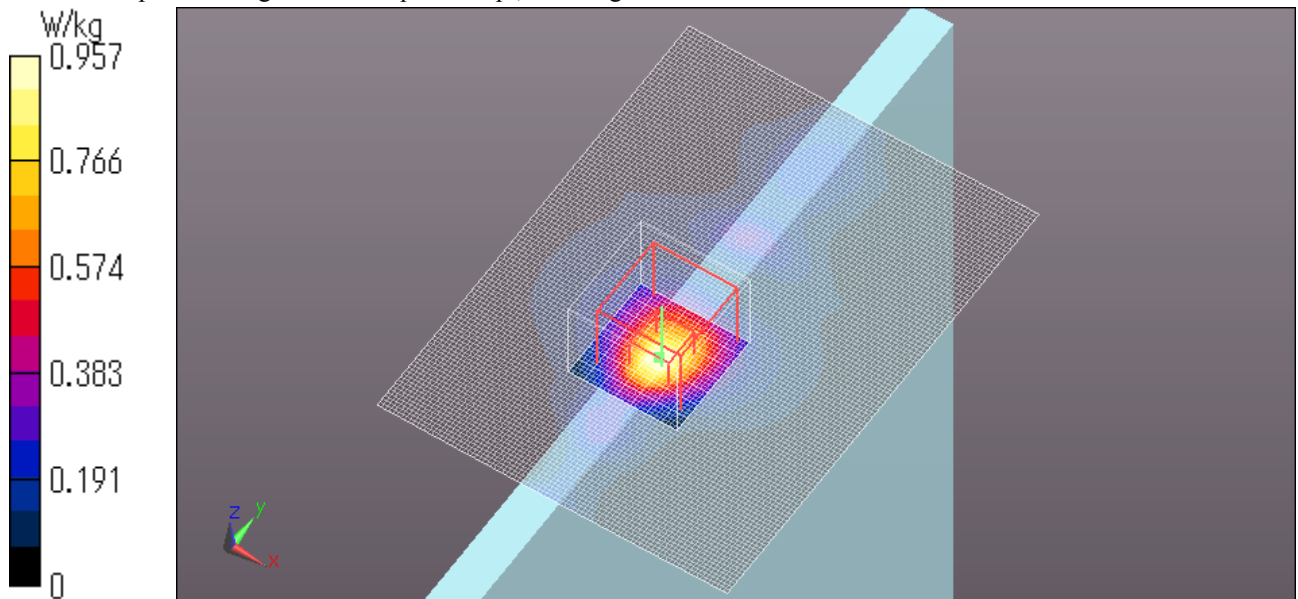
Peak SAR (extrapolated) = 2.99 W/kg

**SAR(1 g) = 0.485 W/kg; SAR(10 g) = 0.159 W/kg**

Maximum value of SAR (measured) = 0.957 W/kg

Date: 2013/06/10

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11ac20 VHT0 5720MHz Right side 0mm Ant. Aux**

Communication System: WLAN 5GHz; Communication System Band: WLAN 5GHz High; Frequency: 5720 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5720$  MHz;  $\sigma = 6.134$  mho/m;  $\epsilon_r = 48.046$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.799 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 12.328 V/m; Power Drift = -0.06 dB

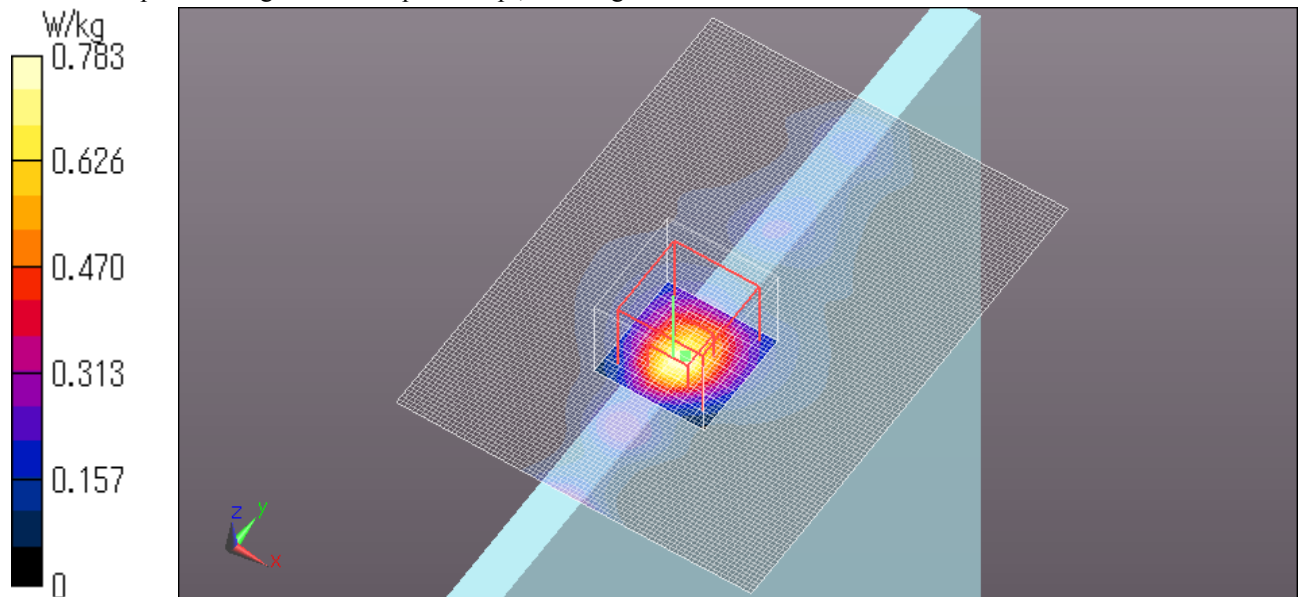
Peak SAR (extrapolated) = 1.53 W/kg

**SAR(1 g) = 0.377 W/kg; SAR(10 g) = 0.118 W/kg**

Maximum value of SAR (measured) = 0.783 W/kg

Date: 2013/06/10

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11ac40 VHT0 5710MHz Right side 0mm Ant. Aux**

Communication System: WLAN 5GHz; Communication System Band: WLAN 5GHz High; Frequency: 5710 MHz; Duty Cycle: 1:1

Medium parameters used (extrapolated):  $f = 5710$  MHz;  $\sigma = 5.795$  mho/m;  $\epsilon_r = 46.276$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.708 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 12.346 V/m; Power Drift = -0.14 dB

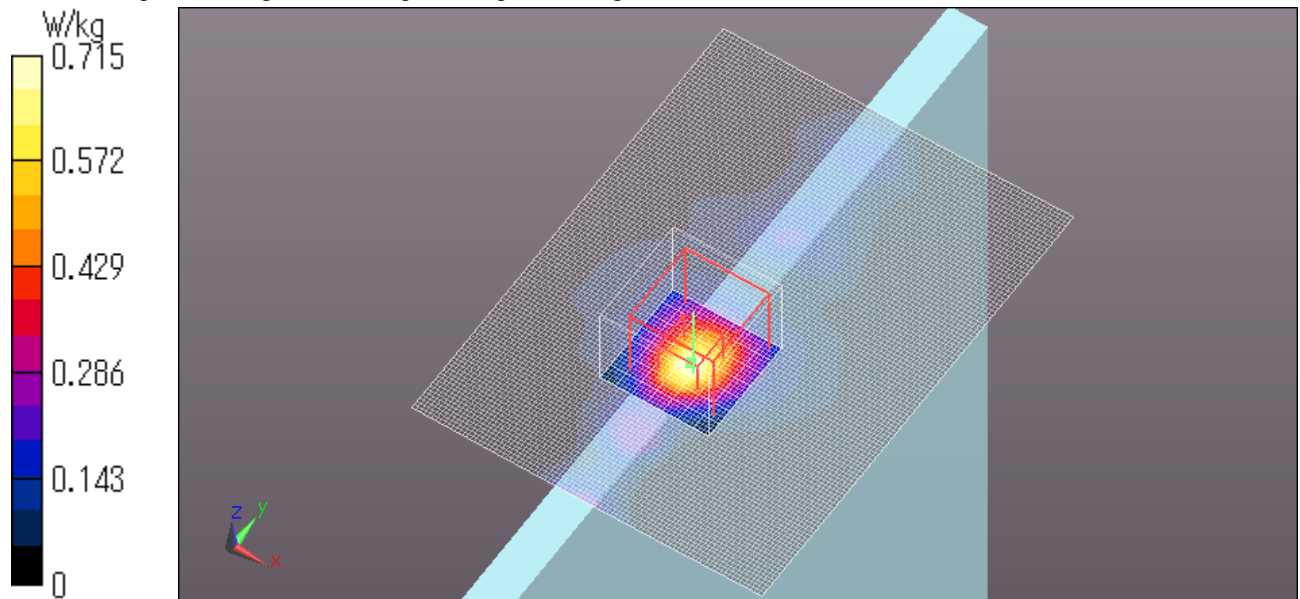
Peak SAR (extrapolated) = 1.37 W/kg

**SAR(1 g) = 0.346 W/kg; SAR(10 g) = 0.109 W/kg**

Maximum value of SAR (measured) = 0.715 W/kg

Date: 2013/06/10

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11ac80 VHT6 5610MHz Right side 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11ac; Frequency: 5610 MHz; Duty Cycle: 1:1  
Medium parameters used:  $f = 5610$  MHz;  $\sigma = 5.671$  mho/m;  $\epsilon_r = 46.336$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.85, 3.85, 3.85); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.752 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 11.107 V/m; Power Drift = -0.05 dB

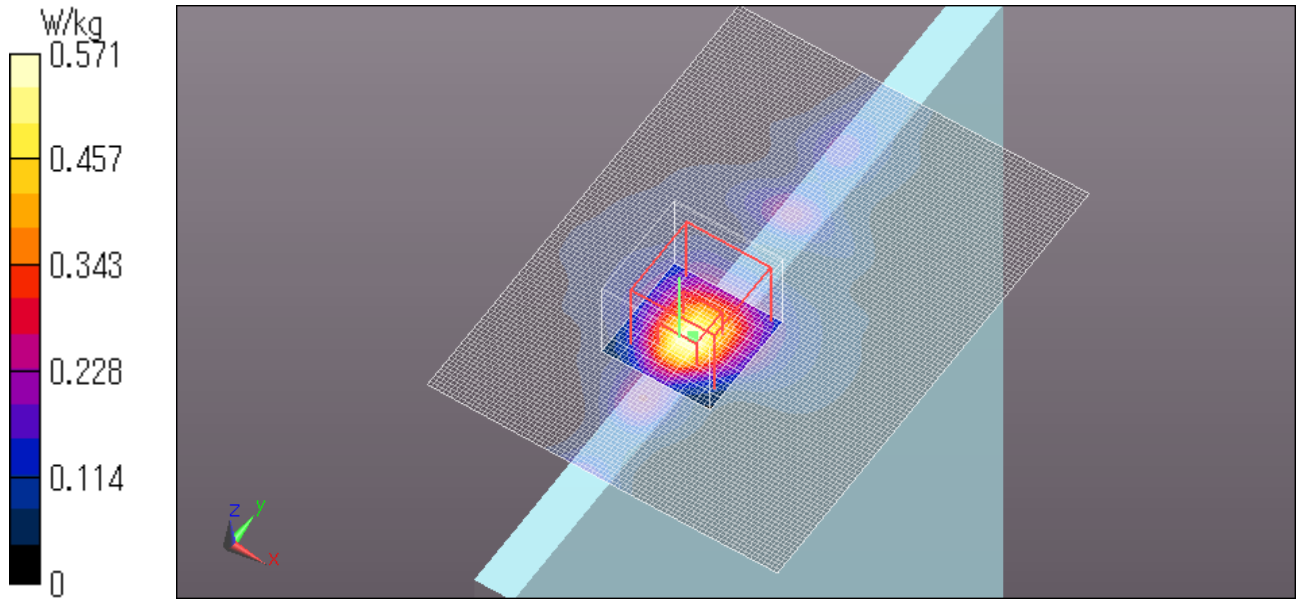
Peak SAR (extrapolated) = 2.55 W/kg

**SAR(1 g) = 0.274 W/kg; SAR(10 g) = 0.086 W/kg**

Maximum value of SAR (measured) = 0.571 W/kg

Date: 2013/06/10

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11ac80 VHT6 5690MHz Right side 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11ac80 (W56); Frequency: 5690 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5690$  MHz;  $\sigma = 5.789$  mho/m;  $\epsilon_r = 46.297$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.85, 3.85, 3.85); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.539 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 9.661 V/m; Power Drift = 0.04 dB

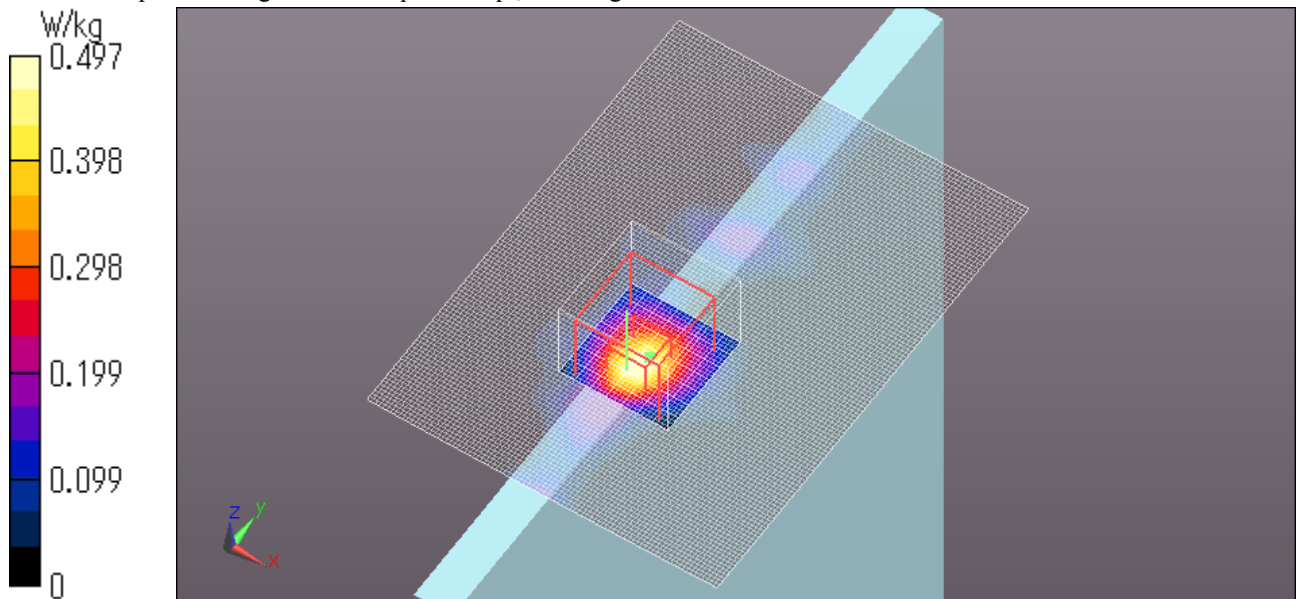
Peak SAR (extrapolated) = 2.45 W/kg

**SAR(1 g) = 0.230 W/kg; SAR(10 g) = 0.070 W/kg**

Maximum value of SAR (measured) = 0.497 W/kg

Date: 2013/06/10

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n40 HT4 5510MHz Right side 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W56); Frequency: 5510 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5510$  MHz;  $\sigma = 5.597$  mho/m;  $\epsilon_r = 46.527$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY52, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.306 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 6.561 V/m; Power Drift = -0.04 dB

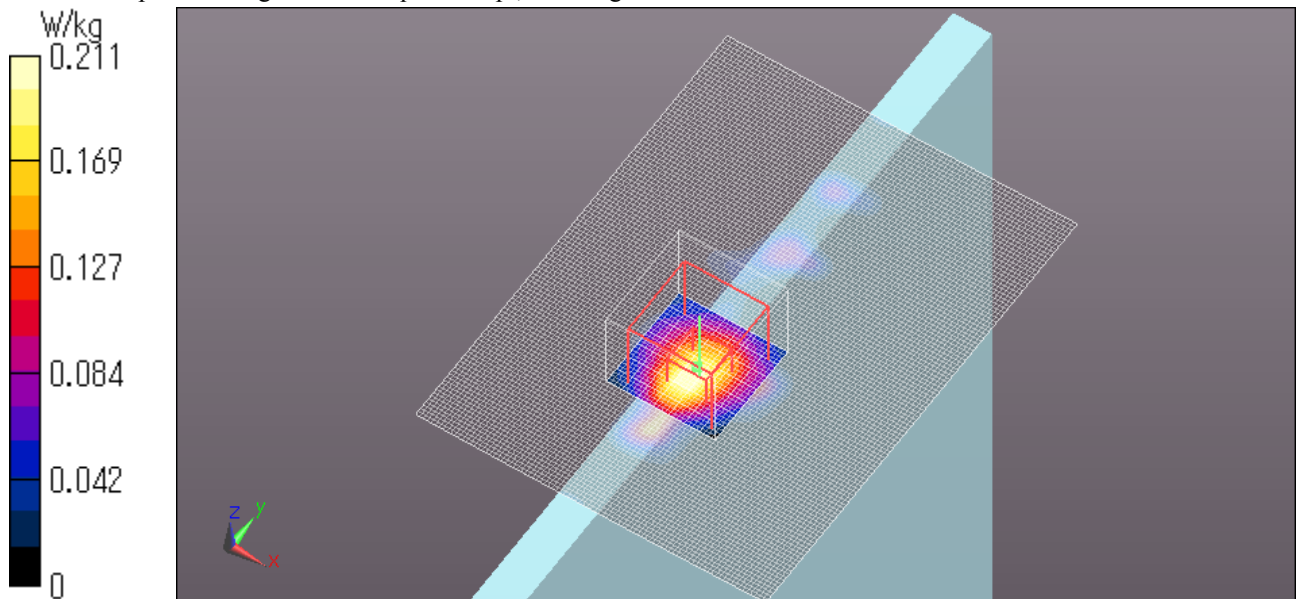
Peak SAR (extrapolated) = 0.352 W/kg

**SAR(1 g) = 0.090 W/kg; SAR(10 g) = 0.029 W/kg**

Maximum value of SAR (measured) = 0.211 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.





