

Figure 59 Z-Scan at power reference point [WCDMA Band II with IBM T61 Test Position 1 Channel 9400]

WCDMA Band II with IBM T61 Test Position 1 Low

Date/Time: 12/13/2009 2:00:14 PM

Communication System: WCDMA Band II; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 1 Low/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.17 mW/g

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 25.9 V/m; Power Drift = 0.046 dB

Peak SAR (extrapolated) = 1.58 W/kg

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.587 mW/g

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

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 25.9 V/m; Power Drift = 0.046 dB

Peak SAR (extrapolated) = 1.24 W/kg

SAR(1 g) = 0.697 mW/g; SAR(10 g) = 0.378 mW/g

Maximum value of SAR (measured) = 0.812 mW/g

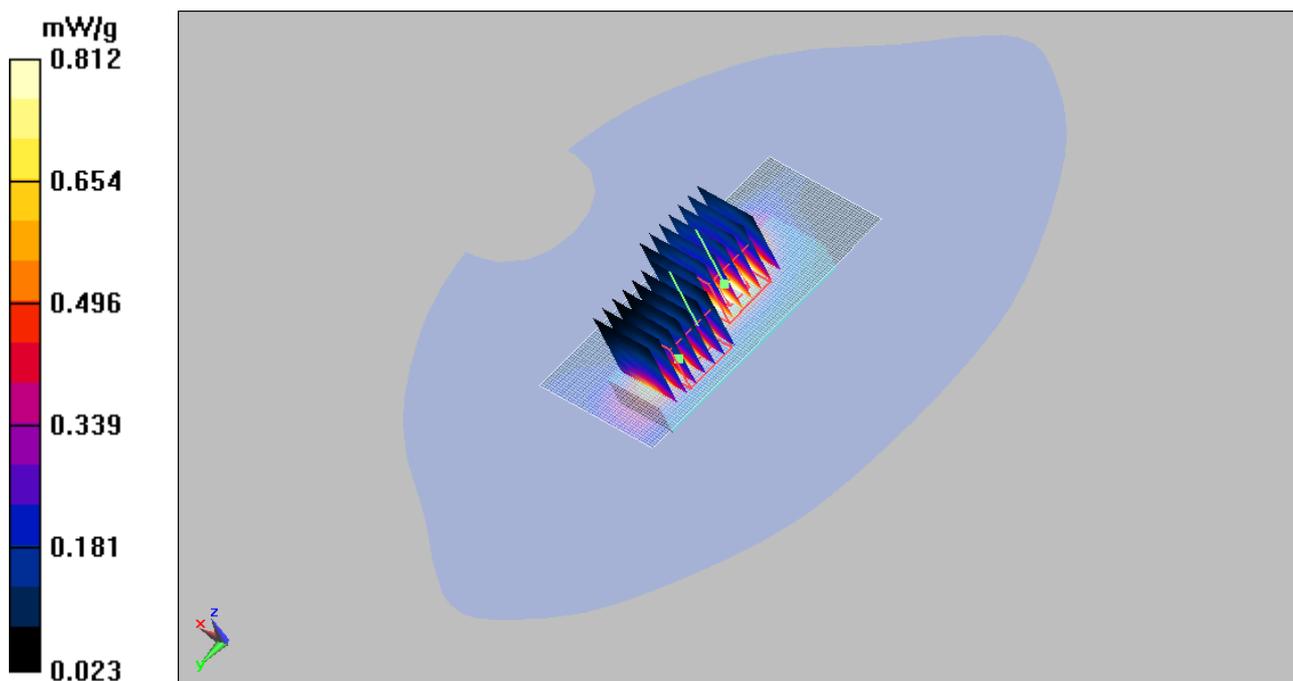


Figure 60 WCDMA Band II with IBM T61 Test Position 1 Channel 9262

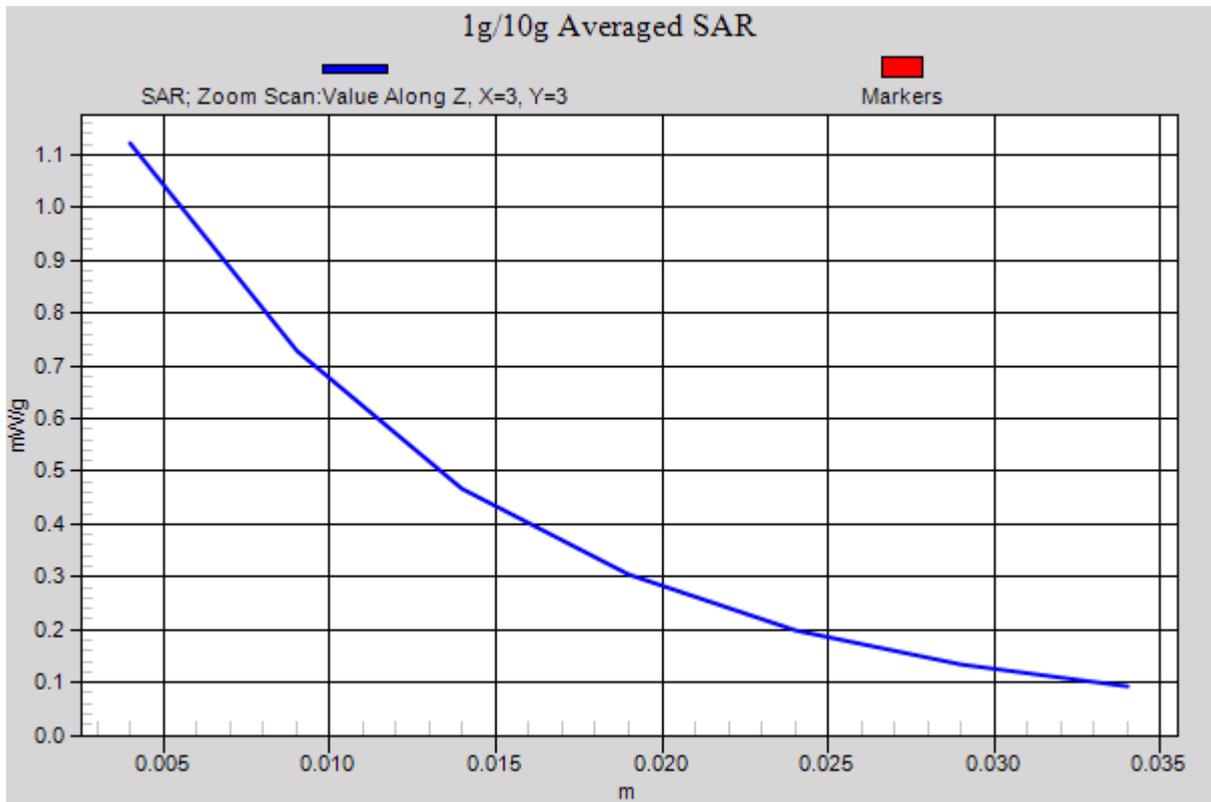
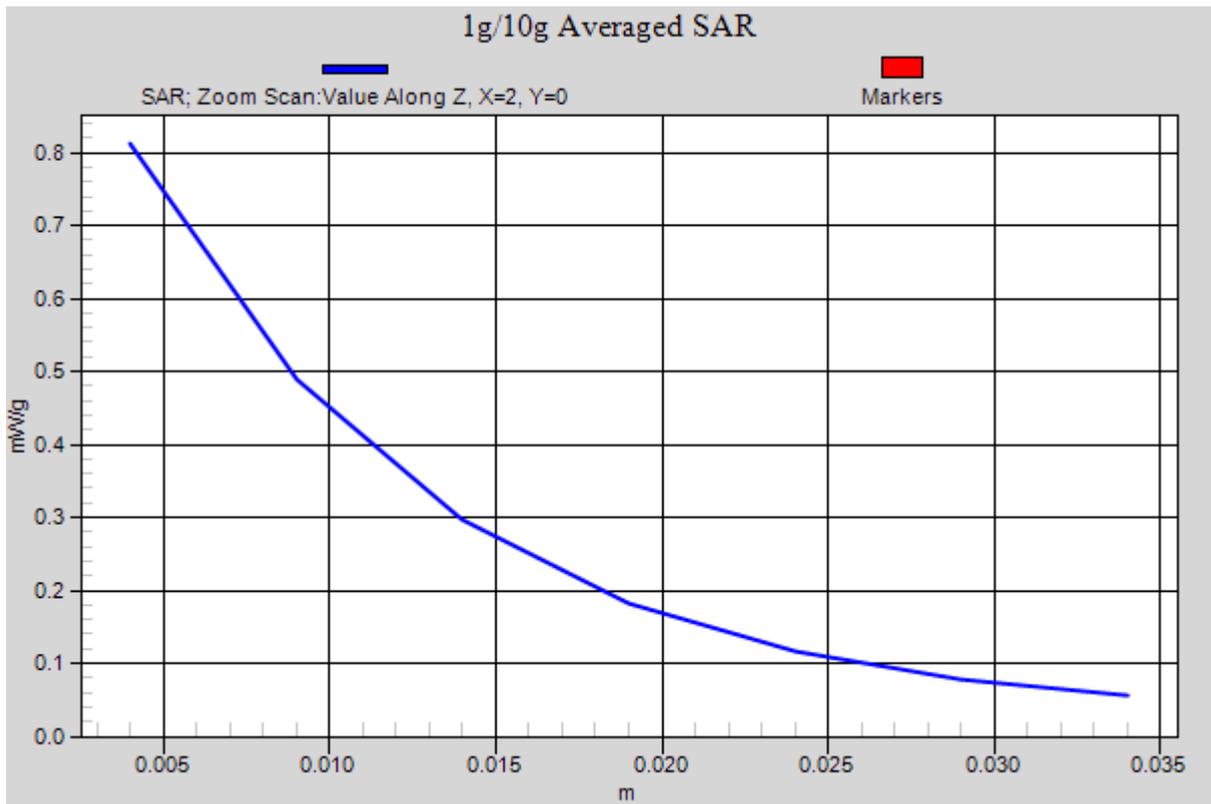


Figure 61 Z-Scan at power reference point [WCDMA Band II with IBM T61 Test Position 1 Channel 9262]

WCDMA Band II with IBM T61 Test Position 2 Middle

Date/Time: 12/13/2009 5:14:11 PM

Communication System: WCDMA Band II; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 52.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 2 Middle/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.408 mW/g

Test Position 2 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.7 V/m; Power Drift = 0.013 dB

Peak SAR (extrapolated) = 0.532 W/kg

SAR(1 g) = 0.350 mW/g; SAR(10 g) = 0.207 mW/g

Maximum value of SAR (measured) = 0.385 mW/g

Test Position 2 Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.7 V/m; Power Drift = 0.013 dB

