
APPENDIX 2: SAR Measurement data

Appendix 2-1: Evaluation procedure

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 a volume of equal or more than 24mm(X axis) × 24mm(Y axis) × 22.5mm (Z axis) was assessed by measuring 8×8×6(ratio step method (*1)) points for 3-6GHz frequency band.

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.

***1. Ratio step method parameters used;**

The first measurement point: 2mm from the phantom surface, the initial grid separation: 2mm, subsequent graded grid ratio: 1.5

These parameters comply with the requirement of the KDB 865664.

In the section of SAR Scan Procedures-Zoom Scan, in KDB 865664(October 2006 revised, publication date: April 16, 2007): SAR Measurement Requirements for 3-6GHz, the graded grids requirement is as follows;

“When graded grids are used (z), the first measurement point should be within 3mm of the phantom surface for measurements below 4.5GHz and within 2mm at or above 4.5GHz. The initial grid separation, closest to the phantom, should be ≤ 2.0mm. A subsequent graded ration of 1.5 is recommended and less than 2.0 is required. “

Appendix 2-2: Measurement data (Body liquid) / 2.4GHz band

Step 1: Worst position search

Step 1-1: Top&touch / Mid.channel: 2437MHz(6ch), 11b(1Mbps)

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11b(1Mbps, DBPSK/DSSS); Frequency: 2437 MHz; Crest Factor: 1.0

Medium: M2450; Medium parameters used(23.7deg.C.): f= 2450 MHz; $\sigma = 1.98$ S/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(7.34, 7.34, 7.34); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc.2.4g-r1.top&touch(d0),11b(1m.13dbm),m2437(6),w/bty(1)/

Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured)= 0.069 mW/g

Area Scan (71x71x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (interpolated)= 0.084 mW/g

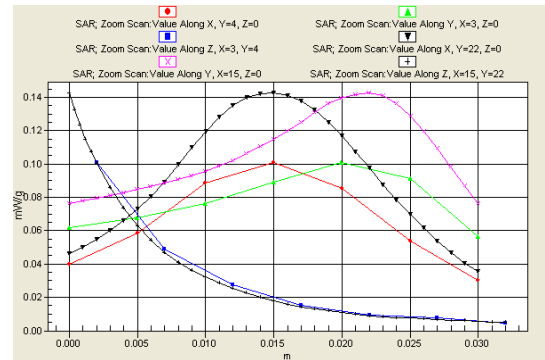
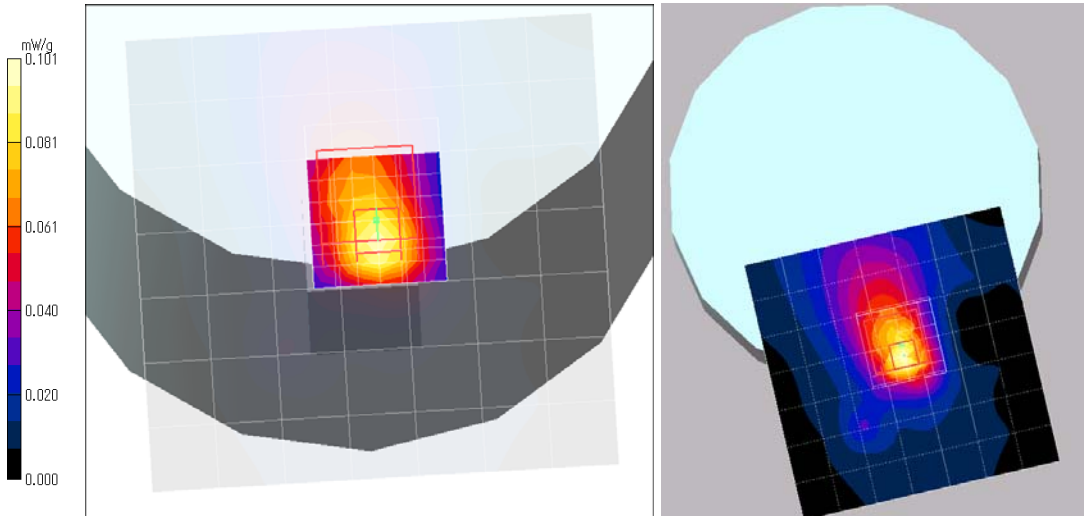
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured)= 0.130 mW/g

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

Reference Value = 7.05 V/m; Power Drift = -0.20 dB, Maximum value of SAR (measured) = 0.101 mW/g

Peak SAR (extrapolated) = 0.142 W/kg

SAR(1 g) = 0.067 mW/g; SAR(10 g) = 0.035 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 158mm
- *.ambient: 24.6 deg.C / 60 %RH; liquid temperature: (before) 23.6 deg.C / (after) 23.6 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 9, 2011

Appendix 2-2: Measurement data (Body liquid) / 2.4GHz band (cont'd)

Step 1: Worst position search (cont'd)

Step 1-2: Front&touch / Mid.channel: 2437MHz(6ch), 11b(1Mbps)

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11b(1Mbps, DBPSK/DSSS); Frequency: 2437 MHz; Crest Factor: 1.0

Medium: M2450; Medium parameters used(23.7deg.C.): f = 2450 MHz; $\sigma = 1.98$ S/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(7.34, 7.34, 7.34); Calibrated: 2011/05/19
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn626; Calibrated: 2011/02/10
- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc2.4g-r2,front&touch(d0),11b(1m,13dbm),m2437(6),w/bty(2)/

Area Scan (8x7x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.183 mW/g

Area Scan (71x61x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (interpolated) = 0.243 mW/g

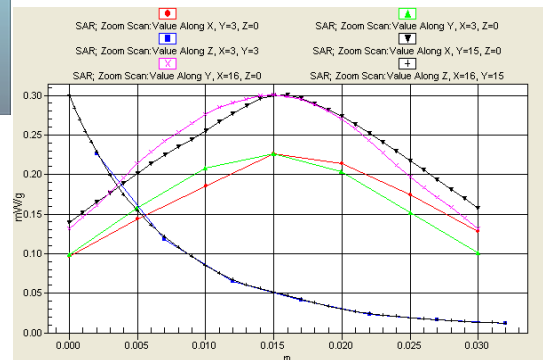
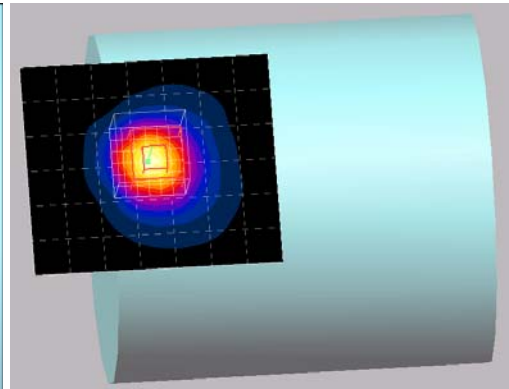
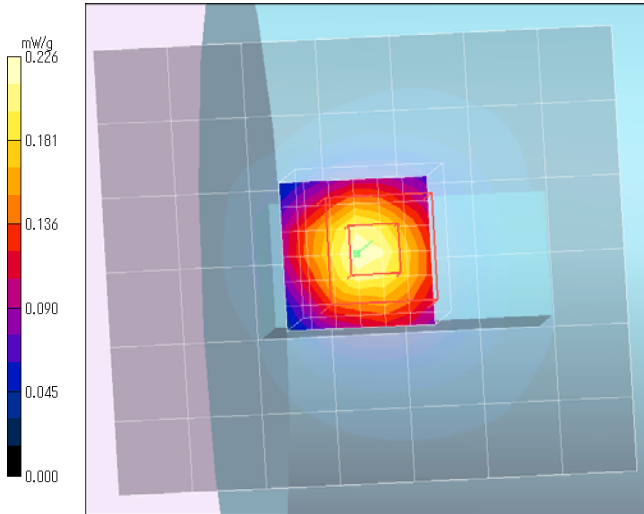
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 0.221 mW/g

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

Reference Value = 8.64 V/m; Power Drift = -0.008 dB; Maximum value of SAR (measured) = 0.226 mW/g

Peak SAR (extrapolated) = 0.300 W/kg

SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.083 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 158mm
- *.ambient: 24.5 deg.C / 54 %RH; liquid temperature: (before) 23.5 deg.C / (after) 23.5 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 9, 2011

Appendix 2-2: Measurement data (Body liquid) / 2.4GHz band (cont'd)

Step 1: Worst position search (cont'd)

Step 1-3: Left-front&touch / Mid.channel: 2437MHz(6ch), 11b(1Mbps)

>Worst SAR (1g) of 2.4GHz band

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11b(1Mbps, DBPSK/DSSS); Frequency: 2437 MHz; Crest Factor: 1.0

Medium: M2450; Medium parameters used(23.7deg.C.): f = 2450 MHz; $\sigma = 1.98$ S/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(7.34, 7.34, 7.34); Calibrated: 2011/05/19
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn626; Calibrated: 2011/02/10
- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc2.4g-r3.front-left(naname)&touch(d0),11b(1m,13dbm),m2437(6),w/bty(1)

Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.307 mW/g

Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (interpolated) = 0.343 mW/g

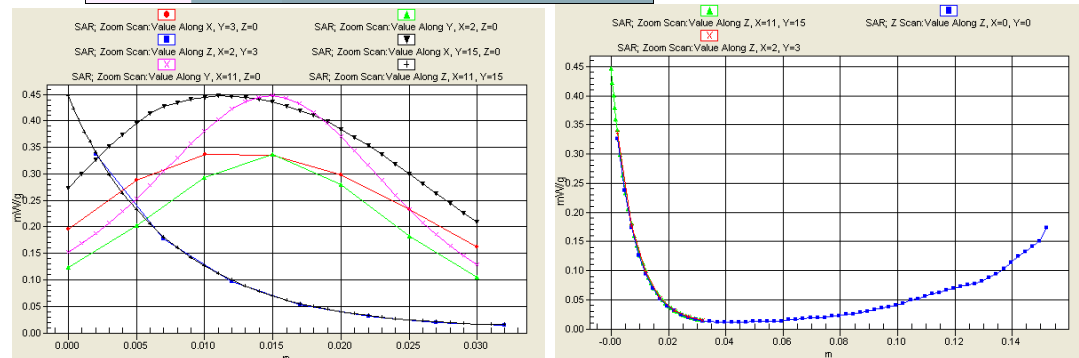
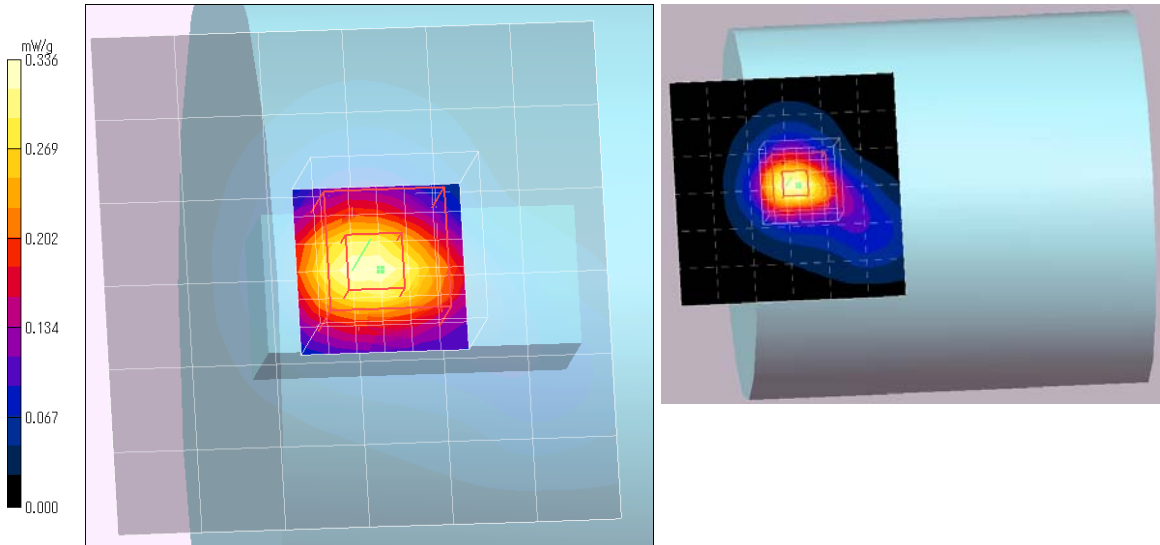
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 0.326 mW/g

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

Reference Value = 9.99 V/m; Power Drift = 0.110 dB, Maximum value of SAR (measured) = 0.336 mW/g

Peak SAR (extrapolated) = 0.447 W/kg

SAR(1 g) = 0.235 mW/g (Worst SAR(1g) of 2.4GHz band); SAR(10 g) = 0.117 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 158mm
- *.ambient: 24.9 deg.C / 60 %RH; liquid temperature: (before) 23.5 deg.C / (after) 23.5 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 9, 2011

Appendix 2-2: Measurement data (Body liquid) / 2.4GHz band (cont'd)

Step 2: Change the channels

Step 2-1: Low channel: 2412MHz(1ch) / 11b(1Mbps), Left-front&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11b(1Mbps, DBPSK/DSSS): 2412 MHz; Crest Factor: 1.0

Medium: M2450; Medium parameters used(23.7deg.C.): $f = 2450 \text{ MHz}$; $\sigma = 1.98 \text{ S/m}$; $\epsilon_r = 50.2$; $\rho = 1000 \text{ kg/m}^3$

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(7.34, 7.34, 7.34); Calibrated: 2011/05/19
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn626; Calibrated: 2011/02/10
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc.2.4g-r4.chg.freq:front-left(naname)&touch(d0),11b(1m,13dbm),m2412(1),w/bty(2/)

Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.304 mW/g

Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (interpolated) = 0.336 mW/g

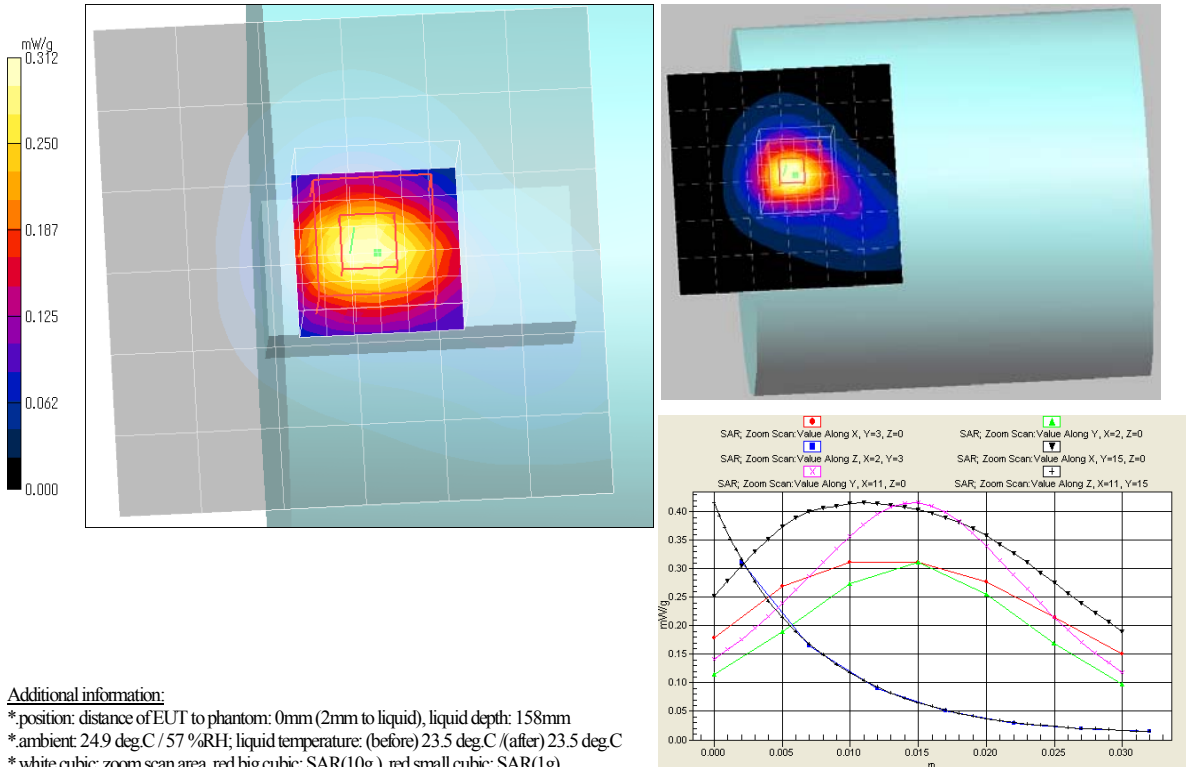
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 0.309 mW/g

