

Appendix 1 – System Validation Plots

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

System Validation (Head 835 MHz)**DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d081**

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: HSL900 Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.893 \text{ mho/m}$; $\epsilon_r = 42.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

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

Maximum value of SAR (measured) = 2.50 mW/g

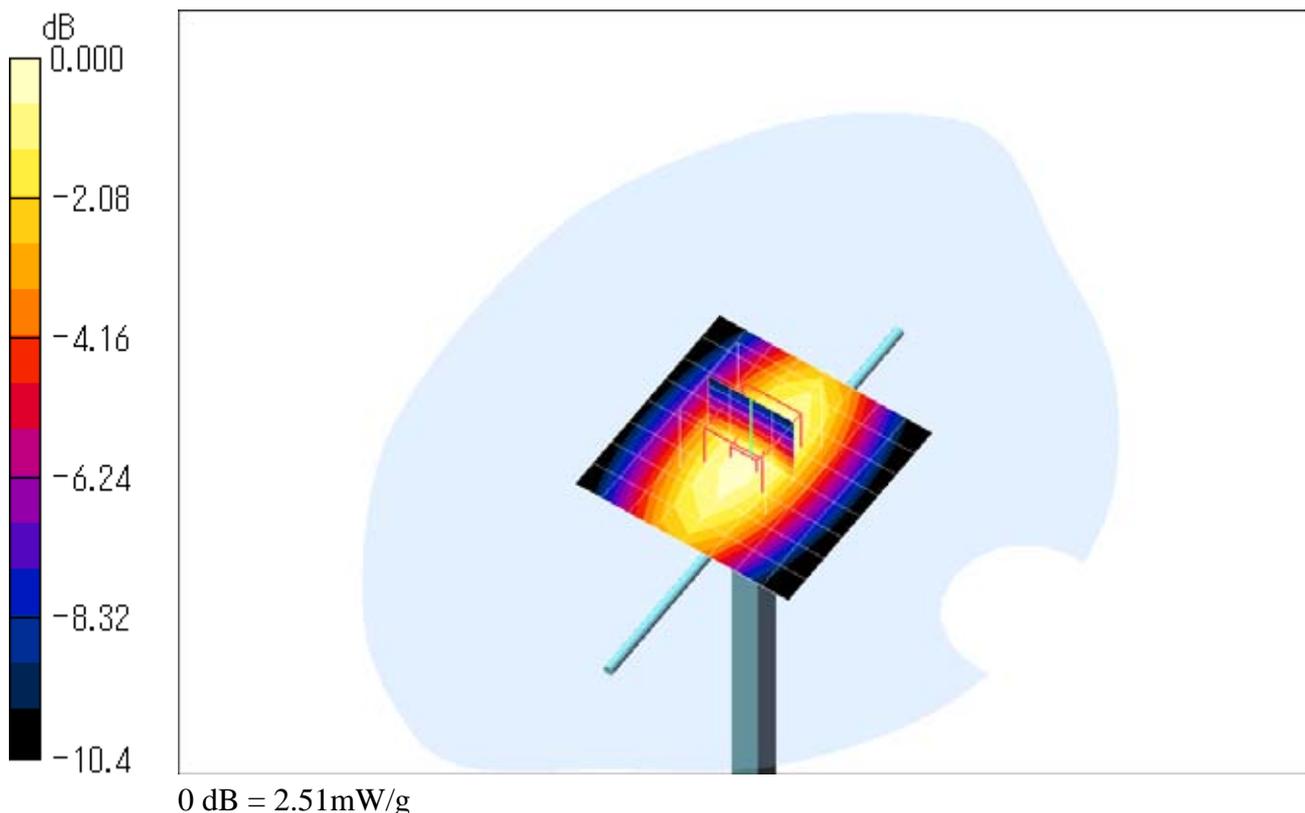
Antenna Input Power 250 mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 55.9 V/m; Power Drift = 0.012 dB

Peak SAR (extrapolated) = 3.17 W/kg

SAR(1 g) = 2.3 mW/g; SAR(10 g) = 1.53 mW/g

Maximum value of SAR (measured) = 2.51 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

System Validation (Body 835 MHz)

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

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: MSL900 Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.967 \text{ mho/m}$; $\epsilon_r = 55.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

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

Maximum value of SAR (measured) = 2.53 mW/g

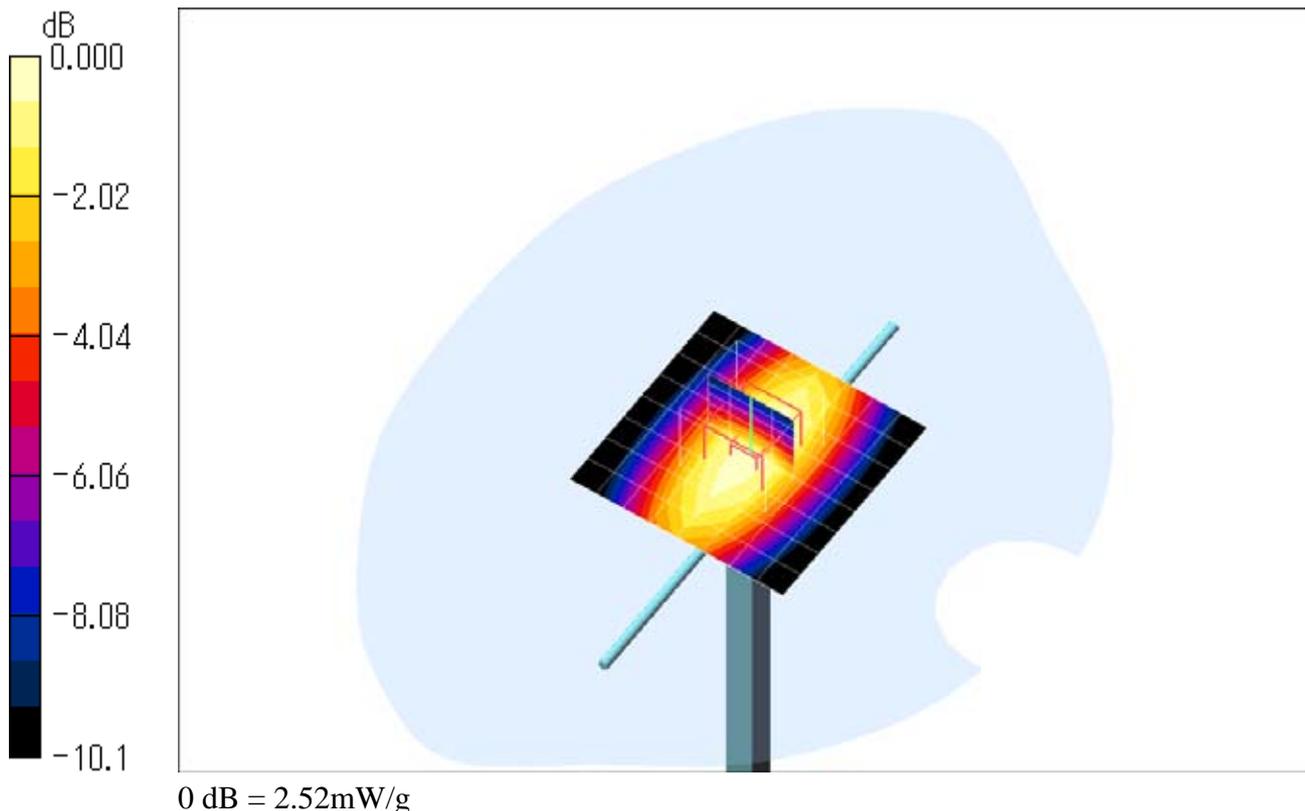
Antenna Input Power 250 mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 54.2 V/m; Power Drift = -0.002 dB

Peak SAR (extrapolated) = 3.16 W/kg

SAR(1 g) = 2.32 mW/g; SAR(10 g) = 1.56 mW/g

Maximum value of SAR (measured) = 2.52 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

System Validation (Head 1900 MHz)

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

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: HSL1900 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 40.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.93, 4.93, 4.93); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

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

Maximum value of SAR (measured) = 11.2 mW/g

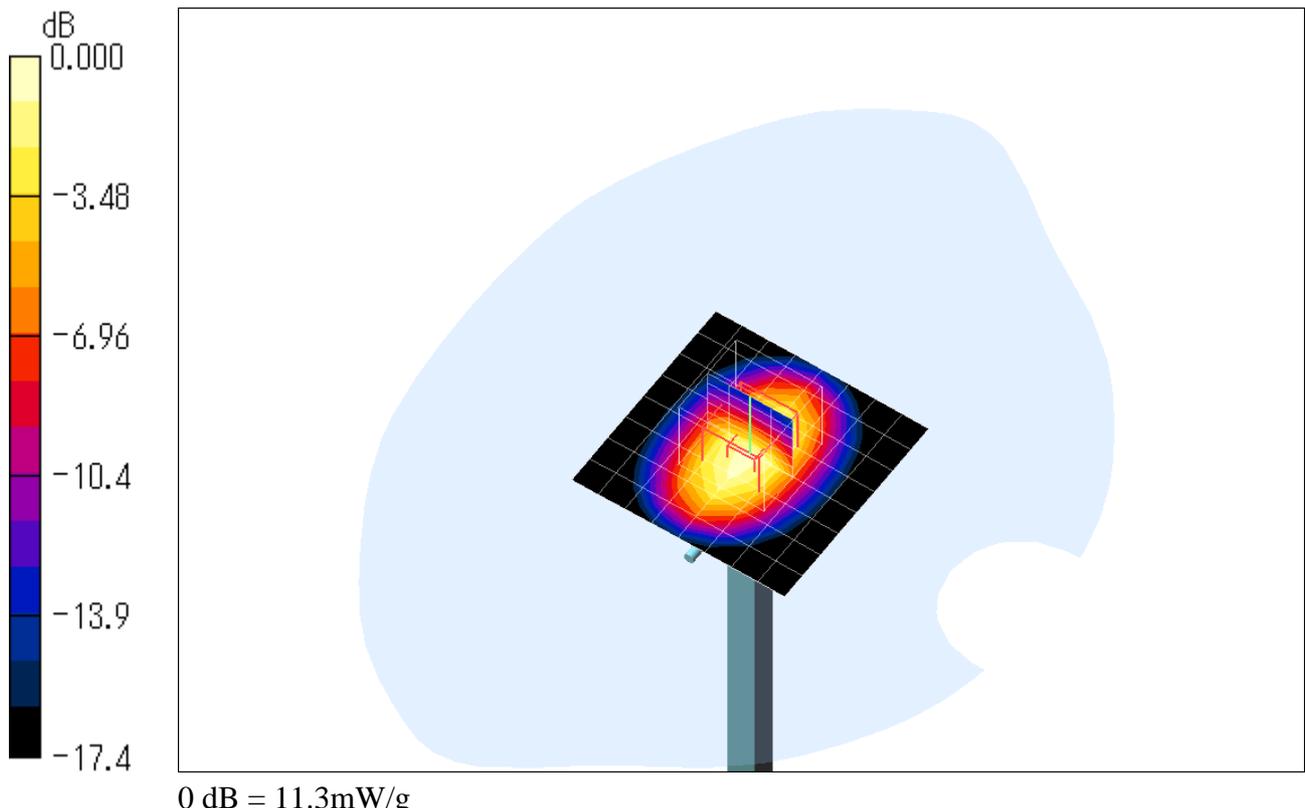
Antenna Input Power 250 mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 94.1 V/m; Power Drift = 0.007 dB

Peak SAR (extrapolated) = 17.2 W/kg

SAR(1 g) = 9.97 mW/g; SAR(10 g) = 5.27 mW/g

Maximum value of SAR (measured) = 11.3 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

System Validation (Body 1900 MHz)

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

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: MSL1900 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.43, 4.43, 4.43); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

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

Maximum value of SAR (measured) = 11.4 mW/g

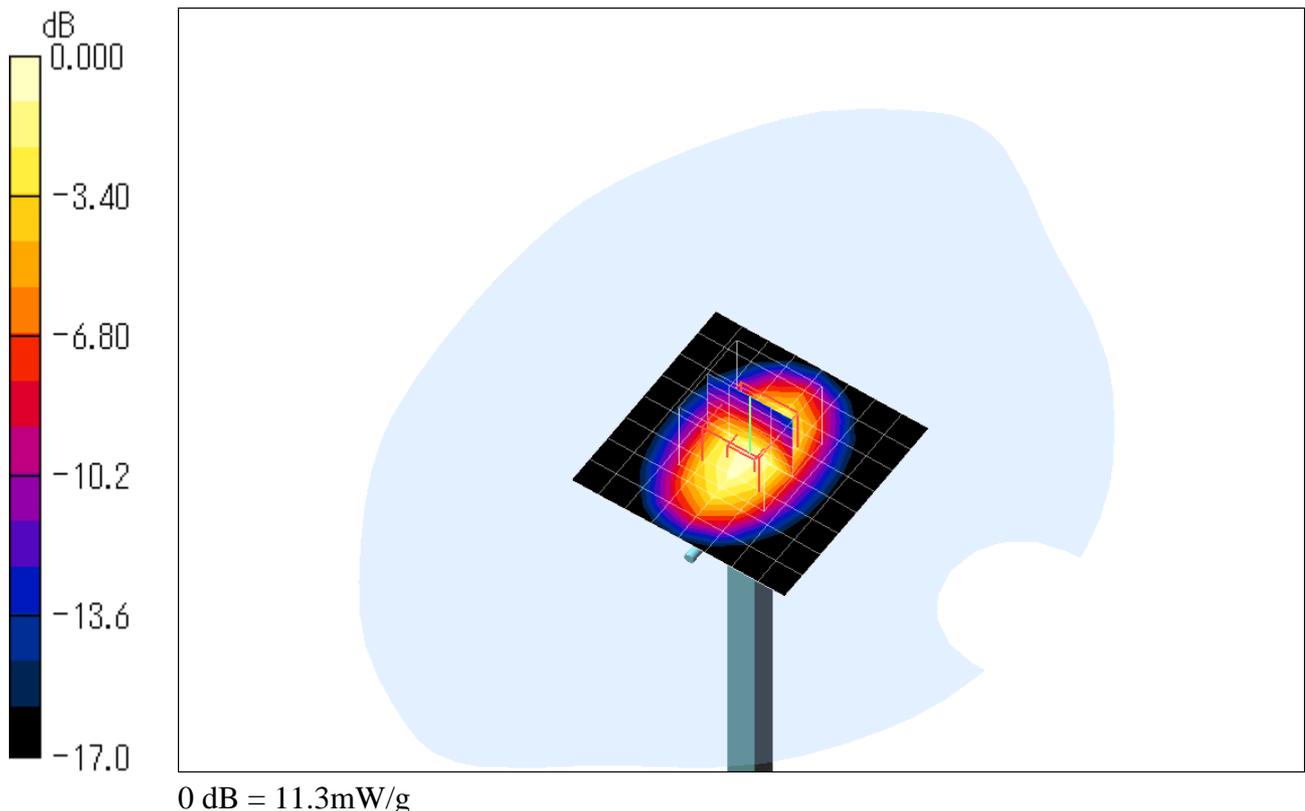
Antenna Input Power 250 mW/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 92.2 V/m; Power Drift = 0.010 dB

Peak SAR (extrapolated) = 17.1 W/kg

SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.36 mW/g

Maximum value of SAR (measured) = 11.3 mW/g





Appendix 2 – SAR Test Plots

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Left Head 4132ch / WCDMA Band V

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: WCDMA; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: HSL900 Medium parameters used: $f = 826.4$ MHz; $\sigma = 0.884$ mho/m; $\epsilon_r = 42.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.676 mW/g

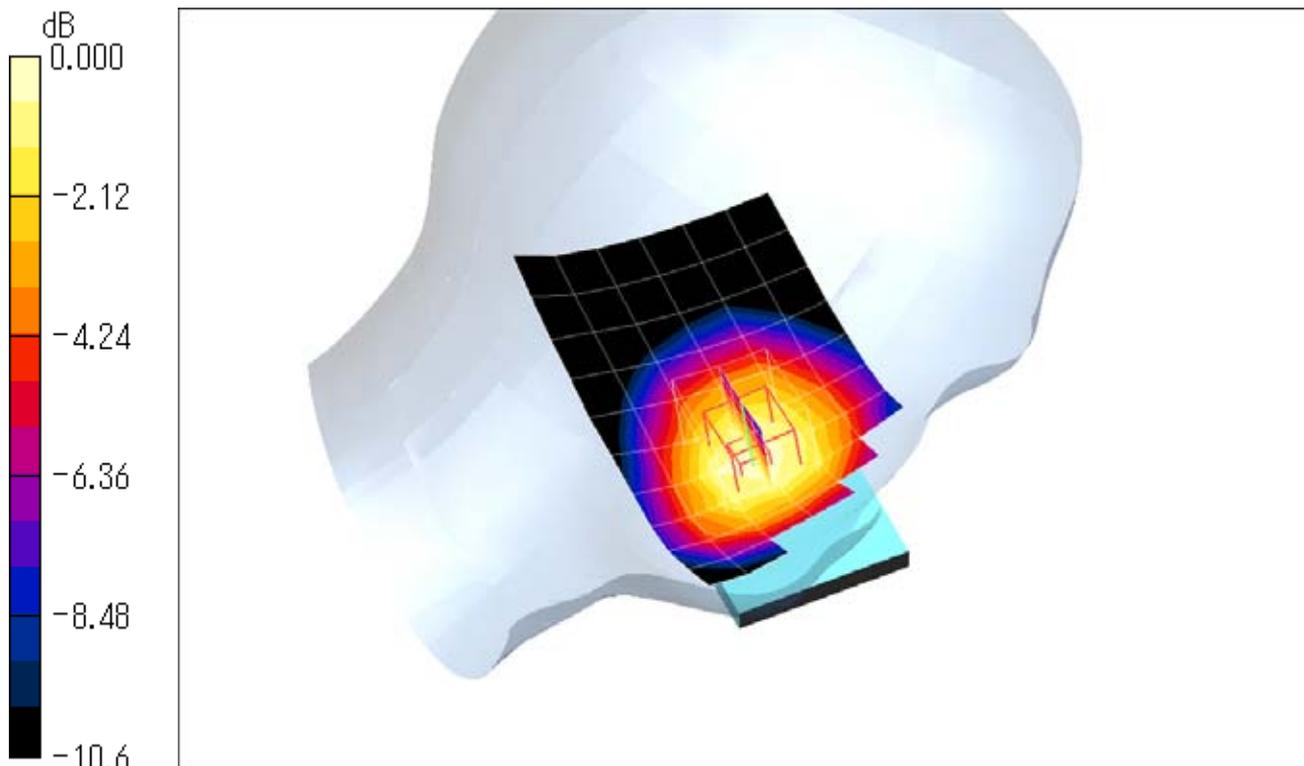
Cheek/Touch Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.6 V/m; Power Drift = 0.000 dB

Peak SAR (extrapolated) = 0.768 W/kg

SAR(1 g) = 0.630 mW/g; SAR(10 g) = 0.472 mW/g

Maximum value of SAR (measured) = 0.671 mW/g



0 dB = 0.671mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Left Head 4182ch / WCDMA Band V

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.894$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASy4 (High Precision Assessment)

DASy4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASy4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.764 mW/g

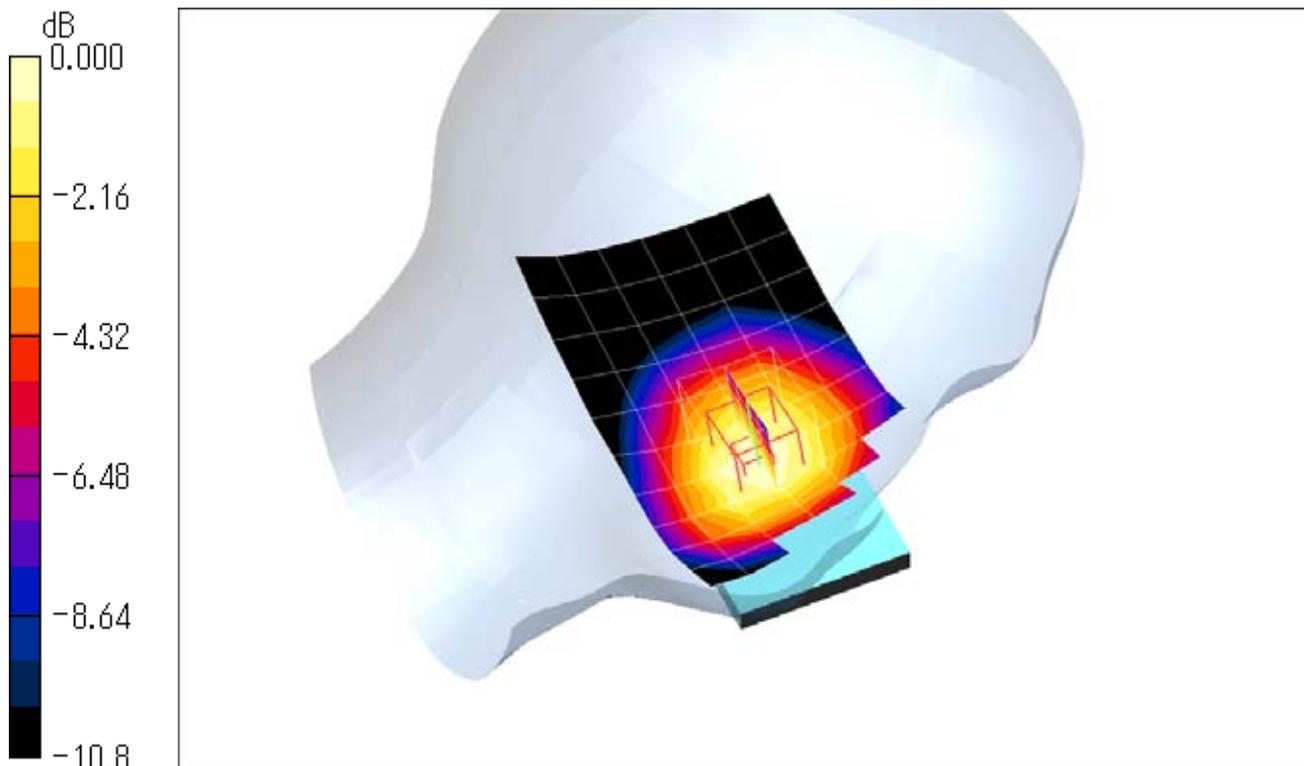
Cheek/Touch Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.6 V/m; Power Drift = -0.044 dB

Peak SAR (extrapolated) = 0.840 W/kg

SAR(1 g) = 0.708 mW/g; SAR(10 g) = 0.528 mW/g

Maximum value of SAR (measured) = 0.742 mW/g



0 dB = 0.742mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Left Head 4233ch / WCDMA Band V

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL900 Medium parameters used: $f = 846.6 \text{ MHz}$; $\sigma = 0.905 \text{ mho/m}$; $\epsilon_r = 42$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Area Scan (11x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.925 mW/g

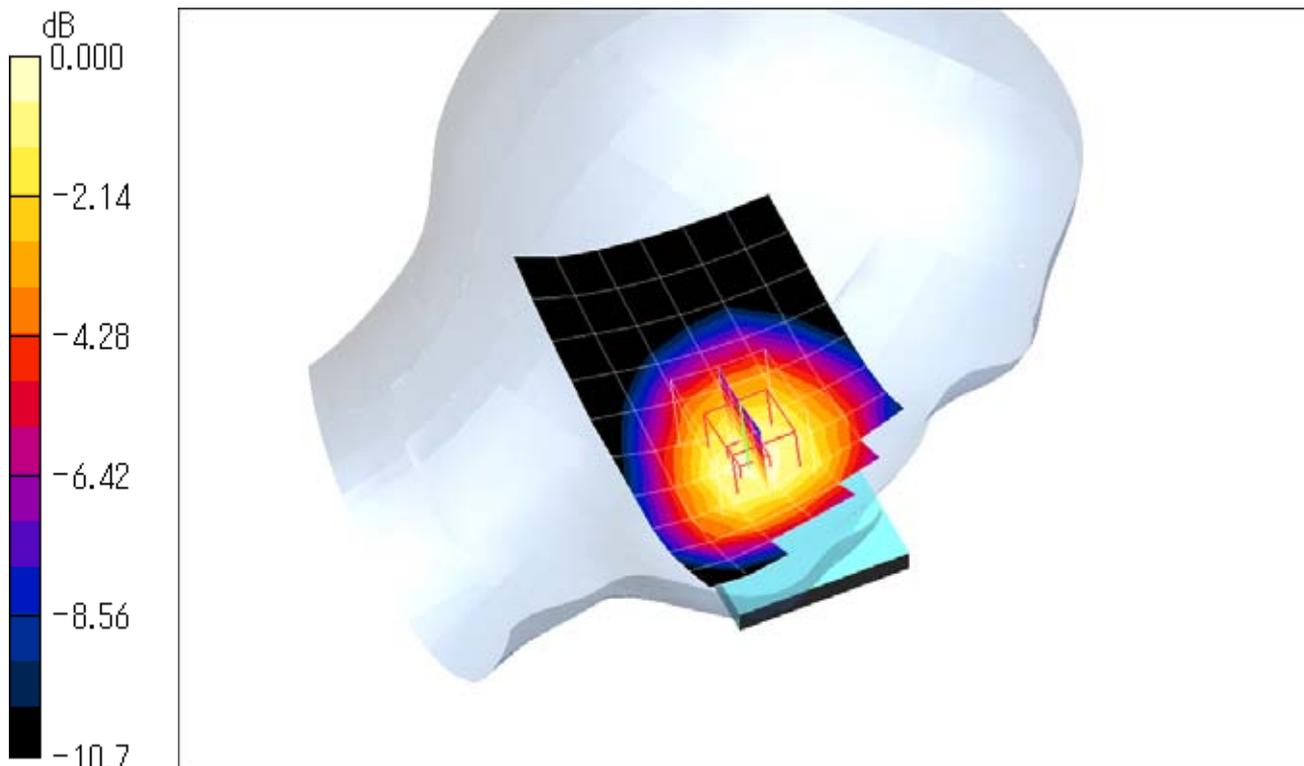
Cheek/Touch Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 33.2 V/m; Power Drift = -0.007 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.869 mW/g; SAR(10 g) = 0.644 mW/g

Maximum value of SAR (measured) = 0.923 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Left Head 4233ch / WCDMA Band V

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: HSL900 Medium parameters used: $f = 846.6 \text{ MHz}$; $\sigma = 0.905 \text{ mho/m}$; $\epsilon_r = 42$; $\rho = 1000 \text{ kg/m}^3$

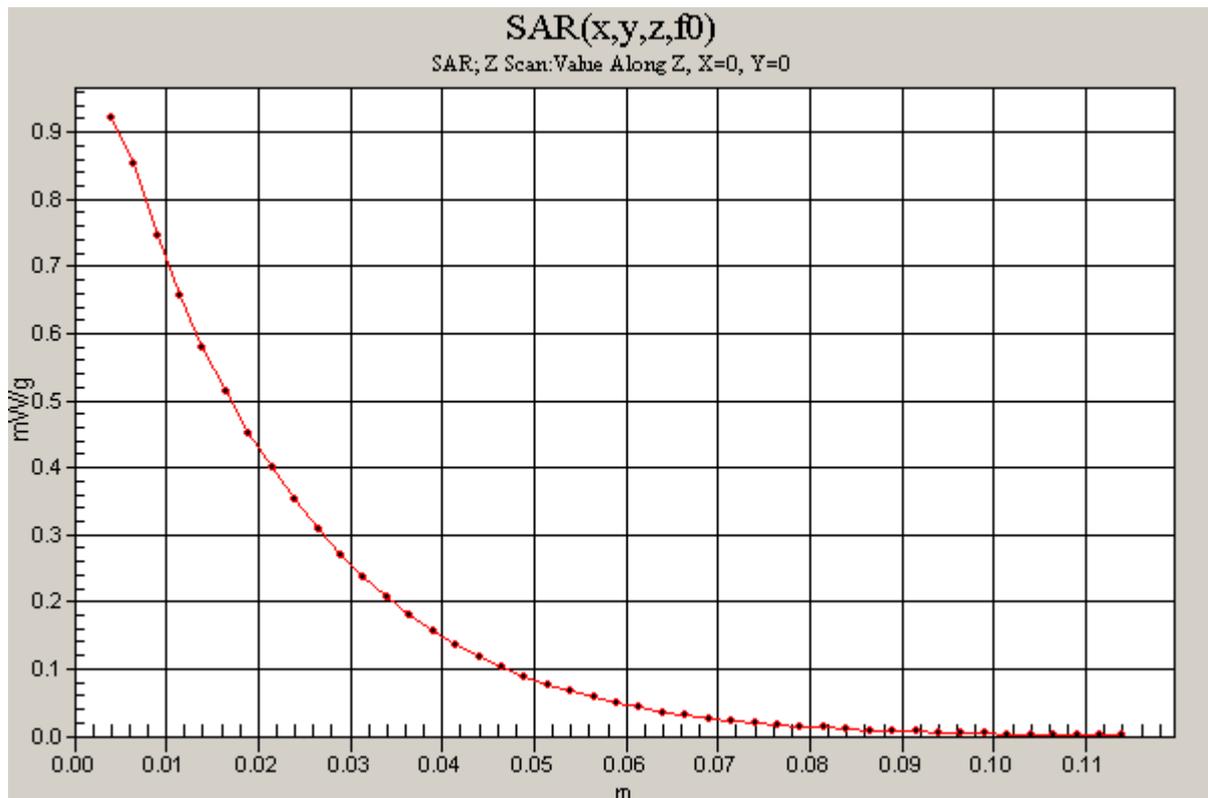
Phantom section: Left Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Z Scan (1x1x45): Measurement grid: $dx=20\text{mm}$, $dy=20\text{mm}$, $dz=2.5\text{mm}$
 Maximum value of SAR (measured) = 0.922 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Left Head 4182ch / WCDMA Band V