Peak SAR (extrapolated) = 0.415 W/kg

SAR(1 g) = 0.254 mW/g; SAR(10 g) = 0.139 mW/g

Maximum value of SAR (measured) = 0.285 mW/g

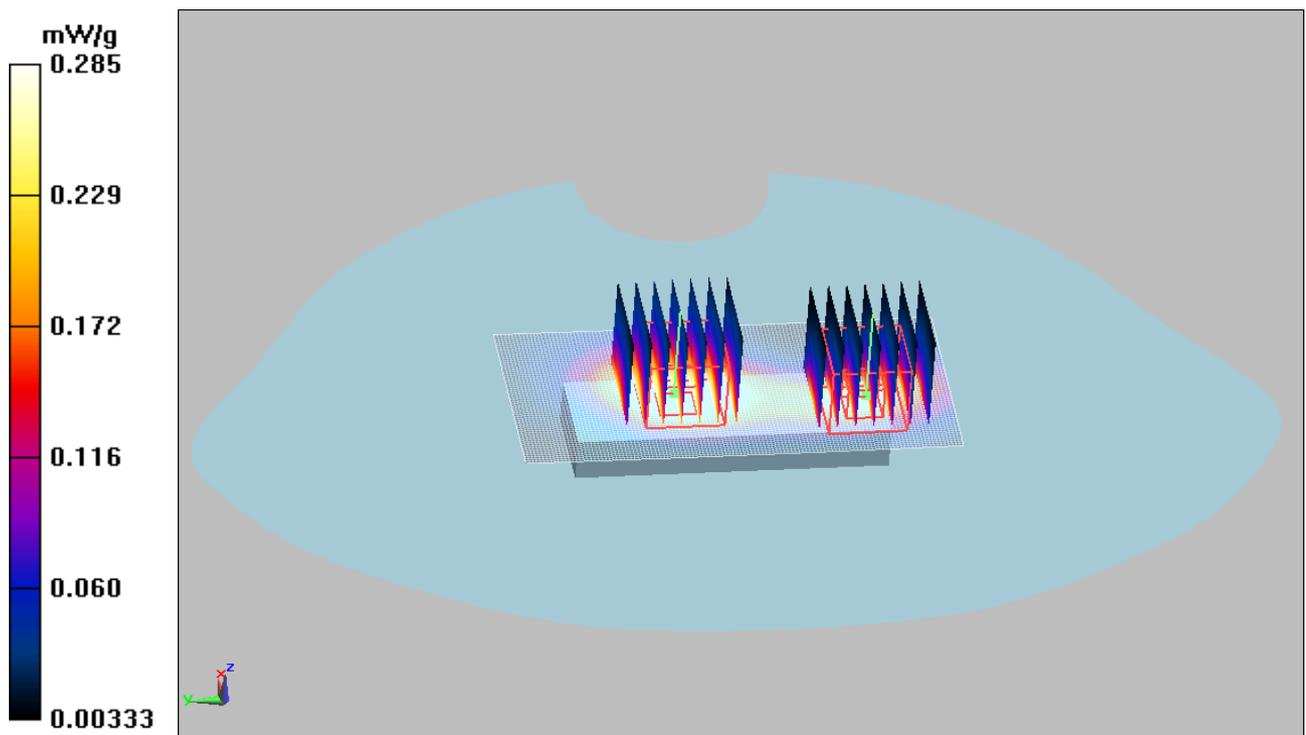


Figure 62 WCDMA Band II with IBM T61 Test Position 2 Channel 9400

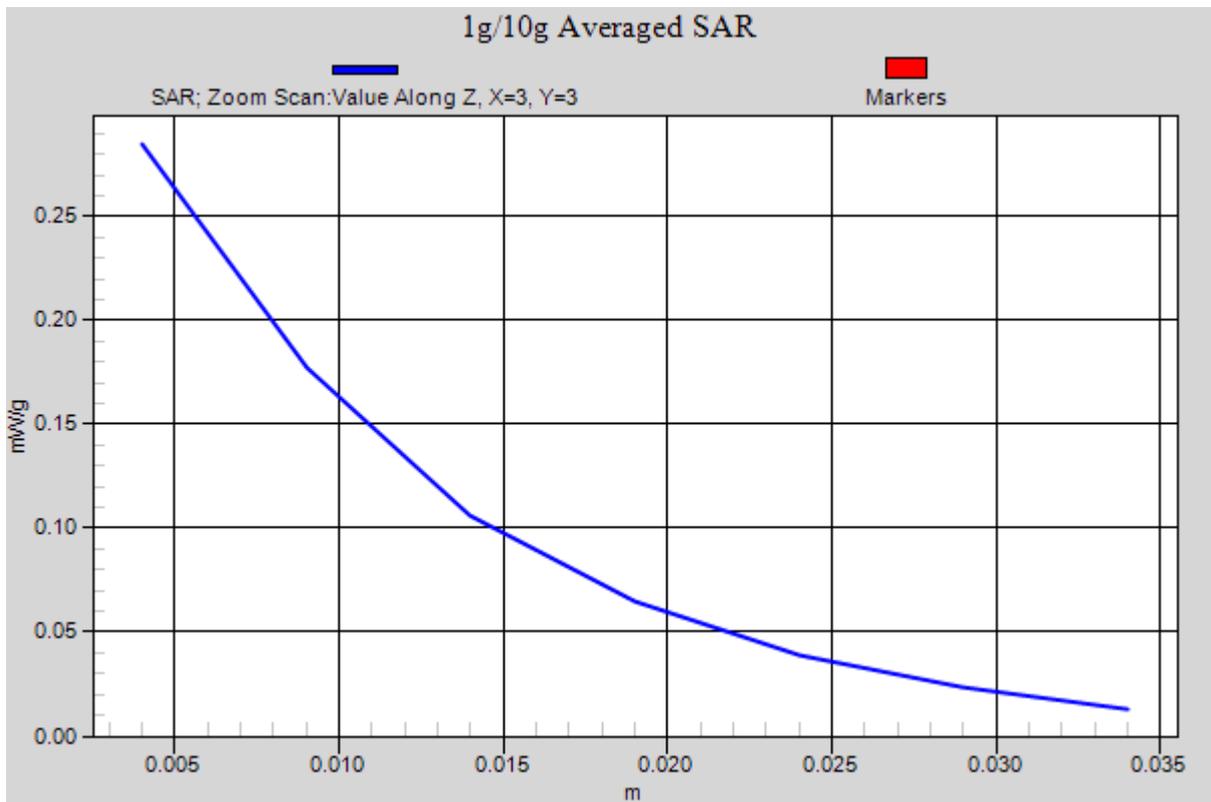
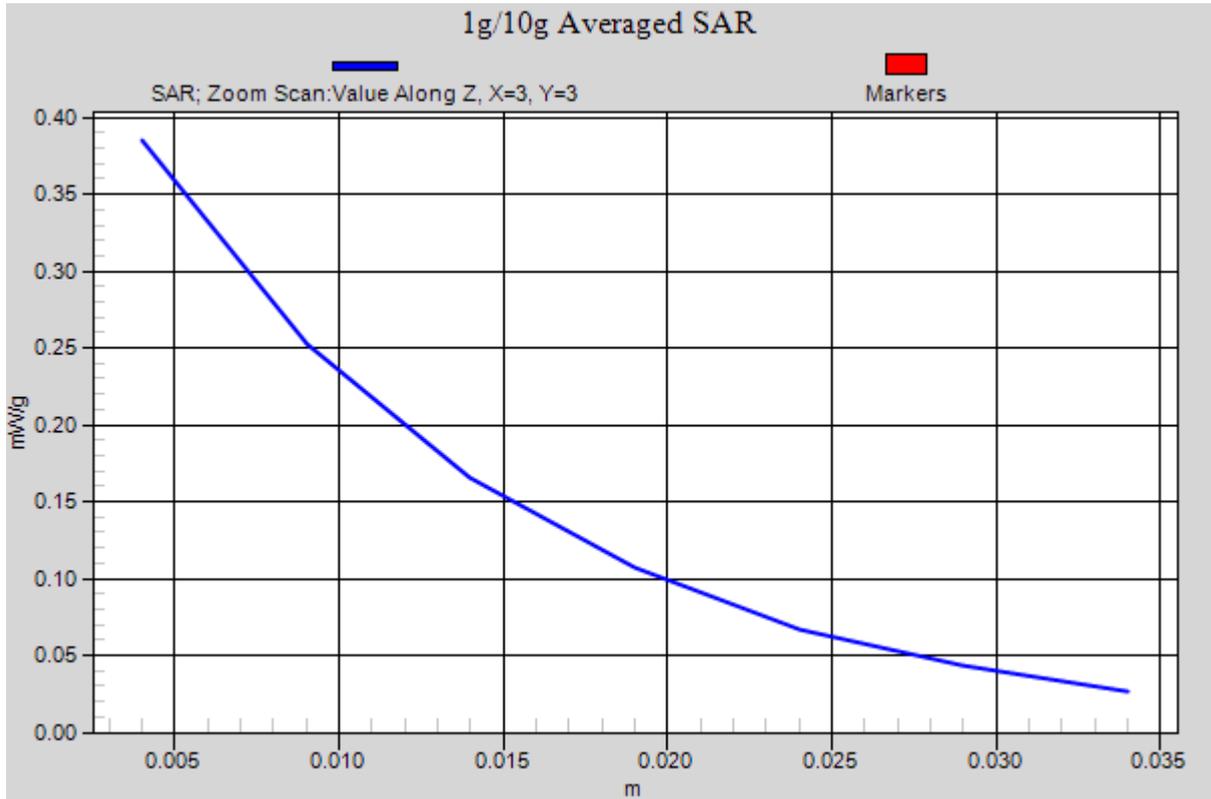


Figure 63 Z-Scan at power reference point [WCDMA Band II with IBM T61 Test Position 2 Channel 9400]

WCDMA Band II with BenQ Joybook R55V Test Position 3 Middle

Date/Time: 12/13/2009 8:09:32 PM

Communication System: WCDMA Band II; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 52.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 3 Middle/Area Scan (51x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.634 mW/g

Test Position 3 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.44 V/m; Power Drift = -0.158 dB

