
APPENDIX 2: SAR Measurement data

Appendix 2-1: Evaluation procedure

The SAR evaluation was performed with the following procedure:

- Step 1:** Measurement of the E-field at a fixed location above the 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 suitable horizontal grid spacing of EUT. Based on these data, the area of the maximum absorption was determined by splines interpolation.
- Step 3:** Around this point found in the Step 2 (area scan), a volume of 30mm(X axis)×30mm(Y axis)×30mm(Z axis) was assessed by measuring 7×7×7 points under 3GHz.
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 away from the tip of the probe and the distance between the surface and the lowest measuring point is 2mm. The extrapolation was based on a least square algorithm [4]. A polynomial of the fourth order was calculated through the points in z-axis. 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 (1g or 10g) 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 (10×10×10) 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 for the assessment of the power drift.
- Step 5:** Repeat Step 1-Step 4 with other condition or/and setup of EUT.

Appendix 2-2: Measurement data

Step 1: Worst position search(Chain A(Main antenna))

Step 1-1: Lap held(Bottom face)(separation distance: 0mm) / 2437MHz, 11b(1Mbps) Chain A(Main antenna)

EUT: Satellite_U930; Type: Laptop PC; Serial: XC125734H
Communication System: 802.11bgn; Frequency: 2437 MHz; Crest factor: 1.0
Medium: MSL2450; Medium parameters used: $f = 2437$ MHz; $\sigma = 1.945$ S/m; $\epsilon_r = 50.527$; $\rho = 1000$ kg/m³

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

DASY Configuration:

-Probe: EX3DV4 - SN3679; ConvF(6.77, 6.77, 6.77); Calibrated: 2012/06/21; -Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0, 161.0
-Electronics: DAE4 Sn626; Calibrated: 2012/02/15 -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Lap held(Bottom face)/Touch(0mm)_11b(1Mbps)_Mid-Ch_main-ant/

Area Scan:135x360,15 (10x25x1): Measurement grid: dx=15mm, dy=15mm, Maximum value of SAR (measured) = 0.239 W/kg

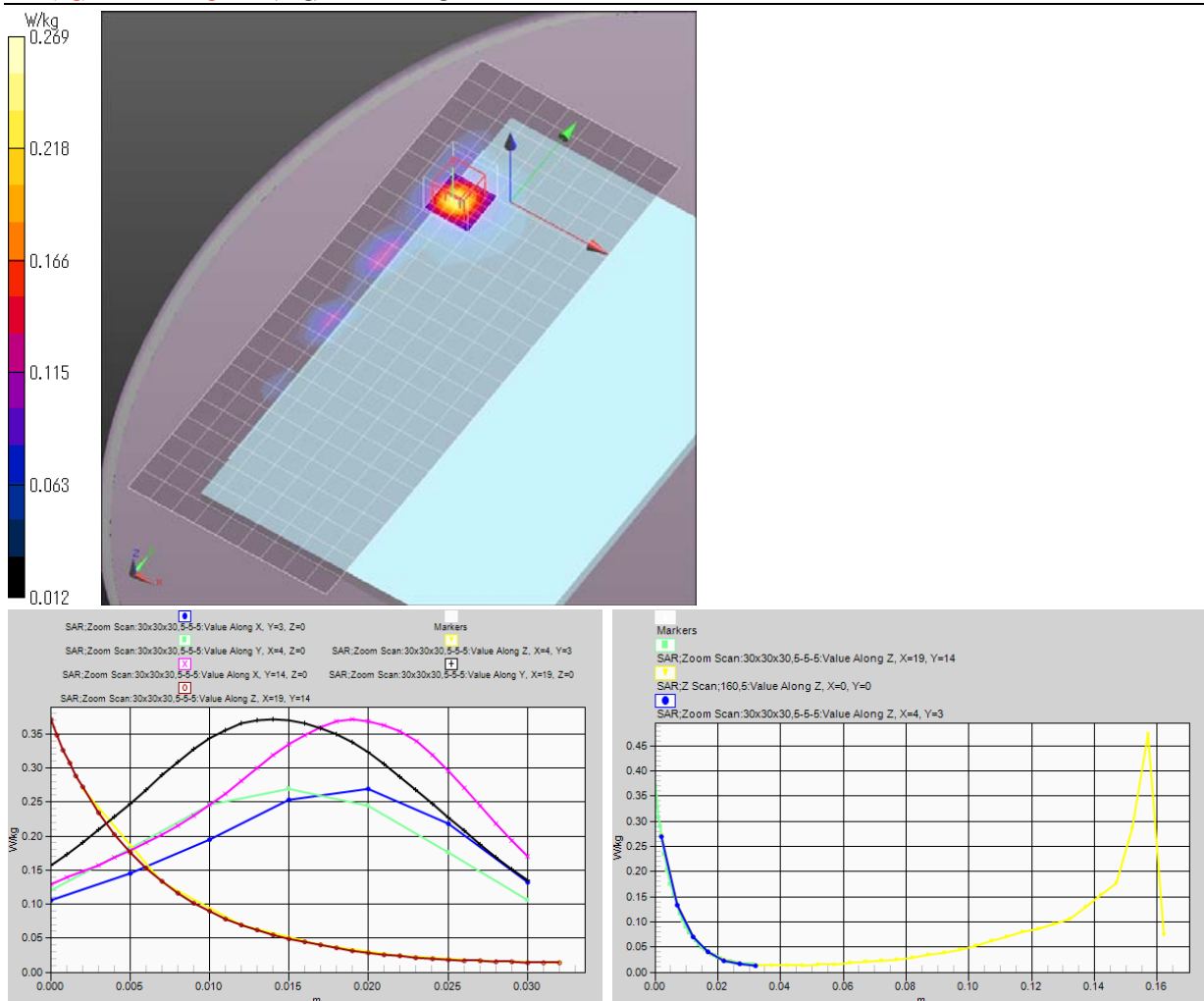
Area Scan:135x360,15 (91x241x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm, Maximum value of SAR (interpolated) = 0.240 W/kg

Z Scan:160,5 (1x1x33): Measurement grid: dx=20mm, dy=20mm, dz=5mm, Maximum value of SAR (measured) = 0.472 W/kg

Zoom Scan:30x30x30,5-5-5 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm, Reference Value = 11.380 V/m; Power Drift = 0.14 dB, Maximum value of SAR (measured) = 0.269 W/kg

Peak SAR (extrapolated) = 0.371 mW/g

SAR(1 g) = 0.182 mW/g; SAR(10 g) = 0.093 mW/g



Remarks:*. Date tested: Date/Time: 2012/11/15; Tested by: Tomochika Sato; Tested place:No.7 shielded room,
*.liquid depth: 153mm; Position: distance of EUT to phantom: 0mm (2mm to liquid); ambient: 24.0 deg.C. / 45 %RH,
*.liquid temperature: 23.0(start)/23.0(end)/22.9(in check) deg.C.; *. White cubic: zoom scan area, Red cubic: big=SAR(10g)/small=SAR(1g)

Appendix 2-2: Measurement data (cont'd)

Step 1: Worst position search(Chain A(Main antenna))(cont'd)

Step 1-2: Left side(separation distance: 0mm)/2437MHz, 11b(1Mbps) Chain A(Main antenna)

EUT: Satellite_U930; Type: Laptop PC; Serial: XC125734H

Communication System: 802.11bgn; Frequency: 2437 MHz; Crest factor: 1.0

Medium: MSL2450; Medium parameters used: $f = 2437$ MHz; $\sigma = 1.951$ S/m; $\epsilon_r = 50.339$; $\rho = 1000$ kg/m³

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

DASY Configuration:

-Probe: EX3DV4 - SN3679; ConvF(6.77, 6.77, 6.77); Calibrated: 2012/06/21; -Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0, 161.0

-Electronics: DAE4 Sn626; Calibrated: 2012/02/15 -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

-DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Left side/Touch(0mm)_11b(1Mbps)_Mid-Ch_main-ant/

Area Scan:255x105,15 (8x18x1): Measurement grid: dx=15mm, dy=15mm, Maximum value of SAR (measured) = 0.113 W/kg

Area Scan:255x105,15 (71x171x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm, Maximum value of SAR (interpolated) = 0.152 W/kg

