

## **Appendix 1 – System Performance Check Plots**

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

## System Performance Check

**DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d081**

Frequency: 835 MHz; Duty Cycle: 1:1

Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.915 \text{ S/m}$ ;  $\epsilon_r = 42.083$ ;  $\rho = 1000 \text{ kg/m}^3$

DASY5 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.36, 6.36, 6.36); Calibrated: 8/15/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 11/7/2014
- Phantom: SAM v4.0 SN1194; Type: QD000P40CA; Serial: TP 1194
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Dipole/Input 250 mW/Area Scan (9x9x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$

Maximum value of SAR (measured) = 2.52 W/kg

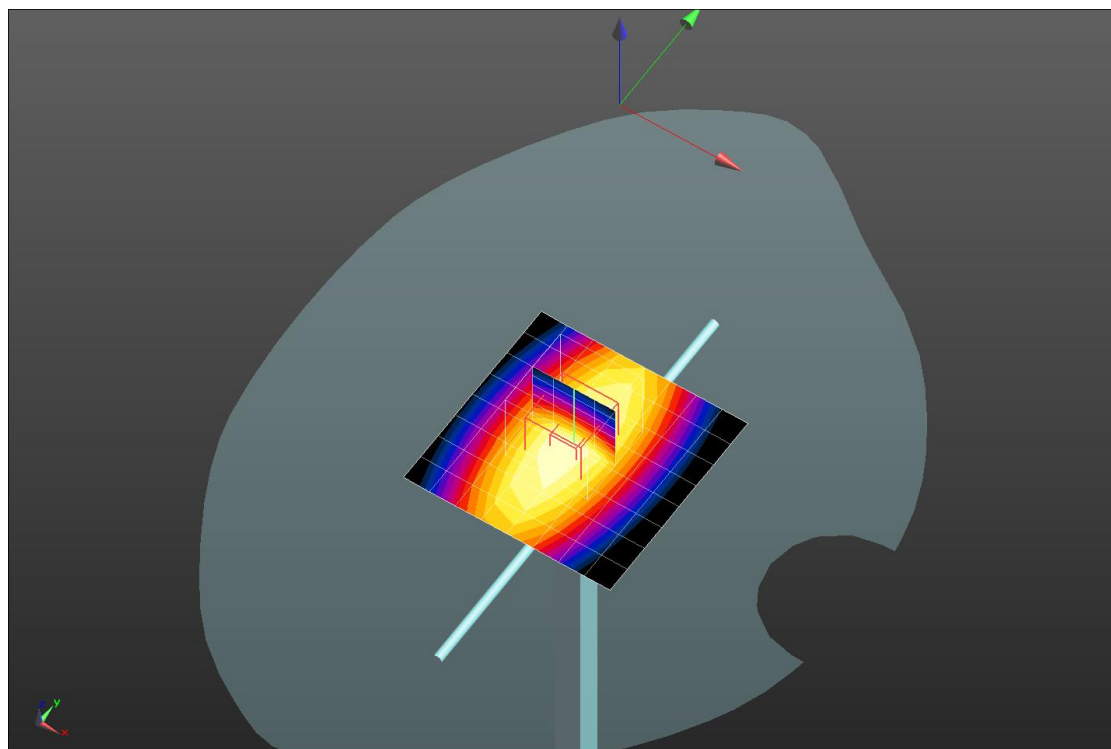
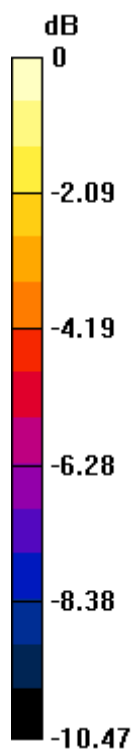
**Dipole/Input 250 mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 54.61 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.41 W/kg

**SAR(1 g) = 2.37 W/kg; SAR(10 g) = 1.55 W/kg**

Maximum value of SAR (measured) = 2.57 W/kg



0 dB = 2.57 W/kg = 4.10 dBW/kg

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

## System Performance Check

**DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d081**

Frequency: 835 MHz; Duty Cycle: 1:1

Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.975 \text{ S/m}$ ;  $\epsilon_r = 54.455$ ;  $\rho = 1000 \text{ kg/m}^3$

DASY5 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.11, 6.11, 6.11); Calibrated: 8/15/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 11/7/2014
- Phantom: SAM v4.0 SN1194; Type: QD000P40CA; Serial: TP 1194
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Dipole/Input 250 mW/Area Scan (9x9x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$