Peak SAR (extrapolated) = 0.953 W/kg

SAR(1 g) = 0.537 mW/g; SAR(10 g) = 0.277 mW/g

Maximum value of SAR (measured) = 0.614 mW/g

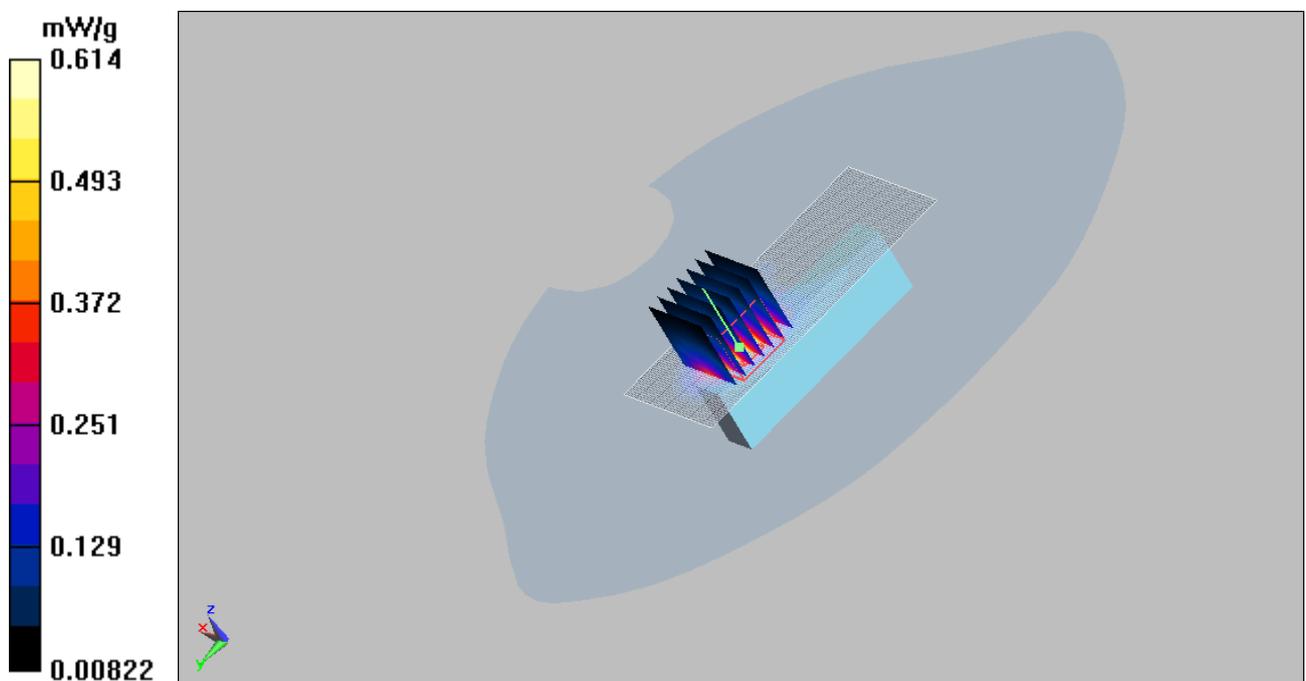


Figure 64 WCDMA Band II with BenQ Joybook R55V Test Position 3 Channel 9400

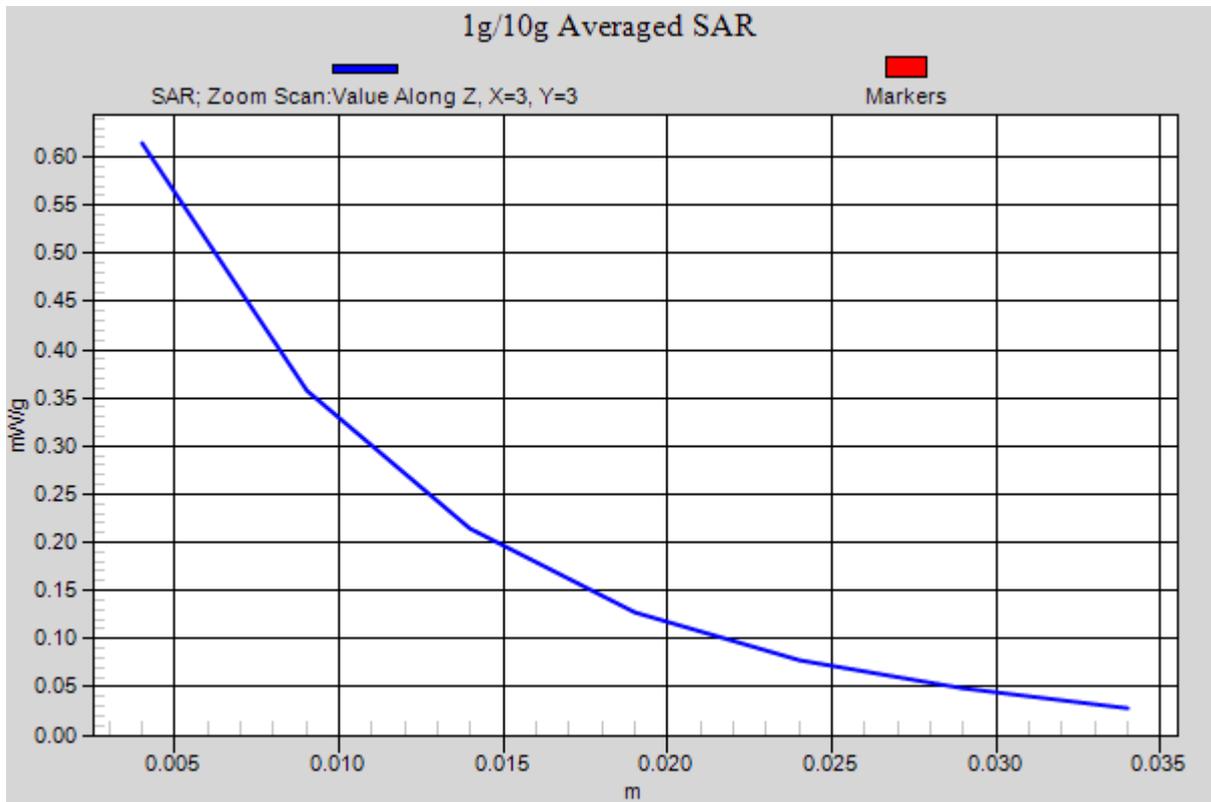


Figure 65 Z-Scan at power reference point [WCDMA Band II with BenQ Joybook R55V Test Position 3 Channel 9400]

WCDMA Band II with BenQ Joybook R55V Test Position 4 Middle

Date/Time: 12/13/2009 7:22:26 PM

Communication System: WCDMA Band II; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 52.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 4 Middle/Area Scan (51x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.538 mW/g

Test Position 4 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.9 V/m; Power Drift = -0.062 dB

Peak SAR (extrapolated) = 0.911 W/kg

SAR(1 g) = 0.528 mW/g; SAR(10 g) = 0.327 mW/g

Maximum value of SAR (measured) = 0.608 mW/g

Test Position 4 Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.9 V/m; Power Drift = -0.062 dB