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.894$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Ear/Tilt Position/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.367 mW/g

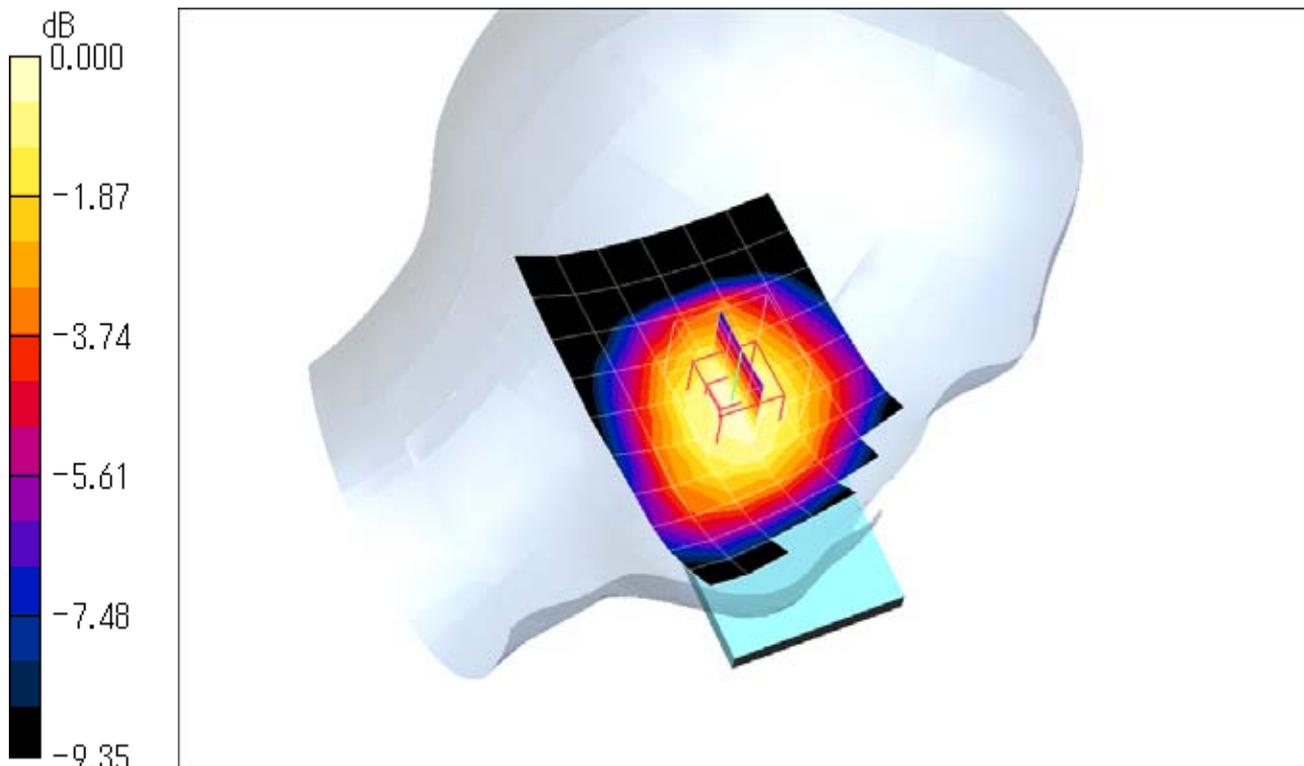
Ear/Tilt Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.2 V/m; Power Drift = -0.039 dB

Peak SAR (extrapolated) = 0.420 W/kg

SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.274 mW/g

Maximum value of SAR (measured) = 0.377 mW/g



0 dB = 0.377mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Right Head 4182ch / WCDMA Band V

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.894$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.632 mW/g

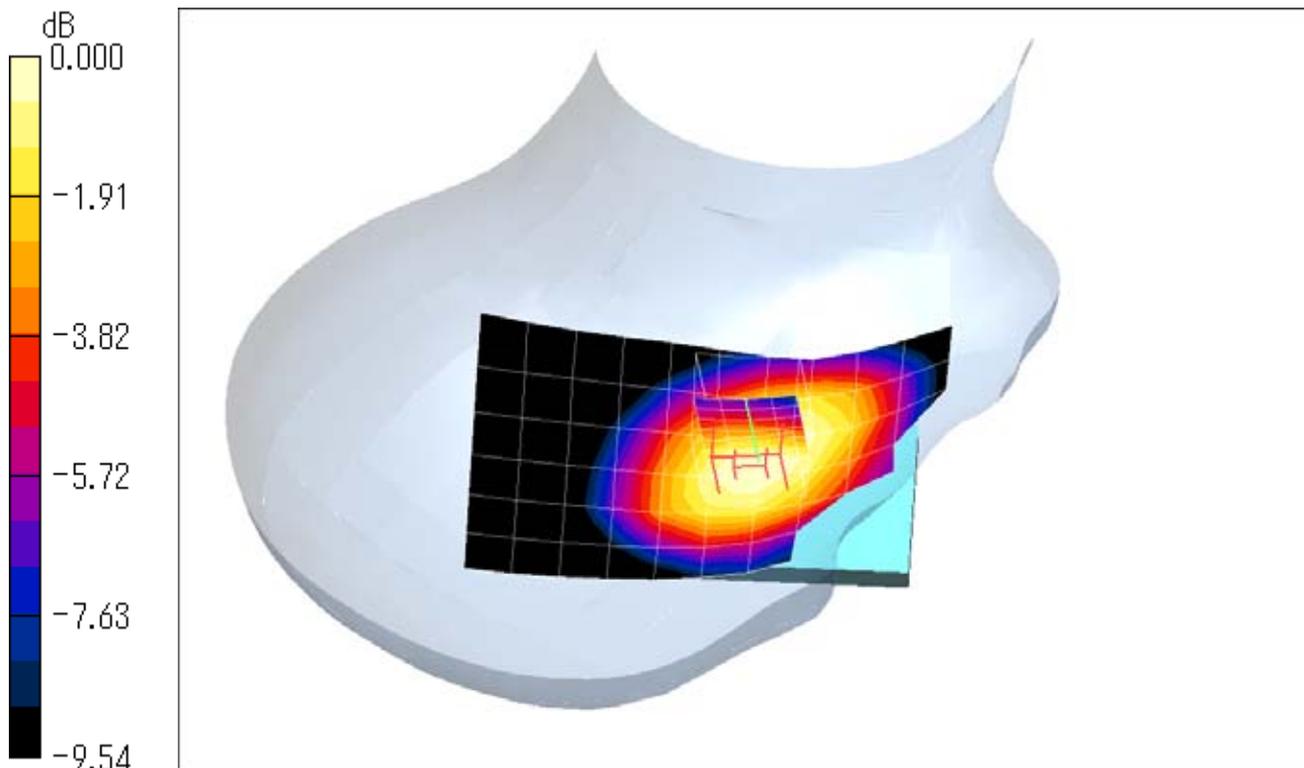
Cheek/Touch Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.5 V/m; Power Drift = -0.049 dB

Peak SAR (extrapolated) = 0.698 W/kg

SAR(1 g) = 0.579 mW/g; SAR(10 g) = 0.436 mW/g

Maximum value of SAR (measured) = 0.605 mW/g



0 dB = 0.605mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Right Head 4182ch / WCDMA Band V

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: HSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.894$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Ear/Tilt Position/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.350 mW/g

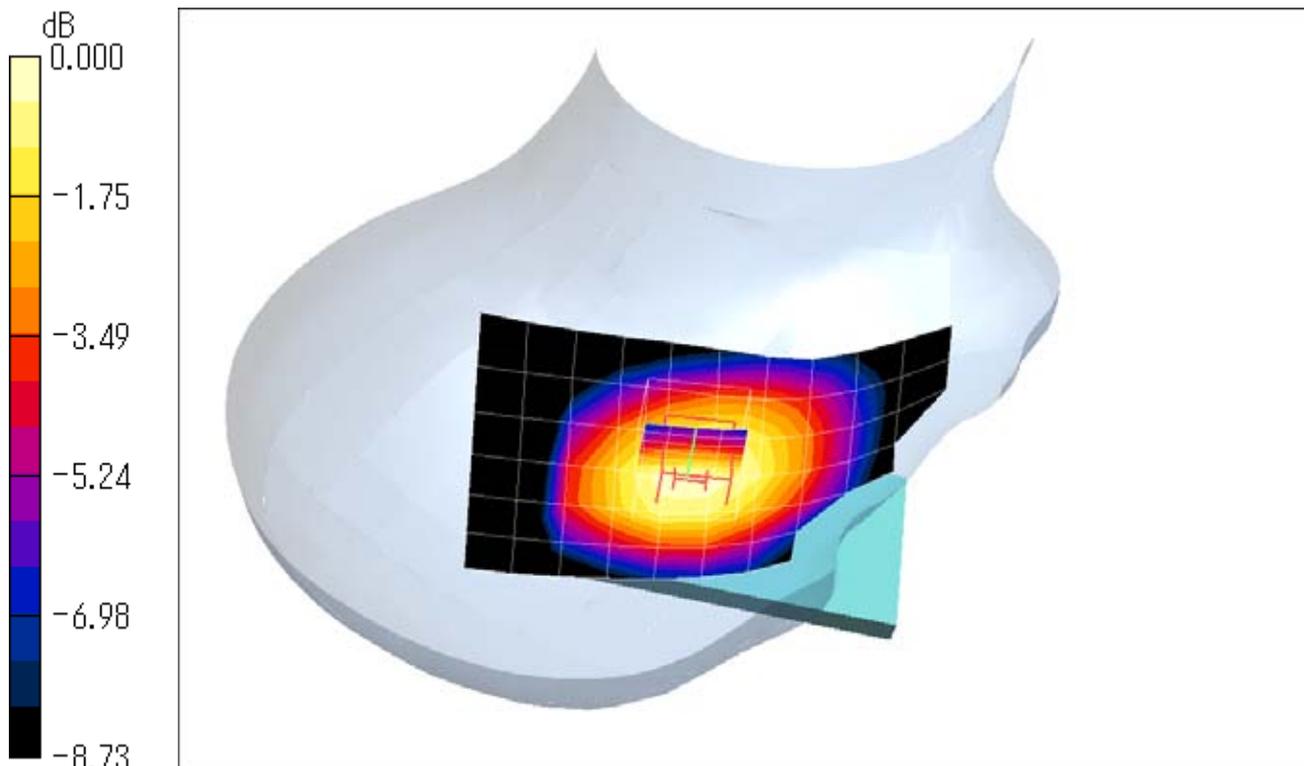
Ear/Tilt Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.8 V/m; Power Drift = -0.038 dB

Peak SAR (extrapolated) = 0.389 W/kg

SAR(1 g) = 0.338 mW/g; SAR(10 g) = 0.257 mW/g

Maximum value of SAR (measured) = 0.358 mW/g



0 dB = 0.358mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 4182ch / WCDMA Band V

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 55.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Bottom Edge/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.203 mW/g

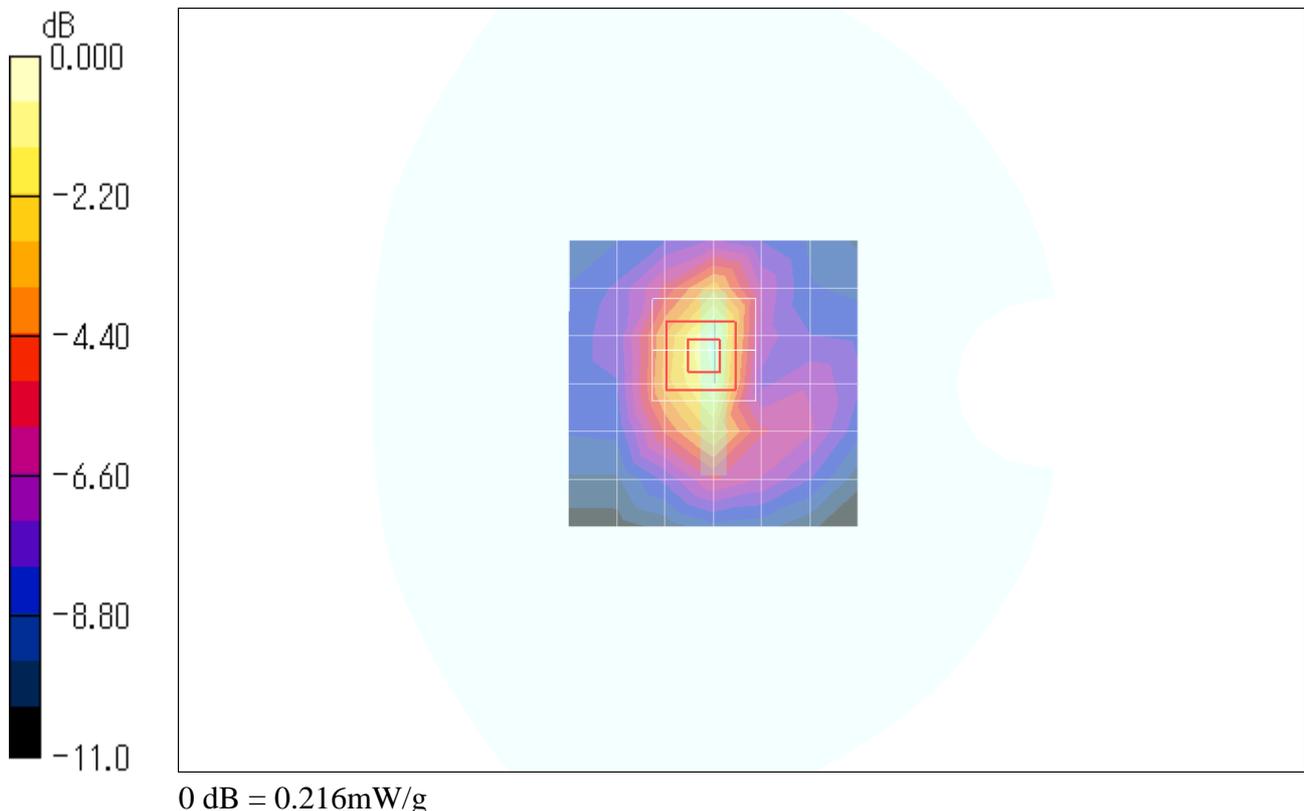
Bottom Edge/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.4 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 0.351 W/kg

SAR(1 g) = 0.192 mW/g; SAR(10 g) = 0.103 mW/g

Maximum value of SAR (measured) = 0.216 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 4182ch / WCDMA Band V

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 55.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Left Edge/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.523 mW/g

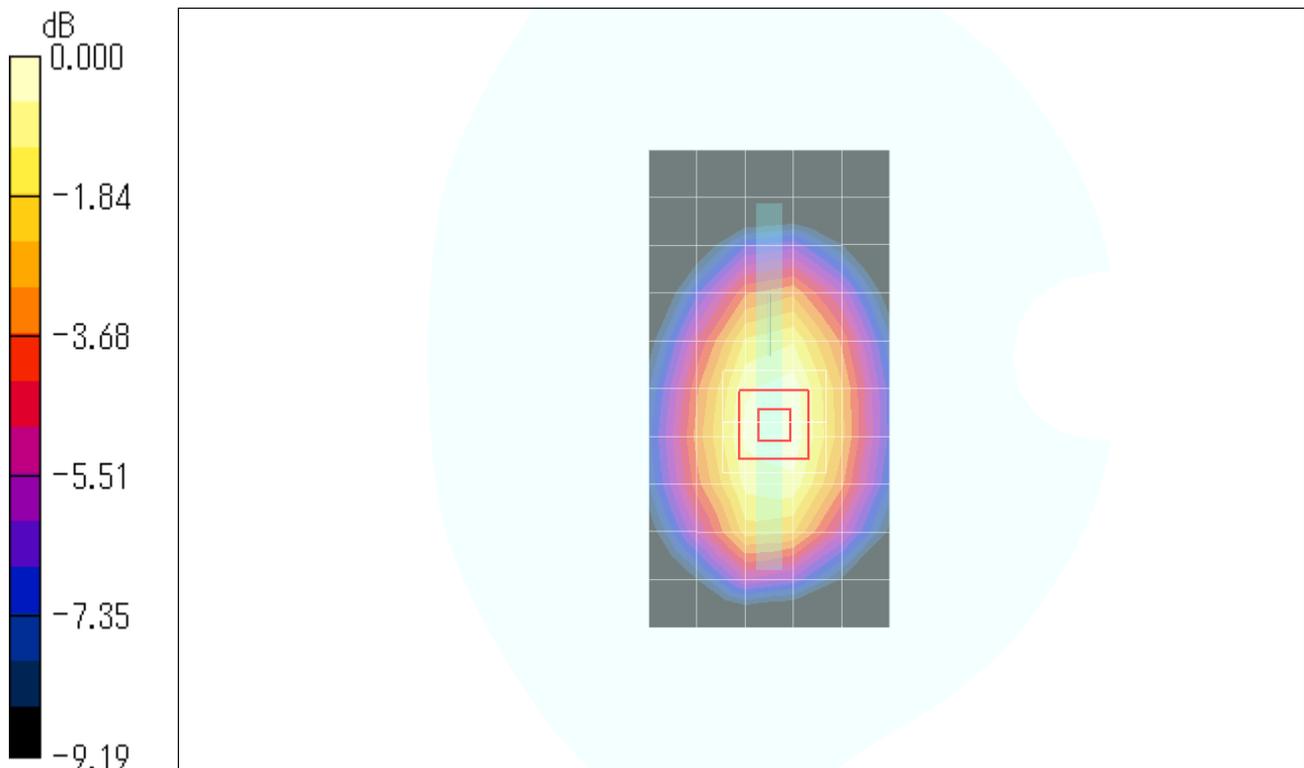
Left Edge/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.2 V/m; Power Drift = -0.038 dB

Peak SAR (extrapolated) = 0.648 W/kg

SAR(1 g) = 0.503 mW/g; SAR(10 g) = 0.355 mW/g

Maximum value of SAR (measured) = 0.539 mW/g



0 dB = 0.539mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 4182ch / WCDMA Band V

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 55.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Right Edge/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.475 mW/g

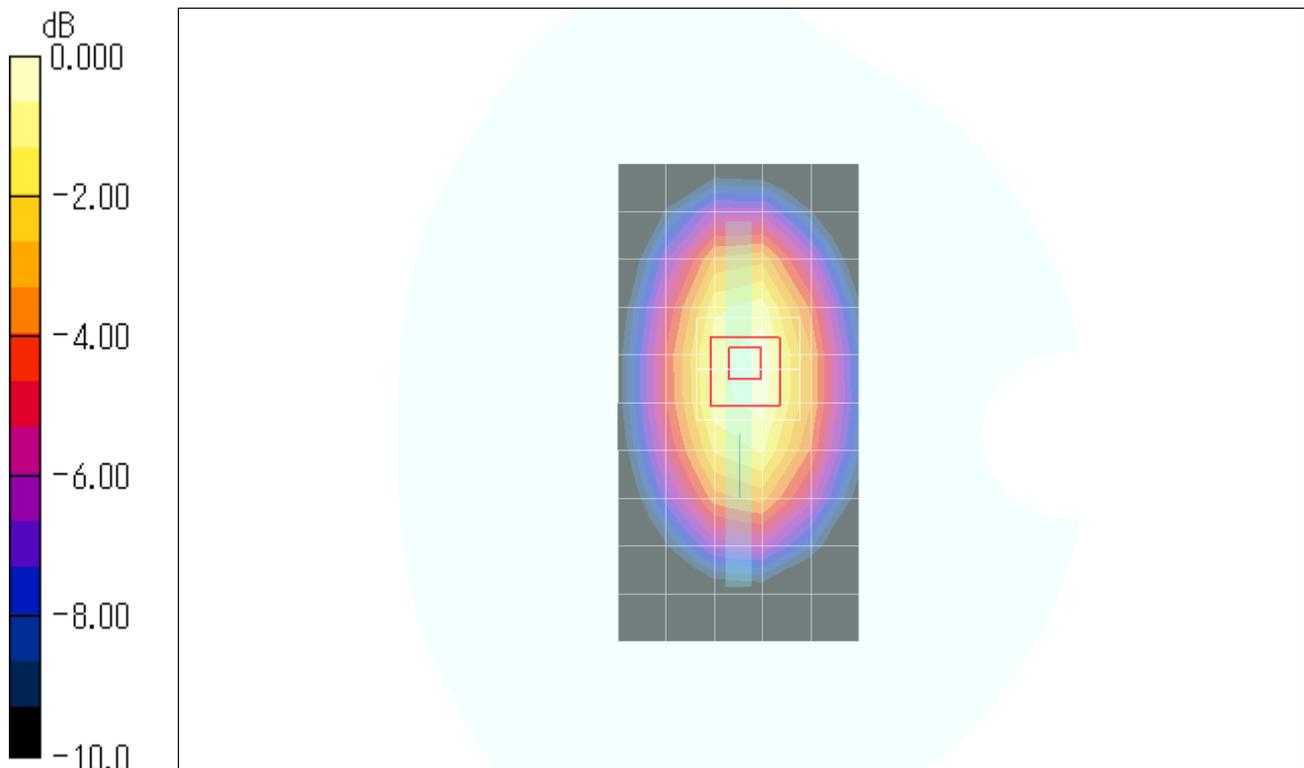
Right Edge/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.7 V/m; Power Drift = -0.001 dB

Peak SAR (extrapolated) = 0.616 W/kg

SAR(1 g) = 0.465 mW/g; SAR(10 g) = 0.322 mW/g

Maximum value of SAR (measured) = 0.497 mW/g



0 dB = 0.497mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 4182ch / WCDMA Band V**DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110**

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 55.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Front Side/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.643 mW/g

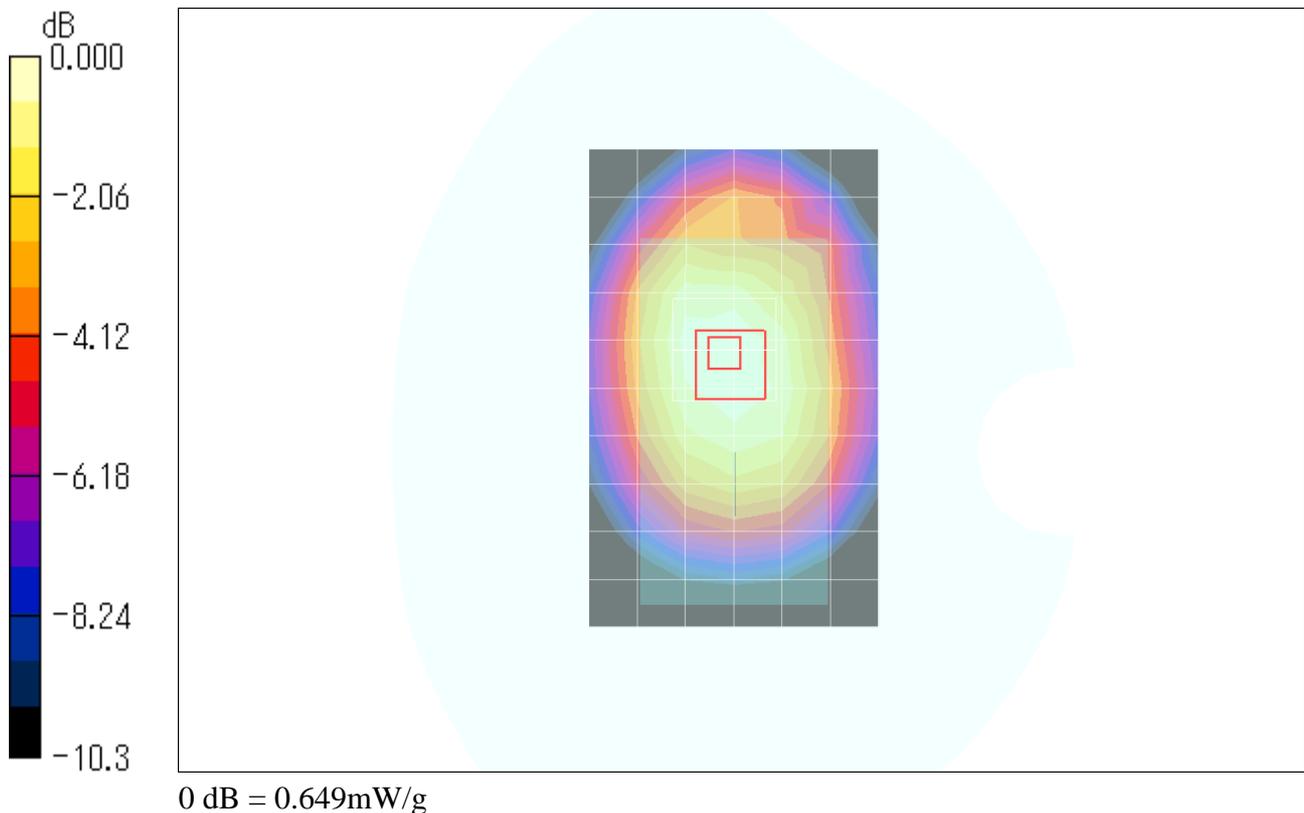
Front Side/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.2 V/m; Power Drift = -0.010 dB

Peak SAR (extrapolated) = 0.747 W/kg

SAR(1 g) = 0.615 mW/g; SAR(10 g) = 0.465 mW/g

Maximum value of SAR (measured) = 0.649 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 4132ch / WCDMA Band V

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: WCDMA; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium: MSL900 Medium parameters used: $f = 826.4$ MHz; $\sigma = 0.958$ mho/m; $\epsilon_r = 55.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASy4 (High Precision Assessment)

DASy4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASy4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.01 mW/g