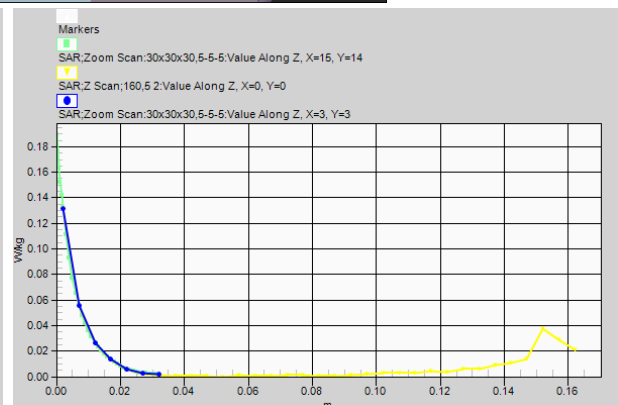
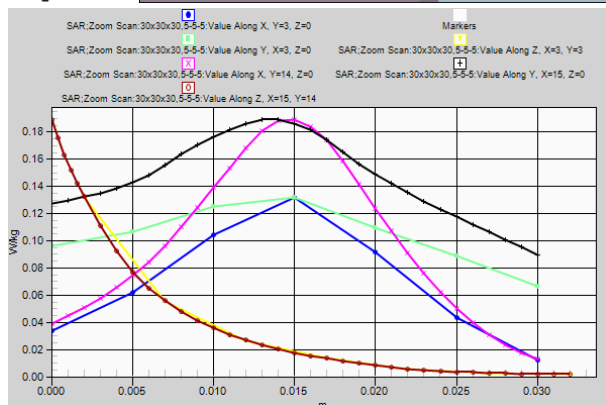
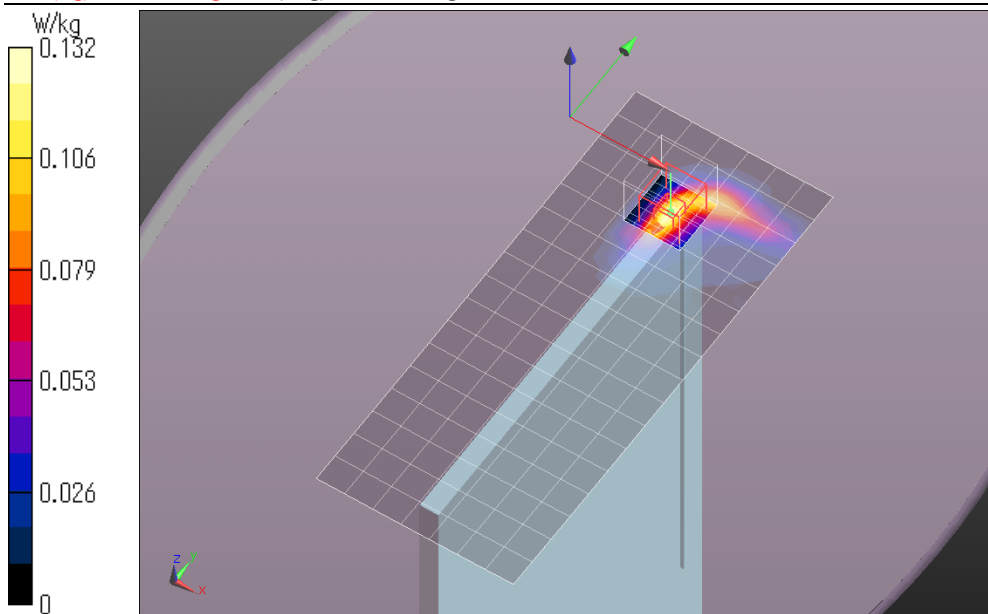
Z Scan;160,5 2 (1x1x33): Measurement grid: dx=20mm, dy=20mm, dz=5mm, Maximum value of SAR (measured) = 0.132 W/kg

Zoom Scan:30x30x30,5-5-5 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.285 V/m; Power Drift = -0.05 dB, Maximum value of SAR (measured) = 0.132 W/kg

Peak SAR (extrapolated) = 0.189 mW/g

SAR(1 g) = 0.081 mW/g; SAR(10 g) = 0.038 mW/g



Remarks:*. Date tested: Date/Time: 2012/11/17; Tested by: Tomochika Sato; Tested place:No.7 shielded room,

*.liquid depth: 153mm; Position: distance of EUT to phantom: 0mm (2mm to liquid); ambient: 24.0 deg.C. / 42 %RH,

*.liquid temperature: 23.0(start)/23.0(end)/22.3(in check) deg.C.; *. White cubic: zoom scan area, Red cubic: big=SAR(10g)/small=SAR(1g)

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone: +81 463 50 6400 / Facsimile: +81 463 50 6401

Appendix 2-2: Measurement data (cont'd)

Step 1: Worst position search(Chain A(Main antenna))(cont'd)

Step 1-3: LCD backside(Nearby person)(separation distance: 0mm)/2437MHz, 11b(1Mbps) Chain A(Main antenna)

EUT: Satellite_U930; Type: Laptop PC; Serial: XC125734H

Communication System: 802.11bgn; Frequency: 2437 MHz; Crest factor: 1.0

Medium: MSL2450; Medium parameters used: $f = 2437$ MHz; $\sigma = 1.951$ S/m; $\epsilon_r = 50.339$; $\rho = 1000$ kg/m³

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

DASY Configuration:

-Probe: EX3DV4 - SN3679; ConvF(6.77, 6.77, 6.77); Calibrated: 2012/06/21; -Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0, 161.0

-Electronics: DAE4 Sn626; Calibrated: 2012/02/15 -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

-DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

LCD back side(Nearby person)/Touch(0mm)_11b(1Mbps)_Mid-Ch_main-ant/

Area Scan:270x360,15 (19x25x1): Measurement grid: dx=15mm, dy=15mm, Maximum value of SAR (measured) = 0.0961 W/kg

Area Scan:270x360,15 (181x241x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm, Maximum value of SAR (interpolated) = 0.117 W/kg

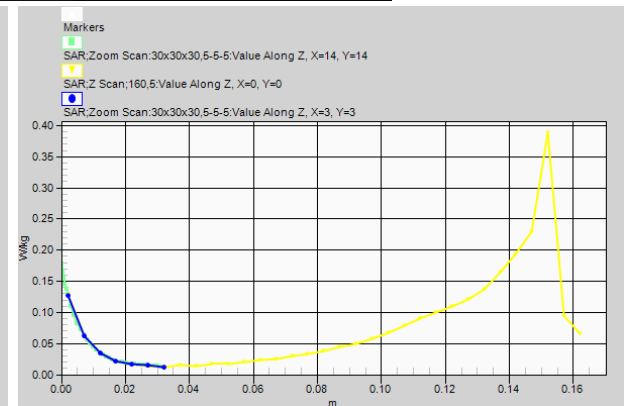
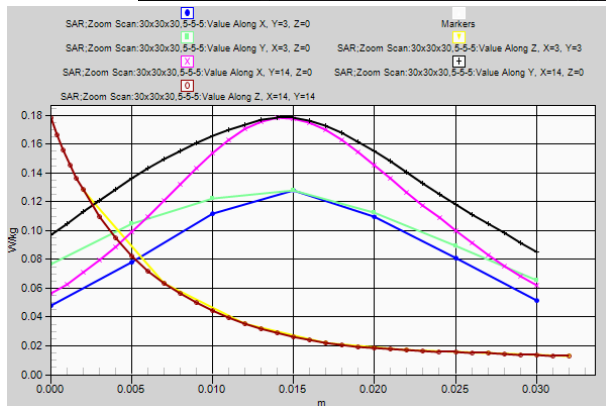
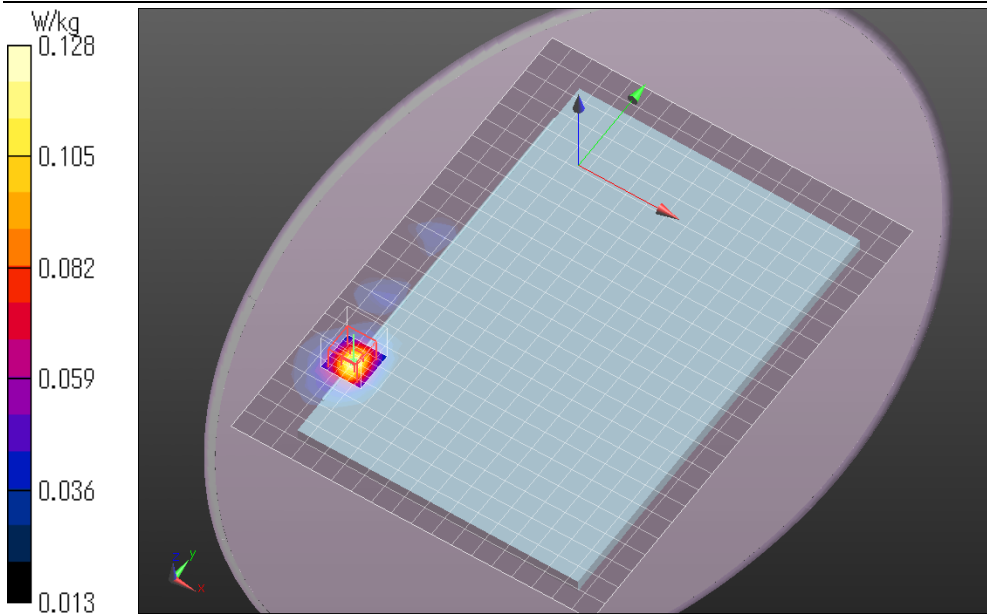
Z Scan;160,5 (1x1x33): Measurement grid: dx=20mm, dy=20mm, dz=5mm, Maximum value of SAR (measured) = 0.388 W/kg