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

Reference Value = 9.92 V/m; Power Drift = 0.035 dB, Maximum value of SAR (measured) = 0.312 mW/g

Peak SAR (extrapolated) = 0.416 W/kg

SAR(1 g) = 0.219 mW/g; SAR(10 g) = 0.110 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 158mm
- *.ambient: 24.9 deg.C / 57 %RH; liquid temperature: (before) 23.5 deg.C / (after) 23.5 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 9, 2011

Appendix 2-2: Measurement data (Body liquid) / 2.4GHz band (cont'd)
Step 2: Change the channels (cont'd)

Step 2-2: High channel: 2462MHz(11ch) / 11b(1Mbps), Left-front&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 802.11bgn; Frequency: 2462 MHz; Crest Factor: 1.0

Medium: M2450; Medium parameters used(23.7deg.C.): f = 2450 MHz; $\sigma = 1.98$ S/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(7.34, 7.34, 7.34); Calibrated: 2011/05/19
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn626; Calibrated: 2011/02/10
- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc.2.4g-r5.chg.freq:front-left(naname)&touch(d0),11b(1m,13dbm),m2462(11),w/bty(1)

Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.298 mW/g

Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (interpolated) = 0.326 mW/g

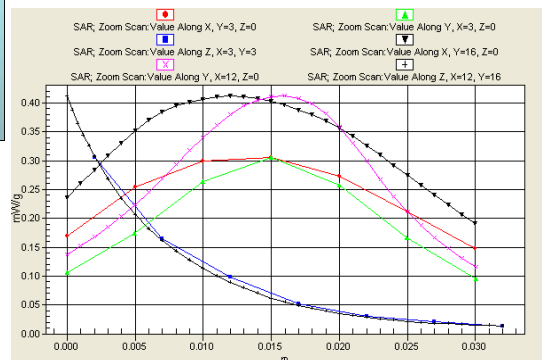
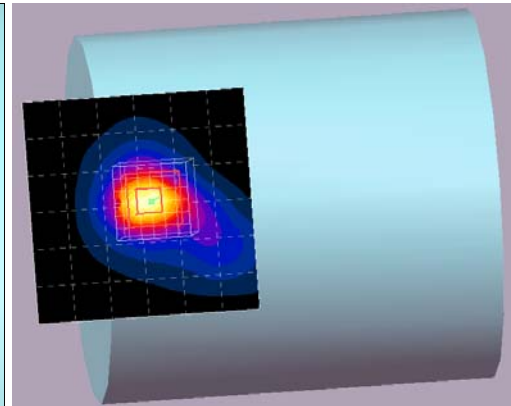
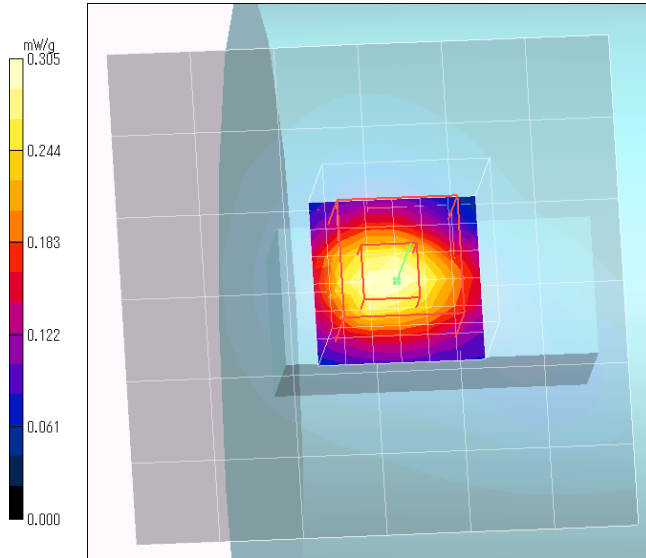
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 0.305 mW/g

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

Reference Value = 9.57 V/m; Power Drift = 0.087 dB; Maximum value of SAR (measured) = 0.305 mW/g

Peak SAR (extrapolated) = 0.412 W/kg

SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.104 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 158mm
- *.ambient: 24.9 deg.C / 57 %RH; liquid temperature: (before) 23.5 deg.C / (after) 23.6 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 9, 2011

Appendix 2-2: Measurement data (Body liquid) / 2.4GHz band (cont'd)

Step 3: Change the operation mode

Step 3-1: 11g(6Mbps) / Mid.channel: 2437MHz(6ch), Left-front&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11g(6Mbps, BPSK/OQPSK); Frequency: 2437 MHz; Crest Factor: 1.0

Medium: M2450; Medium parameters used(23.7deg.C.): $f = 2450 \text{ MHz}$; $\sigma = 1.98 \text{ S/m}$; $\epsilon_r = 50.2$; $\rho = 1000 \text{ kg/m}^3$

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(7.34, 7.34, 7.34); Calibrated: 2011/05/19
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn626; Calibrated: 2011/02/10
- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc.2.4g-r6.chg.mode:front-left(naname)&touch(d0),11g(6m,13dbm),m2437(6),w/bty(2)/

Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.249 mW/g

Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (interpolated) = 0.314 mW/g

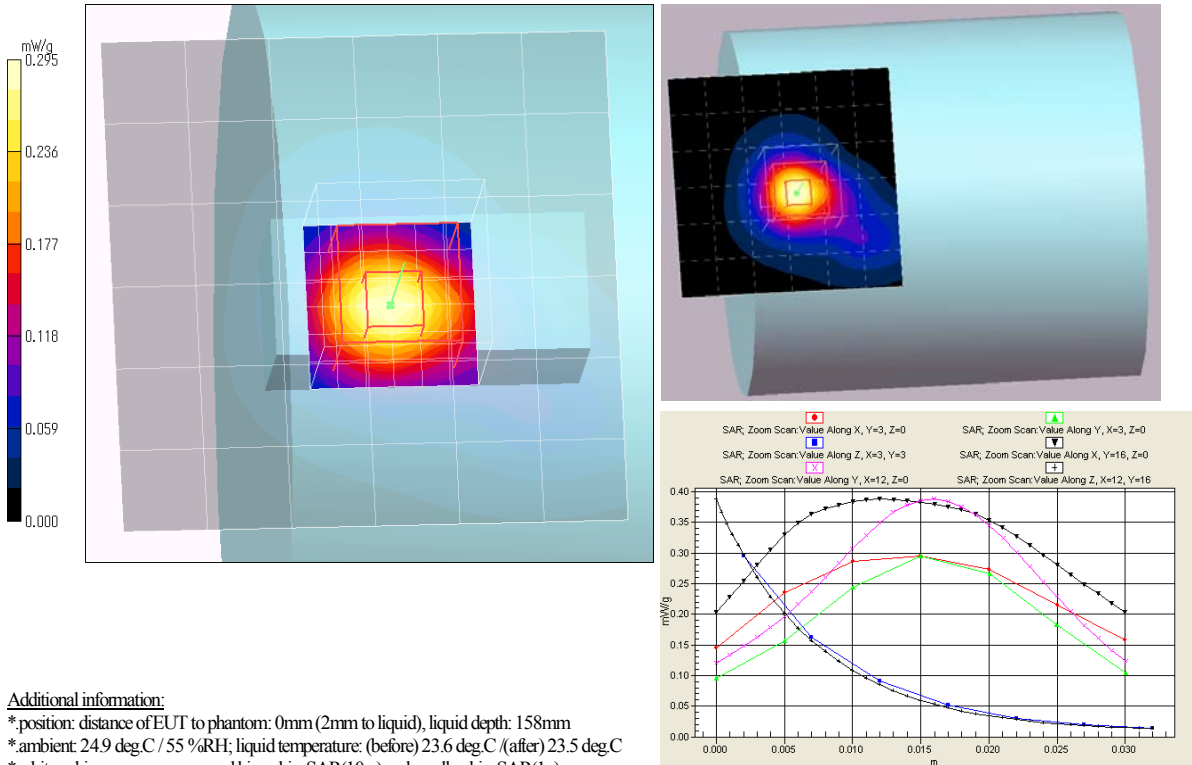
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 0.297 mW/g

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

Reference Value = 8.54 V/m; Power Drift = -0.20 dB, Maximum value of SAR (measured) = 0.295 mW/g

Peak SAR (extrapolated) = 0.388 W/kg

SAR(1 g) = 0.206 mW/g; SAR(10 g) = 0.102 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 158mm
- *.ambient: 24.9 deg.C / 55 %RH; liquid temperature: (before) 23.6 deg.C / (after) 23.5 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 9, 2011

Appendix 2-2: Measurement data (Body liquid) / 2.4GHz band (cont'd)

Step 3: Change the operation mode (cont'd)

Step 3-2: 11n-20HT(MCS0) / Mid.channel: 2437MHz(6ch), Left-front&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11n-20HT(MCS0, BPSK/OFDM); Frequency: 2437 MHz; Crest Factor: 1.0

Medium: M2450; Medium parameters used(23.7deg.C.): f = 2450 MHz; $\sigma = 1.98$ S/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(7.34, 7.34, 7.34); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc2.4g-r7.chg.mode:front-left(naname)&touch(d0),11n-20ht(mcs0,13dbm),m2437(6),w/bty(1)

Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.242 mW/g

Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (interpolated) = 0.305 mW/g

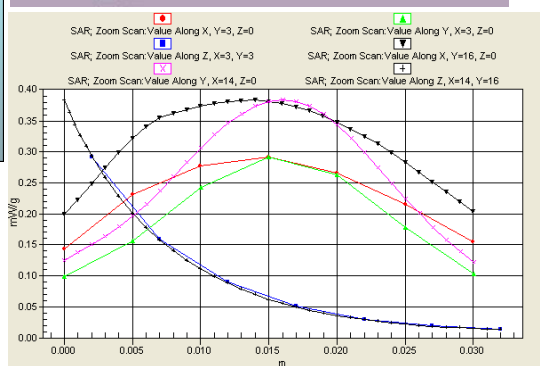
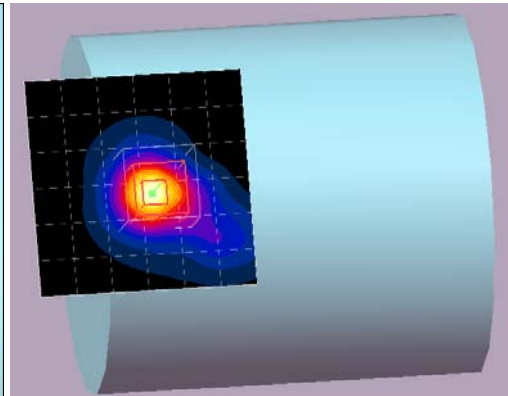
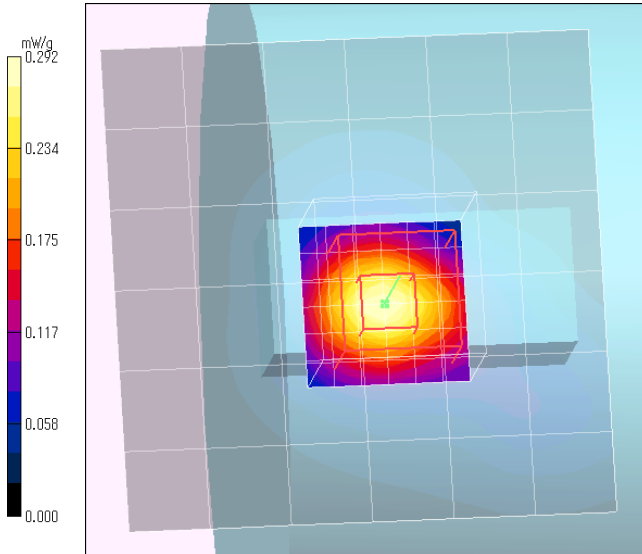
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 0.290 mW/g

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

Reference Value = 8.29 V/m; Power Drift = -0.176 dB; Maximum value of SAR (measured) = 0.292 mW/g

Peak SAR (extrapolated) = 0.383 W/kg

SAR(1 g) = 0.202 mW/g; SAR(10 g) = 0.101 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 158mm
- *.ambient: 24.6 deg.C / 53 %RH; liquid temperature: (before) 23.5 deg.C / (after) 23.5 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 9, 2011

Appendix 2-2: Measurement data (Body liquid) / 2.4GHz band (cont'd)

Step 3: Change the operation mode (cont'd)

Step 3-3: 11n-40HT(MCS0), Low channel: 2422MHz(3ch) / Left-front&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11n-40HT(MCS0, BPSK/OFDM); Frequency: 2422 MHz; Crest Factor: 1.0

Medium: M2450; Medium parameters used(23.7deg.C.): f = 2450 MHz; $\sigma = 1.98$ S/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(7.34, 7.34, 7.34); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc2.4g-r8.chg.mode:front-left&touch(d0),11n-40ht(mcs0,13dbm),m2422(3),w/bty(2)/

Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.320 mW/g

Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (interpolated) = 0.339 mW/g

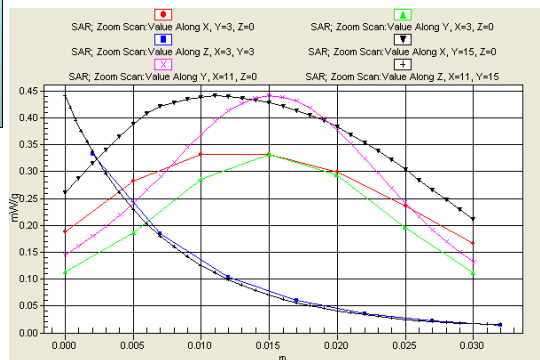
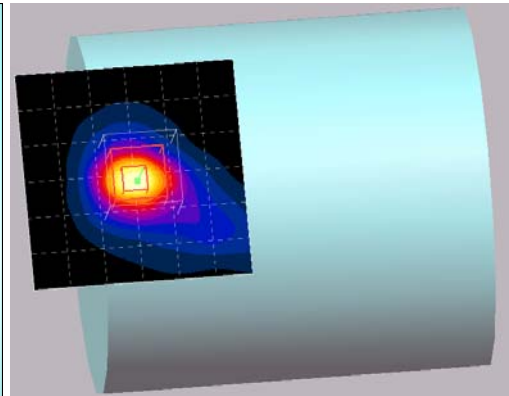
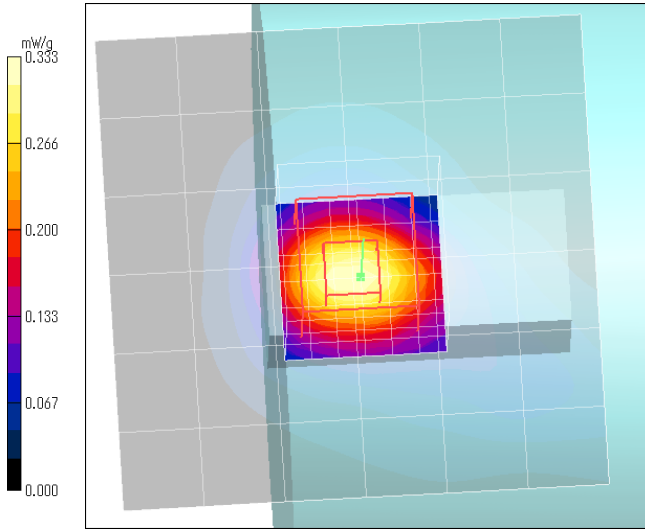
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 0.329 mW/g

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

Reference Value = 11.5 V/m; Power Drift = -0.154 dB; Maximum value of SAR (measured) = 0.333 mW/g