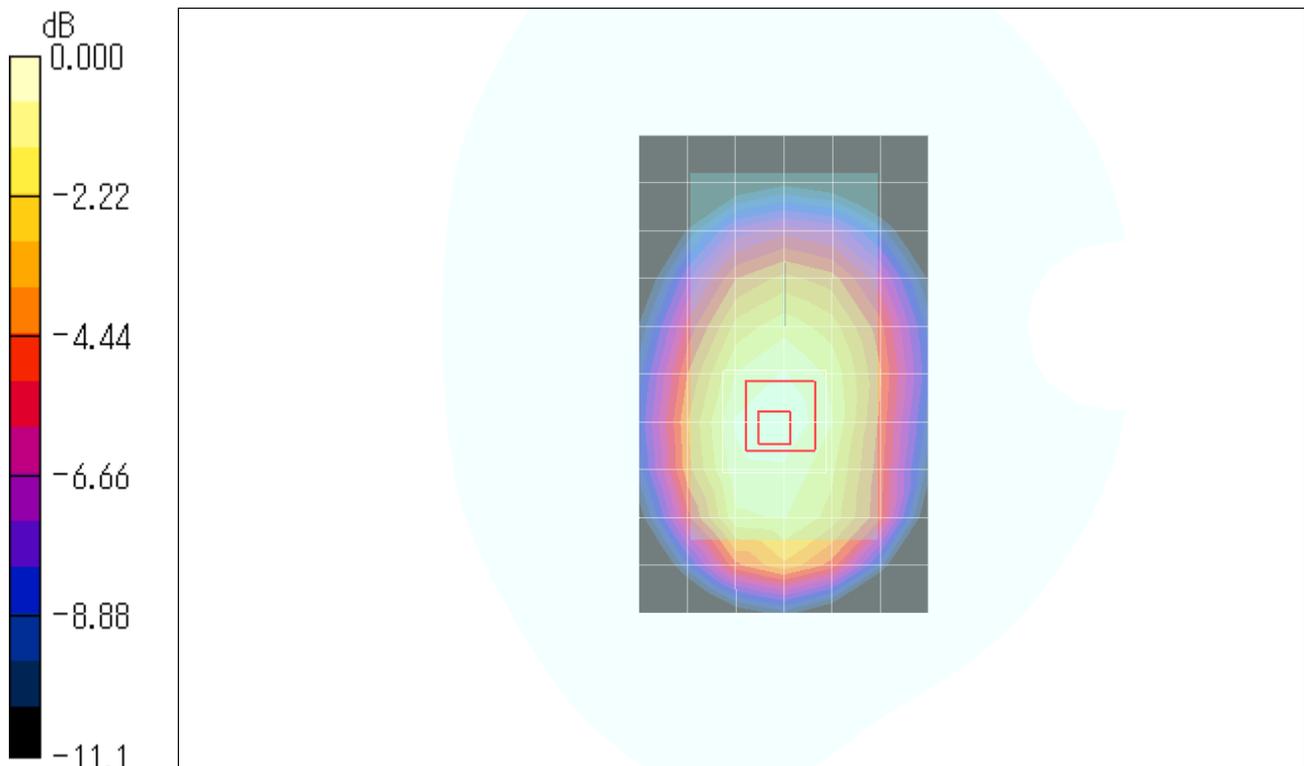
Rear Side/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.0 V/m; Power Drift = -0.038 dB

Peak SAR (extrapolated) = 1.18 W/kg

SAR(1 g) = 0.950 mW/g; SAR(10 g) = 0.695 mW/g

Maximum value of SAR (measured) = 1.01 mW/g



0 dB = 1.01mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 4182ch / WCDMA Band V

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1

Medium: MSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 55.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.05 mW/g

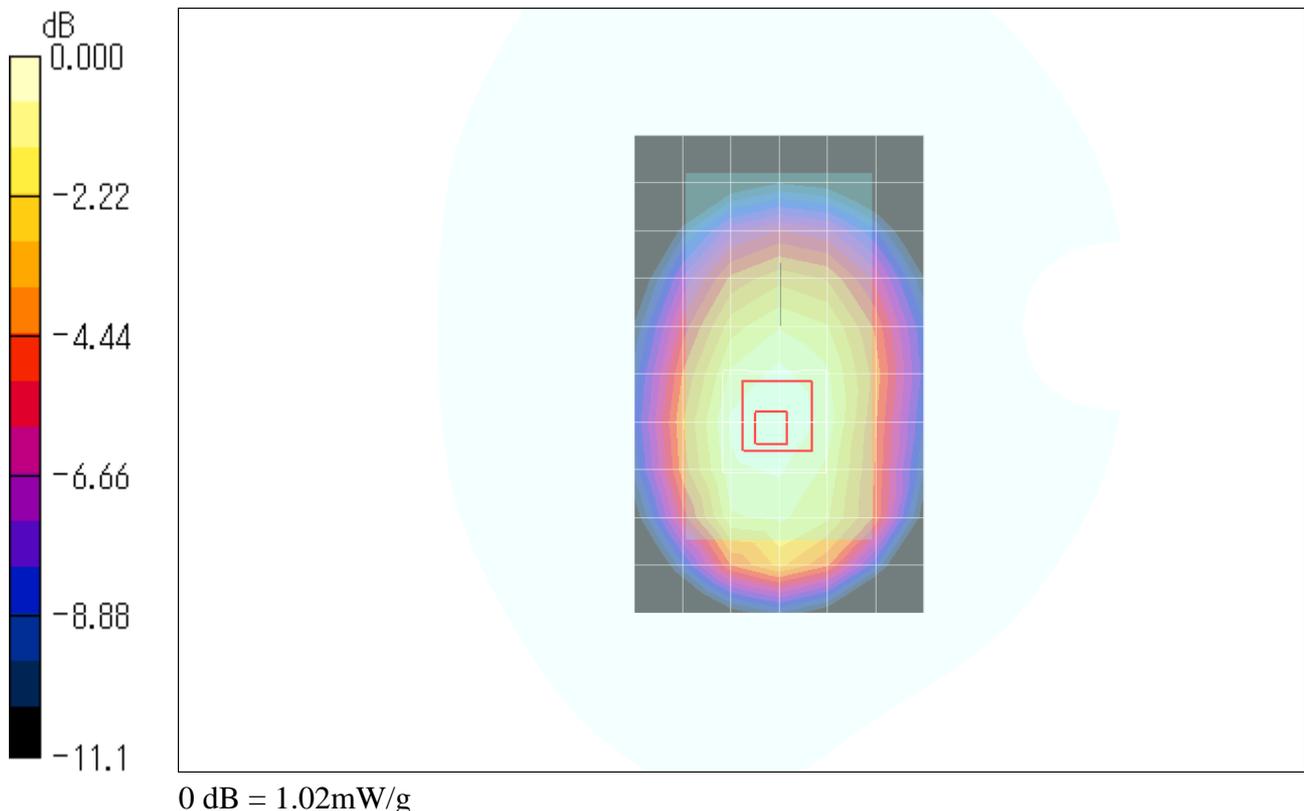
Rear Side/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 29.6 V/m; Power Drift = -0.029 dB

Peak SAR (extrapolated) = 1.19 W/kg

SAR(1 g) = 0.962 mW/g; SAR(10 g) = 0.707 mW/g

Maximum value of SAR (measured) = 1.02 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 4233ch / WCDMA Band V

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL900 Medium parameters used: $f = 846.6$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 55.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.13 mW/g

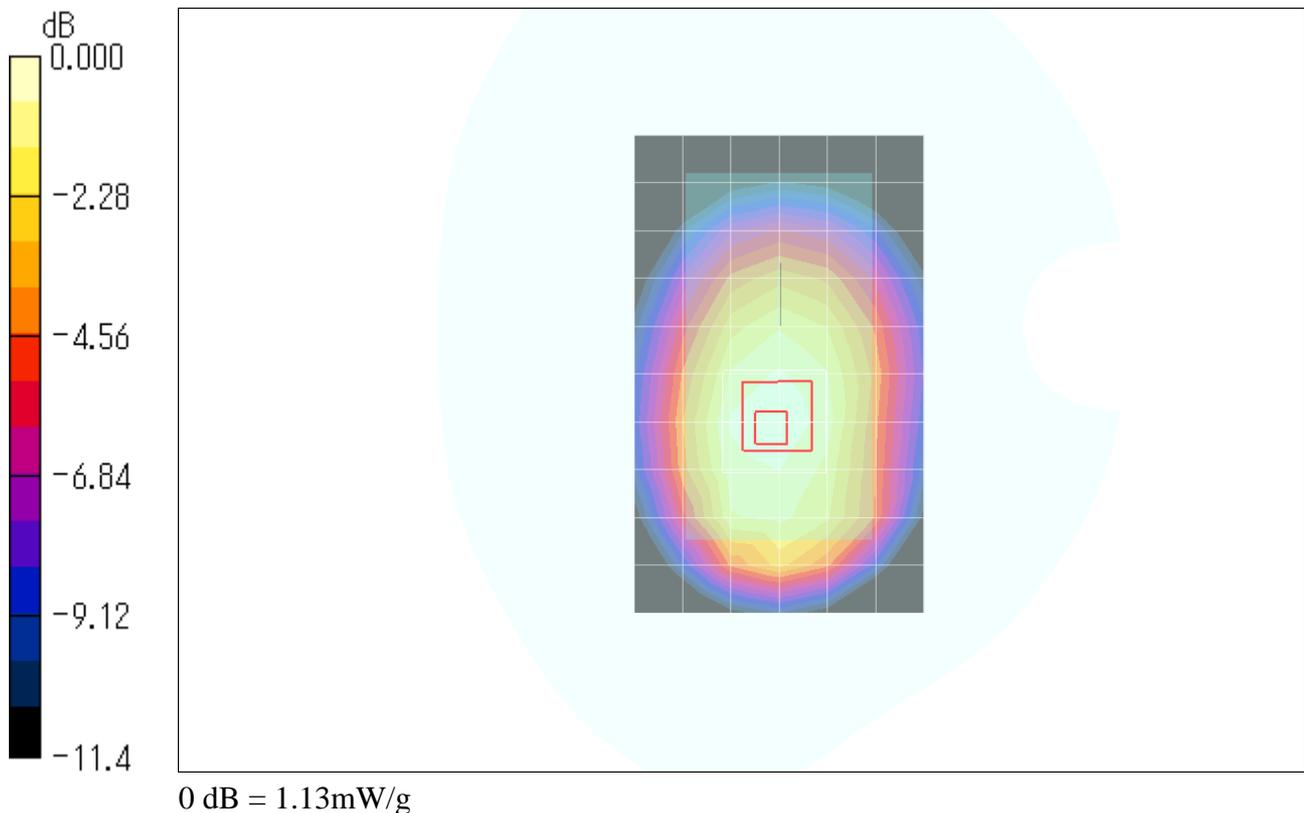
Rear Side/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.6 V/m; Power Drift = -0.001 dB

Peak SAR (extrapolated) = 1.32 W/kg

SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.780 mW/g

Maximum value of SAR (measured) = 1.13 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 4233ch / WCDMA Band V**DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110**

Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL900 Medium parameters used: $f = 846.6$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 55.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

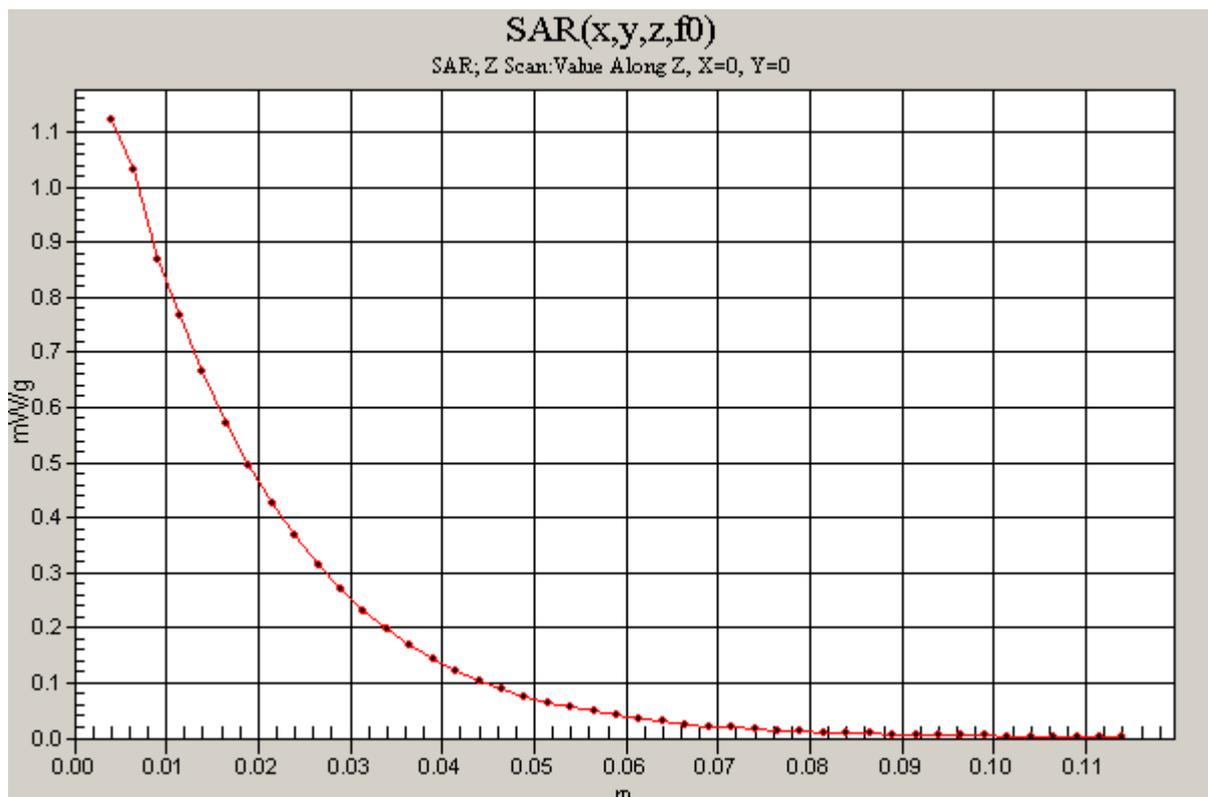
Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side/Z Scan (1x1x45): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm

Maximum value of SAR (measured) = 1.12 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 4233ch / WCDMA Band V

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium: MSL900 Medium parameters used: $f = 846.6$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 55.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side w/headset/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.987 mW/g

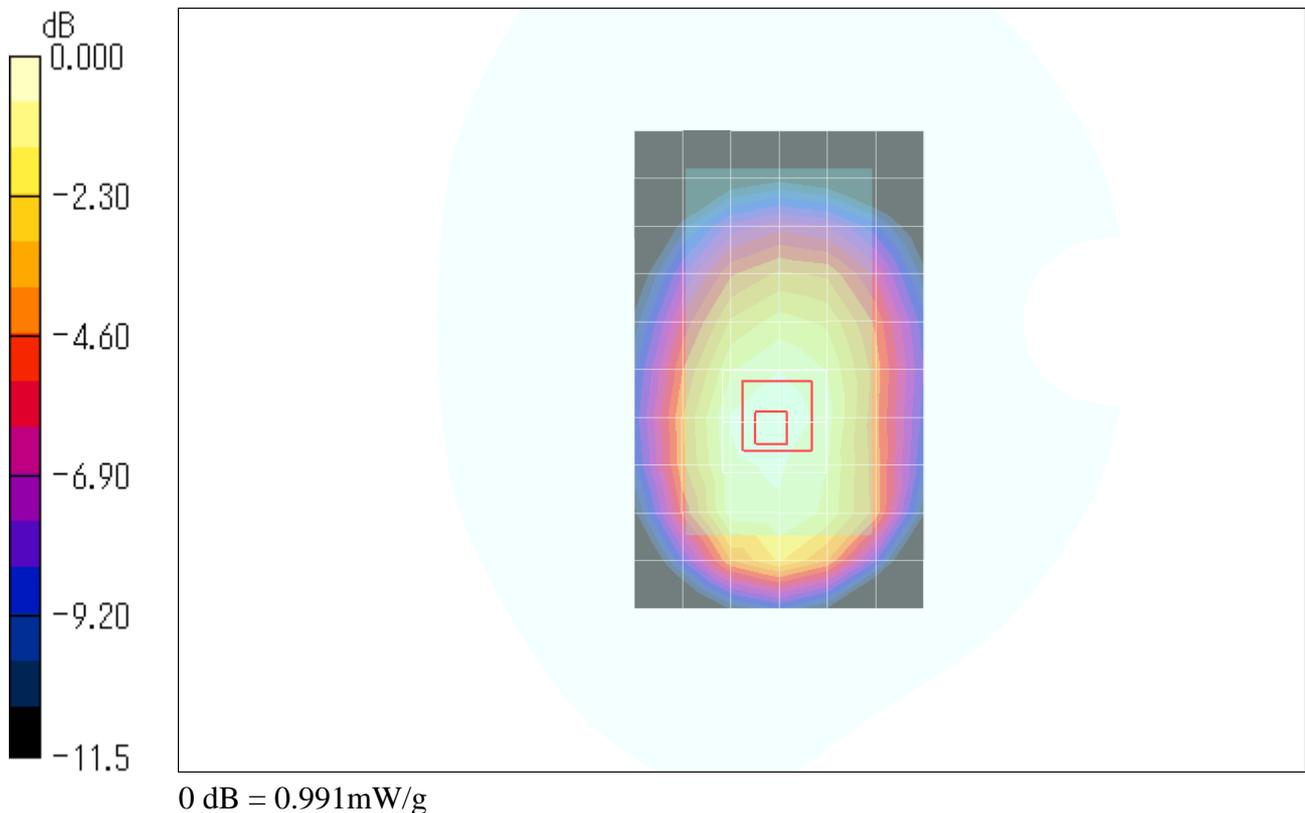
Rear Side w/headset/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.8 V/m; Power Drift = 0.010 dB

Peak SAR (extrapolated) = 1.18 W/kg

SAR(1 g) = 0.936 mW/g; SAR(10 g) = 0.680 mW/g

Maximum value of SAR (measured) = 0.991 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Left Head 128ch / GSM 850 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:2.075

Medium: HSL900 Medium parameters used: $f = 824.2$ MHz; $\sigma = 0.882$ mho/m; $\epsilon_r = 42.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASy4 (High Precision Assessment)

DASy4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASy4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.413 mW/g

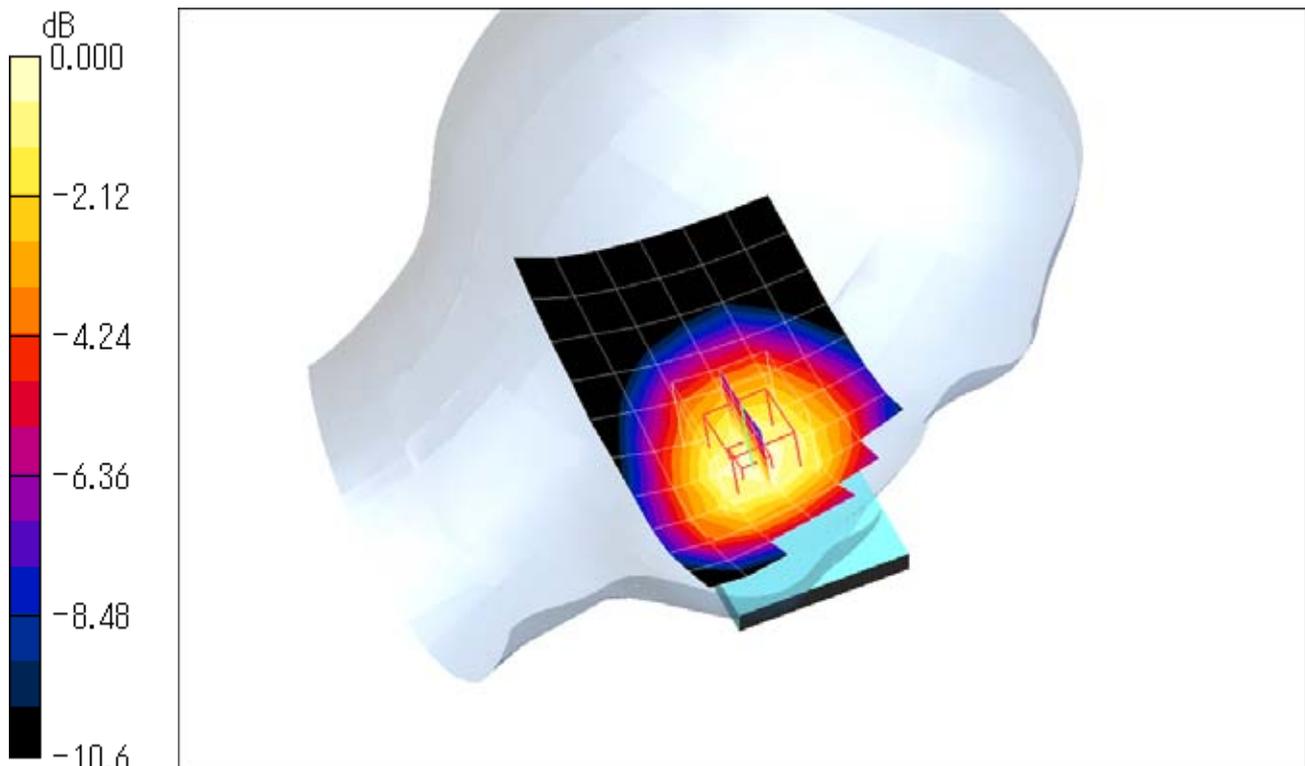
Cheek/Touch Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.2 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 0.458 W/kg

SAR(1 g) = 0.383 mW/g; SAR(10 g) = 0.287 mW/g

Maximum value of SAR (measured) = 0.407 mW/g



0 dB = 0.407mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Left Head 189ch / GSM 850 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:2.075

Medium: HSL900 Medium parameters used: $f = 836.4 \text{ MHz}$; $\sigma = 0.894 \text{ mho/m}$; $\epsilon_r = 42.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Measurement Standard: DASy4 (High Precision Assessment)

DASy4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASy4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Area Scan (11x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.618 mW/g

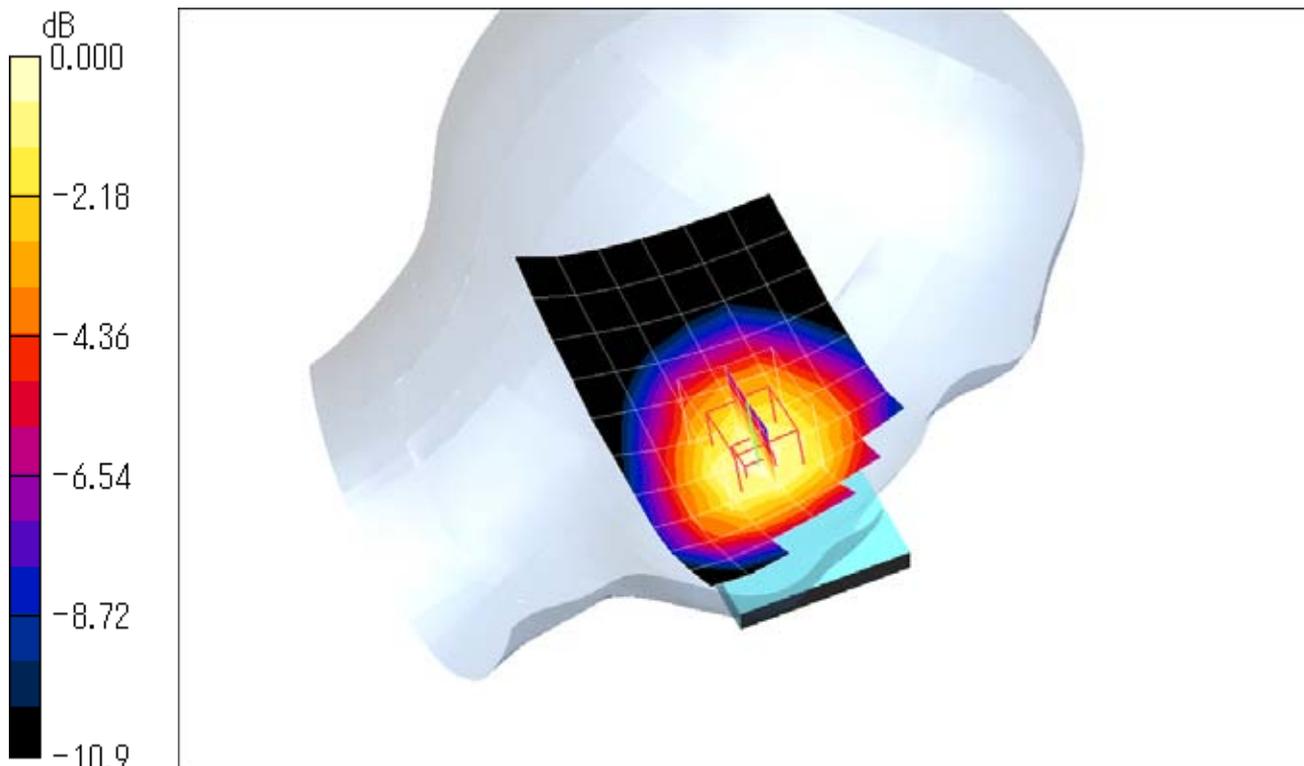
Cheek/Touch Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 27.5 V/m; Power Drift = 0.000 dB

Peak SAR (extrapolated) = 0.725 W/kg

SAR(1 g) = 0.607 mW/g; SAR(10 g) = 0.455 mW/g

Maximum value of SAR (measured) = 0.637 mW/g



0 dB = 0.637mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Left Head 251ch / GSM 850 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:2.075

Medium: HSL900 Medium parameters used: $f = 848.8$ MHz; $\sigma = 0.907$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.831 mW/g

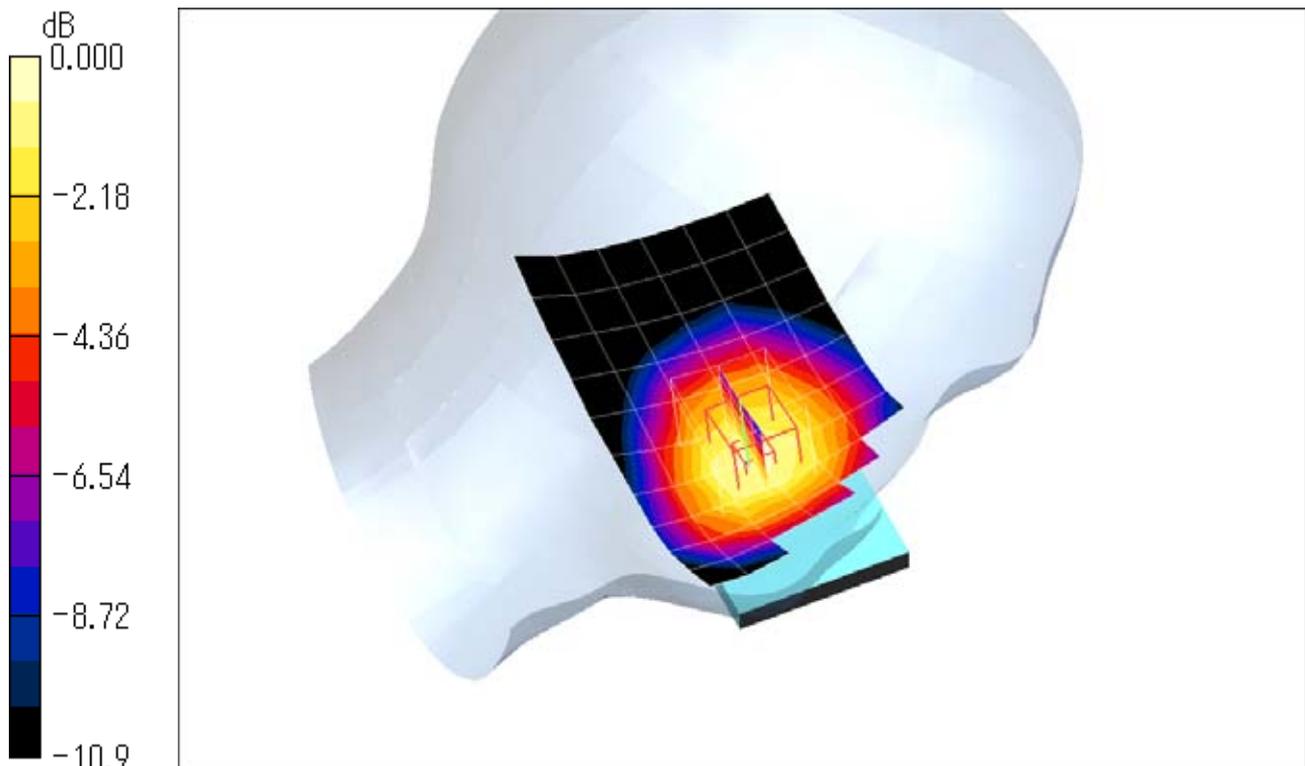
Cheek/Touch Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 31.2 V/m; Power Drift = -0.014 dB

Peak SAR (extrapolated) = 0.996 W/kg

SAR(1 g) = 0.832 mW/g; SAR(10 g) = 0.615 mW/g

Maximum value of SAR (measured) = 0.879 mW/g



0 dB = 0.879mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Left Head 251ch / GSM 850 - GPRS 4slot**DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110**