Maximum value of SAR (measured) = 2.57 W/kg

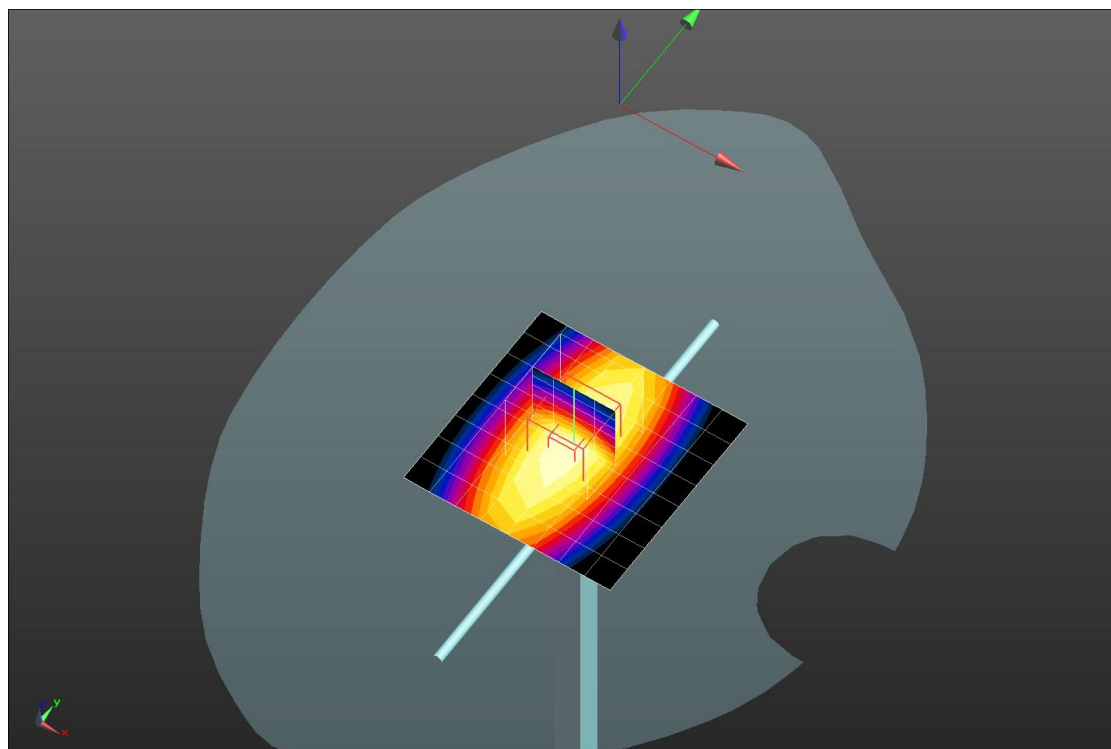
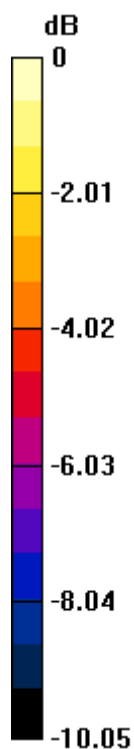
**Dipole/Input 250 mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 53.69 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.32 W/kg

**SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.6 W/kg**

Maximum value of SAR (measured) = 2.60 W/kg



0 dB = 2.60 W/kg = 4.15 dBW/kg

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## System Performance Check

**DUT: Dipole 750 MHz; Type: D750V3; Serial: 1124**

Frequency: 750 MHz; Duty Cycle: 1:1

Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C

Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.903 \text{ S/m}$ ;  $\epsilon_r = 42.993$ ;  $\rho = 1000 \text{ kg/m}^3$

DASY5 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.65, 6.65, 6.65); Calibrated: 8/15/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 11/7/2014
- Phantom: SAM v4.0 SN1194; Type: QD000P40CA; Serial: TP 1194
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Dipole/Input 250 mW/Area Scan (9x9x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$

Maximum value of SAR (measured) = 2.17 W/kg

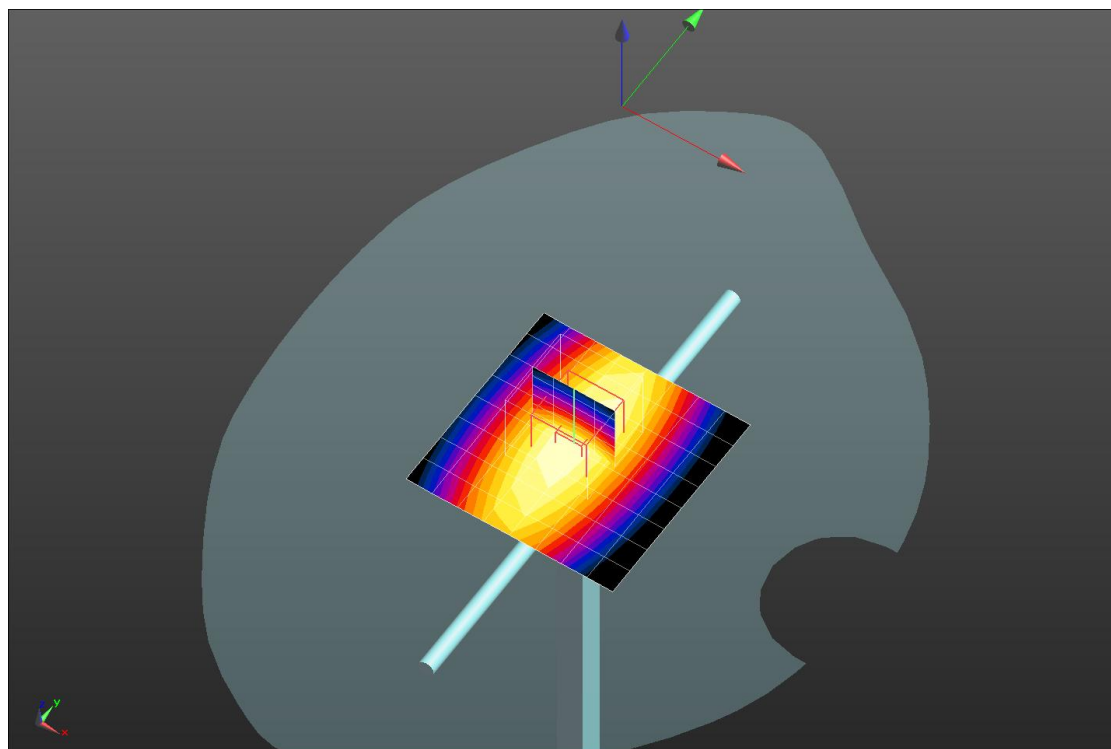
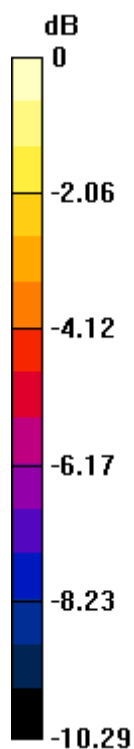
**Dipole/Input 250 mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 50.78 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 3.03 W/kg

**SAR(1 g) = 2.07 W/kg; SAR(10 g) = 1.36 W/kg**

Maximum value of SAR (measured) = 2.24 W/kg



0 dB = 2.24 W/kg = 3.50 dBW/kg

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## System Performance Check

**DUT: Dipole 750 MHz; Type: D750V3; Serial: 1124**

Frequency: 750 MHz; Duty Cycle: 1:1

Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C

Medium parameters used:  $f = 750 \text{ MHz}$ ;  $\sigma = 0.973 \text{ S/m}$ ;  $\epsilon_r = 56.224$ ;  $\rho = 1000 \text{ kg/m}^3$

