

AWS 1700 Right Tilt Low – Slide down

Date/Time: 2009-3-27 10:28:25

Electronics: DAE4 Sn771

Medium: Head 1800

Medium parameters used (interpolated): $f = 1711.25$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1711.25 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.18, 5.18, 5.18)

Tilt Low/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.415 mW/g

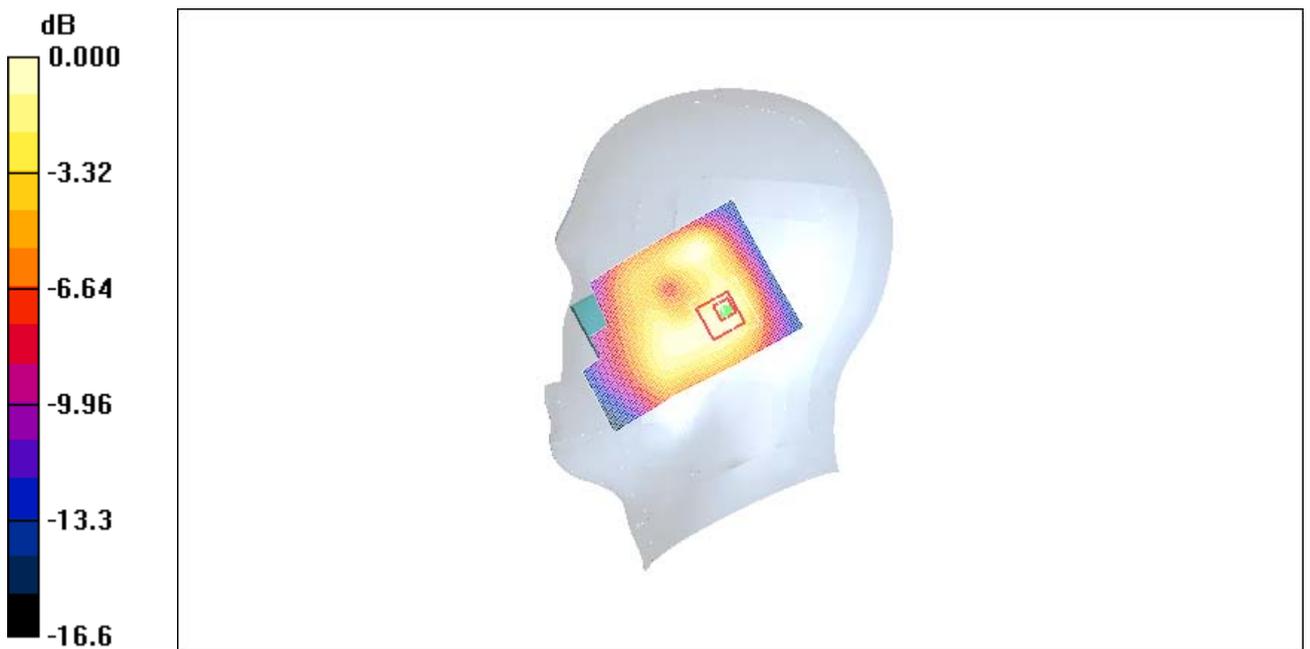
Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.7 V/m; Power Drift = -0.009 dB

Peak SAR (extrapolated) = 0.519 W/kg

SAR(1 g) = 0.359 mW/g; SAR(10 g) = 0.227 mW/g

Maximum value of SAR (measured) = 0.382 mW/g



0 dB = 0.382mW/g

Fig. 71 AWS 1700 MHz CH25 – Slide down

AWS 1700 Left Cheek High – Slide up

Date/Time: 2009-3-27 10:42:45

Electronics: DAE4 Sn771

Medium: Head 1800

Medium parameters used (interpolated): $f = 1753.75$ MHz; $\sigma = 1.37$ mho/m; $\epsilon_r = 41.1$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1753.75 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.18, 5.18, 5.18)

Cheek High/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.621 mW/g

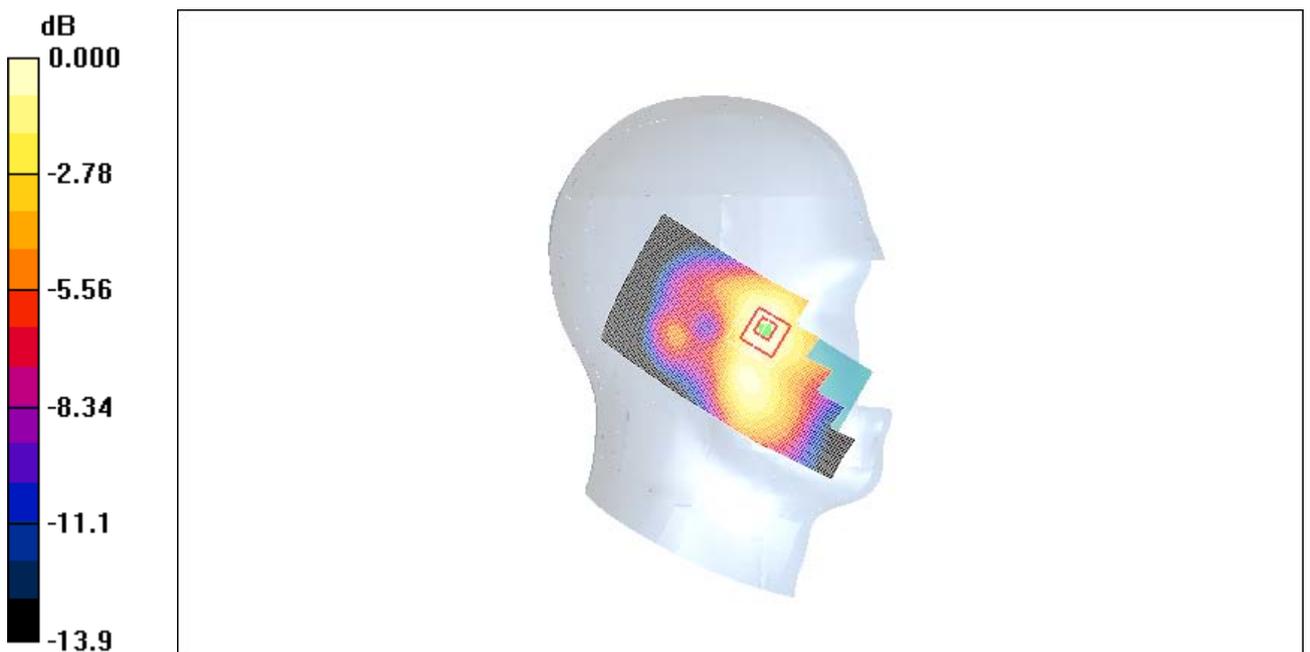
Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.92 V/m; Power Drift = 0.022 dB

Peak SAR (extrapolated) = 0.729 W/kg

SAR(1 g) = 0.589 mW/g; SAR(10 g) = 0.397 mW/g

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



0 dB = 0.618mW/g

Fig. 72 AWS 1700 MHz CH875 – Slide up

AWS 1700 Left Cheek Middle – Slide up

Date/Time: 2009-3-27 10:56:31

Electronics: DAE4 Sn771

Medium: Head 1800

Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.36$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1732.5 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.18, 5.18, 5.18)

Cheek Middle/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.554 mW/g

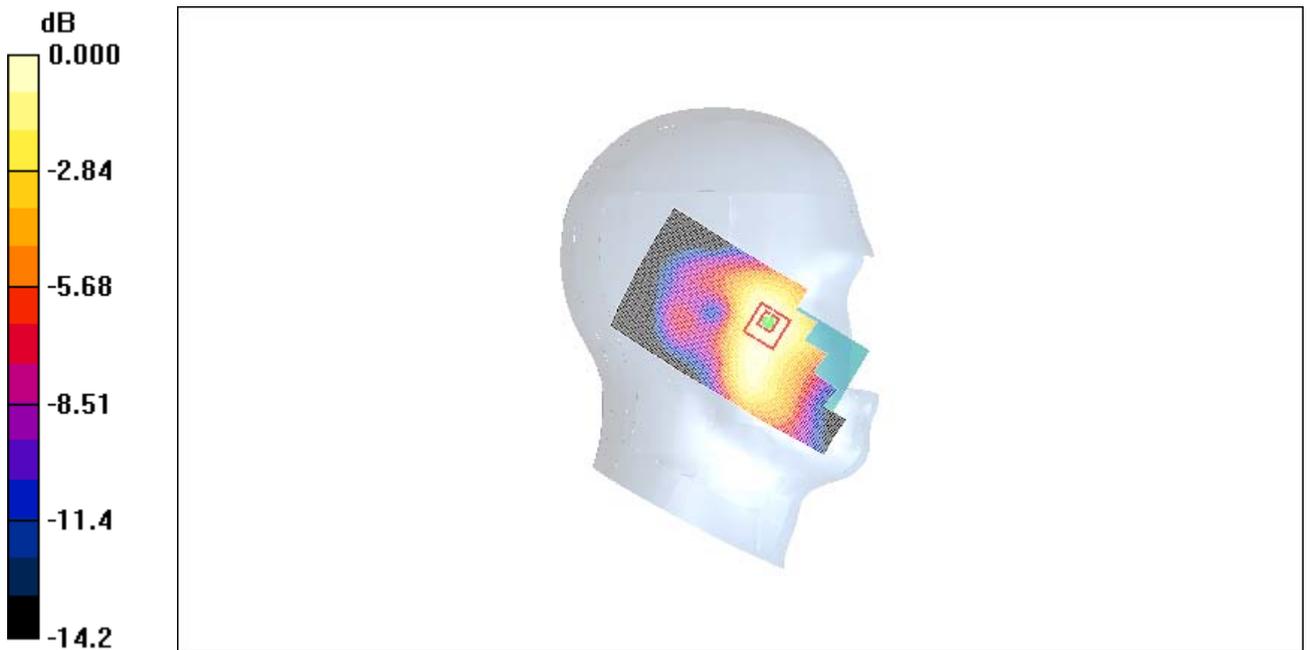
Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.65 V/m; Power Drift = 0.148 dB

Peak SAR (extrapolated) = 0.723 W/kg

SAR(1 g) = 0.513 mW/g; SAR(10 g) = 0.344 mW/g

Maximum value of SAR (measured) = 0.546 mW/g



0 dB = 0.546mW/g

Fig. 73 AWS 1700 MHz CH450 – Slide up

AWS 1700 Left Cheek Low – Slide up

Date/Time: 2009-3-27 11:10:42

Electronics: DAE4 Sn771

Medium: Head 1800

Medium parameters used (interpolated): $f = 1711.25$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1711.25 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.18, 5.18, 5.18)

Cheek Low/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.568 mW/g

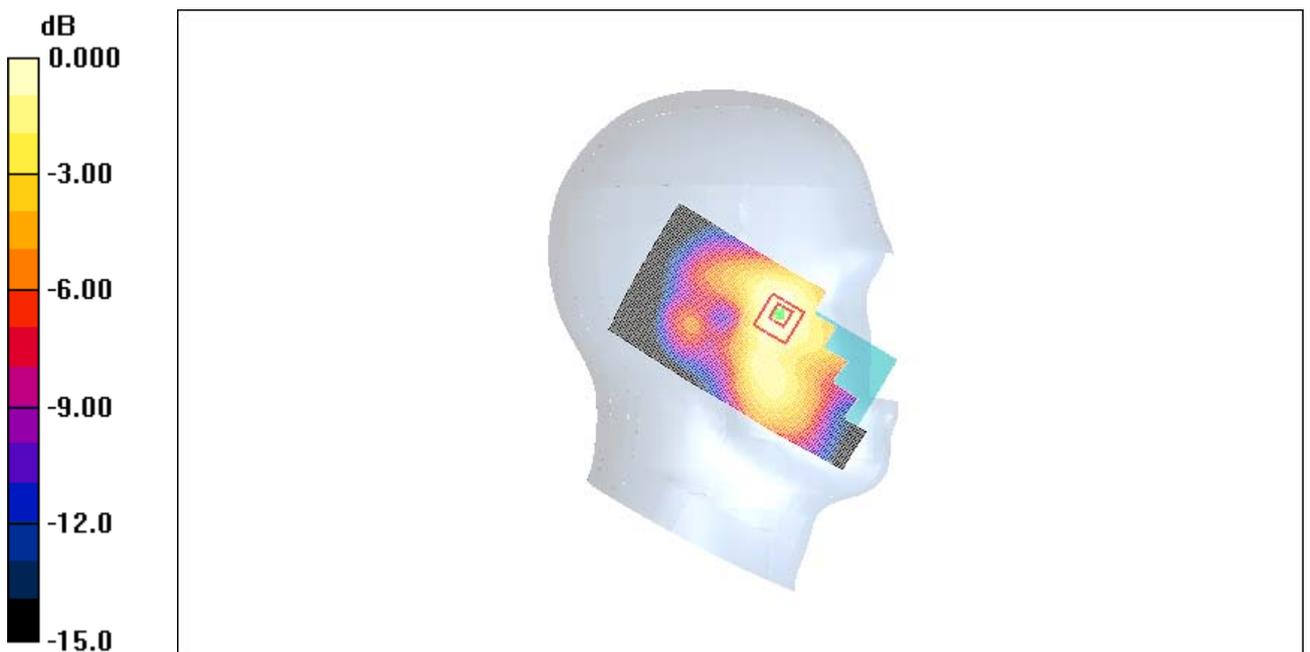
Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.16 V/m; Power Drift = -0.056 dB

Peak SAR (extrapolated) = 0.688 W/kg

SAR(1 g) = 0.532 mW/g; SAR(10 g) = 0.355 mW/g

Maximum value of SAR (measured) = 0.560 mW/g



0 dB = 0.560mW/g

Fig. 74 AWS 1700 MHz CH25 – Slide up

AWS 1700 Left Tilt High – Slide up

Date/Time: 2009-3-27 11:24:30

Electronics: DAE4 Sn771

Medium: Head 1800

Medium parameters used (interpolated): $f = 1753.75$ MHz; $\sigma = 1.37$ mho/m; $\epsilon_r = 41.1$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1753.75 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.18, 5.18, 5.18)

Tilt High/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.314 mW/g

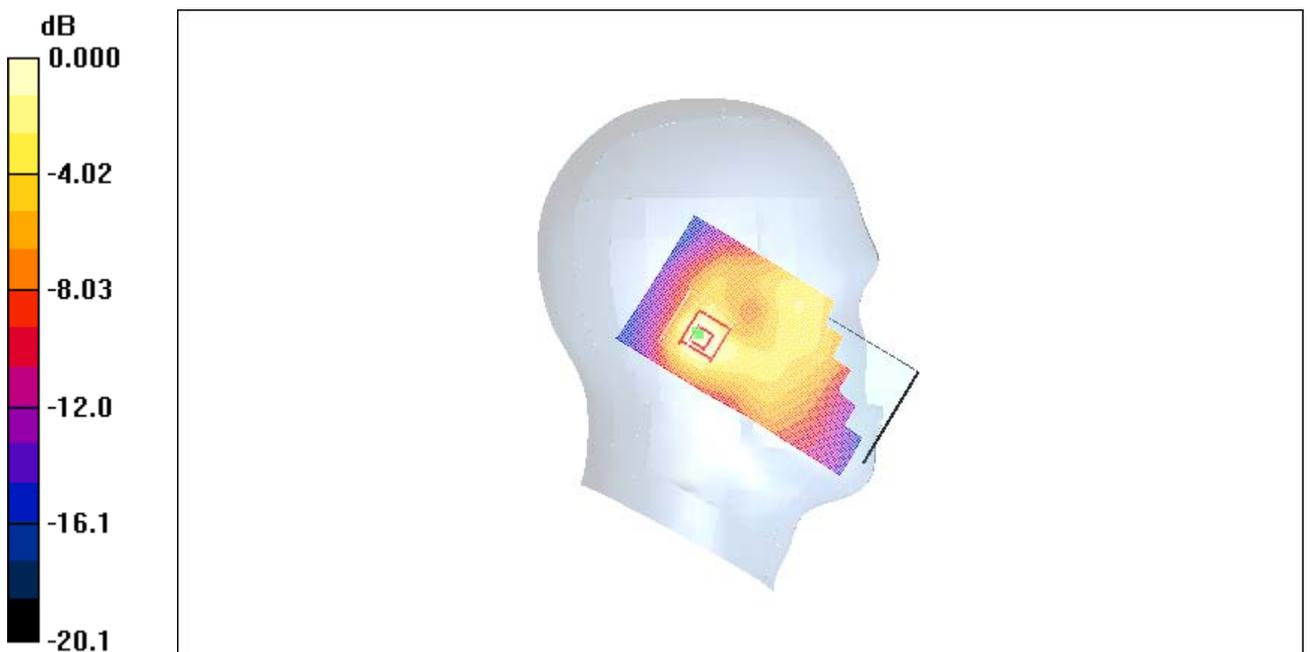
Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.73 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.439 W/kg