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:2.075

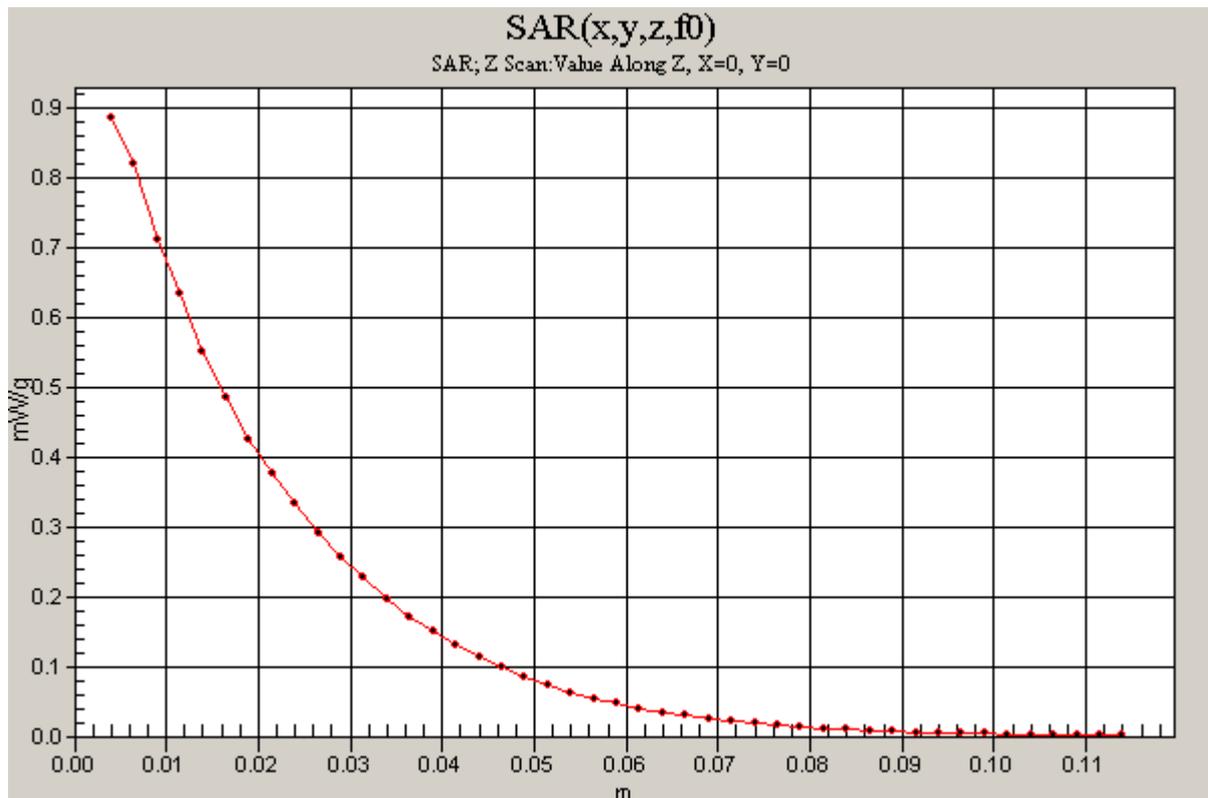
Medium: HSL900 Medium parameters used: $f = 848.8$ MHz; $\sigma = 0.907$ mho/m; $\epsilon_r = 42$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Z Scan (1x1x45): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm
Maximum value of SAR (measured) = 0.887 mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Left Head 189ch / GSM 850 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:2.075

Medium: HSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.894$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Ear/Tilt Position/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.313 mW/g

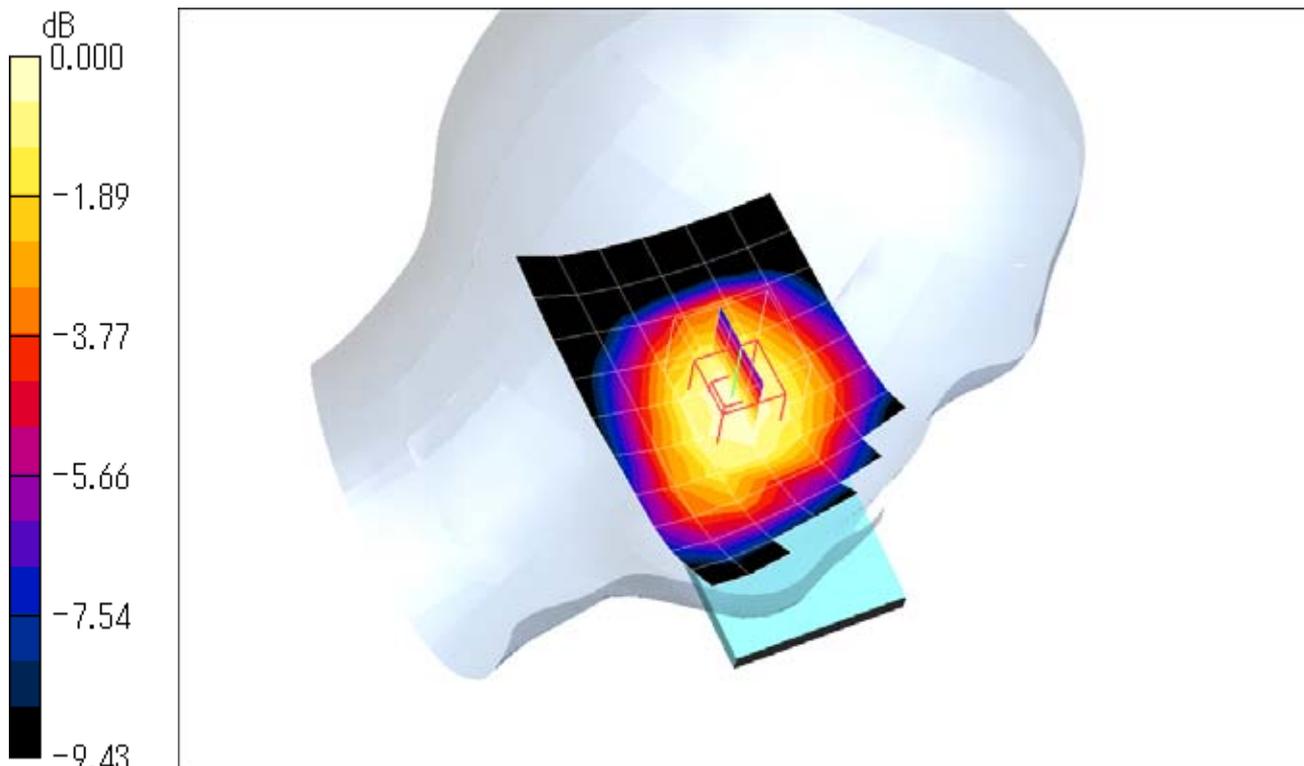
Ear/Tilt Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.5 V/m; Power Drift = -0.002 dB

Peak SAR (extrapolated) = 0.342 W/kg

SAR(1 g) = 0.296 mW/g; SAR(10 g) = 0.227 mW/g

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



0 dB = 0.312mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Right Head 189ch / GSM 850 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:2.075

Medium: HSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.894$ mho/m; $\epsilon_r = 42.1$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.493 mW/g

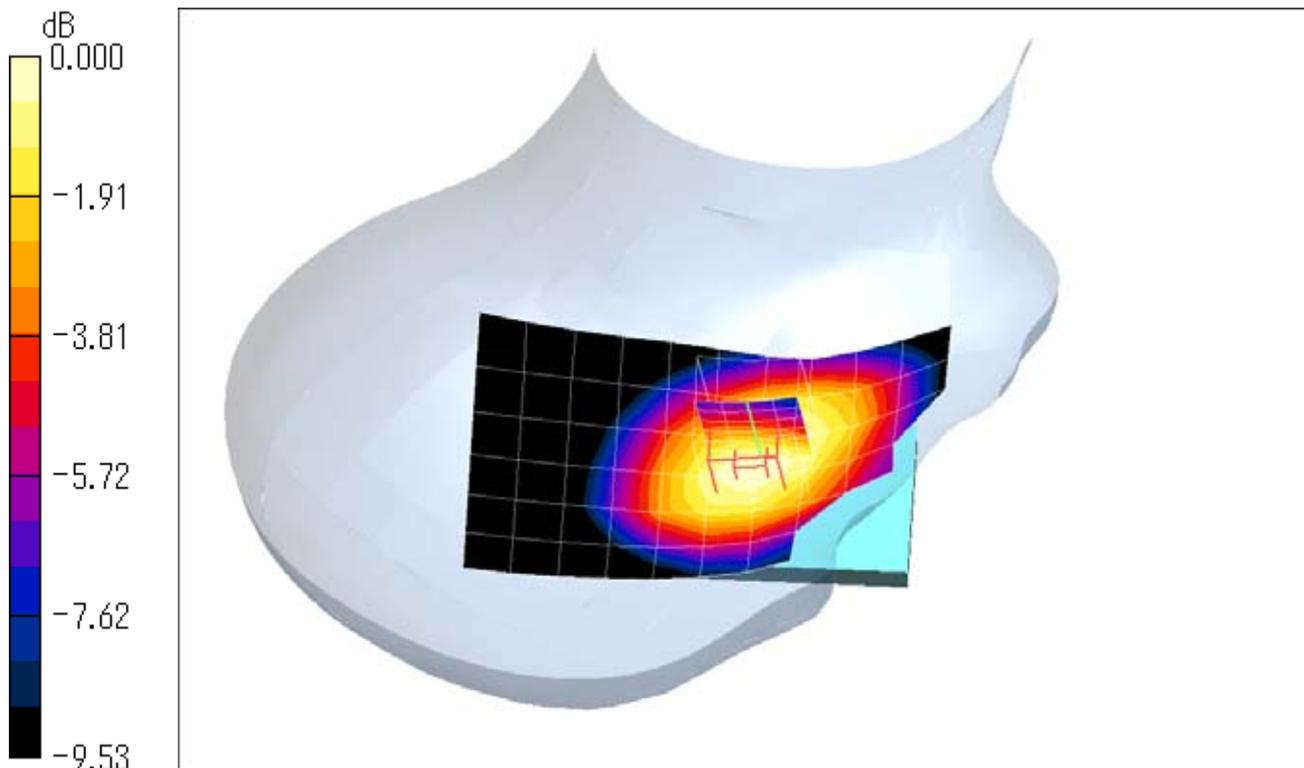
Cheek/Touch Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.4 V/m; Power Drift = -0.042 dB

Peak SAR (extrapolated) = 0.550 W/kg

SAR(1 g) = 0.466 mW/g; SAR(10 g) = 0.350 mW/g

Maximum value of SAR (measured) = 0.491 mW/g



0 dB = 0.491mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Right Head 189ch / GSM 850 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:2.075

Medium: HSL900 Medium parameters used: $f = 836.4 \text{ MHz}$; $\sigma = 0.894 \text{ mho/m}$; $\epsilon_r = 42.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.24, 6.24, 6.24); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Ear/Tilt Position/Area Scan (11x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.296 mW/g

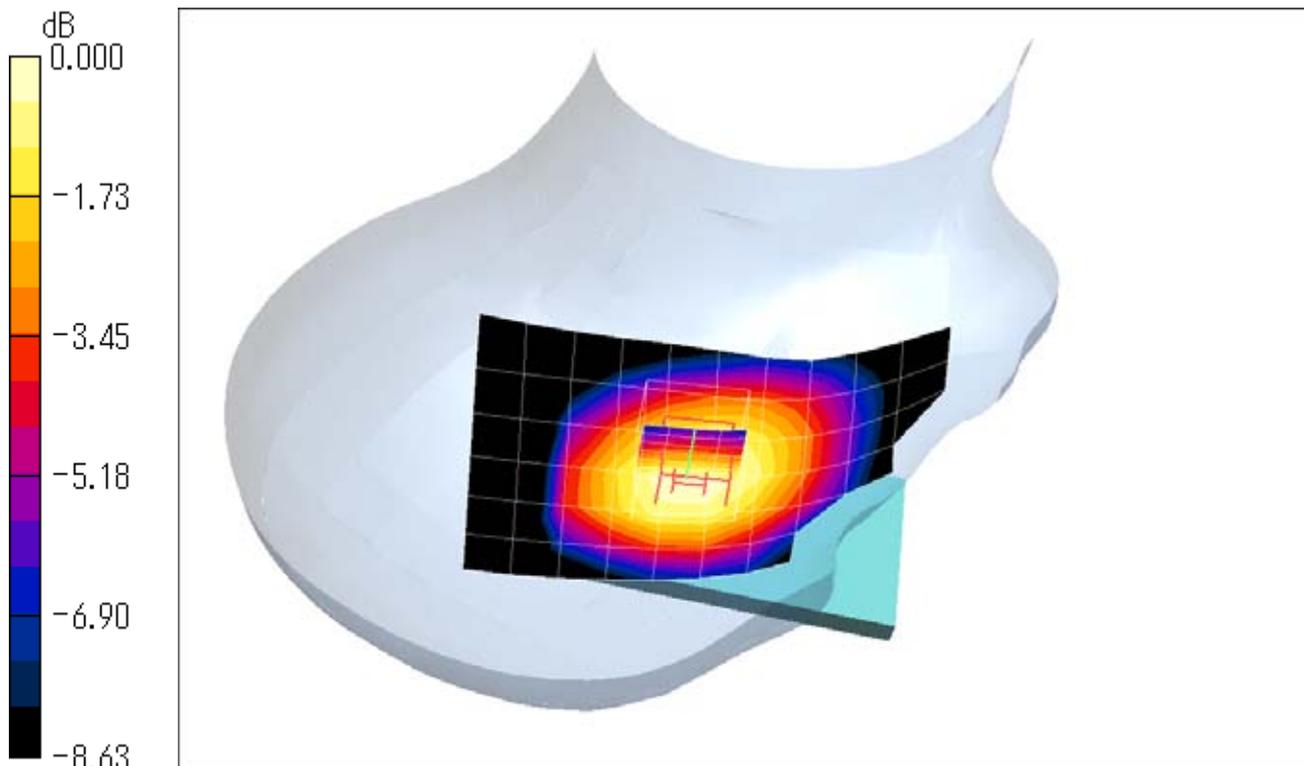
Ear/Tilt Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.1 V/m; Power Drift = -0.041 dB

Peak SAR (extrapolated) = 0.323 W/kg

SAR(1 g) = 0.282 mW/g; SAR(10 g) = 0.215 mW/g

Maximum value of SAR (measured) = 0.298 mW/g



0 dB = 0.298mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 189ch / GSM 850 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:2.075

Medium: MSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 55.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Bottom Edge/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.152 mW/g

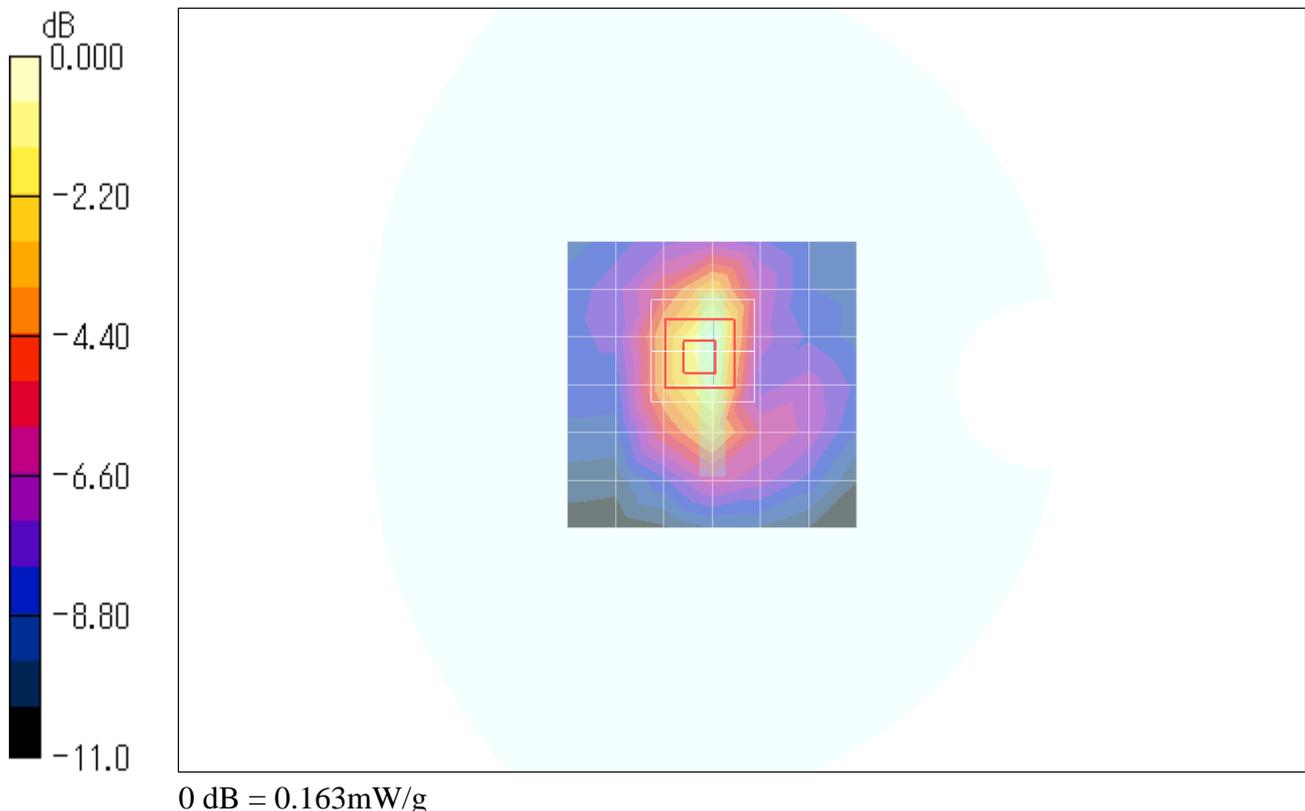
Bottom Edge/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.3 V/m; Power Drift = -0.014 dB

Peak SAR (extrapolated) = 0.261 W/kg

SAR(1 g) = 0.144 mW/g; SAR(10 g) = 0.078 mW/g

Maximum value of SAR (measured) = 0.163 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 189ch / GSM 850 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:2.075

Medium: MSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 55.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Left Edge/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.613 mW/g

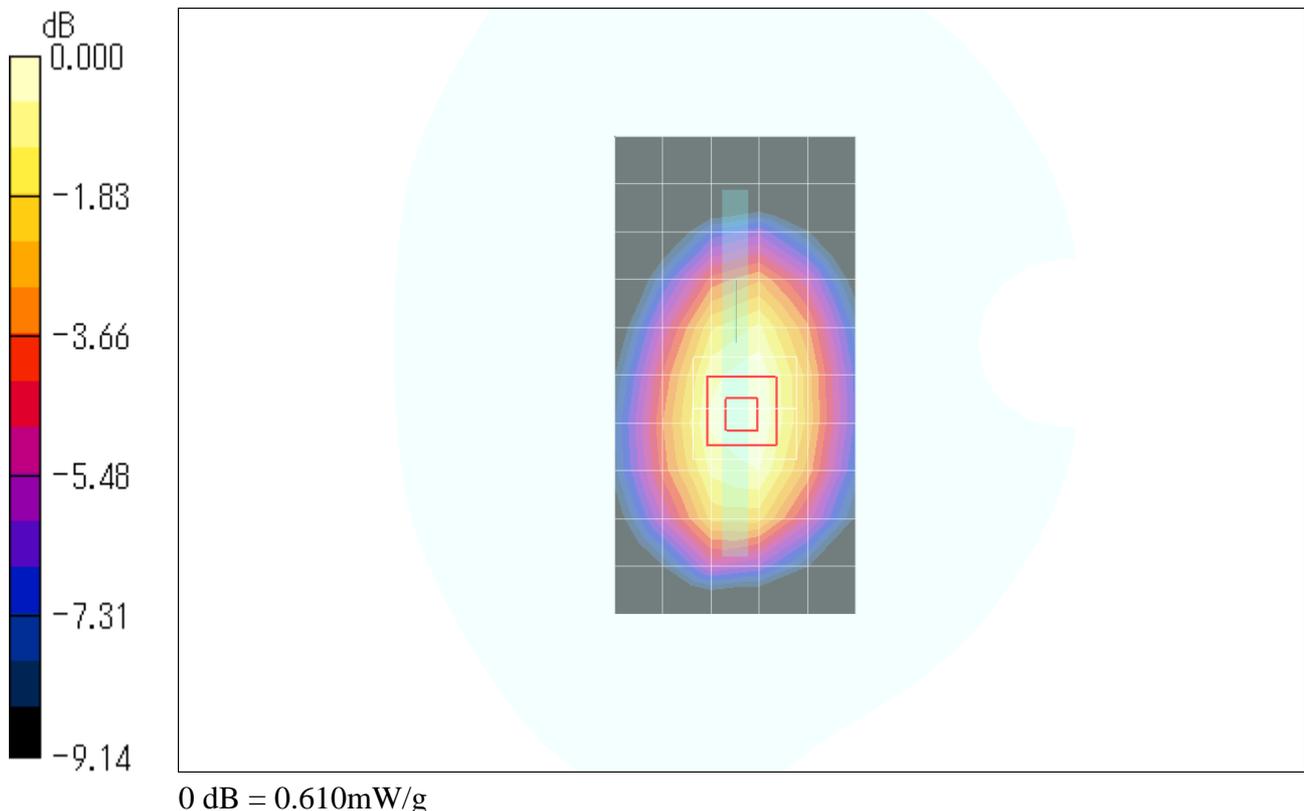
Left Edge/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.2 V/m; Power Drift = -0.022 dB

Peak SAR (extrapolated) = 0.729 W/kg

SAR(1 g) = 0.571 mW/g; SAR(10 g) = 0.403 mW/g

Maximum value of SAR (measured) = 0.610 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 189ch / GSM 850 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:2.075

Medium: MSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 55.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Right Edge/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.411 mW/g

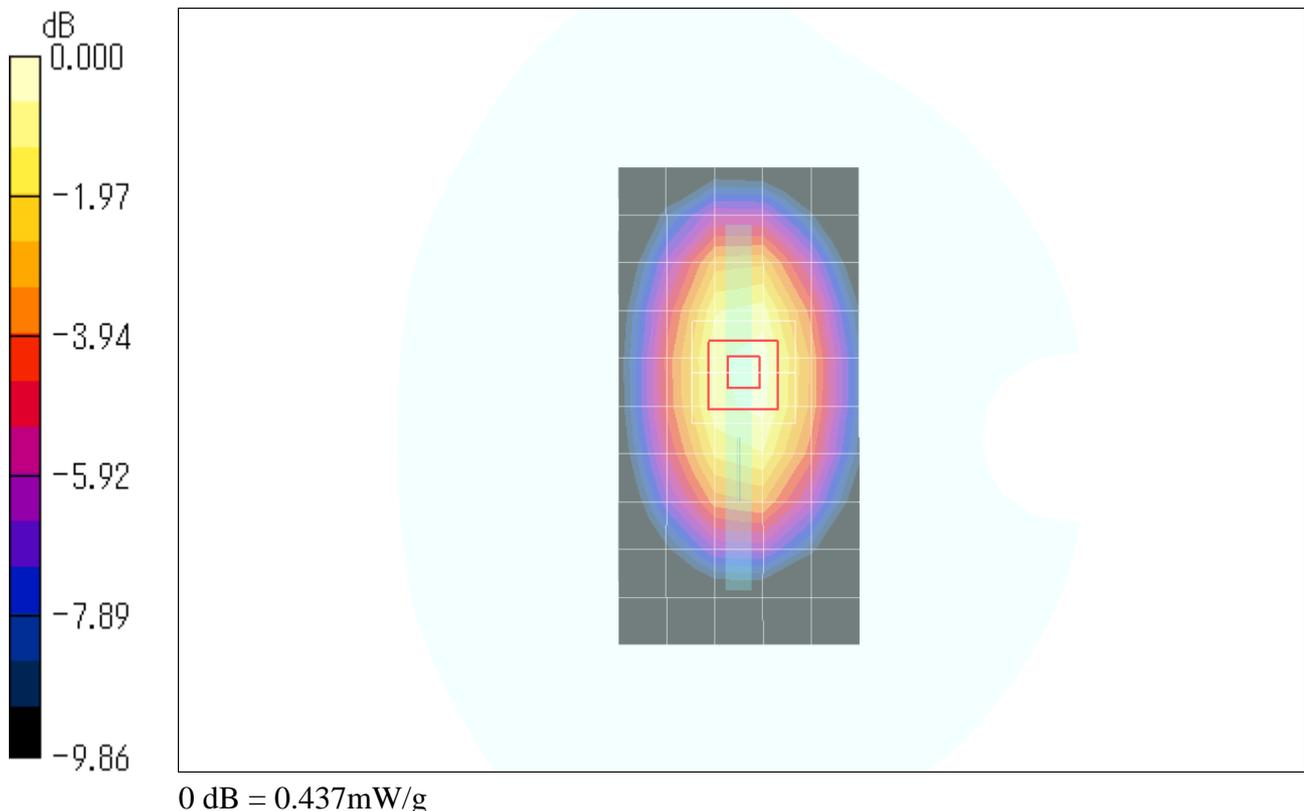
Right Edge/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.7 V/m; Power Drift = -0.010 dB

Peak SAR (extrapolated) = 0.527 W/kg

SAR(1 g) = 0.404 mW/g; SAR(10 g) = 0.279 mW/g

Maximum value of SAR (measured) = 0.437 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 189ch / GSM 850 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:2.075

Medium: MSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 55.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Front Side/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

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

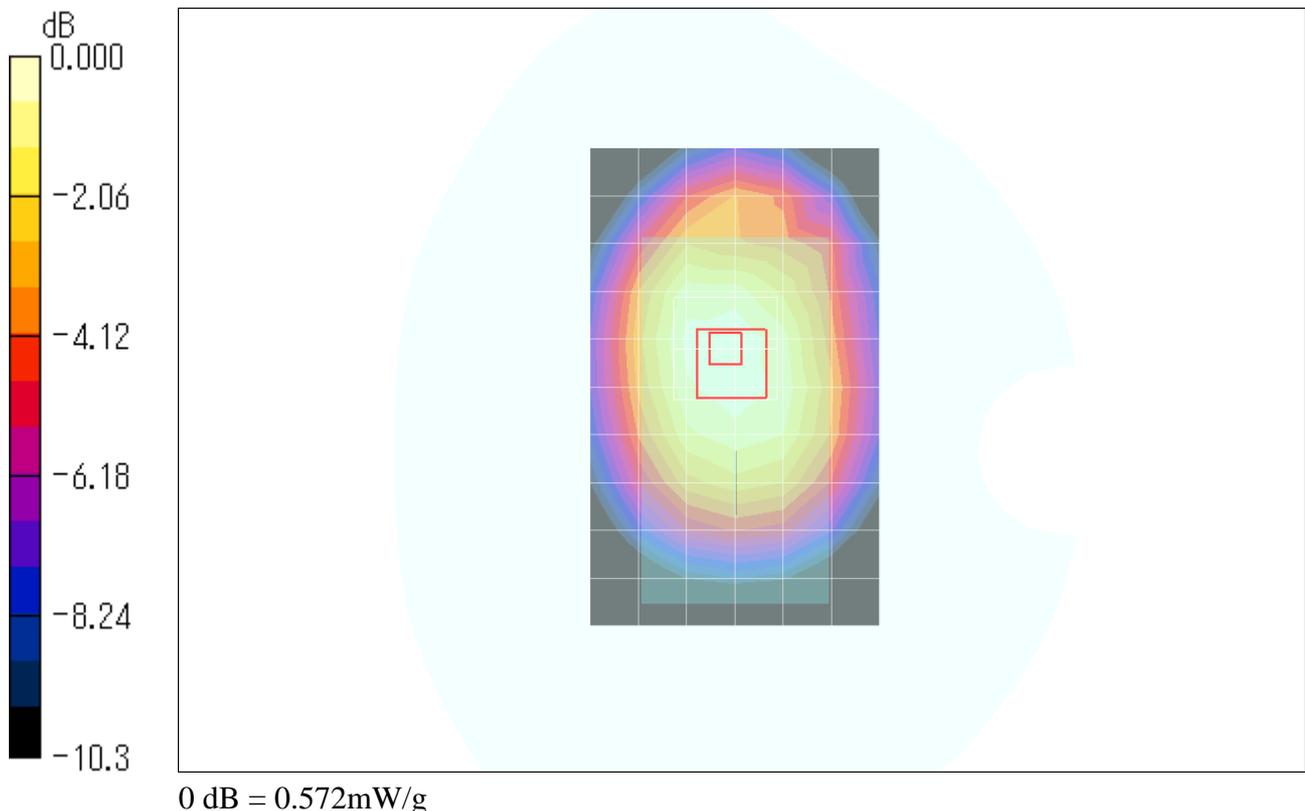
Front Side/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.7 V/m; Power Drift = 0.015 dB