Zoom Scan:30x30x30,5-5-5 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.203 V/m; Power Drift = -0.05 dB, Maximum value of SAR (measured) = 0.128 W/kg

Peak SAR (extrapolated) = 0.178 mW/g

SAR(1 g) = 0.087 mW/g; SAR(10 g) = 0.047 mW/g



Remarks:*. Date tested: Date/Time: 2012/11/17; Tested by: Tomochika Sato; Tested place:No.7 shielded room,
 *.liquid depth: 153mm; Position: distance of EUT to phantom: 0mm (2mm to liquid); ambient: 24.0 deg.C. / 42 %RH,
 *.liquid temperature: 23.0(start)/23.0(end)/22.3(in check) deg.C.; *. White cubic: zoom scan area, Red cubic: big=SAR(10g)/small=SAR(1g)

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN
 Telephone: +81 463 50 6400 / Facsimile: +81 463 50 6401

Appendix 2-2: Measurement data (cont'd)

Step 2: Change the mode(Chain A(Main antenna))

Step 2-1: Lap held(Bottom face)(separation distance: 0mm) / 2437MHz, 11g(6Mbps) Chain A(Main antenna)

EUT: Satellite_U930; Type: Laptop PC; Serial: XC125734H
 Communication System: 802.11bgn; Frequency: 2437 MHz; Crest fator: 1.0
 Medium: MSL2450; Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.98 \text{ S/m}$; $\epsilon_r = 50.311$; $\rho = 1000 \text{ kg/m}^3$
 Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

-Probe: EX3DV4 - SN3679; ConvF(6.77, 6.77, 6.77); Calibrated: 2012/06/21; -Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 31.0, 161.0$
 -Electronics: DAE4 Sn626; Calibrated: 2012/02/15 -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
 -DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Lap held(Bottom face)/Touch(0mm)_11g(6Mbps)_Mid-Ch_main-ant/

Area Scan:135x180,15 (10x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$, Maximum value of SAR (measured) = 0.341 W/kg

Area Scan:135x180,15 (91x121x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$, Maximum value of SAR (interpolated) = 0.343 W/kg

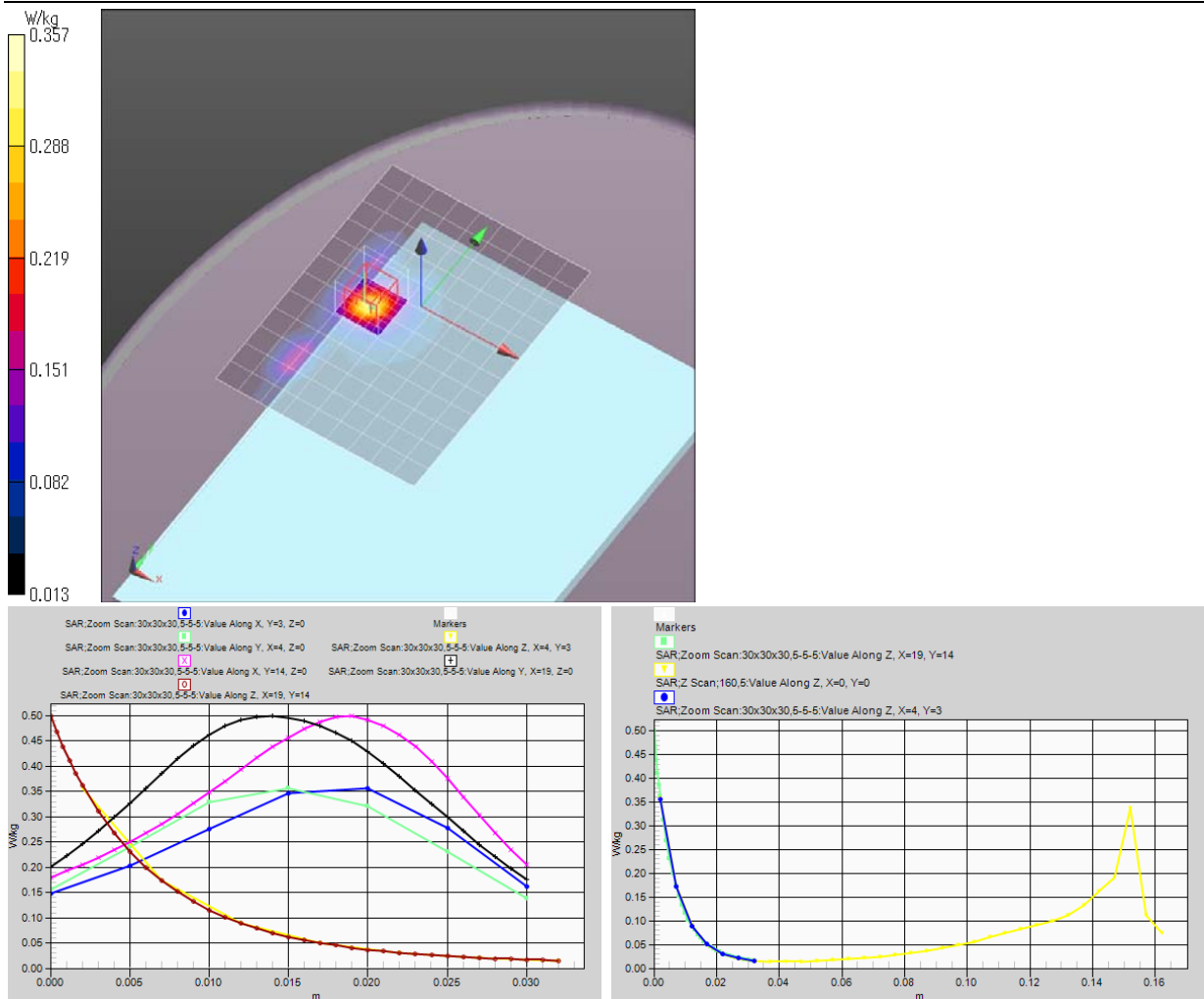
Z Scan:160,5 (1x1x33): Measurement grid: $dx=20\text{mm}$, $dy=20\text{mm}$, $dz=5\text{mm}$, Maximum value of SAR (measured) = 0.359 W/kg

Zoom Scan:30x30x30,5-5-5 (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.434 V/m; Power Drift = -0.04 dB, Maximum value of SAR (measured) = 0.357 W/kg

Peak SAR (extrapolated) = 0.500 mW/g

SAR(1 g) = 0.243 mW/g; SAR(10 g) = 0.123 mW/g



Remarks:*. Date tested: Date/Time: 2012/11/16; Tested by: Tomochika Sato; Tested place:No.7 shielded room,
 *.liquid depth: 153mm; Position: distance of EUT to phantom: 0mm (2mm to liquid); ambient: 24.0 deg.C. / 45 %RH,
 *.liquid temperature: 23.0(start)/23.0(end)/22.9(in check) deg.C.; *. White cubic: zoom scan area, Red cubic: big=SAR(10g)/small=SAR(1g)