Peak SAR (extrapolated) = 0.651 W/kg

SAR(1 g) = 0.444 mW/g; SAR(10 g) = 0.323 mW/g

Maximum value of SAR (measured) = 0.474 mW/g

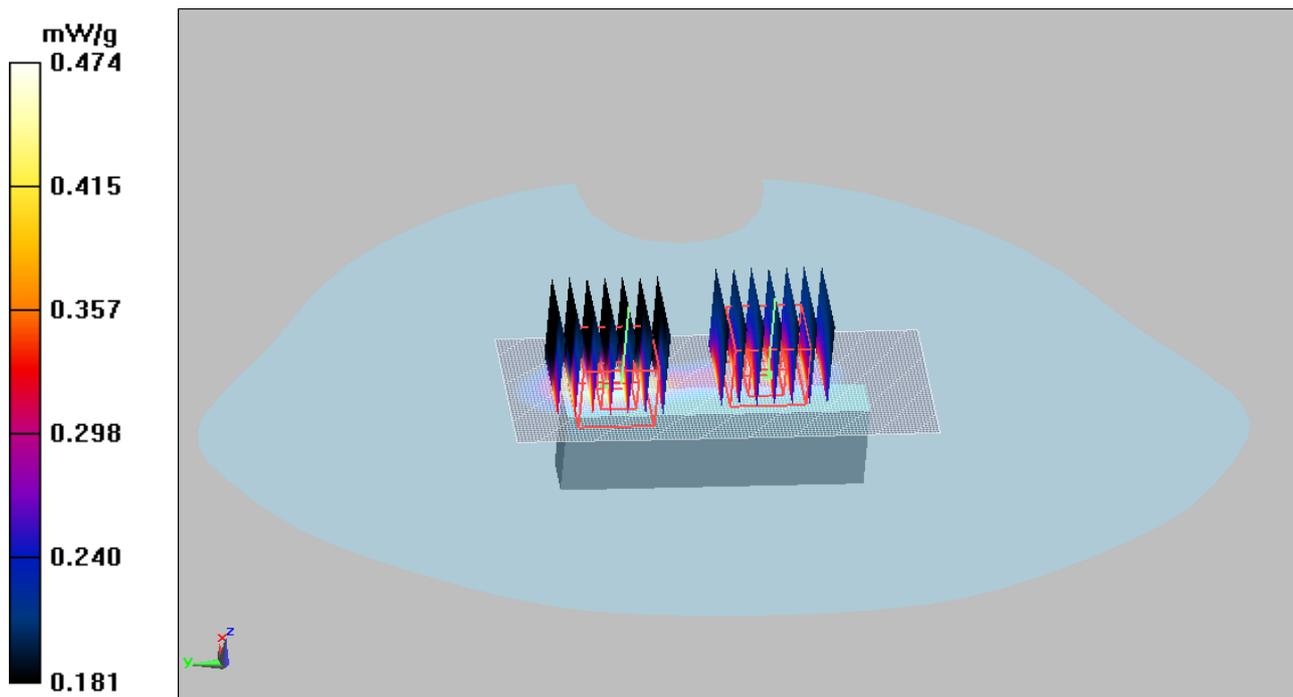


Figure 66 WCDMA Band II with BenQ Joybook R55V Test Position 4 Channel 9400

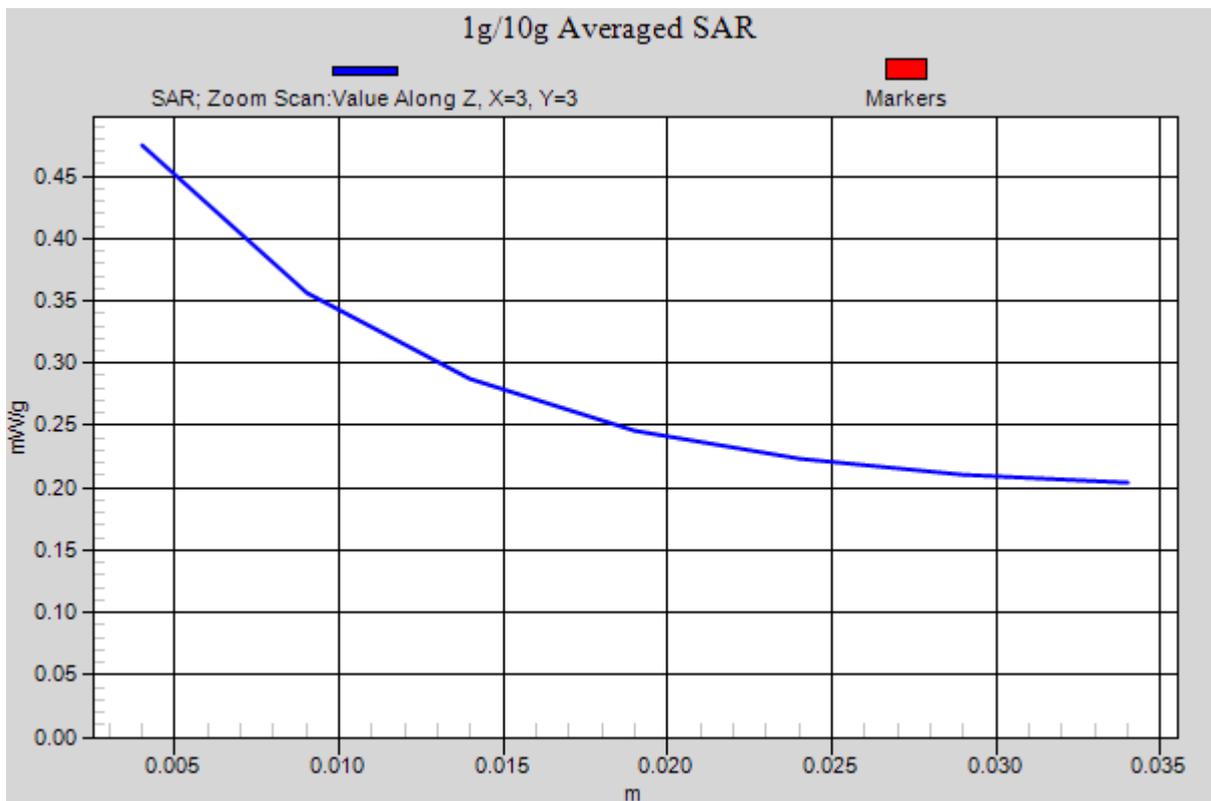
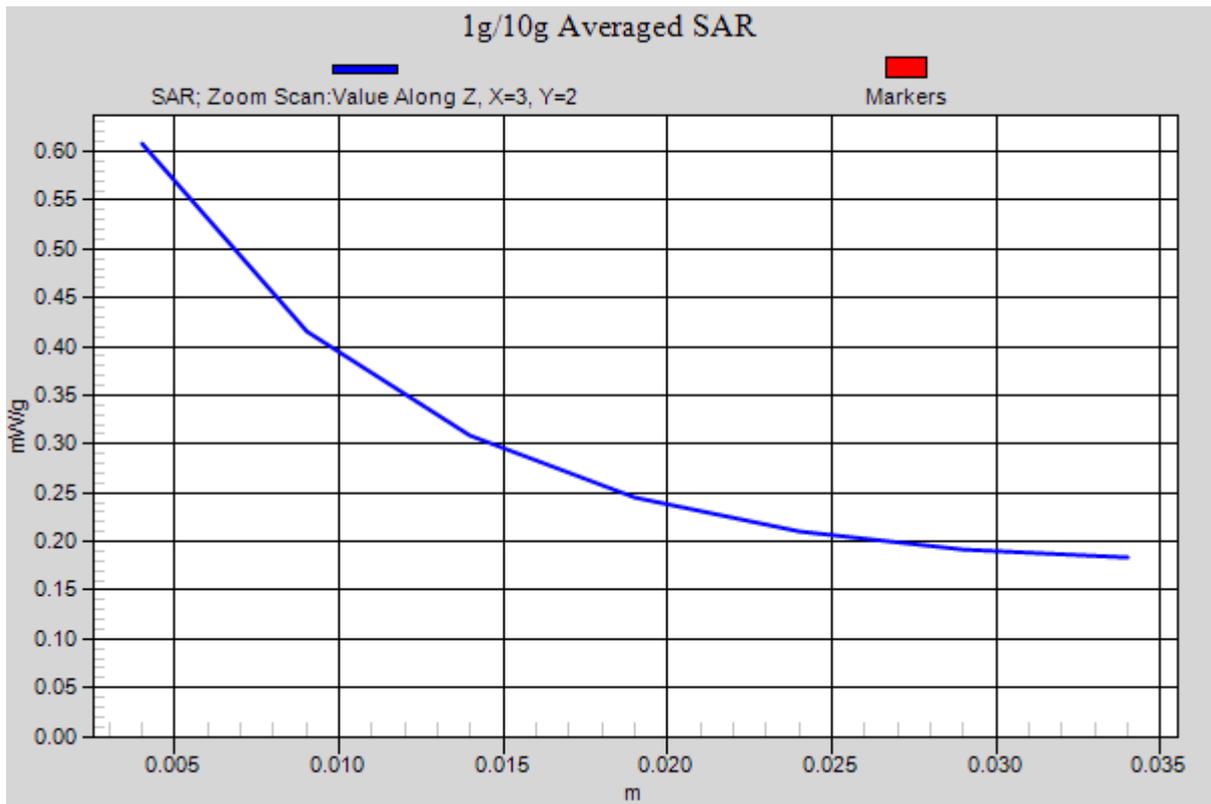


Figure 67 Z-Scan at power reference point [WCDMA Band II with BenQ Joybook R55V Test Position 4 Channel 9400]

WCDMA Band II + HSDPA with IBM T61 Test Position 1 Low

Date/Time: 12/13/2009 12:36:32 PM

Communication System: WCDMA Band II+HSDPA; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 1 Low/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.18 mW/g

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.3 V/m; Power Drift = -0.027 dB

Peak SAR (extrapolated) = 1.59 W/kg

SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.604 mW/g

Maximum value of SAR (measured) = 1.14 mW/g

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.3 V/m; Power Drift = -0.027 dB