**WLAN 11n40 HT4 5590MHz Right side 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W56); Frequency: 5590 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5590$  MHz;  $\sigma = 5.699$  mho/m;  $\epsilon_r = 46.502$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.85, 3.85, 3.85); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.982 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 14.180 V/m; Power Drift = -0.04 dB

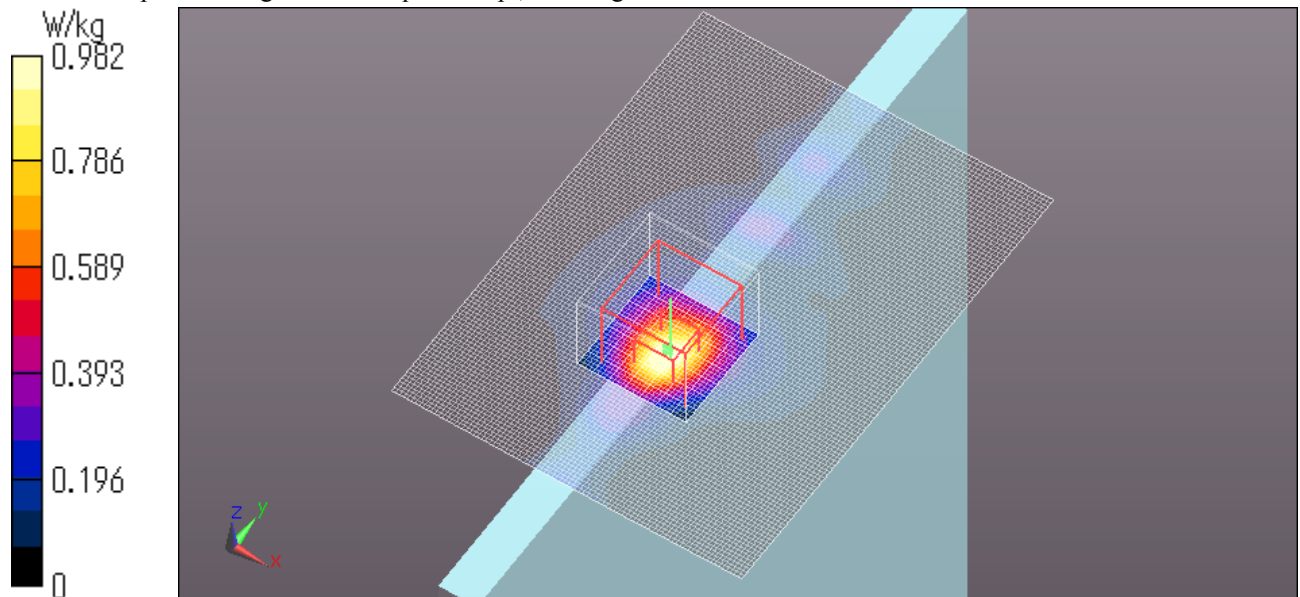
Peak SAR (extrapolated) = 2.06 W/kg

**SAR(1 g) = 0.510 W/kg; SAR(10 g) = 0.161 W/kg**

Maximum value of SAR (measured) = 1.06 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**Z Scan at Maximum Body SAR position in WLAN 5500MHz – 5700MHz Ant.Aux**

**WLAN 11n40 HT4 5590MHz Right side 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W56); Frequency: 5590 MHz;Duty Cycle: 1:1

Medium parameters used:  $f = 5590$  MHz;  $\sigma = 5.699$  mho/m;  $\epsilon_r = 46.502$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.85, 3.85, 3.85); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

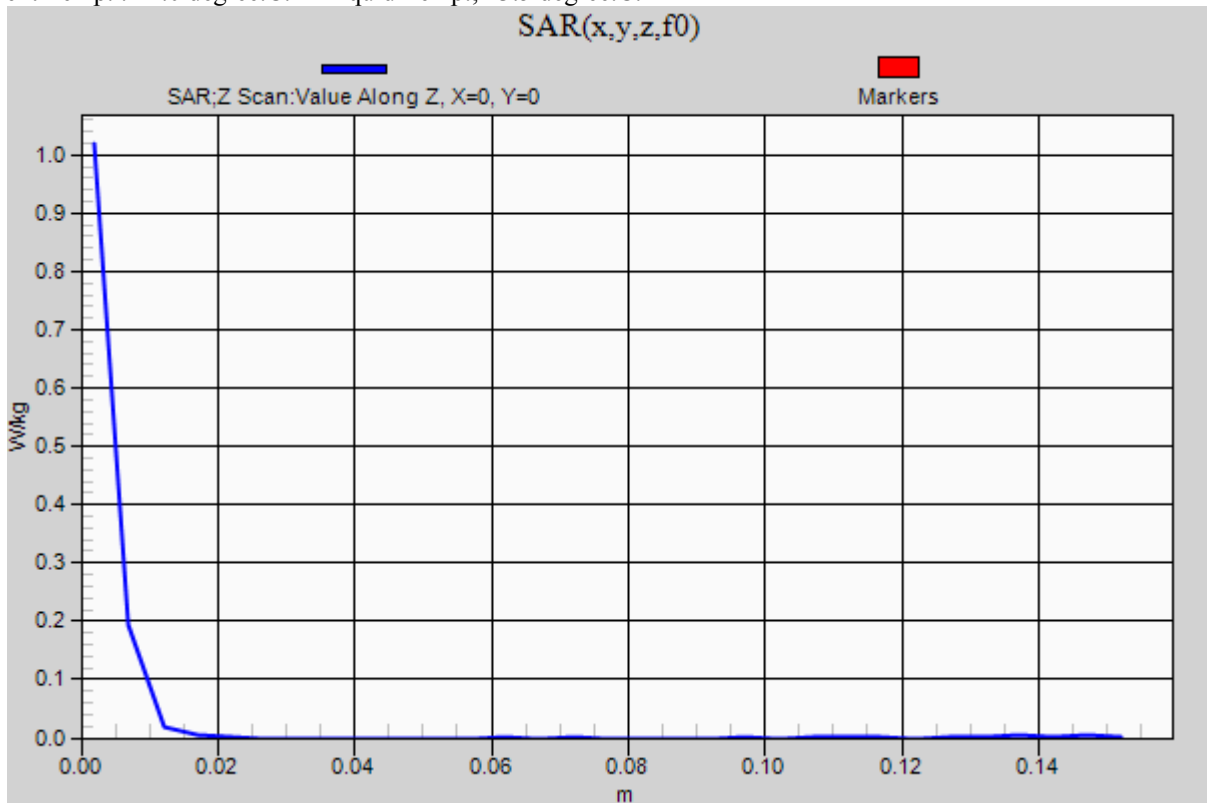
Measurement SW: DASY52, Version 52.8 (3);

**Z Scan (1x1x31):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

Maximum value of SAR (measured) = 1.02 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n40 HT4 5670MHz Right side 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W56); Frequency: 5670 MHz;Duty Cycle: 1:1

Medium parameters used:  $f = 5670$  MHz;  $\sigma = 5.824$  mho/m;  $\epsilon_r = 46.358$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.85, 3.85, 3.85); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY52, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.742 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 12.338 V/m; Power Drift = -0.11 dB

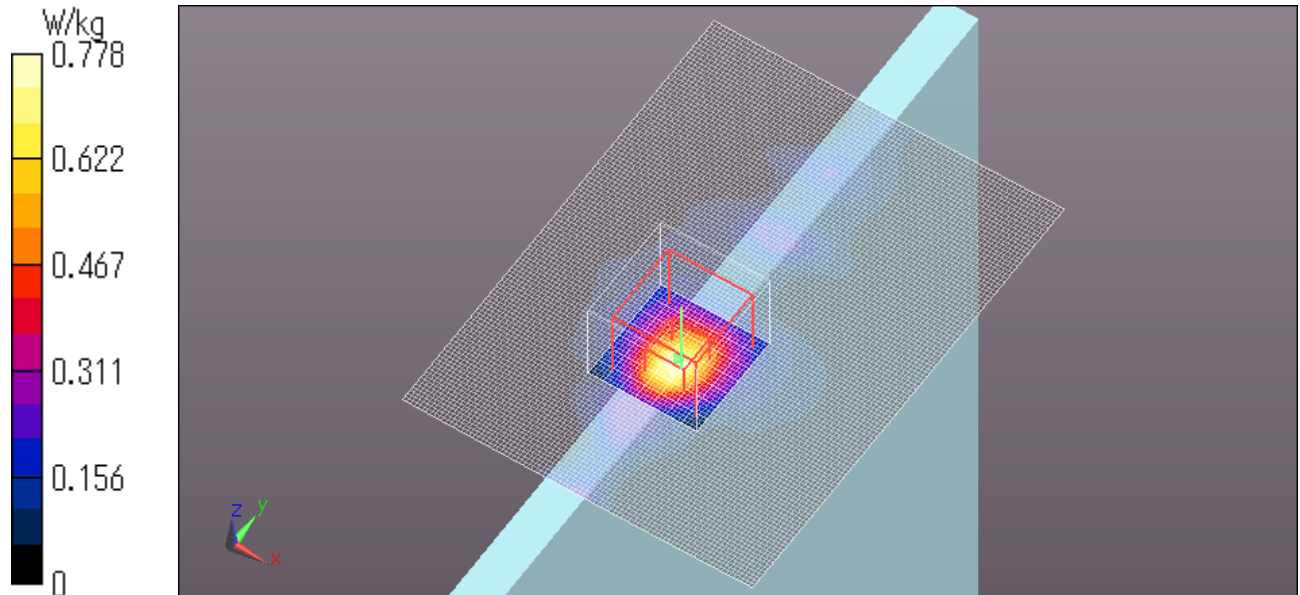
Peak SAR (extrapolated) = 1.47 W/kg

**SAR(1 g) = 0.371 W/kg; SAR(10 g) = 0.116 W/kg**

Maximum value of SAR (measured) = 0.778 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11ac80 VHT6 5530MHz Right side 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11ac80 (W56); Frequency: 5530 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5530$  MHz;  $\sigma = 5.641$  mho/m;  $\epsilon_r = 46.459$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.229 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 5.649 V/m; Power Drift = -0.12 dB

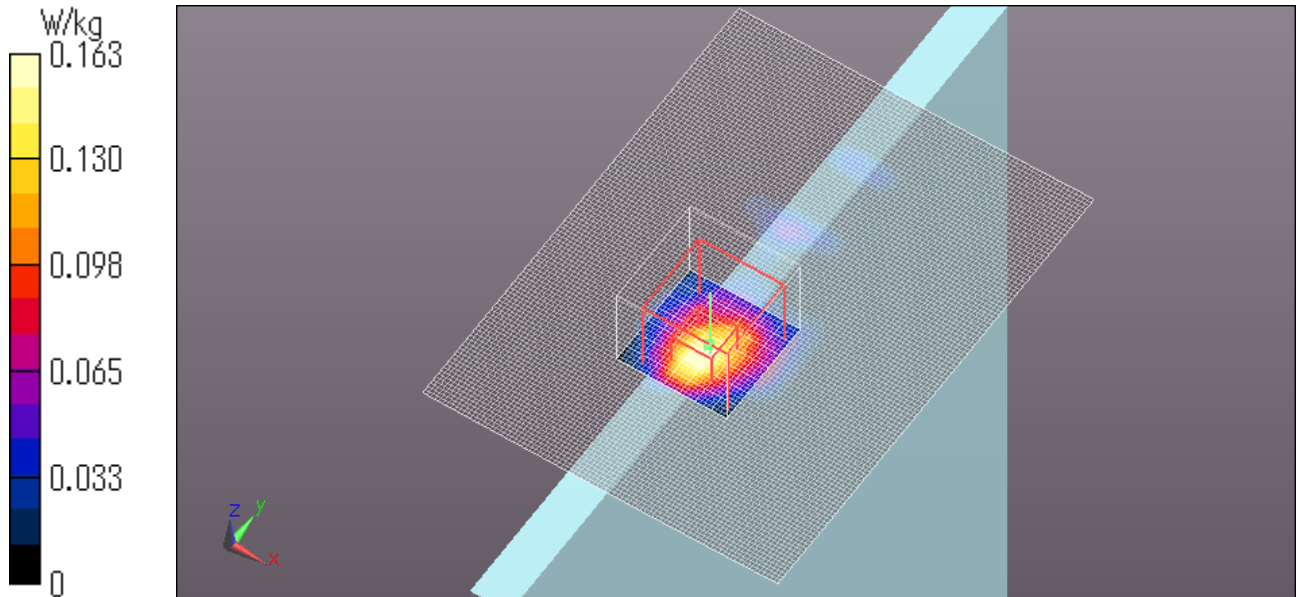
Peak SAR (extrapolated) = 0.268 W/kg

**SAR(1 g) = 0.070 W/kg; SAR(10 g) = 0.022 W/kg**

Maximum value of SAR (measured) = 0.163 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n20 HT8 5620MHz Rear side 0mm Ant. Main+Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W56); Frequency: 5620 MHz;Duty Cycle: 1:1

Medium parameters used:  $f = 5620$  MHz;  $\sigma = 5.723$  mho/m;  $\epsilon_r = 46.362$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.85, 3.85, 3.85); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY52, Version 52.8 (3);

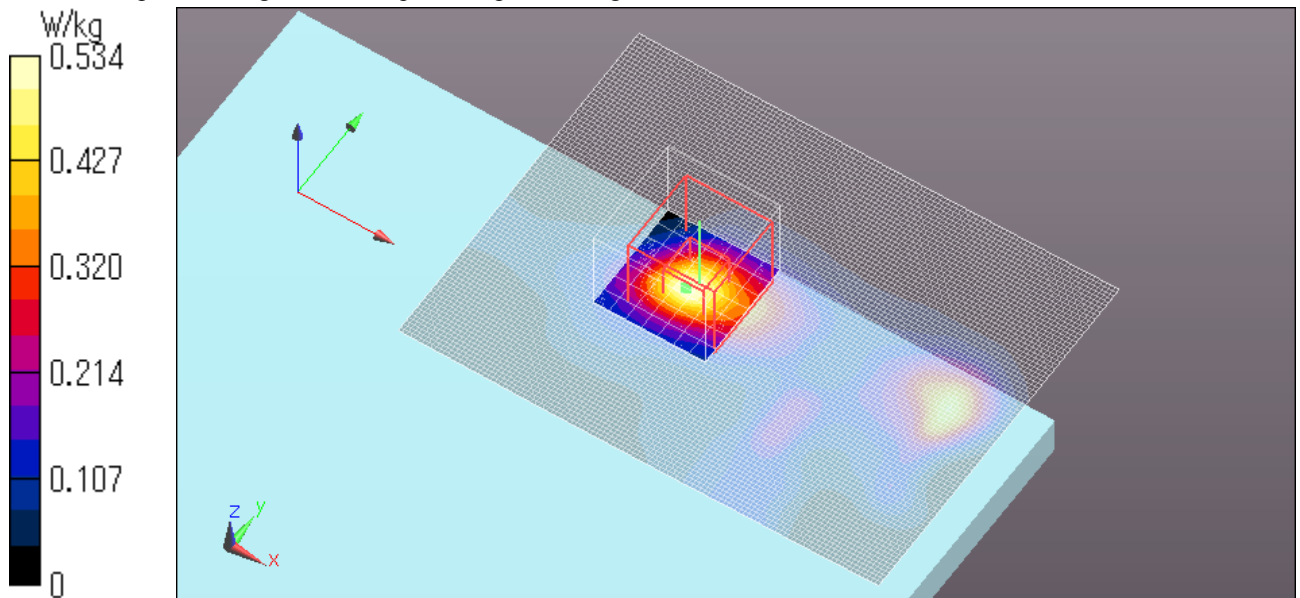
**Area Scan (121x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 0.575 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm  
Reference Value = 3.854 V/m; Power Drift = -0.13 dB  
Peak SAR (extrapolated) = 0.994 W/kg  
**SAR(1 g) = 0.261 W/kg; SAR(10 g) = 0.083 W/kg**

Maximum value of SAR (measured) = 0.534 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n20 HT8 5620MHz Right side 0mm Ant. Main+Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W56); Frequency: 5620 MHz;Duty Cycle: 1:1

Medium parameters used:  $f = 5620$  MHz;  $\sigma = 5.723$  mho/m;  $\epsilon_r = 46.362$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.85, 3.85, 3.85); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x151x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.630 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 7.178 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.86 W/kg

**SAR(1 g) = 0.278 W/kg; SAR(10 g) = 0.093 W/kg**

Maximum value of SAR (measured) = 0.590 W/kg

**Zoom Scan 2 (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 7.178 V/m; Power Drift = -0.08 dB

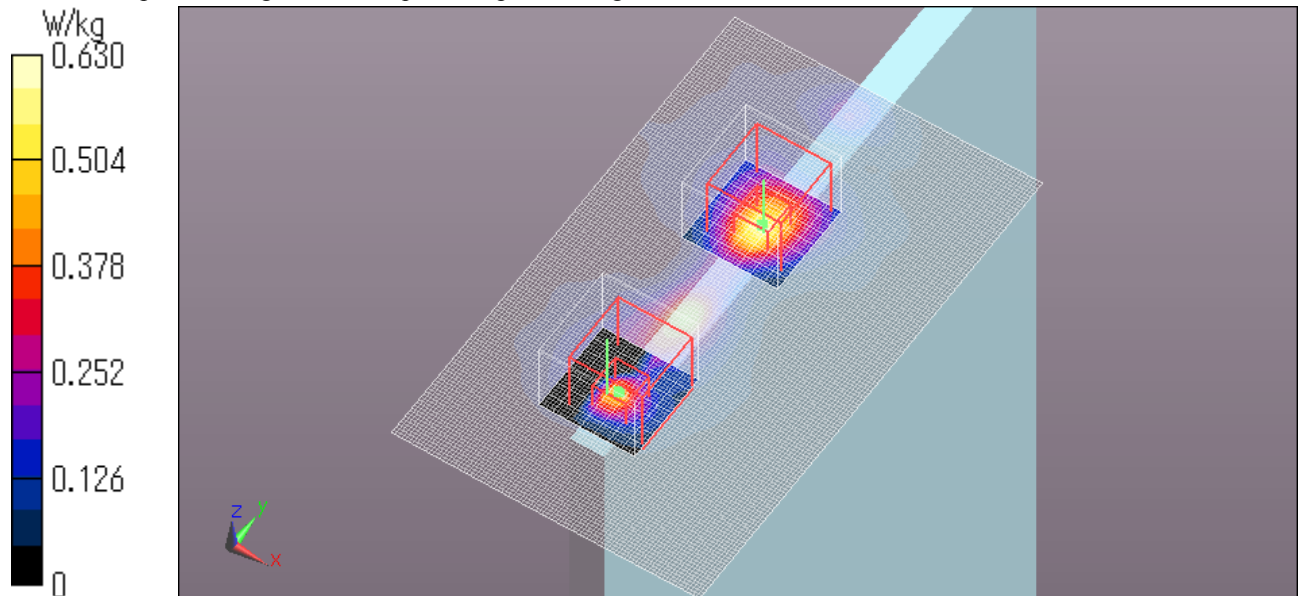
Peak SAR (extrapolated) = 1.00 W/kg

**SAR(1 g) = 0.203 W/kg; SAR(10 g) = 0.039 W/kg**

Maximum value of SAR (measured) = 0.473 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n40 HT8 5550MHz Right side 0mm Ant. Main+Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W56); Frequency: 5550 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5550$  MHz;  $\sigma = 5.68$  mho/m;  $\epsilon_r = 46.489$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY52, Version 52.8 (3);

**Area Scan (91x151x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.475 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 9.354 V/m; Power Drift = 0.17 dB

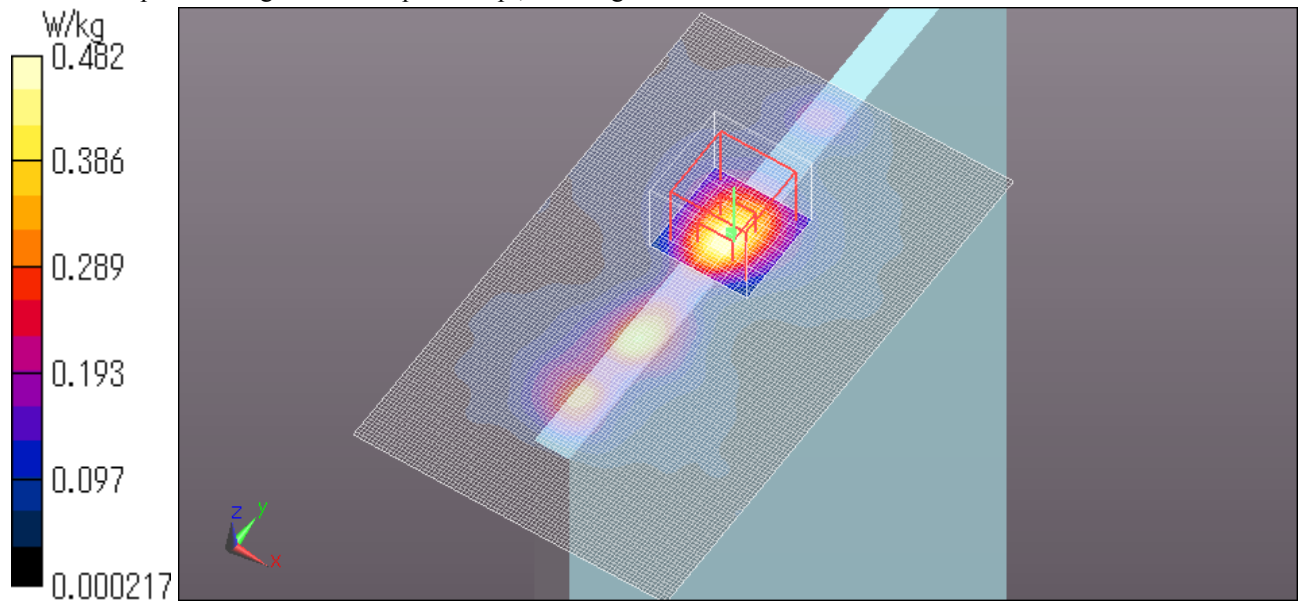
Peak SAR (extrapolated) = 0.983 W/kg

**SAR(1 g) = 0.249 W/kg; SAR(10 g) = 0.087 W/kg**

Maximum value of SAR (measured) = 0.482 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11ac20 VHT0 5720MHz Right side 0mm Ant. Main+Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11ac20 40 (W56); Frequency: 5720 MHz;Duty Cycle: 1:1

Medium parameters used:  $f = 5720$  MHz;  $\sigma = 5.998$  mho/m;  $\epsilon_r = 48.158$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x151x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.577 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 9.868 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 1.14 W/kg

**SAR(1 g) = 0.270 W/kg; SAR(10 g) = 0.086 W/kg**

Maximum value of SAR (measured) = 0.606 W/kg

**Zoom Scan(8x8x6)/Cube 1:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 9.868 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 1.05 W/kg

**SAR(1 g) = 0.255 W/kg; SAR(10 g) = 0.084 W/kg**

Maximum value of SAR (measured) = 0.513 W/kg

**Zoom Scan(8x8x6)/Cube 2:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 9.868 V/m; Power Drift = -0.12 dB

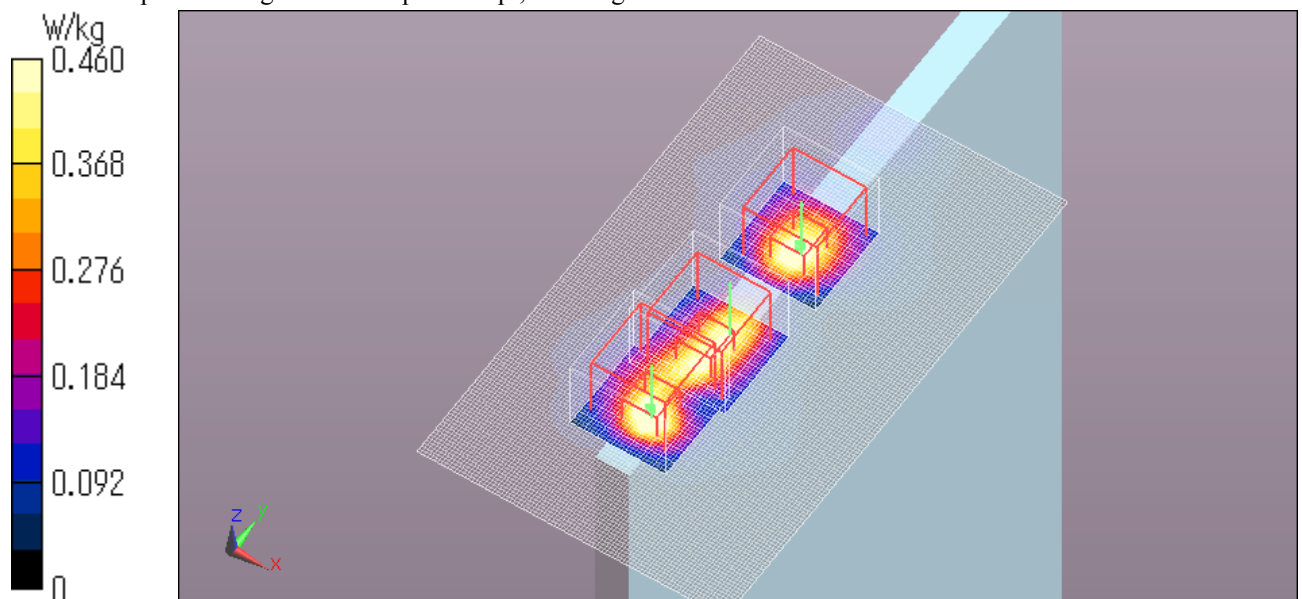
Peak SAR (extrapolated) = 0.900 W/kg

**SAR(1 g) = 0.230 W/kg; SAR(10 g) = 0.084 W/kg**

Maximum value of SAR (measured) = 0.460 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.