Appendix 2-2: Measurement data (cont'd)

Step 2: Change the mode(Chain A(Main antenna))(cont'd)

Step 2-2: Lap held(Bottom face)(separation distance: 0mm) / 2437MHz, 11n20HT(MCS0) SISO Chain A(Main antenna)

EUT: Satellite_U930; Type: Laptop PC; Serial: XC125734H

Communication System: 802.11bgn; Frequency: 2437 MHz; Crest factor: 1.0

Medium: MSL2450; Medium parameters used: $f = 2437$ MHz; $\sigma = 1.98$ S/m; $\epsilon_r = 50.311$; $\rho = 1000$ kg/m³

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

DASY Configuration:

-Probe: EX3DV4 - SN3679; ConvF(6.77, 6.77, 6.77); Calibrated: 2012/06/21; -Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0, 161.0

-Electronics: DAE4 Sn626; Calibrated: 2012/02/15 -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

-DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Lap held(Bottom face)/Touch(0mm)_11n20(mcs0)_Mid-Ch_main-ant_SISO/

Area Scan:135x180,15 (10x13x1): Measurement grid: dx=15mm, dy=15mm, Maximum value of SAR (measured) = 0.345 W/kg

Area Scan:135x180,15 (91x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm, Maximum value of SAR (interpolated) = 0.353 W/kg

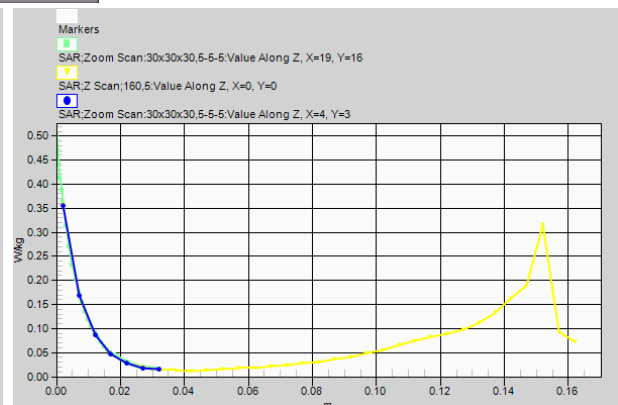
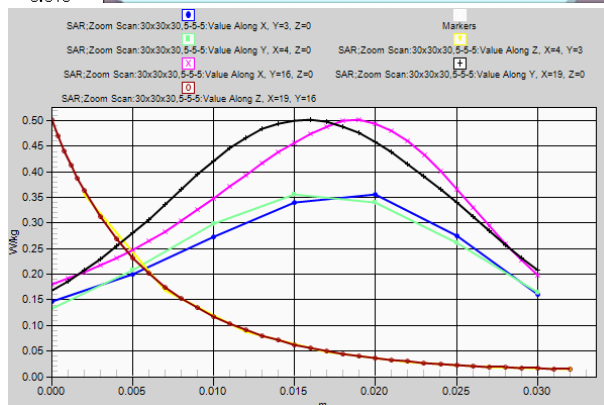
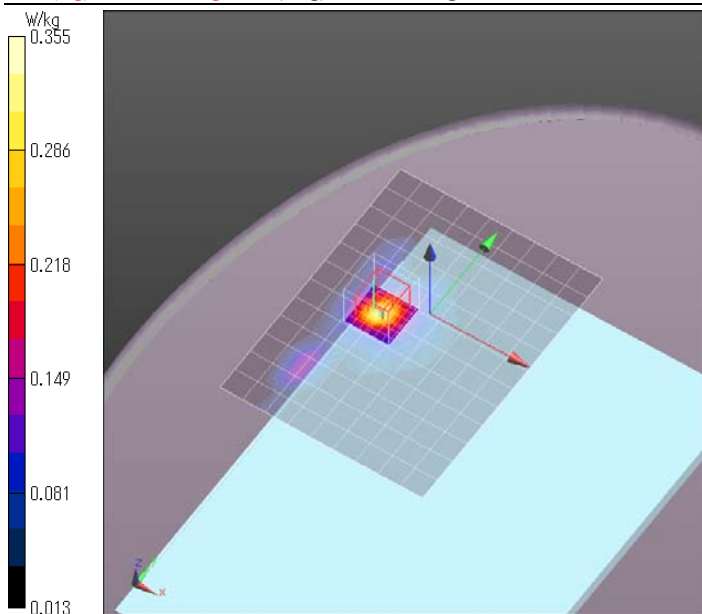
Z Scan:160,5 (1x1x33): Measurement grid: dx=20mm, dy=20mm, dz=5mm, Maximum value of SAR (measured) = 0.358 W/kg

Zoom Scan:30x30x30,5-5-5 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.302 V/m; Power Drift = -0.02 dB, Maximum value of SAR (measured) = 0.355 W/kg

Peak SAR (extrapolated) = 0.502 mW/g

SAR(1 g) = 0.243 mW/g; SAR(10 g) = 0.122 mW/g



Remarks:*. Date tested: Date/Time: 2012/11/16; Tested by: Tomochika Sato; Tested place:No.7 shielded room,
*.liquid depth: 153mm; Position: distance of EUT to phantom: 0mm (2mm to liquid); ambient: 24.0 deg.C. / 45 %RH,
*.liquid temperature: 23.0(start)/23.0(end)/22.9(in check) deg.C.; *. White cubic: zoom scan area, Red cubic: big=SAR(10g)/small=SAR(1g)

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN
Telephone: +81 463 50 6400 / Facsimile: +81 463 50 6401

Appendix 2-2: Measurement data (cont'd)

Step 1: Worst position search(Chain B(Aux antenna))

Step 1-4: Lap held(Bottom face)(separation distance: 0mm) / 2437MHz, 11b(1Mbps) Chain B(Aux antenna)

EUT: Satellite_U930; Type: Laptop PC; Serial: XC125734H

Communication System: 802.11bgn; Frequency: 2437 MHz; Crest factor: 1.0

Medium: MSL2450; Medium parameters used: $f = 2437$ MHz; $\sigma = 1.98$ S/m; $\epsilon_r = 50.311$; $\rho = 1000$ kg/m³

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

DASY Configuration:

-Probe: EX3DV4 - SN3679; ConvF(6.77, 6.77, 6.77); Calibrated: 2012/06/21; -Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0, 161.0

-Electronics: DAE4 Sn626; Calibrated: 2012/02/15 -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

-DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Lap held(Bottom face)/Touch(0mm)_11b(1Mbps)_Mid-Ch_aux-ant/

Area Scan:135x360,15 (10x25x1): Measurement grid: dx=15mm, dy=15mm, Maximum value of SAR (measured) = 0.192 W/kg

Area Scan:135x360,15 (91x241x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm, Maximum value of SAR (interpolated) = 0.220 W/kg