Peak SAR (extrapolated) = 0.441 W/kg

SAR(1 g) = 0.234 mW/g; SAR(10 g) = 0.118 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 158mm
- *.ambient: 24.6 deg.C / 57 %RH; liquid temperature: (before) 23.5 deg.C / (after) 23.6 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 9, 2011

Appendix 2-2: Measurement data (Body liquid) / 2.4GHz band (cont'd)

Step 3: Change the operation mode (cont'd)

Step 3-4: 11n-40HT(MCS0), Mid. channel: 2437MHz(6ch) / Left-front&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11n-40HT(MCS0, BPSK/OFDM); Frequency: 2437 MHz; Crest Factor: 1.0

Medium: M2450; Medium parameters used(23.7deg.C.): f = 2450 MHz; $\sigma = 1.98$ S/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(7.34, 7.34, 7.34); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc.2.4g-r9.chg.mode:front-left&touch(d0),11n-40ht(mcs0,13dbm),m2437(6),w/bty(1)

Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.302 mW/g

Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (interpolated) = 0.319 mW/g

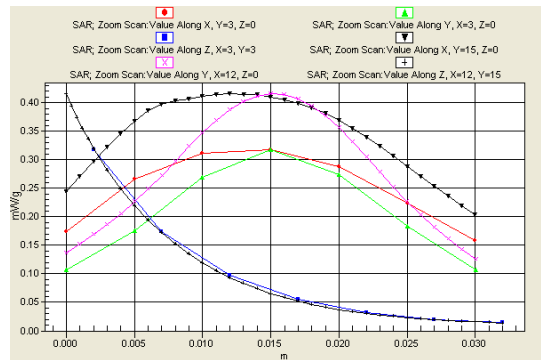
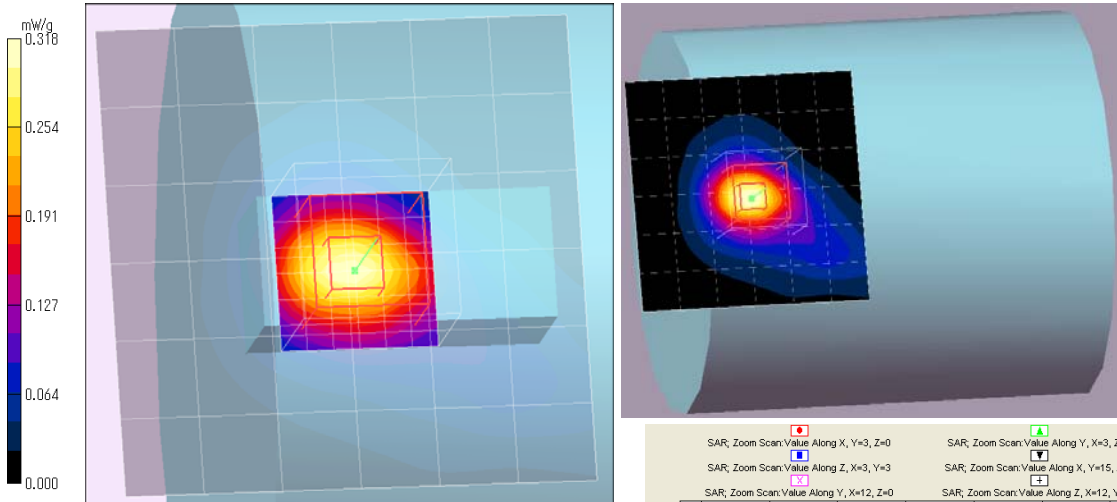
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 0.318 mW/g

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

Reference Value = 11.1 V/m; Power Drift = -0.132 dB, Maximum value of SAR (measured) = 0.318 mW/g

Peak SAR (extrapolated) = 0.416 W/kg

SAR(1 g) = 0.221 mW/g; SAR(10 g) = 0.111 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 158mm
- *.ambient: 24.4 deg.C / 53 %RH; liquid temperature: (before) 23.6 deg.C / (after) 23.6 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 9, 2011

Appendix 2-2: Measurement data (Body liquid) / 2.4GHz band (cont'd)

Step 3: Change the operation mode (cont'd)

Step 3-5: 11n-40HT(MCS0), High channel: 2452MHz(9ch) / Left-front&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11n-40HT(MCS0, BPSK/OFDM); Frequency: 2452 MHz; Crest Factor: 1.0

Medium: M2450; Medium parameters used(23.7deg.C.): f = 2450 MHz; $\sigma = 1.98$ S/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(7.34, 7.34, 7.34); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc2.4g-r10,chg.mode:front-left&touch(d0),11n-40ht(mcs0,13dbm),m2452(9),w/bty(2)/

Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 0.280 mW/g

Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (interpolated) = 0.296 mW/g

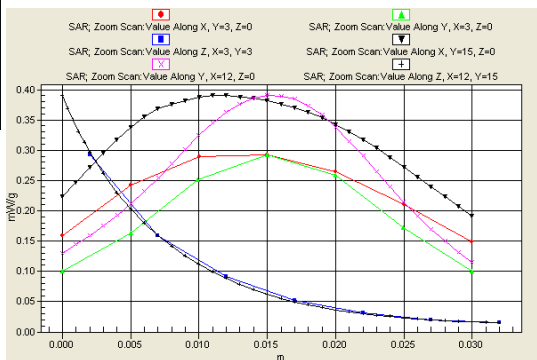
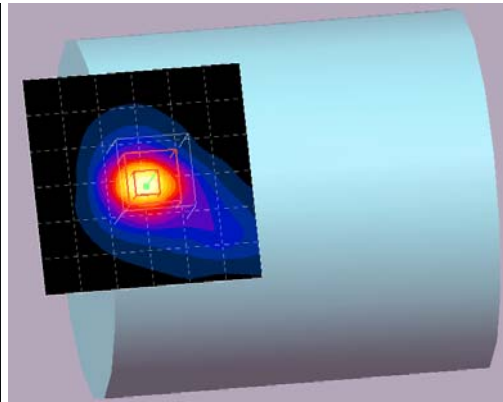
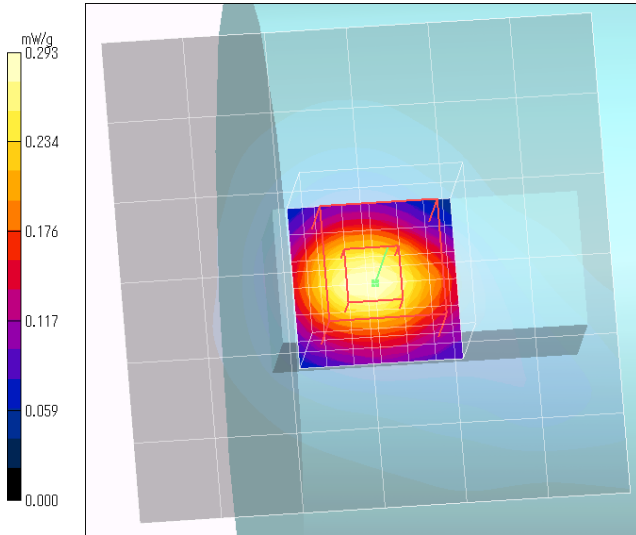
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 0.296 mW/g

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

Reference Value = 10.5 V/m; Power Drift = -0.117 dB; Maximum value of SAR (measured) = 0.293 mW/g

Peak SAR (extrapolated) = 0.390 W/kg

SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.103 mW/g



Additional information:

*.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 158mm

*.ambient: 24.4 deg.C / 56 %RH; liquid temperature: (before) 23.6 deg.C / (after) 23.6 deg.C

*.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)

*.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 9, 2011

Appendix 2-3: Measurement data (Body liquid) / 5180-5320MHz band (W52/53 band)

Step 1: Worst position search

Step 1-1: Top&touch / 5200MHz(40ch), 11a(6Mbps)

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11a(6Mbps, BPSK/OFDM); Frequency: 5200 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.0deg.C.): f = 5200 MHz; $\sigma = 5.55$ S/m; $\epsilon_r = 49.8$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(4.1, 4.1, 4.1); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-r1,top&touch(d0),11a(6m.13dbm),m5200(40),w/bty(1)/

Area Scan (10x10x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.14 mW/g

Area Scan (91x91x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.46 mW/g

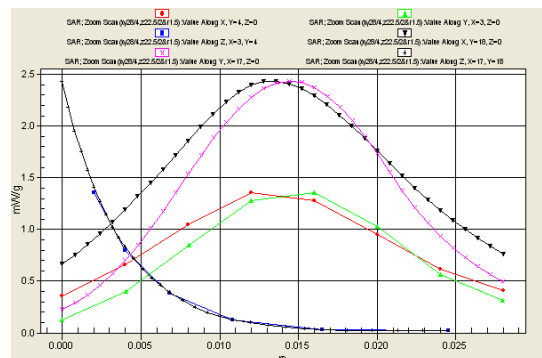
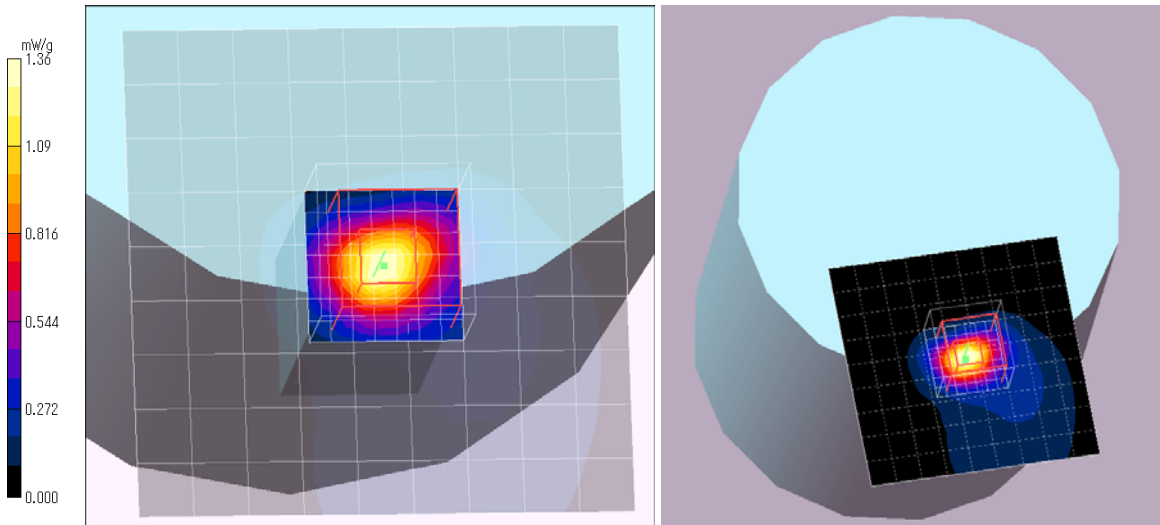
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 1.30 mW/g

Zoom Scan(xy28/4,z22.5/2&r1.5) (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 17.8 V/m; Power Drift = -0.20 dB; Maximum value of SAR (measured) = 1.36 mW/g

Peak SAR (extrapolated) = 2.44 W/kg

SAR(1 g) = 0.722 mW/g; SAR(10 g) = 0.242 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *.ambient: 24.8 deg.C / 63 %RH; liquid temperature: (before) 23.9 deg.C / (after) 23.9 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 5, 2011

Appendix 2-3: Measurement data (Body liquid) / 5180-5320MHz band (W52/53 band) (cont'd)

Step 1: Worst position search (cont'd)

Step 1-2: Front&touch / 5200MHz(40ch), 11a(6Mbps)

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11a(6Mbps, BPSK/OFDM); Frequency: 5200 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.0deg.C.): f = 5200 MHz; $\sigma = 5.55$ S/m; $\epsilon_r = 49.8$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(4.1, 4.1, 4.1); Calibrated: 2011/05/19
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn626; Calibrated: 2011/02/10
- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-r2,front(naname)&touch(d0),11a(6m,13dbm),m5200(40),w/bty(2)/

Area Scan (10x8x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.38 mW/g

Area Scan (91x71x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.42 mW/g

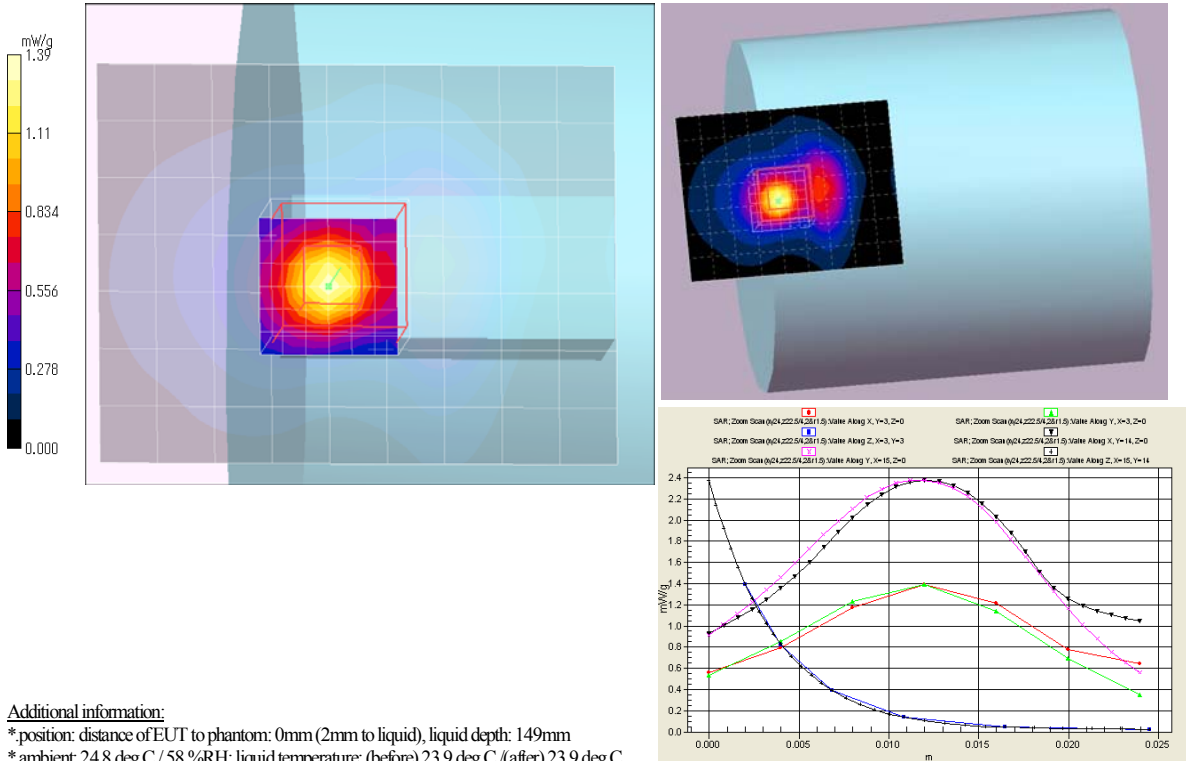
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 1.44 mW/g

Zoom Scan(xy24,z22.5/4,2&r1.5) (7x7x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 17.2 V/m; Power Drift = -0.188 dB; Maximum value of SAR (measured) = 1.39 mW/g

Peak SAR (extrapolated) = 2.38 W/kg

SAR(1 g) = 0.712 mW/g; SAR(10 g) = 0.249 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *.ambient: 24.8 deg.C / 58 %RH; liquid temperature: (before) 23.9 deg.C / (after) 23.9 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 5, 2011

Appendix 2-3: Measurement data (Body liquid) / 5180-5320MHz band (W52/53 band) (cont'd)

Step 1: Worst position search (cont'd)

Step 1-3: Left-front&touch / 5200MHz(40ch), 11a(6Mbps)

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11a(6Mbps, BPSK/OFDM); Frequency: 5200 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.0deg.C.): f = 5200 MHz; $\sigma = 5.55$ S/m; $\epsilon_r = 49.8$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(4.1, 4.1, 4.1); Calibrated: 2011/05/19
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn626; Calibrated: 2011/02/10
- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-r3,front-left(naname)&touch(d0),11a(6m,13dbm),m5200(40),w/bty(1)

Area Scan (10x8x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.537 mW/g

Area Scan (91x71x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 0.575 mW/g(1st-pk) / 0.554 mW/g(2nd-pk)

