

APPENDIX 2 : SAR Measurement data

1. Evaluation procedure

The evaluation was performed with the following procedure:

Step 1: Measurement of the E-field at a fixed location above the ear point or central position of flat phantom was used as a reference value for assessing the power drop.

Step 2: The SAR distribution at the exposed side of head or body position was measured at a distance of each device from the inner surface of the shell. The area covered the entire dimension of the antenna of EUT and the horizontal grid spacing was 15 mm x 15 mm . Based on these data, the area of the maximum absorption was determined by spline interpolation.

Step 3: Around this point found in the Step 2 (area scan) , a volume of 30mm x 30mm x 30mm or more was assessed by measuring 7 x 7 x 7 points at least. And for any secondary peaks found in the Step2 which are within 2dB of maximum peak and not with this Step3 (Zoom scan) is repeated. On the basis of this data set, the spatial peak SAR value was evaluated under the following procedure:

(1). The data at the surface were extrapolated, since the center of the dipoles is 1mm(EX3DV3) away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation was based on a least square algorithm [4]. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

(2). The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed by the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one-dimensional splines with the "Not a knot"-condition (in x, y and z-directions) [4], [5]. The volume was integrated with the trapezoidal-algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.

(3). All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

Step 4: Re-measurement of the E-field at the same location as in Step 1.

2. Measurement data

i) WLAN (11b) Head

GT-S5360B_WLAN 11b_2437MHz_Left_Cheek

Communication System: WLAN 11a/b/g/n ; Communication System Band: WLAN 11b/g/n; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.87$ mho/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

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

DASY5 Configuration

Probe: EX3DV3 - SN3507; ConvF(7.88, 7.88, 7.88); Calibrated: 2011/03/16

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2011/07/20

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.6 (1);

Left-Hand-Side HSL/Touch Position - Mid/Area Scan (81x131x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.850 mW/g

Left-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.413 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 1.180 W/kg

SAR(1 g) = 0.512 mW/g; SAR(10 g) = 0.255 mW/g

Maximum value of SAR (measured) = 0.812 mW/g

Left-Hand-Side HSL/Touch Position - Mid/Zoom Scan 2 (8x10x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.413 V/m; Power Drift = -0.16 dB

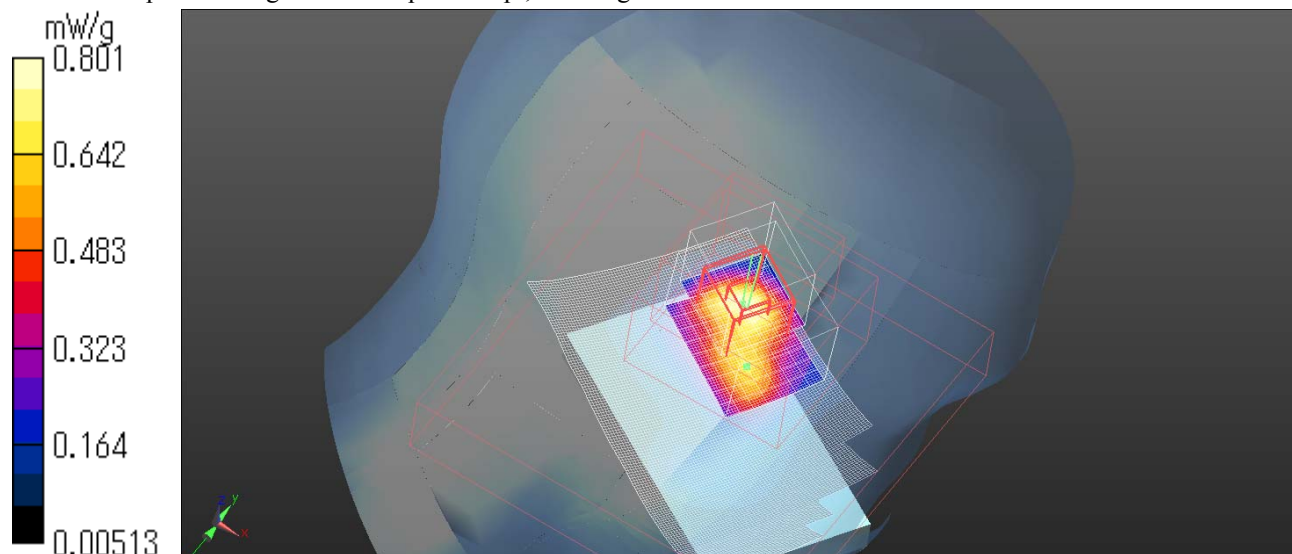
Peak SAR (extrapolated) = 1.169 W/kg

SAR(1 g) = 0.509 mW/g; SAR(10 g) = 0.255 mW/g

Maximum value of SAR (measured) = 0.801 mW/g

Date: 2011/09/03

Ambient Temp. : 24.5 degree.C. Liquid Temp.; 24.3 degree.C.