Peak SAR (extrapolated) = 0.654 W/kg

SAR(1 g) = 0.540 mW/g; SAR(10 g) = 0.409 mW/g

Maximum value of SAR (measured) = 0.572 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 128ch / GSM 850 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:2.075

Medium: MSL900 Medium parameters used: $f = 824.2$ MHz; $\sigma = 0.956$ mho/m; $\epsilon_r = 55.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.825 mW/g

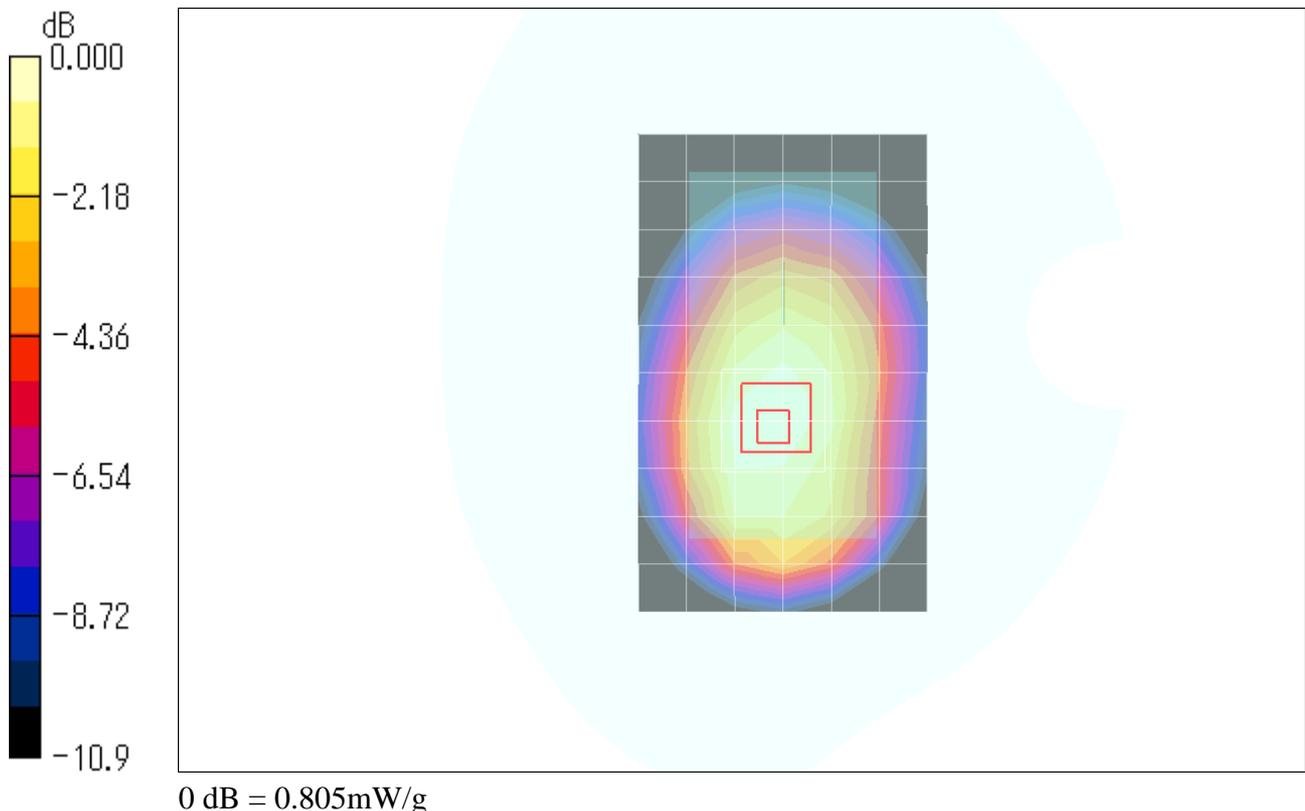
Rear Side/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.6 V/m; Power Drift = -0.002 dB

Peak SAR (extrapolated) = 0.944 W/kg

SAR(1 g) = 0.760 mW/g; SAR(10 g) = 0.559 mW/g

Maximum value of SAR (measured) = 0.805 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 189ch / GSM 850 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:2.075

Medium: MSL900 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 55.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.994 mW/g

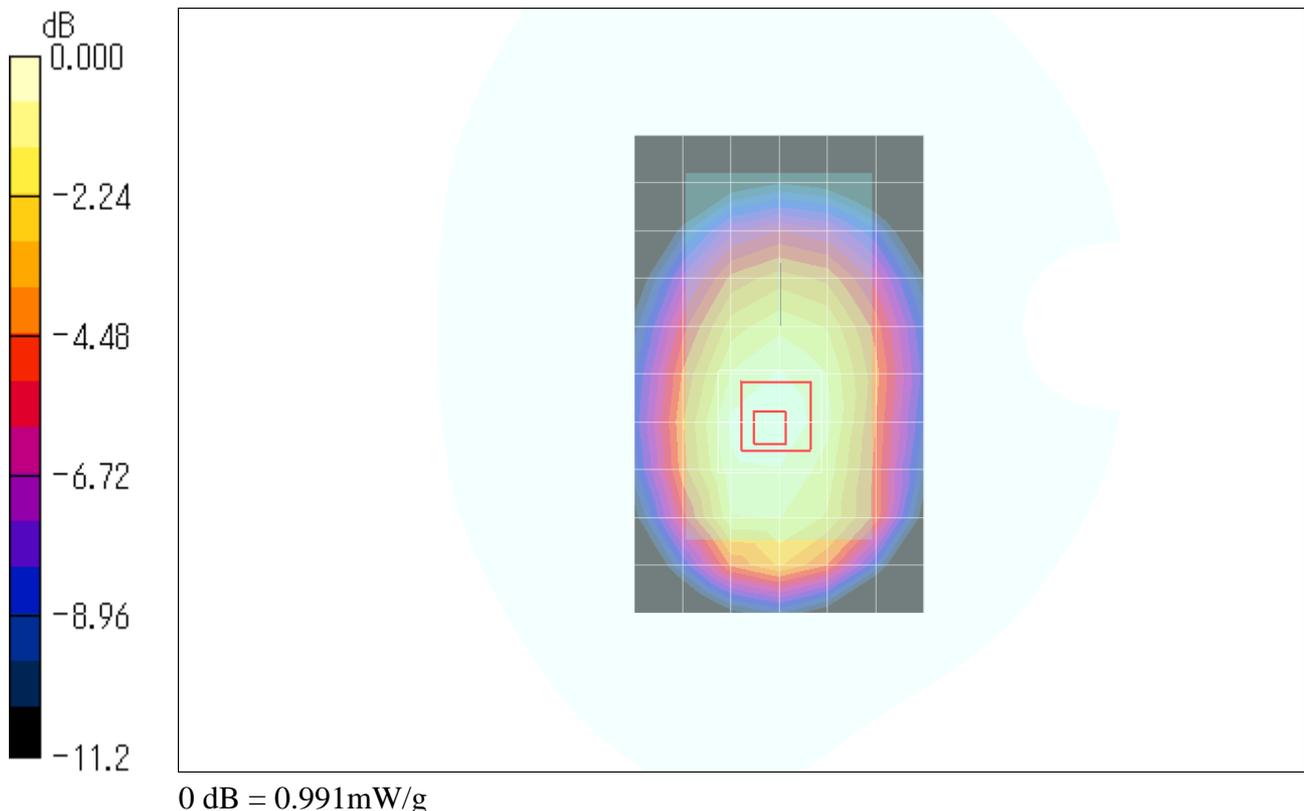
Rear Side/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.6 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 1.18 W/kg

SAR(1 g) = 0.937 mW/g; SAR(10 g) = 0.688 mW/g

Maximum value of SAR (measured) = 0.991 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 251ch / GSM 850 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:2.075

Medium: MSL900 Medium parameters used: $f = 848.8$ MHz; $\sigma = 0.982$ mho/m; $\epsilon_r = 55.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 1.11 mW/g

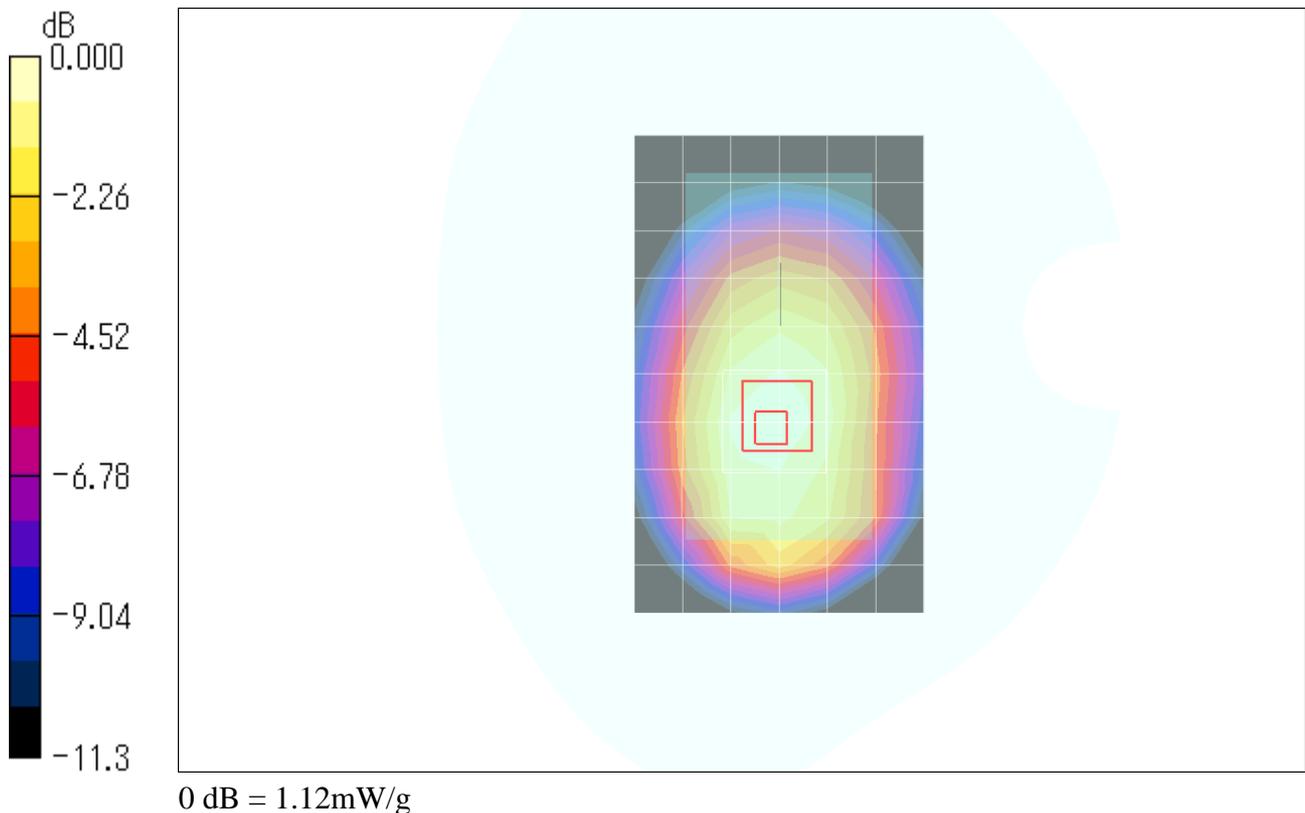
Rear Side/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 30.8 V/m; Power Drift = -0.035 dB

Peak SAR (extrapolated) = 1.31 W/kg

SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.776 mW/g

Maximum value of SAR (measured) = 1.12 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 251ch / GSM 850 - GPRS 4slot**DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110**

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:2.075

Medium: MSL900 Medium parameters used: $f = 848.8$ MHz; $\sigma = 0.982$ mho/m; $\epsilon_r = 55.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

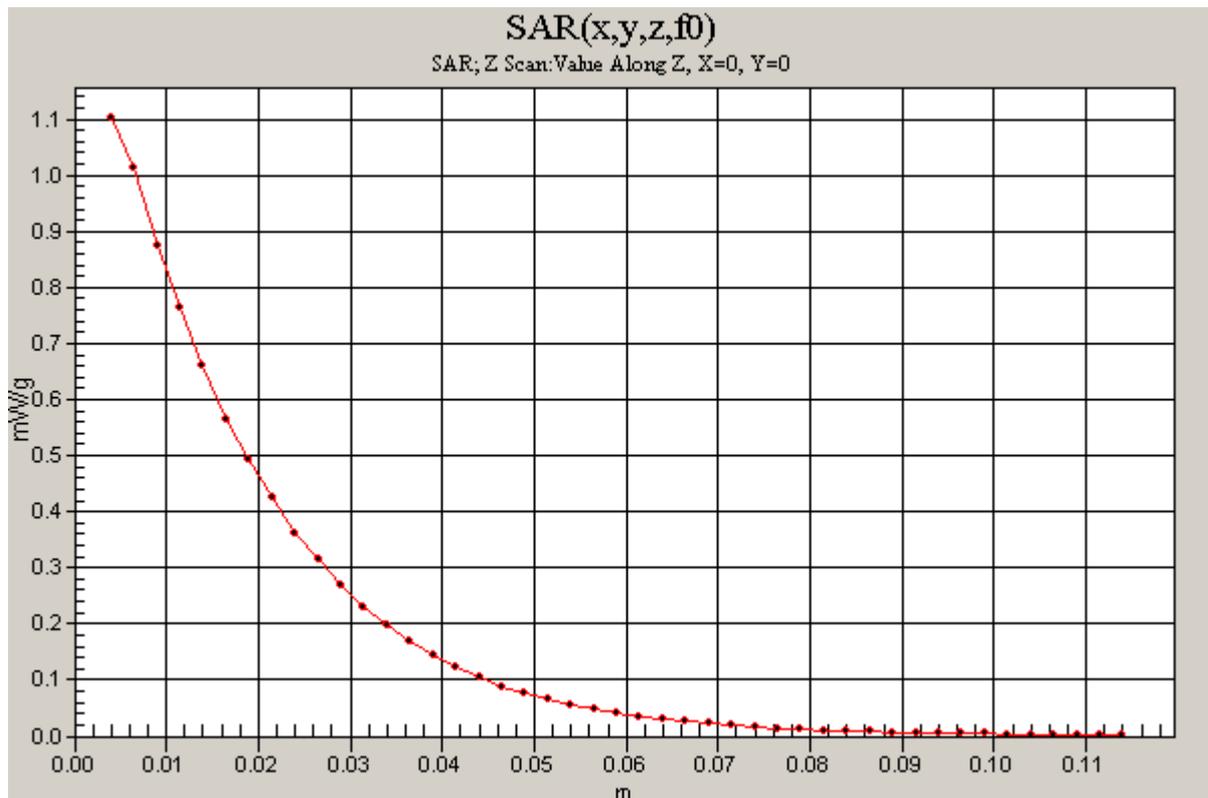
Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side/Z Scan (1x1x45): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm

Maximum value of SAR (measured) = 1.10 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 251ch / GSM 850 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:2.075

Medium: MSL900 Medium parameters used: $f = 848.8$ MHz; $\sigma = 0.982$ mho/m; $\epsilon_r = 55.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(6.18, 6.18, 6.18); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side w/headset/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.961 mW/g

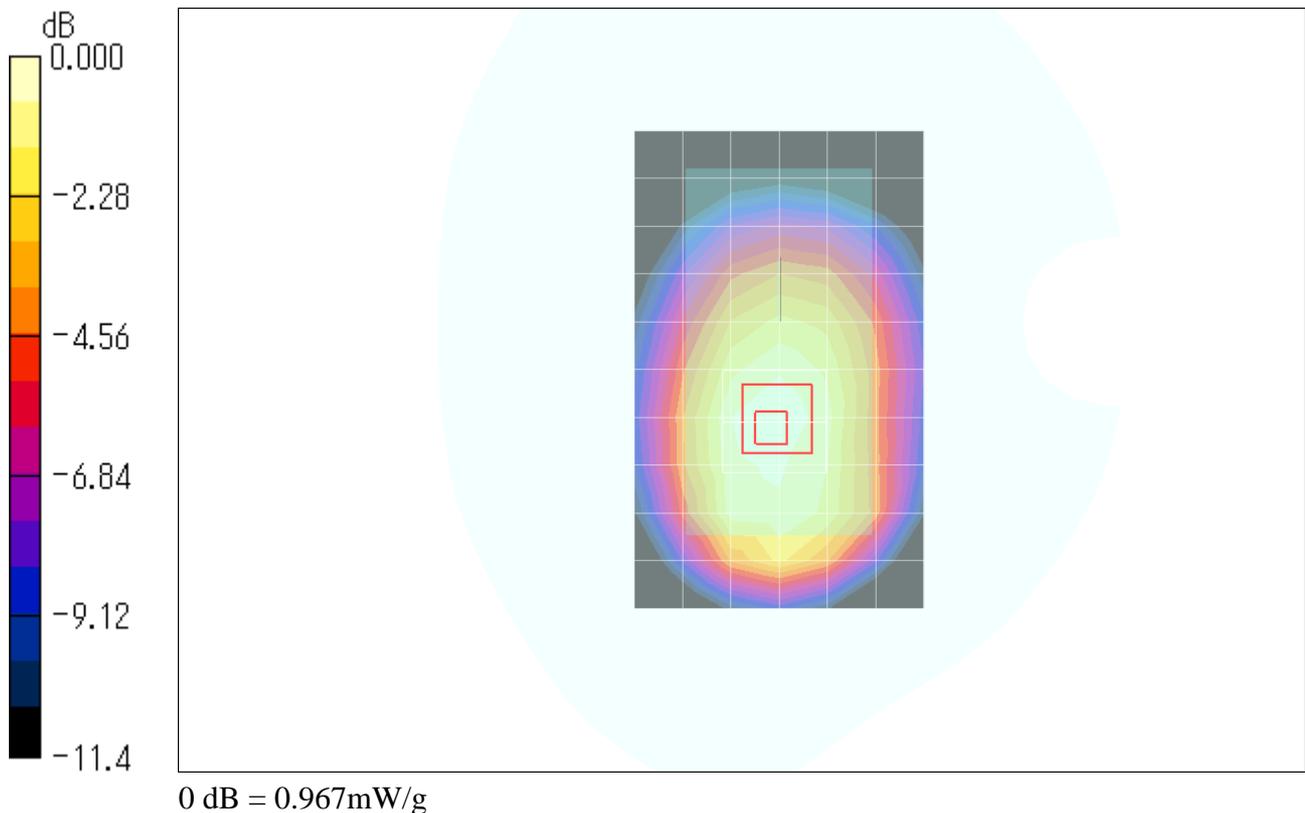
Rear Side w/headset/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.5 V/m; Power Drift = -0.014 dB

Peak SAR (extrapolated) = 1.14 W/kg

SAR(1 g) = 0.911 mW/g; SAR(10 g) = 0.662 mW/g

Maximum value of SAR (measured) = 0.967 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Left Head 661ch / PCS 1900 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075

Medium: HSL1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.93, 4.93, 4.93); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.315 mW/g

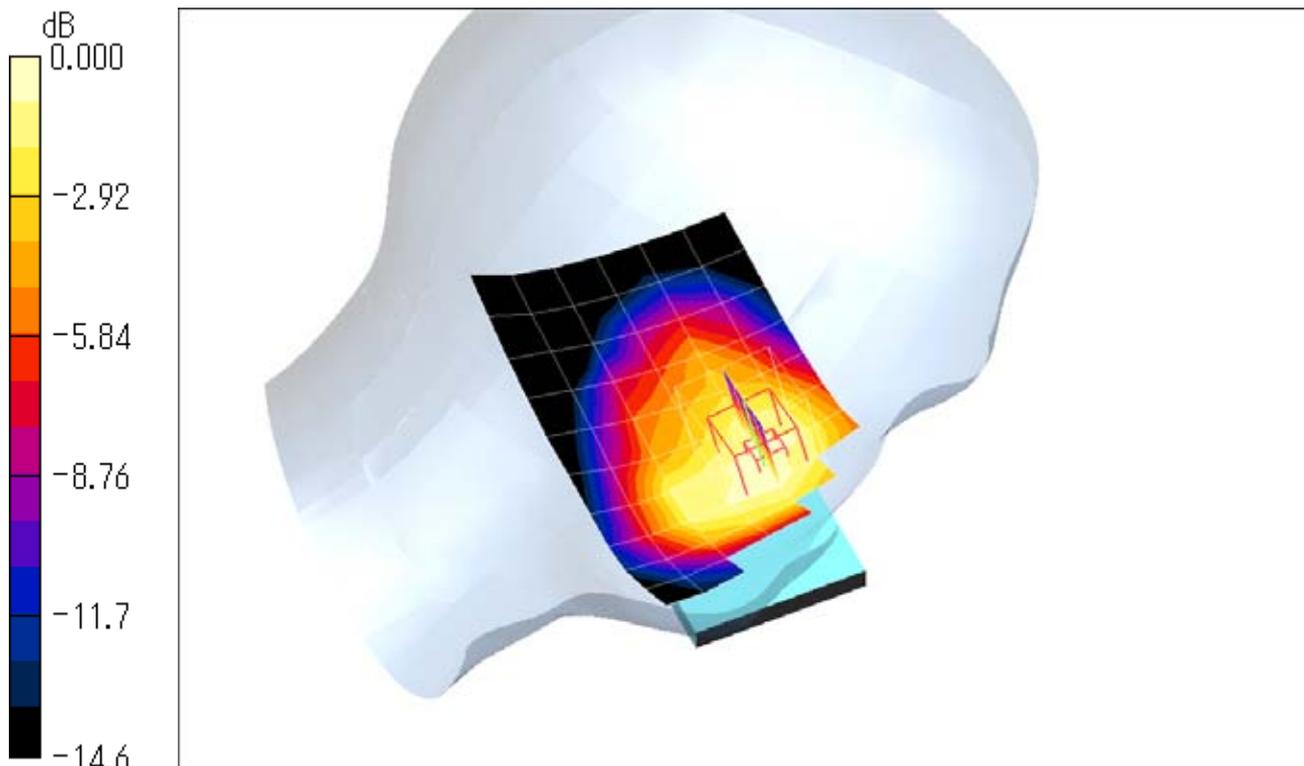
Cheek/Touch Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.8 V/m; Power Drift = -0.011 dB

Peak SAR (extrapolated) = 0.424 W/kg

SAR(1 g) = 0.311 mW/g; SAR(10 g) = 0.204 mW/g

Maximum value of SAR (measured) = 0.330 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Left Head 661ch / PCS 1900 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075

Medium: HSL1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.93, 4.93, 4.93); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Ear/Tilt Position/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.238 mW/g

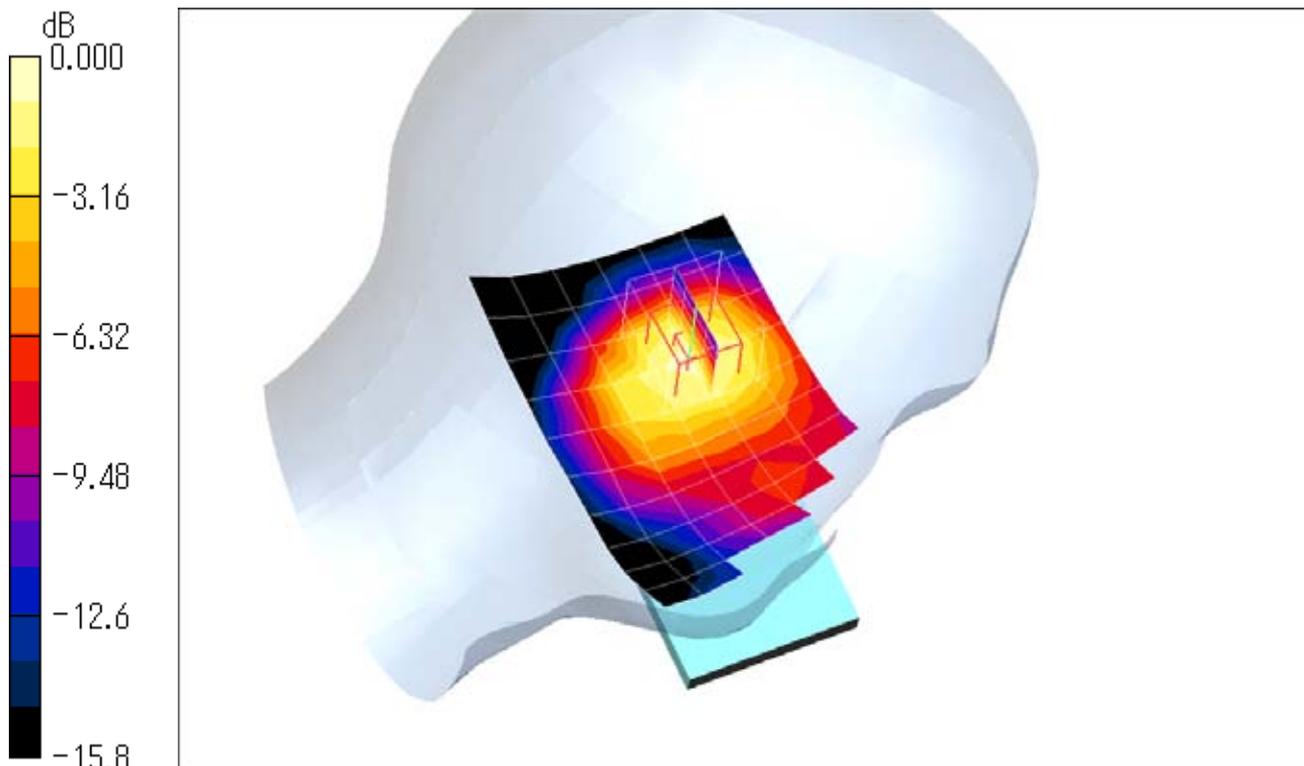
Ear/Tilt Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.21 V/m; Power Drift = 0.003 dB

Peak SAR (extrapolated) = 0.326 W/kg

SAR(1 g) = 0.224 mW/g; SAR(10 g) = 0.138 mW/g

Maximum value of SAR (measured) = 0.236 mW/g



0 dB = 0.236mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Right Head 512ch / PCS 1900 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:2.075

Medium: HSL1900 Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.36$ mho/m; $\epsilon_r = 40.6$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.93, 4.93, 4.93); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.795 mW/g