Z Scan (1x1x61) (2nd-pk): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 0.562 mW/g

Zoom Scan (xy24,z22.5/4,2&r1.5) (7x7x6)/Cube 1st-pk:

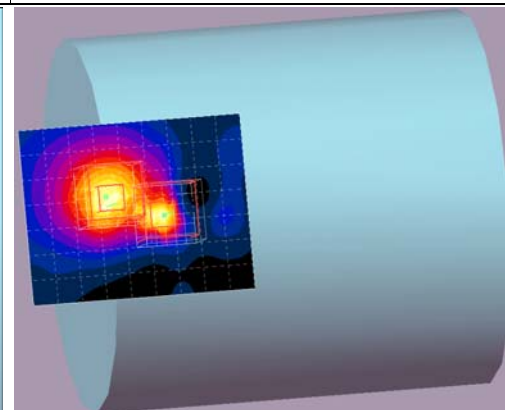
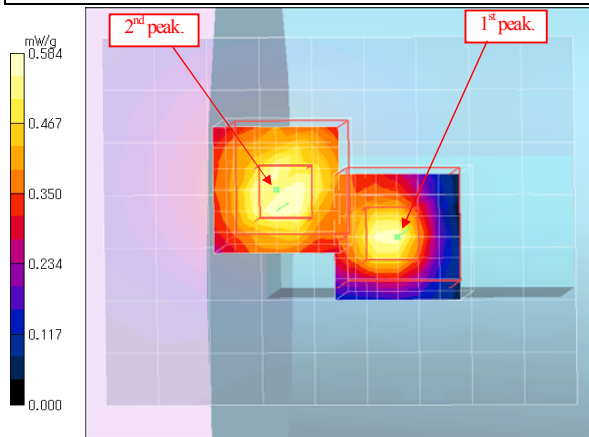
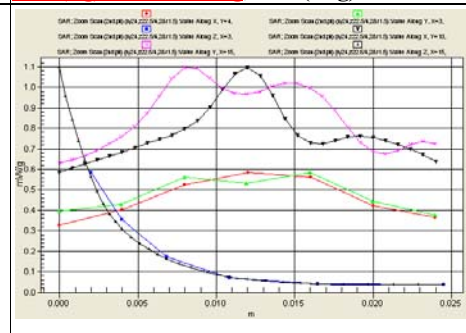
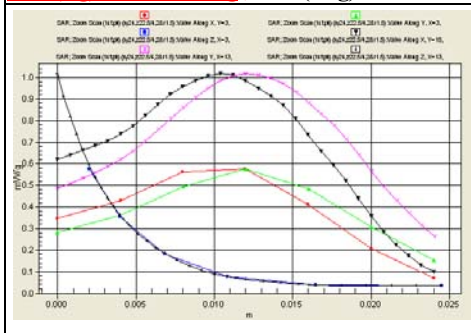
Measurement grid: dx=4mm, dy=4mm, dz=2mm;
Reference Value = 9.93 V/m; Power Drift = -0.15 dB,
Maximum value of SAR (measured) = 0.575 mW/g
Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.315 mW/g; SAR(10 g) = 0.122 mW/g

Zoom Scan (xy24,z22.5/4,2&r1.5) (7x7x6)/Cube 2nd-pk:

Measurement grid: dx=4mm, dy=4mm, dz=2mm;
Reference Value = 9.93 V/m; Power Drift = -0.15 dB,
Maximum value of SAR (measured) = 0.584 mW/g
Peak SAR (extrapolated) = 1.09 W/kg

SAR(1 g) = 0.339 mW/g; SAR(10 g) = 0.155 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *.ambient: 24.8 deg.C / 55 %RH; liquid temperature: (before) 24.0 deg.C / (after) 23.9 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 5, 2011

Appendix 2-3: Measurement data (Body liquid) / 5180-5320MHz band (W52/53 band) (cont'd)

Step 2: Change the channels

Step 2-1: 5240MHz(48ch) / 11a(6Mbps), Top&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11a(6Mbps, BPSK/OFDM); Frequency: 5240 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.0deg.C.): f = 5240 MHz; $\sigma = 5.58$ S/m; $\epsilon_r = 49.8$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(4.1, 4.1, 4.1); Calibrated: 2011/05/19
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn626; Calibrated: 2011/02/10
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-r4,top&touch(d0),11a(6m.13dbm,m5240(48),w/bty(2)/

Area Scan (9x9x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.868 mW/g

Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.24 mW/g

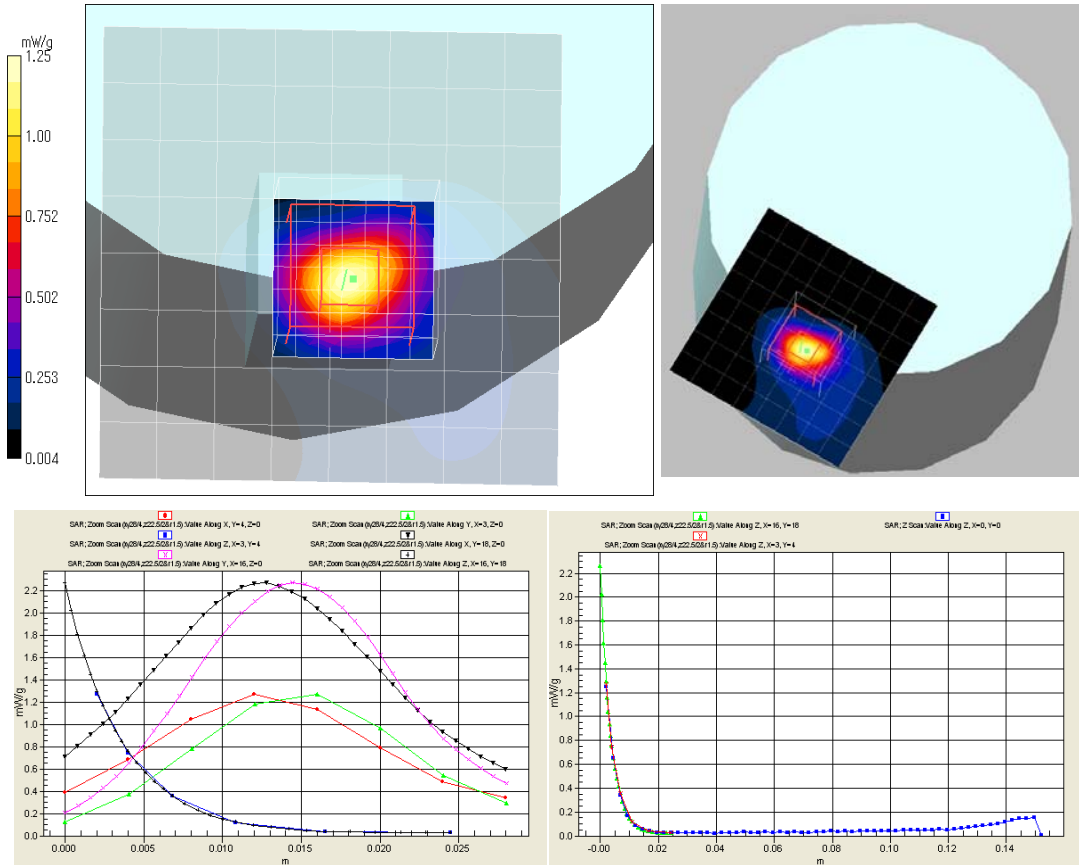
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 1.25 mW/g

Zoom Scan(xy28/4,z22.5/2&r1.5) (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 13.9 V/m; Power Drift = -0.195 dB, Maximum value of SAR (measured) = 1.27 mW/g

Peak SAR (extrapolated) = 2.27 W/kg

SAR(1 g) = 0.661 mW/g; SAR(10 g) = 0.226 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *.ambient: 24.8 deg.C / 55 %RH; liquid temperature: (before) 23.9 deg.C (after) 23.9 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 5, 2011

Appendix 2-3: Measurement data (Body liquid) / 5180-5320MHz band (W52/53 band) (cont'd)

Step 2: Change the channels (cont'd)

Step 2-2: 5260MHz(52ch) / 11a(6Mbps), Top&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11a(6Mbps, BPSK/OFDM); Frequency: 5260 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.0deg.C.): f = 5260 MHz; $\sigma = 5.63$ S/m; $\epsilon_r = 49.8$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(3.88, 3.88, 3.88); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-r5.top&touch(d0),11a(6m.13dbm),m5260(52),w/bty(1)

Area Scan (9x9x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.23 mW/g

Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.28 mW/g

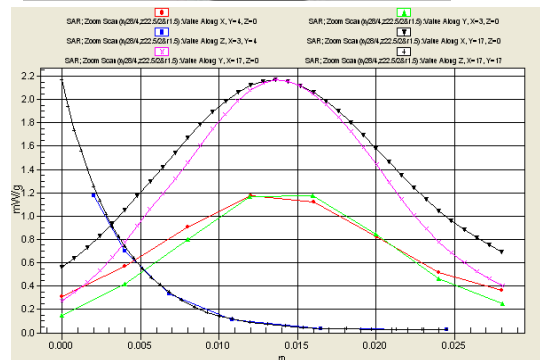
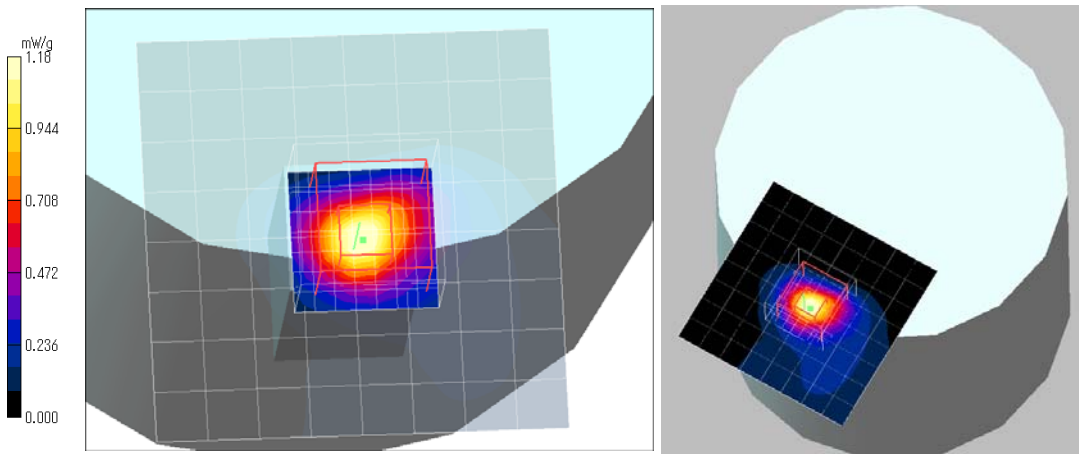
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 1.19 mW/g

Zoom Scan(xy28/4,z22.5/2&r1.5) (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 16.0 V/m; Power Drift = 0.070 dB, Maximum value of SAR (measured) = 1.18 mW/g

Peak SAR (extrapolated) = 2.17 W/kg

SAR(1g) = 0.644 mW/g; SAR(10g) = 0.222 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *.ambient: 24.9 deg.C / 50 %RH; liquid temperature: (before) 23.9 deg.C / (after) 23.9 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 5, 2011

Appendix 2-3: Measurement data (Body liquid) / 5180-5320MHz band (W52/53 band) (cont'd)

Step 2: Change the channels (cont'd)

Step 2-3: 5310MHz(64ch) / 11a(6Mbps), Top&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11a(6Mbps, BPSK/OFDM); Frequency: 5320 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.0deg.C.): $f = 5320 \text{ MHz}$; $\sigma = 5.69 \text{ S/m}$; $\epsilon_r = 49.5$; $\rho = 1000 \text{ kg/m}^3$

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(3.88, 3.88, 3.88); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-r6,top&touch(d0),11a(6m.13dbm),m5320(64),w/bty(2)/

Area Scan (9x9x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.07 mW/g

Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.13 mW/g

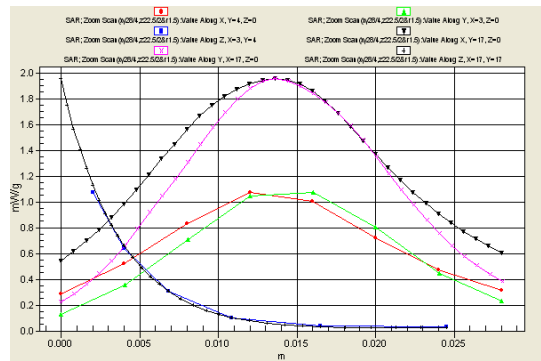
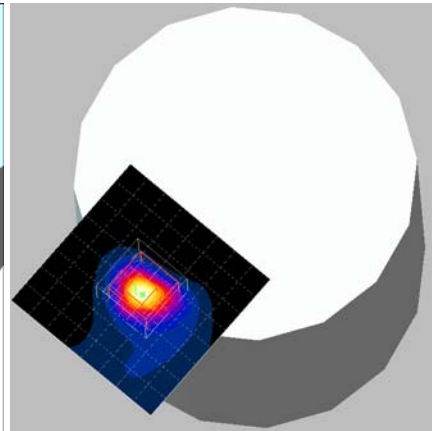
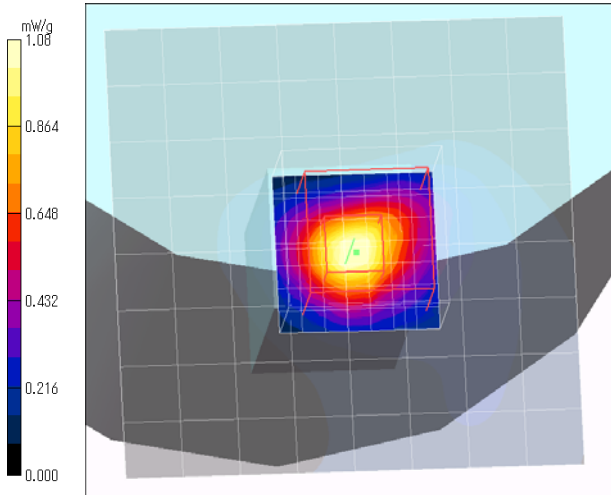
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 1.09 mW/g

Zoom Scan(xy28/4,z22.5/2&r1.5) (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 15.4 V/m; Power Drift = -0.084 dB; Maximum value of SAR (measured) = 1.08 mW/g

Peak SAR (extrapolated) = 1.95 W/kg

SAR(1 g) = 0.578 mW/g; SAR(10 g) = 0.200 mW/g



Additional information:

*.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm

*.ambient: 24.8 deg.C / 50 %RH; liquid temperature: (before) 23.9 deg.C / (after) 23.8 deg.C

*.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)

*.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 5, 2011

Appendix 2-3: Measurement data (Body liquid) / 5180-5320MHz band (W52/53 band) (cont'd)

Step 3: Change the operation mode

Step 3-1: 11n-20HT(MCS0) / 5200MHz(40ch), Top&touch position

->Worst SRA(1g) of W52/53 band

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11n-20HT(MCS0, BPSK/OFDM); Frequency: 5200 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.0deg.C.): $f = 5200$ MHz; $\sigma = 5.55$ S/m; $\epsilon_r = 49.8$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(4.1, 4.1, 4.1); Calibrated: 2011/05/19
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn626; Calibrated: 2011/02/10
- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-r7,top&touch(d0),11n-20ht(mcs0,13dbm),m5200(40),w/bty(1)/