SAR(1 g) = 0.284 mW/g; SAR(10 g) = 0.165 mW/g

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



0 dB = 0.301mW/g

Fig. 75 AWS 1700 MHz CH875 – Slide up

AWS 1700 Left Tilt Middle – Slide up

Date/Time: 2009-3-27 11:38:46

Electronics: DAE4 Sn771

Medium: Head 1800

Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.36$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1732.5 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.18, 5.18, 5.18)

Tilt Middle/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.246 mW/g

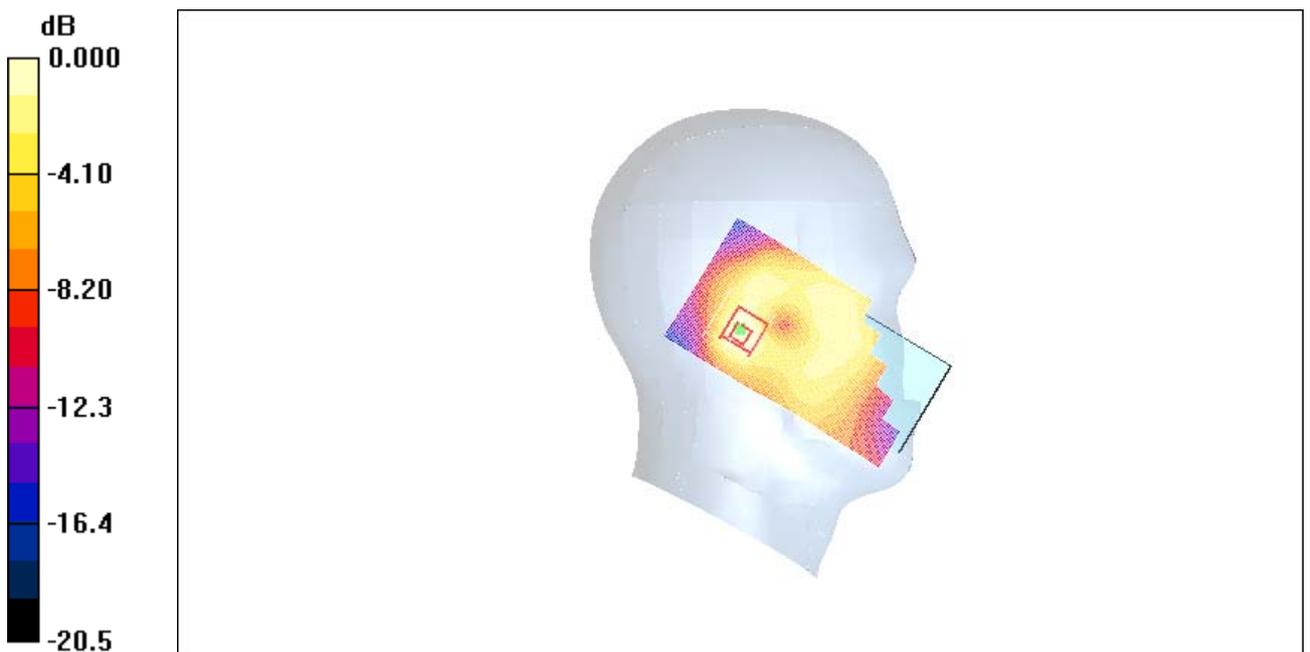
Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.21 V/m; Power Drift = 0.062 dB

Peak SAR (extrapolated) = 0.329 W/kg

SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.120 mW/g

Maximum value of SAR (measured) = 0.221 mW/g



0 dB = 0.221mW/g

Fig. 76 AWS 1700 MHz CH450 – Slide up

AWS 1700 Left Tilt Low – Slide up

Date/Time: 2009-3-27 11:52:16

Electronics: DAE4 Sn771

Medium: Head 1800

Medium parameters used (interpolated): $f = 1711.25$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1711.25 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.18, 5.18, 5.18)

Tilt Low/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.261 mW/g

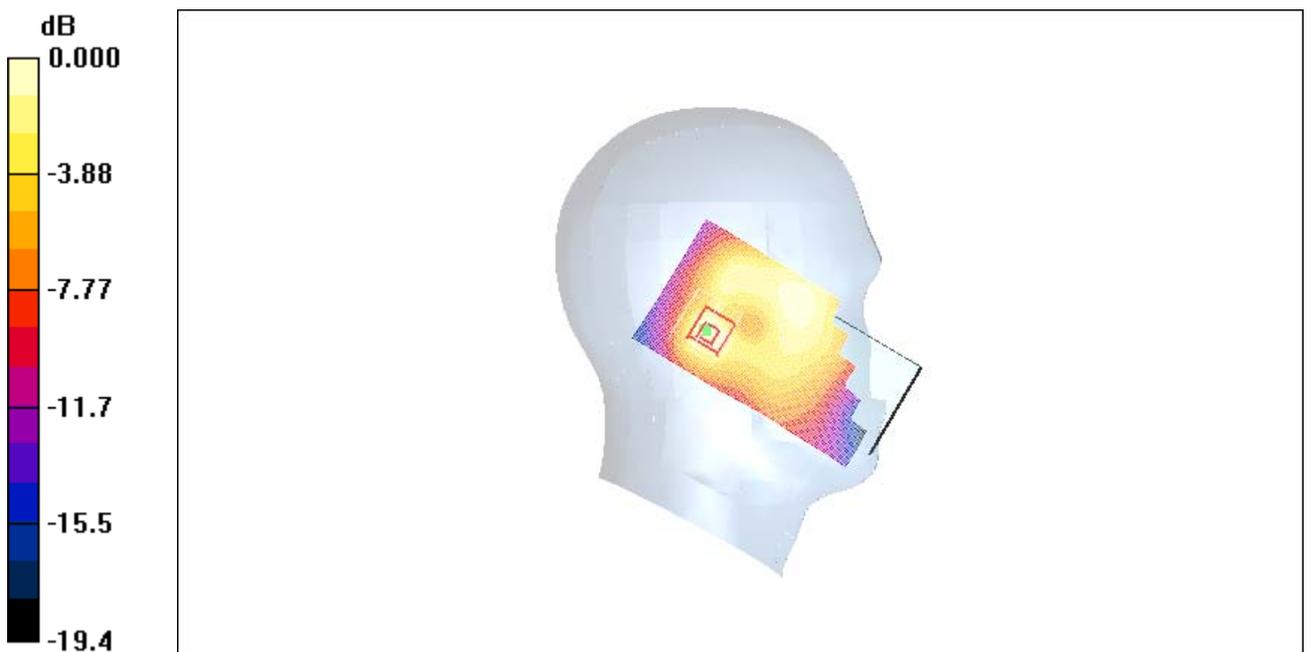
Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.92 V/m; Power Drift = -0.110 dB

Peak SAR (extrapolated) = 0.351 W/kg

SAR(1 g) = 0.225 mW/g; SAR(10 g) = 0.128 mW/g

Maximum value of SAR (measured) = 0.243 mW/g



0 dB = 0.243mW/g

Fig. 77 AWS 1700 MHz CH25 – Slide up

AWS 1700 Right Cheek High – Slide up

Date/Time: 2009-3-27 12:06:34

Electronics: DAE4 Sn771

Medium: Head 1800

Medium parameters used (interpolated): $f = 1753.75$ MHz; $\sigma = 1.37$ mho/m; $\epsilon_r = 41.1$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1753.75 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.18, 5.18, 5.18)

Cheek High/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.924 mW/g

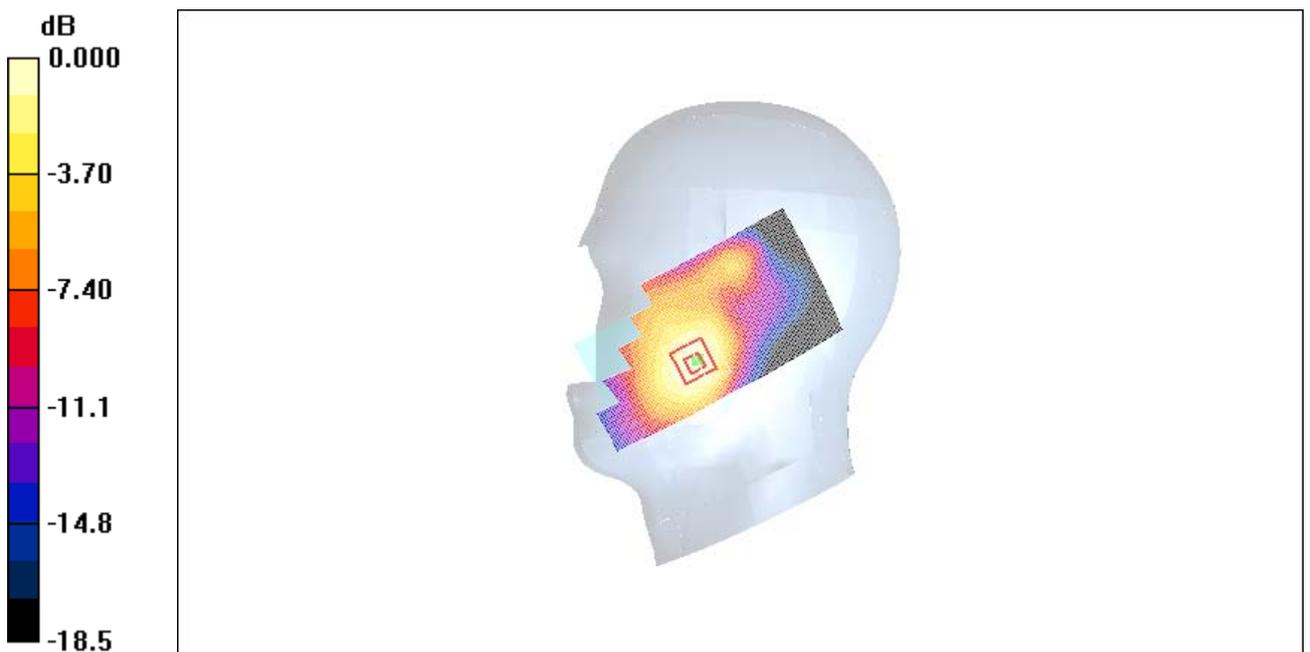
Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.16 V/m; Power Drift = 0.094 dB

Peak SAR (extrapolated) = 1.18 W/kg

SAR(1 g) = 0.825 mW/g; SAR(10 g) = 0.528 mW/g

Maximum value of SAR (measured) = 0.885 mW/g



0 dB = 0.885mW/g

Fig. 78 AWS 1700 MHz CH875 – Slide up

AWS 1700 Right Cheek Middle – Slide up

Date/Time: 2009-3-27 12:20:15

Electronics: DAE4 Sn771

Medium: Head 1800

Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.36$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1732.5 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.18, 5.18, 5.18)

Cheek Middle/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

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

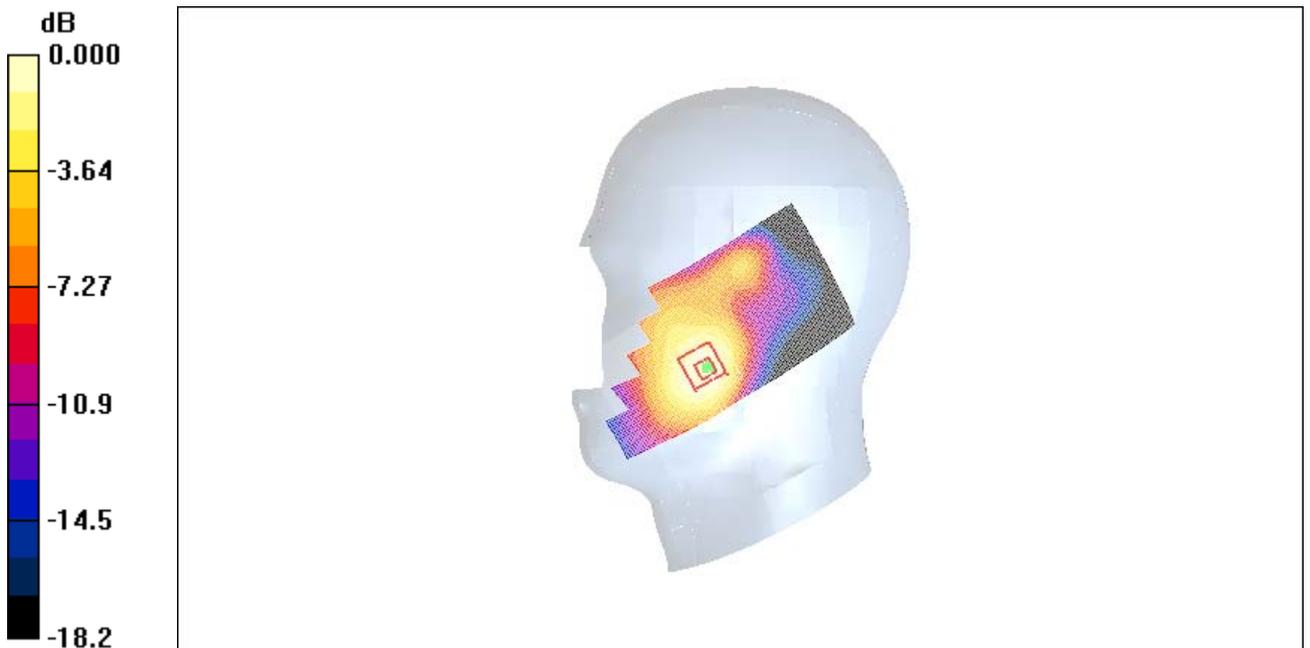
Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.62 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 0.991 W/kg

SAR(1 g) = 0.707 mW/g; SAR(10 g) = 0.457 mW/g

Maximum value of SAR (measured) = 0.761 mW/g



0 dB = 0.761mW/g

Fig. 79 AWS 1700 MHz CH450 – Slide up

AWS 1700 Right Cheek Low – Slide up

Date/Time: 2009-3-27 12:34:48

Electronics: DAE4 Sn771

Medium: Head 1800

Medium parameters used (interpolated): $f = 1711.25$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1711.25 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.18, 5.18, 5.18)