Peak SAR (extrapolated) = 1.28 W/kg

SAR(1 g) = 0.740 mW/g; SAR(10 g) = 0.396 mW/g

Maximum value of SAR (measured) = 0.847 mW/g

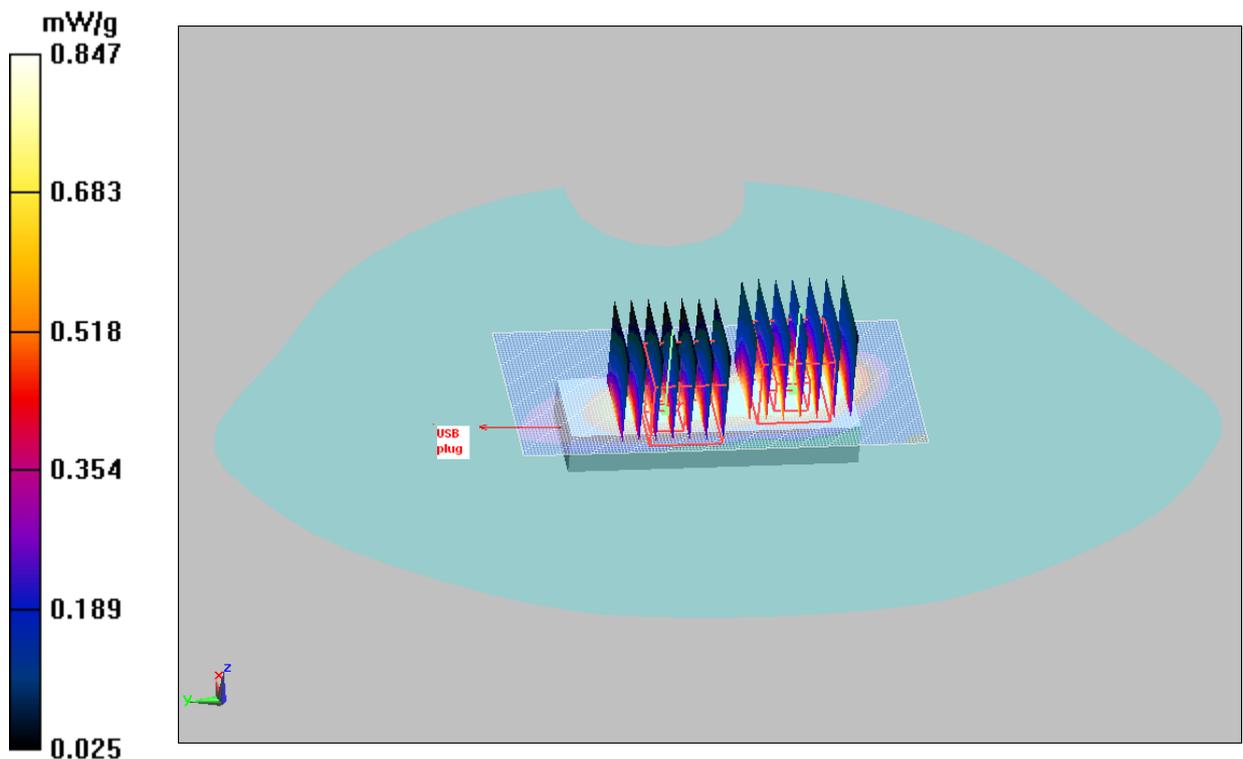


Figure 68 WCDMA Band II+ HSDPA with IBM T61 Test Position 1 Channel 9262

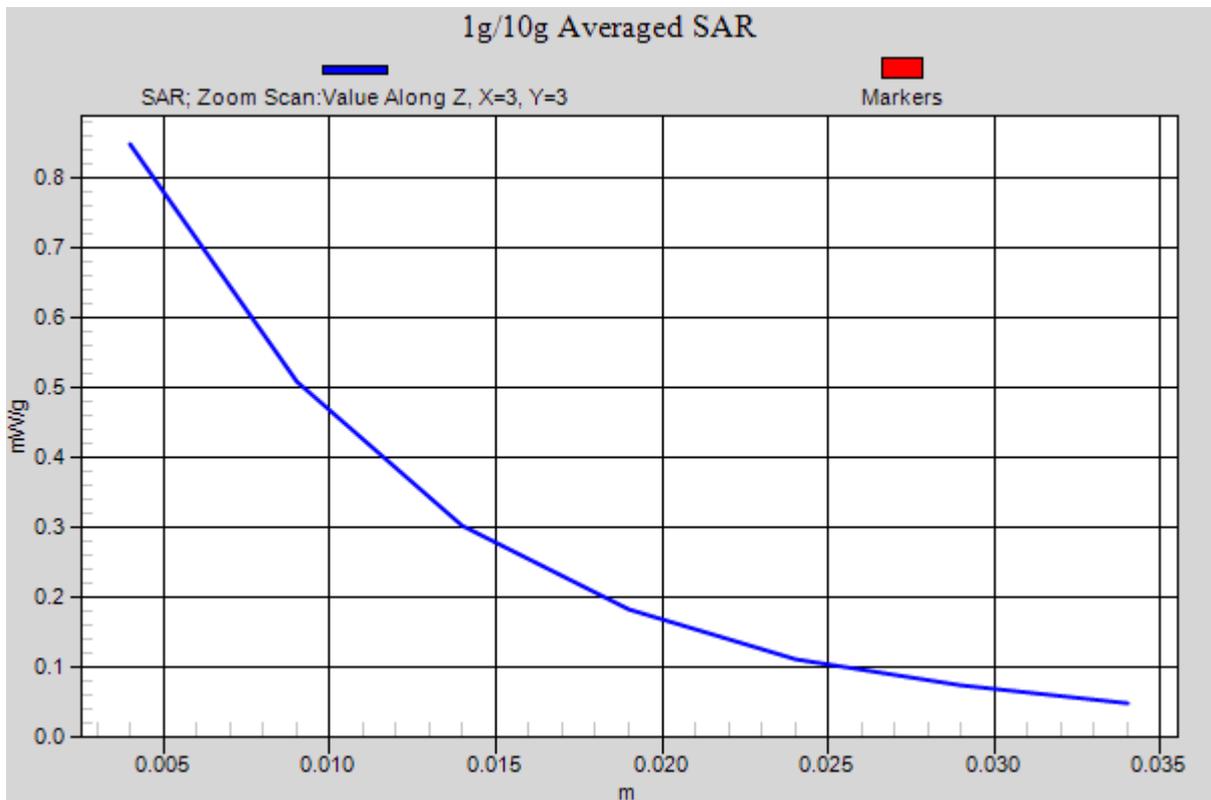
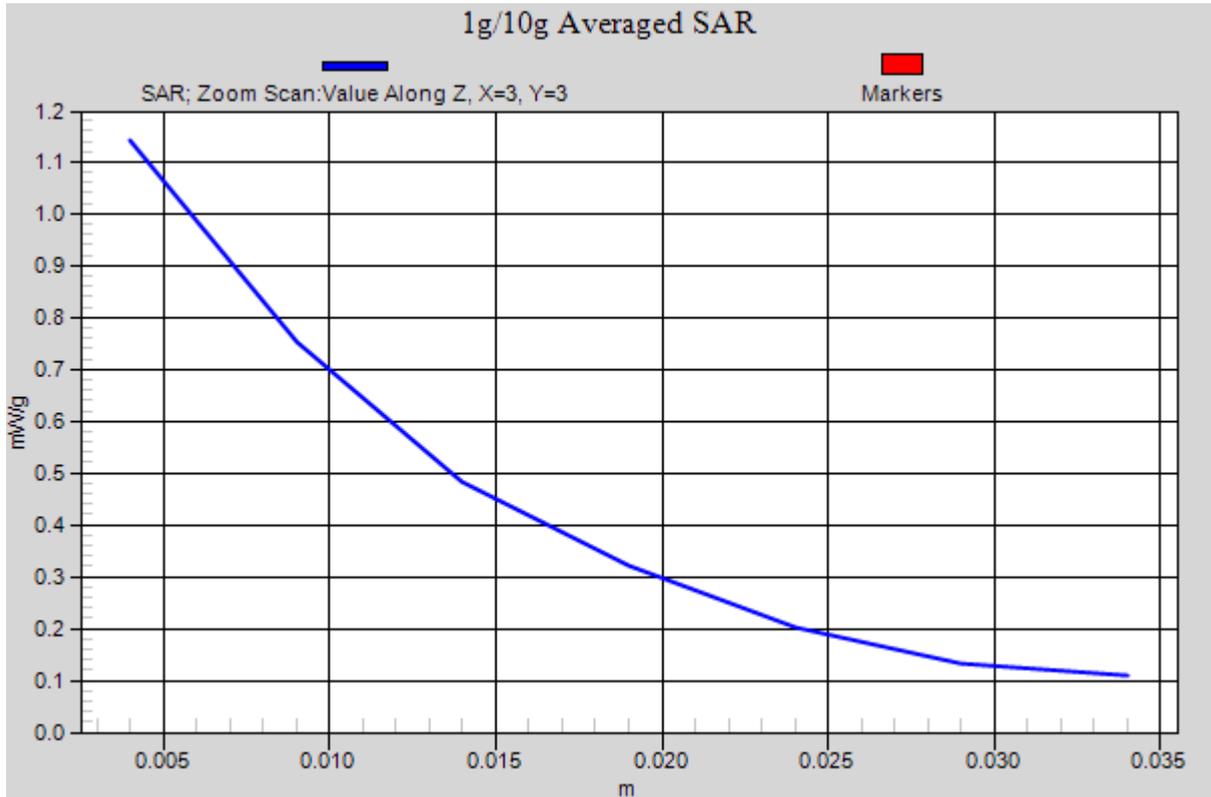


Figure 69 Z-Scan at power reference point [WCDMA Band II+ HSDPA with IBM T61 Test Position 1 Channel 9262]

WCDMA Band II + HSUPA with IBM T61 Test Position 1 Low

Date/Time: 12/13/2009 11:43:05 PM

Communication System: WCDMA Band II+HSUPA; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.62, 7.62, 7.62); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 1 Low/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

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

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.5 V/m; Power Drift = -0.021 dB

Peak SAR (extrapolated) = 1.59 W/kg

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.586 mW/g

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

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.5 V/m; Power Drift = -0.021 dB