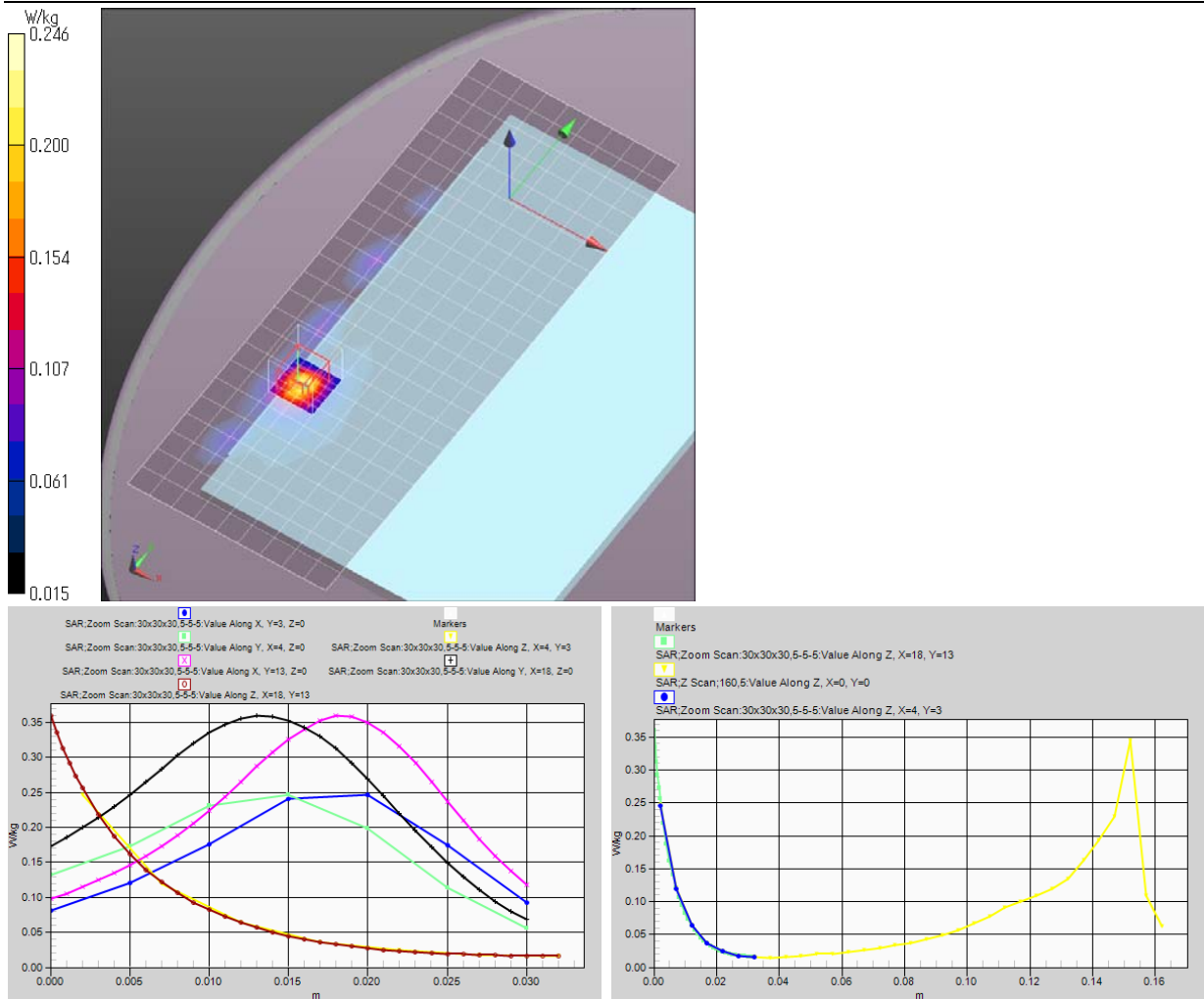
Z Scan;160,5 (1x1x33): Measurement grid: dx=20mm, dy=20mm, dz=5mm, Maximum value of SAR (measured) = 0.345 W/kg

Zoom Scan:30x30x30,5-5-5 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.190 V/m; Power Drift = -0.02 dB, Maximum value of SAR (measured) = 0.246 W/kg

Peak SAR (extrapolated) = 0.360 mW/g

SAR(1 g) = 0.166 mW/g; SAR(10 g) = 0.081 mW/g



Remarks:*. Date tested: Date/Time: 2012/11/16; Tested by: Tomochika Sato; Tested place:No.7 shielded room,
 *.liquid depth: 153mm; Position: distance of EUT to phantom: 0mm (2mm to liquid); ambient: 24.0 deg.C. / 42 %RH,
 *.liquid temperature: 23.0(start)/23.0(end)/22.3(in check) deg.C.; *. White cubic: zoom scan area, Red cubic: big=SAR(10g)/small=SAR(1g)

Appendix 2-2: Measurement data (cont'd)

Step 1: Worst position search(Chain B(Aux antenna)) (cont'd)

Step 1-5: Right side(separation distance: 0mm)/2437MHz, 11b(1Mbps) Chain B(Aux antenna)

EUT: Satellite_U930; Type: Laptop PC; Serial: XC125734H

Communication System: 802.11bgn; Frequency: 2437 MHz; Crest factor: 1.0

Medium: MSL2450; Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.98 \text{ S/m}$; $\epsilon_r = 50.311$; $\rho = 1000 \text{ kg/m}^3$

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

DASY Configuration:

-Probe: EX3DV4 - SN3679; ConvF(6.77, 6.77, 6.77); Calibrated: 2012/06/21; -Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 31.0, 161.0$

-Electronics: DAE4 Sn626; Calibrated: 2012/02/15 -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

-DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Right side/Touch(0mm)_11b(1Mbps)_Mid-Ch_aux-ant/

Area Scan:255x105,15 (8x18x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$, Maximum value of SAR (measured) = 0.0531 W/kg

Area Scan:255x105,15 (71x171x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$, Maximum value of SAR (interpolated) = 0.0698 W/kg

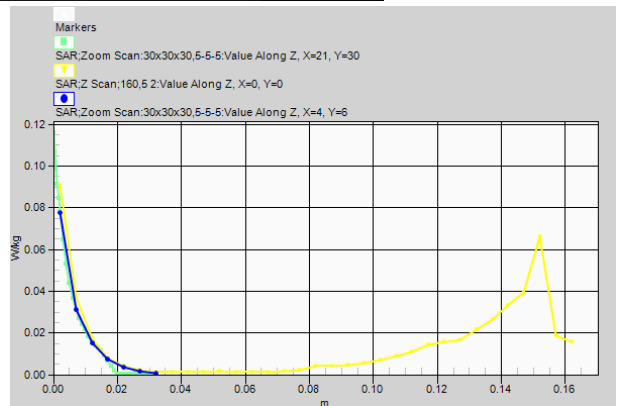
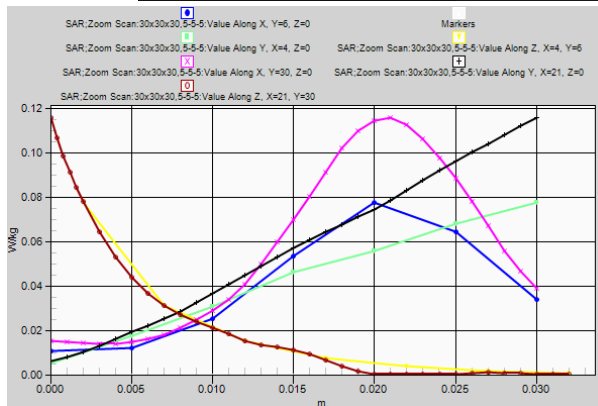
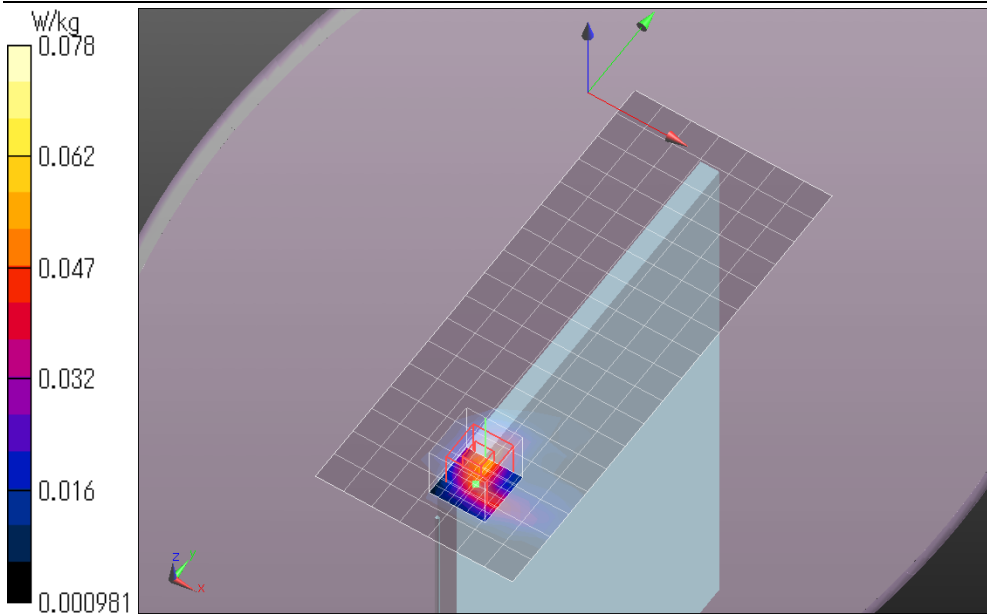
Z Scan;160,5 2 (1x1x33): Measurement grid: $dx=20\text{mm}$, $dy=20\text{mm}$, $dz=5\text{mm}$, Maximum value of SAR (measured) = 0.0906 W/kg