Cheek Low/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.767 mW/g

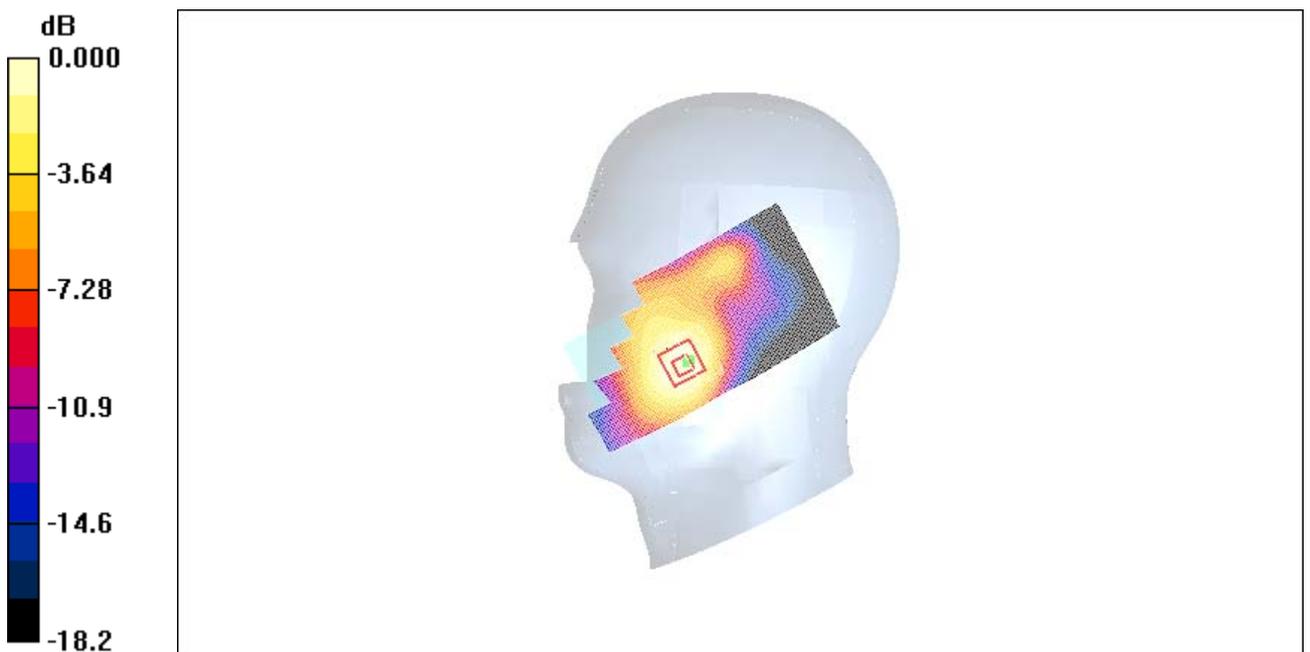
Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.31 V/m; Power Drift = 0.121 dB

Peak SAR (extrapolated) = 1.00 W/kg

SAR(1 g) = 0.709 mW/g; SAR(10 g) = 0.460 mW/g

Maximum value of SAR (measured) = 0.758 mW/g



0 dB = 0.758mW/g

Fig. 80 AWS 1700 MHz CH25 – Slide up

AWS 1700 Right Tilt High – Slide up

Date/Time: 2009-3-27 12:48:29

Electronics: DAE4 Sn771

Medium: Head 1800

Medium parameters used (interpolated): $f = 1753.75$ MHz; $\sigma = 1.37$ mho/m; $\epsilon_r = 41.1$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1753.75 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.18, 5.18, 5.18)

Tilt High/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.525 mW/g

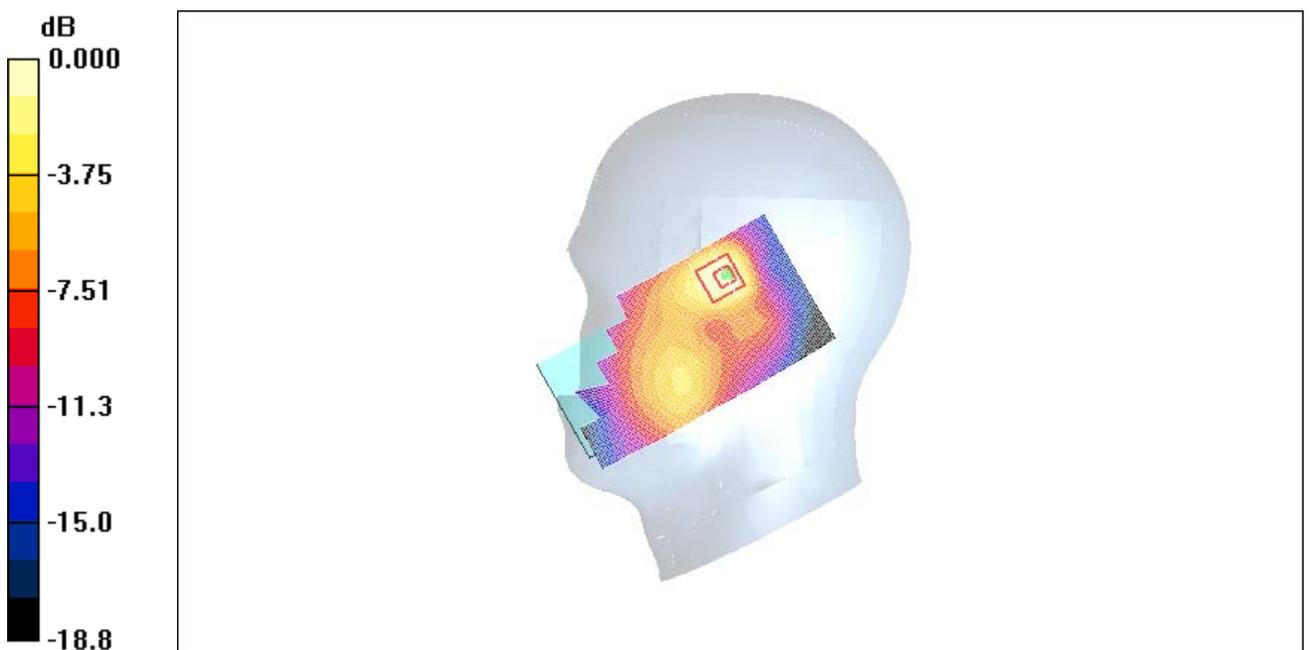
Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.68 V/m; Power Drift = -0.127 dB

Peak SAR (extrapolated) = 0.664 W/kg

SAR(1 g) = 0.405 mW/g; SAR(10 g) = 0.228 mW/g

Maximum value of SAR (measured) = 0.444 mW/g



0 dB = 0.444mW/g

Fig. 81 AWS 1700 MHz CH875 – Slide up

AWS 1700 Right Tilt Middle – Slide up

Date/Time: 2009-3-27 13:02:26

Electronics: DAE4 Sn771

Medium: Head 1800

Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.36$ mho/m; $\epsilon_r = 41.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1732.5 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.18, 5.18, 5.18)

Tilt Middle/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.406 mW/g

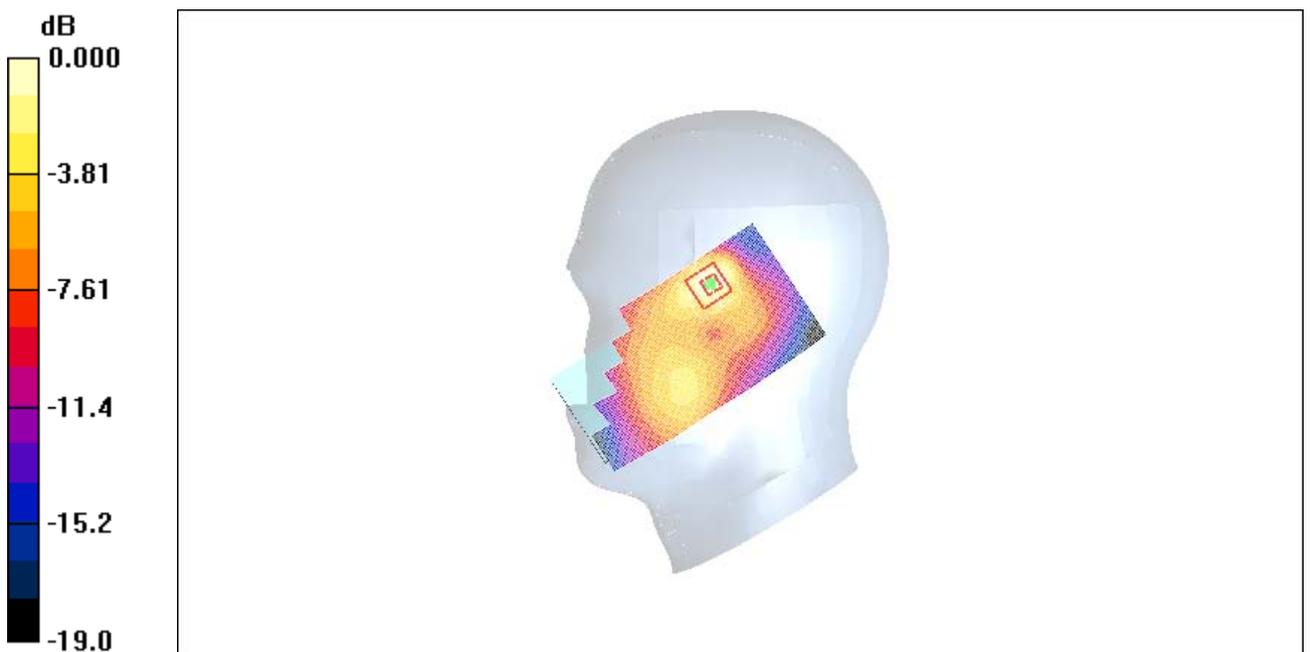
Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.38 V/m; Power Drift = 0.116 dB

Peak SAR (extrapolated) = 0.562 W/kg

SAR(1 g) = 0.344 mW/g; SAR(10 g) = 0.192 mW/g

Maximum value of SAR (measured) = 0.381 mW/g



0 dB = 0.381mW/g

Fig. 82 AWS 1700 MHz CH450 – Slide up

AWS 1700 Right Tilt Low – Slide up

Date/Time: 2009-3-27 13:16:04

Electronics: DAE4 Sn771

Medium: Head 1800

Medium parameters used (interpolated): $f = 1711.25$ MHz; $\sigma = 1.34$ mho/m; $\epsilon_r = 41.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1711.25 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.18, 5.18, 5.18)

Tilt Low/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.440 mW/g

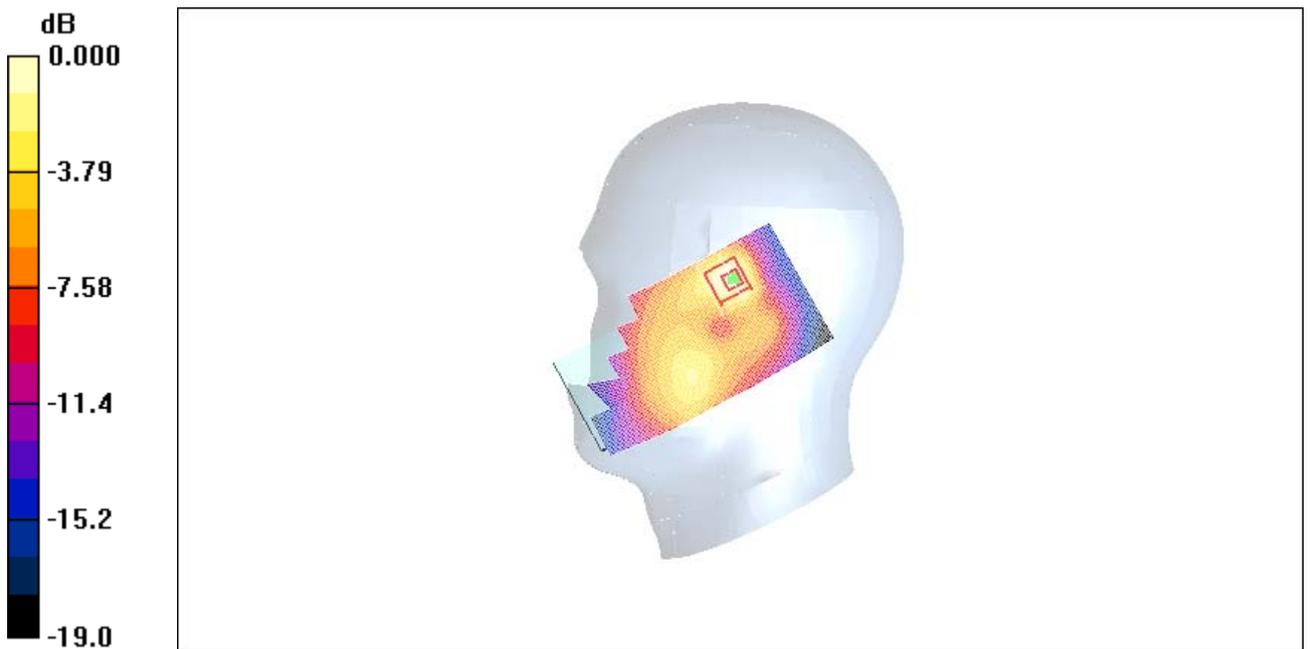
Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.84 V/m; Power Drift = -0.158 dB

Peak SAR (extrapolated) = 0.610 W/kg

SAR(1 g) = 0.348 mW/g; SAR(10 g) = 0.194 mW/g

Maximum value of SAR (measured) = 0.386 mW/g



0 dB = 0.386mW/g

Fig. 83 AWS 1700 MHz CH25 – Slide up

AWS 1700 Body Towards Phantom High – Slide down

Date/Time: 2009-3-27 13:37:14

Electronics: DAE4 Sn771

Medium: Body 1800

Medium parameters used (interpolated): $f = 1753.75$ MHz; $\sigma = 1.50$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1753.75 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(4.97, 4.97, 4.97)

Towards Phantom High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.357 mW/g

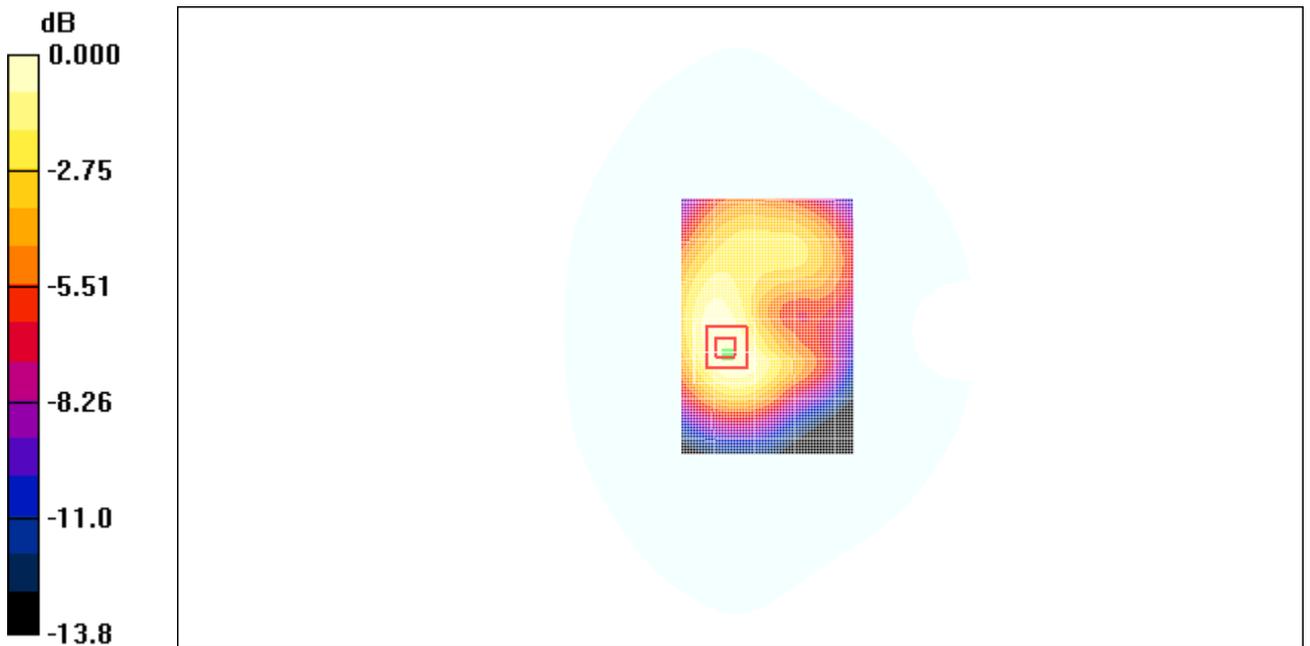
Towards Phantom High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.2 V/m; Power Drift = 0.029 dB

Peak SAR (extrapolated) = 0.483 W/kg

SAR(1 g) = 0.330 mW/g; SAR(10 g) = 0.218 mW/g

Maximum value of SAR (measured) = 0.353 mW/g



0 dB = 0.353mW/g

Fig. 84 AWS 1700 MHz CH875 – Slide down

AWS 1700 Body Towards Phantom Middle – Slide down

Date/Time: 2009-3-27 13:51:22

Electronics: DAE4 Sn771

Medium: Body 1800

Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1732.5 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(4.97, 4.97, 4.97)