**WLAN 11ac40 VHT0 5710MHz Right side 0mm Ant. Main+Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11ac20 40 (W56); Frequency: 5710 MHz;Duty Cycle: 1:1

Medium parameters used:  $f = 5710$  MHz;  $\sigma = 5.987$  mho/m;  $\epsilon_r = 48.171$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x151x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.439 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 10.279 V/m; Power Drift = -0.05 dB

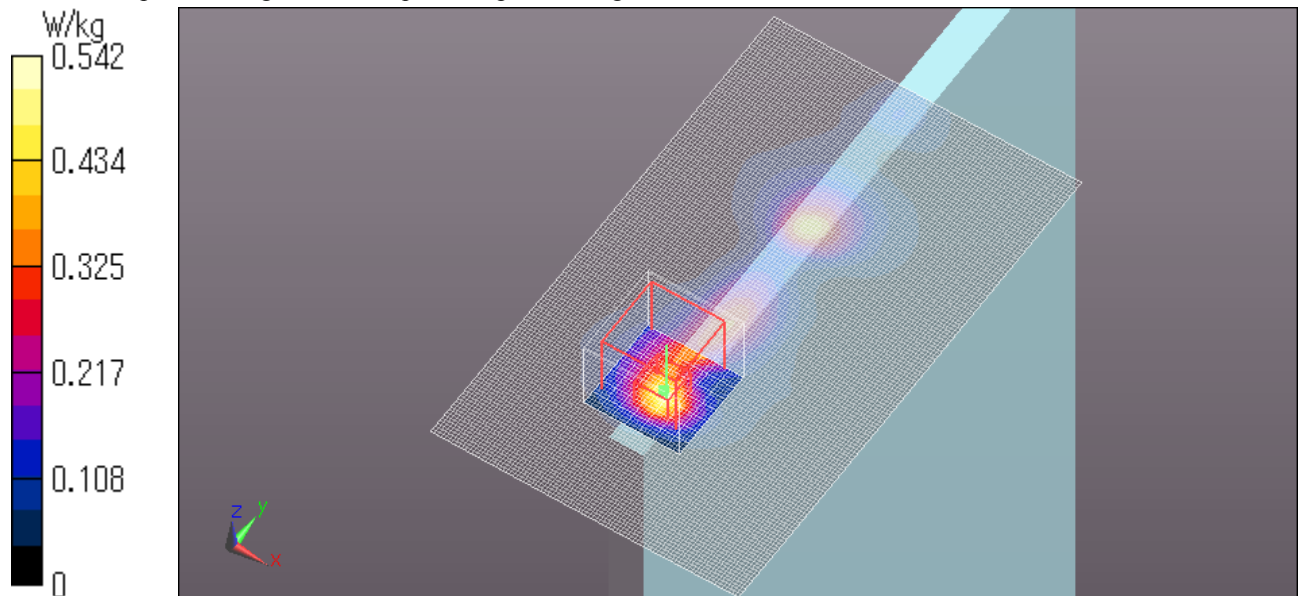
Peak SAR (extrapolated) = 0.921 W/kg

**SAR(1 g) = 0.229 W/kg; SAR(10 g) = 0.070 W/kg**

Maximum value of SAR (measured) = 0.542 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11ac80 VHT6 5610MHz Right side 0mm Ant. Main+Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11ac80 (W56); Frequency: 5610 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5610$  MHz;  $\sigma = 5.71$  mho/m;  $\epsilon_r = 46.415$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.85, 3.85, 3.85); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x151x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.351 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 7.790 V/m; Power Drift = -0.19 dB

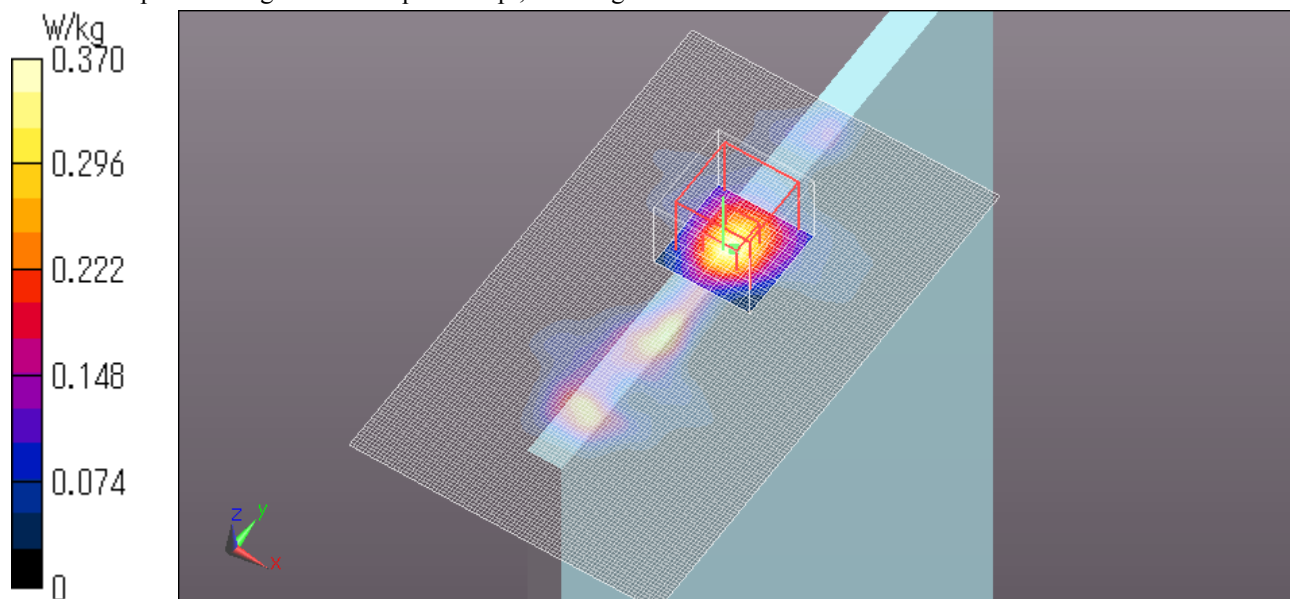
Peak SAR (extrapolated) = 0.704 W/kg

**SAR(1 g) = 0.176 W/kg; SAR(10 g) = 0.057 W/kg**

Maximum value of SAR (measured) = 0.370 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11ac80 VHT6 5690MHz Right side 0mm Ant. Main+Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11ac80 (W56); Frequency: 5690 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5690$  MHz;  $\sigma = 5.832$  mho/m;  $\epsilon_r = 46.377$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.85, 3.85, 3.85); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x151x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.409 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 9.716 V/m; Power Drift = -0.11 dB

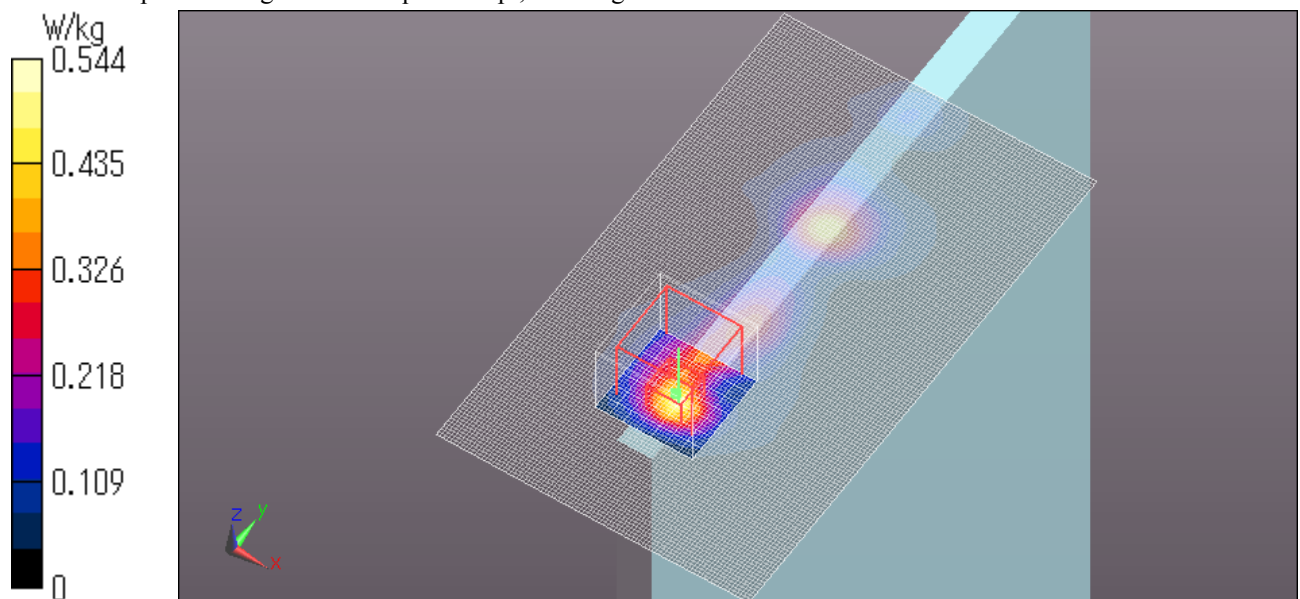
Peak SAR (extrapolated) = 0.973 W/kg

**SAR(1 g) = 0.229 W/kg; SAR(10 g) = 0.068 W/kg**

Maximum value of SAR (measured) = 0.544 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n20 HT8 5540MHz Right side 0mm Ant. Main+Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W56); Frequency: 5540 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5540$  MHz;  $\sigma = 5.663$  mho/m;  $\epsilon_r = 46.466$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x151x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.681 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 10.741 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.17 W/kg

**SAR(1 g) = 0.309 W/kg; SAR(10 g) = 0.106 W/kg**

Maximum value of SAR (measured) = 0.636 W/kg

**Zoom Scan (8x8x6)/Cube 1:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 10.741 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.967 W/kg

**SAR(1 g) = 0.251 W/kg; SAR(10 g) = 0.079 W/kg**

Maximum value of SAR (measured) = 0.513 W/kg

**Zoom Scan (8x8x6)/Cube 2:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 10.741 V/m; Power Drift = -0.14 dB

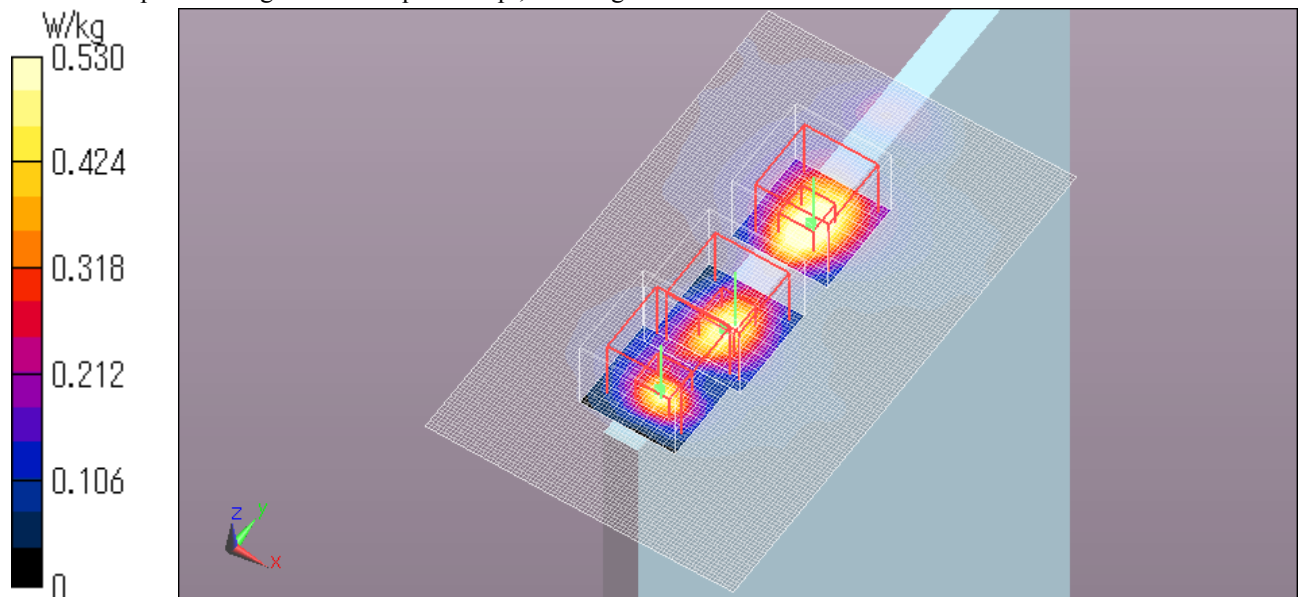
Peak SAR (extrapolated) = 0.929 W/kg

**SAR(1 g) = 0.221 W/kg; SAR(10 g) = 0.061 W/kg**

Maximum value of SAR (measured) = 0.530 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n20 HT8 5600MHz Right side 0mm Ant. Main+Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W56); Frequency: 5600 MHz;Duty Cycle: 1:1

Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.703$  mho/m;  $\epsilon_r = 46.462$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.85, 3.85, 3.85); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x151x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.636 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 10.130 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.16 W/kg

**SAR(1 g) = 0.287 W/kg; SAR(10 g) = 0.093 W/kg**

Maximum value of SAR (measured) = 0.596 W/kg

**Zoom Scan (8x8x6)/Cube 1:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 10.130 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.72 W/kg

**SAR(1 g) = 0.233 W/kg; SAR(10 g) = 0.066 W/kg**

Maximum value of SAR (measured) = 0.576 W/kg

**Zoom Scan (8x8x6)/Cube 2:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 10.130 V/m; Power Drift = 0.01 dB

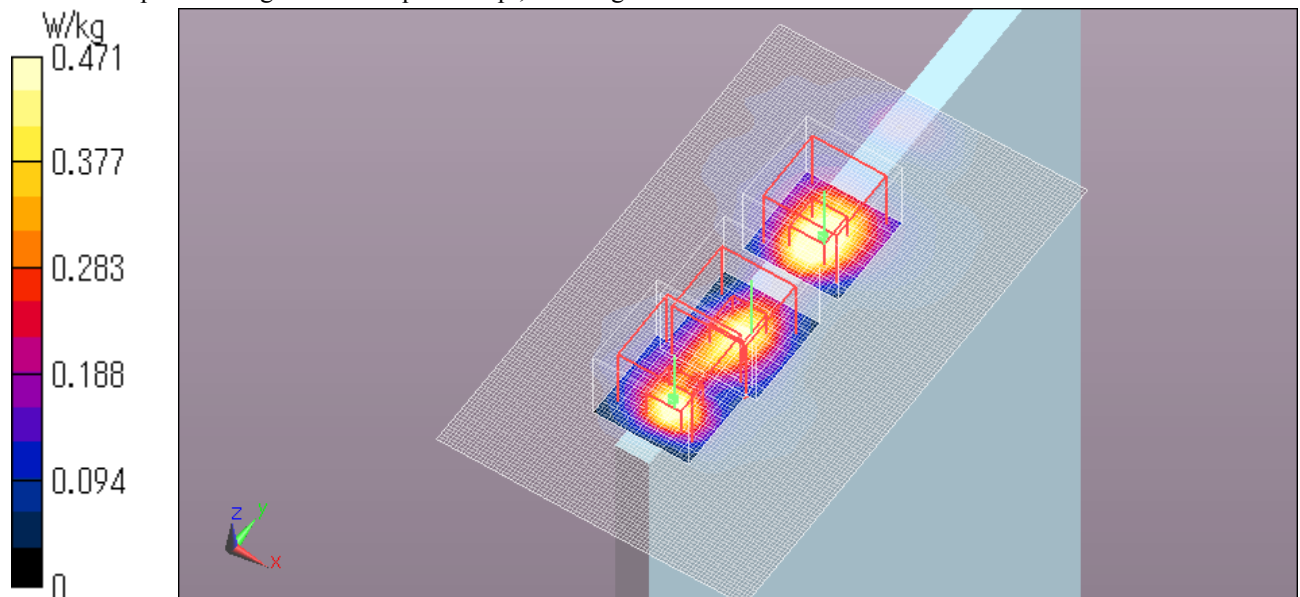
Peak SAR (extrapolated) = 1.35 W/kg

**SAR(1 g) = 0.217 W/kg; SAR(10 g) = 0.068 W/kg**

Maximum value of SAR (measured) = 0.471 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n20 HT8 5660MHz Right side 0mm Ant. Main+Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W56); Frequency: 5660 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5660$  MHz;  $\sigma = 5.814$  mho/m;  $\epsilon_r = 46.334$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.85, 3.85, 3.85); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x151x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.743 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 11.861 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.26 W/kg

**SAR(1 g) = 0.304 W/kg; SAR(10 g) = 0.091 W/kg**

Maximum value of SAR (measured) = 0.681 W/kg

**Zoom Scan (8x8x6)/Cube 1:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 11.861 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.22 W/kg

**SAR(1 g) = 0.308 W/kg; SAR(10 g) = 0.099 W/kg**

Maximum value of SAR (measured) = 0.657 W/kg

**Zoom Scan (8x8x6)/Cube 2:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 11.861 V/m; Power Drift = -0.14 dB

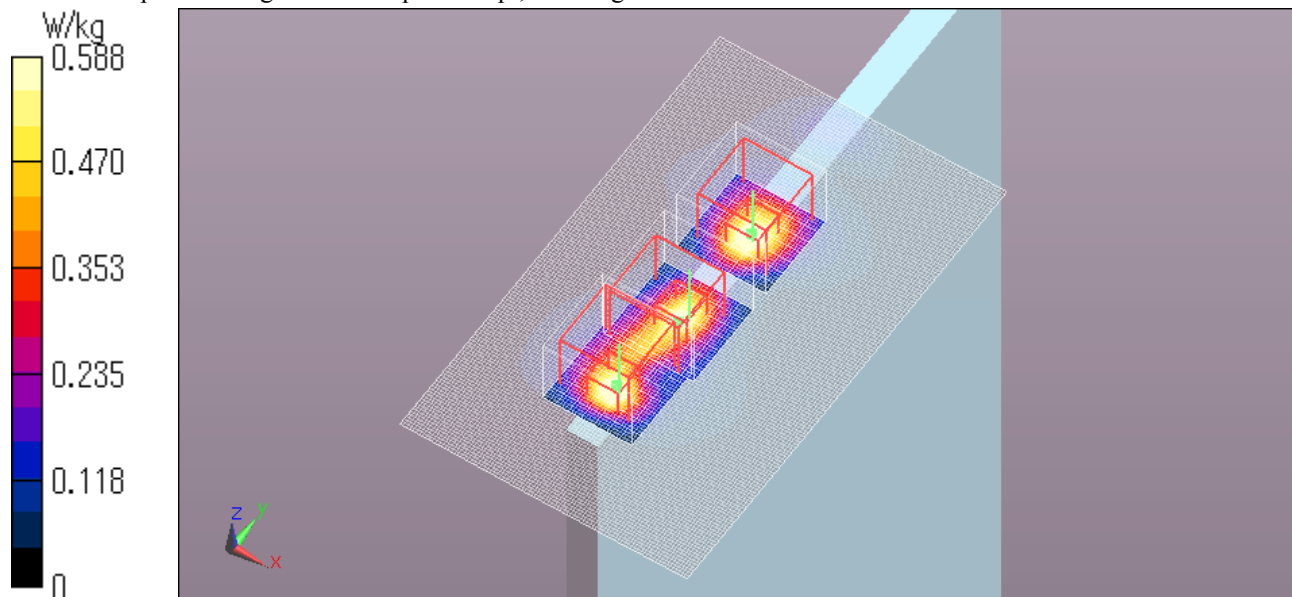
Peak SAR (extrapolated) = 1.13 W/kg

**SAR(1 g) = 0.277 W/kg; SAR(10 g) = 0.091 W/kg**

Maximum value of SAR (measured) = 0.588 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



iv) WLAN 5745MHz-5825MHz

[5.8GHz band]