ZScan at Maximum Head SAR in WLAN**GT-S5360B_WLAN 11b_2437MHz_Left_Cheek**

Communication System: WLAN 11a/b/g/n ; Communication System Band: WLAN 11b/g/n; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.87$ mho/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

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

DASY5 Configuration

Probe: EX3DV3 - SN3507; ConvF(7.88, 7.88, 7.88); Calibrated: 2011/03/16

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2011/07/20

Phantom: SAM with CRP; Type: SAM;

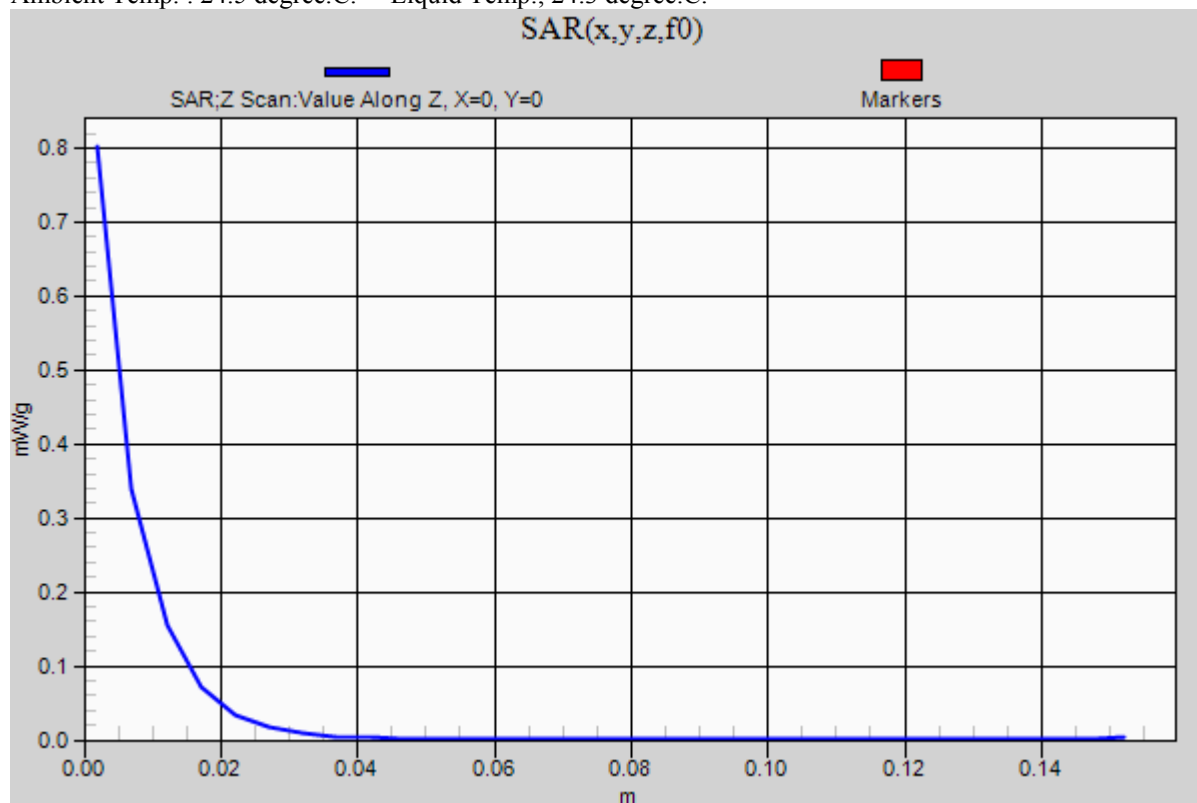
Measurement SW: DASY52, Version 52.6 (1);

Left-Hand-Side HSL/Touch Position - Mid/Z Scan (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Maximum value of SAR (measured) = 0.802 mW/g

Date: 2011/09/03

Ambient Temp. : 24.5 degree.C. Liquid Temp.; 24.3 degree.C.