Towards Phantom Middle/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.311 mW/g

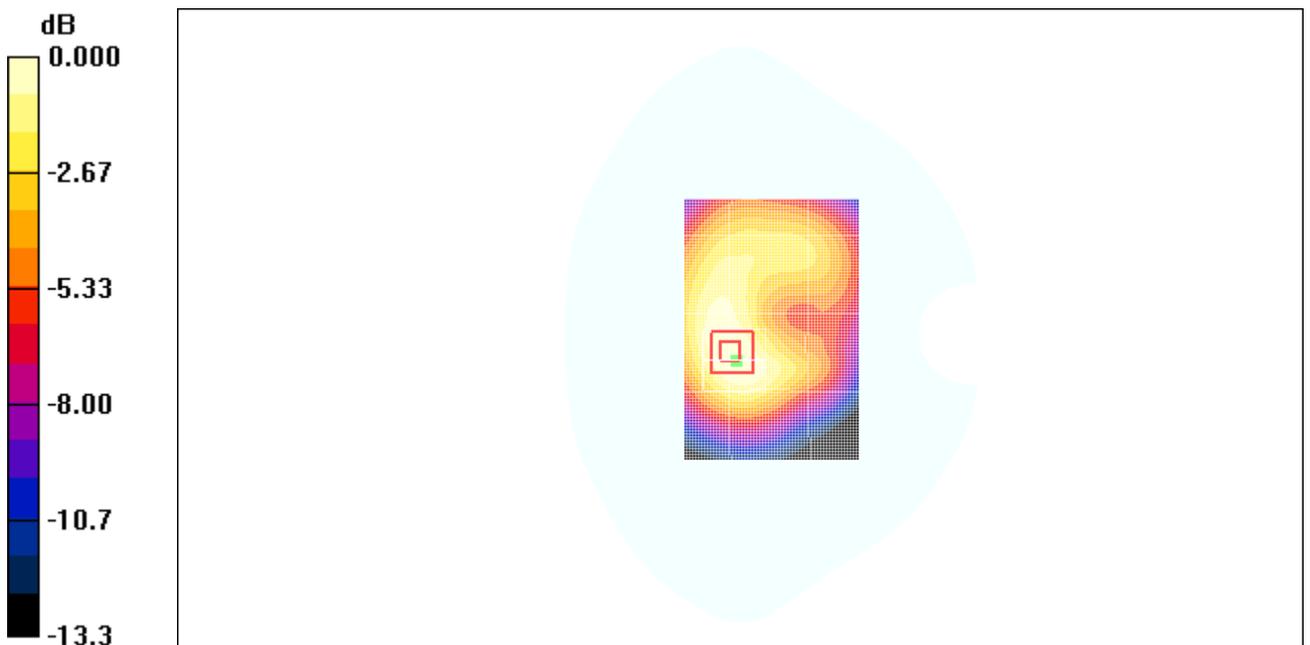
Towards Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.89 V/m; Power Drift = -0.024 dB

Peak SAR (extrapolated) = 0.410 W/kg

SAR(1 g) = 0.280 mW/g; SAR(10 g) = 0.186 mW/g

Maximum value of SAR (measured) = 0.300 mW/g



0 dB = 0.300mW/g

Fig. 85 AWS 1700 MHz CH450 – Slide down

AWS 1700 Body Towards Phantom Low – Slide down

Date/Time: 2009-3-27 14:05:58

Electronics: DAE4 Sn771

Medium: Body 1800

Medium parameters used (interpolated): $f = 1711.25$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1711.25 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(4.97, 4.97, 4.97)

Towards Phantom Low/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.314 mW/g

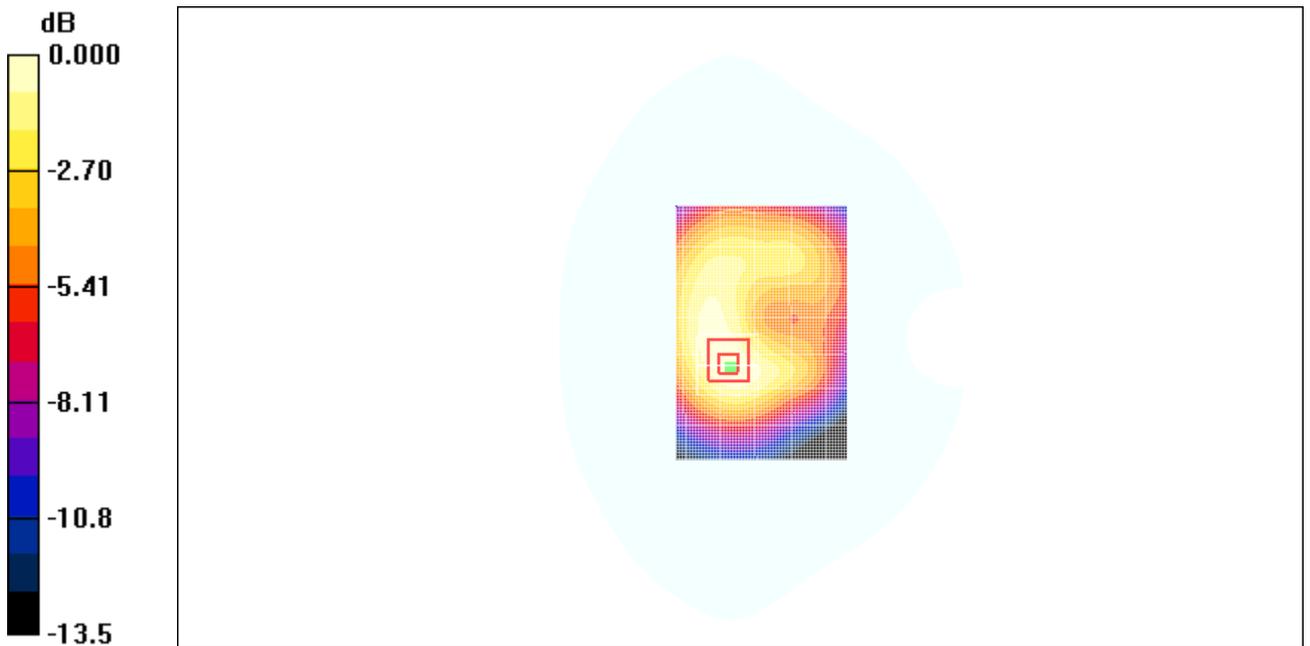
Towards Phantom Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.3 V/m; Power Drift = 0.083 dB

Peak SAR (extrapolated) = 0.415 W/kg

SAR(1 g) = 0.287 mW/g; SAR(10 g) = 0.192 mW/g

Maximum value of SAR (measured) = 0.310 mW/g



0 dB = 0.310mW/g

Fig. 86 AWS 1700 MHz CH25 – Slide down

AWS 1700 Body Towards Ground High – Slide down

Date/Time: 2009-3-27 14:19:51

Electronics: DAE4 Sn771

Medium: Body 1800

Medium parameters used (interpolated): $f = 1753.75$ MHz; $\sigma = 1.50$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1753.75 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(4.97, 4.97, 4.97)

Towards Ground High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.23 mW/g

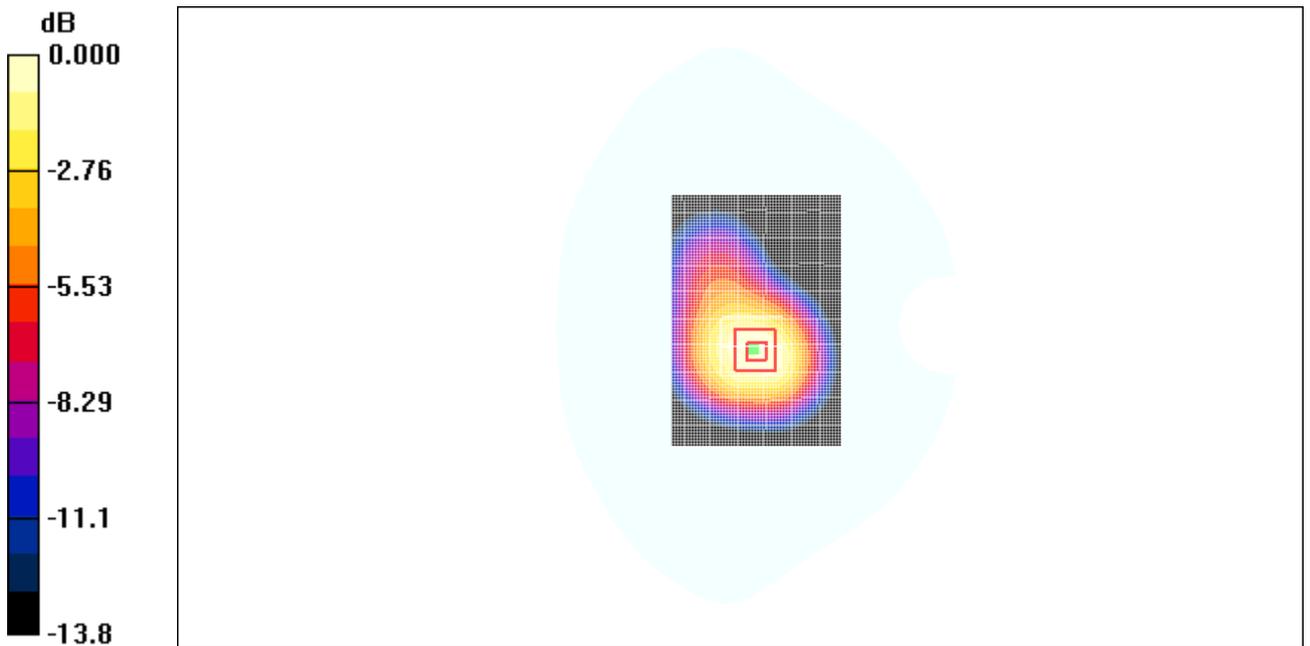
Towards Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.8 V/m; Power Drift = 0.138 dB

Peak SAR (extrapolated) = 1.77 W/kg

SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.714 mW/g

Maximum value of SAR (measured) = 1.22 mW/g



0 dB = 1.22mW/g

Fig. 87 AWS 1700 MHz CH875 – Slide down

AWS 1700 Body Towards Ground Middle – Slide down

Date/Time: 2009-3-27 14:33:38

Electronics: DAE4 Sn771

Medium: Body 1800

Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1732.5 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(4.97, 4.97, 4.97)

Towards Ground Middle/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.09 mW/g

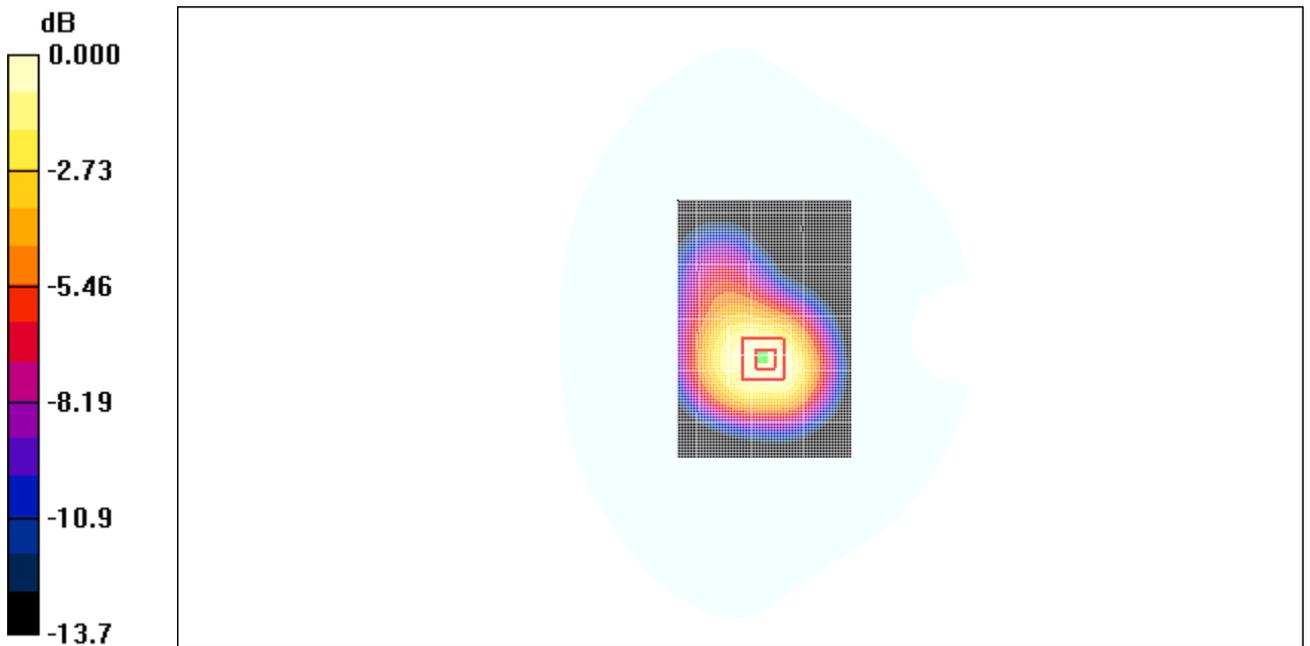
Towards Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.5 V/m; Power Drift = -0.055 dB

Peak SAR (extrapolated) = 1.54 W/kg

SAR(1 g) = 0.988 mW/g; SAR(10 g) = 0.621 mW/g

Maximum value of SAR (measured) = 1.06 mW/g



0 dB = 1.06mW/g

Fig. 88 AWS 1700 MHz CH450 – Slide down

AWS 1700 Body Towards Ground Low – Slide down

Date/Time: 2009-3-27 14:47:21

Electronics: DAE4 Sn771

Medium: Body 1800

Medium parameters used (interpolated): $f = 1711.25$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1711.25 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(4.97, 4.97, 4.97)

Towards Ground Low/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.28 mW/g

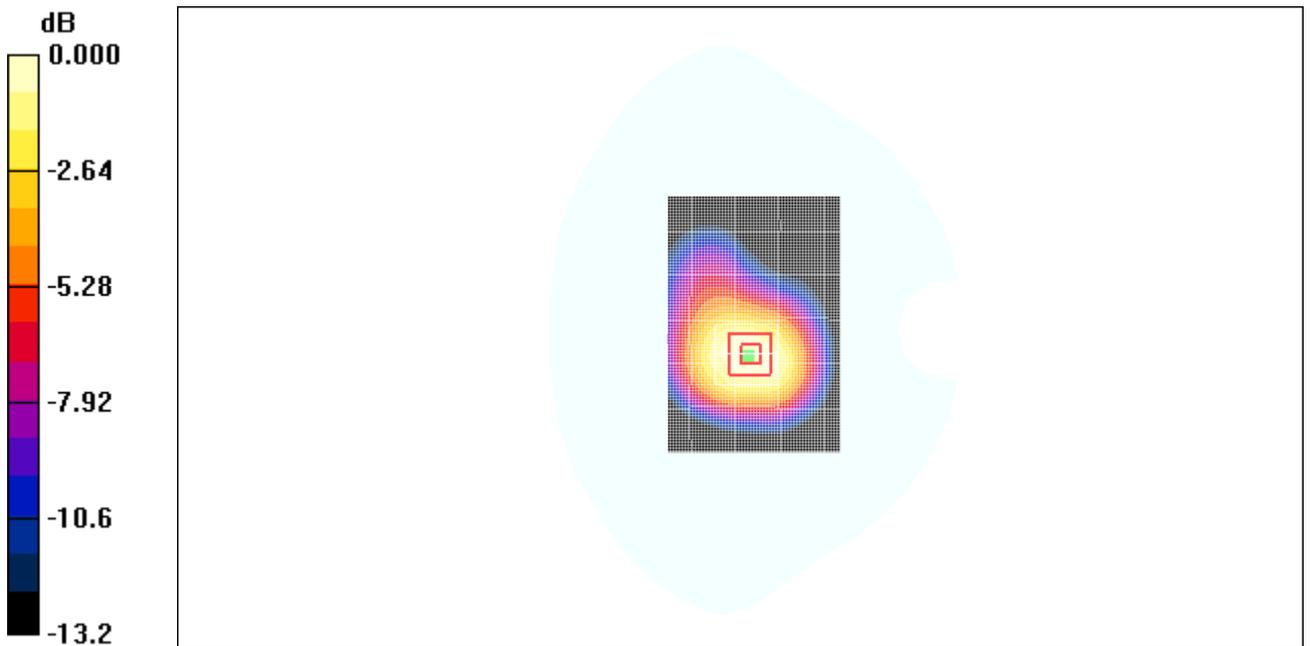
Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 25.6 V/m; Power Drift = -0.041 dB