**WLAN 11a 6Mbps 5785MHz Right side 0mm Ant. Main**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n; Frequency: 5785 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 5785$  MHz;  $\sigma = 6.227$  mho/m;  $\epsilon_r = 47.902$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY52, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.805 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.319 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.47 W/kg

**SAR(1 g) = 0.381 W/kg; SAR(10 g) = 0.117 W/kg**

Maximum value of SAR (measured) = 0.848 W/kg

**Zoom Scan 2 (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 3.319 V/m; Power Drift = 0.08dB

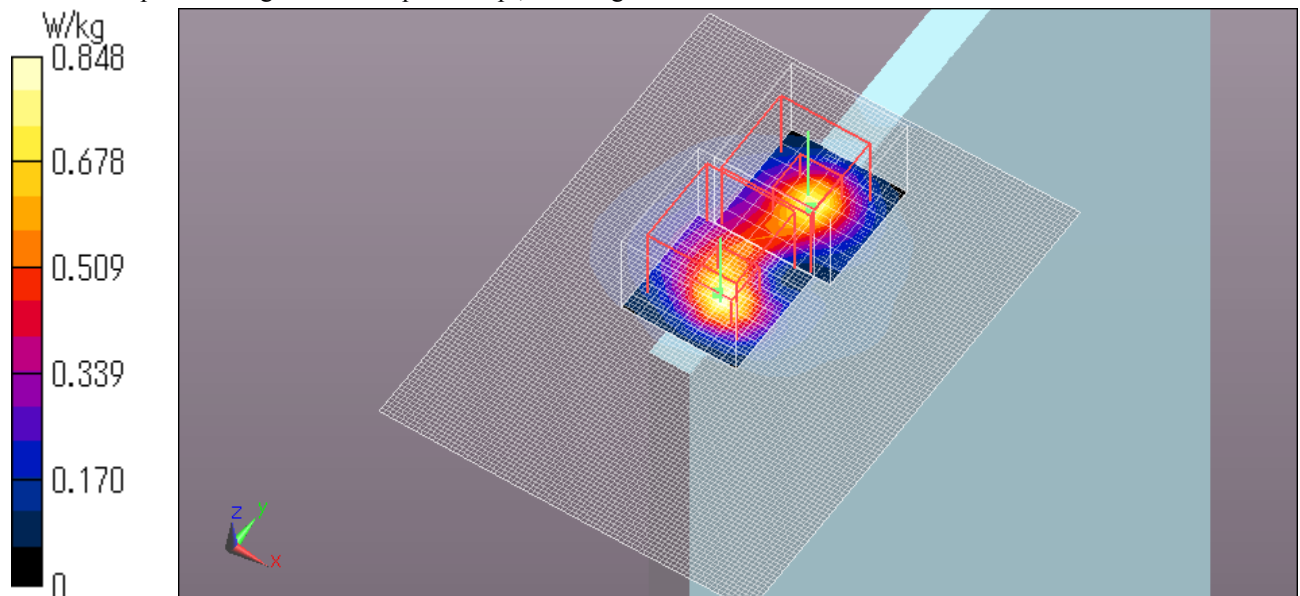
Peak SAR (extrapolated) = 1.48 W/kg

**SAR(1 g) = 0.374 W/kg; SAR(10 g) = 0.115 W/kg**

Maximum value of SAR (measured) = 0.753 W/kg

Date: 2013/06/12

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11a 6Mbps 5785MHz Bottom side 0mm Ant. Main**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n; Frequency: 5785 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 5785 \text{ MHz}$ ;  $\sigma = 6.227 \text{ mho/m}$ ;  $\epsilon_r = 47.902$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$   
Maximum value of SAR (interpolated) = 0.286 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  $dz=2\text{mm}$

Reference Value = 4.431 V/m; Power Drift = -0.18 dB

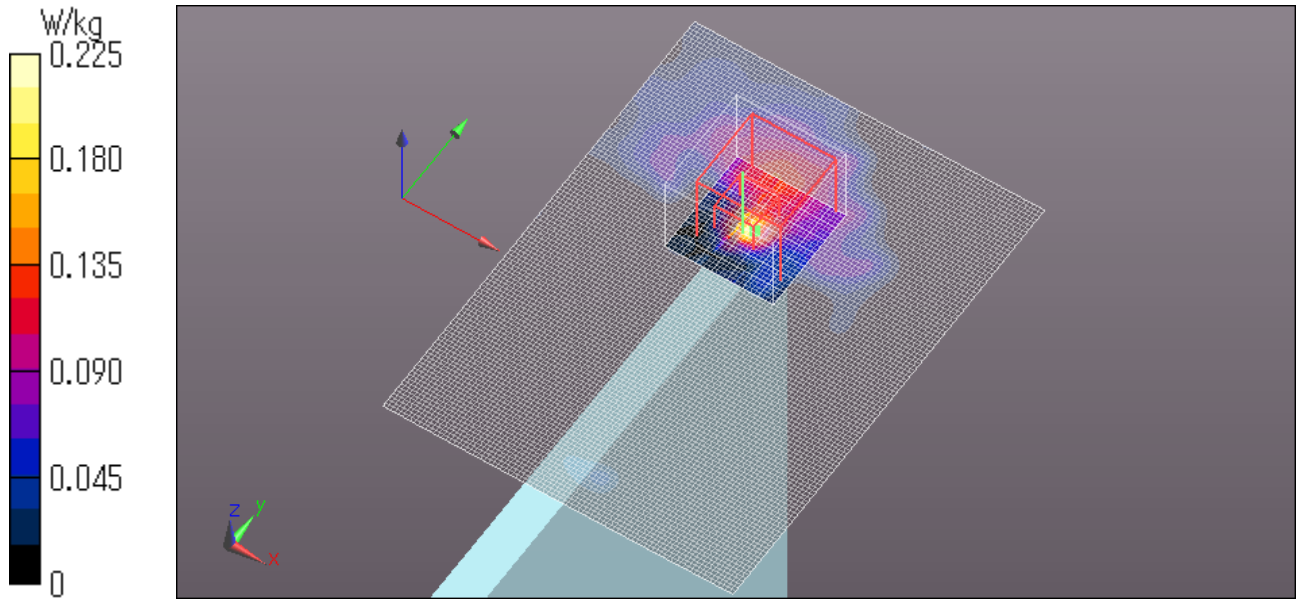
Peak SAR (extrapolated) = 0.379 W/kg

**SAR(1 g) = 0.068 W/kg; SAR(10 g) = 0.019 W/kg**

Maximum value of SAR (measured) = 0.225 W/kg

Date: 2013/06/12

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.





**WLAN 11a 6Mbps 5785MHz Rear 0mm Ant. Main**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n; Frequency: 5785 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 5785 \text{ MHz}$ ;  $\sigma = 6.227 \text{ mho/m}$ ;  $\epsilon_r = 47.902$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid:  $dx=1.000 \text{ mm}$ ,  $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 1.26 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid:  $dx=4\text{mm}$ ,  $dy=4\text{mm}$ ,  $dz=2\text{mm}$

Reference Value = 0.957 V/m; Power Drift = 0.09 dB

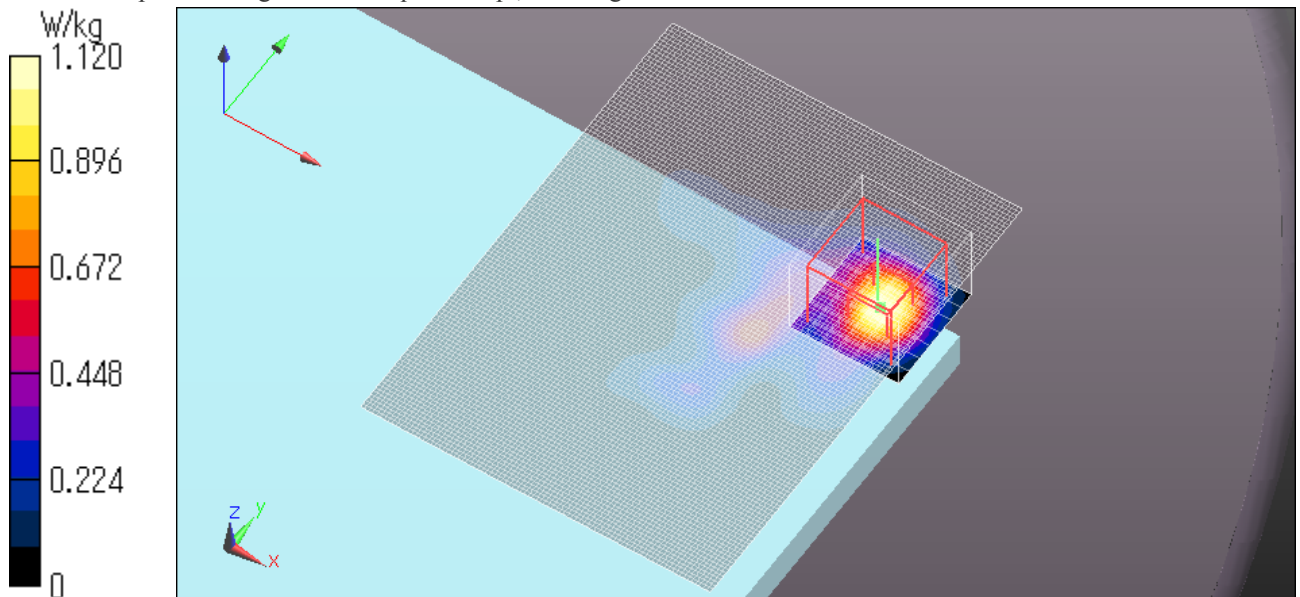
Peak SAR (extrapolated) = 2.20 W/kg

**SAR(1 g) = 0.576 W/kg; SAR(10 g) = 0.178 W/kg**

Maximum value of SAR (measured) = 1.12 W/kg

Date: 2013/06/12

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n20 HT4 5785MHz Rear 0mm Ant. Main**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W58); Frequency: 5785 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 5785$  MHz;  $\sigma = 6.244$  mho/m;  $\epsilon_r = 47.895$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (121x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.38 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 15.183 V/m; Power Drift = -0.03 dB

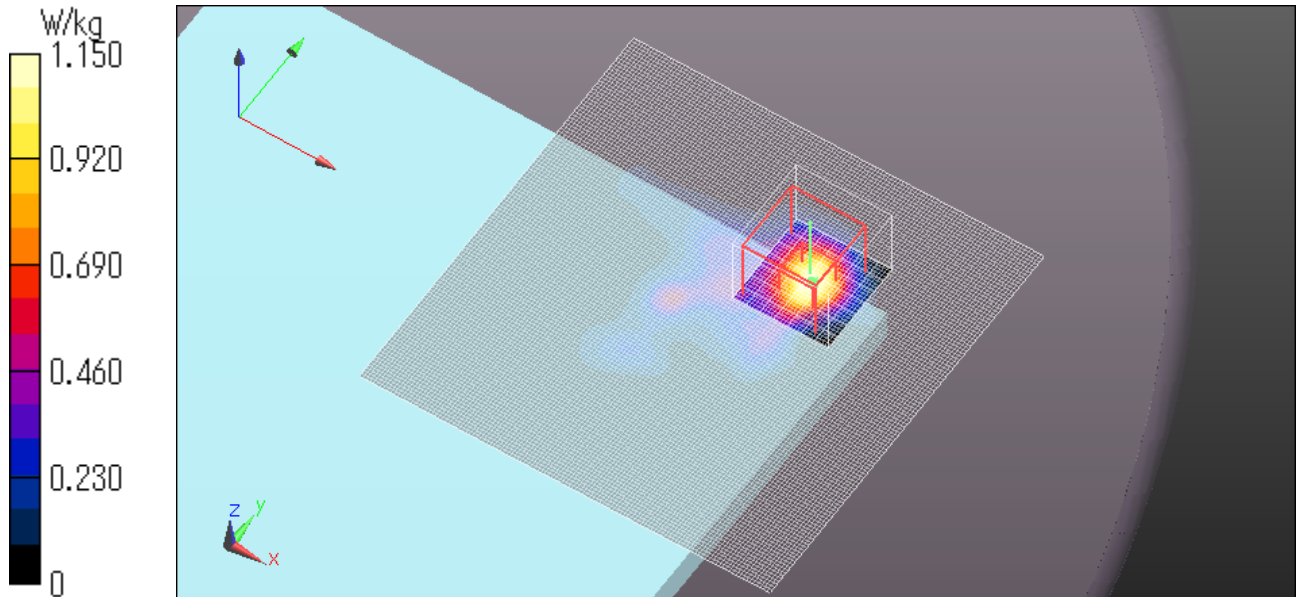
Peak SAR (extrapolated) = 2.75 W/kg

**SAR(1 g) = 0.589 W/kg; SAR(10 g) = 0.182 W/kg**

Maximum value of SAR (measured) = 1.15 W/kg

Date: 2013/06/12

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n40 HT4 5755MHz Rear 0mm Ant. Main**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W58); Frequency: 5755 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 5755$  MHz;  $\sigma = 6.2$  mho/m;  $\epsilon_r = 47.945$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (121x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.07 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 13.912 V/m; Power Drift = -0.04 dB

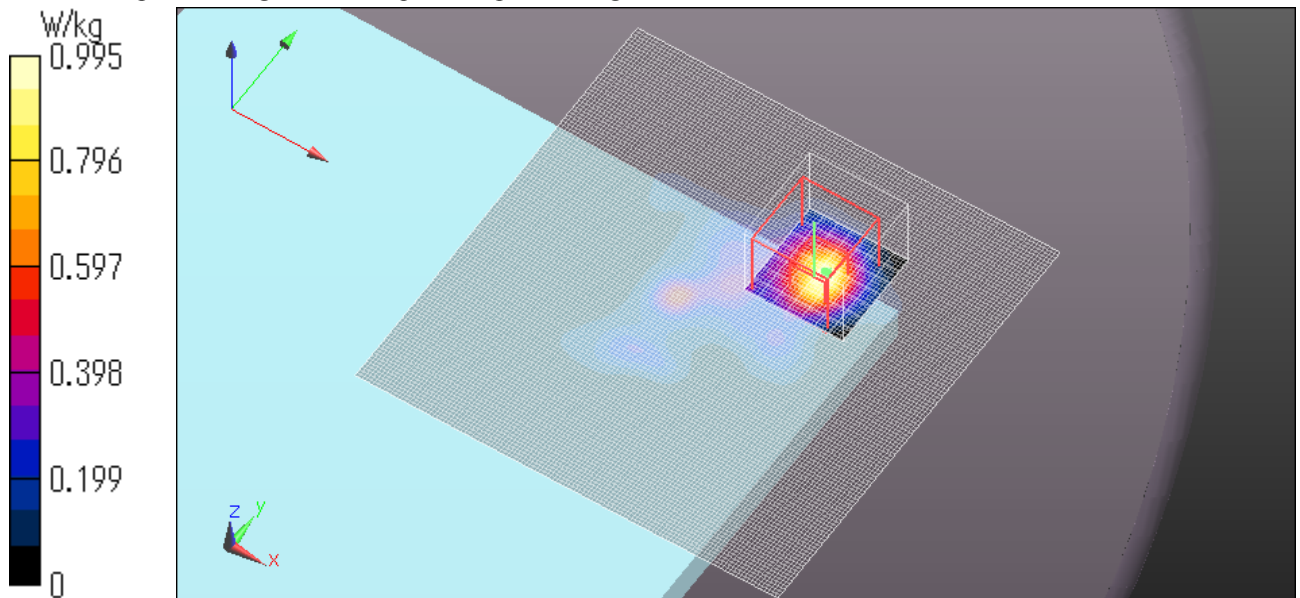
Peak SAR (extrapolated) = 1.81 W/kg

**SAR(1 g) = 0.493 W/kg; SAR(10 g) = 0.145 W/kg**

Maximum value of SAR (measured) = 0.995 W/kg

Date: 2013/06/13

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11ac80 VHT6 5775MHz Rear 0mm Ant. Main**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11ac80(W58); Frequency: 5775 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 5775$  MHz;  $\sigma = 6.229$  mho/m;  $\epsilon_r = 47.911$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY52, Version 52.8 (3);

**Area Scan (121x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.571 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 9.788 V/m; Power Drift = 0.02 dB

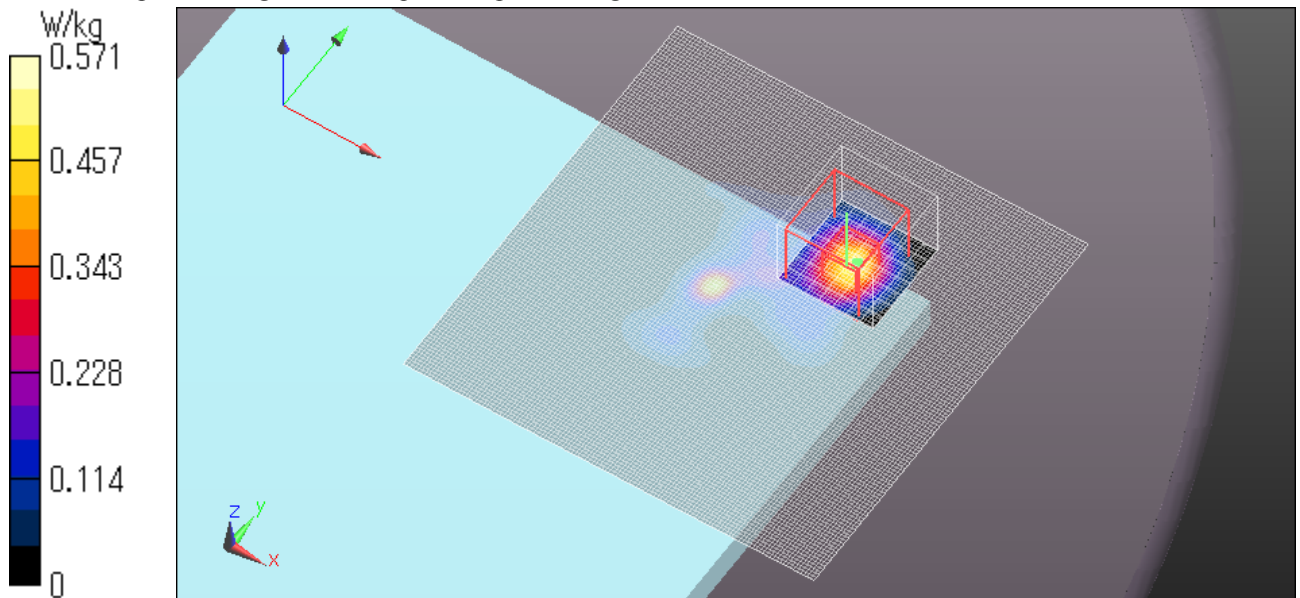
Peak SAR (extrapolated) = 0.873 W/kg

**SAR(1 g) = 0.235 W/kg; SAR(10 g) = 0.069 W/kg**

Maximum value of SAR (measured) = 0.505 W/kg

Date: 2013/06/13

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n20 HT4 5765MHz Rear 0mm Ant. Main**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W58); Frequency: 5765 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 5765$  MHz;  $\sigma = 6.214$  mho/m;  $\epsilon_r = 47.928$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY52, Version 52.8 (3);

**Area Scan (121x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.03 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 13.921 V/m; Power Drift = -0.05 dB