Peak SAR (extrapolated) = 1.2 W/kg

SAR(1 g) = 0.700 mW/g; SAR(10 g) = 0.375 mW/g

Maximum value of SAR (measured) = 0.796 mW/g

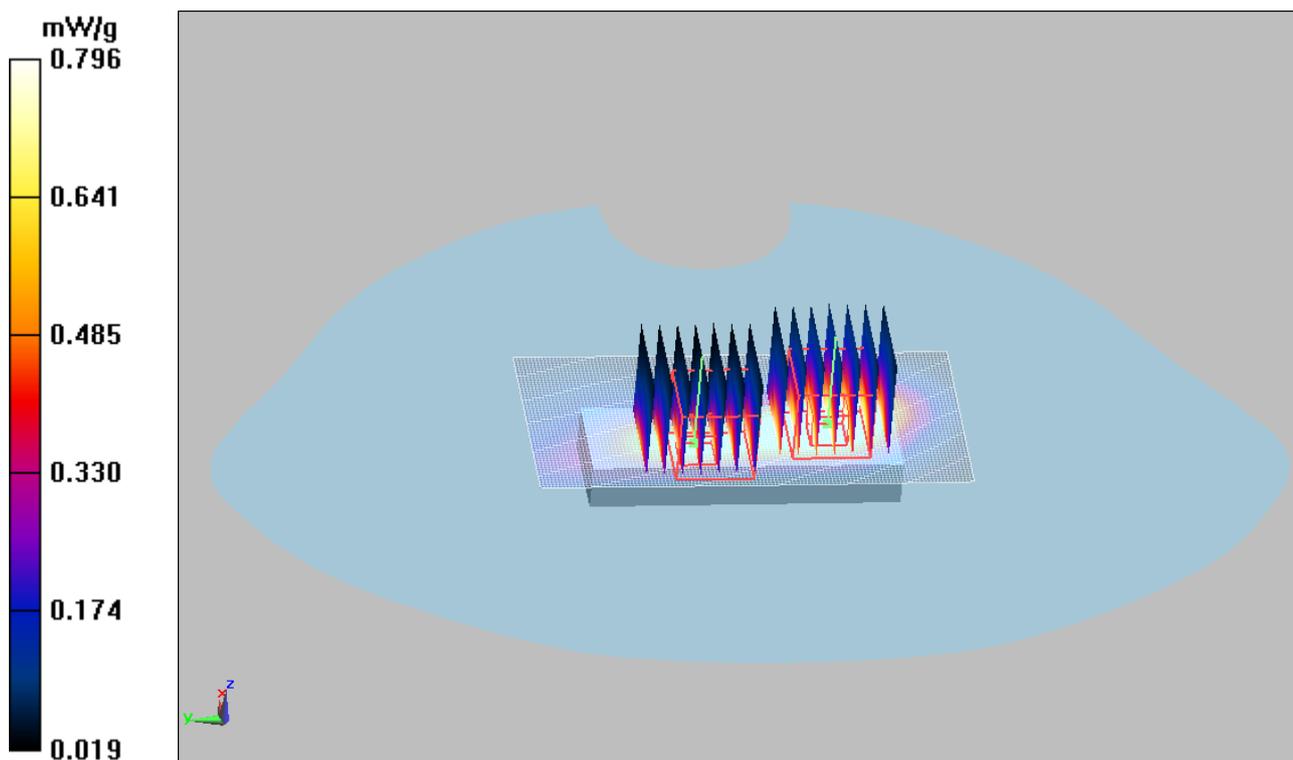


Figure 70 WCDMA Band II+ HSUPA with IBM T61 Test Position 1 Channel 9262

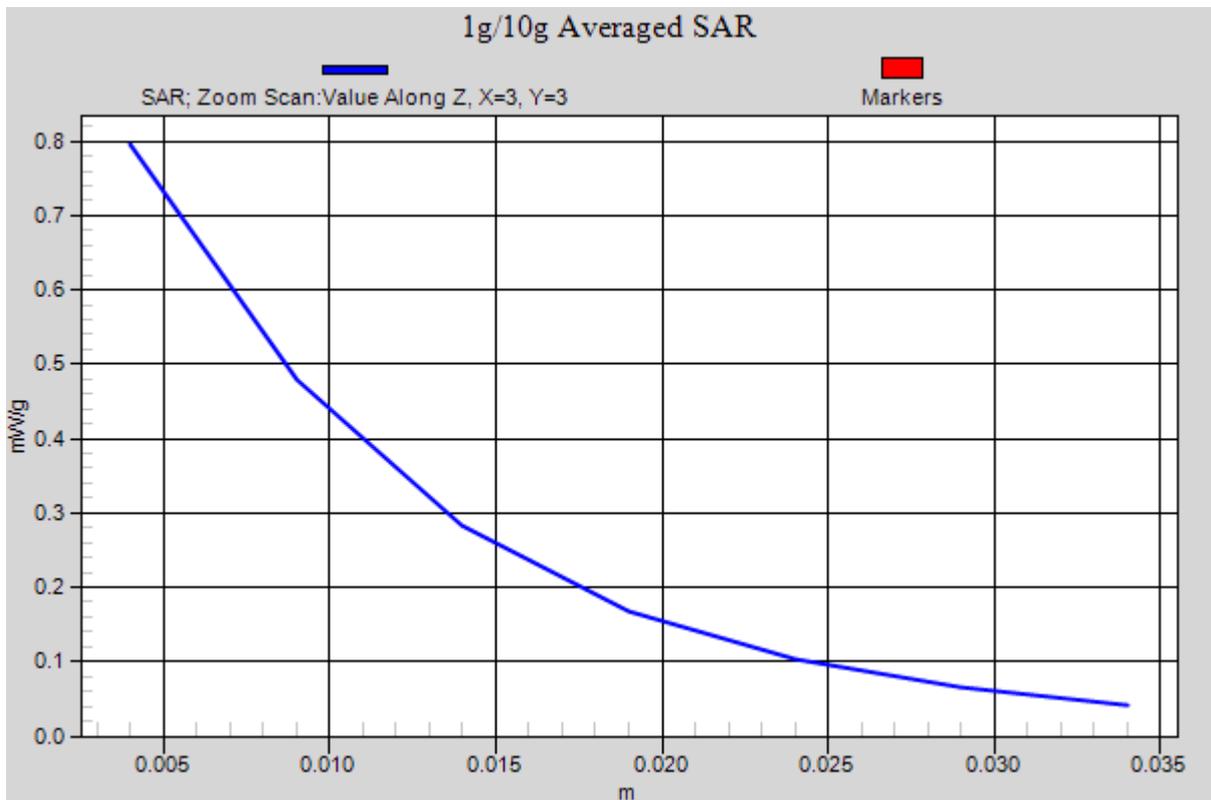
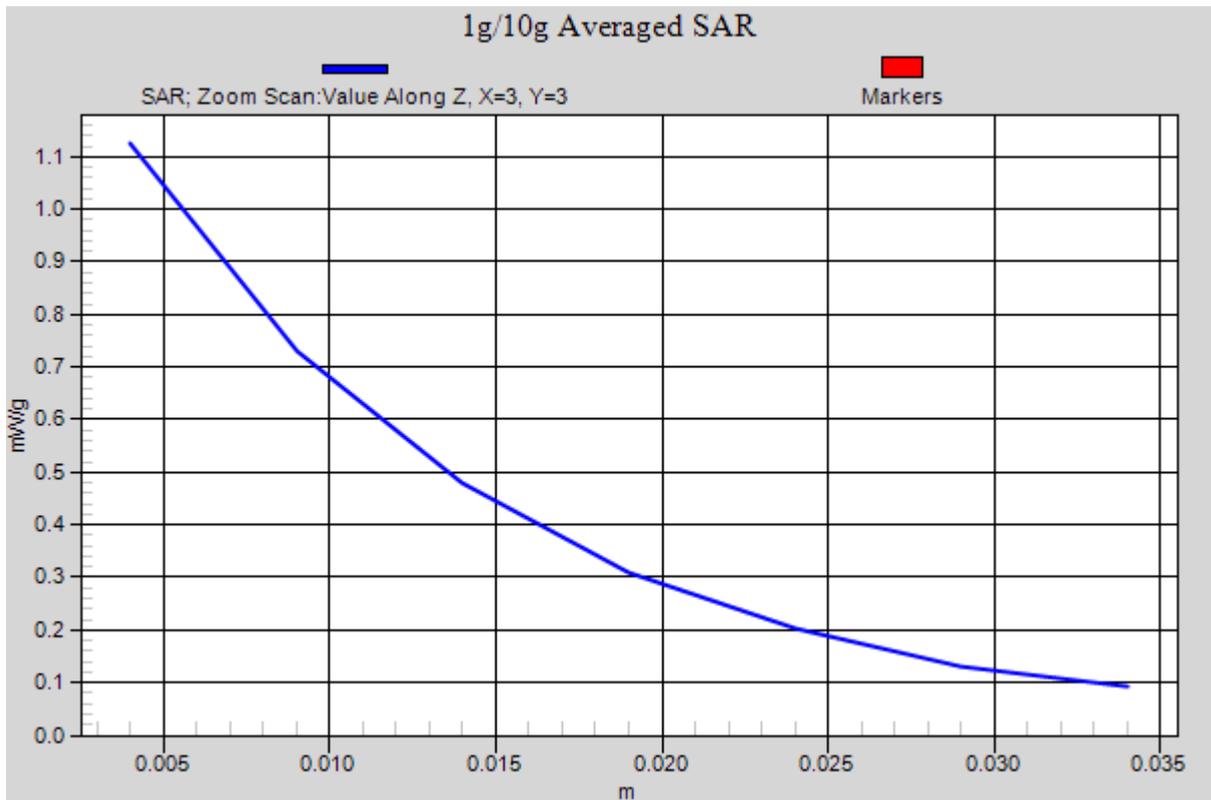


Figure 71 Z-Scan at power reference point [WCDMA Band II+ HSUPA with IBM T61 Test Position 1 Channel 9262]

WCDMA Band IV with IBM T61 Test Position 1 High

Date/Time: 12/15/2009 11:30:27 AM

Medium parameters used (interpolated): $f = 1752.6$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.7, 7.7, 7.7); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 1 High/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

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

Test Position 1 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 25.3 V/m; Power Drift = -0.043 dB

Peak SAR (extrapolated) = 1.55 W/kg

SAR(1 g) = 0.905 mW/g; SAR(10 g) = 0.498 mW/g

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

Test Position 1 High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 25.3 V/m; Power Drift = -0.043 dB