Peak SAR (extrapolated) = 1.82 W/kg

SAR(1 g) = 1.19 mW/g; SAR(10 g) = 0.747 mW/g

Maximum value of SAR (measured) = 1.28 mW/g



0 dB = 1.28mW/g

Fig. 89 AWS 1700 MHz CH25 – Slide down

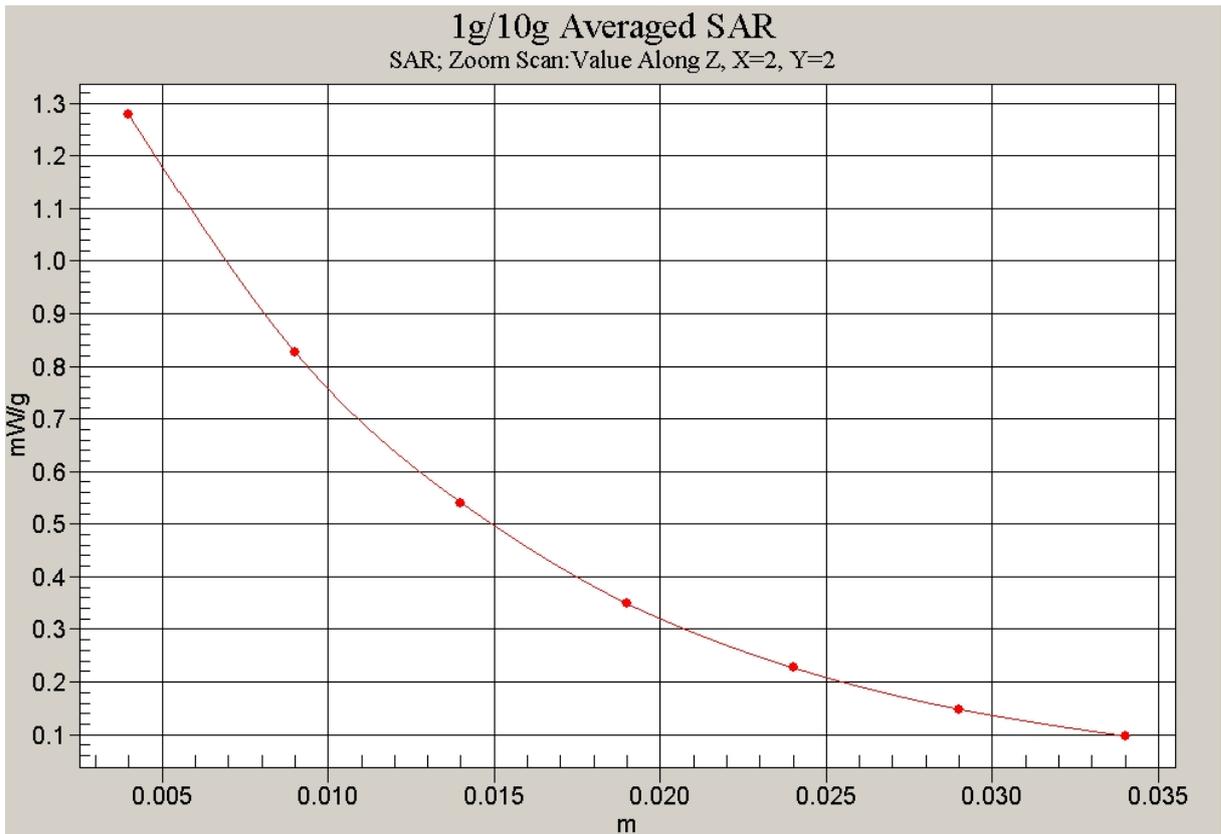


Fig. 90 Z-Scan at power reference point (AWS 1700MHz, Body, Towards Ground, CH25)

AWS 1700 Body Towards Phantom High – Slide up

Date/Time: 2009-3-27 15:01:14

Electronics: DAE4 Sn771

Medium: Body 1800

Medium parameters used (interpolated): $f = 1753.75$ MHz; $\sigma = 1.50$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1753.75 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(4.97, 4.97, 4.97)

Towards Phantom High/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.356 mW/g

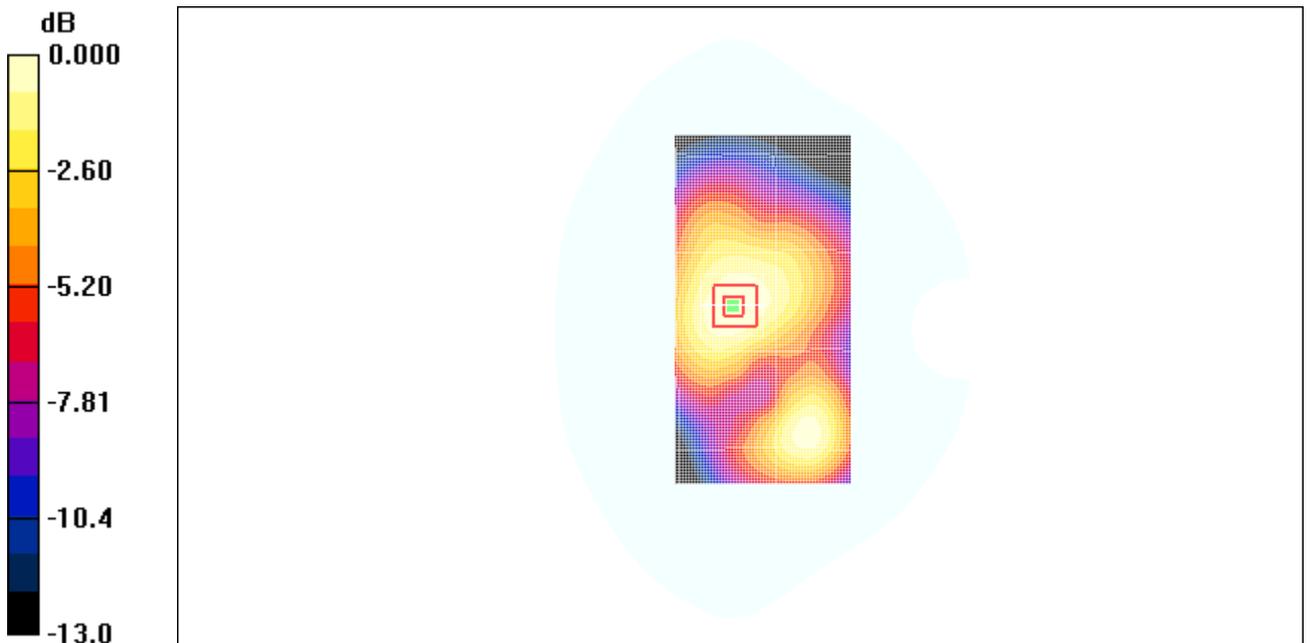
Towards Phantom High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.1 V/m; Power Drift = 0.157 dB

Peak SAR (extrapolated) = 0.480 W/kg

SAR(1 g) = 0.330 mW/g; SAR(10 g) = 0.220 mW/g

Maximum value of SAR (measured) = 0.352 mW/g



0 dB = 0.352mW/g

Fig. 91 AWS 1700 MHz CH875 – Slide up

AWS 1700 Body Towards Phantom Middle – Slide up

Date/Time: 2009-3-27 15:16:47

Electronics: DAE4 Sn771

Medium: Body 1800

Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1732.5 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(4.97, 4.97, 4.97)

Towards Phantom Middle/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.339 mW/g

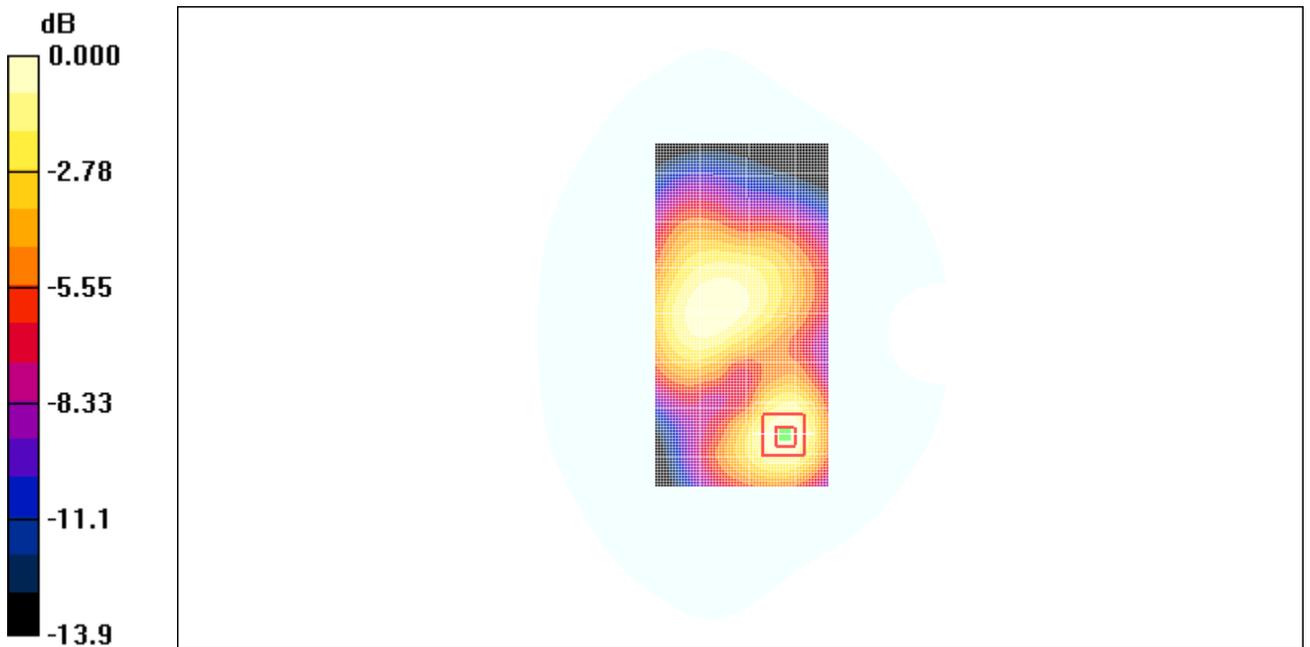
Towards Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.4 V/m; Power Drift = 0.057 dB

Peak SAR (extrapolated) = 0.474 W/kg

SAR(1 g) = 0.313 mW/g; SAR(10 g) = 0.194 mW/g

Maximum value of SAR (measured) = 0.339 mW/g



0 dB = 0.339mW/g

Fig. 92 AWS 1700 MHz CH450 – Slide up

AWS 1700 Body Towards Phantom Low – Slide up

Date/Time: 2009-3-27 15:30:32

Electronics: DAE4 Sn771

Medium: Body 1800

Medium parameters used (interpolated): $f = 1711.25$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1711.25 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(4.97, 4.97, 4.97)

Towards Phantom Low/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.353 mW/g

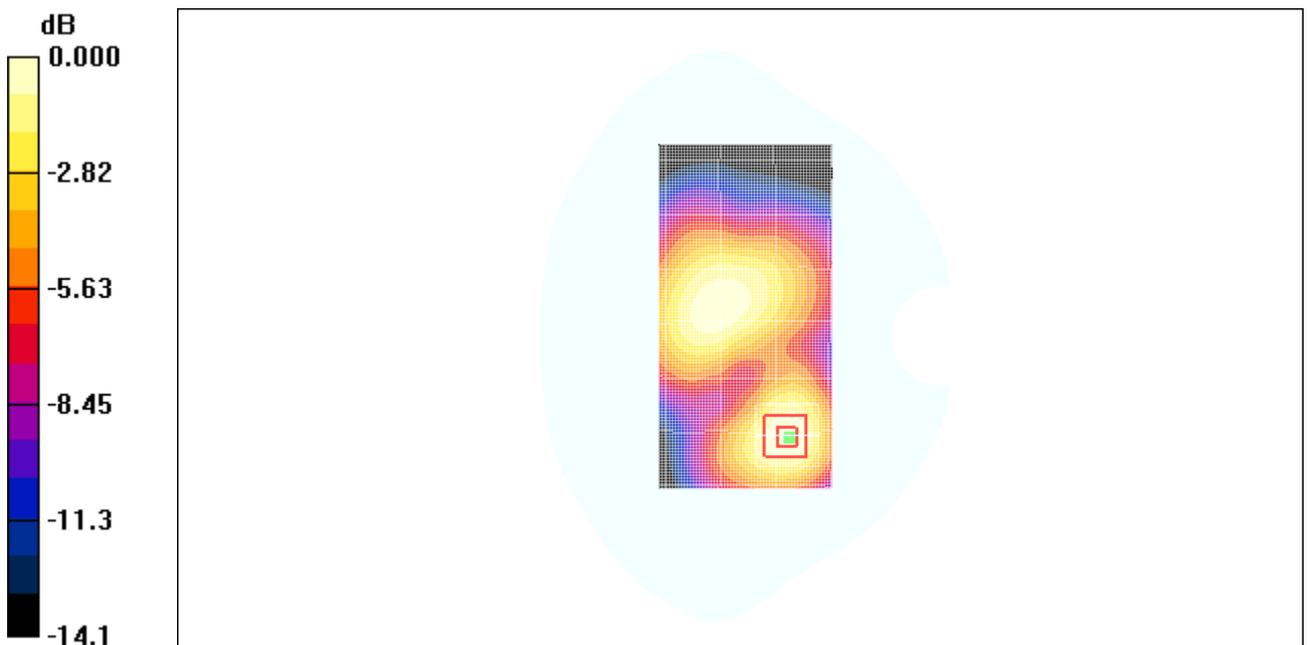
Towards Phantom Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.0 V/m; Power Drift = 0.044 dB

Peak SAR (extrapolated) = 0.483 W/kg

SAR(1 g) = 0.324 mW/g; SAR(10 g) = 0.206 mW/g

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



0 dB = 0.350mW/g

Fig. 93 AWS 1700 MHz CH25 – Slide up

AWS 1700 Body Towards Ground High – Slide up

Date/Time: 2009-3-27 15:44:08

Electronics: DAE4 Sn771

Medium: Body 1800

Medium parameters used (interpolated): $f = 1753.75$ MHz; $\sigma = 1.50$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1753.75 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(4.97, 4.97, 4.97)

Towards Ground High/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.701 mW/g