GT-S5360B_WLAN 11b_2437MHz_Left_Tilt

Communication System: WLAN 11a/b/g/n ; Communication System Band: WLAN 11b/g/n; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.87$ mho/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section

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

DASY5 Configuration

Probe: EX3DV3 - SN3507; ConvF(7.88, 7.88, 7.88); Calibrated: 2011/03/16

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2011/07/20

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.6 (1);

Left-Hand-Side HSL/Tilt Position - Mid/Area Scan (81x131x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.481 mW/g

Left-Hand-Side HSL/Tilt Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.533 V/m; Power Drift = 0.03 dB

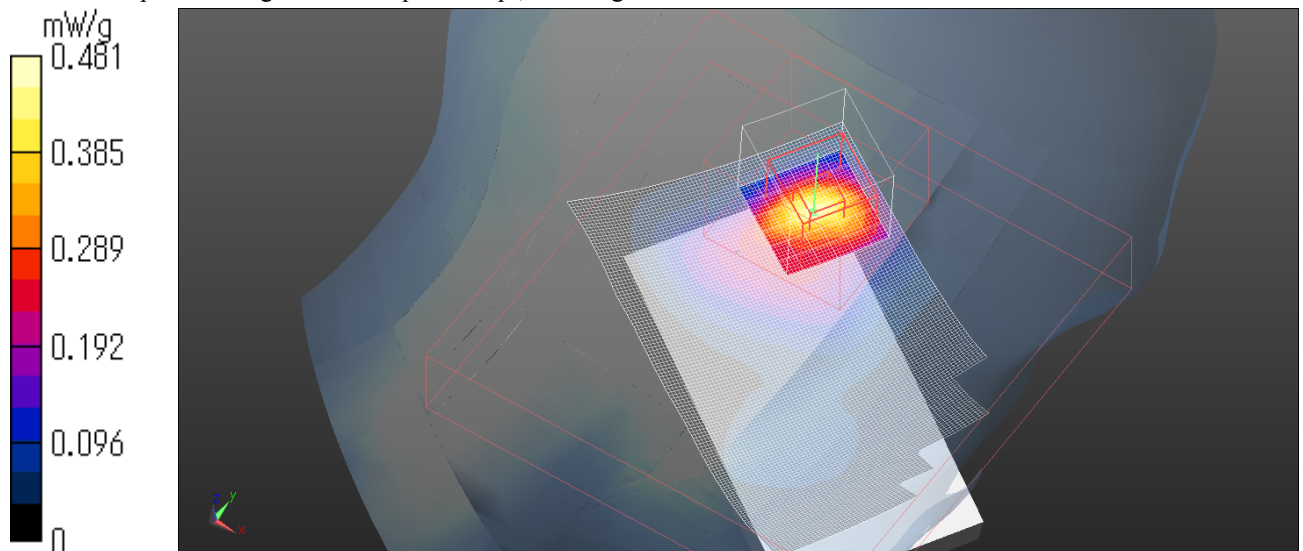
Peak SAR (extrapolated) = 0.649 W/kg

SAR(1 g) = 0.290 mW/g; SAR(10 g) = 0.138 mW/g

Maximum value of SAR (measured) = 0.449 mW/g

Date: 2011/09/03

Ambient Temp. : 24.5 degree.C. Liquid Temp.; 24.3 degree.C.



GT-S5360B_WLAN 11b_2437MHz_Right_Cheek

Communication System: WLAN 11a/b/g/n ; Communication System Band: WLAN 11b/g/n; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.87$ mho/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Phantom section: Right Section

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

DASY5 Configuration

Probe: EX3DV3 - SN3507; ConvF(7.88, 7.88, 7.88); Calibrated: 2011/03/16

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2011/07/20

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.6 (1);

Right-Hand-Side HSL/Touch Position - Mid/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.306 mW/g

Right-Hand-Side HSL/Touch Position - Mid/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.693 V/m; Power Drift = 0.16 dB