Area Scan (9x9x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.36 mW/g

Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.42 mW/g

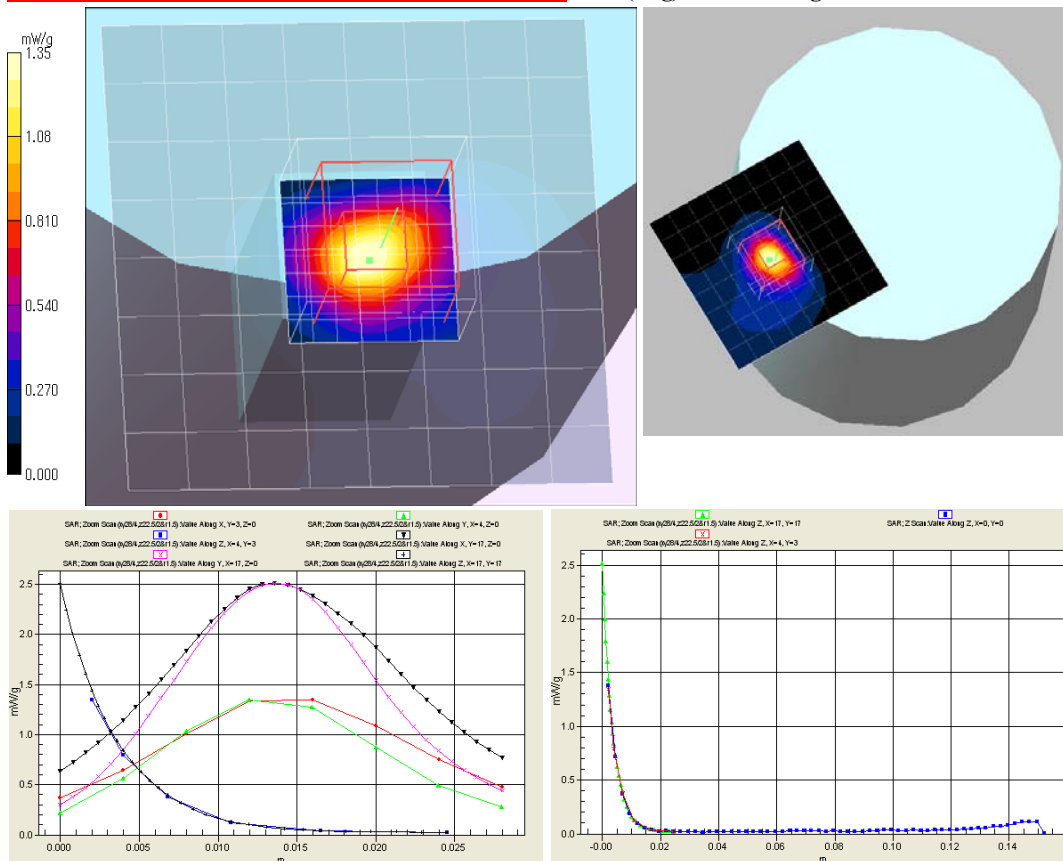
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 1.38 mW/g

Zoom Scan(xy28/4,z22.5/2&r1.5) (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 17.6 V/m; Power Drift = -0.180 dB, Maximum value of SAR (measured) = 1.35 mW/g

Peak SAR (extrapolated) = 2.52 W/kg

SAR(1 g) = 0.732 mW/g (Worst SAR(1g) of W52/53 band); SAR(10 g) = 0.247 mW/g



Additional information:

- *position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *ambient: 24.4 deg C / 48 %RH; liquid temperature: (before) 23.8 deg.C / (after) 23.7 deg.C
- *white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 5, 2011

Appendix 2-3: Measurement data (Body liquid) / 5180-5320MHz band (W52/53 band) (cont'd)

Step 3: Change the operation mode (cont'd)

Step 3-2: 11n-40HT(MCS0), 5190MHz(38ch) / Top&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11n-40HT(MCS0, BPSK/OFDM); Frequency: 5190 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.0deg.C.): f = 5190 MHz; $\sigma = 5.53$ S/m; $\epsilon_r = 49.8$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(4.1, 4.1, 4.1); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-r8,top&touch(d0),11n-40ht(mcs0.13dbm),m5190(38),w/bty(2)/

Area Scan (9x9x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.32 mW/g

Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.37 mW/g

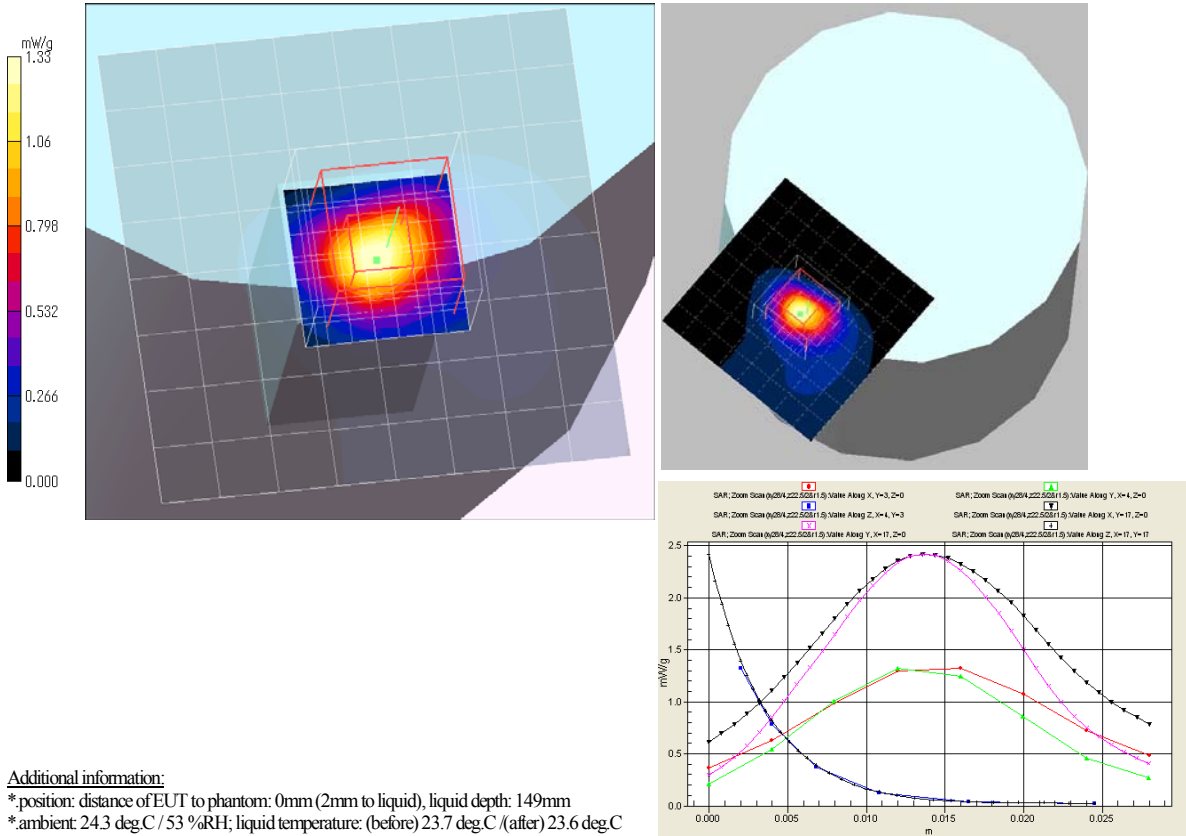
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 1.35 mW/g

Zoom Scan(xy28/4,z22.5/2&r1.5) (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 17.3 V/m; Power Drift = -0.141 dB, Maximum value of SAR (measured) = 1.33 mW/g

Peak SAR (extrapolated) = 2.42 W/kg

SAR(1 g) = 0.716 mW/g; SAR(10 g) = 0.243 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *.ambient: 24.3 deg.C / 53 %RH; liquid temperature: (before) 23.7 deg.C / (after) 23.6 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 5, 2011

Appendix 2-3: Measurement data (Body liquid) / 5180-5320MHz band (W52/53 band) (cont'd)

Step 3: Change the operation mode (cont'd)

Step 3-3: 11n-40HT(MCS0), 5230MHz(46ch) / Top&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11n-40HT(MCS0, BPSK/OFDM); Frequency: 5230 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.0deg.C.): f = 5230 MHz; $\sigma = 5.58$ S/m; $\epsilon_r = 49.7$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(4.1, 4.1, 4.1); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-r9,top&touch(d0),11n-40ht(mcs0.13dbm),m5230(46),w/bty(1)/

Area Scan (9x9x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.14 mW/g

Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.27 mW/g

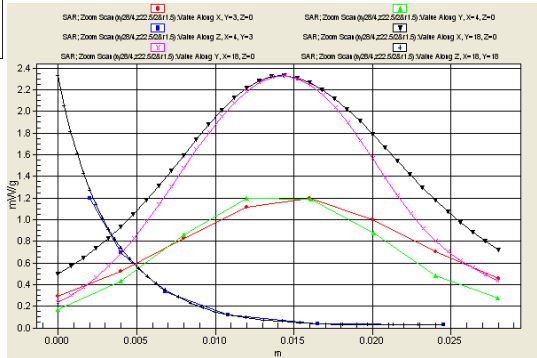
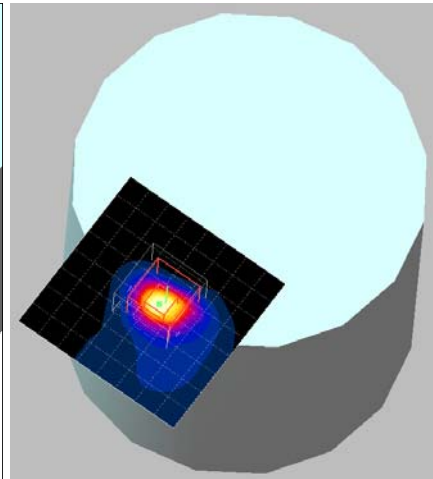
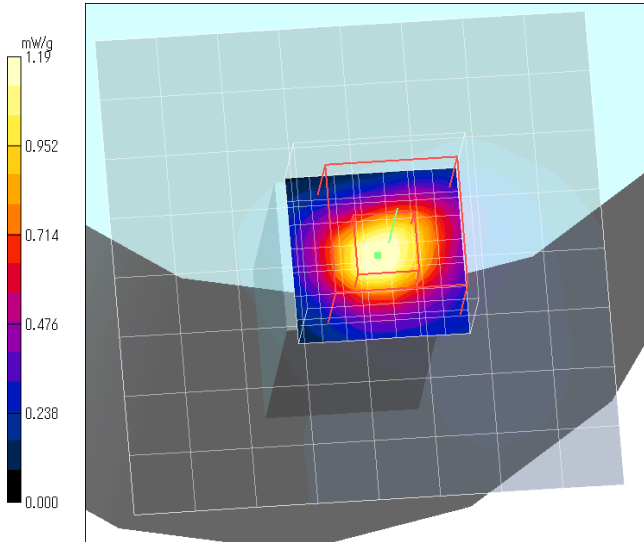
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 1.17 mW/g

Zoom Scan(xy28/4,z22.5/2&r1.5) (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 15.9 V/m; Power Drift = -0.167 dB; Maximum value of SAR (measured) = 1.19 mW/g

Peak SAR (extrapolated) = 2.33 W/kg

SAR(1 g) = 0.657 mW/g; SAR(10 g) = 0.223 mW/g



Additional information:

- *position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *ambient: 24.3 deg.C / 51 %RH; liquid temperature: (before) 23.6 deg.C / (after) 23.6 deg.C
- *white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 5, 2011

Appendix 2-3: Measurement data (Body liquid) / 5180-5320MHz band (W52/53 band) (cont'd)

Step 3: Change the operation mode (cont'd)

Step 3-4: 11n-40HT(MCS0) / 5270MHz(54ch), Top&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11n-40HT(MCS0, BPSK/OFDM); Frequency: 5270 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.0deg.C.): $f = 5270$ MHz; $\sigma = 5.63$ S/m; $\epsilon_r = 49.7$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(3.88, 3.88, 3.88); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-r10,top&touch(d0),11n-40ht(mcs0.13dbm),m5270(54),w/bty(2)/

Area Scan (9x9x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.09 mW/g

Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.20 mW/g

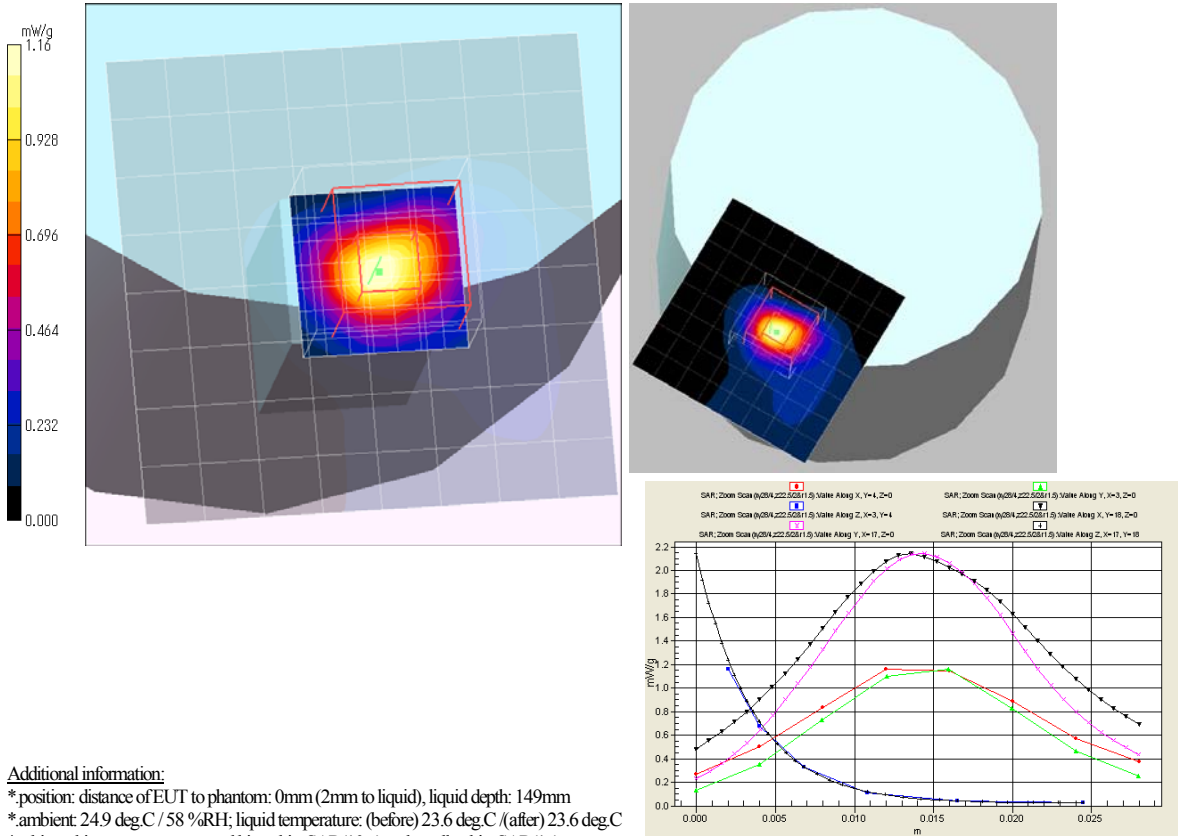
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 1.16 mW/g

Zoom Scan(xy28/4,z22.5/2&r1.5) (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 15.9 V/m; Power Drift = -0.045 dB; Maximum value of SAR (measured) = 1.16 mW/g

Peak SAR (extrapolated) = 2.14 W/kg

SAR(1 g) = 0.629 mW/g; SAR(10 g) = 0.216 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *.ambient: 24.9 deg.C / 58 %RH; liquid temperature: (before) 23.6 deg.C / (after) 23.6 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 5, 2011

Appendix 2-3: Measurement data (Body liquid) / 5180-5320MHz band (W52/53 band) (cont'd)

Step 3: Change the operation mode (cont'd)

Step 3-5: 11n-40HT(MCS0) / 5310MHz(62ch), Top&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11n-40HT(MCS0, BPSK/OFDM); Frequency: 5310 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.0deg.C.): f = 5310 MHz; $\sigma = 5.68$ S/m; $\epsilon_r = 49.6$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(3.88, 3.88, 3.88); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-r11,top&touch(d0),11n-40ht(mcs0.13dbm),m5310(62),w/bty(1)/