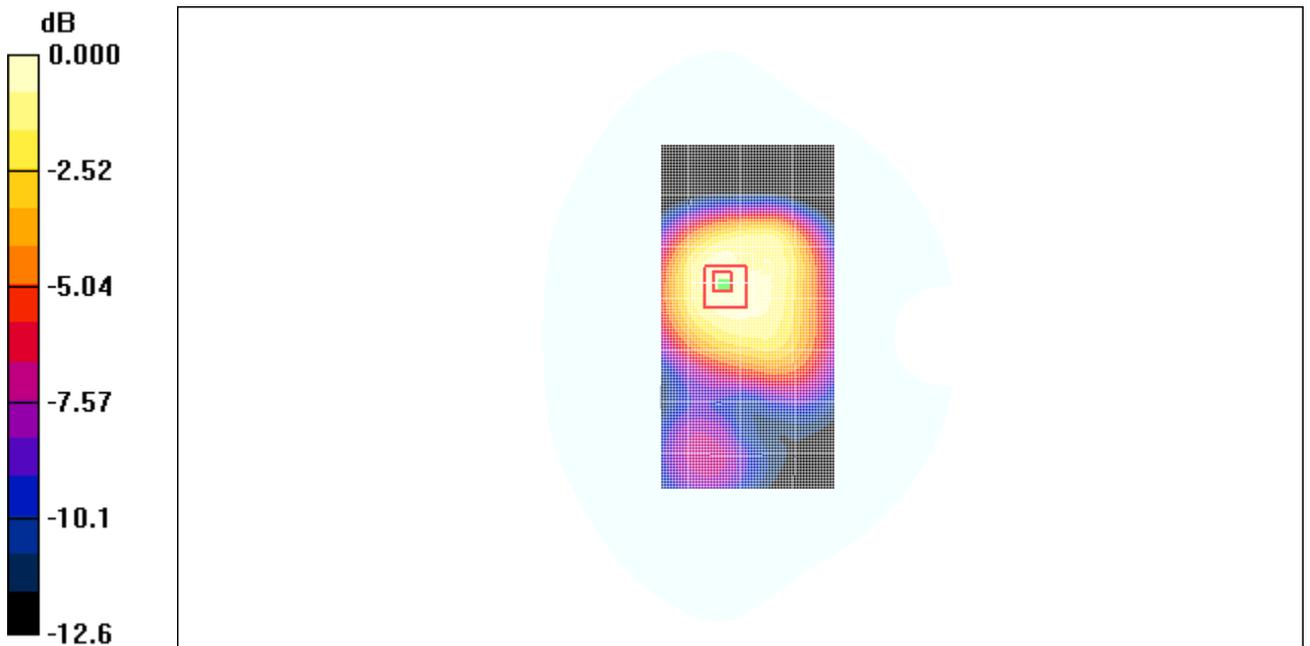
Towards Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.5 V/m; Power Drift = -0.074 dB

Peak SAR (extrapolated) = 0.972 W/kg

SAR(1 g) = 0.649 mW/g; SAR(10 g) = 0.426 mW/g

Maximum value of SAR (measured) = 0.697 mW/g



0 dB = 0.697mW/g

Fig. 94 AWS 1700 MHz CH875 – Slide up

AWS 1700 Body Towards Ground Middle – Slide up

Date/Time: 2009-3-27 15:58:24

Electronics: DAE4 Sn771

Medium: Body 1800

Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1732.5 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(4.97, 4.97, 4.97)

Towards Ground Middle/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.642 mW/g

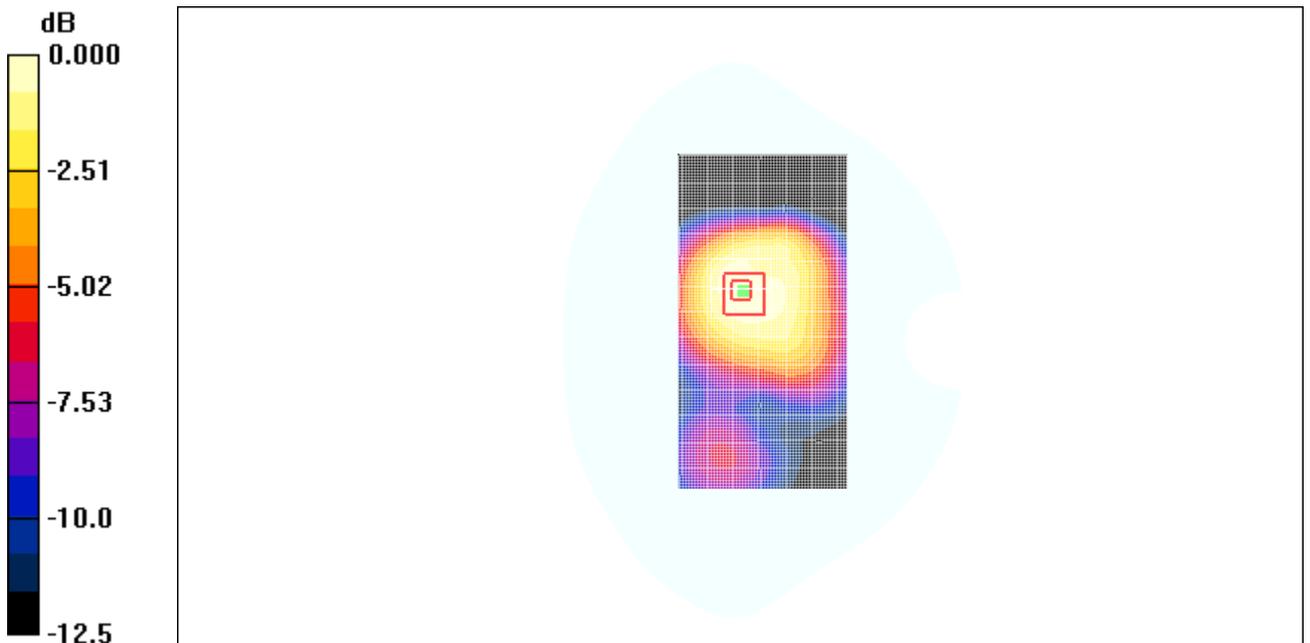
Towards Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.7 V/m; Power Drift = 0.106 dB

Peak SAR (extrapolated) = 0.892 W/kg

SAR(1 g) = 0.600 mW/g; SAR(10 g) = 0.397 mW/g

Maximum value of SAR (measured) = 0.641 mW/g



0 dB = 0.641mW/g

Fig. 95 AWS 1700 MHz CH450 – Slide up

AWS 1700 Body Towards Ground Low – Slide up

Date/Time: 2009-3-27 16:12:45

Electronics: DAE4 Sn771

Medium: Body 1800

Medium parameters used (interpolated): $f = 1711.25$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 52.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CDMA 1700 Frequency: 1711.25 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(4.97, 4.97, 4.97)

Towards Ground Low/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.682 mW/g

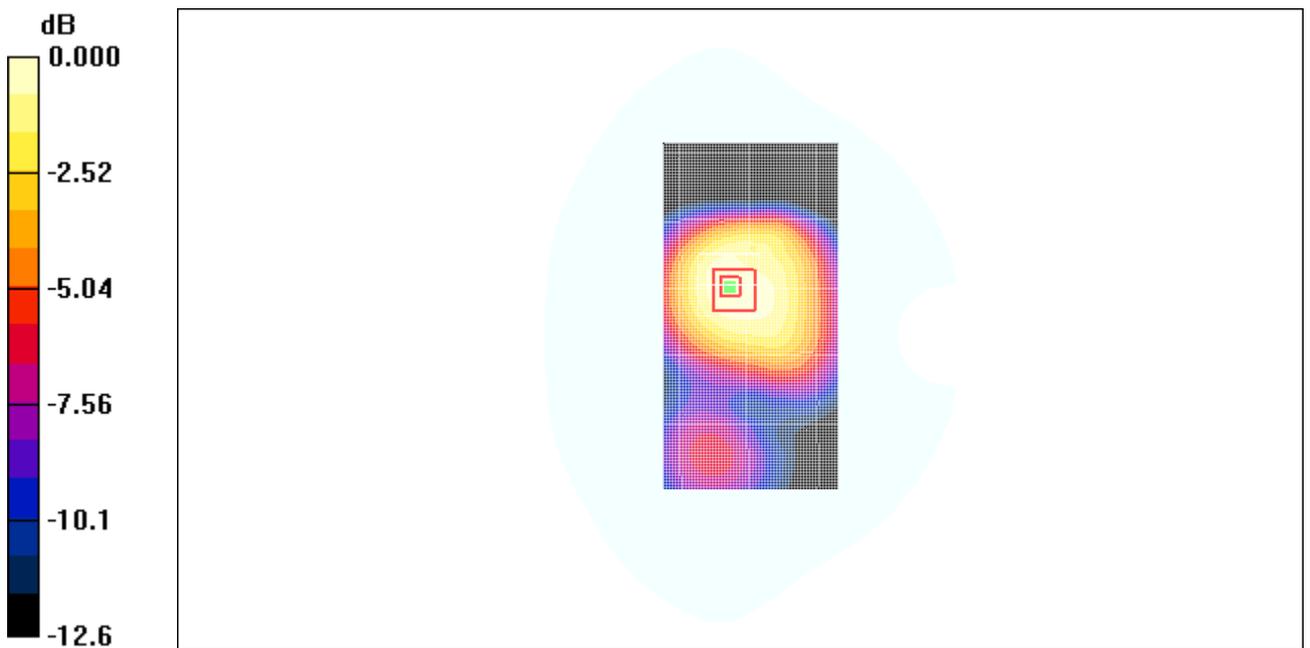
Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.5 V/m; Power Drift = -0.061 dB

Peak SAR (extrapolated) = 0.910 W/kg

SAR(1 g) = 0.629 mW/g; SAR(10 g) = 0.419 mW/g

Maximum value of SAR (measured) = 0.673 mW/g



0 dB = 0.673mW/g

Fig. 96 AWS 1700 MHz CH25 – Slide up

ANNEX D SYSTEM VALIDATION RESULTS

835MHz

Date/Time: 2009-3-25 7:34:02

Electronics: DAE4 Sn771

Medium: Head 835

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.90 \text{ mho/m}$; $\epsilon_r = 40.4$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

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

Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

835MHz/Area Scan (101x101x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 2.68 mW/g

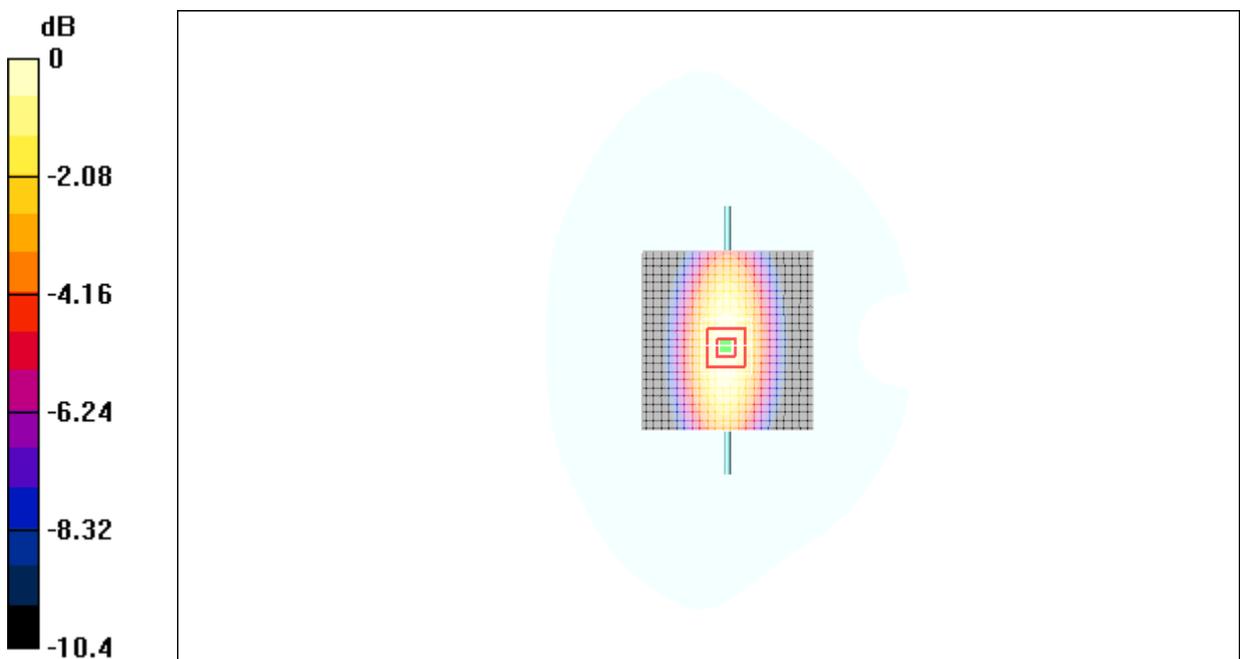
835MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 56.8 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.67 W/kg

SAR(1 g) = 2.50 mW/g; SAR(10 g) = 1.62 mW/g

Maximum value of SAR (measured) = 2.69 mW/g



0 dB = 2.69mW/g

Fig.97 validation 835MHz 250mW

1900MHz

Date/Time: 2009-3-26 7:21:19

Electronics: DAE4 Sn771

Medium: Head 1900

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.42 \text{ mho/m}$; $\epsilon_r = 39.2$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

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

Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

System Validation/Area Scan (101x101x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$
Maximum value of SAR (interpolated) = 11.2 mW/g

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

Reference Value = 92.1 V/m ; Power Drift = 0.1 dB

Peak SAR (extrapolated) = 16.9 W/kg

SAR(1 g) = 9.91 mW/g ; SAR(10 g) = 5.27 mW/g

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

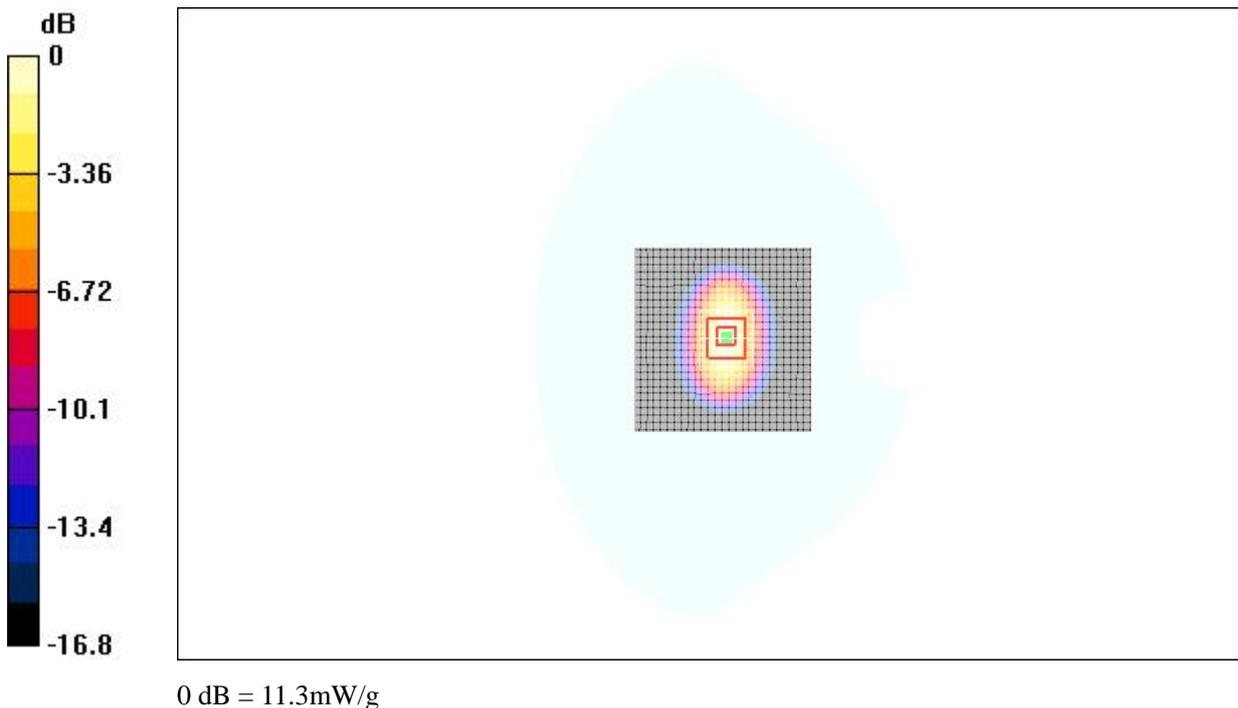


Fig.98 validation 1900MHz 250mW

1800MHz

Date/Time: 2009-3-27 7:12:47

Electronics: DAE4 Sn771

Medium: Head 1800

Medium parameters used: $f=1800$ MHz; $\sigma = 1.42$ mho/m; $\epsilon_r = 40.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 1800 MHz Duty Cycle: 1:1

Probe: ES3DV3 - SN3149 ConvF(5.18, 5.18, 5.18)

System Validation/Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 10.5 mW/g