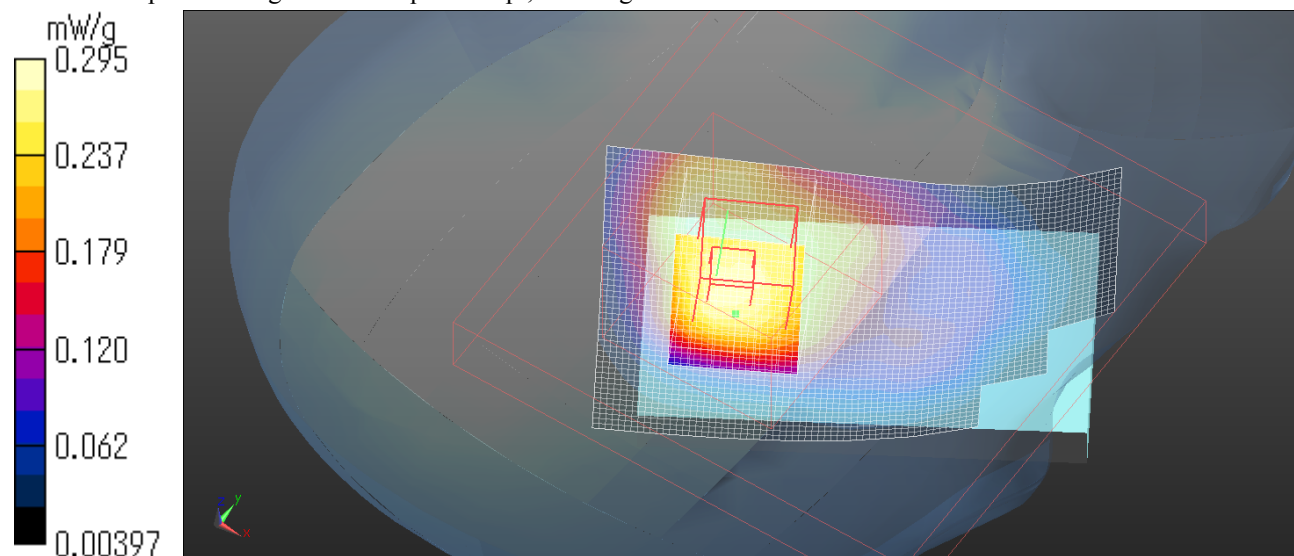
Peak SAR (extrapolated) = 0.376 W/kg

SAR(1 g) = 0.213 mW/g; SAR(10 g) = 0.125 mW/g

Maximum value of SAR (measured) = 0.295 mW/g

Date: 2011/09/03

Ambient Temp. : 24.5 degree.C. Liquid Temp.; 24.3 degree.C.



GT-S5360B_WLAN 11b_2437MHz_Right_Tilt

Communication System: WLAN 11a/b/g/n ; Communication System Band: WLAN 11b/g/n; Frequency: 2450 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.87$ mho/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Phantom section: Right Section

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

DASY5 Configuration

Probe: EX3DV3 - SN3507; ConvF(7.88, 7.88, 7.88); Calibrated: 2011/03/16

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2011/07/20

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.6 (1);

Right-Hand-Side HSL/Tilt Position - Mid/Area Scan (81x131x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.301 mW/g

Right-Hand-Side HSL/Tilt Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.619 V/m; Power Drift = 0.04 dB