DASY5 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.22, 6.22, 6.22); Calibrated: 8/15/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 11/7/2014
- Phantom: SAM v4.0 SN1194; Type: QD000P40CA; Serial: TP 1194
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Dipole/Input 250 mW/Area Scan (9x9x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$

Maximum value of SAR (measured) = 2.33 W/kg

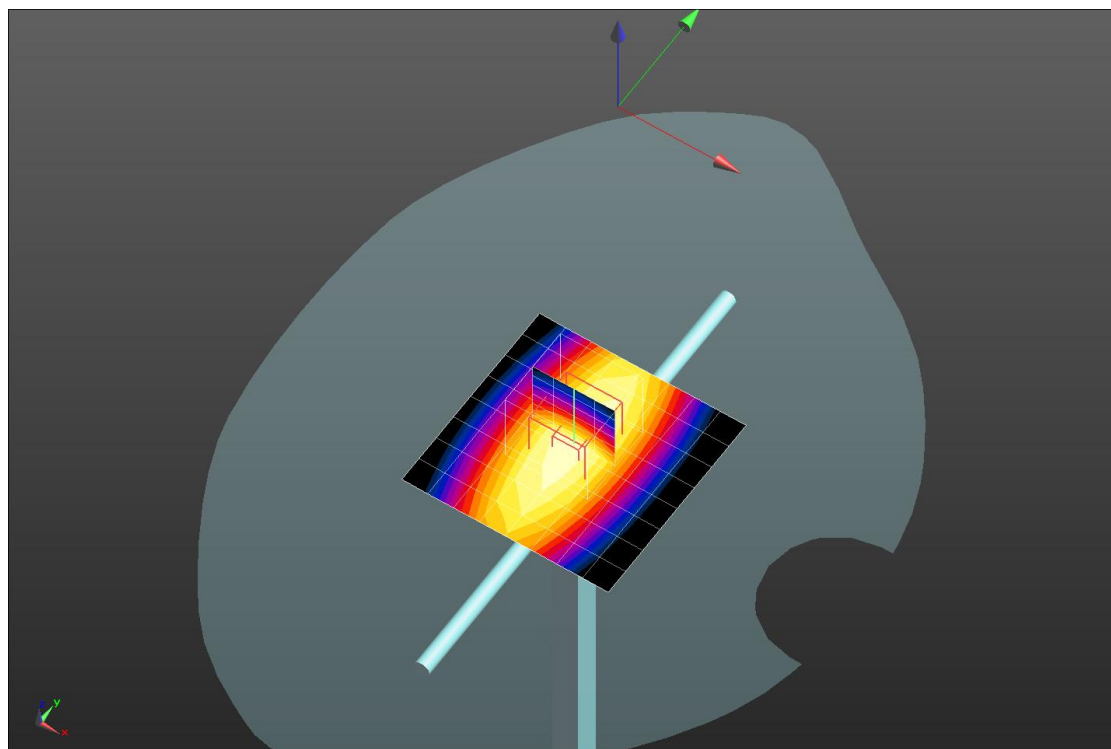
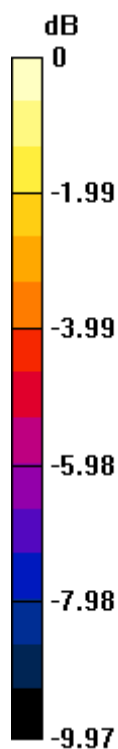
**Dipole/Input 250 mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 51.01 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 3.21 W/kg

**SAR(1 g) = 2.21 W/kg; SAR(10 g) = 1.47 W/kg**

Maximum value of SAR (measured) = 2.40 W/kg



0 dB = 2.40 W/kg = 3.80 dBW/kg

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## System Performance Check

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d112**

Frequency: 1900 MHz; Duty Cycle: 1:1

Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.411$  S/m;  $\epsilon_r = 39.77$ ;  $\rho = 1000$  kg/m<sup>3</sup>

DASY5 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(5.08, 5.08, 5.08); Calibrated: 8/15/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 11/7/2014
- Phantom: SAM v4.0 SN1194; Type: QD000P40CA; Serial: TP 1194
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Dipole/Input 250 mW/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 10.7 W/kg