Peak SAR (extrapolated) = 1.55 W/kg

SAR(1 g) = 0.896 mW/g; SAR(10 g) = 0.512 mW/g

Maximum value of SAR (measured) = 0.992 mW/g

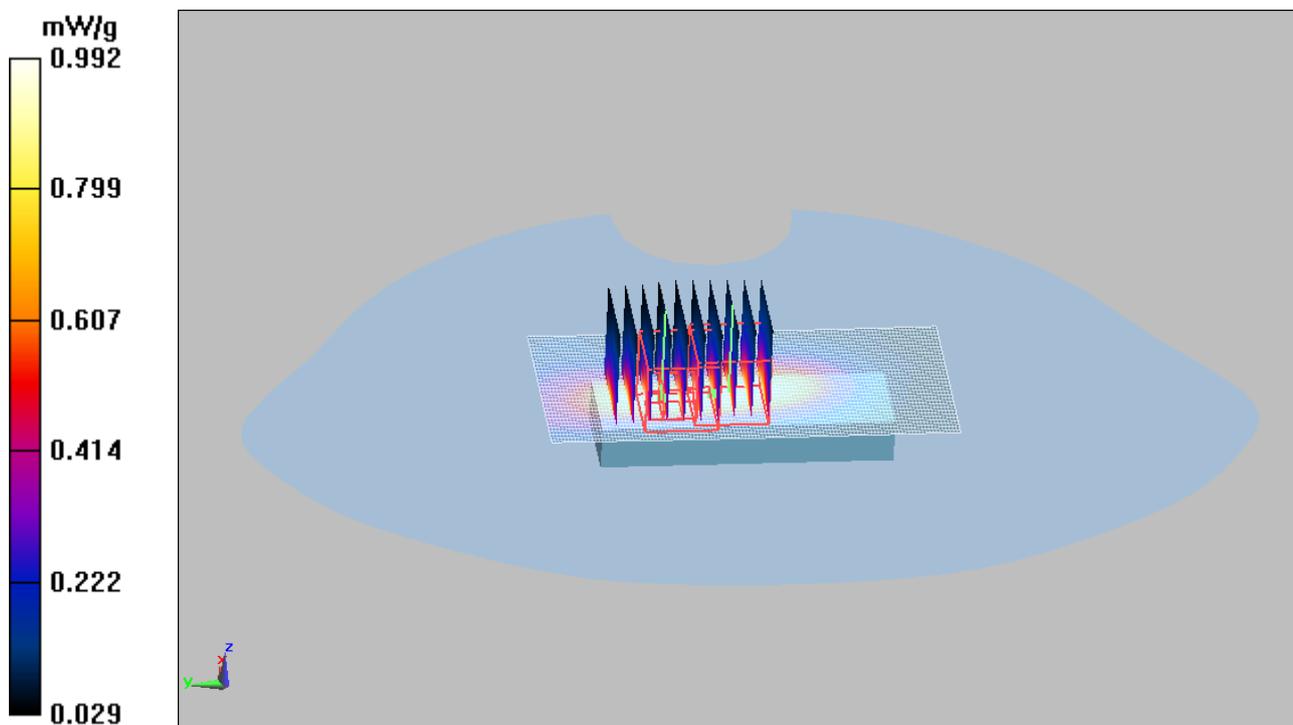


Figure 72 WCDMA Band IV with IBM T61 Test Position 1 Channel 1513

TA Technology (Shanghai) Co., Ltd.
Test Report

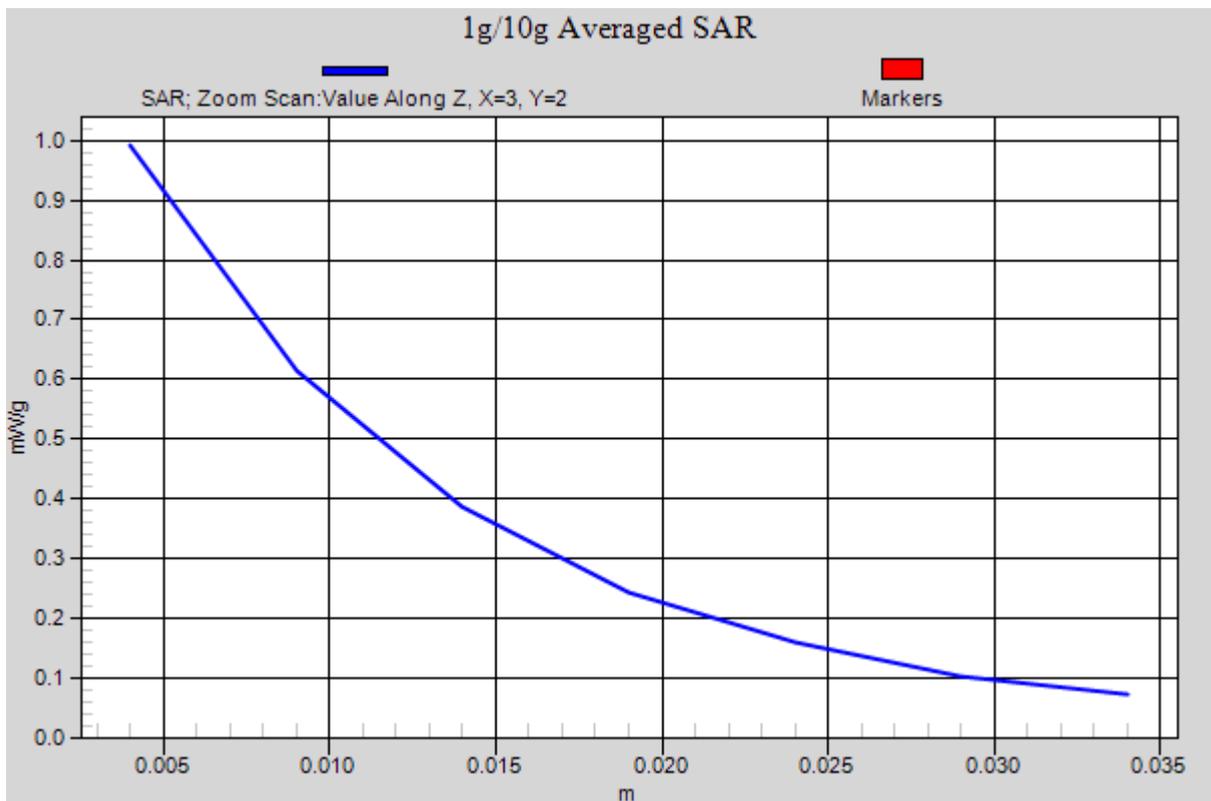
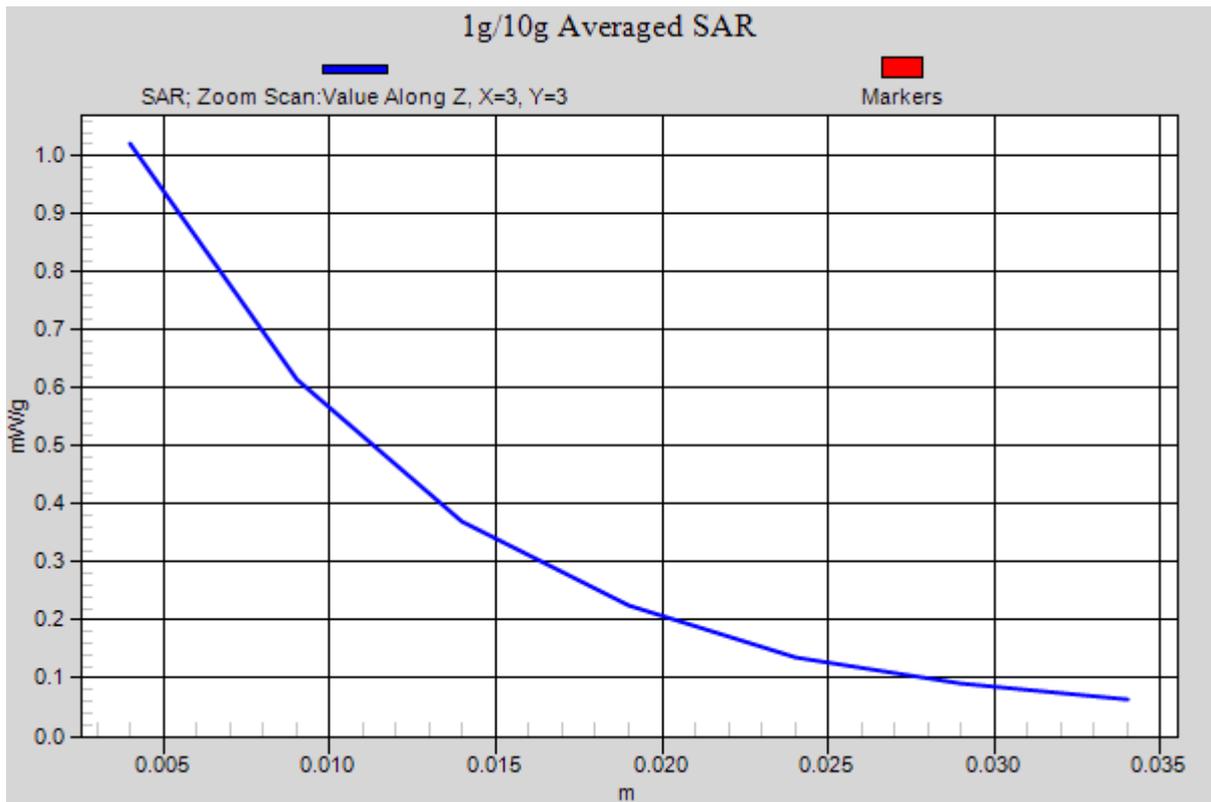


Figure 73 Z-Scan at power reference point [WCDMA Band IV with IBM T61 Test Position 1 Channel 1513]

WCDMA Band IV with IBM T61 Test Position 1 Middle

Date/Time: 12/15/2009 11:03:16 AM

Communication System: WCDMA Band IV; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.6$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.7, 7.7, 7.7); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 1 Middle/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.04 mW/g

Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.7 V/m; Power Drift = 0.116 dB

Peak SAR (extrapolated) = 1.48 W/kg

SAR(1 g) = 0.884 mW/g; SAR(10 g) = 0.515 mW/g

Maximum value of SAR (measured) = 0.975 mW/g

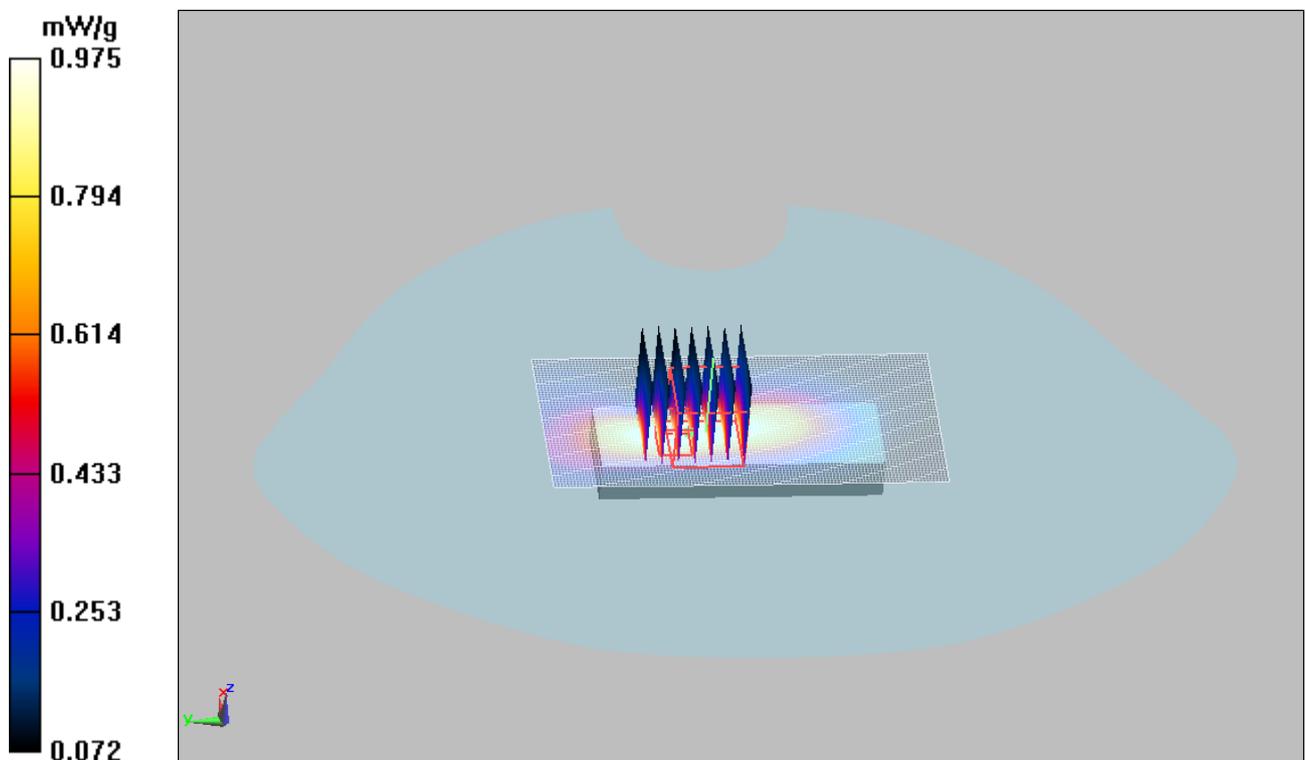


Figure 74 WCDMA Band IV with IBM T61 Test Position 1 Channel 1413

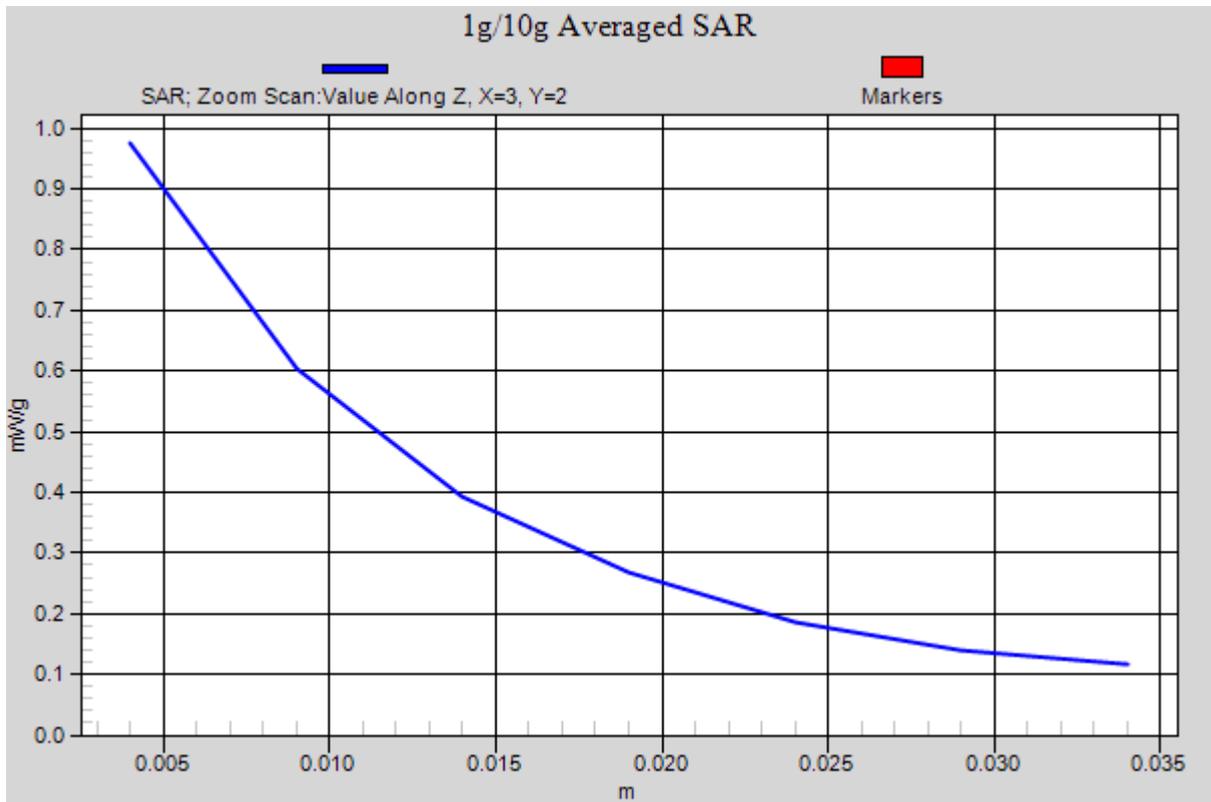


Figure 75 Z-Scan at power reference point [WCDMA Band IV with IBM T61 Test Position 1 Channel 1413]