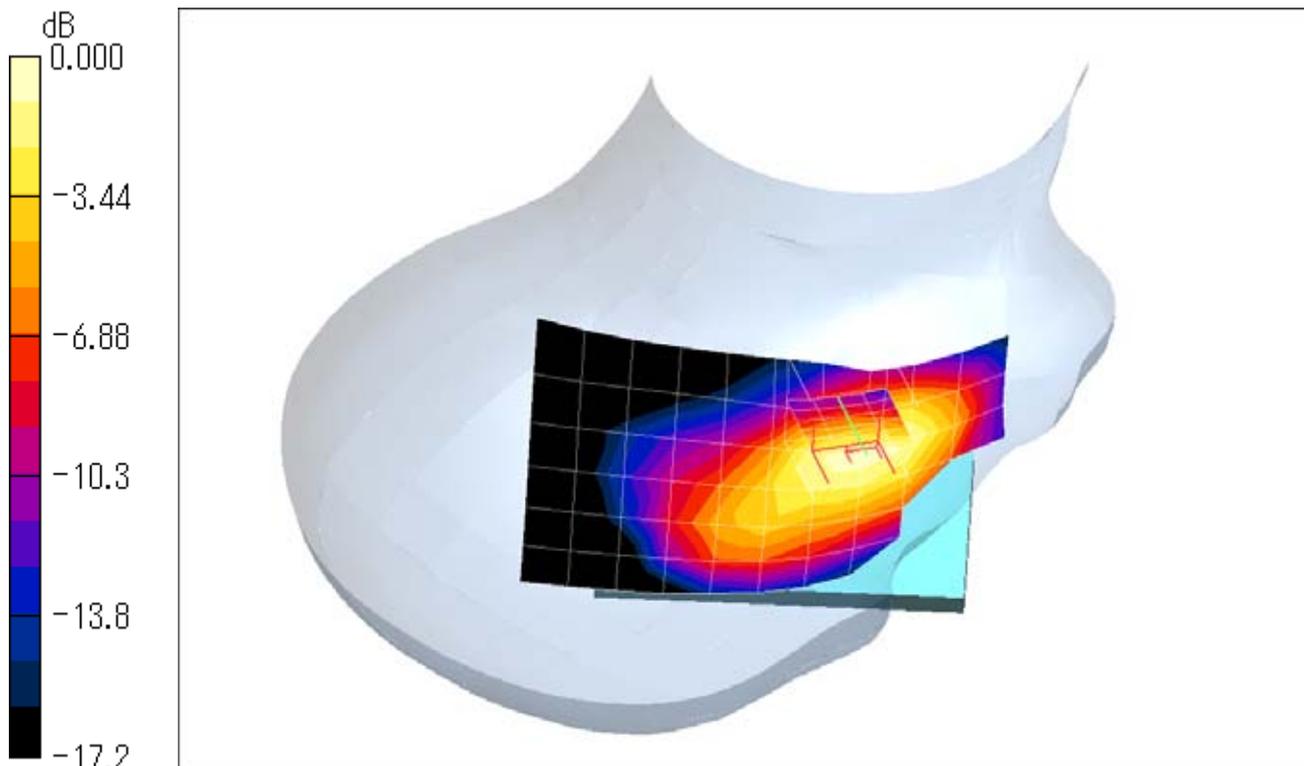
Cheek/Touch Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.7 V/m; Power Drift = -0.046 dB

Peak SAR (extrapolated) = 1.07 W/kg

SAR(1 g) = 0.711 mW/g; SAR(10 g) = 0.436 mW/g

Maximum value of SAR (measured) = 0.760 mW/g



0 dB = 0.760mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Right Head 661ch / PCS 1900 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075

Medium: HSL1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.93, 4.93, 4.93); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.816 mW/g

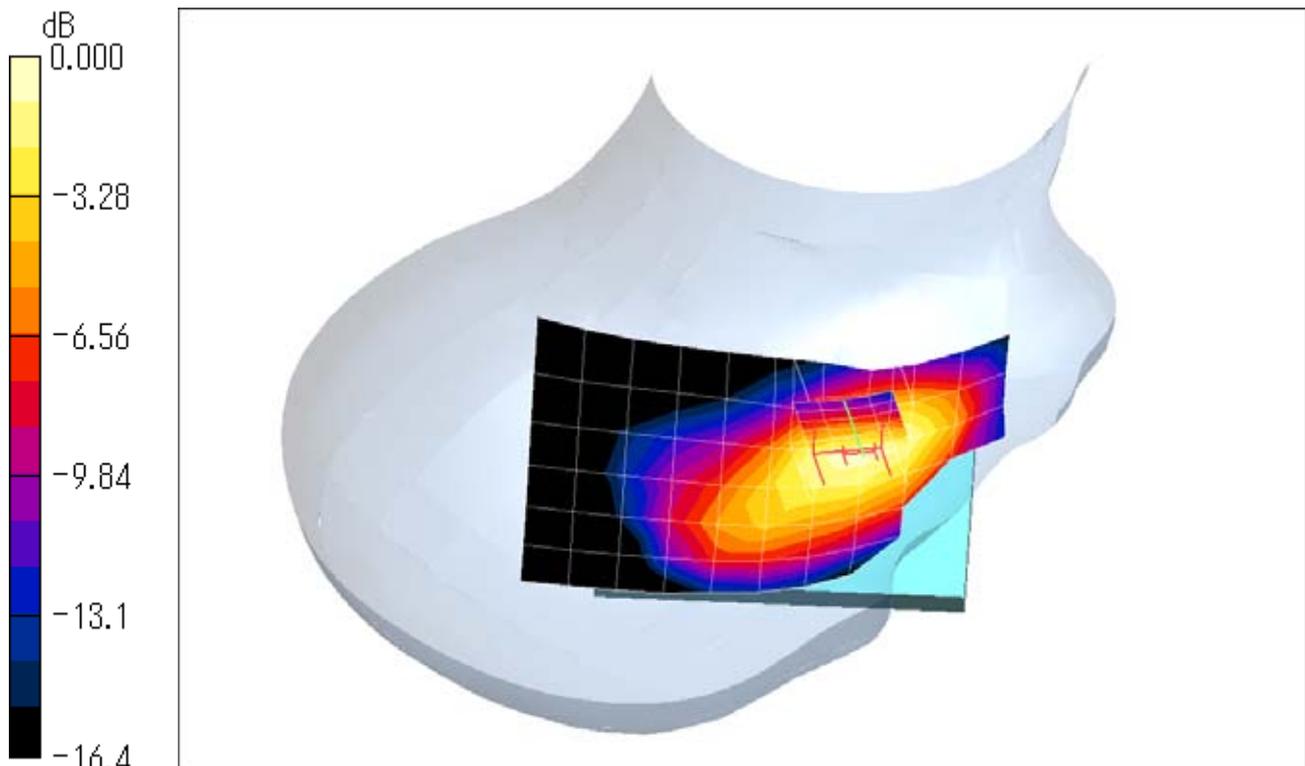
Cheek/Touch Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.6 V/m; Power Drift = -0.032 dB

Peak SAR (extrapolated) = 1.11 W/kg

SAR(1 g) = 0.742 mW/g; SAR(10 g) = 0.454 mW/g

Maximum value of SAR (measured) = 0.806 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Right Head 810ch / PCS 1900 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2.075

Medium: HSL1900 Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.42 \text{ mho/m}$; $\epsilon_r = 40.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Measurement Standard: DASy4 (High Precision Assessment)

DASy4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.93, 4.93, 4.93); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASy4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Area Scan (11x7x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.820 mW/g

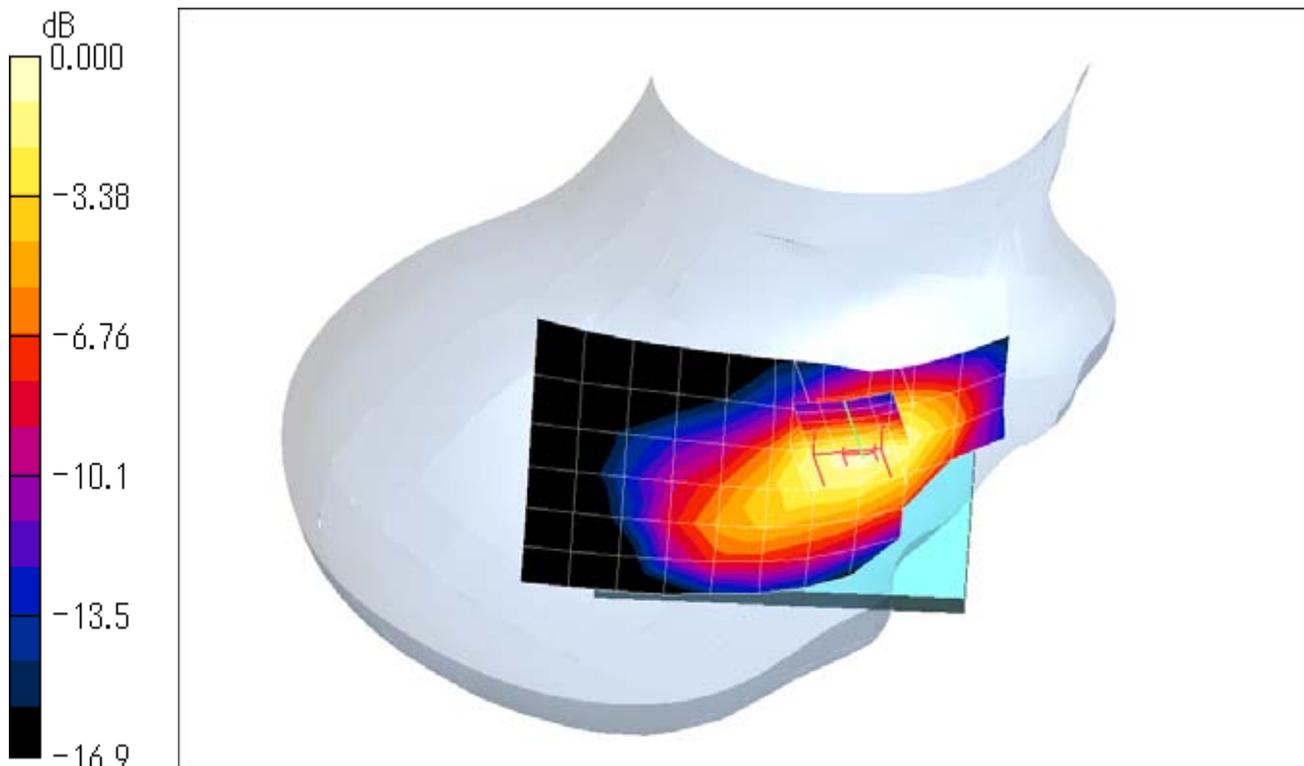
Cheek/Touch Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.6 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.749 mW/g; SAR(10 g) = 0.453 mW/g

Maximum value of SAR (measured) = 0.816 mW/g



0 dB = 0.816mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Right Head 810ch / PCS 1900 - GPRS 4slot**DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110**

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2.075

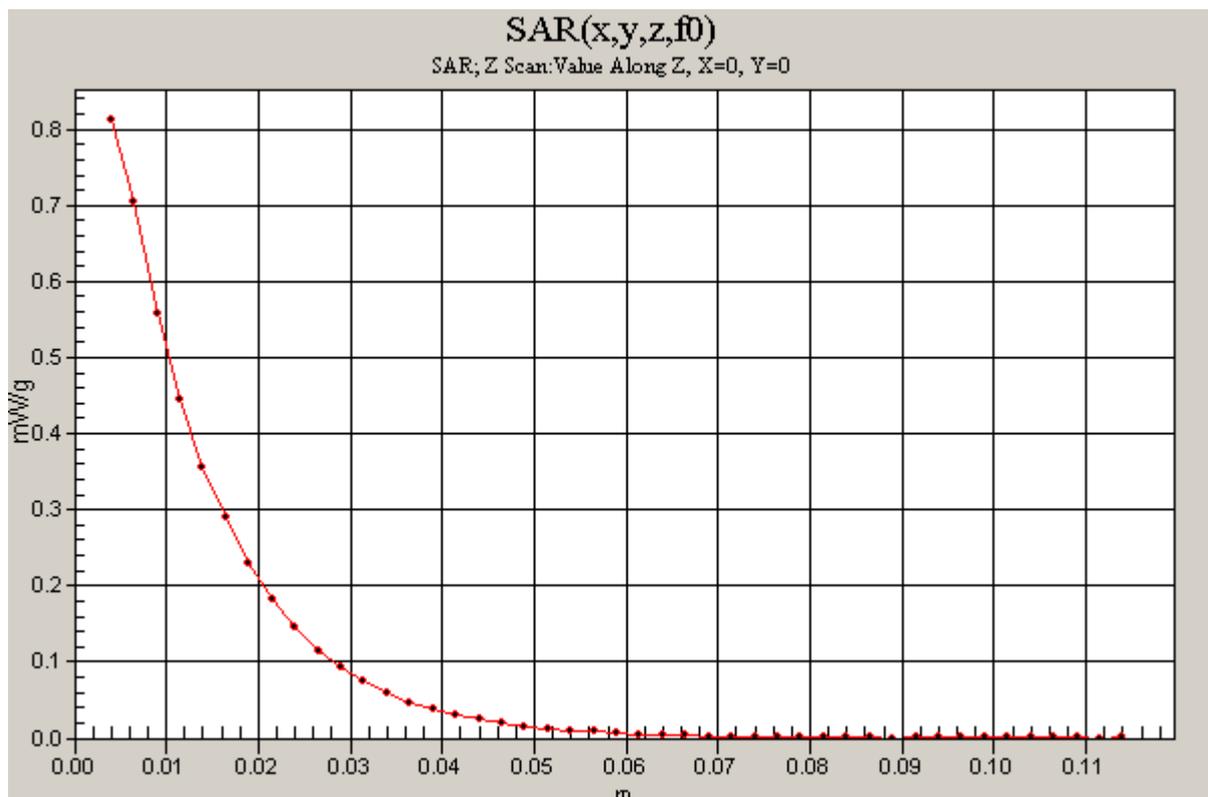
Medium: HSL1900 Medium parameters used: $f = 1909.8$ MHz; $\sigma = 1.42$ mho/m; $\epsilon_r = 40.4$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.93, 4.93, 4.93); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Cheek/Touch Position/Z Scan (1x1x45): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm
Maximum value of SAR (measured) = 0.812 mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Right Head 661ch / PCS 1900 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075

Medium: HSL1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.93, 4.93, 4.93); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Ear/Tilt Position/Area Scan (11x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.233 mW/g

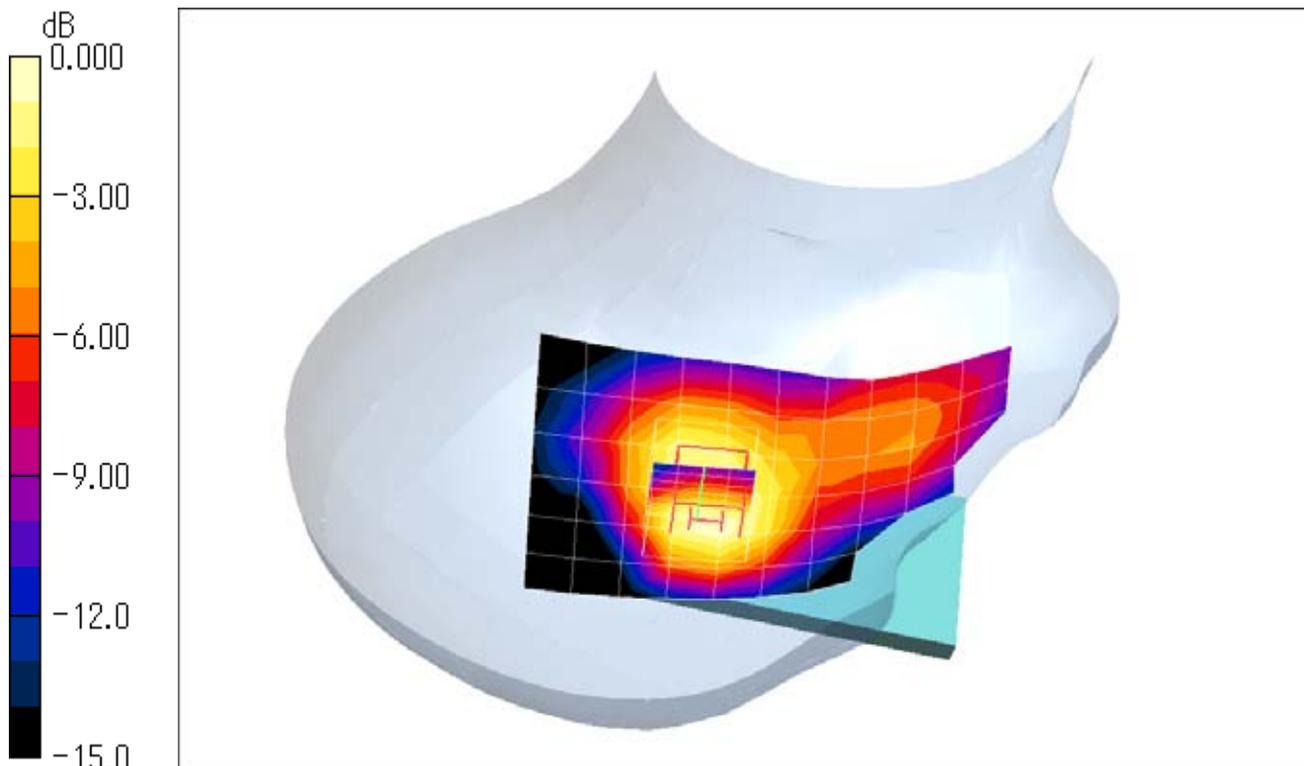
Ear/Tilt Position/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.30 V/m; Power Drift = -0.001 dB

Peak SAR (extrapolated) = 0.325 W/kg

SAR(1 g) = 0.232 mW/g; SAR(10 g) = 0.154 mW/g

Maximum value of SAR (measured) = 0.250 mW/g



0 dB = 0.250mW/g

Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 661ch / PCS 1900 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075

Medium: MSL1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.43, 4.43, 4.43); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Bottom Edge/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.364 mW/g

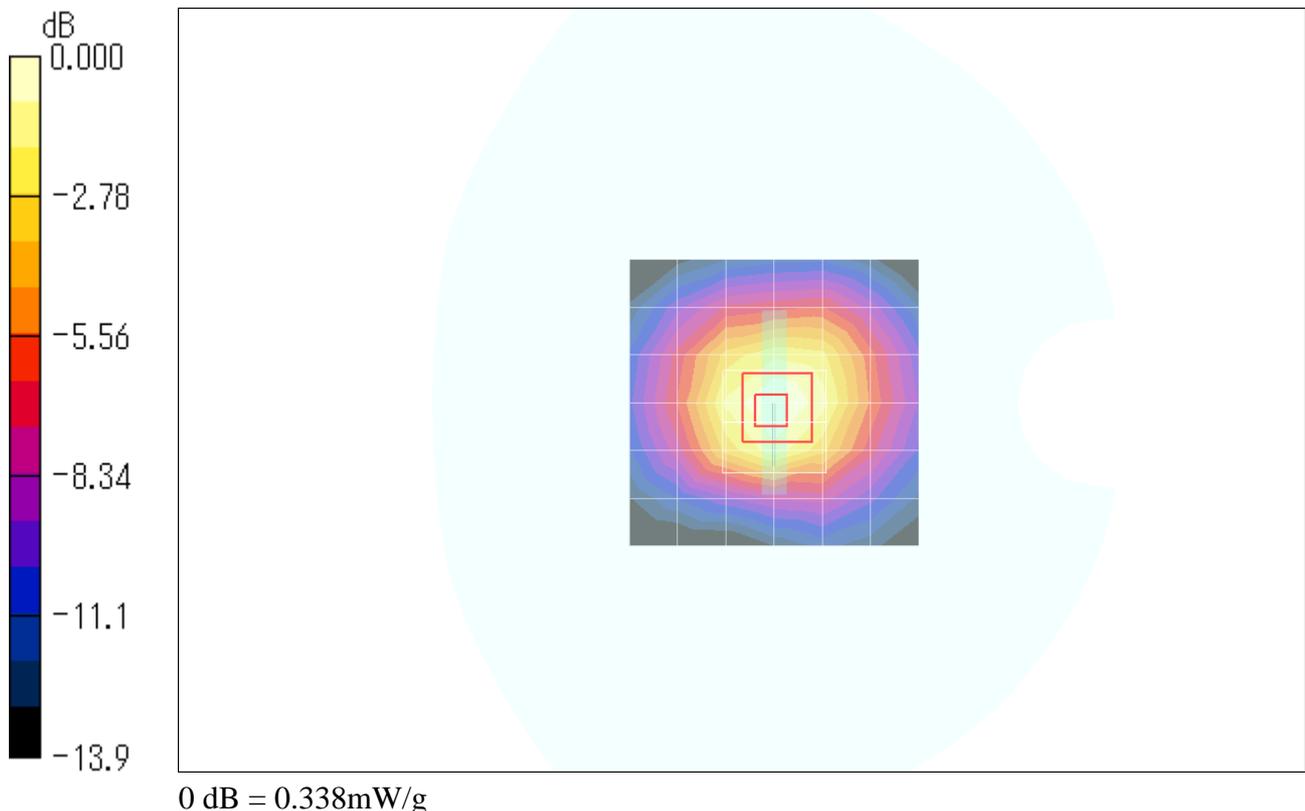
Bottom Edge/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.3 V/m; Power Drift = 0.004 dB

Peak SAR (extrapolated) = 0.522 W/kg

SAR(1 g) = 0.320 mW/g; SAR(10 g) = 0.193 mW/g

Maximum value of SAR (measured) = 0.338 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 661ch / PCS 1900 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075

Medium: MSL1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.43, 4.43, 4.43); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Left Edge/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.055 mW/g

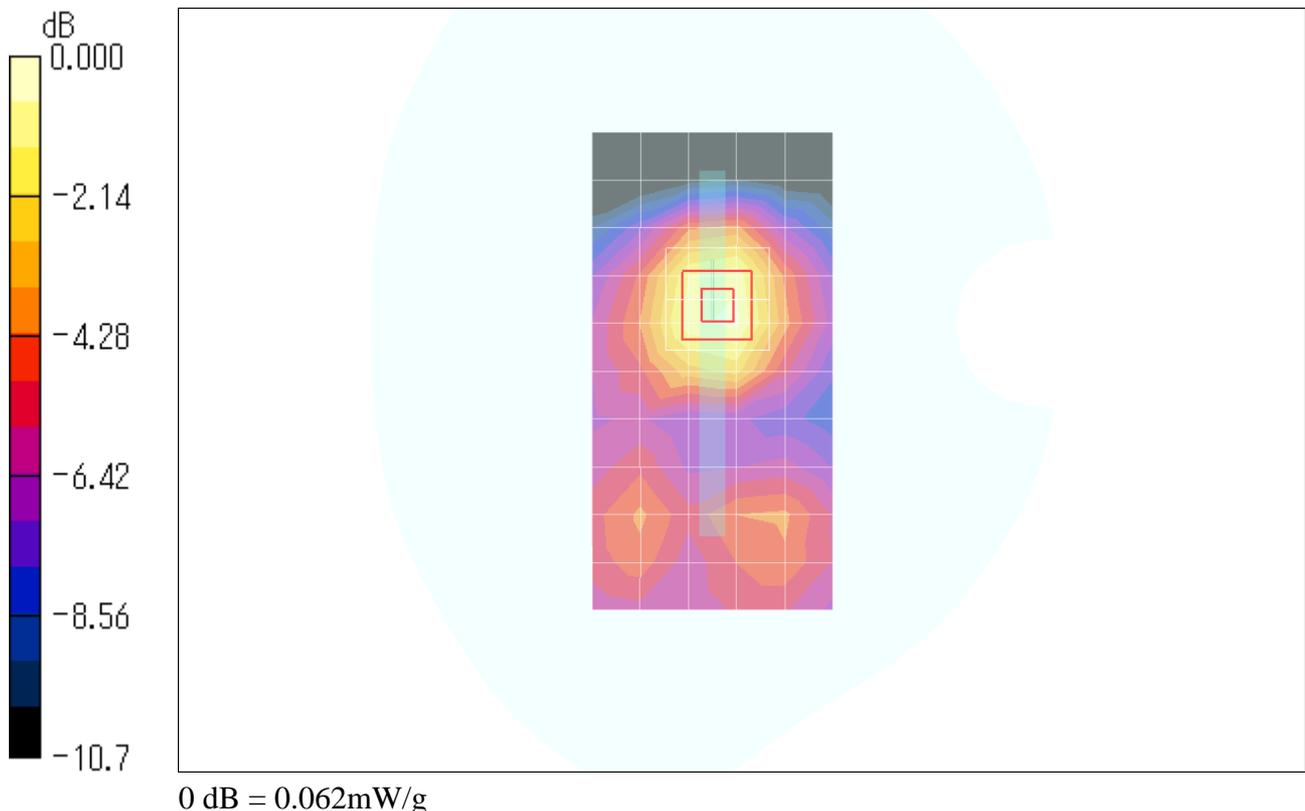
Left Edge/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.78 V/m; Power Drift = 0.000 dB

Peak SAR (extrapolated) = 0.090 W/kg

SAR(1 g) = 0.058 mW/g; SAR(10 g) = 0.036 mW/g

Maximum value of SAR (measured) = 0.062 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 661ch / PCS 1900 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075

Medium: MSL1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.43, 4.43, 4.43); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Right Edge/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.471 mW/g

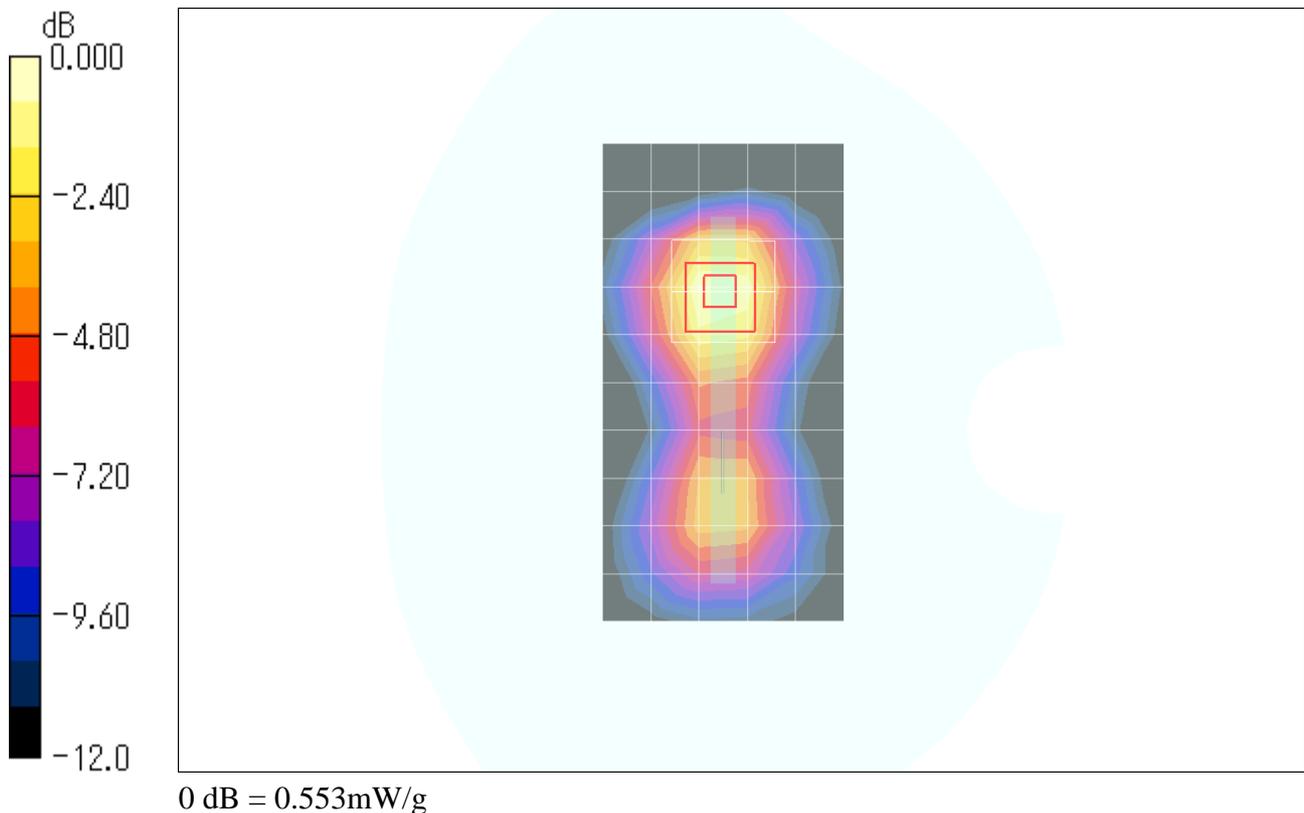
Right Edge/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.6 V/m; Power Drift = -0.013 dB

Peak SAR (extrapolated) = 0.832 W/kg

SAR(1 g) = 0.506 mW/g; SAR(10 g) = 0.296 mW/g

Maximum value of SAR (measured) = 0.553 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 661ch / PCS 1900 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075

Medium: MSL1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.43, 4.43, 4.43); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Front Side/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.581 mW/g