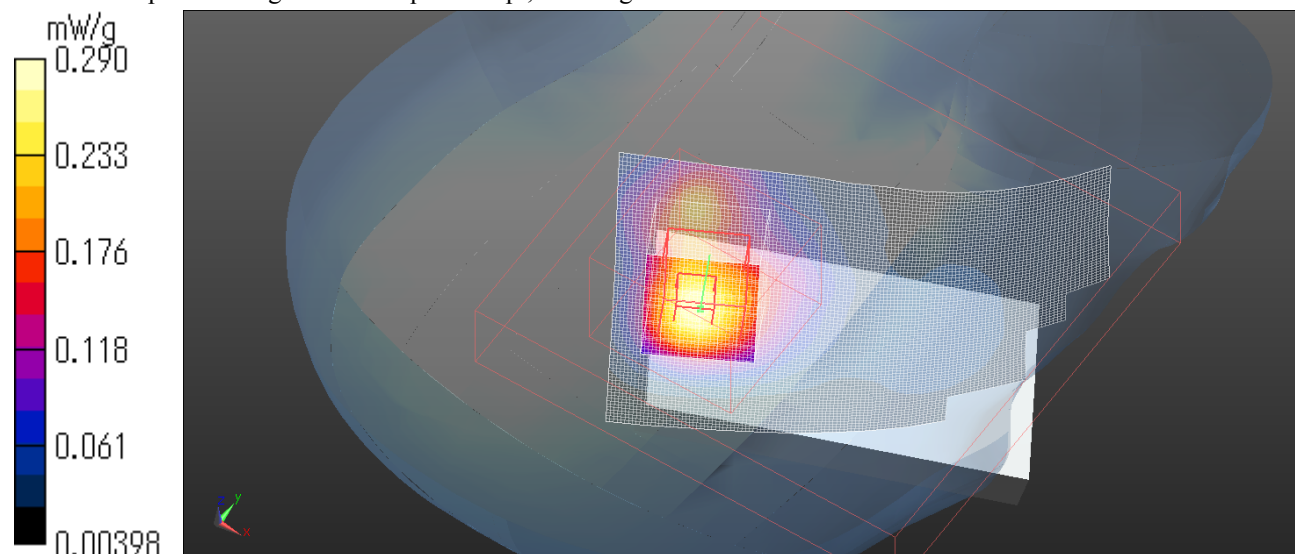
Peak SAR (extrapolated) = 0.381 W/kg

SAR(1 g) = 0.207 mW/g; SAR(10 g) = 0.109 mW/g

Maximum value of SAR (measured) = 0.290 mW/g

Date: 2011/09/03

Ambient Temp. : 24.5 degree.C. Liquid Temp.; 24.3 degree.C.



ii) WLAN Body/Body-worn

GT-S5360B_WLAN 11b_2437MHz_Front_10mm

Communication System: WLAN 11a/b/g/n ; Communication System Band: WLAN 11b/g/n; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.01$ mho/m; $\epsilon_r = 51.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV3 - SN3507; ConvF(7.61, 7.61, 7.61); Calibrated: 2011/03/16

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2011/07/20

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.6 (1);

Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.188 mW/g

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

Reference Value = 5.117 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.237 W/kg

SAR(1 g) = 0.133 mW/g; SAR(10 g) = 0.078 mW/g

Maximum value of SAR (measured) = 0.182 mW/g

Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.117 V/m; Power Drift = 0.15 dB