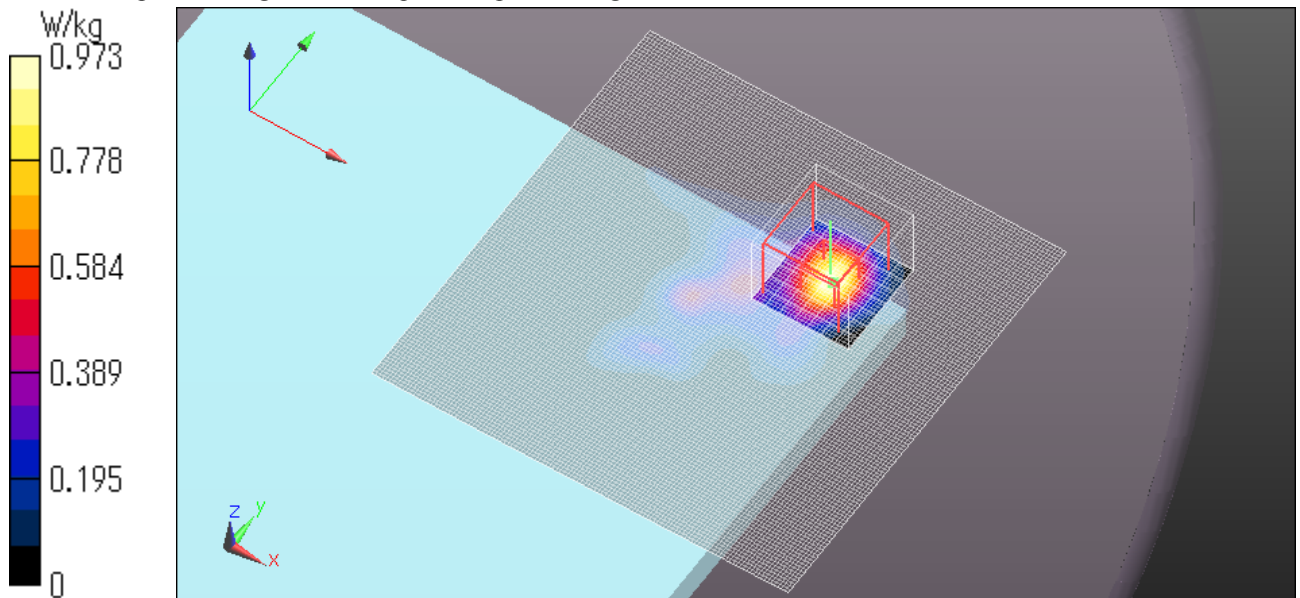
Peak SAR (extrapolated) = 1.77 W/kg

**SAR(1 g) = 0.482 W/kg; SAR(10 g) = 0.144 W/kg**

Maximum value of SAR (measured) = 0.973 W/kg

Date: 2013/06/13

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n20 HT4 5805MHz Rear 0mm Ant. Main**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W58); Frequency: 5805 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 5805$  MHz;  $\sigma = 6.274$  mho/m;  $\epsilon_r = 47.867$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (121x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 1.14 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm  
Reference Value = 14.374 V/m; Power Drift = 0.02 dB  
Peak SAR (extrapolated) = 1.99 W/kg  
**SAR(1 g) = 0.538 W/kg; SAR(10 g) = 0.167 W/kg**

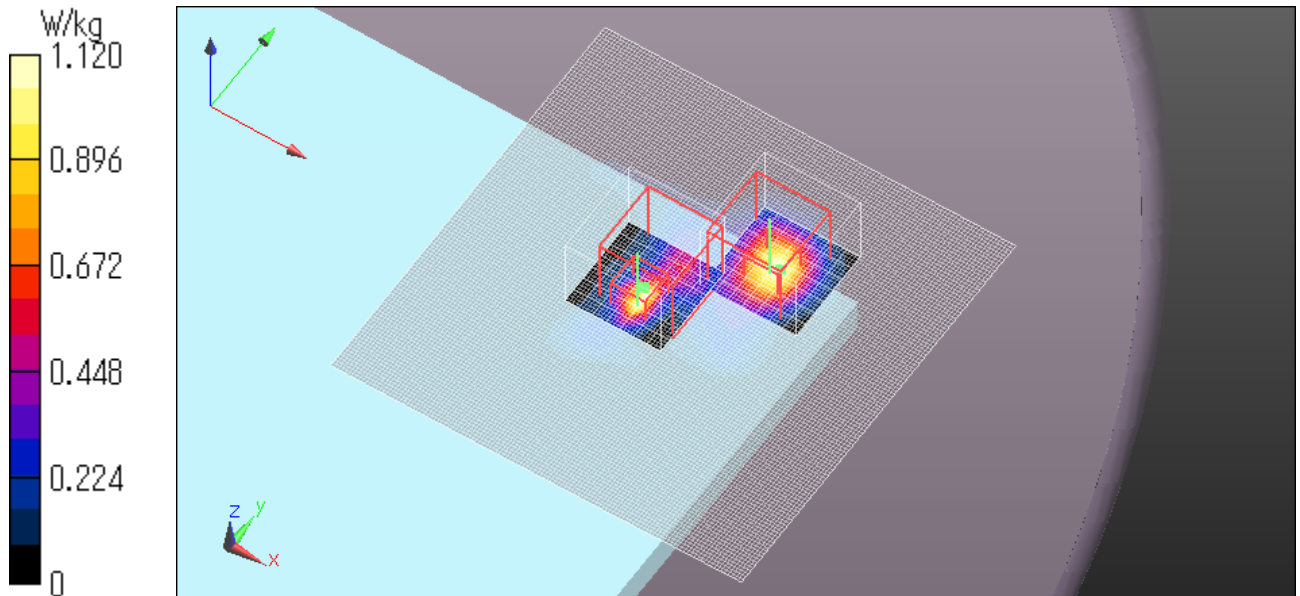
Maximum value of SAR (measured) = 1.08 W/kg

**Zoom Scan 2 (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm  
Reference Value = 14.374 V/m; Power Drift = -0.02 dB  
Peak SAR (extrapolated) = 2.60 W/kg  
**SAR(1 g) = 0.387 W/kg; SAR(10 g) = 0.098 W/kg**

Maximum value of SAR (measured) = 1.12 W/kg

Date: 2013/06/13

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11a 6Mbps 5785MHz Right side 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n; Frequency: 5785 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 5785$  MHz;  $\sigma = 6.227$  mho/m;  $\epsilon_r = 47.902$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 0.817 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 5.833 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 1.83 W/kg

**SAR(1 g) = 0.458 W/kg; SAR(10 g) = 0.138 W/kg**

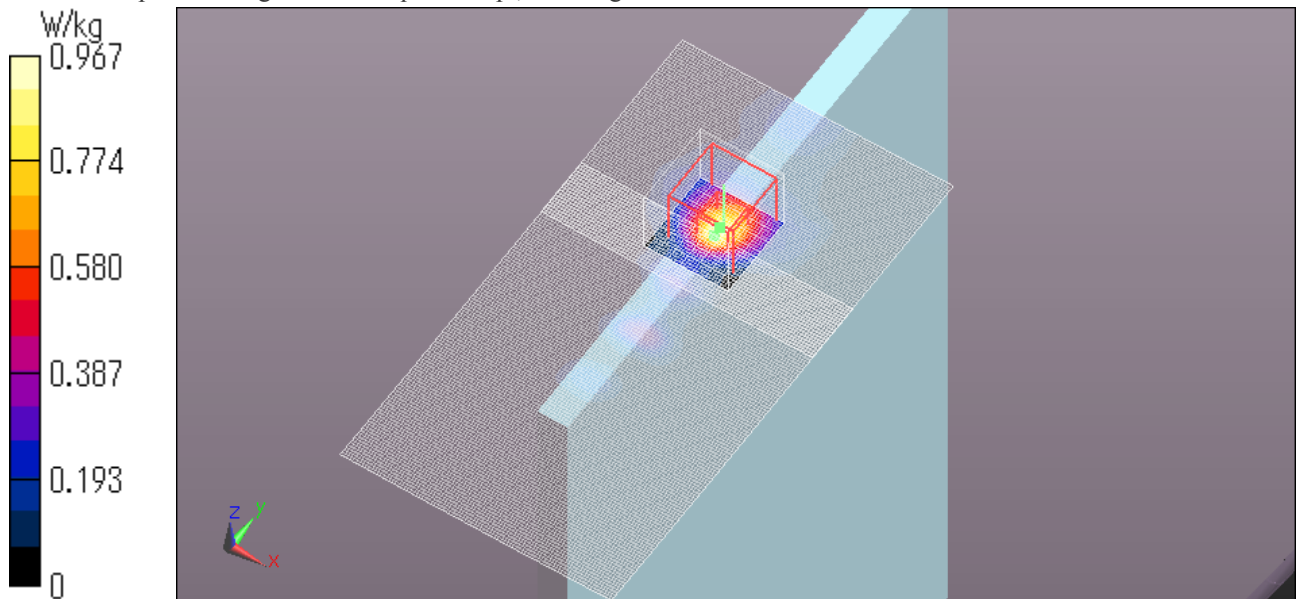
Maximum value of SAR (measured) = 0.949 W/kg

**Area Scan 2 (91x71x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.967 W/kg

Date: 2013/06/12

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11a 6Mbps 5785MHz Rear 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n; Frequency: 5785 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 5785$  MHz;  $\sigma = 6.227$  mho/m;  $\epsilon_r = 47.902$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.03 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0.796 V/m; Power Drift = 0.11 dB

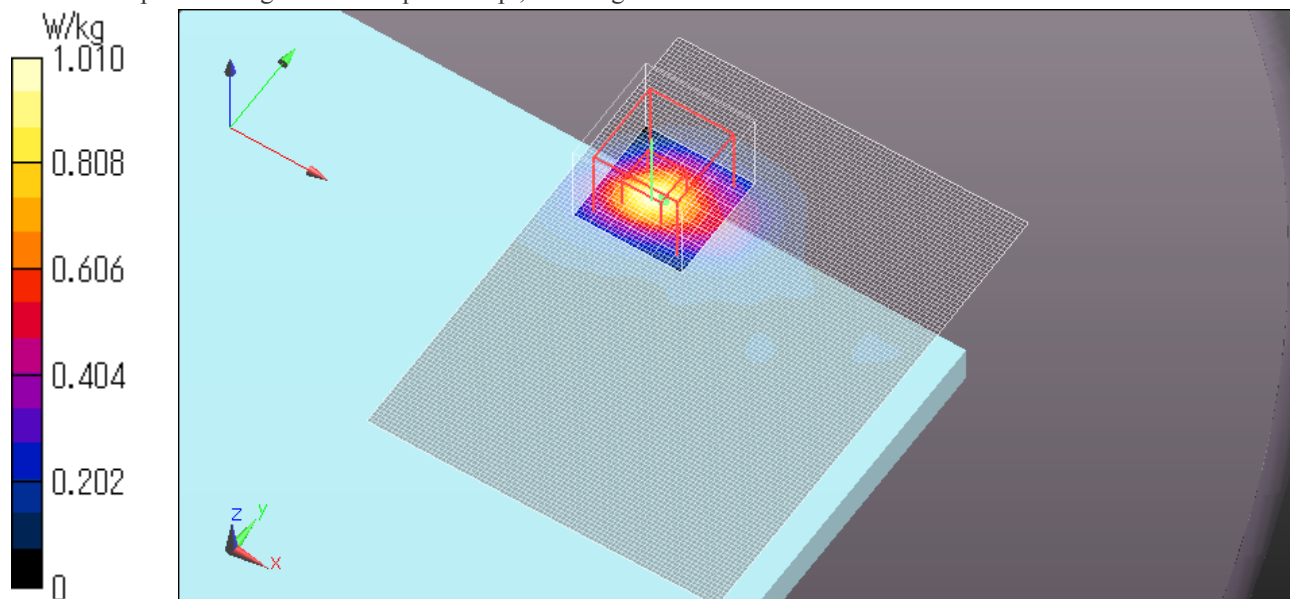
Peak SAR (extrapolated) = 1.96 W/kg

**SAR(1 g) = 0.494 W/kg; SAR(10 g) = 0.155 W/kg**

Maximum value of SAR (measured) = 1.01 W/kg

Date: 2013/06/12

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.





**WLAN 11n20 HT4 5765MHz Rear 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W58); Frequency: 5765 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5760$  MHz;  $\sigma = 6.207$  mho/m;  $\epsilon_r = 47.935$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (121x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.785 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 12.351 V/m; Power Drift = 0.01 dB

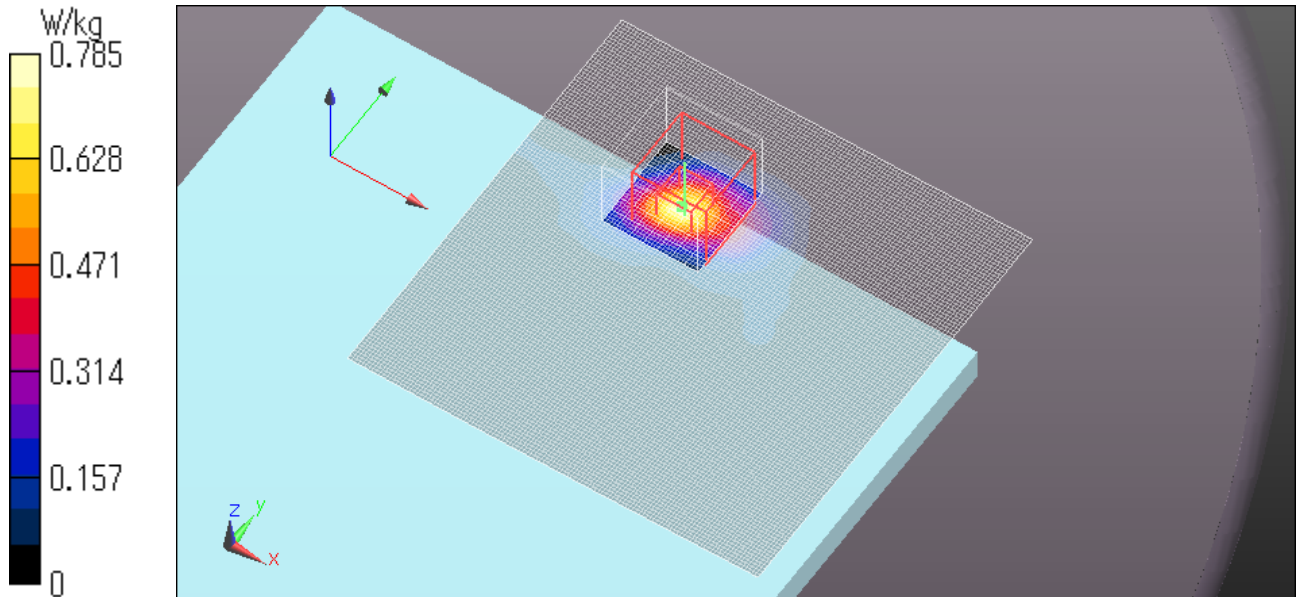
Peak SAR (extrapolated) = 1.41 W/kg

**SAR(1 g) = 0.369 W/kg; SAR(10 g) = 0.116 W/kg**

Maximum value of SAR (measured) = 0.759 W/kg

Date: 2013/06/13

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n40 HT4 5795MHz Rear 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W58); Frequency: 5795 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 5795$  MHz;  $\sigma = 6.26$  mho/m;  $\epsilon_r = 47.882$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY52, Version 52.8 (3);

**Area Scan (121x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.38 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 15.967 V/m; Power Drift = -0.05 dB

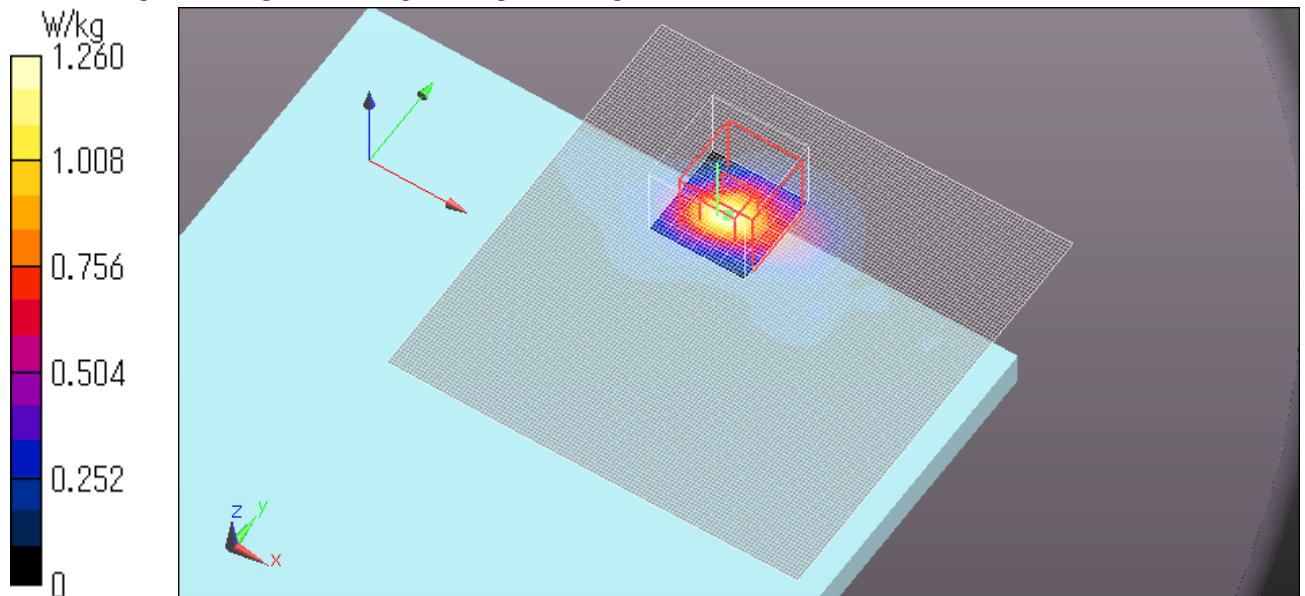
Peak SAR (extrapolated) = 2.53 W/kg

**SAR(1 g) = 0.631 W/kg; SAR(10 g) = 0.199 W/kg**

Maximum value of SAR (measured) = 1.26 W/kg

Date: 2013/06/13

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n40 HT4 5795MHz Rear 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W58); Frequency: 5795 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 5795$  MHz;  $\sigma = 6.26$  mho/m;  $\epsilon_r = 47.882$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

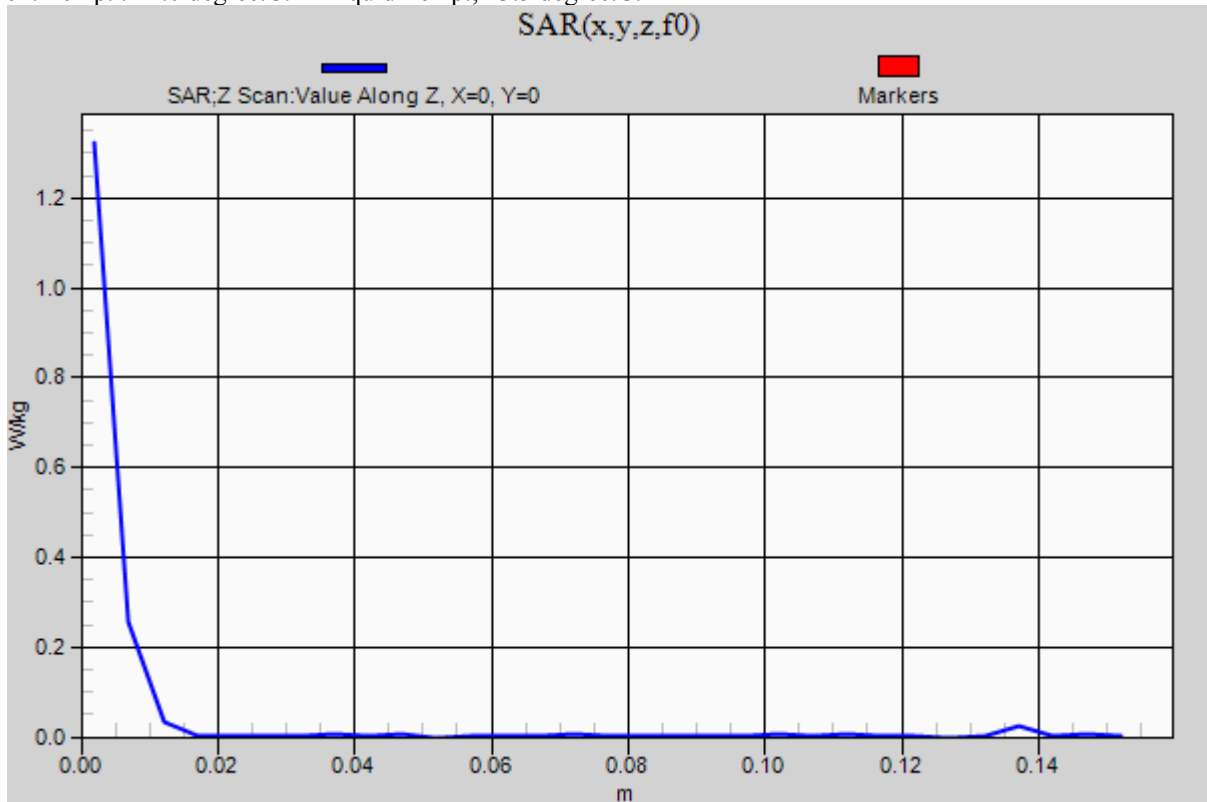
Measurement SW: DASYS2, Version 52.8 (3);