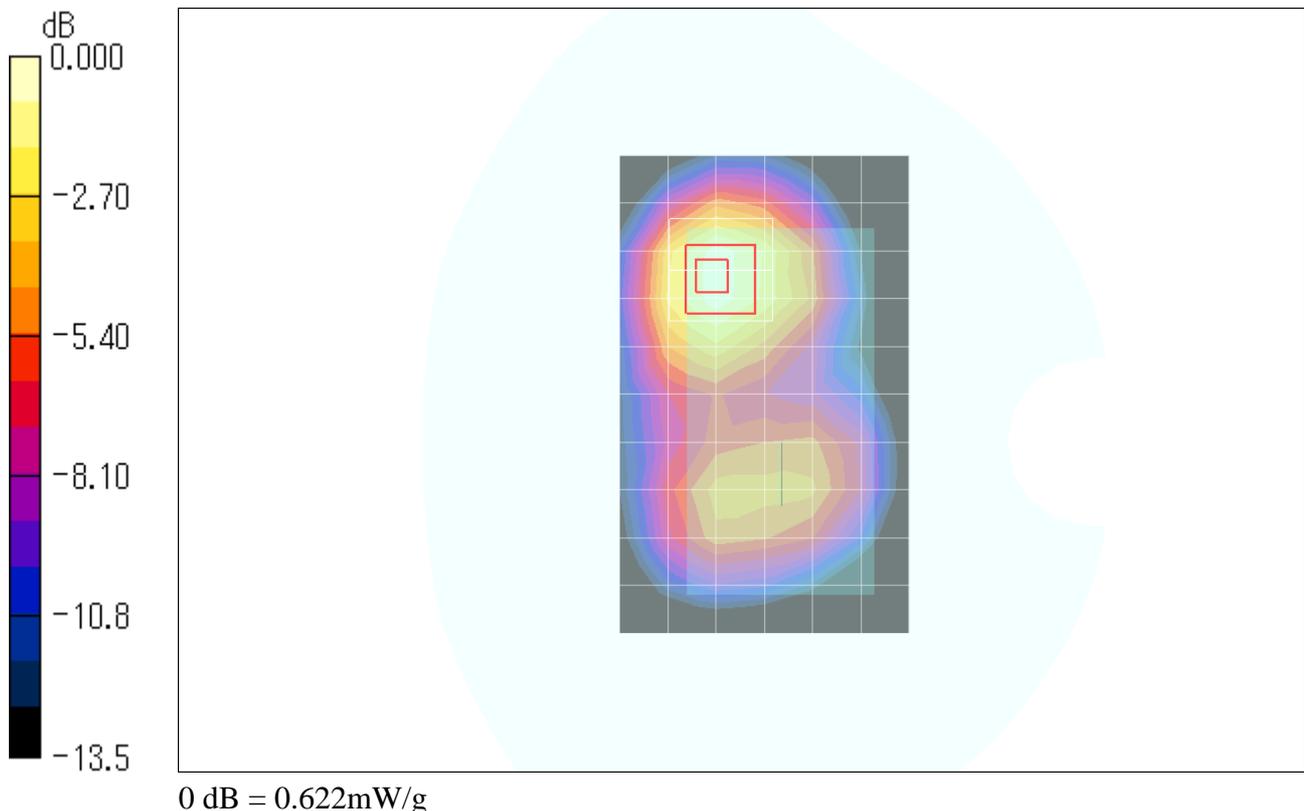
Front Side/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.3 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 0.903 W/kg

SAR(1 g) = 0.578 mW/g; SAR(10 g) = 0.354 mW/g

Maximum value of SAR (measured) = 0.622 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 512ch / PCS 1900 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:2.075

Medium: MSL1900 Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.49$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.43, 4.43, 4.43); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.875 mW/g

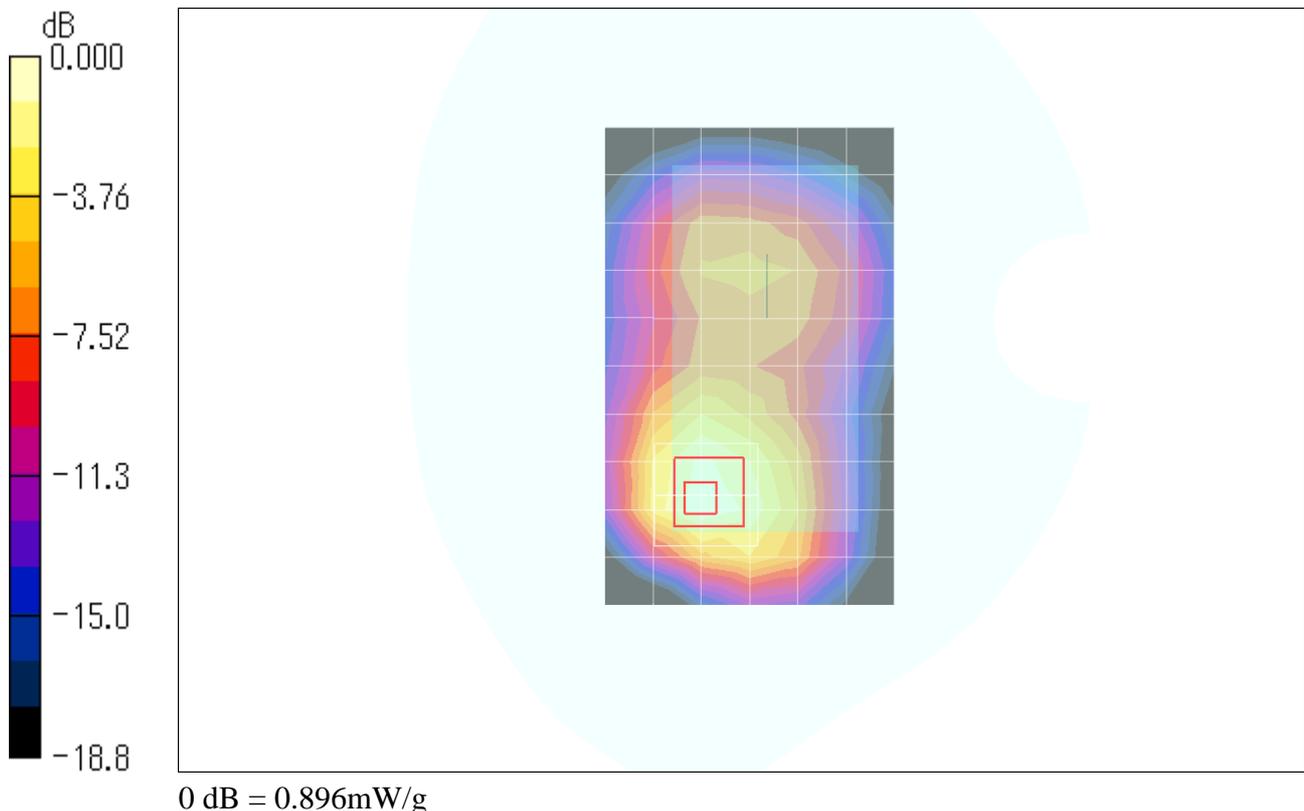
Rear Side/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.2 V/m; Power Drift = -0.038 dB

Peak SAR (extrapolated) = 1.39 W/kg

SAR(1 g) = 0.830 mW/g; SAR(10 g) = 0.492 mW/g

Maximum value of SAR (measured) = 0.896 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 661ch / PCS 1900 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075

Medium: MSL1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.52$ mho/m; $\epsilon_r = 53.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.43, 4.43, 4.43); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.889 mW/g

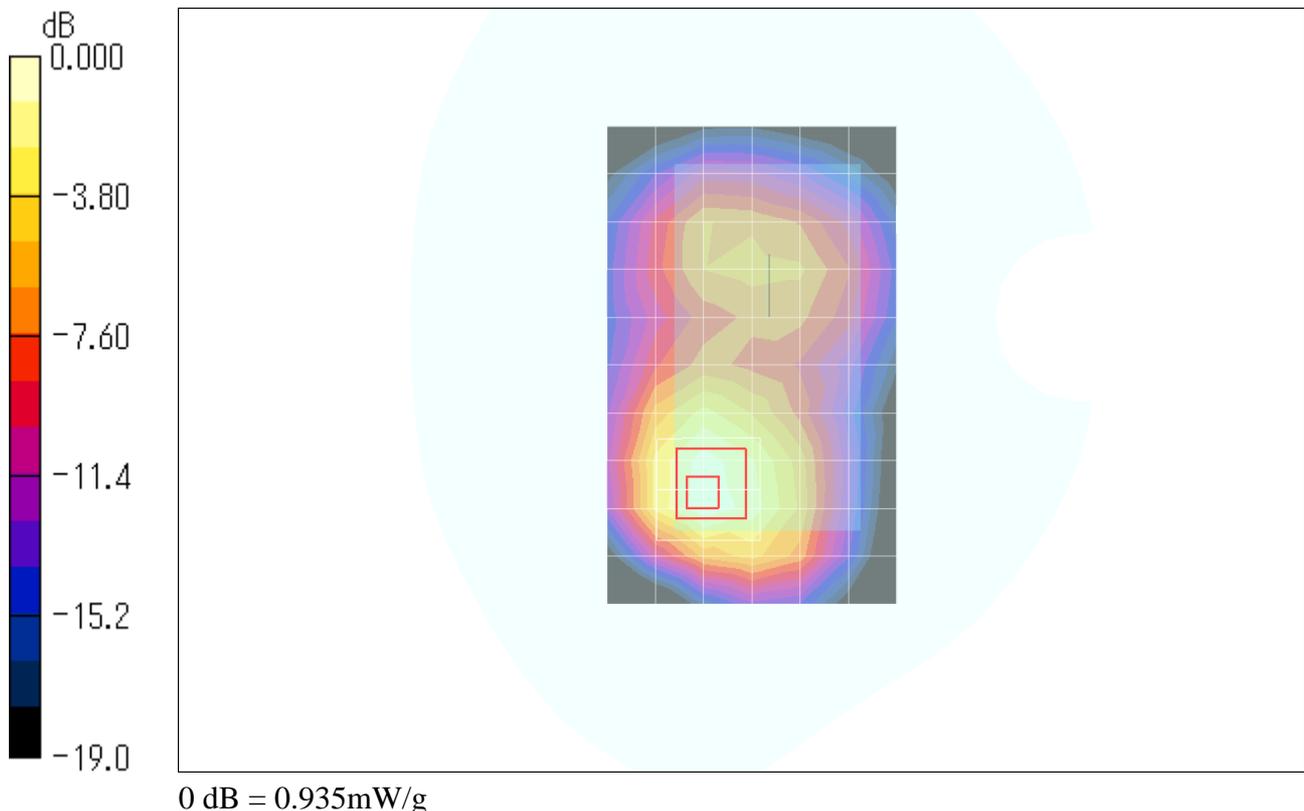
Rear Side/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.7 V/m; Power Drift = -0.001 dB

Peak SAR (extrapolated) = 1.48 W/kg

SAR(1 g) = 0.868 mW/g; SAR(10 g) = 0.512 mW/g

Maximum value of SAR (measured) = 0.935 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 810ch / PCS 1900 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2.075

Medium: MSL1900 Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.55 \text{ mho/m}$; $\epsilon_r = 53.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.43, 4.43, 4.43); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side/Area Scan (7x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.910 mW/g

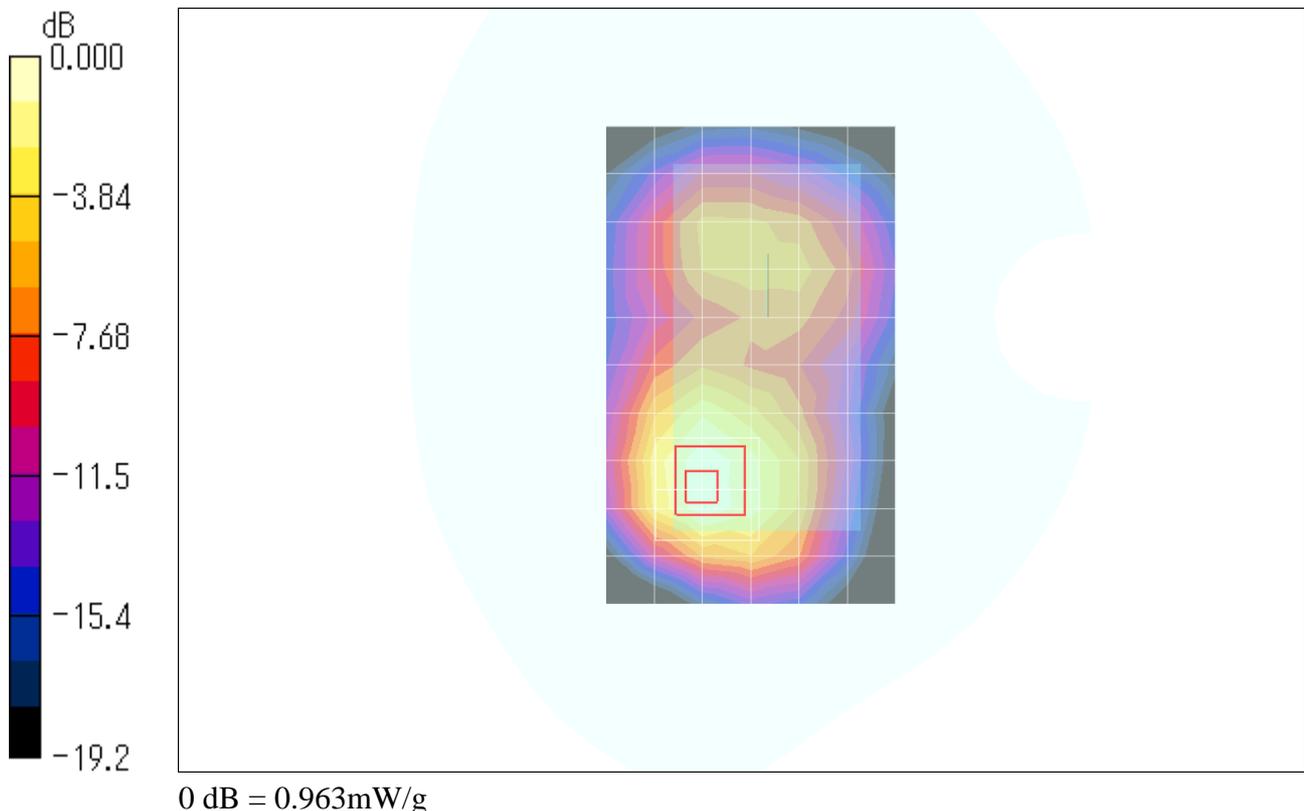
Rear Side/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 22.7 V/m; Power Drift = 0.001 dB

Peak SAR (extrapolated) = 1.51 W/kg

SAR(1 g) = 0.897 mW/g; SAR(10 g) = 0.531 mW/g

Maximum value of SAR (measured) = 0.963 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 810ch / PCS 1900 - GPRS 4slot**DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110**

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2.075

Medium: MSL1900 Medium parameters used: $f = 1909.8$ MHz; $\sigma = 1.55$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

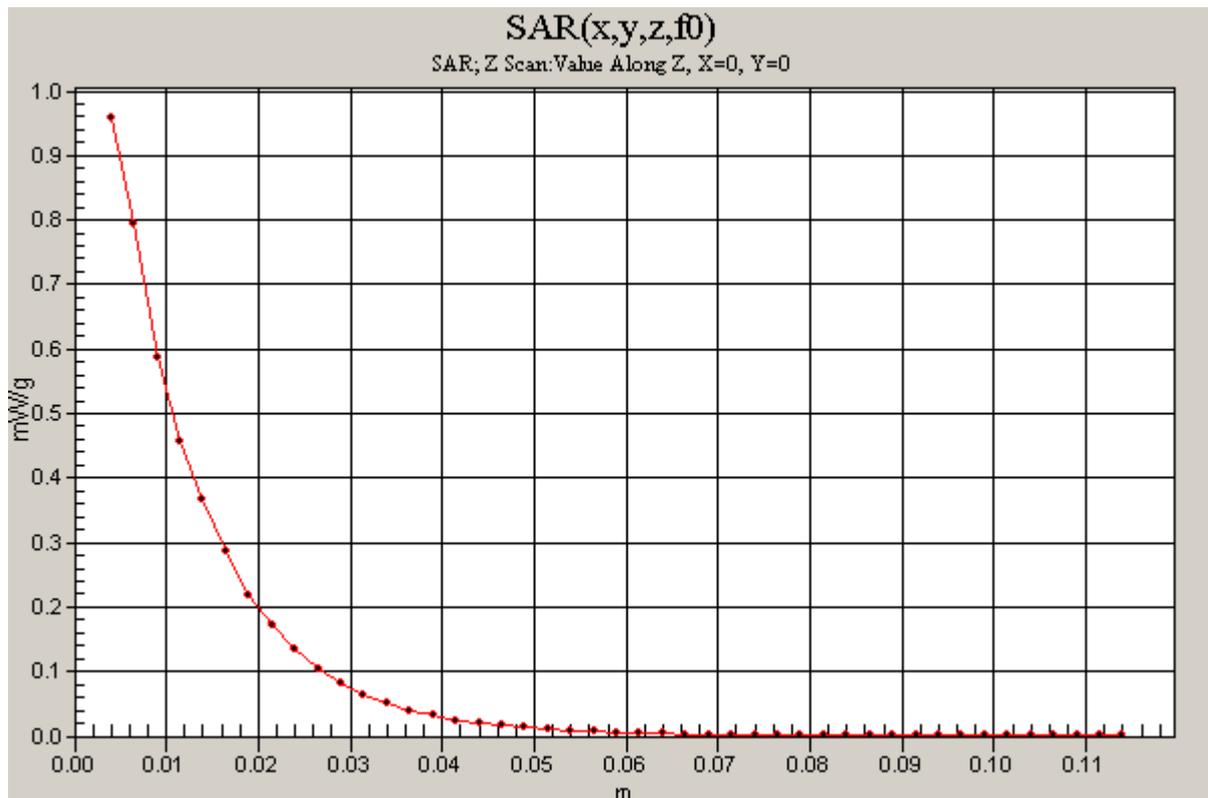
Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.43, 4.43, 4.43); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side/Z Scan (1x1x45): Measurement grid: dx=20mm, dy=20mm, dz=2.5mm

Maximum value of SAR (measured) = 0.958 mW/g



Test Laboratory: JAPAN QUALITY ASSURANCE ORGANIZATION

Body 810ch / PCS 1900 - GPRS 4slot

DUT: Cellular Phone; Type: SH-01E; Serial: 004401113975110

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2.075

Medium: MSL1900 Medium parameters used: $f = 1909.8$ MHz; $\sigma = 1.55$ mho/m; $\epsilon_r = 53.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1679; ConvF(4.43, 4.43, 4.43); Calibrated: 2011/08/18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn508; Calibrated: 2011/11/14
- Phantom: SAM 1200; Type: QD 000 P40 CA; Serial: 1200
- Measurement SW: DAS4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

Rear Side w/headset/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

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

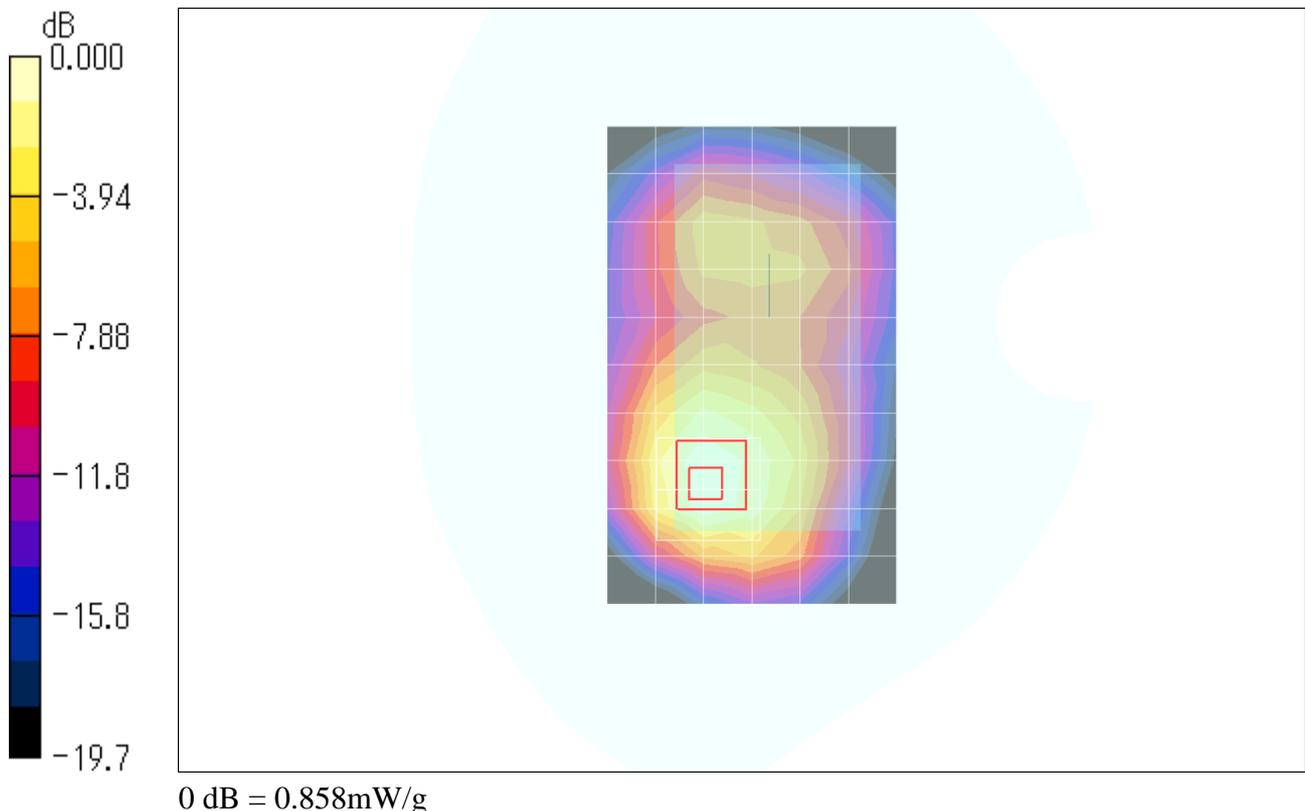
Rear Side w/headset/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.7 V/m; Power Drift = -0.019 dB

Peak SAR (extrapolated) = 1.34 W/kg

SAR(1 g) = 0.802 mW/g; SAR(10 g) = 0.485 mW/g

Maximum value of SAR (measured) = 0.858 mW/g





Appendix 3 – Dosimetric E-Field Probe – ET3DV6, S/N: 1679 Calibration Data



Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **JQA (PTT)**

Certificate No: **ET3-1679_Aug11**

CALIBRATION CERTIFICATE

Object **ET3DV6 - SN:1679**

Calibration procedure(s) **QA CAL-01.v8, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes**

Calibration date: **August 18, 2011**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	
			Issued: August 18, 2011
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 108**

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E^2 -field uncertainty inside TSL (see below *ConvF*).
- NORM(f)_{x,y,z} = NORM_{x,y,z} * frequency_response** (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; VR_{x,y,z}; A, B, C** are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to **NORM_{x,y,z} * ConvF** whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe ET3DV6

SN:1679

Manufactured: May 7, 2002
Calibrated: August 18, 2011

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1679

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	1.95	1.93	1.95	$\pm 10.1 \%$
DCP (mV) ^B	96.5	98.4	96.9	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc ^E (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	113.4	$\pm 2.5 \%$
			Y	0.00	0.00	1.00	109.1	
			Z	0.00	0.00	1.00	116.2	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of NormX,Y,Z do not affect the E^2 -field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required.

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1679

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	41.5	0.90	6.24	6.24	6.24	0.53	2.44	± 12.0 %
900	41.5	0.97	6.14	6.14	6.14	0.52	2.48	± 12.0 %
1450	40.5	1.20	5.20	5.20	5.20	0.52	3.00	± 12.0 %
1750	40.1	1.37	5.15	5.15	5.15	0.54	2.61	± 12.0 %
1900	40.0	1.40	4.93	4.93	4.93	0.57	2.42	± 12.0 %
1950	40.0	1.40	4.77	4.77	4.77	0.58	2.43	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: ET3DV6- SN:1679

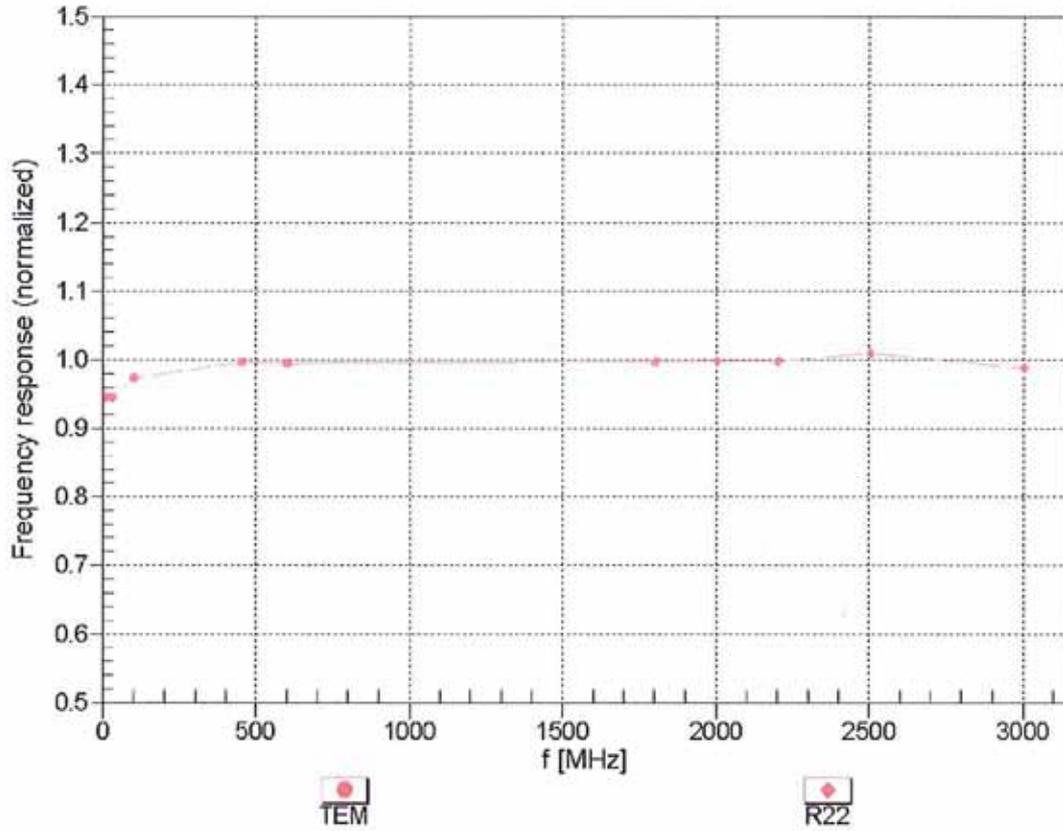
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	55.2	0.97	6.18	6.18	6.18	0.59	2.25	± 12.0 %
900	55.0	1.05	6.11	6.11	6.11	0.63	2.12	± 12.0 %
1450	54.0	1.30	5.19	5.19	5.19	0.60	2.32	± 12.0 %
1750	53.4	1.49	4.64	4.64	4.64	0.60	2.73	± 12.0 %
1900	53.3	1.52	4.43	4.43	4.43	0.63	2.50	± 12.0 %
1950	53.3	1.52	4.56	4.56	4.56	0.61	2.58	± 12.0 %

^C Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

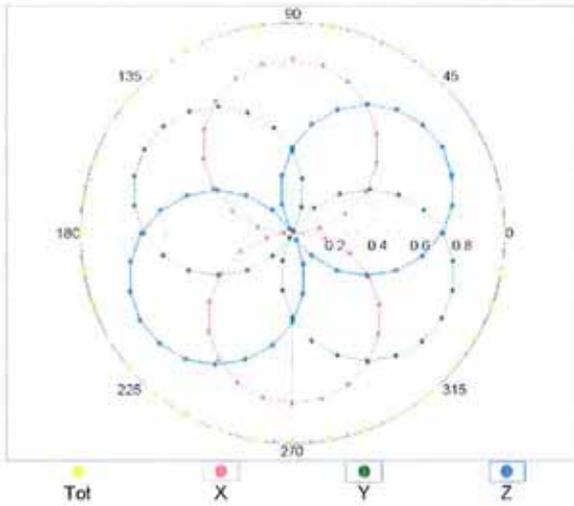
Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)