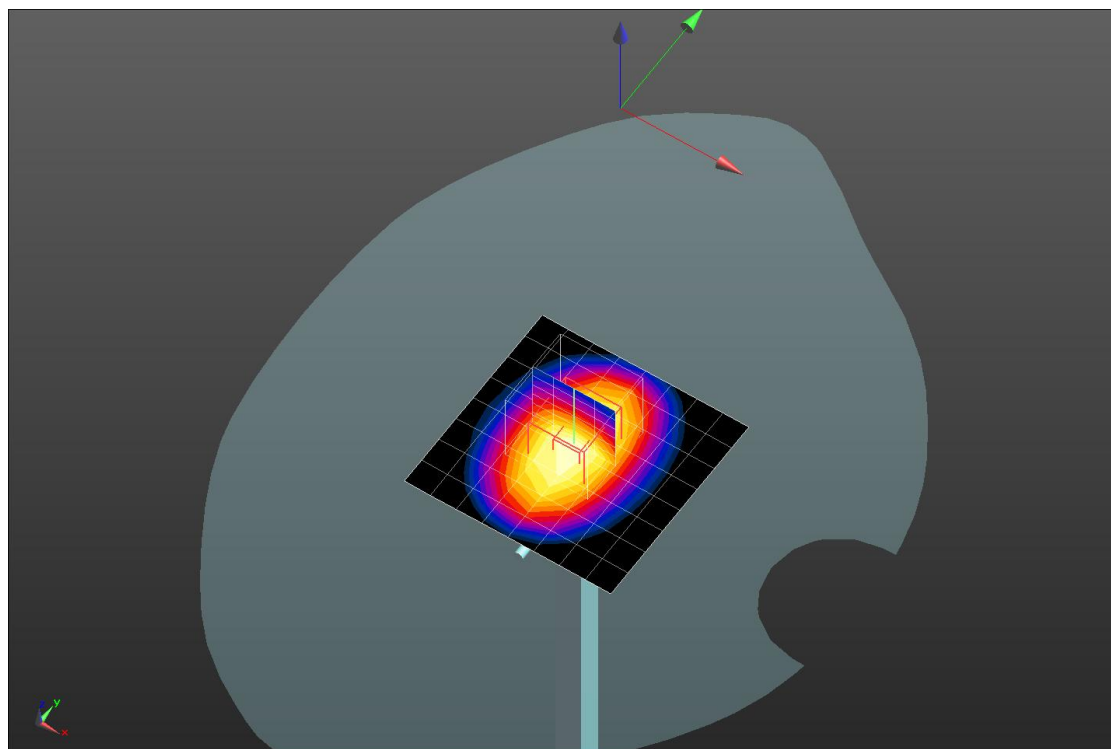
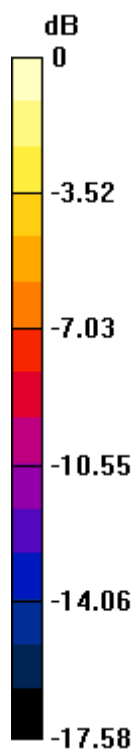
**Dipole/Input 250 mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 91.00 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 17.5 W/kg

**SAR(1 g) = 9.92 W/kg; SAR(10 g) = 5.24 W/kg**

Maximum value of SAR (measured) = 11.1 W/kg



0 dB = 11.1 W/kg = 10.45 dBW/kg

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

## System Performance Check

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d112**

Frequency: 1900 MHz; Duty Cycle: 1:1

Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.531$  S/m;  $\epsilon_r = 52.831$ ;  $\rho = 1000$  kg/m<sup>3</sup>

DASY5 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.53, 4.53, 4.53); Calibrated: 8/15/2014;
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 11/7/2014
- Phantom: SAM v4.0 SN1194; Type: QD000P40CA; Serial: TP 1194
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Dipole/Input 250 mW/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 10.0 W/kg

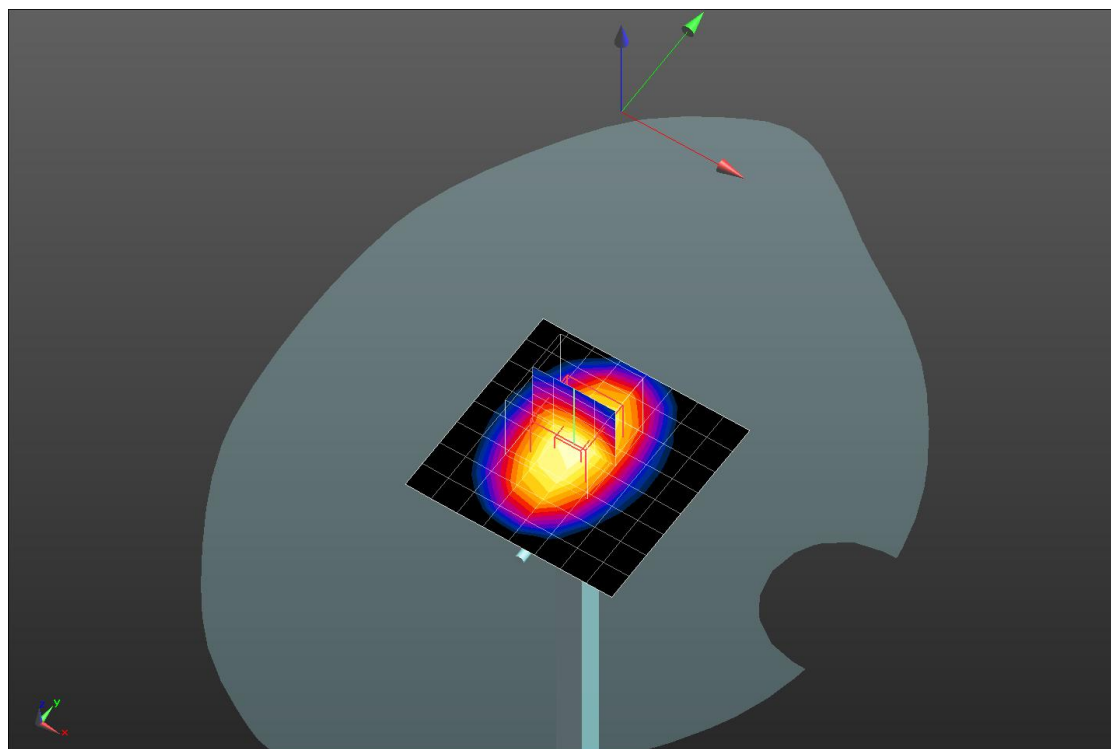
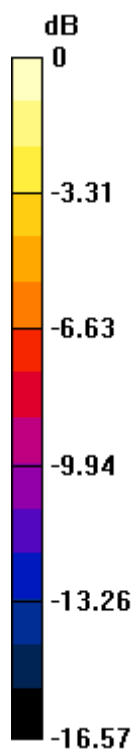
**Dipole/Input 250 mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 87.93 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 15.6 W/kg

**SAR(1 g) = 9.92 W/kg; SAR(10 g) = 5.38 W/kg**

Maximum value of SAR (measured) = 11.2 W/kg



0 dB = 11.2 W/kg = 10.49 dBW/kg

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## System Performance Check

**DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1111**

Frequency: 5250 MHz; Duty Cycle: 1:1

Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C

Medium parameters used:  $f = 5250$  MHz;  $\sigma = 5.409$  S/m;  $\epsilon_r = 47.517$ ;  $\rho = 1000$  kg/m<sup>3</sup>