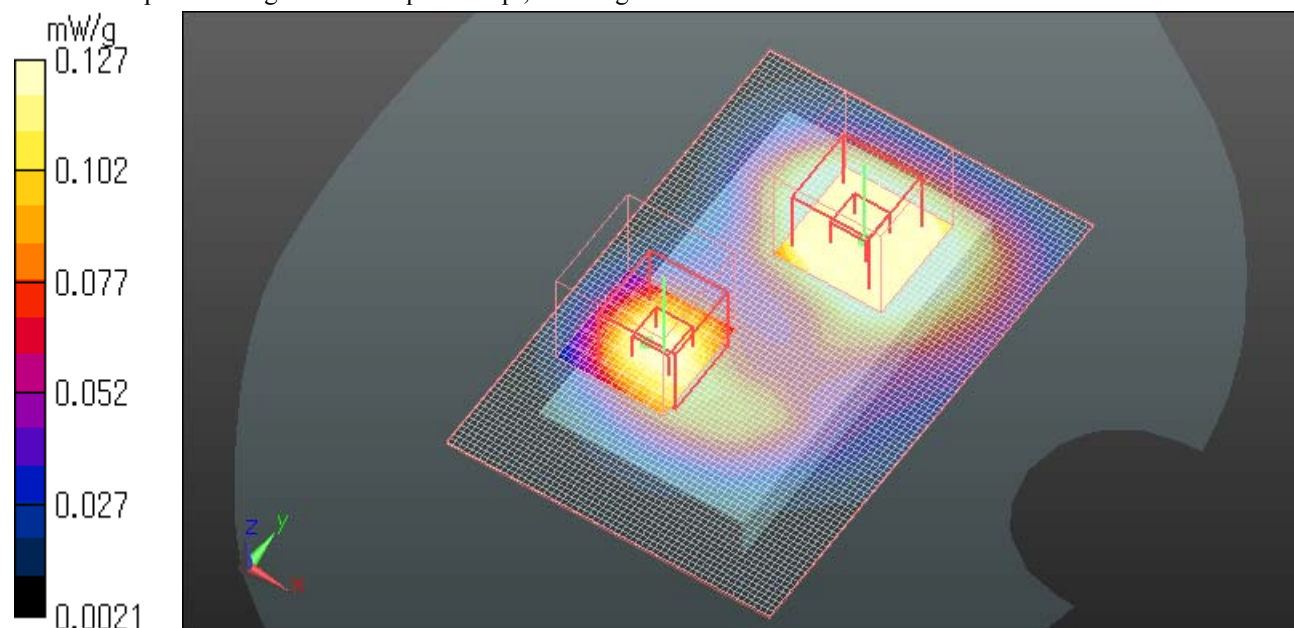
Peak SAR (extrapolated) = 0.164 W/kg

SAR(1 g) = 0.093 mW/g; SAR(10 g) = 0.053 mW/g

Maximum value of SAR (measured) = 0.127 mW/g

Date: 2011/09/02

Ambient Temp. : 24.6 degree.C. Liquid Temp.; 24.2 degree.C.



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GT-S5360B_WLAN 11b_2437MHz_Back_10mm

Communication System: WLAN 11a/b/g/n ; Communication System Band: WLAN 11b/g/n; Frequency: 2450 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.01$ mho/m; $\epsilon_r = 51.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV3 - SN3507; ConvF(7.61, 7.61, 7.61); Calibrated: 2011/03/16

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2011/07/20

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.6 (1);

Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.566 mW/g

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

Reference Value = 9.230 V/m; Power Drift = -0.07 dB

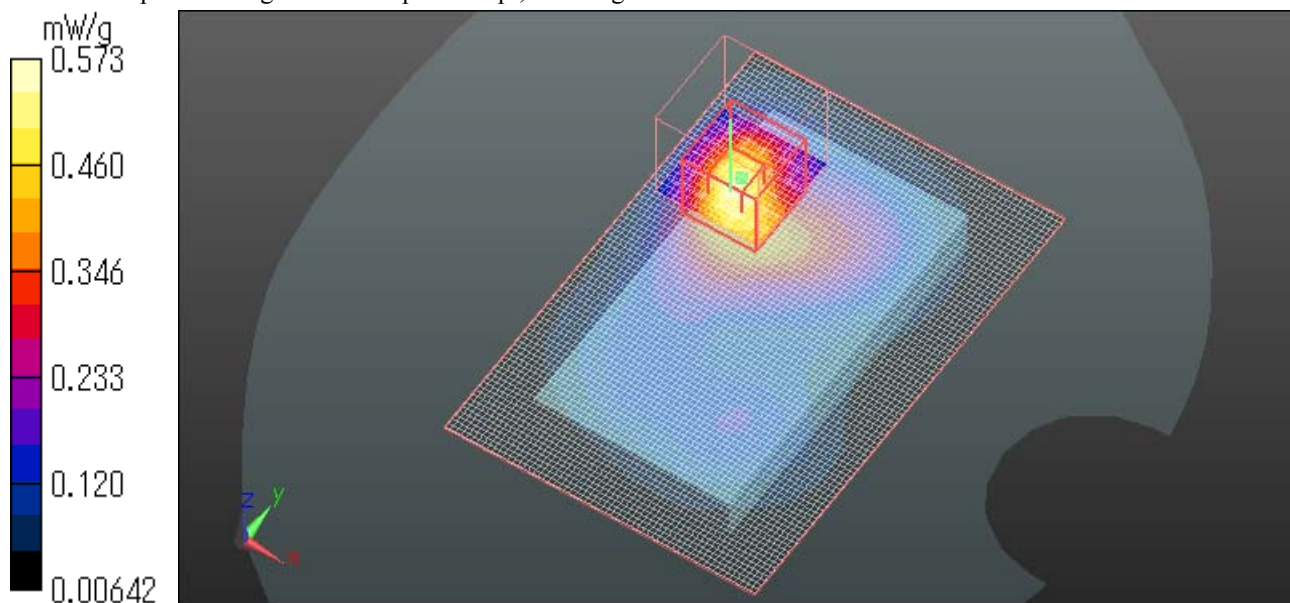
Peak SAR (extrapolated) = 0.779 W/kg

SAR(1 g) = 0.392 mW/g; SAR(10 g) = 0.202 mW/g

Maximum value of SAR (measured) = 0.573 mW/g

Date: 2011/09/02

Ambient Temp. : 24.6 degree.C. Liquid Temp.; 24.2 degree.C.