**Z Scan (1x1x31):** Measurement grid: dx=20mm, dy=20mm, dz=5mm

Maximum value of SAR (measured) = 1.32 W/kg

Date: 2013/06/13

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11ac80 VHT6 5775MHz Rear 0mm Ant. Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11ac80(W58); Frequency: 5775 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 5775$  MHz;  $\sigma = 6.229$  mho/m;  $\epsilon_r = 47.911$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (121x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.538 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 9.584 V/m; Power Drift = -0.15 dB

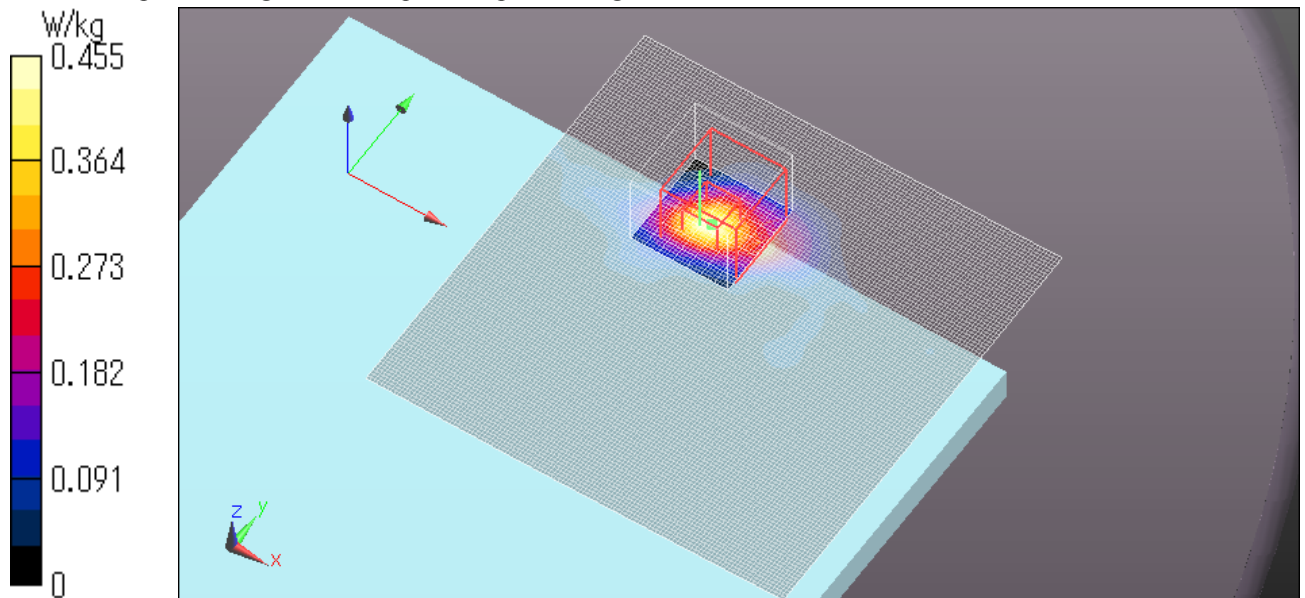
Peak SAR (extrapolated) = 0.828 W/kg

**SAR(1 g) = 0.214 W/kg; SAR(10 g) = 0.065 W/kg**

Maximum value of SAR (measured) = 0.455 W/kg

Date: 2013/06/13

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n40 HT4 5755MHz Rear 0mm Ant.Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W58); Frequency: 5755 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 5755$  MHz;  $\sigma = 6.2$  mho/m;  $\epsilon_r = 47.945$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY52, Version 52.8 (3);

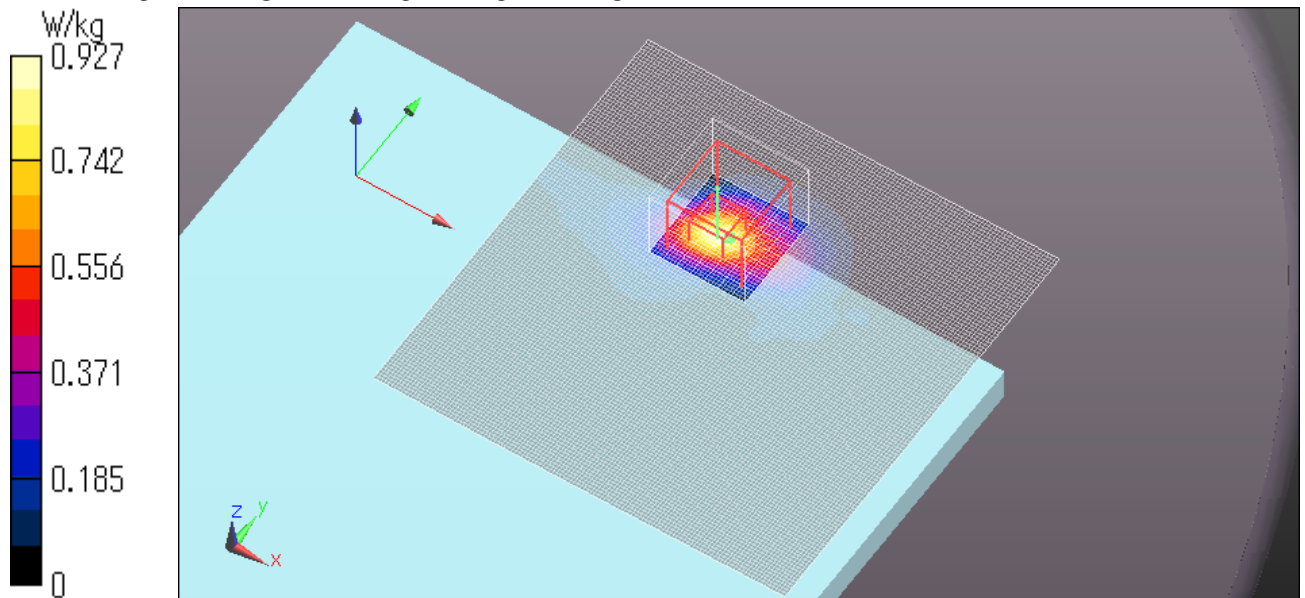
**Area Scan (121x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm  
Maximum value of SAR (interpolated) = 1.01 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm  
Reference Value = 13.059 V/m; Power Drift = -0.05 dB  
Peak SAR (extrapolated) = 1.72 W/kg  
**SAR(1 g) = 0.440 W/kg; SAR(10 g) = 0.138 W/kg**

Maximum value of SAR (measured) = 0.927 W/kg

Date: 2013/06/13

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n20 HT8 5765MHz Rear 0mm Ant. Main+Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W58); Frequency: 5765 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 5765$  MHz;  $\sigma = 6.214$  mho/m;  $\epsilon_r = 47.928$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x121x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.526 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 6.609 V/m; Power Drift = -0.12 dB

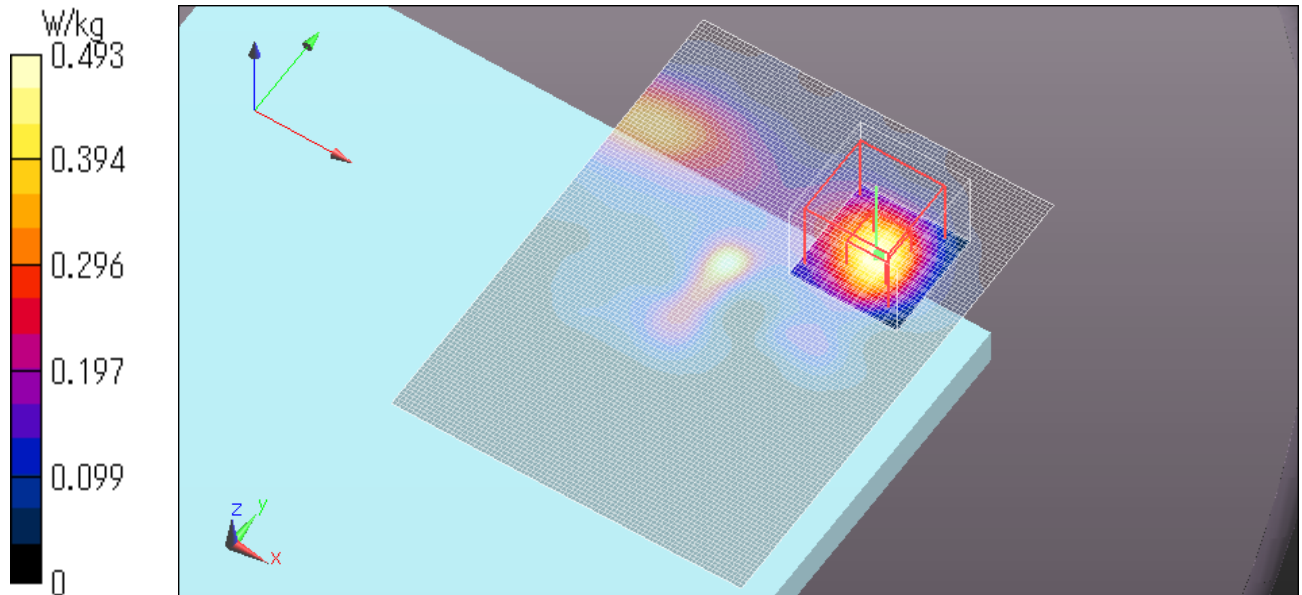
Peak SAR (extrapolated) = 0.904 W/kg

**SAR(1 g) = 0.248 W/kg; SAR(10 g) = 0.082 W/kg**

Maximum value of SAR (measured) = 0.493 W/kg

Date: 2013/06/13

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11n40 HT8 5755MHz Rear 0mm Ant. Main+Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W58); Frequency: 5755 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 5755$  MHz;  $\sigma = 6.2$  mho/m;  $\epsilon_r = 47.945$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (121x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.473 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 6.073 V/m; Power Drift = -0.18 dB

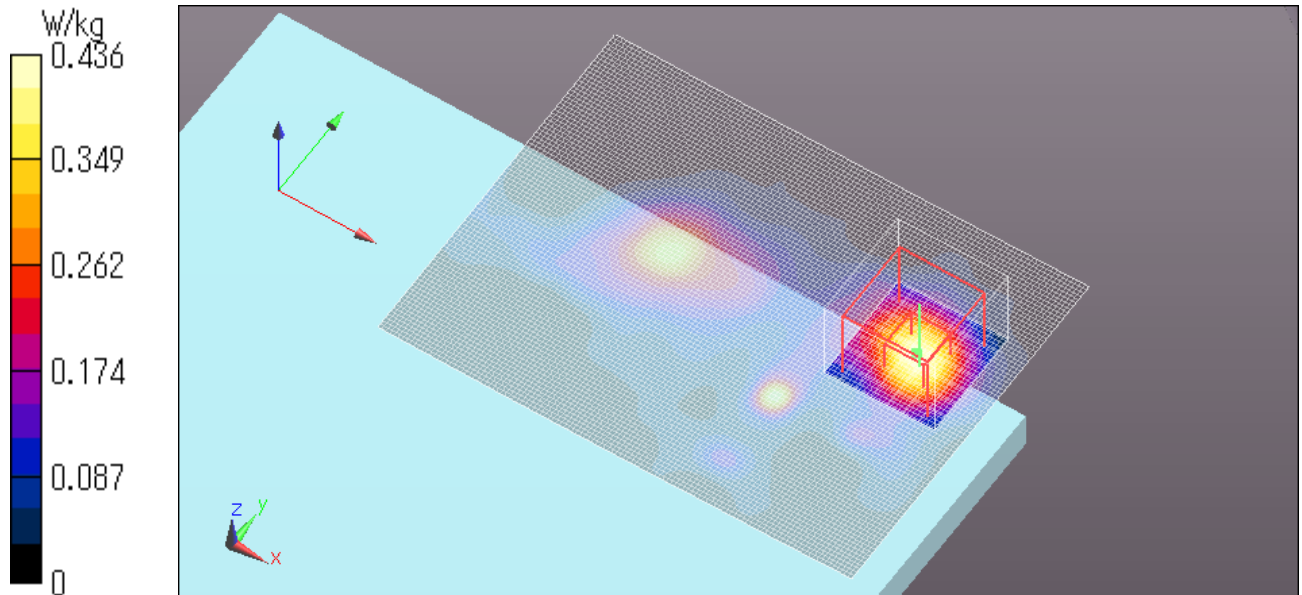
Peak SAR (extrapolated) = 0.766 W/kg

**SAR(1 g) = 0.214 W/kg; SAR(10 g) = 0.073 W/kg**

Maximum value of SAR (measured) = 0.436 W/kg

Date: 2013/06/13

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**WLAN 11ac80 VHT6 5775MHz Rear 0mm Ant. Main+Aux**

Communication System: WLAN 11a/b/g/n ; Communication System Band: 11a/n (W58); Frequency: 5775 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated):  $f = 5775$  MHz;  $\sigma = 6.229$  mho/m;  $\epsilon_r = 47.911$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY52, Version 52.8 (3);

**Area Scan (121x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.503 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 5.070 V/m; Power Drift = -0.11 dB

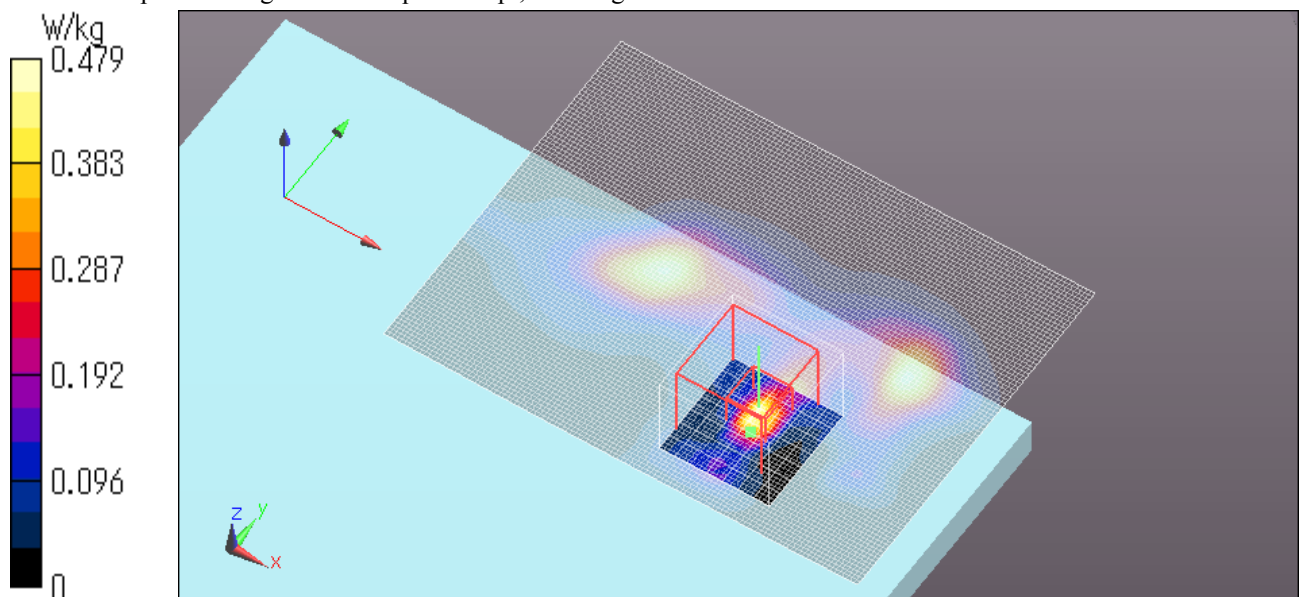
Peak SAR (extrapolated) = 0.970 W/kg

**SAR(1 g) = 0.173 W/kg; SAR(10 g) = 0.035 W/kg**

Maximum value of SAR (measured) = 0.479 W/kg

Date: 2013/06/13

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.





## APPENDIX 2 : System Validation

### 1. System validation result Body 2450

#### Simulated Tissue Liquid Parameter confirmation

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
29-May	24.5	55	MSL 2450	24.0	2450	$\epsilon_r$	52.7	50.8	-3.7	+/-5
						$\sigma$ [mho/m]	1.95	2.01	2.9	+/-5

$\epsilon_r$ : Relative Permittivity /  $\sigma$  : Conductivity

\*1 The Target value is a parameter defined in FCC OET65.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*2	Measured	Deviation [%]	Limit*3 [%]
29-May	24.5	55	MSL 2450	24.0	2450	$\epsilon_r$	52.5	50.8	-3.3	+/-6
						$\sigma$ [mho/m]	1.95	2.01	3.0	+/-6

$\epsilon_r$ : Relative Permittivity /  $\sigma$  : Conductivity

\*2 The target value is the calibrated dipole Body TSL parameters. (D2450V2 SN:713, Measured Body TSL parameters)

\*3 The limit is for deviation provided by manufacture.

#### System validation result (for calibration by manufacture)

SYSTEM VALIDATION							
Date	Frequency [MHz]	SAR 1g [W/kg]			Target 1W *1	Deviation [%]	Limit [%]
		Forward Power 250mW	Conversion 1W				
		Measured	Calculation				
29-May	2450.00	11.80	47.20		52.00	-9.2	+/-10

\*1 The target value is the parameter defined in 1g SAR (normalizes to 1W) in manufacturer calibrated dipole (D2450V2 SN:7

### SystemPerformanceCheck-D2450

Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 2.009$  mho/m;  $\epsilon_r = 50.754$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(7.33, 7.33, 7.33); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (61x61x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 18.1 W/kg

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

Reference Value = 93.207 V/m; Power Drift = 0.06 dB

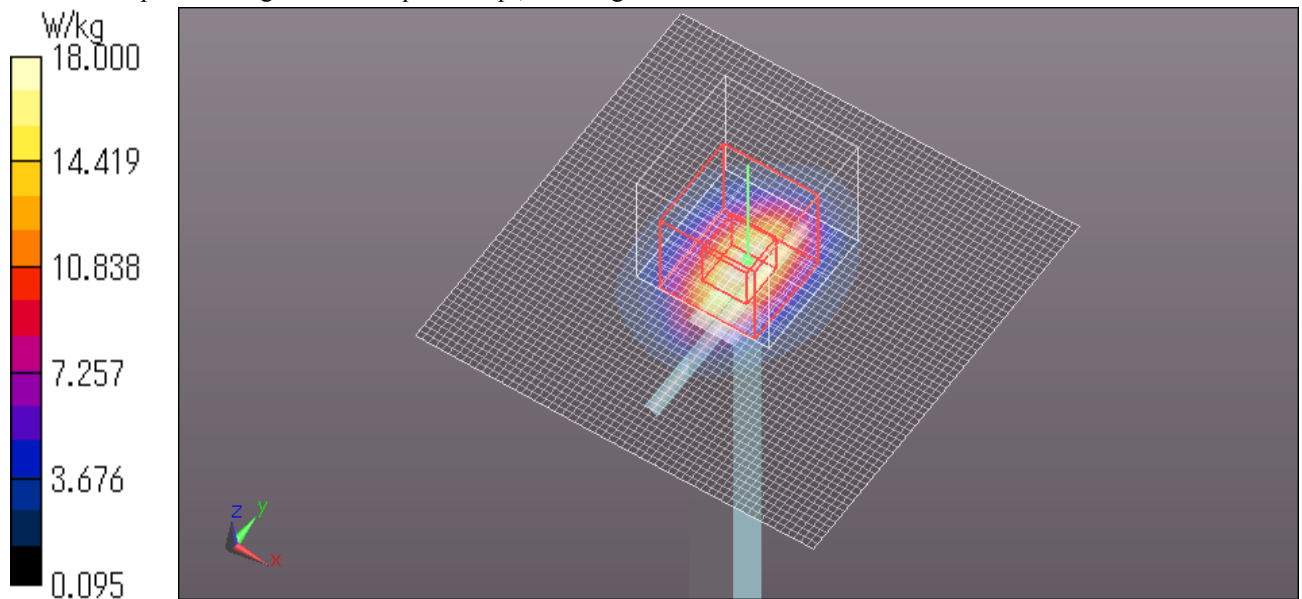
Peak SAR (extrapolated) = 24.8 W/kg

**SAR(1 g) = 11.8 W/kg; SAR(10 g) = 5.4 W/kg**

Maximum value of SAR (measured) = 18.0 W/kg

Date: 2013/05/29

Ambient Temp. : 24.5 degree.C. Liquid Temp.; 24.0 degree.C.