DASY5 Configuration:

- Probe: EX3DV4 - SN3808; ConvF(4.19, 4.19, 4.19); Calibrated: 9/15/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 11/7/2014
- Phantom: SAM v4.0 SN1194; Type: QD000P40CA; Serial: TP 1194
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Dipole/Input 100 mW/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 15.3 W/kg

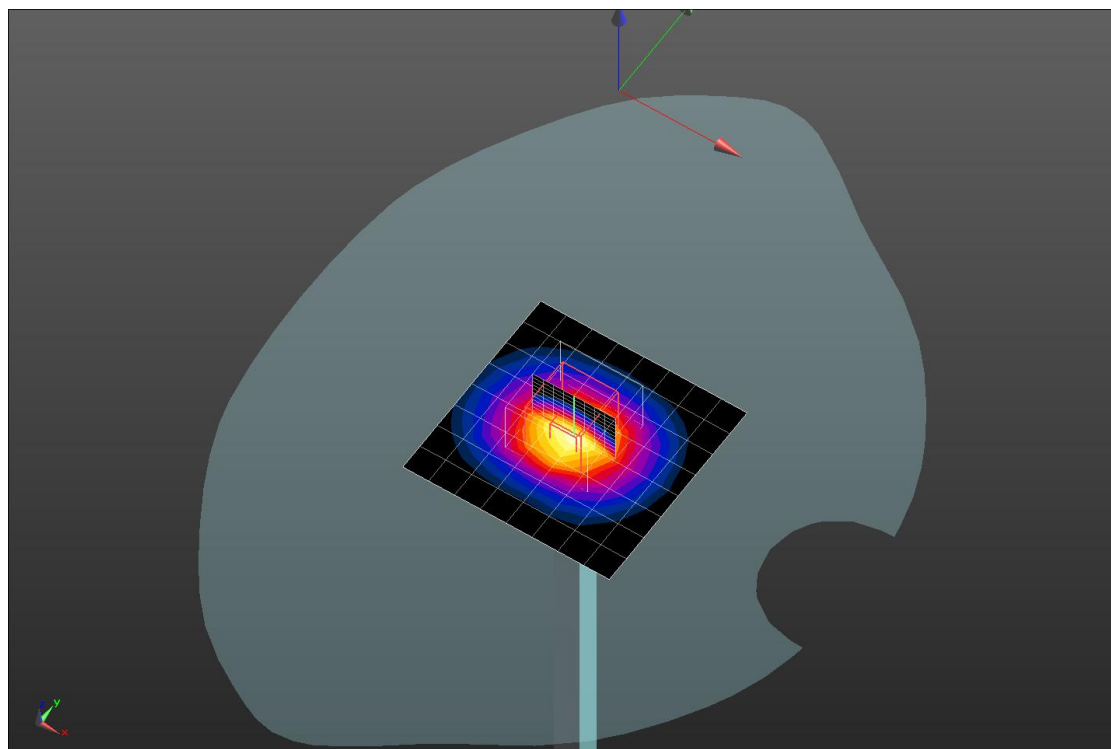
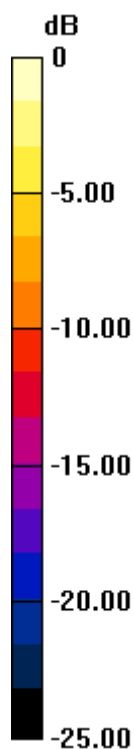
**Dipole/Input 100 mW/Zoom Scan (9x9x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 58.11 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 31.7 W/kg

**SAR(1 g) = 7.74 W/kg; SAR(10 g) = 2.17 W/kg**

Maximum value of SAR (measured) = 16.0 W/kg



0 dB = 16.0 W/kg = 12.04 dBW/kg

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

## System Performance Check

**DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1111**

Frequency: 5600 MHz; Duty Cycle: 1:1

Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C

Medium parameters used:  $f = 5600$  MHz;  $\sigma = 5.852$  S/m;  $\epsilon_r = 46.947$ ;  $\rho = 1000$  kg/m<sup>3</sup>

DASY5 Configuration:

- Probe: EX3DV4 - SN3808; ConvF(3.96, 3.96, 3.96); Calibrated: 9/15/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 11/7/2014
- Phantom: SAM v4.0 SN1194; Type: QD000P40CA; Serial: TP 1194
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Dipole/Input 100 mW/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 16.7 W/kg