Zoom Scan:30x30x30,5-5-5 (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$,

Reference Value = 5.198 V/m; Power Drift = 0.03 dB, Maximum value of SAR (measured) = 0.0776 W/kg

Peak SAR (extrapolated) = 0.116 mW/g

SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.019 mW/g



Remarks:*. Date tested: Date/Time: 2012/11/16; Tested by: Tomochika Sato; Tested place:No.7 shielded room,
 *.liquid depth: 153mm; Position: distance of EUT to phantom: 0mm (2mm to liquid); ambient: 24.0 deg.C. / 42 %RH,
 *.liquid temperature: 23.0(start)/23.0(end)/22.3(in check) deg.C.; *. White cubic: zoom scan area, Red cubic: big=SAR(10g)/small=SAR(1g)

Appendix 2-2: Measurement data (cont'd)

Step 1: Worst position search(Chain B(Aux antenna)) (cont'd)

Step 1-6: LCD backside(Nearby person)(separation distance: 0mm)/2437MHz, 11b(1Mbps) Chain B(Aux antenna)

EUT: Satellite_U930; Type: Laptop PC; Serial: XC125734H

Communication System: 802.11bgn; Frequency: 2437 MHz; Crest factor: 1.0

Medium: MSL2450; Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.951 \text{ S/m}$; $\epsilon_r = 50.339$; $\rho = 1000 \text{ kg/m}^3$

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

DASY Configuration:

-Probe: EX3DV4 - SN3679; ConvF(6.77, 6.77, 6.77); Calibrated: 2012/06/21; -Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 31.0, 161.0$

-Electronics: DAE4 Sn626; Calibrated: 2012/02/15 -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

-DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

LCD back side(Nearby person)/Touch(0mm)_11b(1Mbps)_Mid-Ch_aux-ant/

Area Scan:270x360,15 (19x25x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$, Maximum value of SAR (measured) = 0.0900 W/kg

Area Scan:270x360,15 (181x241x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$, Maximum value of SAR (interpolated) = 0.0938 W/kg

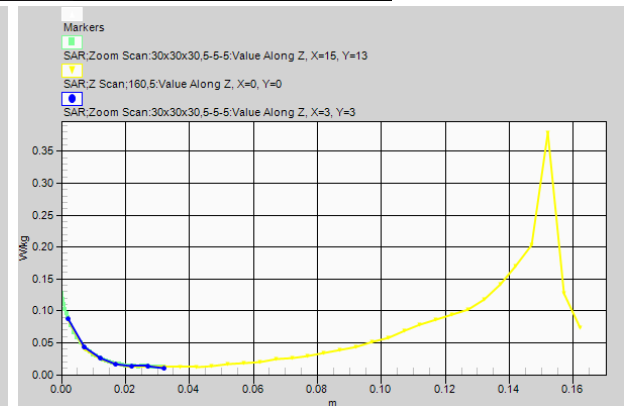
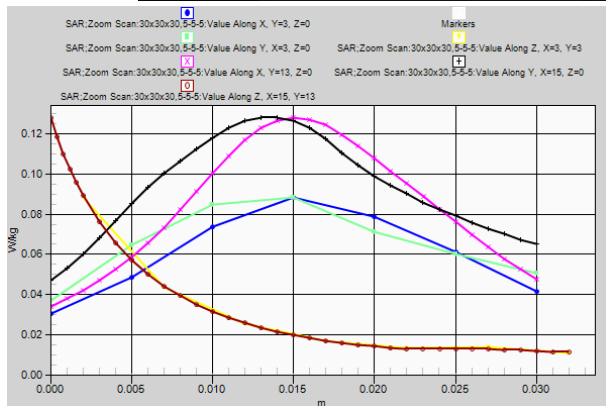
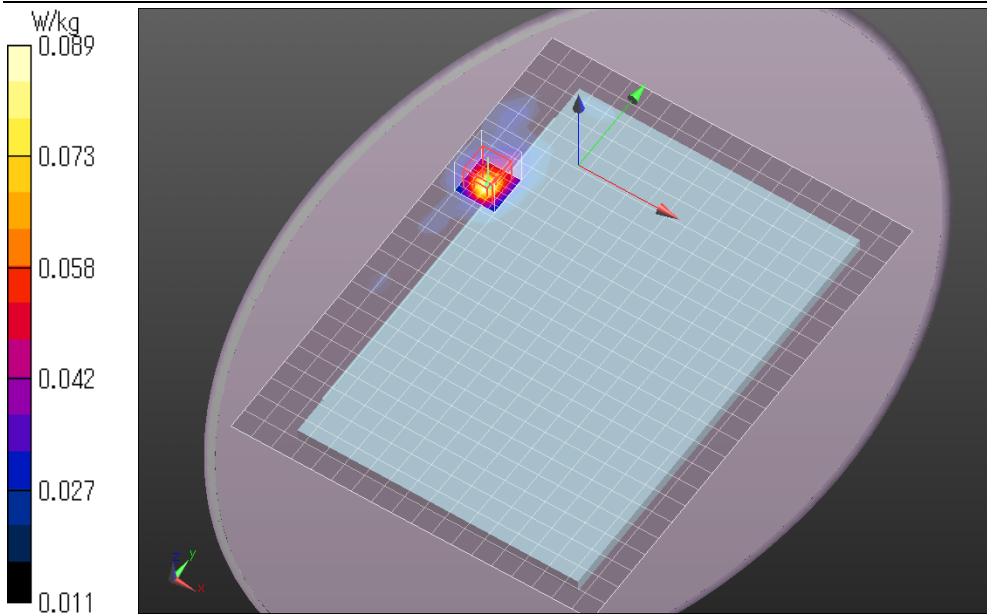
Z Scan;160,5 (1x1x33): Measurement grid: $dx=20\text{mm}$, $dy=20\text{mm}$, $dz=5\text{mm}$, Maximum value of SAR (measured) = 0.378 W/kg

Zoom Scan:30x30x30,5-5-5 (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.868 V/m; Power Drift = -0.04 dB, Maximum value of SAR (measured) = 0.0886 W/kg

Peak SAR (extrapolated) = 0.128 mW/g

SAR(1 g) = 0.059 mW/g; SAR(10 g) = 0.032 mW/g



Remarks:*. Date tested: Date/Time: 2012/11/16; Tested by: Tomochika Sato; Tested place:No.7 shielded room,
 *.liquid depth: 153mm; Position: distance of EUT to phantom: 0mm (2mm to liquid); ambient: 24.0 deg.C. / 42 %RH,
 *.liquid temperature: 23.0(start)/23.0(end)/22.3(in check) deg.C.; *. White cubic: zoom scan area, Red cubic: big=SAR(10g)/small=SAR(1g)

Appendix 2-2: Measurement data (cont'd)

Step 2: Change the mode(Chain B(Aux antenna))

Step 2-3: Lap held(Bottom face)(separation distance: 0mm) / 2437MHz, 11g(6Mbps) Chain B(Aux antenna)

EUT: Satellite_U930; Type: Laptop PC; Serial: XC125734H

Communication System: 802.11bgn; Frequency: 2437 MHz; Crest factor: 1.0

Medium: MSL2450; Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.98 \text{ S/m}$; $\epsilon_r = 50.311$; $\rho = 1000 \text{ kg/m}^3$

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

DASY Configuration:

-Probe: EX3DV4 - SN3679; ConvF(6.77, 6.77, 6.77); Calibrated: 2012/06/21; -Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0, 161.0

-Electronics: DAE4 Sn626; Calibrated: 2012/02/15 -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

-DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Lap held(Bottom face)/Touch(0mm)_11g(6Mbps)_Mid-Ch_aux-ant/

Area Scan:135x180,15 (10x13x1): Measurement grid: dx=15mm, dy=15mm, Maximum value of SAR (measured) = 0.258 W/kg

Area Scan:135x180,15 (91x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm, Maximum value of SAR (interpolated) = 0.271 W/kg