Area Scan (9x9x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.04 mW/g

Area Scan (81x81x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.14 mW/g

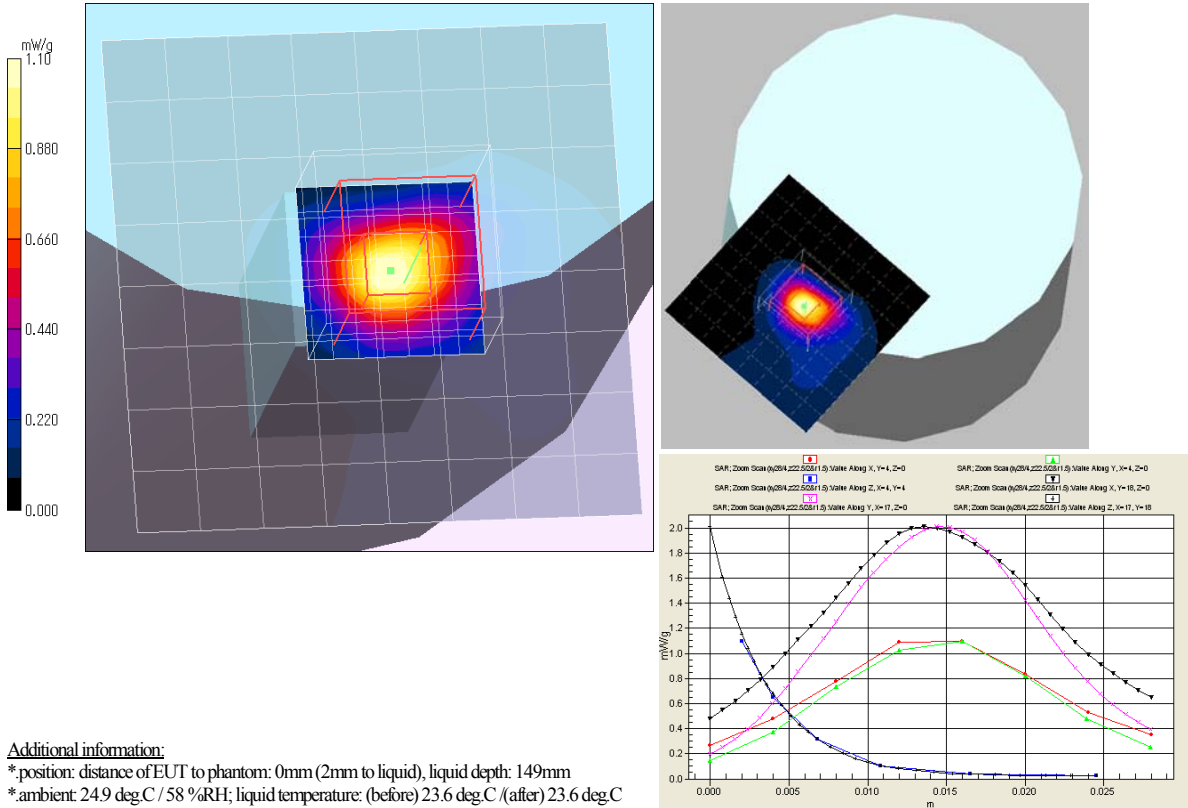
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 1.09 mW/g

Zoom Scan(xy28/4,z22.5/2&r1.5) (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 15.3 V/m; Power Drift = -0.006 dB; Maximum value of SAR (measured) = 1.10 mW/g

Peak SAR (extrapolated) = 2.01 W/kg

SAR(1 g) = 0.588 mW/g; SAR(10 g) = 0.203 mW/g



Additional information:

- *position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *ambient: 24.9 deg.C / 58 %RH; liquid temperature: (before) 23.6 deg.C / (after) 23.6 deg.C
- *white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 5, 2011

Appendix 2-4: Measurement data (Body liquid) / 5745-5825MHz band (W58 band)

Step 1: Worst position search

Step 1-1: Top&touch / 5765MHz(153ch), 11a(6Mbps)

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11a(6Mbps, BPSK/OFDM); Frequency: 5765 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.9deg.C.): f = 5765 MHz; $\sigma = 6.21$ S/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(3.94, 3.94, 3.94); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-w58-r1,top&touch(d0),11a(6m.13dbm),m5765(153),w/bty(1)/

Area Scan (10x10x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.748 mW/g

Area Scan (91x91x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 0.887 mW/g

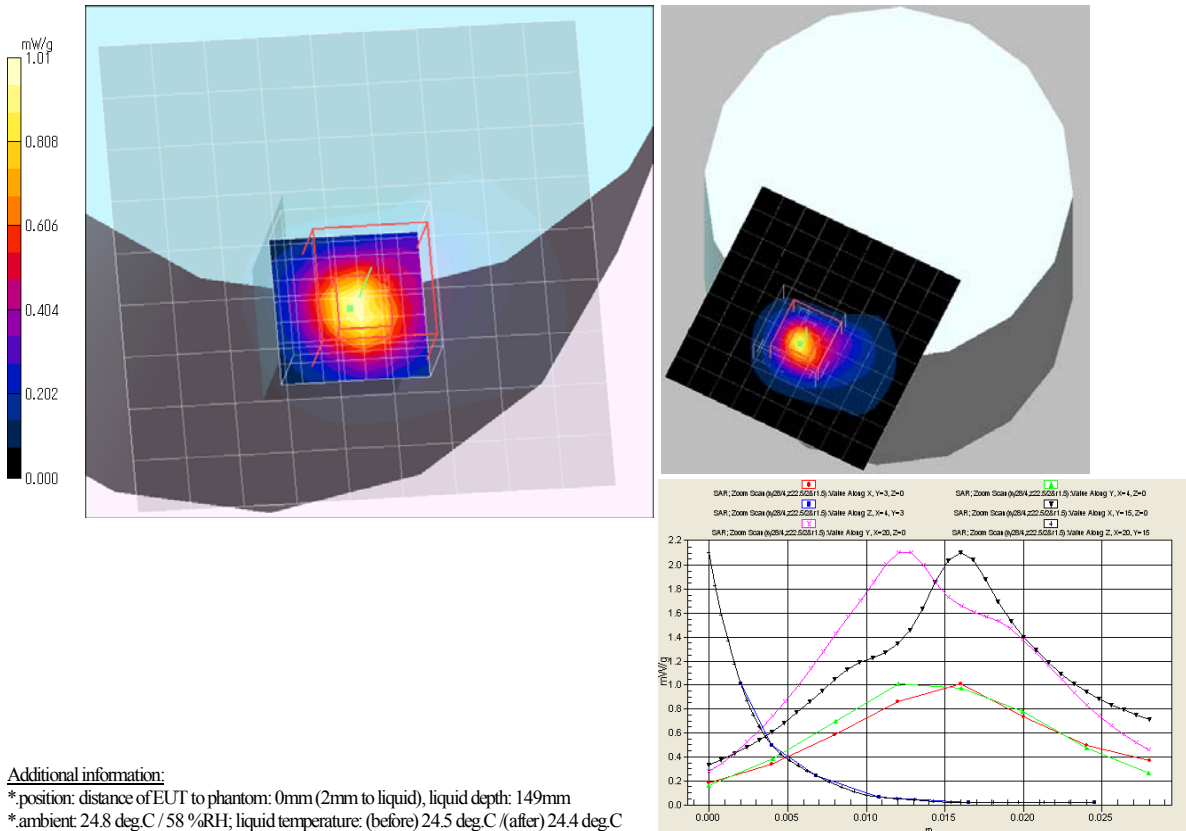
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 0.953 mW/g

Zoom Scan(xy28/4,z22.5/2&r1.5) (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 9.86 V/m; Power Drift = -0.150 dB, Maximum value of SAR (measured) = 1.01 mW/g

Peak SAR (extrapolated) = 2.11 W/kg

SAR(1 g) = 0.505 mW/g; SAR(10 g) = 0.169 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *.ambient: 24.8 deg.C / 58 %RH; liquid temperature: (before) 24.5 deg.C / (after) 24.4 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 6, 2011

Appendix 2-4: Measurement data (Body liquid) / 5745-5825MHz band (W58 band) (cont'd)

Step 1: Worst position search (cont'd)

Step 1-2: Left-front&touch / 5765MHz(153ch), 11a(6Mbps)

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11a(6Mbps, BPSK/OFDM); Frequency: 5765 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.9deg.C.): f = 5765 MHz; $\sigma = 6.21$ S/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(3.94, 3.94, 3.94); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-w58-r2,front-left(naname)&touch(d0),11a(6m,13dbm),m5765(153),w/bty(2)/

Area Scan (10x8x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.411 mW/g

Area Scan (91x71x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 0.528 mW/g

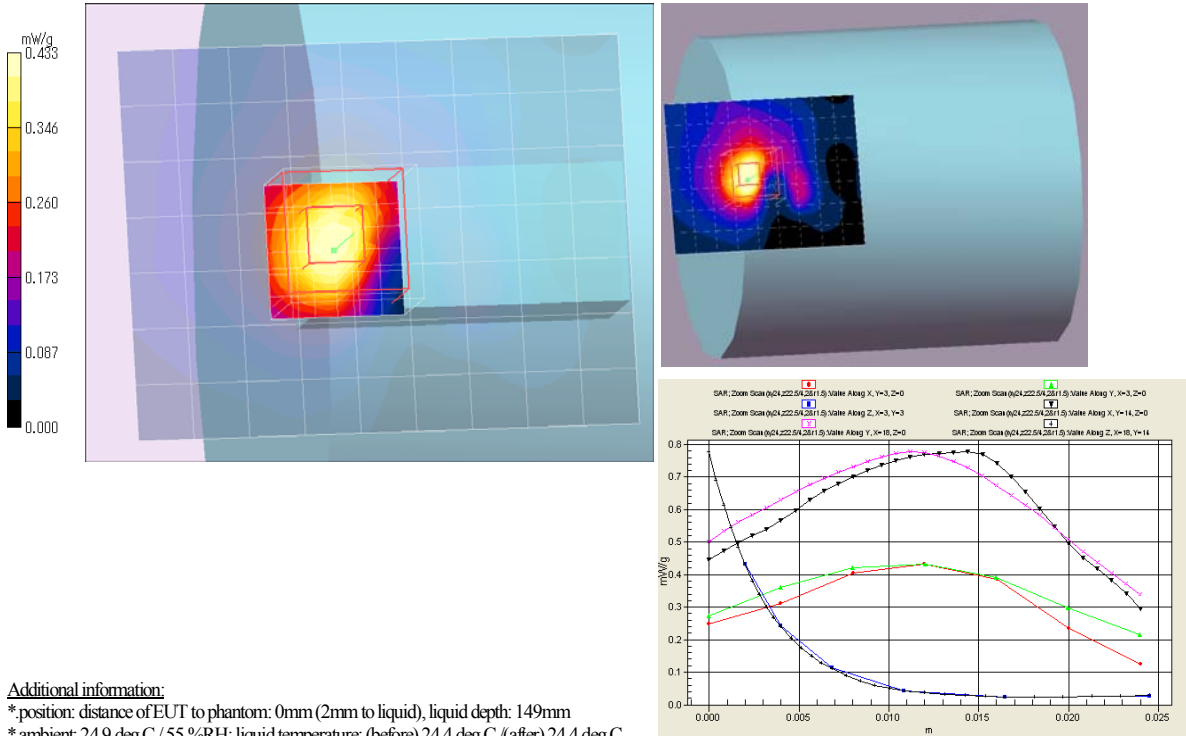
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 0.429 mW/g

Zoom Scan(xy24,z22.5/4,2&r1.5) (7x7x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 9.35 V/m; Power Drift = -0.129 dB; Maximum value of SAR (measured) = 0.433 mW/g

Peak SAR (extrapolated) = 0.777 W/kg

SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.101 mW/g



Additional information:

- *position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *ambient: 24.9 deg.C / 55 %RH; liquid temperature: (before) 24.4 deg.C / (after) 24.4 deg.C
- *white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 6, 2011

Appendix 2-4: Measurement data (Body liquid) / 5745-5825MHz band (W58 band) (cont'd)

Step 1: Worst position search (cont'd)

Step 1-3: Front&touch / 5765MHz(153ch), 11a(6Mbps)

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11a(6Mbps, BPSK/OFDM); Frequency: 5765 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.9deg.C.): f = 5765 MHz; $\sigma = 6.21$ S/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(3.94, 3.94, 3.94); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-w58-r3,front(naname)&touch(d0),11a(6m,13dbm),m5765(153),w/bty(1)

Area Scan (10x8x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.868 mW/g

Area Scan (91x71x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.03 mW/g

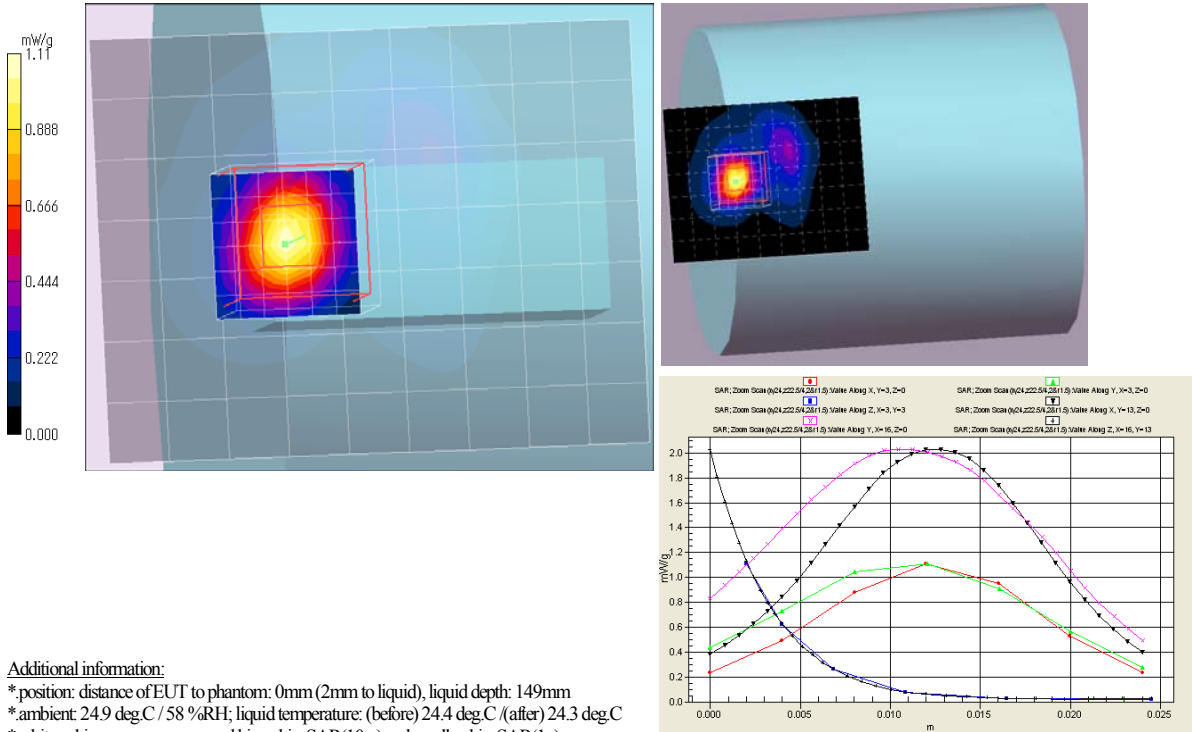
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 1.11 mW/g

Zoom Scan(xy24,z22.5/4,2&r1.5) (7x7x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 14.1 V/m; Power Drift = -0.194 dB; Maximum value of SAR (measured) = 1.11 mW/g

Peak SAR (extrapolated) = 2.03 W/kg

SAR(1 g) = 0.548 mW/g; SAR(10 g) = 0.172 mW/g



Additional information:

*.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm

*.ambient: 24.9 deg.C / 58 %RH; liquid temperature: (before) 24.4 deg.C (after) 24.3 deg.C

*.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)

*.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 6, 2011

Appendix 2-4: Measurement data (Body liquid) / 5745-5825MHz band (W58 band) (cont'd)

Step 2: Change the channels

Step 2-1: 5785MHz(157ch) / 11a(6Mbps), Front&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11a(6Mbps, BPSK/OFDM); Frequency: 5785 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.9deg.C.): $f = 5785 \text{ MHz}$; $\sigma = 6.22 \text{ S/m}$; $\epsilon_r = 48.8$; $\rho = 1000 \text{ kg/m}^3$