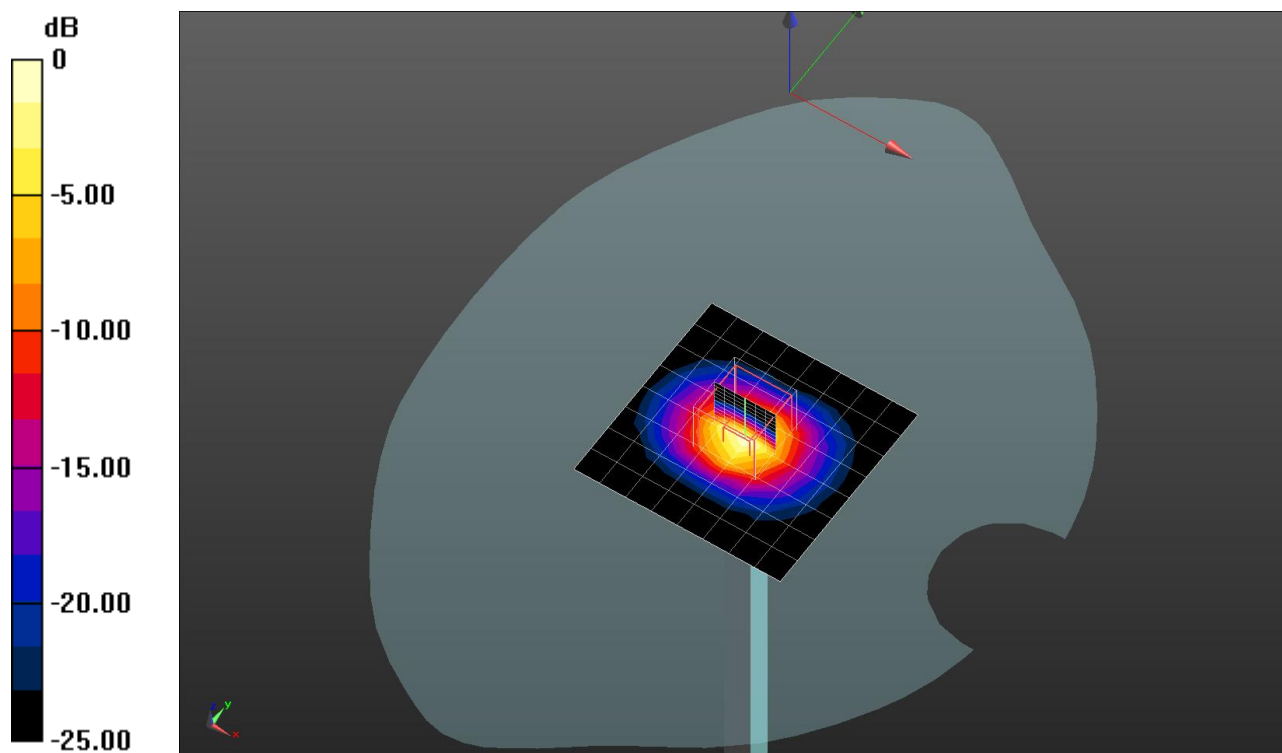
**Dipole/Input 100 mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 58.32 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 35.5 W/kg

**SAR(1 g) = 8.13 W/kg; SAR(10 g) = 2.25 W/kg**

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



0 dB = 17.3 W/kg = 12.38 dBW/kg

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

## System Performance Check

**DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1111**

Frequency: 5600 MHz; Duty Cycle: 1:1

Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C

Medium parameters used:  $f = 5600$  MHz;  $\sigma = 4.981$  S/m;  $\epsilon_r = 36.199$ ;  $\rho = 1000$  kg/m<sup>3</sup>

DASY5 Configuration:

- Probe: EX3DV4 - SN3808; ConvF(4.55, 4.55, 4.55); Calibrated: 9/15/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 11/7/2014
- Phantom: SAM v4.0 SN1194; Type: QD000P40CA; Serial: TP 1194
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Dipole/Input 100 mW/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm

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

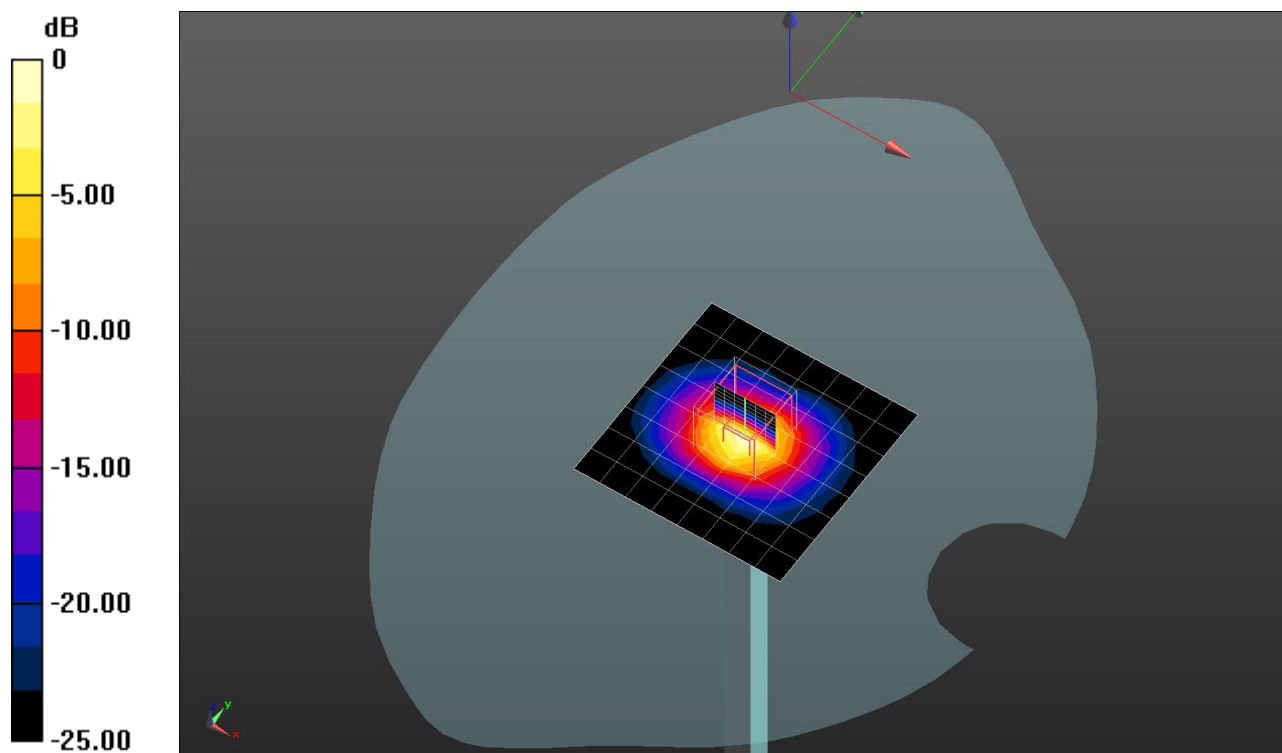
**Dipole/Input 100 mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 62.04 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 36.4 W/kg