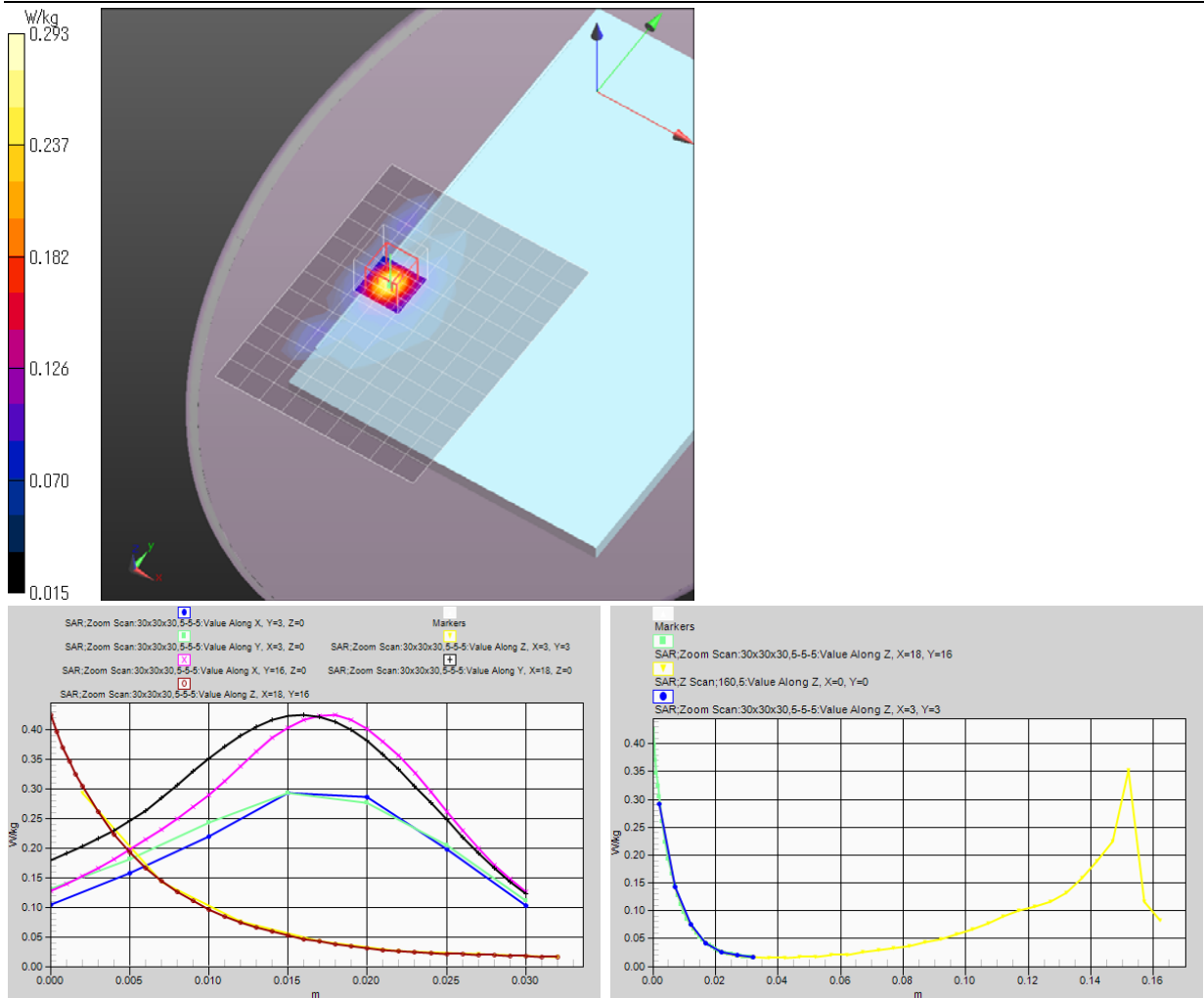
Z Scan:160,5 (1x1x33): Measurement grid: dx=20mm, dy=20mm, dz=5mm, Maximum value of SAR (measured) = 0.352 W/kg

Zoom Scan:30x30x30,5-5-5 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.367 V/m; Power Drift = -0.01 dB, Maximum value of SAR (measured) = 0.293 W/kg

Peak SAR (extrapolated) = 0.424 mW/g

SAR(1 g) = 0.198 mW/g; SAR(10 g) = 0.096 mW/g



Remarks:*. Date tested: Date/Time: 2012/11/16; Tested by: Tomochika Sato; Tested place:No.7 shielded room,
 *.liquid depth: 153mm; Position: distance of EUT to phantom: 0mm (2mm to liquid); ambient: 24.0 deg.C. / 42 %RH,
 *.liquid temperature: 23.0(start)/23.0(end)/22.3(in check) deg.C.; *. White cubic: zoom scan area, Red cubic: big=SAR(10g)/small=SAR(1g)

Appendix 2-2: Measurement data (cont'd)

Step 2: Change the mode(Chain B(Aux antenna)) (cont'd)

Step 2-4: Lap held(Bottom face)(separation distance: 0mm) / 2437MHz, 11n20HT(MCS0) SISO Chain B(Aux antenna)

EUT: Satellite_U930; Type: Laptop PC; Serial: XC125734H

Communication System: 802.11bgn; Frequency: 2437 MHz; Crest factor: 1.0

Medium: MSL2450; Medium parameters used: $f = 2437$ MHz; $\sigma = 1.98$ S/m; $\epsilon_r = 50.311$; $\rho = 1000$ kg/m³

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

DASY Configuration:

-Probe: EX3DV4 - SN3679; ConvF(6.77, 6.77, 6.77); Calibrated: 2012/06/21; -Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0, 161.0

-Electronics: DAE4 Sn26; Calibrated: 2012/02/15 -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

-DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Lap held(Bottom face)/Touch(0mm)_11n20(mcs0)_Mid-Ch_aux-ant_SISO/

Area Scan:135x180,15 (10x13x1): Measurement grid: dx=15mm, dy=15mm, Maximum value of SAR (measured) = 0.234 W/kg

Area Scan:135x180,15 (91x121x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm, Maximum value of SAR (interpolated) = 0.256 W/kg

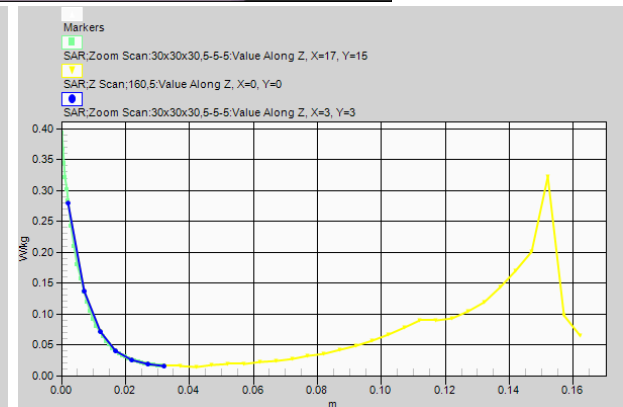
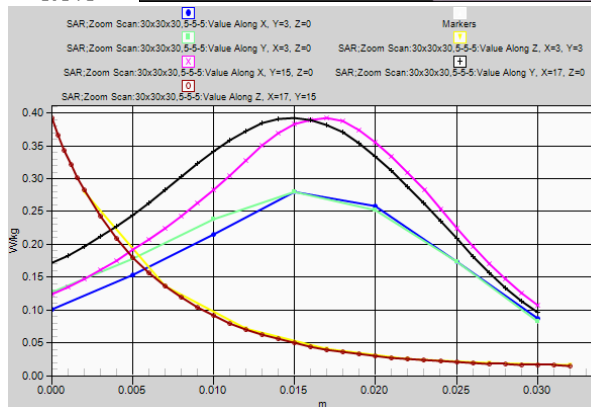
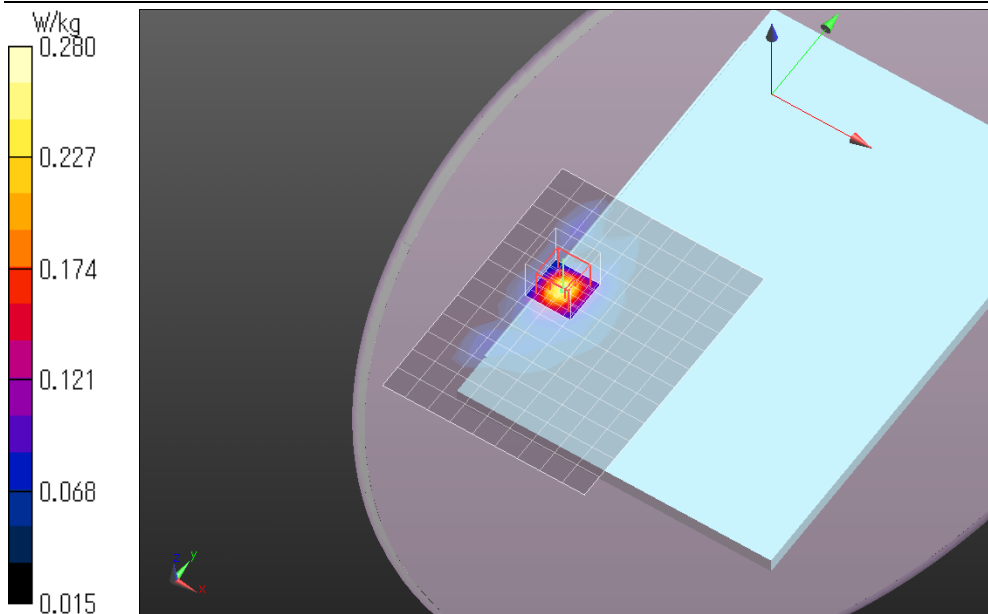
Z Scan:160,5 (1x1x33): Measurement grid: dx=20mm, dy=20mm, dz=5mm, Maximum value of SAR (measured) = 0.322 W/kg