2. System validation result Body 5GHz

Simulated Tissue Liquid Parameter confirmation

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
3-Jun	24.5	59	MSL 3-6GHz	24.0	5200	$\epsilon_r$	49.0	48.0	-2.1	+/-5
						$\sigma$ [mho/m]	5.30	5.46	3.1	+/-5
4-Jun	24.5	57	MSL 3-6GHz	24.0	5200	$\epsilon_r$	49.0	48.7	-0.6	+/-5
						$\sigma$ [mho/m]	5.30	5.47	3.3	+/-5
5-Jun	24.5	48	MSL 3-6GHz	24.0	5200	$\epsilon_r$	49.0	48.7	-0.6	+/-5
						$\sigma$ [mho/m]	5.30	5.47	3.2	+/-5
10-Jun	24.0	49	MSL 3-6GHz	23.5	5500	$\epsilon_r$	48.60	46.50	-4.3	+/-5
						$\sigma$ [mho/m]	5.65	5.55	-1.8	+/-5
11-Jun	24.0	55	MSL 3-6GHz	23.5	5500	$\epsilon_r$	48.60	46.58	-4.1	+/-5
						$\sigma$ [mho/m]	5.65	5.58	-1.2	+/-5
12-Jun	24.0	48	MSL 3-6GHz	23.5	5800	$\epsilon_r$	48.2	47.9	-0.7	+/-5
						$\sigma$ [mho/m]	6.00	6.25	4.2	+/-5
13-Jun	24.0	48	MSL 3-6GHz	23.5	5800	$\epsilon_r$	48.2	47.9	-0.7	+/-5
						$\sigma$ [mho/m]	6.00	6.27	4.5	+/-5

$\epsilon_r$ : Relative Permittivity /  $\sigma$  : Conductivity

\*1 The Target value is a parameter defined in FCC OET 65 .

DIELECTRIC PARAMETERS MEASUREMENT RESULTS										
Date	Ambient Temp. [deg.c]	Relative Humidity [%]	Liquid type	Liquid Temp. [deg.c]	Measured Frequency [MHz]	Parameters	Target Value*2	Measured	Deviation [%]	Limit*3 [%]
3-Jun	24.5	59	MSL 3-6GHz	24.0	5200	$\epsilon_r$	47.0	48.0	2.1	+/-6
						$\sigma$ [mho/m]	5.42	5.46	0.8	+/-6
4-Jun	24.5	57	MSL 3-6GHz	24.0	5200	$\epsilon_r$	47.0	48.7	3.7	+/-6
						$\sigma$ [mho/m]	5.42	5.47	1.0	+/-6
5-Jun	24.5	48	MSL 3-6GHz	24.0	5200	$\epsilon_r$	47.0	48.7	3.6	+/-6
						$\sigma$ [mho/m]	5.42	5.47	0.9	+/-6
10-Jun	24.0	49	MSL 3-6GHz	23.5	5500	$\epsilon_r$	46.5	46.5	0.0	+/-6
						$\sigma$ [mho/m]	5.81	5.55	-4.5	+/-6
11-Jun	24.0	55	MSL 3-6GHz	23.5	5500	$\epsilon_r$	46.5	46.6	0.2	+/-6
						$\sigma$ [mho/m]	5.81	5.58	-3.9	+/-6
12-Jun	24.0	56	MSL 3-6GHz	23.5	5800	$\epsilon_r$	46.0	47.9	4.1	+/-6
						$\sigma$ [mho/m]	6.21	6.25	0.6	+/-6
13-Jun	24.0	56	MSL 3-6GHz	23.5	5800	$\epsilon_r$	46.0	47.9	4.1	+/-6
						$\sigma$ [mho/m]	6.21	6.27	0.9	+/-6

**System validation result (for calibration by manufacture)**

SYSTEM VALIDATION							
Date	Frequency [MHz]	SAR 1g [W/kg]			Target 1W *1	Deviation [%]	Limit [%]
		Forward Power 100mW	Conversion 1W				
		Measured	Calculation				
3-Jun	5200	7.38	73.80	75.00	-1.6	+/-10	
4-Jun	5200	7.38	73.80	75.00	-1.6	+/-10	
5-Jun	5200	7.87	78.70	75.00	4.9	+/-10	
10-Jun	5500	8.63	86.30	80.70	6.9	+/-10	
11-Jun	5500	8.67	86.70	80.70	7.4	+/-10	
12-Jun	5800	7.35	73.50	75.50	-2.6	+/-10	
13-Jun	5800	7.20	72.00	75.50	-4.6	+/-10	

\*1 The target value is the parameter defined in 1g SAR (normalizes to 1W) in manufacturer calibrated dipole (D5GHzV2 SN:1020)

**SystemPerformanceCheck-D5200**

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5200 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 5.464$  mho/m;  $\epsilon_r = 47.986$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.63, 4.63, 4.63); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 14.1 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 65.748 V/m; Power Drift = -0.08 dB

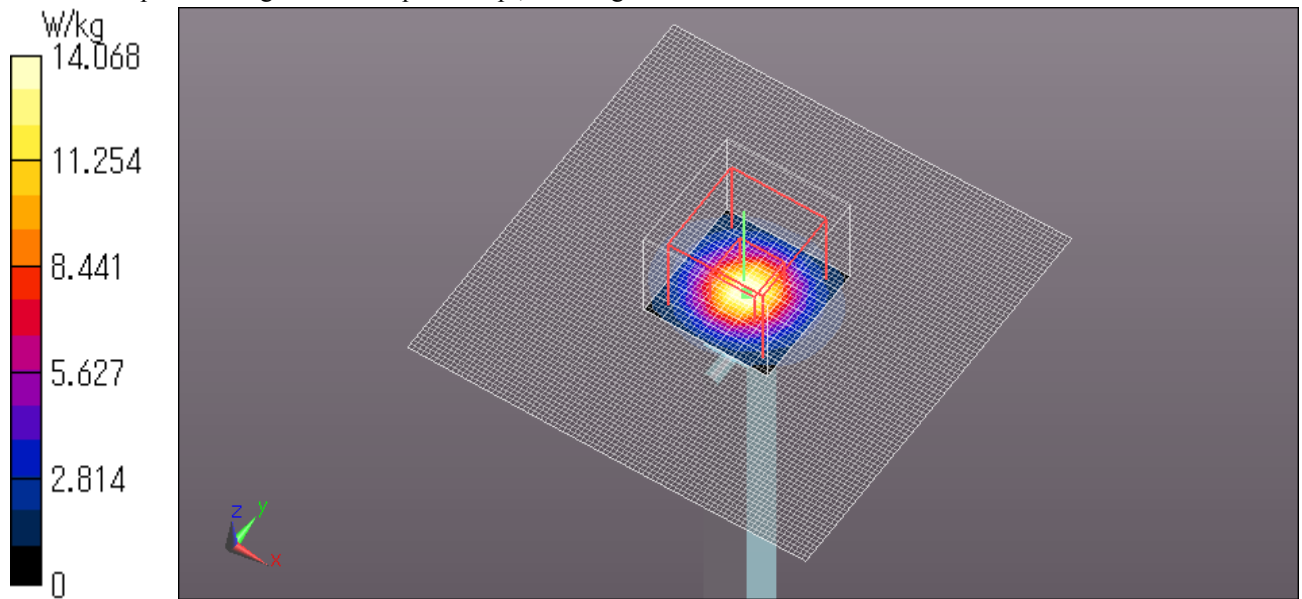
Peak SAR (extrapolated) = 30.7 W/kg

**SAR(1 g) = 7.38 W/kg; SAR(10 g) = 2.06 W/kg**

Maximum value of SAR (measured) = 14.4 W/kg

Date: 2013/06/03

Ambient Temp. : 24.5 degree.C. Liquid Temp.; 24.0 degree.C.



### SystemPerformanceCheck-D5200

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5200 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 5.473$  mho/m;  $\epsilon_r = 48.727$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.63, 4.63, 4.63); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY52, Version 52.8 (3);

**Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 14.0 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 62.040 V/m; Power Drift = -0.09 dB

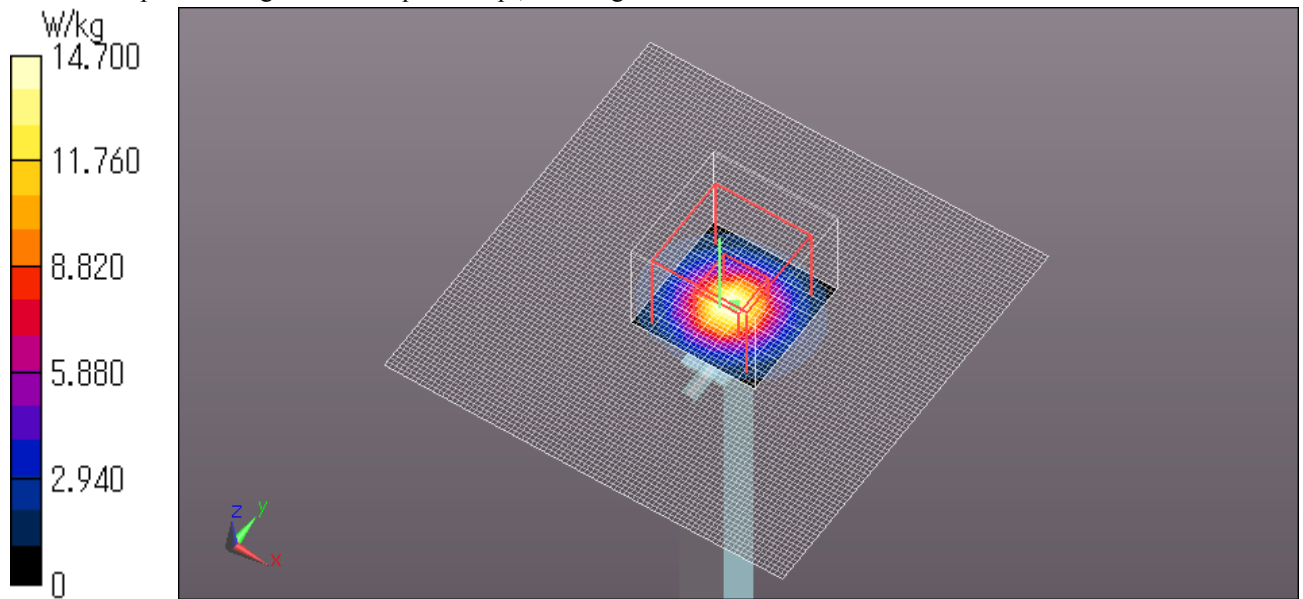
Peak SAR (extrapolated) = 30.1 W/kg

**SAR(1 g) = 7.38 W/kg; SAR(10 g) = 2.05 W/kg**

Maximum value of SAR (measured) = 14.7 W/kg

Date: 2013/06/04

Ambient Temp. : 24.5 degree.C. Liquid Temp.; 24.0 degree.C.



**SystemPerformanceCheck-D5200**

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5200 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5200$  MHz;  $\sigma = 5.468$  mho/m;  $\epsilon_r = 48.69$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.63, 4.63, 4.63); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 15.0 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 66.124 V/m; Power Drift = -0.06 dB

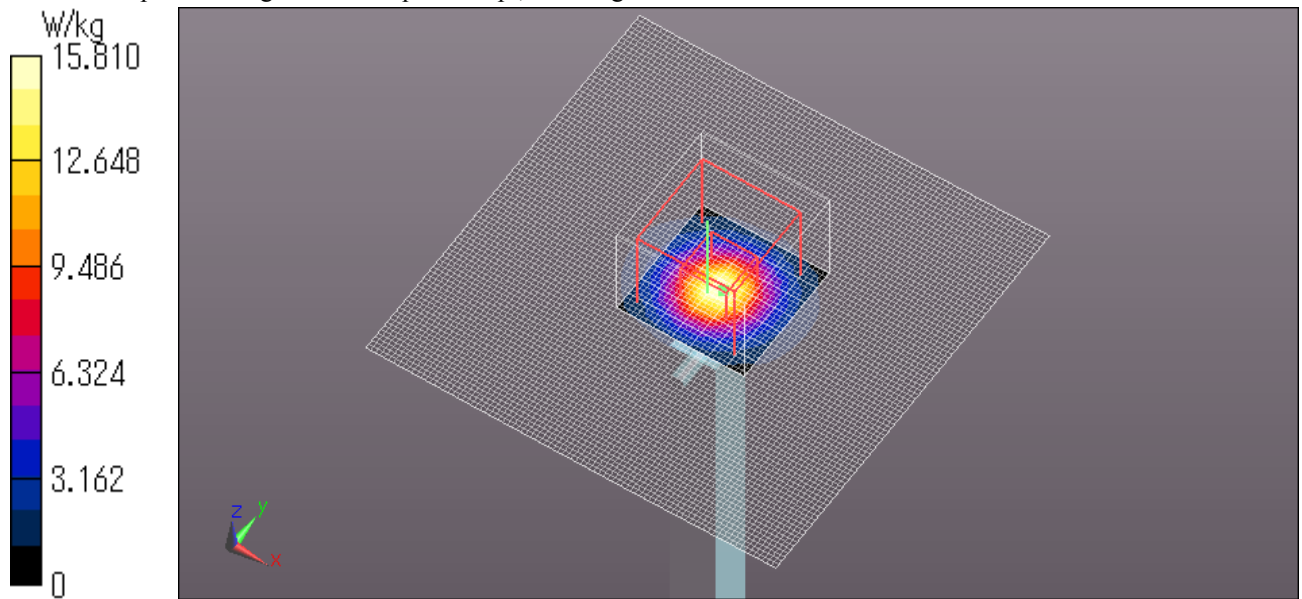
Peak SAR (extrapolated) = 33.0 W/kg

**SAR(1 g) = 7.87 W/kg; SAR(10 g) = 2.17 W/kg**

Maximum value of SAR (measured) = 15.8 W/kg

Date: 2013/06/05

Ambient Temp. : 24.5 degree.C. Liquid Temp.; 24.0 degree.C.



### SystemPerformanceCheck-D5500

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5500 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5500$  MHz;  $\sigma = 5.546$  mho/m;  $\epsilon_r = 46.502$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASY52, Version 52.8 (3);

**Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 17.6 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 65.307 V/m; Power Drift = -0.08 dB

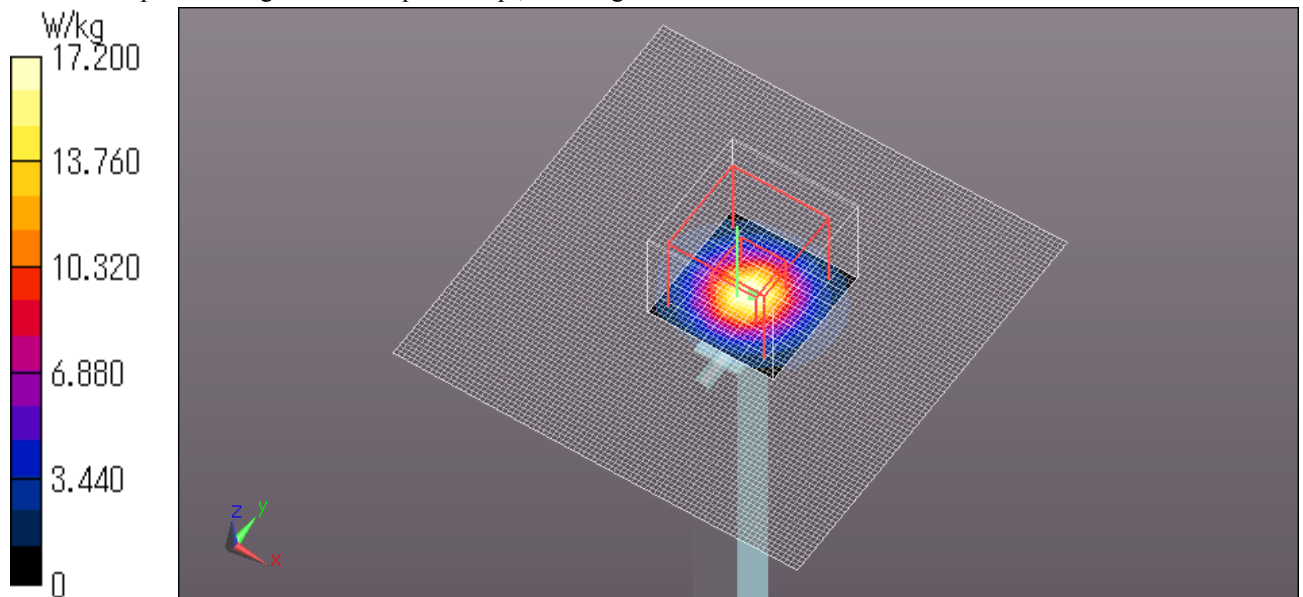
Peak SAR (extrapolated) = 36.7 W/kg

**SAR(1 g) = 8.63 W/kg; SAR(10 g) = 2.37 W/kg**

Maximum value of SAR (measured) = 17.2 W/kg

Date: 2013/06/10

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.





### SystemPerformanceCheck-D5500

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5500 MHz; Duty Cycle: 1:1

Medium parameters used:  $f = 5500$  MHz;  $\sigma = 5.584$  mho/m;  $\epsilon_r = 46.584$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(3.89, 3.89, 3.89); Calibrated: 2012/12/10; {Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 17.5 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 66.211 V/m; Power Drift = -0.05 dB

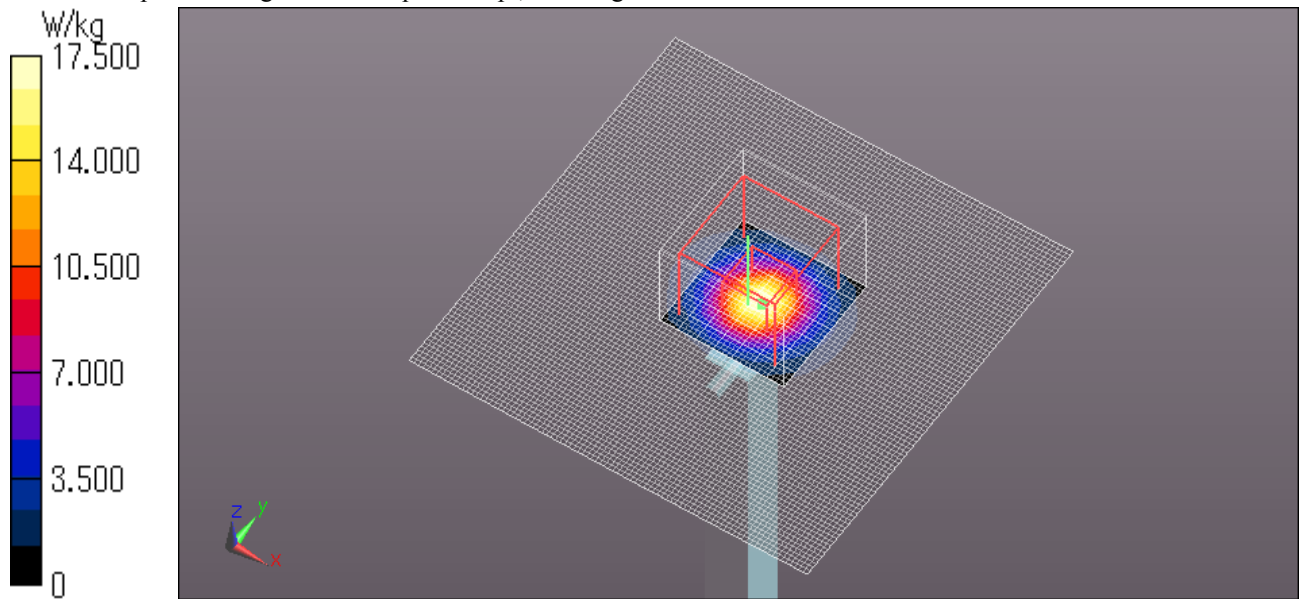
Peak SAR (extrapolated) = 36.9 W/kg

**SAR(1 g) = 8.67 W/kg; SAR(10 g) = 2.38 W/kg**

Maximum value of SAR (measured) = 17.3 W/kg

Date: 2013/06/11

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**SystemPerformanceCheck-D5800**

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5800 MHz;Duty Cycle: 1:1

Medium parameters used:  $f = 5800$  MHz;  $\sigma = 6.25$  mho/m;  $\epsilon_r = 47.883$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 14.5 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 61.237 V/m; Power Drift = -0.08 dB