**SAR(1 g) = 8.39 W/kg; SAR(10 g) = 2.38 W/kg**

Maximum value of SAR (measured) = 17.4 W/kg



0 dB = 17.4 W/kg = 12.41 dBW/kg

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

## System Performance Check

**DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1111**

Frequency: 5250 MHz; Duty Cycle: 1:1

Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C

Medium parameters used:  $f = 5250$  MHz;  $\sigma = 4.611$  S/m;  $\epsilon_r = 36.603$ ;  $\rho = 1000$  kg/m<sup>3</sup>

DASY5 Configuration:

- Probe: EX3DV4 - SN3808; ConvF(4.89, 4.89, 4.89); Calibrated: 9/15/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 11/7/2014
- Phantom: SAM v4.0 SN1194; Type: QD000P40CA; Serial: TP 1194
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Dipole/Input 100 mW/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 16.0 W/kg

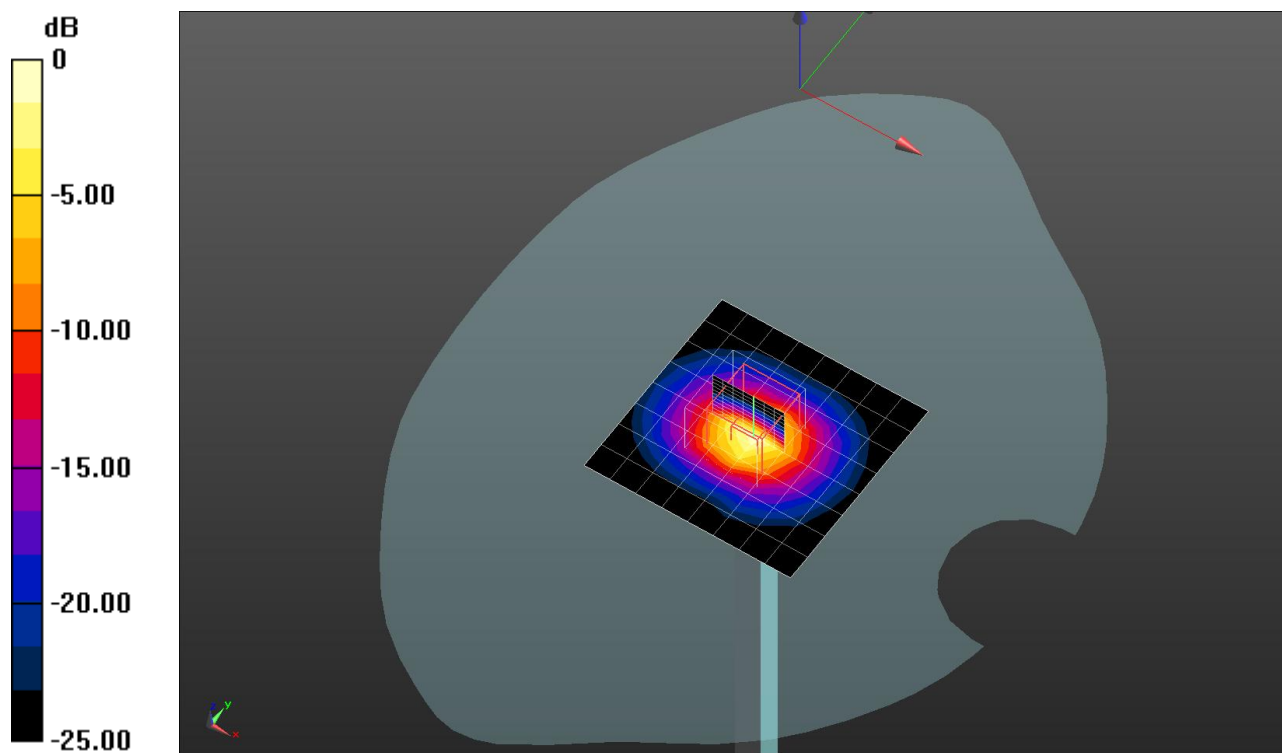
**Dipole/Input 100 mW/Zoom Scan (8x8x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 63.72 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 33.7 W/kg

**SAR(1 g) = 8.04 W/kg; SAR(10 g) = 2.3 W/kg**

Maximum value of SAR (measured) = 17.0 W/kg



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

## System Performance Check

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 714**

Frequency: 2450 MHz; Duty Cycle: 1:1

Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.832$  S/m;  $\epsilon_r = 38.832$ ;  $\rho = 1000$  kg/m<sup>3</sup>

DASY5 Configuration:

- Probe: EX3DV4 - SN3808; ConvF(6.99, 6.99, 6.99); Calibrated: 9/15/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 11/7/2014
- Phantom: SAM v4.0 SN1194; Type: QD000P40CA; Serial: TP 1194
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Dipole/Input 250 mW/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 20.1 W/kg