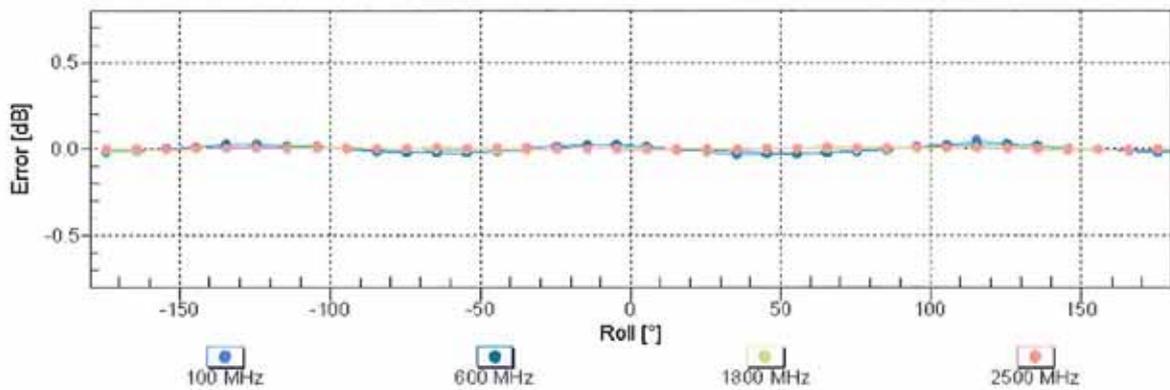
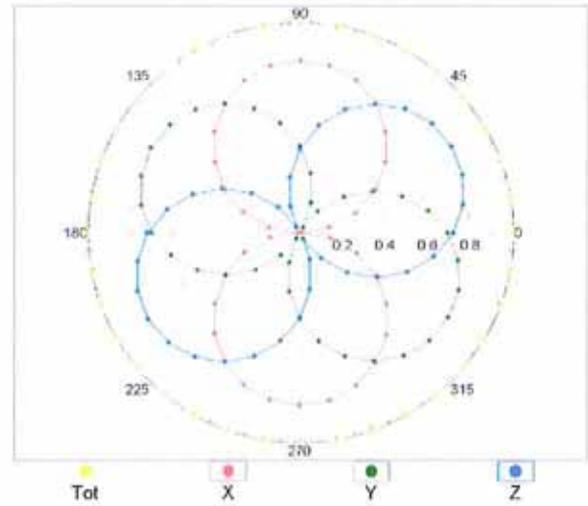
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

Receiving Pattern (ϕ), $\theta = 0^\circ$

f=600 MHz,TEM

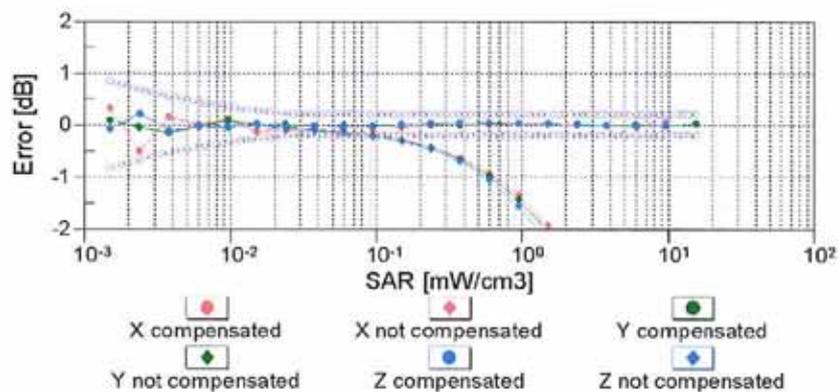
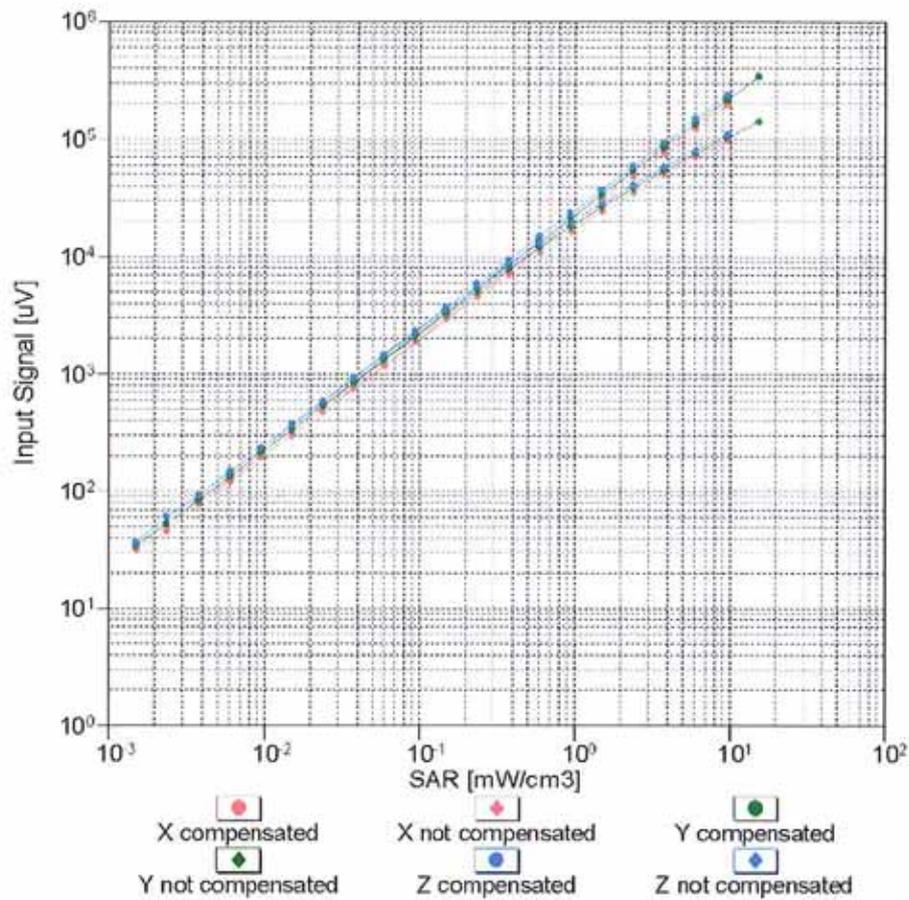


f=1800 MHz,R22



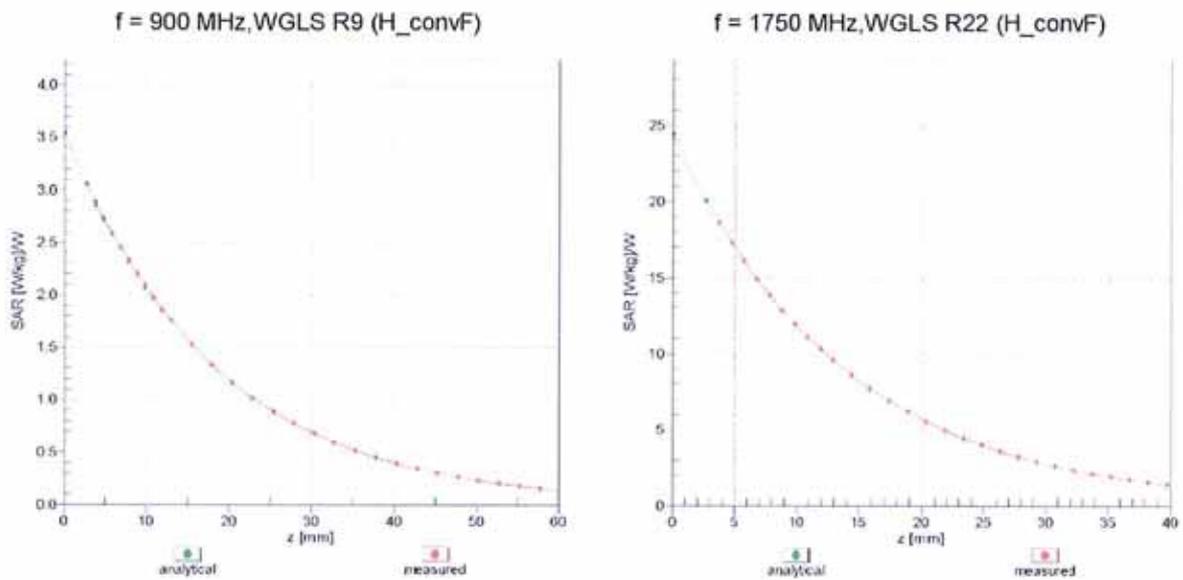
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ (k=2)

Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell, $f = 900 \text{ MHz}$)

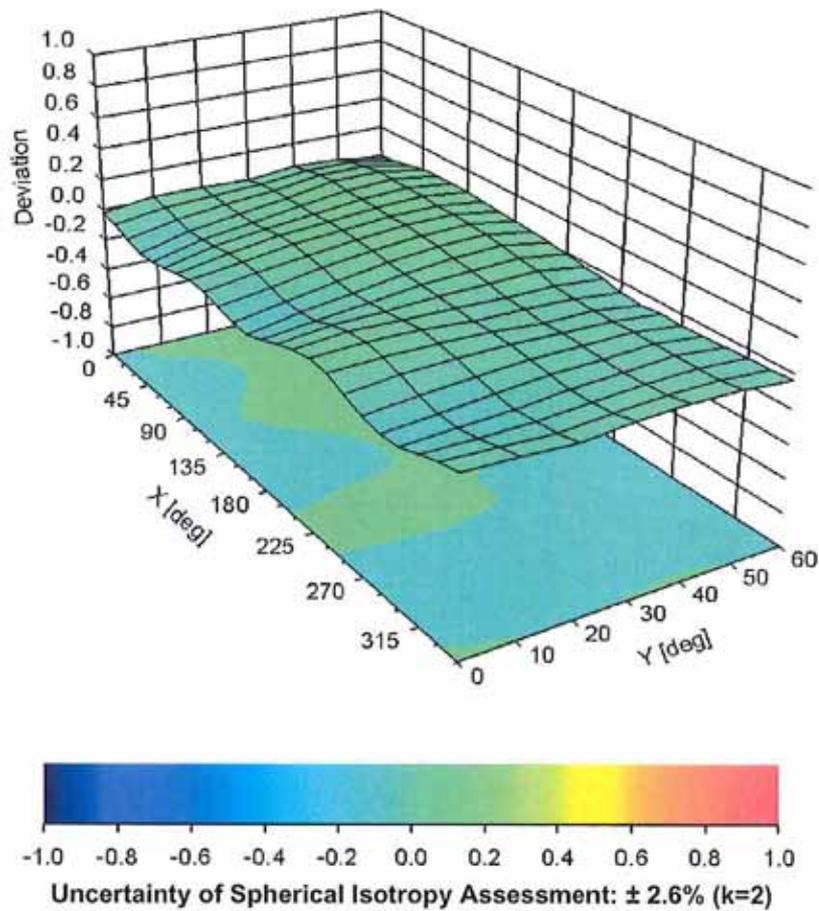


Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment



Deviation from Isotropy in Liquid Error (ϕ, ϑ), f = 900 MHz



DASY/EASY - Parameters of Probe: ET3DV6 - SN:1679

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	6.8 mm
Probe Tip to Sensor X Calibration Point	2.7 mm
Probe Tip to Sensor Y Calibration Point	2.7 mm
Probe Tip to Sensor Z Calibration Point	2.7 mm
Recommended Measurement Distance from Surface	4 mm



Appendix 4 – System Validation Dipole – D835V2, S/N: 4d081 Calibration Data



Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **JQA (PTT)**

Certificate No: **D835V2-4d081_Aug11**

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 4d081**

Calibration procedure(s) **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **August 15, 2011**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by: **Claudio Leubler** **Laboratory Technician**

Approved by: **Katja Pokovic** **Technical Manager**

Signature

Issued: August 15, 2011

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	41.1 \pm 6 %	0.89 mho/m \pm 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.33 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	9.38 mW / g \pm 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.52 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	6.11 mW / g \pm 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 \pm 0.2) °C	53.4 \pm 6 %	0.99 mho/m \pm 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.46 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	9.62 mW / g \pm 17.0 % (k=2)

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.62 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	6.38 mW / g \pm 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.6 Ω - 3.6 j Ω
Return Loss	- 28.4 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.7 Ω - 5.8 j Ω
Return Loss	- 23.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.394 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	October 17, 2008

DASY5 Validation Report for Head TSL

Date: 15.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d081

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 41.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (8x7x7)/Cube 0:

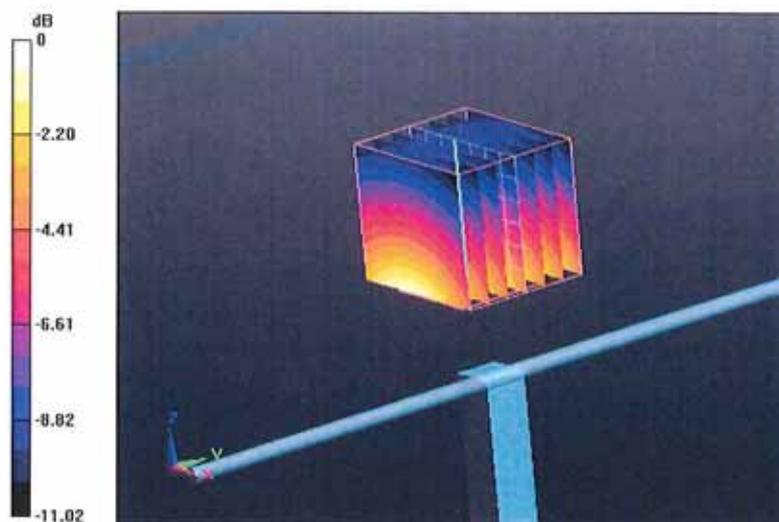
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.263 V/m; Power Drift = 0.0012 dB

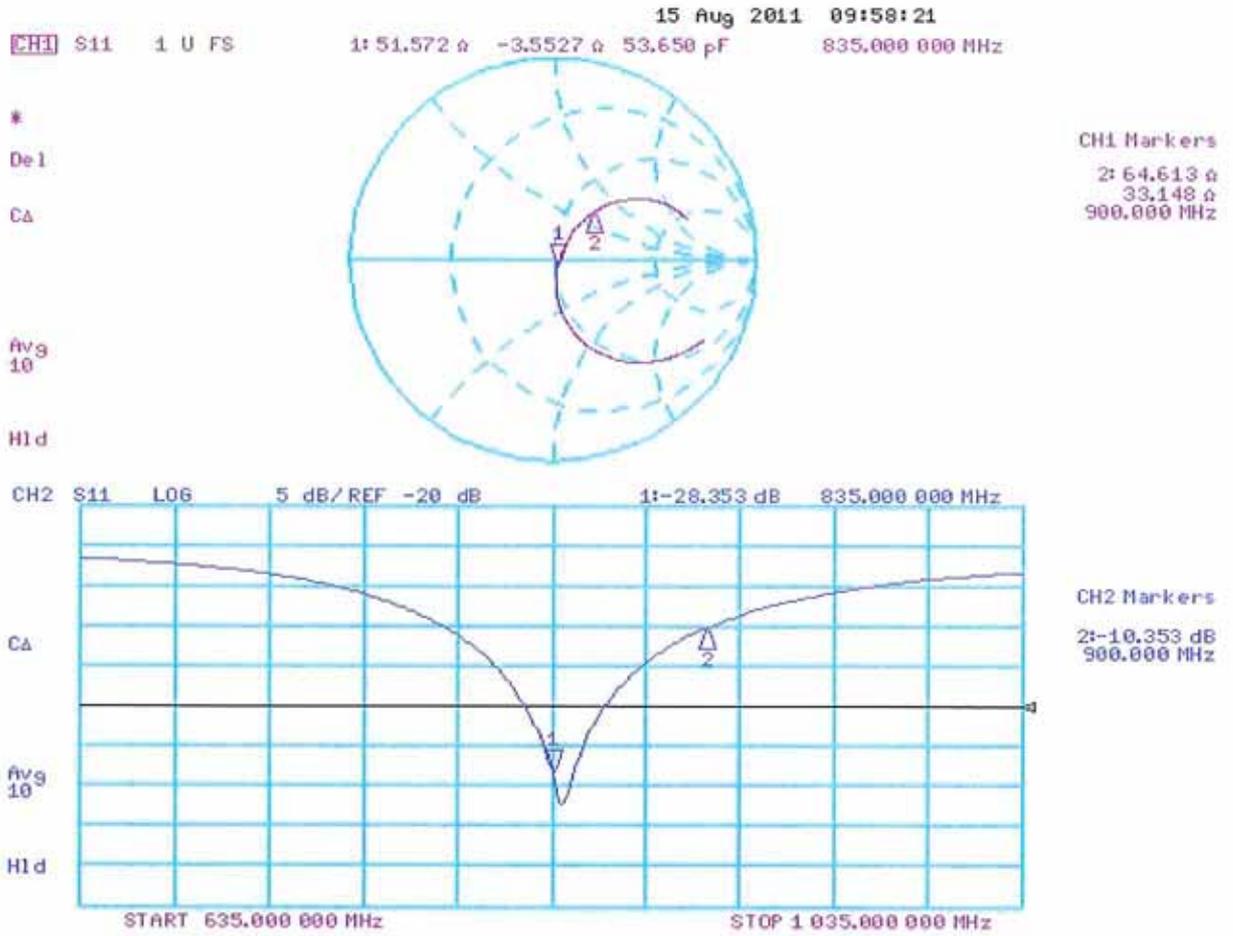
Peak SAR (extrapolated) = 3.420 W/kg

SAR(1 g) = 2.33 mW/g; SAR(10 g) = 1.52 mW/g

Maximum value of SAR (measured) = 2.720 mW/g



Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 15.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d081

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835$ MHz; $\sigma = 0.99$ mho/m; $\epsilon_r = 53.4$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (8x8x7)/Cube 0:

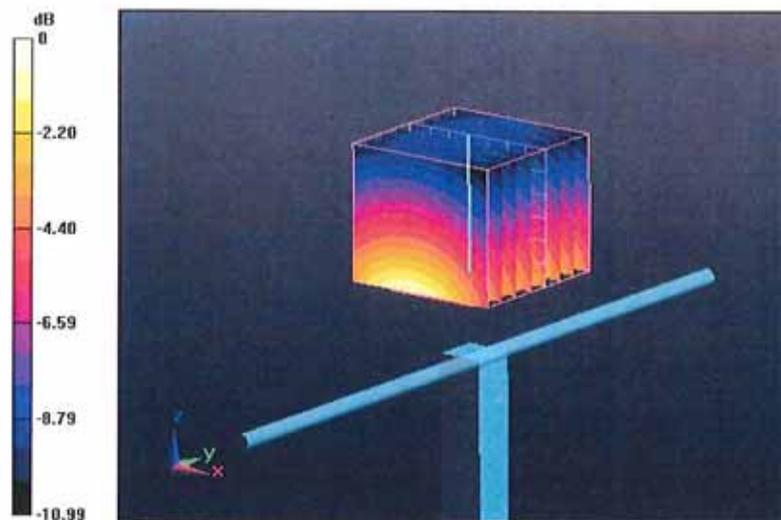
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.623 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 3.575 W/kg

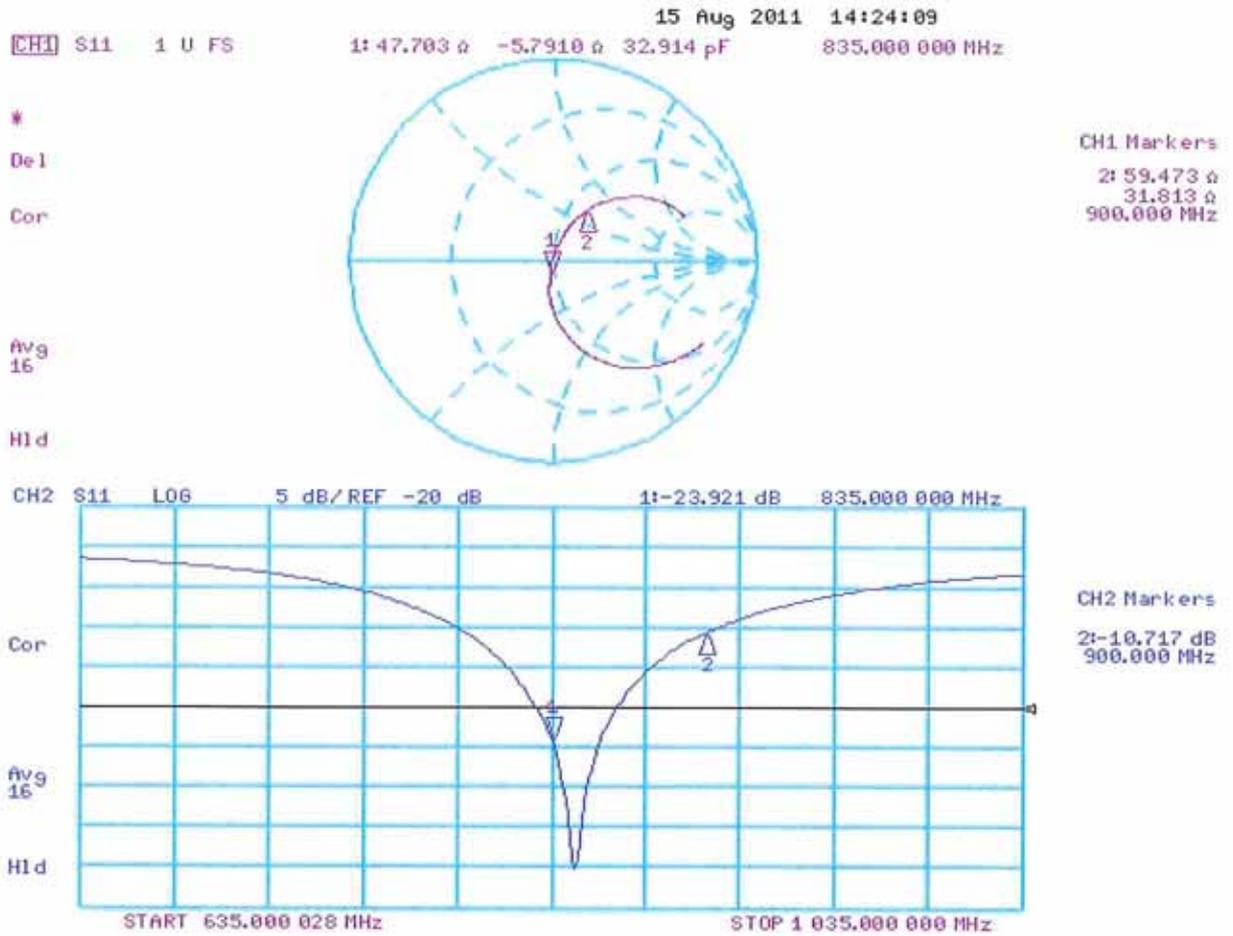
SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.62 mW/g

Maximum value of SAR (measured) = 2.869 mW/g



0 dB = 2.870mW/g

Impedance Measurement Plot for Body TSL





Appendix 4 – System Validation Dipole – D1900V2, S/N: 5d112 Calibration Data



Accredited by the Swiss Accreditation Service (SAS)
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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **JQA (PTT)**

Certificate No: **D1900V2-5d112_Aug11**

CALIBRATION CERTIFICATE

Object **D1900V2 - SN: 5d112**

Calibration procedure(s) **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **August 17, 2011**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by: **Claudio Leubler** **Laboratory Technician**

Signature

Approved by: **Katja Pokovic** **Technical Manager**

Issued: August 17, 2011

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Accredited by the Swiss Accreditation Service (SAS)

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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.5 ± 6 %	1.42 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.2 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	40.3 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.31 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	21.1 mW / g ± 16.5 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.9 ± 6 %	1.57 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.5 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	41.3 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.49 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	21.8 mW / g ± 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.0 Ω + 7.3 j Ω
Return Loss	- 22.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.6 Ω + 7.3 j Ω
Return Loss	- 21.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.206 ns
----------------------------------	----------

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 28, 2008

DASY5 Validation Report for Head TSL

Date: 16.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d112

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.42$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

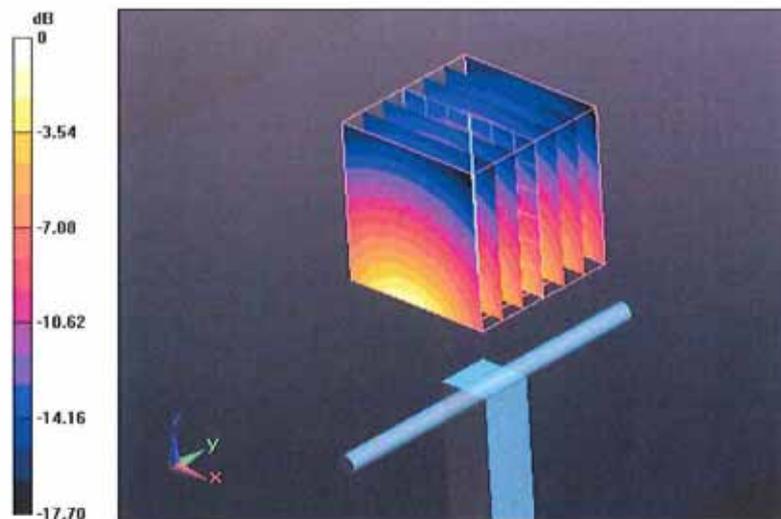
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 97.554 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 18.533 W/kg

SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.31 mW/g

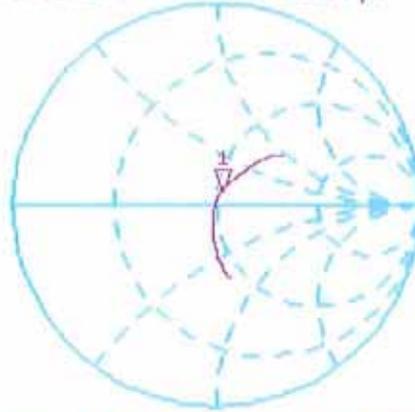
Maximum value of SAR (measured) = 12.515 mW/g



Impedance Measurement Plot for Head TSL

16 Aug 2011 14:57:48
[CH1] S11 1 U FS 1: 52.020 Ω 7.3496 Ω 615.65 μH 1 900.000 000 MHz

*
De l
CA
avg
16



H1 d

CH2 S11 LOG 5 dB/REF -20 dB 1:-22.551 dB 1 900.000 000 MHz

CA
avg
16
H1 d



DASY5 Validation Report for Body TSL

Date: 17.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d112

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.9$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

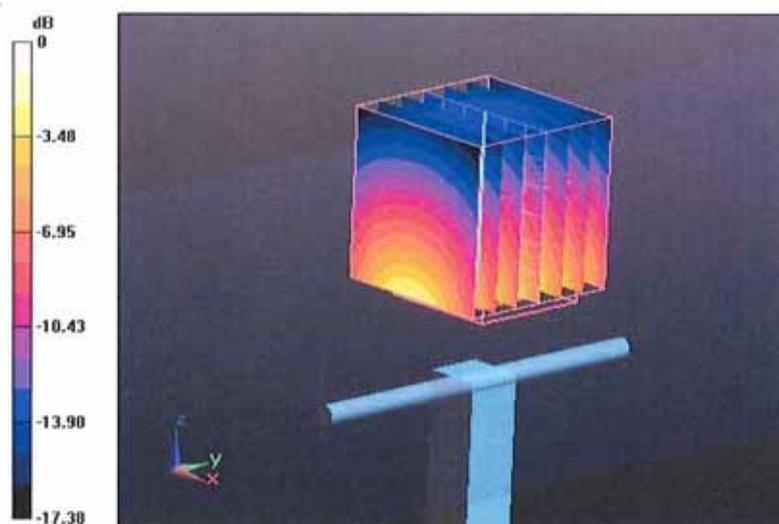
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 96.179 V/m; Power Drift = 0.0043 dB

Peak SAR (extrapolated) = 18.621 W/kg

SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.49 mW/g

Maximum value of SAR (measured) = 13.313 mW/g



Impedance Measurement Plot for Body TSL