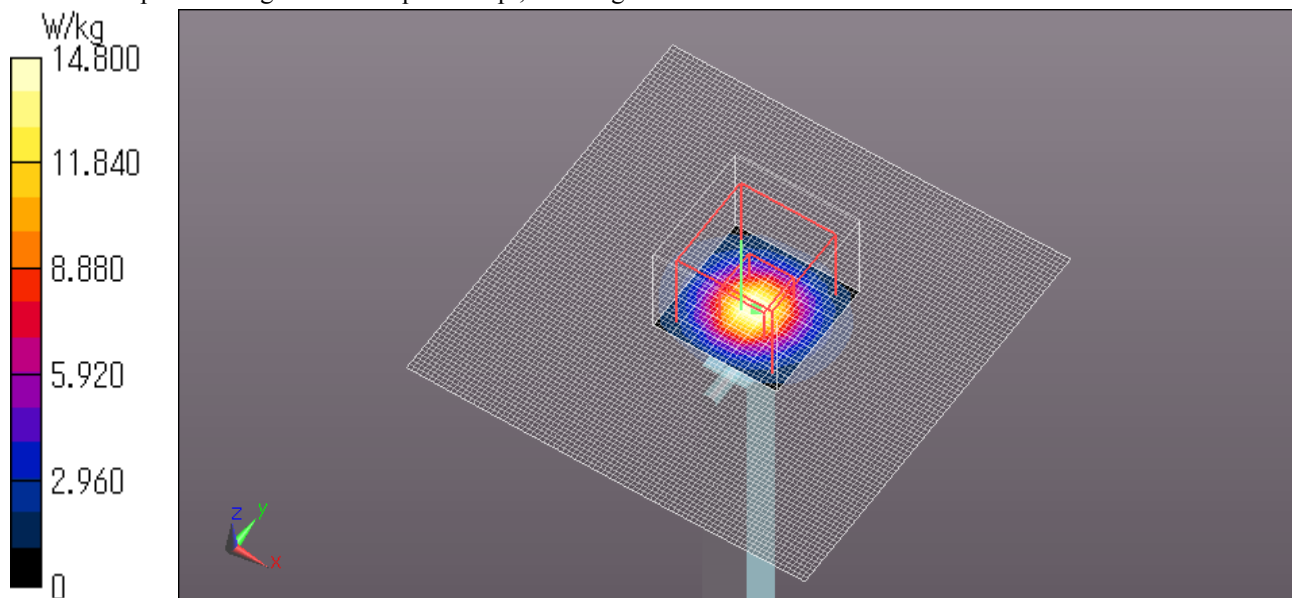
Peak SAR (extrapolated) = 31.8 W/kg

**SAR(1 g) = 7.35 W/kg; SAR(10 g) = 2.01 W/kg**

Maximum value of SAR (measured) = 14.8 W/kg

Date: 2013/06/12

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



**SystemPerformanceCheck-D5800**

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5800 MHz;Duty Cycle: 1:1

Medium parameters used:  $f = 5800$  MHz;  $\sigma = 6.267$  mho/m;  $\epsilon_r = 47.877$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV4 - SN3825; ConvF(4.2, 4.2, 4.2); Calibrated: 2012/12/10; \${Probe: Calibration Date}

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2012/07/13

Phantom: ELI 4.0; Type: QDOVA001BA;

Measurement SW: DASYS2, Version 52.8 (3);

**Area Scan (91x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 14.2 W/kg

**Zoom Scan (8x8x6)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 63.446 V/m; Power Drift = 0.02 dB

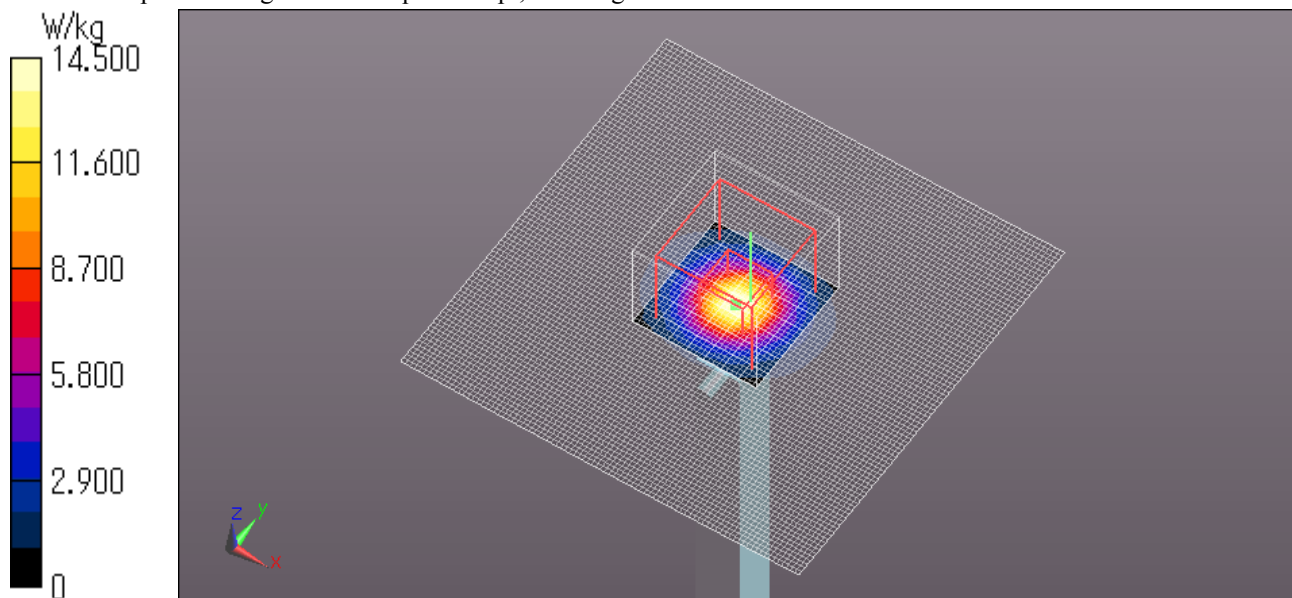
Peak SAR (extrapolated) = 31.5 W/kg

**SAR(1 g) = 7.2 W/kg; SAR(10 g) = 1.97 W/kg**

Maximum value of SAR (measured) = 14.5 W/kg

Date: 2013/06/13

Ambient Temp. : 24.0 degree.C. Liquid Temp.; 23.5 degree.C.



3. System Validation Dipole (D2450V2,S/N:713)

Calibration Laboratory of  
 Schmid & Partner  
 Engineering AG  
 Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst  
 C Service suisse d'étalonnage  
 C 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 **UL Japan (PTT)**

Certificate No: **D2450V2-713\_Sep10**

CALIBRATION CERTIFICATE																																															
Object	D2450V2 - SN: 713																																														
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits																																														
Calibration date:	September 06, 2010																																														
<p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity &lt; 70%.</p> <p>Calibration Equipment used (M&amp;TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power meter EPM-442A</td> <td>GB37480704</td> <td>06-Oct-09 (No. 217-01086)</td> <td>Oct-10</td> </tr> <tr> <td>Power sensor HP 8481A</td> <td>US37282783</td> <td>08-Oct-09 (No. 217-01086)</td> <td>Oct-10</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN: 5086 (20g)</td> <td>30-Mar-10 (No. 217-01158)</td> <td>Mar-11</td> </tr> <tr> <td>Type-N mismatch combination</td> <td>SN: 5047.2 / 06327</td> <td>30-Mar-10 (No. 217-01162)</td> <td>Mar-11</td> </tr> <tr> <td>Reference Probe ES3DV3</td> <td>SN: 3205</td> <td>30-Apr-10 (No. ES3-3205_Apr10)</td> <td>Apr-11</td> </tr> <tr> <td>DAE4</td> <td>SN: 601</td> <td>10-Jun-10 (No. DAE4-601_Jun10)</td> <td>Jun-11</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Check Date (in house)</th> <th>Scheduled Check</th> </tr> </thead> <tbody> <tr> <td>Power sensor HP 8481A</td> <td>MY41092317</td> <td>18-Oct-02 (in house check Oct-09)</td> <td>In house check: Oct-11</td> </tr> <tr> <td>RF generator R&amp;S SMT-06</td> <td>100005</td> <td>4-Aug-99 (in house check Oct-09)</td> <td>In house check: Oct-11</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585 S4206</td> <td>18-Oct-01 (in house check Oct-09)</td> <td>In house check: Oct-10</td> </tr> </tbody> </table>				Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10	Power sensor HP 8481A	US37282783	08-Oct-09 (No. 217-01086)	Oct-10	Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11	Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11	Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11	DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11	Secondary Standards	ID #	Check Date (in house)	Scheduled Check	Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11	RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11	Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration																																												
Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10																																												
Power sensor HP 8481A	US37282783	08-Oct-09 (No. 217-01086)	Oct-10																																												
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11																																												
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11																																												
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11																																												
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11																																												
Secondary Standards	ID #	Check Date (in house)	Scheduled Check																																												
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11																																												
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11																																												
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10																																												
Calibrated by:	Name Claudio Leubler	Function Laboratory Technician	Signature 																																												
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature 																																												
			Issued: September 8, 2010																																												
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.																																															

**Calibration Laboratory of  
Schmid & Partner  
Engineering AG**  
Zeughausstrasse 43, 8004 Zurich, Switzerland



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Accreditation No.: **SCS 108**

**Glossary:**

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

**Calibration is Performed According to the Following Standards:**

- 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
- 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
- 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:**

- DASY4/5 System Handbook

**Methods Applied and Interpretation of Parameters:**

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

**Measurement Conditions**

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

DASY Version	DASY5	V52.2
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	39.0 ± 6 %	1.74 mho/m ± 6 %
Head TSL temperature during test	(21.8 ± 0.2) °C	----	----

**SAR result with Head TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	12.9 mW / g
SAR normalized	normalized to 1W	51.6 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	<b>52.4 mW /g ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.08 mW / g
SAR normalized	normalized to 1W	24.3 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	<b>24.4 mW /g ± 16.5 % (k=2)</b>

**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	52.5 ± 6 %	1.95 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

**SAR result with Body TSL**

SAR averaged over 1 cm <sup>3</sup> (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.0 mW / g
SAR normalized	normalized to 1W	52.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	<b>51.9 mW / g ± 17.0 % (k=2)</b>

SAR averaged over 10 cm <sup>3</sup> (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.04 mW / g
SAR normalized	normalized to 1W	24.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	<b>24.1 mW / g ± 16.5 % (k=2)</b>

## Appendix

### Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.0 $\Omega$ + 1.0 j $\Omega$
Return Loss	- 30.4 dB

### Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.6 $\Omega$ + 2.1 j $\Omega$
Return Loss	- 33.5 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	July 05, 2002



## DASY5 Validation Report for Head TSL

Date/Time: 03.09.2010 15:07:26

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:713**

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

Medium: HSL U12 BB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.74$  mho/m;  $\epsilon_r = 39$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.53, 4.53, 4.53); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

**Head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

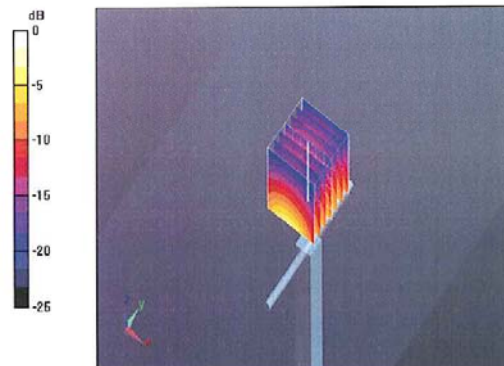
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 100.4 V/m; Power Drift = 0.050 dB

Peak SAR (extrapolated) = 26.3 W/kg

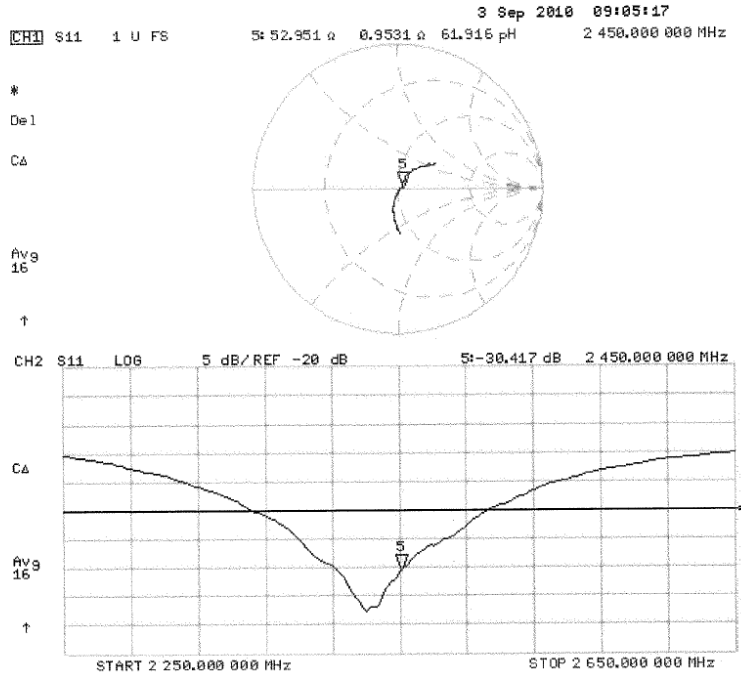
**SAR(1 g) = 12.9 mW/g; SAR(10 g) = 6.08 mW/g**

Maximum value of SAR (measured) = 16.2 mW/g



0 dB = 16.2mW/g

Impedance Measurement Plot for Head TSL



## Validation Report for Body

Date/Time: 06.09.2010 13:42:13

Test Laboratory: SPEAG, Zurich, Switzerland

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:713**

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

Medium: MSL U12 BB

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.95$  mho/m;  $\epsilon_r = 52.5$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.31, 4.31, 4.31); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD00P50AA; Serial: 1002
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

**Body/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:**

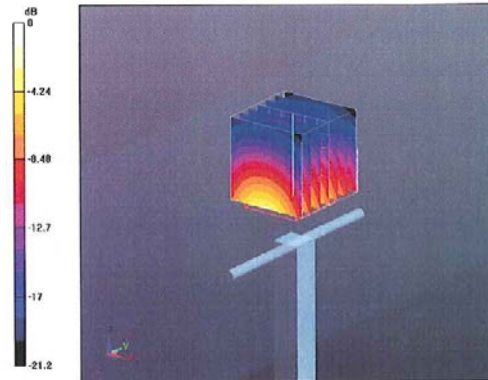
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.7 V/m; Power Drift = 0.030 dB

Peak SAR (extrapolated) = 27 W/kg

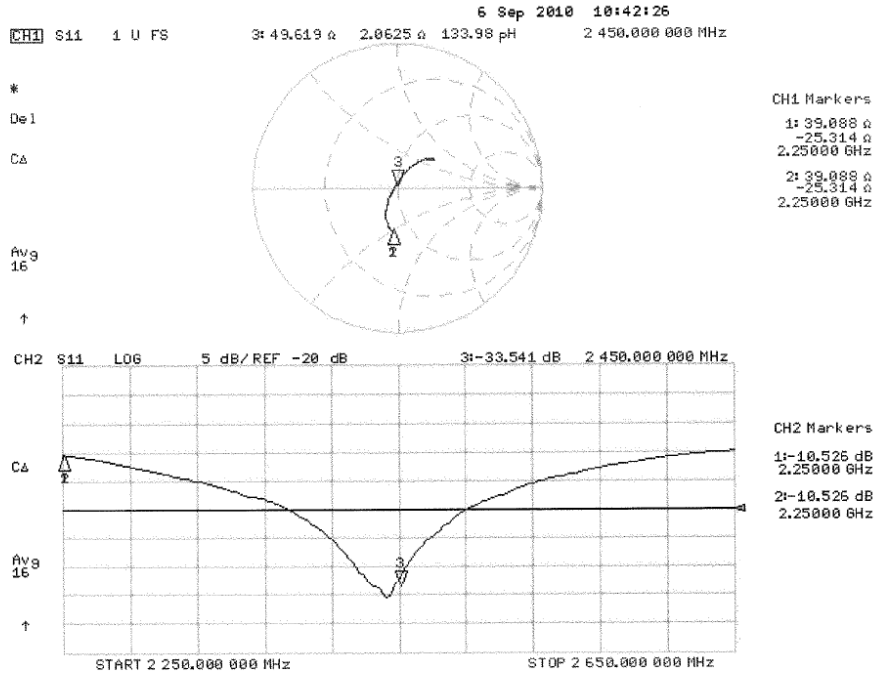
**SAR(1 g) = 13 mW/g; SAR(10 g) = 6.04 mW/g**

Maximum value of SAR (measured) = 16.9 mW/g



0 dB = 16.9mW/g

**Impedance Measurement Plot for Body TSL**



## D2450V2 Calibration for Impedance and Return-loss

Date	Septembert 21, 2012		
Ambient Temperature	24.5 deg.C	Relative humidity	58%RH

### 1. Test environment

Equipment	Dipole Antenna	Model	D2450V2
Manufacture	Schmid&Partner Engineering AG	Serial	713
Tested by	Hisayoshi Sato/ISE/ULI		

### 2. Equipment used

Control No.	Instrument	Manufacturer	Model No	Serial No	Calibration Date * Interval(month)
MNA-01	Network Analyzer	Agilent/HP	E8358A	US41080381	2012/09/14* 12
EST-46	3.5mm Calibration Kit	Agilent	85052D	MY43252869	2012/08/13*12
MCC-141	Microwave Cable	Junkosha	MWX221	1203S212(1m)	2012/04/23*12
MDA-07	Dipole Antenna	Schmid&Partner Engineering AG	D2450V2	713	2010/09/06 * 36
MPSAM-02	SAM Phantom	Schmid&Partner Engineering AG	SAM Twin Phantom V4.0	1333	Pre Check
MOS-24	Thermo-Hygrometer	Custom	CTH-201	0005	2012/05/14 * 12
HSL2450					Daily check
MSL2450					Daily check
SAR room					Daily check

### 3. Test Result

Impedance, Transformed to feed point	Head	Deviation	Tolerance	Result
Calibration (SPEAG) 2010/9/06	53.0 $\Omega$ +1.0j $\Omega$	-	-	-
Calibration(ULJ)2012/8/21	52.26 $\Omega$ -0.43j $\Omega$	-0.74 $\Omega$ -1.43j $\Omega$	+/-5 $\Omega$ +/-5j $\Omega$	Complied

Return loss	Head	Deviation	Tolerance	Result
Calibration (SPEAG) 2010/9/06	-30.4dB	-	-	-
Calibration(ULJ)2012/8/21	-32.96dB	-2.56dB	30.4 *+/-20%	Complied

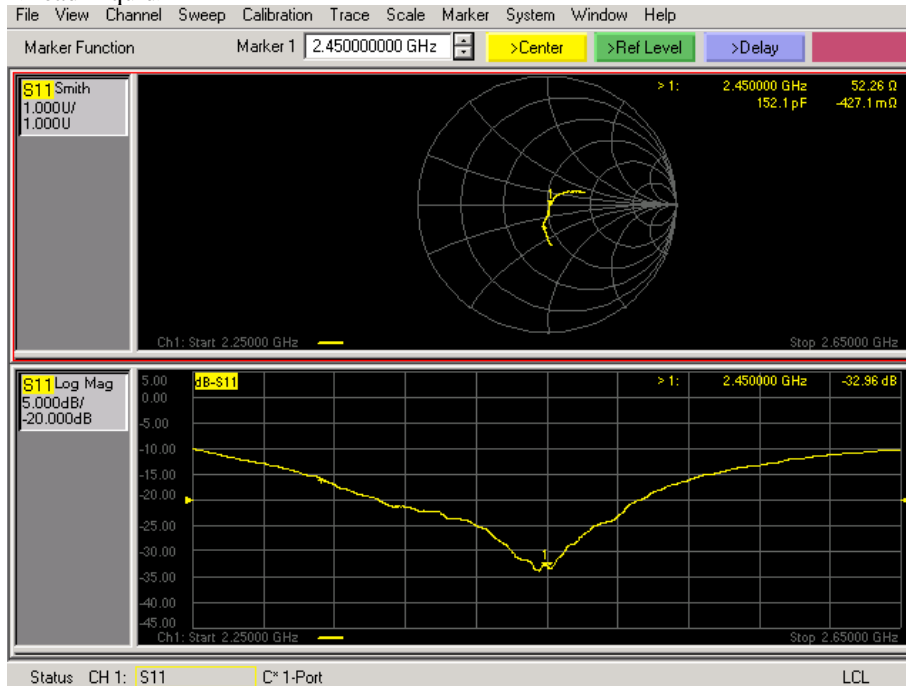
Impedance, Transformed to feed point	Body	Deviation	Tolerance	Result
Calibration (SPEAG) 2010/9/06	49.6 $\Omega$ +2.1j $\Omega$	-	-	-
Calibration(ULJ)2011/9/13	48.25 $\Omega$ +0.29j $\Omega$	-1.35 $\Omega$ +1.81j $\Omega$	+/-5 $\Omega$ +/-5j $\Omega$	Complied

Return loss	Body	Deviation	Tolerance	Result
Calibration (SPEAG) 2010/9/06	-33.5dB	-	-	-
Calibration(ULJ)2011/9/13	-34.89dB	-1.39dB	33.5*+/-20%	Complied

\*Tolerance : According to the KDB450824D02

## Measurement Plots

### <Head Liquid>



### <Body Liquid>