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(3.94, 3.94, 3.94); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-w58-r4,chg.fre:front(naname)&touch(d0),11a(6m,13dbm),m5785(157),w/bty(2)/

Area Scan (9x8x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.770 mW/g

Area Scan (81x71x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.00 mW/g

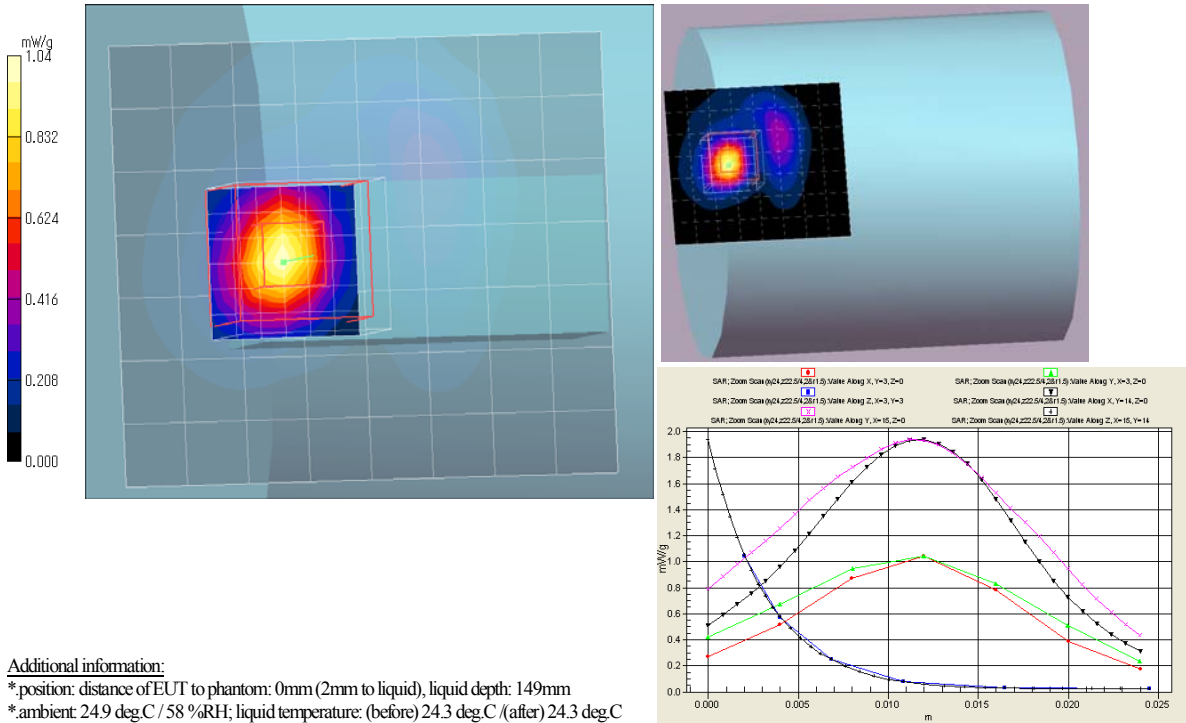
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 1.03 mW/g

Zoom Scan(xy24,z22.5/4,2&r1.5) (7x7x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 13.4 V/m; Power Drift = -0.178 dB, Maximum value of SAR (measured) = 1.04 mW/g

Peak SAR (extrapolated) = 1.94 W/kg

SAR(1 g) = 0.504 mW/g; SAR(10 g) = 0.160 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *.ambient: 24.9 deg.C / 58 %RH; liquid temperature: (before) 24.3 deg.C / (after) 24.3 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 6, 2011

Appendix 2-4: Measurement data (Body liquid) / 5745-5825MHz band (W58 band) (cont'd)

Step 2: Change the channels (cont'd)

Step 2-2: 5825MHz(165ch) / 11a(6Mbps), Front&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11a(6Mbps, BPSK/OFDM); Frequency: 5825 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.9deg.C.): f = 5825 MHz; $\sigma = 6.31$ S/m; $\epsilon_r = 48.9$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(3.94, 3.94, 3.94); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-w58-r5,chg.frc:front(naname)&touch(d0),11a(6m,13dbm),m5825(165),w/bty(1)/

Area Scan (9x8x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.697 mW/g

Area Scan (81x71x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 0.881 mW/g

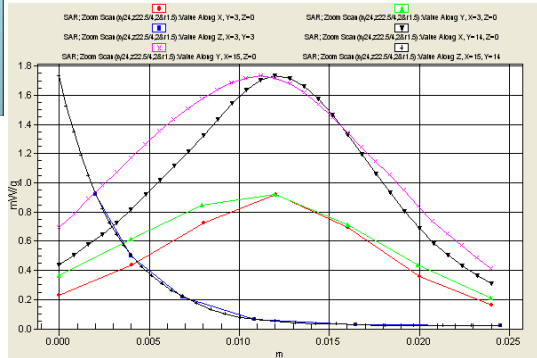
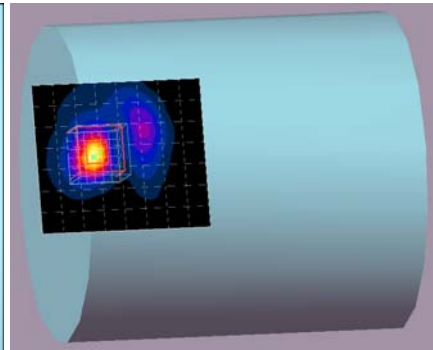
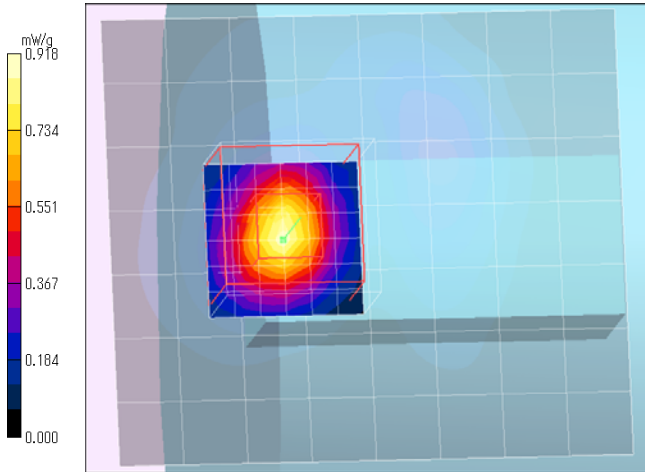
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 0.881 mW/g

Zoom Scan(xy24,z22.5/4,2&r1.5) (7x7x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 12.3 V/m; Power Drift = 0.019 dB; Maximum value of SAR (measured) = 0.918 mW/g

Peak SAR (extrapolated) = 1.73 W/kg

SAR(1 g) = 0.439 mW/g; SAR(10 g) = 0.141 mW/g



Additional information:

*position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm

*ambient: 24.9 deg.C / 56 %RH; liquid temperature: (before) 24.3 deg.C / (after) 24.3 deg.C

*white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)

*Tested by: Hiroshi Naka / Tested place: No.7 shielded room, Date tested: September 6, 2011

Appendix 2-4: Measurement data (Body liquid) / 5745-5825MHz band (W58 band) (cont'd)

Step 3: Change the operation mode

Step 3-1: 11n-20HT(MCS0) / 5765MHz(153ch), Front&touch position

->Worst SAR(1g) of W58 band

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11n-20HT(MCS0, BPSK/OFDM); Frequency: 5765 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.9deg.C.): f = 5765 MHz; $\sigma = 6.21$ S/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(3.94, 3.94, 3.94); Calibrated: 2011/05/19
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn626; Calibrated: 2011/02/10
- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-w58-r6,chg.mode:front(naname)&touch(d0),11n-20ht(mcs0,13dbm),m5765(153),w/bty(2)/

Area Scan (9x8x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.10 mW/g

Area Scan (81x71x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.21 mW/g

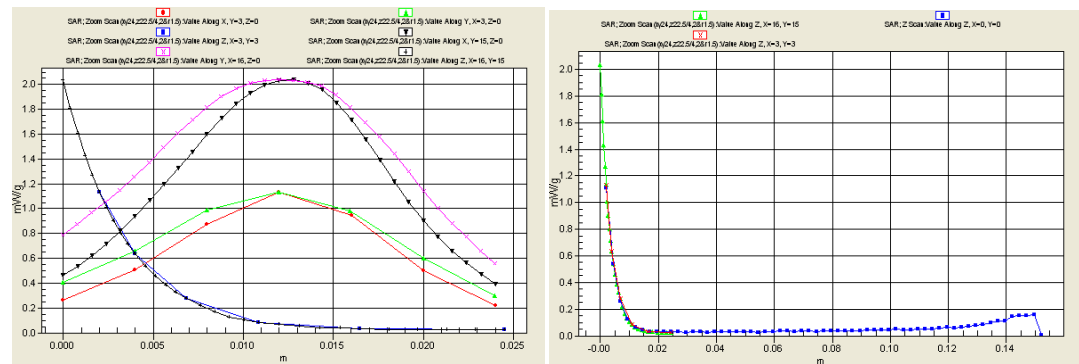
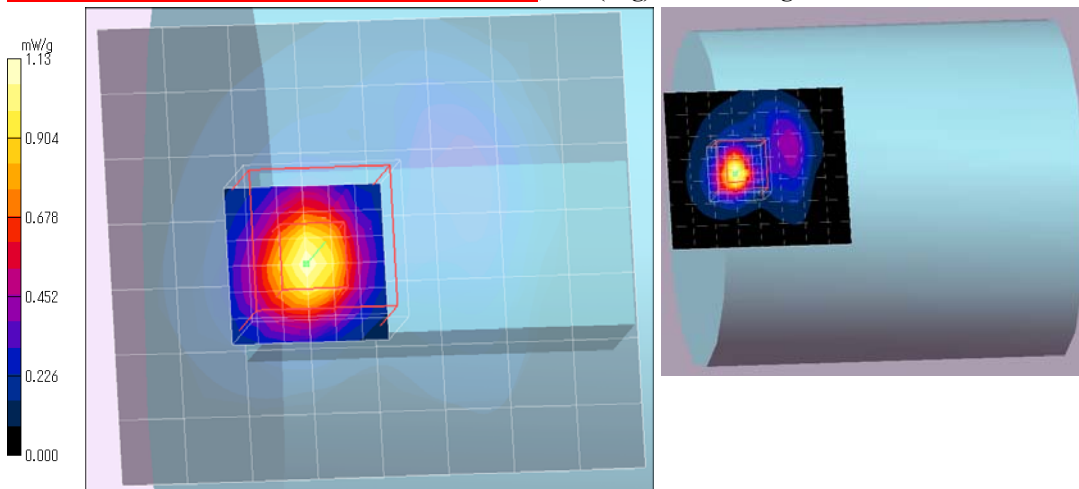
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 1.11 mW/g

Zoom Scan(xy24,z22.5/4,2&r1.5) (7x7x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 14.5 V/m; Power Drift = -0.101 dB, Maximum value of SAR (measured) = 1.13 mW/g

Peak SAR (extrapolated) = 2.04 W/kg

SAR(1 g) = 0.552 mW/g (Worst SAR(1g) of W58 band); SAR(10 g) = 0.175 mW/g



Additional information:

- *position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *ambient: 24.9 deg.C / 53 %RH; liquid temperature: (before) 24.3 deg.C / (after) 24.3 deg.C
- *white cubic: zoom scan area, red big cubic: SAR(10g), red small cubic: SAR(1g)
- *Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 6, 2011

Appendix 2-4: Measurement data (Body liquid) / 5745-5825MHz band (W58 band) (cont'd)

Step 3: Change the operation mode (cont'd)

Step 3-2: 11n-40HT(MCS0) / 5755MHz(151ch), Front&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11n-40HT(MCS0, BPSK/OFDM); Frequency: 5755 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.9deg.C.): f = 5755 MHz; $\sigma = 6.22$ S/m; $\epsilon_r = 49.1$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(3.94, 3.94, 3.94); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-w58-r7,chg.mode:front(naname)&touch(d0),11n-40ht(mcs0,13dbm),m5755(151),w/bty(1)/

Area Scan (9x8x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.948 mW/g

Area Scan (81x71x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.05 mW/g

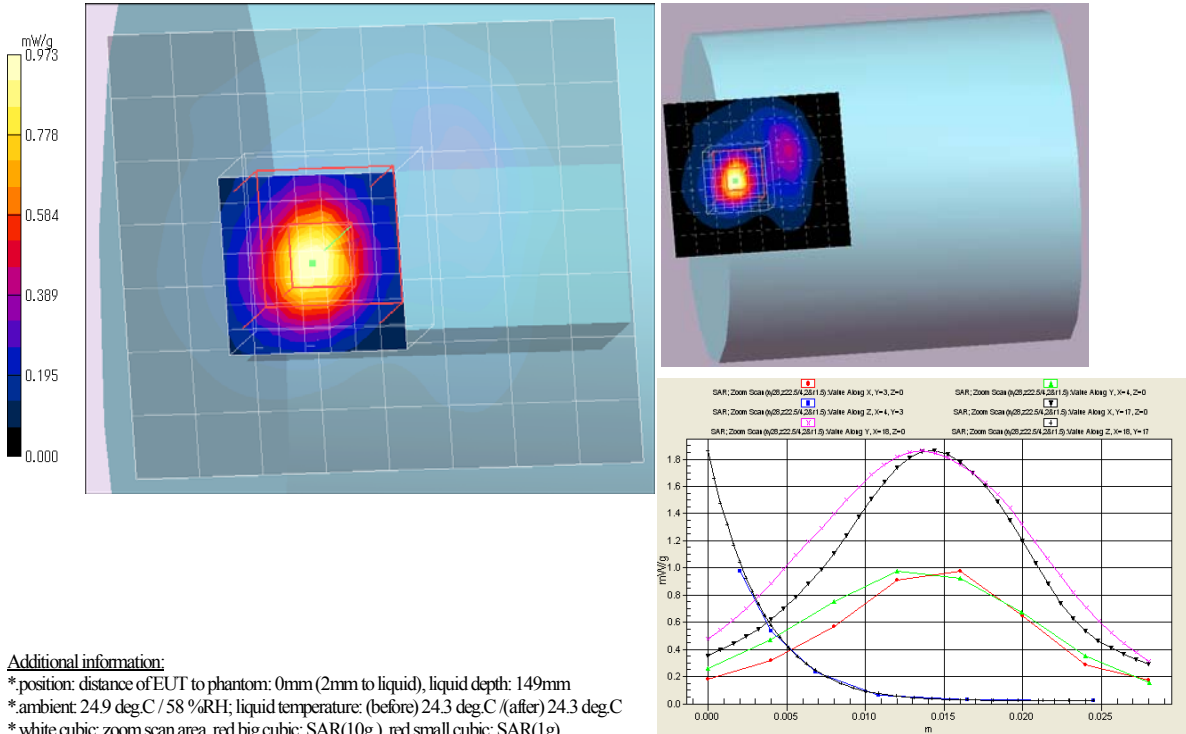
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 0.964 mW/g

Zoom Scan(xy28,z22.5/4,2&r1.5) (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 14.4 V/m; Power Drift = -0.20 dB; Maximum value of SAR (measured) = 0.973 mW/g

Peak SAR (extrapolated) = 1.86 W/kg

SAR(1 g) = 0.496 mW/g; SAR(10 g) = 0.155 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *.ambient: 24.9 deg.C / 58 %RH; liquid temperature: (before) 24.3 deg.C / (after) 24.3 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10 g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 6, 2011

Appendix 2-4: Measurement data (Body liquid) / 5745-5825MHz band (W58 band) (cont'd)

Step 3: Change the operation mode (cont'd)

Step 3-3: 11n-40HT(MCS0) / 5795MHz(159ch), Front&touch position

EUT: Wireless module; Type: CH9-1214; Serial: 06 / Platform: DS58586x / Host device: HD camcorder

Communication System: 11n-40HT(MCS0, BPSK/OFDM); Frequency: 5795 MHz; Crest Factor: 1.0