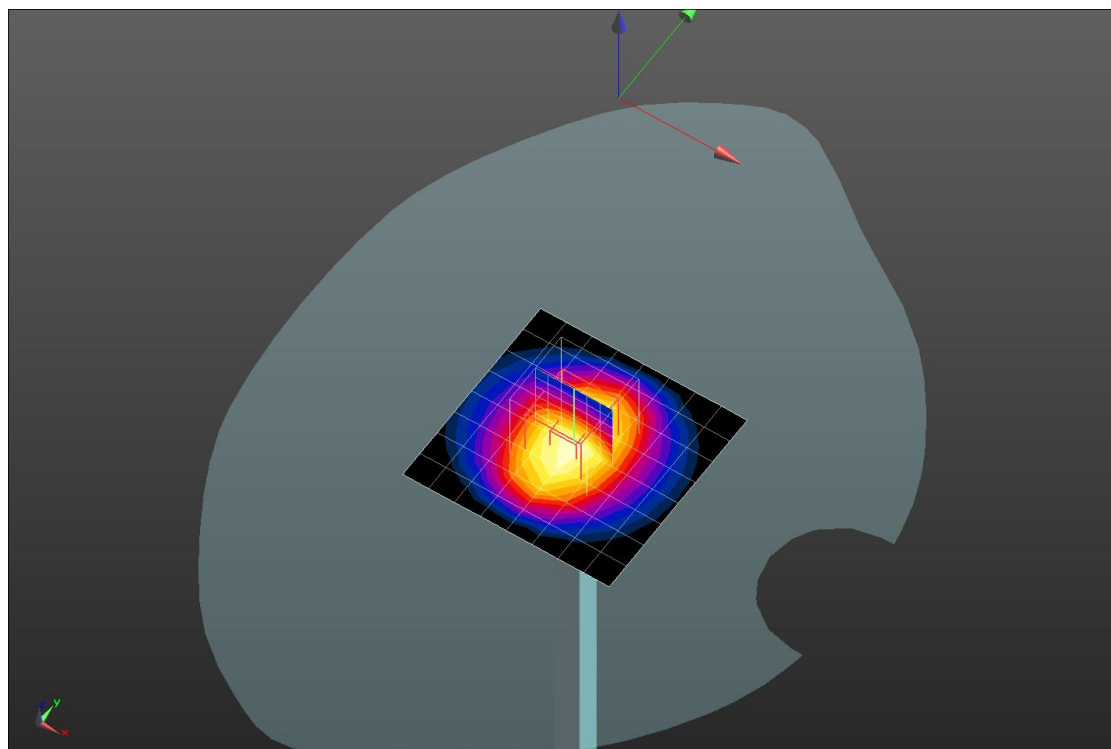
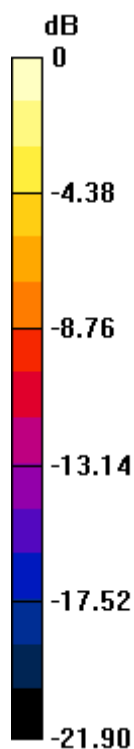
**Dipole/Input 250 mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 105.3 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 27.3 W/kg

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

Maximum value of SAR (measured) = 20.0 W/kg



0 dB = 20.0 W/kg = 13.01 dBW/kg

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

## System Performance Check

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 714**

Frequency: 2450 MHz; Duty Cycle: 1:1

Room Ambient Temperature: 24.0°C; Liquid Temperature: 23.0°C

Medium parameters used:  $f = 2450$  MHz;  $\sigma = 1.95$  S/m;  $\epsilon_r = 52.529$ ;  $\rho = 1000$  kg/m<sup>3</sup>

DASY5 Configuration:

- Probe: EX3DV4 - SN3808; ConvF(6.92, 6.92, 6.92); Calibrated: 9/15/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 11/7/2014
- Phantom: SAM v4.0 SN1194; Type: QD000P40CA; Serial: TP 1194
- Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Dipole/Input 250 mW/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (measured) = 18.8 W/kg

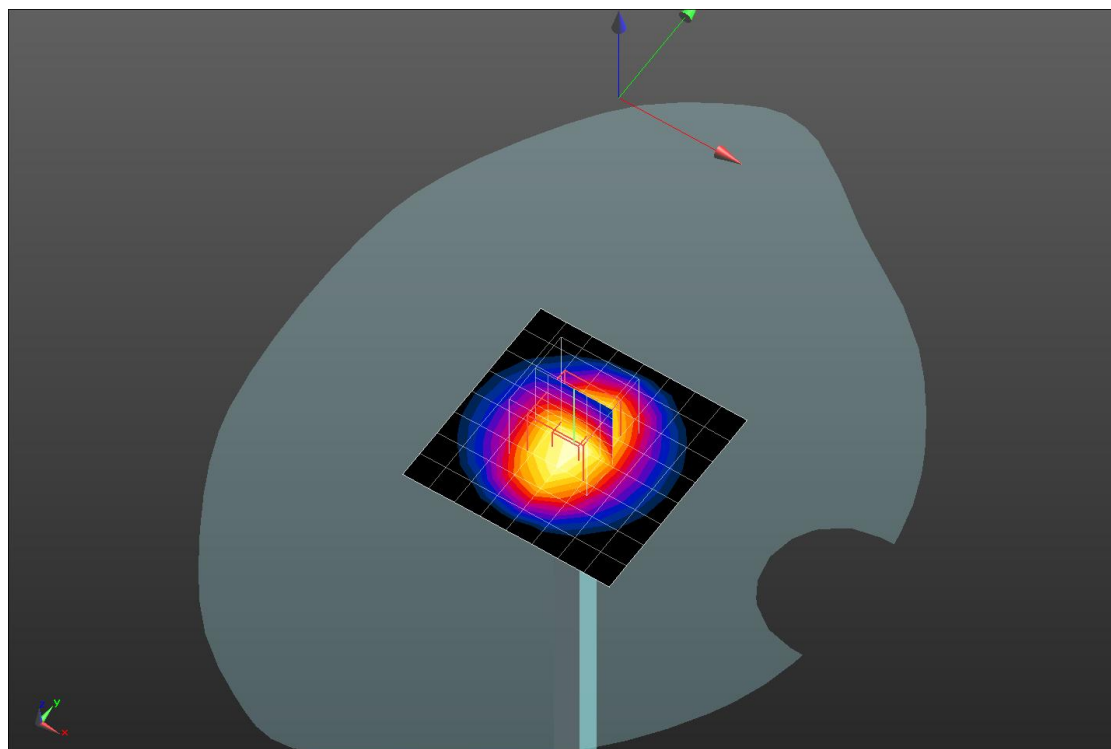
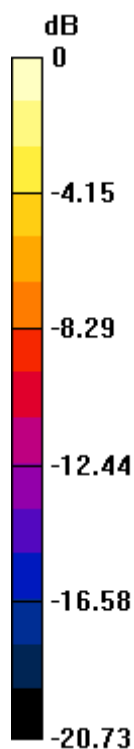
**Dipole/Input 250 mW/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 98.84 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 25.5 W/kg

**SAR(1 g) = 12.5 W/kg; SAR(10 g) = 5.88 W/kg**

Maximum value of SAR (measured) = 19.1 W/kg



0 dB = 19.1 W/kg = 12.81 dBW/kg