Zoom Scan:30x30x30,5-5-5 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.110 V/m; Power Drift = 0.02 dB, Maximum value of SAR (measured) = 0.280 W/kg

Peak SAR (extrapolated) = 0.392 mW/g

SAR(1 g) = 0.184 mW/g; SAR(10 g) = 0.090 mW/g



Remarks:* Date tested: Date/Time: 2012/11/16; Tested by: Tomochika Sato; Tested place:No.7 shielded room,

*.liquid depth: 153mm; Position: distance of EUT to phantom: 0mm (2mm to liquid); ambient: 24.0 deg.C. / 42 %RH,

*.liquid temperature: 23.0(start)/23.0(end)/22.3(in check) deg.C.; *.White cubic: zoom scan area, Red cubic: big=SAR(10g)/small=SAR(1g)

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone: +81 463 50 6400 / Facsimile: +81 463 50 6401

Appendix 2-2: Measurement data (cont'd)

Step 2: Change the mode(Chain A and B(Main and Aux antenna)) (cont'd)

Step 2-5: Lap held(Bottom face)(separation distance: 0mm) / 2437MHz, 11n20HT(MCS8) MIMO Chain A and B

EUT: Satellite_U930; Type: Laptop PC; Serial: XC125734H

Communication System: 802.11bgn; Frequency: 2437 MHz; Crest factor: 1.0

Medium: MSL2450; Medium parameters used: $f = 2437$ MHz; $\sigma = 1.945$ S/m; $\epsilon_r = 50.527$; $\rho = 1000$ kg/m³

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

DASY Configuration:

-Probe: EX3DV4 - SN3679; ConvF(6.77, 6.77, 6.77); Calibrated: 2012/06/21; -Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0, 161.0

-Electronics: DAE4 Sn626; Calibrated: 2012/02/15 -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

-DASY52 52.8.2(969); SEMCAD X 14.6.6(6824)

Lap held(Bottom face)/Touch(0mm)_11n20(mcs8)_Mid-Ch_MIMO/

Area Scan:270x360,15 (19x25x1): Measurement grid: dx=15mm, dy=15mm, Maximum value of SAR (measured) = 0.190 W/kg

Area Scan:270x360,15 (181x241x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm, Maximum value of SAR (interpolated) = 0.199 W/kg

Z Scan;160,5 (1x1x33): Measurement grid: dx=20mm, dy=20mm, dz=5mm, Maximum value of SAR (measured) = 0.443 W/kg

Zoom Scan:30x30x30,5-5-5_main-ant (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.934 V/m; Power Drift = -0.13 dB, Maximum value of SAR (measured) = 0.186 W/kg

Peak SAR (extrapolated) = 0.267 mW/g

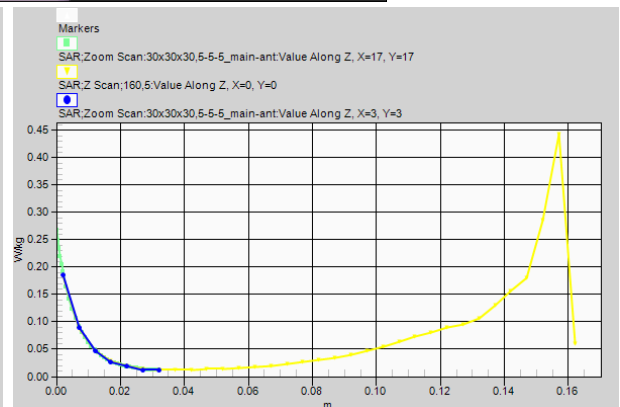
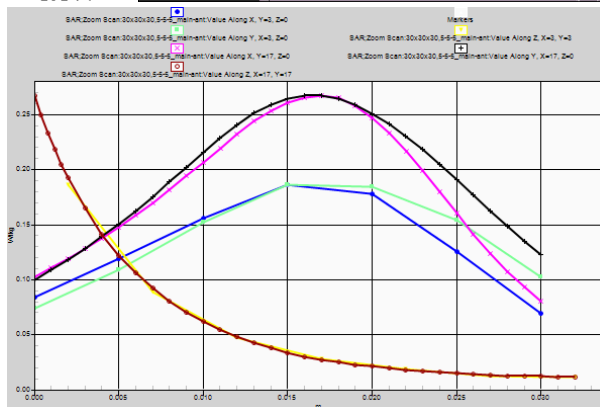
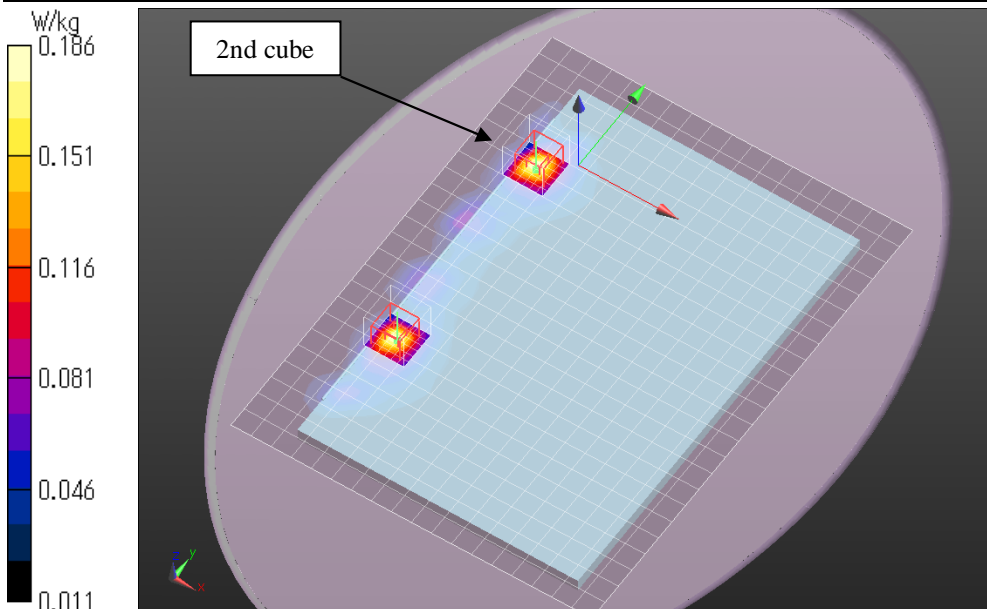
SAR(1 g) = 0.128 mW/g; SAR(10 g) = 0.066 mW/g

Zoom Scan(2nd):30x30x30,5-5-5_aux-ant (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.934 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.275 mW/g

SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.063 mW/g



Remarks:*. Date tested: Date/Time: 2012/11/15; Tested by: Tomochika Sato; Tested place:No.7 shielded room,

*.liquid depth: 153mm; Position: distance of EUT to phantom: 0mm (2mm to liquid); ambient: 24.0 deg.C. / 42 %RH,

*.liquid temperature: 23.0(start)/23.0(end)/22.3(in check) deg.C.; *.White cubic: zoom scan area, Red cubic: big=SAR(10g)/small=SAR(1g)

UL Japan, Inc.

Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN

Telephone: +81 463 50 6400 / Facsimile: +81 463 50 6401