Medium: MSL5800; Medium parameters used(24.9deg.C.): f = 5795 MHz; $\sigma = 6.25$ S/m; $\epsilon_r = 49$; $\rho = 1000$ kg/m³

DASY4 Configuration:

- Probe: EX3DV4 - SN3679; ConvF(3.94, 3.94, 3.94); Calibrated: 2011/05/19

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Electronics: DAE4 Sn626; Calibrated: 2011/02/10

- Phantom: ELI4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section

- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

fcc-w58-r8,chg.mode:front(naname)&touch(d0),11n-40ht(mcs0,13dbm),m5795(159),w/bty(2)/

Area Scan (9x8x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.936 mW/g

Area Scan (81x71x1): Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (interpolated) = 1.04 mW/g

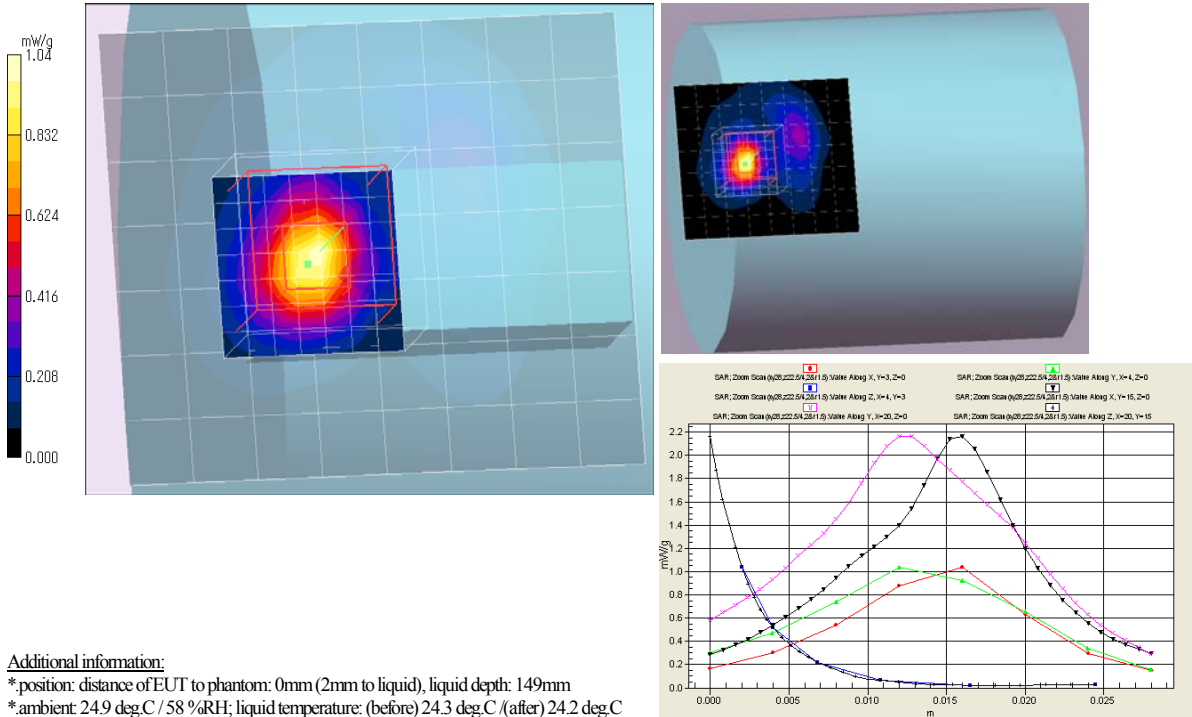
Z Scan (1x1x61): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm; Maximum value of SAR (measured) = 1.05 mW/g

Zoom Scan(xy28,z22.5/4,2&r1.5) (8x8x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm;

Reference Value = 14.0 V/m; Power Drift = -0.138 dB; Maximum value of SAR (measured) = 1.04 mW/g

Peak SAR (extrapolated) = 2.17 W/kg

SAR(1 g) = 0.493 mW/g; SAR(10 g) = 0.156 mW/g



Additional information:

- *.position: distance of EUT to phantom: 0mm (2mm to liquid), liquid depth: 149mm
- *.ambient: 24.9 deg.C / 58 %RH; liquid temperature: (before) 24.3 deg.C / (after) 24.2 deg.C
- *.white cubic: zoom scan area, red big cubic: SAR(10 g), red small cubic: SAR(1g)
- *.Tested by: Hiroshi Naka / Tested place: No.7 shielded room., Date tested: September 6, 2011

APPENDIX 3: Test instruments

Appendix 3-1: Equipment used

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
COTS-KSAR-01	DASY4	Schmid&Partner Engineering AG	DASY4 V4.7 B80	-	SAR	-
COTS-KSEP-01	Dielectric measurement	Agilent	85070	1	SAR	-
KSAR-01	SAR measurement system	Schmid&Partner Engineering AG	DASY4	1088	SAR	Pre Check
SSRBT-01	SAR robot	Schmid&Partner Engineering AG	RX60B L	F04/5Z71A1/A/01	SAR	2011/02/02 * 12
KDAE-01	Data Acquisition Electronics	Schmid&Partner Engineering AG	DAE4	626	SAR	2011/02/10 * 12
KPB-01	Dosimetric E-Field Probe	Schmid&Partner Engineering AG	EX3DV4	3679	SAR	2011/05/19 * 12
KSDA-01	Dipole Antenna	Schmid&Partner Engineering AG	D2450V2	822	SAR	2011/01/05 * 24
KPFL-01	Flat Phantom	Schmid&Partner Engineering AG	Oval flat phantom ELI 4.0	1059	SAR	Pre Check
SSNA-01	Network Analyzer	Agilent	8753ES	US39171777	SAR	2011/01/04 * 12
KEPP-01	Dielectric probe	Agilent	8710-2036	2540	SAR	2011/01/16 * 12
KSG-08	Signal Generator	Rohde & Schwarz	SMT06	100763	SAR	2011/06/07 * 12
KPA-12	RF Power Amplifier	MILMEGA	AS2560-50	1018582	SAR	Pre Check
KCPL-07	Directional Coupler	Pulsar Microwave Corp.	CCS30-B26	0621	SAR	Pre Check
KPM-06	Power Meter	Rohde & Schwarz	NRVD	101599	SAR(dipl)	2011/09/13 * 12
KIU-09	Power sensor	Rohde & Schwarz	NRV-Z4	100371	SAR(dipl)	2011/09/13 * 12
KIU-08	Power sensor	Rohde & Schwarz	NRV-Z4	100372	SAR(pf)	2011/09/13 * 12
KAT10-P1	Attenuator	Weinschel	24-10-34	BY5927	SAR	2011/02/17 * 12
KAT20-P1	Attenuator	TME	SFA-01AXPJ	-	SAR	2011/02/17 * 12
KRU-01	Ruler(300mm)	Shinwa	I3134	-	SAR	2011/03/28 * 12
KRU-02	Ruler(150mm,L)	Shinwa	I2103	-	SAR	2011/03/28 * 12
KRU-04	Ruler(300mm)	Shinwa	I3134	-	SAR	2011/05/26 * 12
KRU-05	Ruler(100x50mm,L)	Shinwa	I2101	-	SAR	2011/05/26 * 12
KOS-13	Digital thermometer	HANNA	Checktemp-2	KOS-13	SAR	2011/01/19 * 12
KOS-14	Thermo-Hygrometer data logger	SATO KEIRYOKI	SK-L200THII α / SK-LTHII α -2	015246/08169	SAR	2011/01/19 * 12
SOS-11	Humidity Indicator	A&D	AD-5681	4063424	SAR	2011/02/23 * 12
KPM-08	Power meter	Anritsu	ML2495A	6K00003356	Ant.pwr	2011/09/12 * 12
KPSS-04	Power sensor	Anritsu	MA2411B	012088	Ant.pwr	2011/09/12 * 12
KAT10-S3	Attenuator	Agilent	8490D 010	50924	Ant.pwr	2011/02/17 * 12
SSA-04	Spectrum Analyzer	Advantest	R3272	101100994	SAR(moni.)	2010/12/09 * 12
KSLM245-01	Tissue simulation liquid (2450MHz,body)	Schmid&Partner Engineering AG	SL AAM 245	-	SAR	(Daily check) Target value ±5%
KSLM580-02	Tissue simulation liquid (5800MHz,body)	Schmid&Partner Engineering AG	SL AAM 501 AB	110520-3	SAR	(Daily check) Target value ±5%
No.7 Shielded room	SAR shielded room (2.76m(W)x3.76m(D)x2.4m(H))	TDK	-	-	SAR	(Daily check) Ambient noise: < 12mW/kg

The expiration date of calibration is the end of the expired month.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

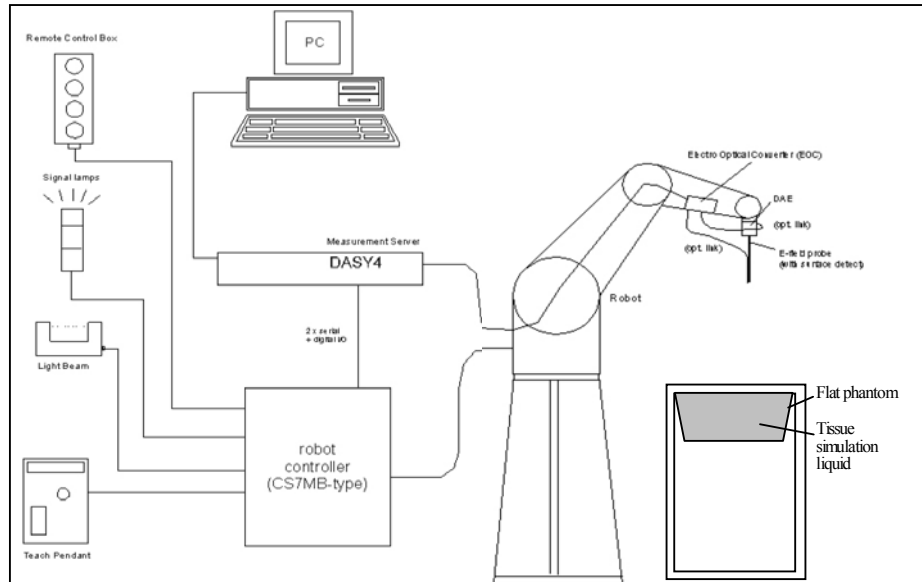
All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

[Test Item] SAR: Specific Absorption Rate, Ant.pwr: Antenna terminal conducted power

Appendix 3-2: Dosimetry assessment setup

These measurements were performed with the automated near-field scanning system DASY4 from Schmid & Partner Engineering AG (SPEAG). The system is based on a high precision robot (working range greater than 0.9 m), which positions the probes with a positional repeatability of better than +/- 0.02 mm. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines to the data acquisition unit. The SAR measurements were conducted with the dosimetry probes EX3DV4, SN: 3540 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe has been calibrated according to the procedure described in [2] with accuracy of better than +/-10%. The spherical isotropy was evaluated with the procedure described in [3] and found to be better than +/-0.25 dB.

Appendix 3-3: Configuration and peripherals



The DASY4 system for performing compliance tests consist of the following items:

1	A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
2	A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
3	A data acquisition electronic (DAE), which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
4	The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
5	The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
6	A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
7	A computer operating Windows XP.
8	DASY4 software.
9	Remote control with teaches pendant and additional circuitry for robot safety such as warning lamps, etc.
10	The phantom.
11	The device holder for EUT. (low-loss dielectric palette)
12	Tissue simulating liquid mixed according to the given recipes.
13	Validation dipole kits allowing to validate the proper functioning of the system.

Appendix 3-4: System components

1) EX3DV4 Probe Specification

Construction:

- Symmetrical design with triangular core.
- Built-in shielding against static charges.
- PEEK enclosure material (resistant to organic solvents, e.g., DGBE).

Calibration (S/N 3540):

Basic broad band calibration in air.

Conversion Factors(Head and Body): 2450, 2600, 5200, 5300, 5500, 5600, 5800MHz

Frequency:

10 MHz to > 6GHz, Linearity: ± 0.2 dB (30MHz to 6GHz)

Directivity:

± 0.3 dB in HSL (rotation around probe axis)

± 0.5 dB in tissue material (rotation normal to probe axis)

Dynamic Range:

$10\mu\text{W/g}$ to $> 100\text{ mW/g}$; Linearity: ± 0.2 dB (noise: typically $< 1\mu\text{W/g}$)

Dimensions:

Overall length: 330mm (Tip: 20mm)

Tip diameter: 2.5mm (Body: 12mm)

Typical distance from probe tip to dipole centers: 1mm

Application:

High precision dosimetric measurement in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6GHz with precision of better 30%.



EX3DV4 E-filed Probe



2) Phantom (Flat type)

Construction:

A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom position and measurement grids by manually teaching three points with the robot.

Shell Thickness:

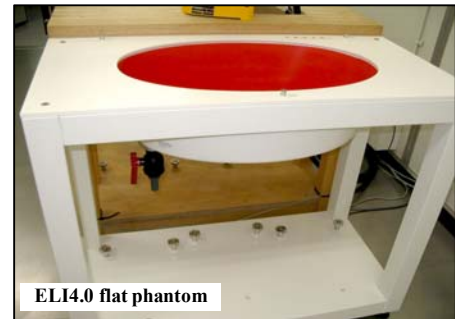
Bottom plate: 2 ± 0.2 mm

Dimensions:

Bottom elliptical: 600×400mm, Depth: 190mm

Filling Volume:

Approx. 30 liters



EL14.0 flat phantom

Appendix 3-5: Test system specification

RX60L Robot

- Number of Axes : 6
- Reach : 800mm
- Control Unit : CS7M
- Manufacture : Stäubli Unimation Corp. Robot Model: RX60
- Payload : 1.6 kg
- Repeatability : ±0.025mm
- Programming Language : V+

DASY4 Measurement server

- Features : 166MHz low power Pentium MMX.
32MB chipdisk and 64MB RAM Serial link to DAE (with watchdog supervision) 16 Bit A/D converter for surface detection system. Two serial links to robot (one for real-time communication which is supervised by watchdog) Ethernet link to PC (with watchdog supervision).
Emergency stop relay for robot safety chain. Two expansion slots for future applications.
- Manufacture : Schmid & Partner Engineering AG

Data Acquisition Electronic (DAE)

- Features : Signal amplifier, multiplexer, A/D converter and control logic.
Serial optical link for communication with DASY4 embedded system (fully remote controlled).
2 step probe touch detector for mechanical surface detection and emergency robot stop (not in -R version)
- Measurement Range : 1µV to > 200mV (16bit resolution and two range settings: 4mV, 400mV)
- Input Offset voltage : < 1µV (with auto zero)
- Input Resistance : 200MΩ
- Dimension : 60×60×68mm
- Battery Power : > 10hr of operation (with two 9V battery)
- Manufacture : Schmid & Partner Engineering AG

Software

- Item : Dosimetric Assessment System DASY4
- Software version No. : DASY4, V4.7 B80
- Manufacture / Origin : Schmid & Partner Engineering AG

E-Field Probe

- Model : EX3DV4 (sn: 3540)
- Frequency : 10MHz to 6GHz
- Manufacture : Schmid & Partner Engineering AG
- Construction : Symmetrical design with triangular core
- Linearity : ±0.2dB (30MHz to 6GHz)

Phantom

- Type : ELI 4.0 oval flat phantom
- Shell Thickness : Bottom plate: 2 ±0.2mm
- Manufacture : Schmid & Partner Engineering AG
- Shell Material : Fiberglass
- Dimensions : Bottom elliptical: 600×400mm, Depth: 190mm

Appendix 3-6: Simulated tissue composition

Ingredient	Mixture (%)
	Body 2450MHz (type: SL AAM 245)
Water	52-75 %
C ₈ H ₁₈ O ₃ (Diethylene glycol monobutyl ether (DGBE))	25-48%
NaCl	<1.0%
Manufacture	Schmid&Partner Engineering AG

Ingredient	Mixture (%)
	Body 5800MHz (type: SL AAM 501 AB)
Water	60-80 %
Esters, Emulsifiers, Inhibitors	20-40 %
Sodium salt	0-1.5 %
Manufacture	Schmid&Partner Engineering AG