ZScan at Maximum Body SAR in WLAN

GT-S5360B_WLAN 11b_2437MHz_Back_10mm

Communication System: WLAN 11a/b/g/n ; Communication System Band: WLAN 11b/g/n; Frequency: 2450 MHz;Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.01$ mho/m; $\epsilon_r = 51.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV3 - SN3507; ConvF(7.61, 7.61, 7.61); Calibrated: 2011/03/16

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2011/07/20

Phantom: SAM with CRP; Type: SAM;

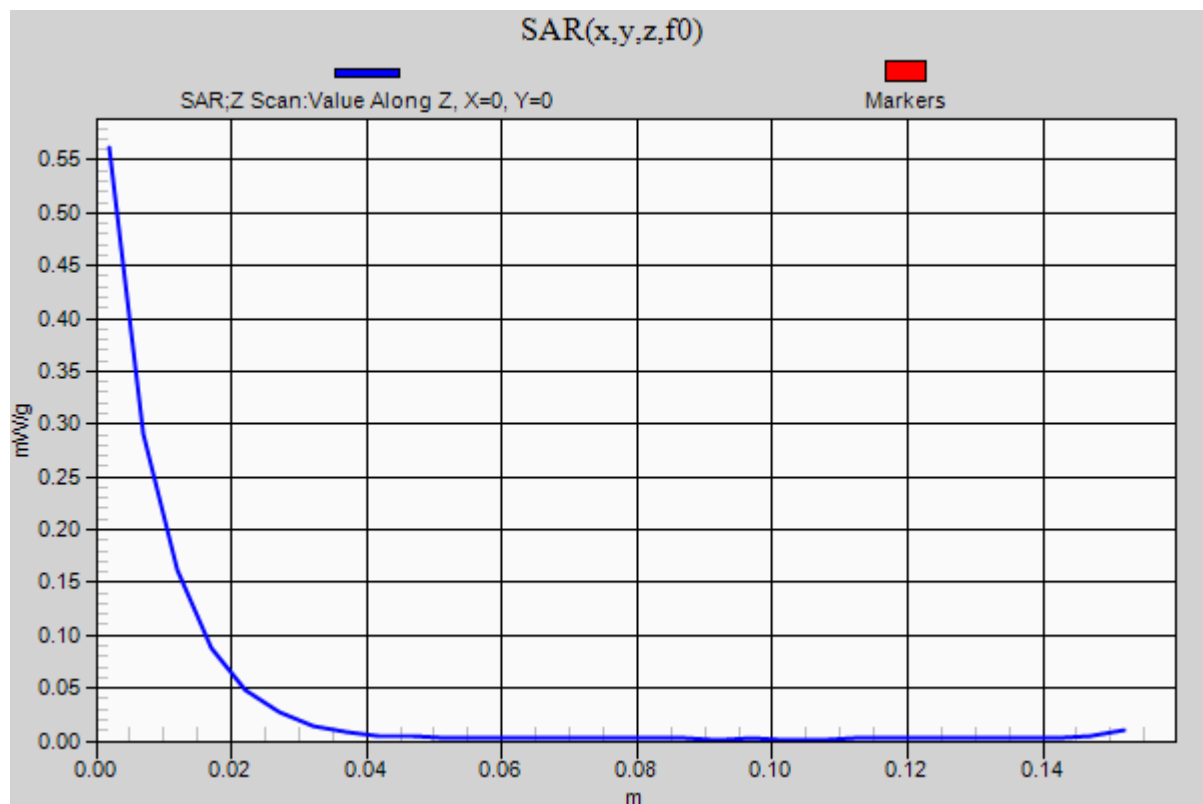
Measurement SW: DASY52, Version 52.6 (1);

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

Maximum value of SAR (measured) = 0.562 mW/g

Date: 2011/09/02

Ambient Temp. : 24.6 degree.C. Liquid Temp.; 24.2 degree.C.