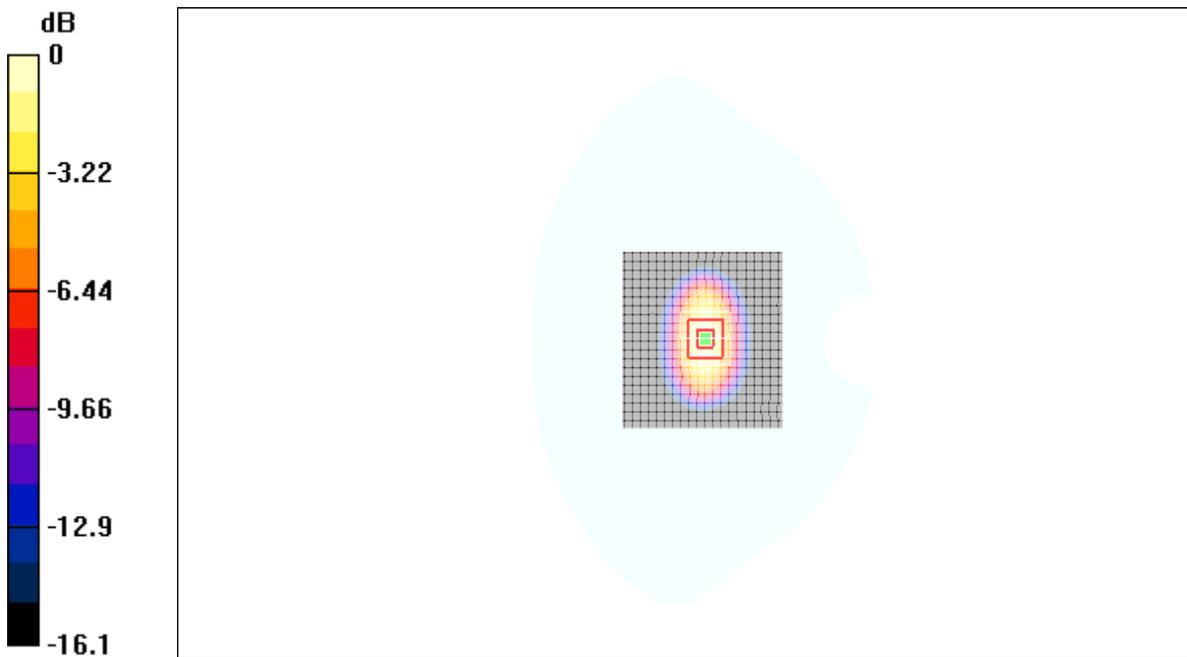
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 91.2 V/m; Power Drift = 0.1 dB

Peak SAR (extrapolated) = 15.3 W/kg

SAR(1 g) = 9.22 mW/g; SAR(10 g) = 5 mW/g

Maximum value of SAR (measured) = 10.5 mW/g



0 dB = 10.5mW/g

Fig.99 validation 1800MHz 250mW

ANNEX E PROBE CALIBRATION CERTIFICATE

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
S Service suisse d'étalonnage
C Servizio svizzero di taratura
S Swiss Calibration Service

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 **TMC China**

Certificate No: **ES3DV3-3149_Oct08**

CALIBRATION CERTIFICATE

Object	ES3DV3-SN: 3149
Calibration procedure(s)	QA CAL-01.v6 Calibration procedure for dosimetric E-field probes
Calibration date:	October 1, 2008
Condition of the calibrated item	In Tolerance

This calibration certify 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 at an environment temperature (22±3)°C and humidity<70%

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID#	Cal Data (Calibrated by, Certification NO.)	Scheduled Calibration
Power meter E4419B	GB41293874	6-May-08 (METAS, NO. 251-00388)	May-09
Power sensor E4412A	MY41495277	6-May-08 (METAS, NO. 251-00388)	May-09
Reference 3 dB Attenuator	SN:S5054 (3c)	11-Aug-08 (METAS, NO. 251-00403)	Aug-09
Reference 20 dB Attenuator	SN:S5086 (20b)	4-May-08 (METAS, NO. 251-00389)	May-09
Reference 30 dB Attenuator	SN:S5129 (30b)	11-Aug-08 (METAS, NO. 251-00404)	Aug-09
DAE4	SN:617	11-Jun-08 (SPEAG, NO.DAE4-907_Jun08)	Jun-09
Reference Probe ES3DV2	SN: 3013	13-Jan-08 (SPEAG, NO. ES3-3013_Jan08)	Jan-09

Secondary Standards	ID#	Check Data (in house)	Scheduled Calibration
RF generator HP8648C	US3642U01700	4-Aug-99(SPEAG, in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01(SPEAG, in house check Nov-07)	In house check: Nov-09

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: **October 1, 2008**

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

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

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
NORM _{x,y,z}	sensitivity in free space
ConF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
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:

- a) 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
- b) 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 effect 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 (no uncertainty required). DCP does not depend on frequency nor media.
- *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.

ES3DV3 SN: 3149

October 1, 2008

Probe ES3DV3

SN: 3149

Manufactured: June 12, 2007

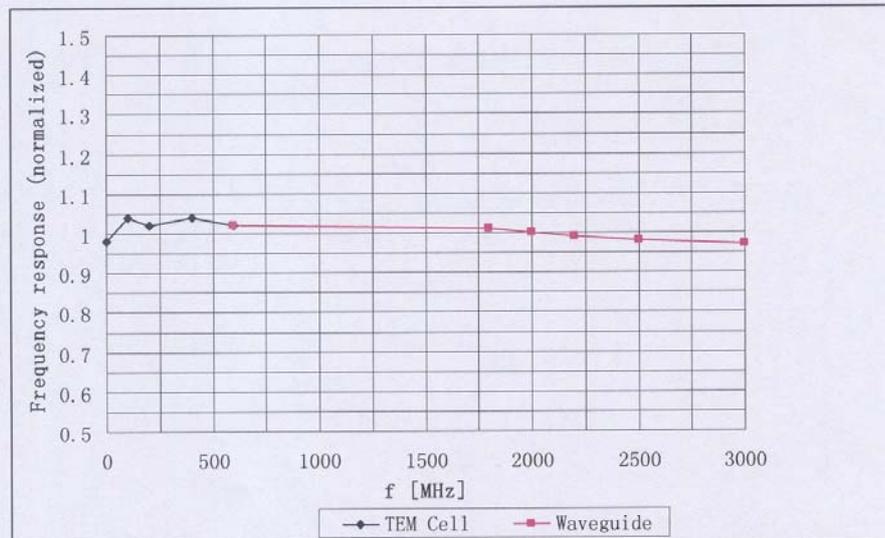
Calibrated: October 1, 2008

Calibrated for DASY4 System

ES3DV3 SN: 3149

October 1, 2008

Frequency Response of E-Field

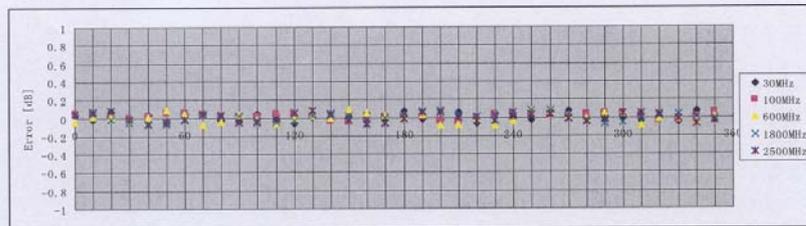
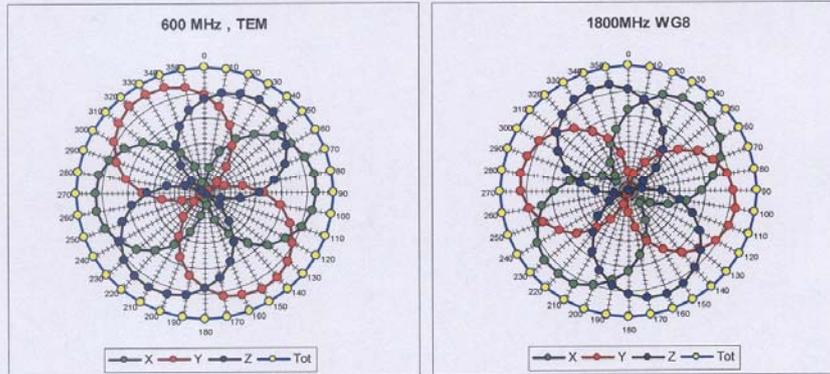


Uncertainty of Frequency Response of E-field: $\pm 5.0\%$ (k=2)

ES3DV3 SN: 3149

October 1, 2008

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

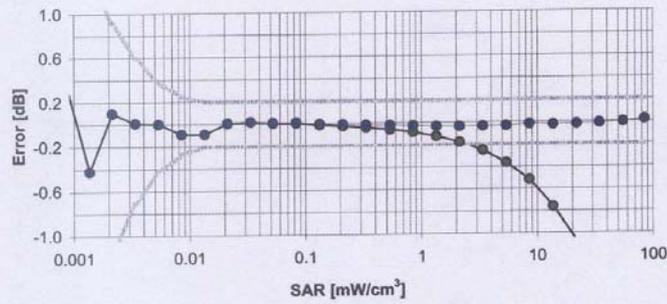
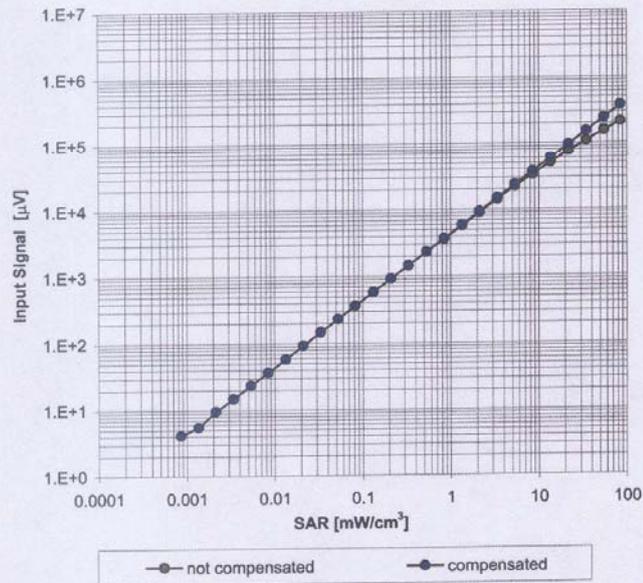


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ (k=2)

ES3DV3 SN: 3149

October 1, 2008

Dynamic Range $f(SAR_{head})$ (Waveguide: WG8, $f = 1800$ MHz)

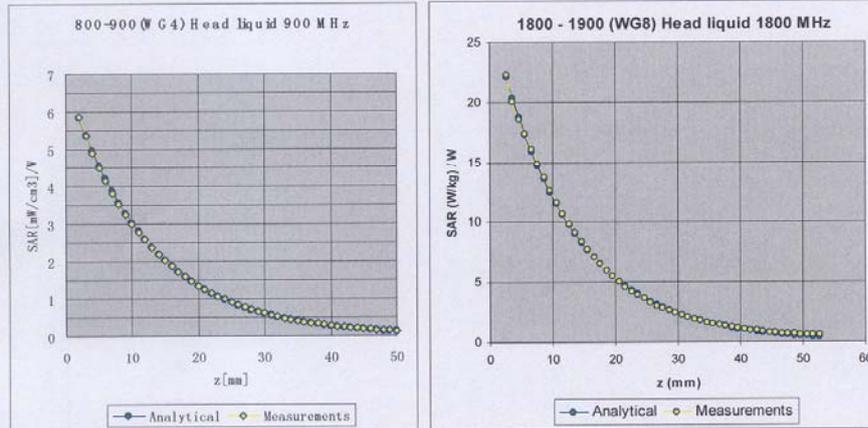


Uncertainty of Linearity Assessment: $\pm 0.5\%$ ($k=2$)

ES3DV3 SN: 3149

October 1, 2008

Conversion Factor Assessment



f[MHz]	Validity[MHz] ^C	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF	Uncertainty
850	±50 /±100	Head	41.5±5%	0.90±5%	0.91	1.13	6.56	±11.0% (k=2)
900	±50 /±100	Head	41.5±5%	0.97±5%	0.83	1.26	6.34	±11.0% (k=2)
1800	±50 /±100	Head	40.0±5%	1.40±5%	0.69	1.47	5.18	±11.0% (k=2)
1900	±50 /±100	Head	40.0±5%	1.40±5%	0.72	1.38	5.03	±11.0% (k=2)
850	±50 /±100	Body	55.2±5%	0.97±5%	0.76	1.26	6.22	±11.0% (k=2)
900	±50 /±100	Body	55.0±5%	1.05±5%	0.99	1.06	6.02	±11.0% (k=2)
1800	±50 /±100	Body	53.3±5%	1.52±5%	0.75	1.34	4.97	±11.0% (k=2)
1900	±50 /±100	Body	53.3±5%	1.52±5%	0.62	1.33	4.68	±11.0% (k=2)

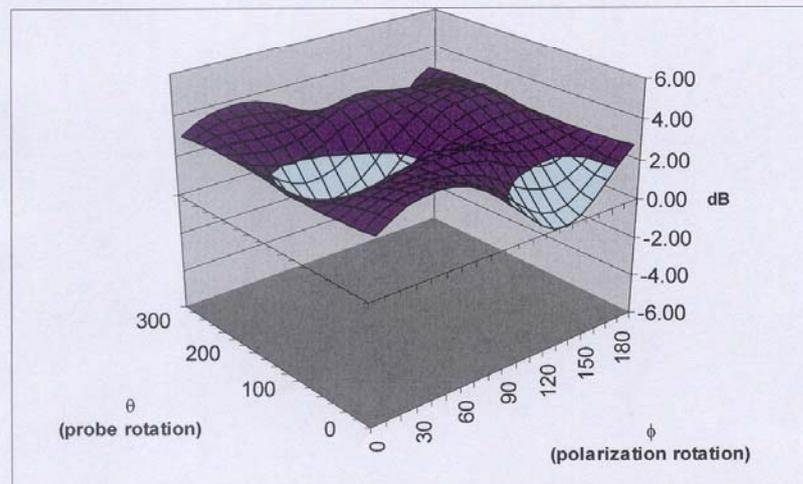
^C The validity of ±100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

ES3DV3 SN: 3149

October 1, 2008

Deviation from Isotropy

Error (ϕ, θ), $f = 900$ MHz



Uncertainty of Spherical Isotropy Assessment: $\pm 2.5\%$ ($k=2$)

ANNEX F DIPOLE CALIBRATION CERTIFICATE

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Federal Office of metrology and Accreditation
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 TMC China

Certificate No: D835V2-443_Feb09

CALIBRATION CERTIFICATE

Object	D835V2-SN: 443
Calibration procedure(s)	QA CAL-05.v6 Calibration procedure for dipole validation kits
Calibration date:	February 18, 2009
Condition of the calibrated item	In Tolerance

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 at an environment temperature $(22\pm 3)^{\circ}\text{C}$ and humidity < 70%

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID#	Cal Data (Calibrated by, Certification NO.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	01-Oct-08 (METAS, NO. 217-00608)	Oct-09
Power sensor 8481A	US37292783	01-Oct-08 (METAS, NO. 217-00608)	Oct-09
Reference 20 dB Attenuator	SN:5086 (20g)	08-Aug-08 (METAS, NO. 217-00591)	Aug-09
Reference 10 dB Attenuator	SN:5047_2 (10r)	08-Aug-08 (METAS, NO. 217-00591)	Aug-09
DAE4	SN:601	28-Jan-09 (SPEAG, NO.DAE4-601_Jan09)	Jan-10
Reference Probe ET3DV6 (HF)	SN: 1507	17-Oct-08 (SPEAG, NO. ET3-1507_Oct08)	Oct-09
Secondary Standards	ID#	Check Data (in house)	Scheduled Calibration
Power sensor HP 8481A	MY41092317	18-Oct-02(SPEAG, in house check Oct-07)	In house check: Oct-09
RF generator Aglient E4421B	MY41000676	11-May-05(SPEAG, in house check Nov-07)	In house check: Nov -09
Network Analyzer HP 8753E	US37390585S4206	18-Oct-01(SPEAG, in house check Oct-08)	In house check: Oct -09

	Name	Function	Signature
Calibrated by:	Marcel Fehr	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Director	

Issued: February 19, 2009

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

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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:

- a) 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
- b) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001
- c) 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:

- d) DASY4 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	DASY4	V4.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
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	39.9 \pm 6 %	0.88 mho/m \pm 6 %
Head TSL temperature during test	(21.2 \pm 0.2) °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.48 mW / g
SAR normalized	normalized to 1W	9.90 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	9.70 mW / g \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.60 mW / g
SAR normalized	normalized to 1W	6.40 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	6.31 mW / g \pm 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.5Ω - 6.8 jΩ
Return Loss	- 25.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.402 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	September 3, 2001

DASY4 Validation Report for Head TSL

Date/Time: 18.02.2009 10:13:45

Test laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; serial: D835V2-SN: 443

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

Medium: HSL 835 MHz;

Medium parameters used: $f=835$ MHz; $\sigma=0.88$ mho/m; $\epsilon_r=39.9$; $\rho= 1000\text{kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6-SN1507(HF); ConvF(6.01,6.01,6.01); Calibrated: 17.10.2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.1_2009
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA;
- Measurement SW: DASY, V4.7 Build 53; Post processing SW: SEMCAD, V1.8 Build 172

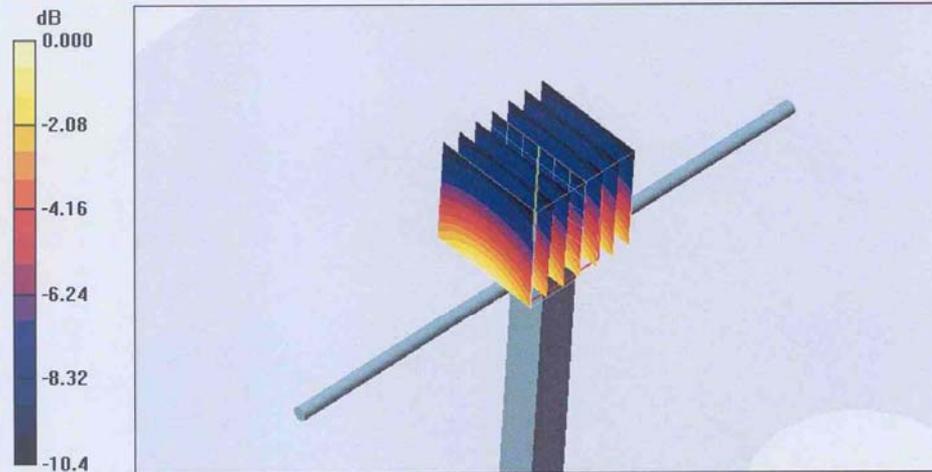
Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.6 V/m; Power Drift = 0.010 dB

Peak SAR (extrapolated) = 3.72 W/kg

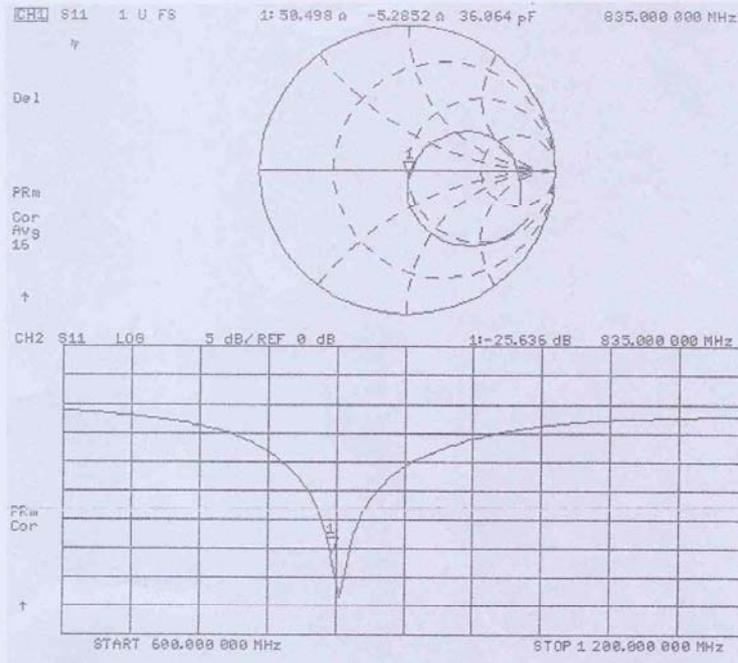
SAR(1 g) = 2.48 mW/g; SAR(10 g) = 1.60 mW/g

Maximum value of SAR (measured) = 2.70 mW/g



0 dB = 2.70mW/g

Impedance measurement Plot for Head TSL



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Client TMC China

Accreditation No.: SCS 108

Certificate No: D1900V2-541_Feb09

CALIBRATION CERTIFICATE

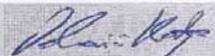
Object	D1900V2-SN: 541
Calibration procedure(s)	QA CAL-05.v6 Calibration procedure for dipole validation kits
Calibration date:	February 19, 2009
Condition of the calibrated item	In Tolerance

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 at an environment temperature (22±3)°C and humidity<70%

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID#	Cal Data (Calibrated by, Certification NO.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	01-Oct-08 (METAS, NO. 217-00608)	Oct-09
Power sensor 8481A	US37292783	01-Oct-08 (METAS, NO. 217-00608)	Oct-09
Reference 20 dB Attenuator	SN:5086 (20g)	08-Aug-08 (METAS, NO. 217-00591)	Aug-09
Reference 10 dB Attenuator	SN:5047_2 (10r)	08-Aug-08 (METAS, NO. 217-00591)	Aug-09
DAE4	SN:601	28-Jan-09 (SPEAG, NO.DAE4-601_Jan09)	Jan-10
Reference Probe ET3DV6 (HF)	SN: 1507	17-Oct-08 (SPEAG, NO. ET3-1507_Oct08)	Oct-09
Secondary Standards	ID#	Check Data (in house)	Scheduled Calibration
Power sensor HP 8481A	MY41092317	18-Oct-02(SPEAG, in house check Oct-07)	In house check: Oct-09
RF generator Aglient E4421B	MY41000676	11-May-05(SPEAG, in house check Nov-07)	In house check: Nov -09
Network Analyzer HP 8753E	US37390585S4206	18-Oct-01(SPEAG, in house check Oct-08)	In house check: Oct -10

	Name	Function	Signature
Calibrated by:	Marcel Fehr	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Director	

Issued: February 20, 2009

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

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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:

- a) 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
- b) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001
- c) 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:

- d) DASY4 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	DASY4	V4.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
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	38.9 ± 6 %	1.38 mho/m ± 6 %
Head TSL temperature during test	(22.1 ± 0.2) °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	9.73 mW /g
SAR normalized	normalized to 1W	38.9 mW /g
SAR for nominal Head TSL parameters ¹	normalized to 1W	38.6 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.09 mW /g
SAR normalized	normalized to 1W	20.4 mW /g
SAR for nominal Head TSL parameters ¹	normalized to 1W	20.2 mW / g ± 16.5 % (k=2)

¹ Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	46.4 Ω - 8.9 j Ω
Return Loss	- 26.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.214 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 4 , 2001

DASY4 Validation Report for Head TSL

Date/Time: 19.02.2009 09:37:10

Test laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; serial: D1900V2-SN: 541

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

Medium: HSL 1900 MHz;

Medium parameters used: $f=1900$ MHz; $\sigma=1.38$ mho/m; $\epsilon_r=38.9$; $\rho=1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6-SN1507(HF); ConvF(5.03, 5.03, 5.03); Calibrated: 17.10.2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 28.1_2009
- Phantom: Flat Phantom 4.9L; Type: QD00P49AA;
- Measurement SW: DASY, V4.7 Build 53; Post processing SW: SEMCAD, V1.8 Build 172

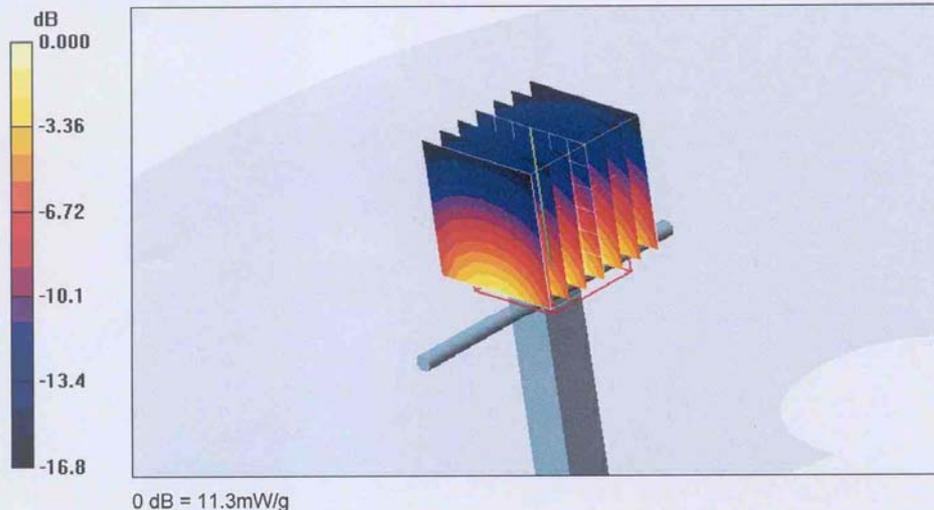
Pin = 250 mW; d = 15 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 92.1 V/m; Power Drift = 0.059 dB

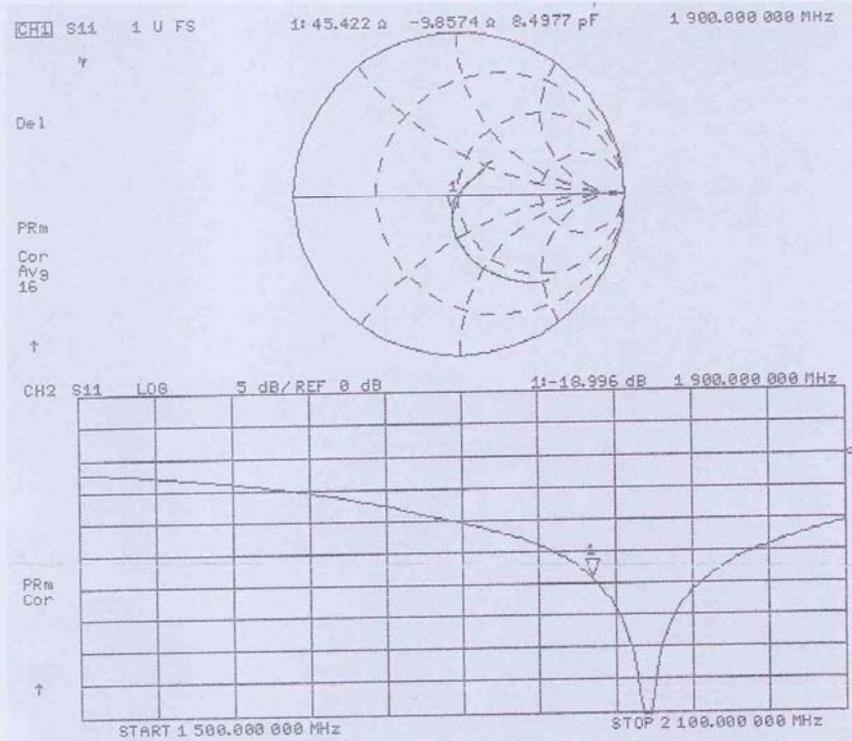
Peak SAR (extrapolated) = 16.9 W/kg

SAR(1 g) = 9.73 mW/g; SAR(10 g) = 5.09 mW/g

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



Impedance measurement Plot for Head TSL



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Accreditation No.: **SCS 108**

Client **TMC**

Certificate No: **D1800V2-2d145_Dec07**

CALIBRATION CERTIFICATE

Object **D1800V2 - SN: 2d145**

Calibration procedure(s) **QA CAL-05.v7
Calibration procedure for dipole validation kits**

Calibration date: **December 11, 2007**

Condition of the calibrated item **In Tolerance**

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 (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	04-Oct-07 (METAS, No. 217-00736)	Oct-08
Power sensor HP 8481A	US37292783	04-Oct-07 (METAS, No. 217-00736)	Oct-08
Reference 20 dB Attenuator	SN: 5086 (20g)	07-Aug-07 (METAS, No 217-00718)	Aug-08
Reference 10 dB Attenuator	SN: 5047.2 (10r)	07-Aug-07 (METAS, No 217-00718)	Aug-08
Reference Probe ET3DV6 (HF)	SN: 1507	26-Oct-07 (SPEAG, No. ET3-1507_Oct07)	Oct-08
DAE4	SN 601	30-Jan-07 (SPEAG, No. DAE4-601_Jan07)	Jan-08
Secondary Standards	ID #	Check Date (In house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-07)	In house check: Oct-08
RF generator R&S SMT-06	100005	4-Aug-99 (SPEAG, in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Marcel Fehr	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: December 11, 2007

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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:

- a) 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
- b) 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
- c) 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:

- d) DASY4 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	DASY4	V4.7
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1800 MHz \pm 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 \pm 0.2) °C	39.0 \pm 6 %	1.40 mho/m \pm 6 %
Head TSL temperature during test	(21.0 \pm 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	9.60 mW /g
SAR normalized	normalized to 1W	38.4 mW /g
SAR for nominal Head TSL parameters ¹	normalized to 1W	37.9 mW / g \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.06 mW /g
SAR normalized	normalized to 1W	20.2 mW /g
SAR for nominal Head TSL parameters ¹	normalized to 1W	20.0 mW / g \pm 16.5 % (k=2)

¹ Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	48.0 jΩ - 2.2 jΩ
Return Loss	- 30.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.214 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	December 14, 2006

DASY4 Validation Report for Head TSL

Date/Time: 11.12.2007 12:41:50

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: SN:2d145

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1

Medium: HSL U10 BB;

Medium parameters used: $f = 1800$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.1$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1507 (HF); ConvF(4.99, 4.99, 4.99); Calibrated: 26.10.2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.01.2007
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

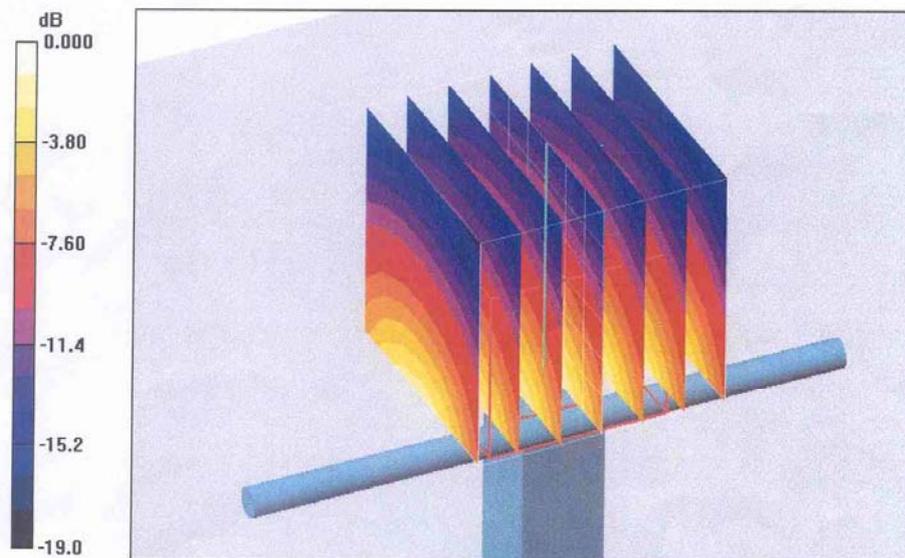
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 92.3 V/m; Power Drift = 0.067 dB

Peak SAR (extrapolated) = 16.8 W/kg

SAR(1 g) = 9.6 mW/g; SAR(10 g) = 5.06 mW/g

Maximum value of SAR (measured) = 10.8 mW/g



0 dB = 10.8mW/g

Impedance Measurement Plot for Head TSL