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GT-S5360B_WLAN 11b_2437MHz_Left edge_10mm

Communication System: WLAN 11a/b/g/n ; Communication System Band: WLAN 11b/g/n; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.01$ mho/m; $\epsilon_r = 51.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV3 - SN3507; ConvF(7.61, 7.61, 7.61); Calibrated: 2011/03/16

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2011/07/20

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.6 (1);

Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.312 mW/g

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

Reference Value = 9.209 V/m; Power Drift = -0.19 dB

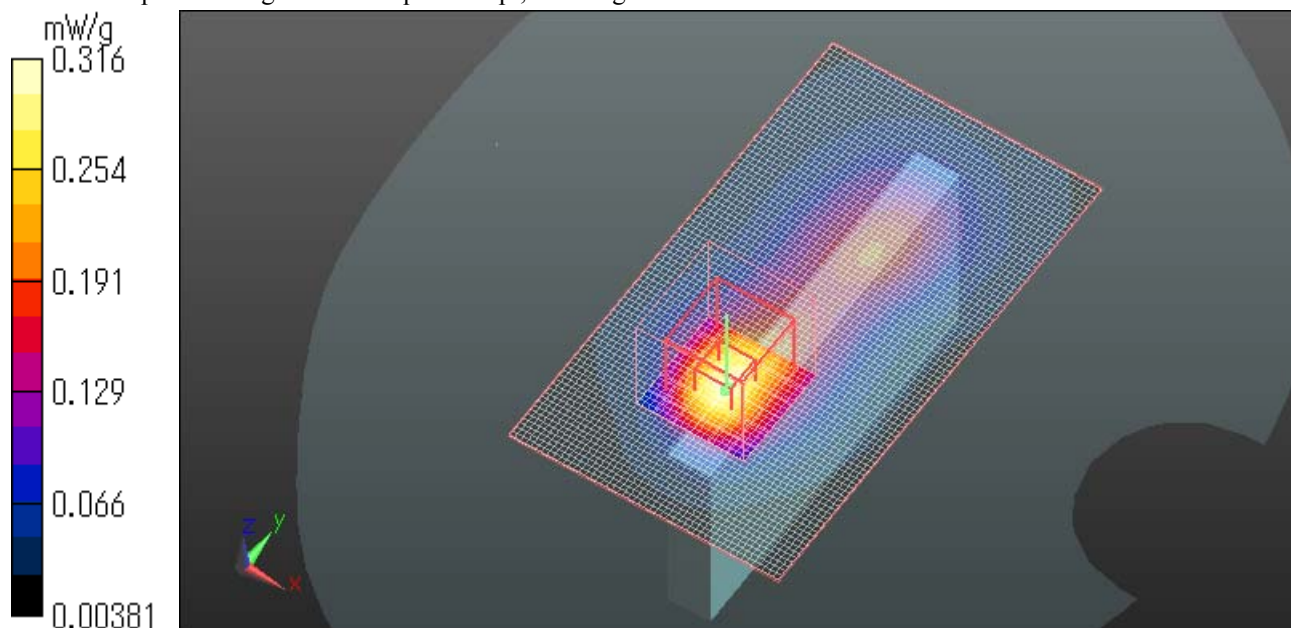
Peak SAR (extrapolated) = 0.416 W/kg

SAR(1 g) = 0.217 mW/g; SAR(10 g) = 0.111 mW/g

Maximum value of SAR (measured) = 0.316 mW/g

Date: 2011/09/02

Ambient Temp. : 24.6 degree.C. Liquid Temp.; 24.2 degree.C.



GT-S5360B_WLAN 11b_2437MHz_Top edge_10mm

Communication System: WLAN 11a/b/g/n ; Communication System Band: WLAN 11b/g/n; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 2.01$ mho/m; $\epsilon_r = 51.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration

Probe: EX3DV3 - SN3507; ConvF(7.61, 7.61, 7.61); Calibrated: 2011/03/16

Sensor-Surface: 2mm (Mechanical Surface Detection)

Electronics: DAE4 Sn509; Calibrated: 2011/07/20

Phantom: SAM with CRP; Type: SAM;

Measurement SW: DASY52, Version 52.6 (1);

Flat-Section MSL/Flat Section 10mm/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.077 mW/g

Flat-Section MSL/Flat Section 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.996 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.104 W/kg

SAR(1 g) = 0.056 mW/g; SAR(10 g) = 0.031 mW/g

Maximum value of SAR (measured) = 0.078 mW/g

Flat-Section MSL/Flat Section 10mm/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.996 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.072 W/kg

SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.023 mW/g

Maximum value of SAR (measured) = 0.054 mW/g

Date: 2011/09/02

Ambient Temp. : 24.6 degree.C. Liquid Temp.; 24.2 degree.C.