WCDMA Band IV with IBM T61 Test Position 1 Low

Date/Time: 12/15/2009 12:27:15 PM

Communication System: WCDMA Band IV; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1712.4$ MHz; $\sigma = 1.43$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.7, 7.7, 7.7); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 1 Low/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.970 mW/g

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 23 V/m; Power Drift = 0.065 dB

Peak SAR (extrapolated) = 1.43 W/kg

SAR(1 g) = 0.827 mW/g; SAR(10 g) = 0.451 mW/g

Maximum value of SAR (measured) = 0.940 mW/g

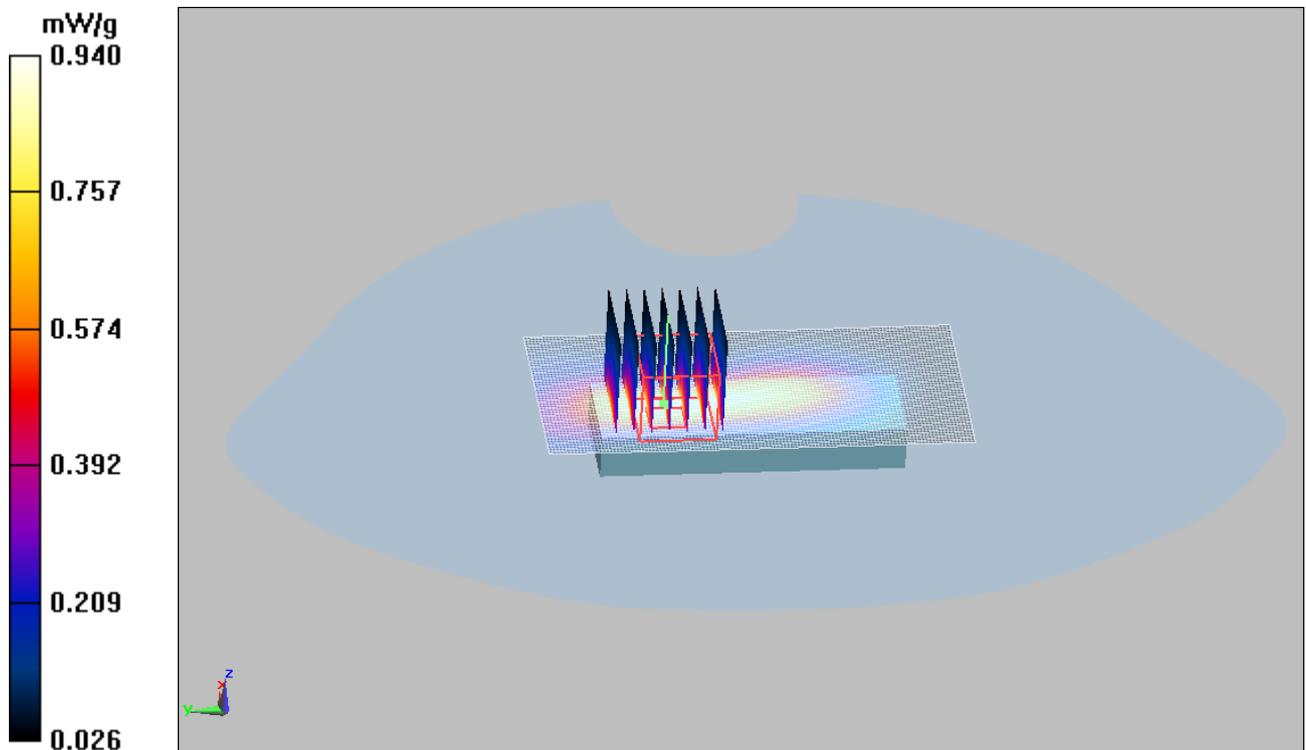


Figure 76 WCDMA Band IV with IBM T61 Test Position 1 Channel 1312

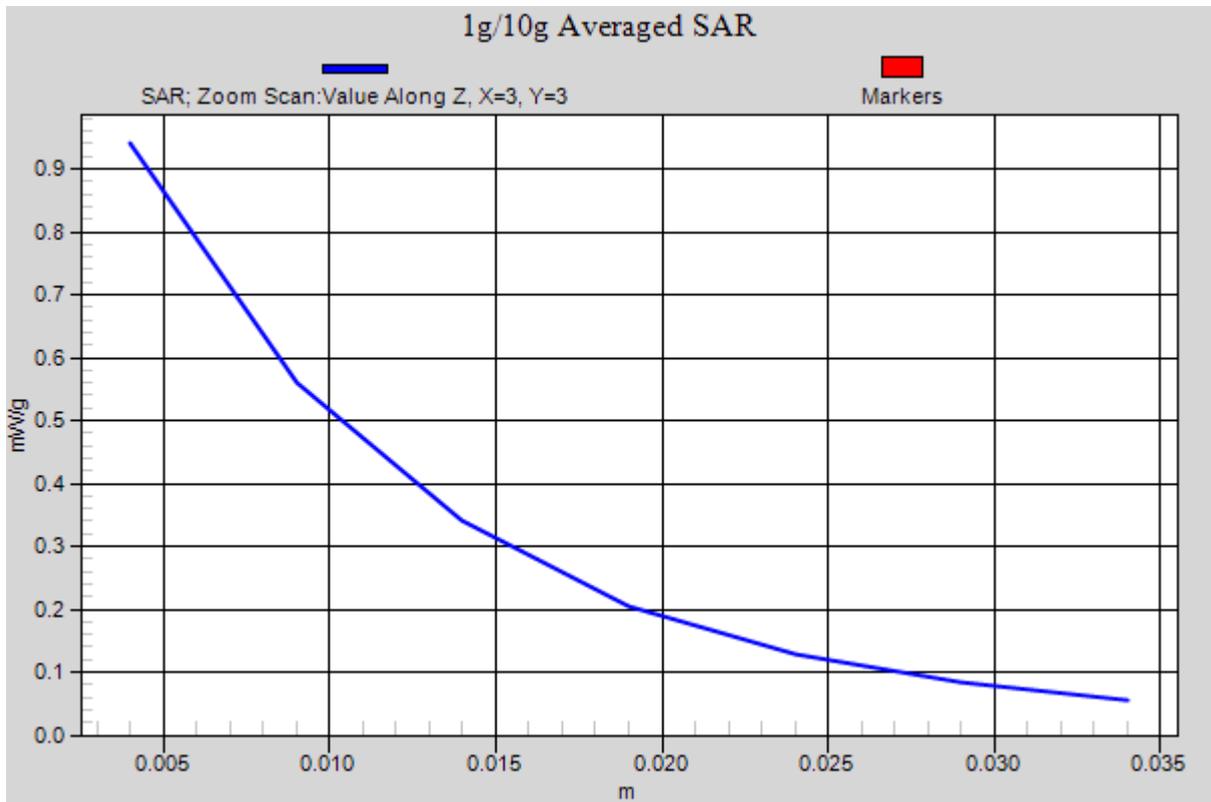


Figure 77 Z-Scan at power reference point [WCDMA Band IV with IBM T61 Test Position 1 Channel 1312]

WCDMA Band IV with IBM T61 Test Position 2 High

Date/Time: 12/15/2009 9:45:42 AM

Communication System: WCDMA Band IV; Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1752.6$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.7, 7.7, 7.7); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 2 High/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

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

Test Position 2 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 25.4 V/m; Power Drift = 0.059 dB

Peak SAR (extrapolated) = 1.57 W/kg

SAR(1 g) = 0.938 mW/g; SAR(10 g) = 0.532 mW/g

Maximum value of SAR (measured) = 1.04 mW/g

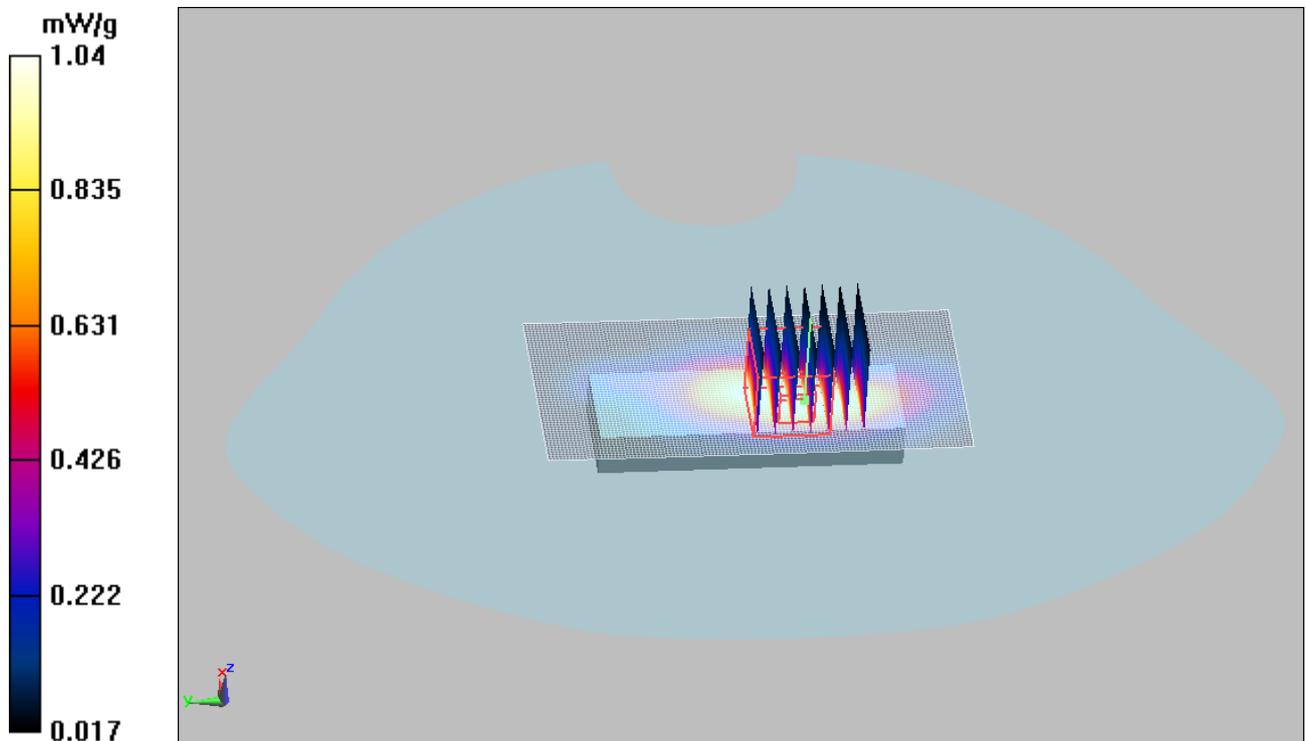


Figure 78 WCDMA Band IV with IBM T61 Test Position 2 Channel 1513

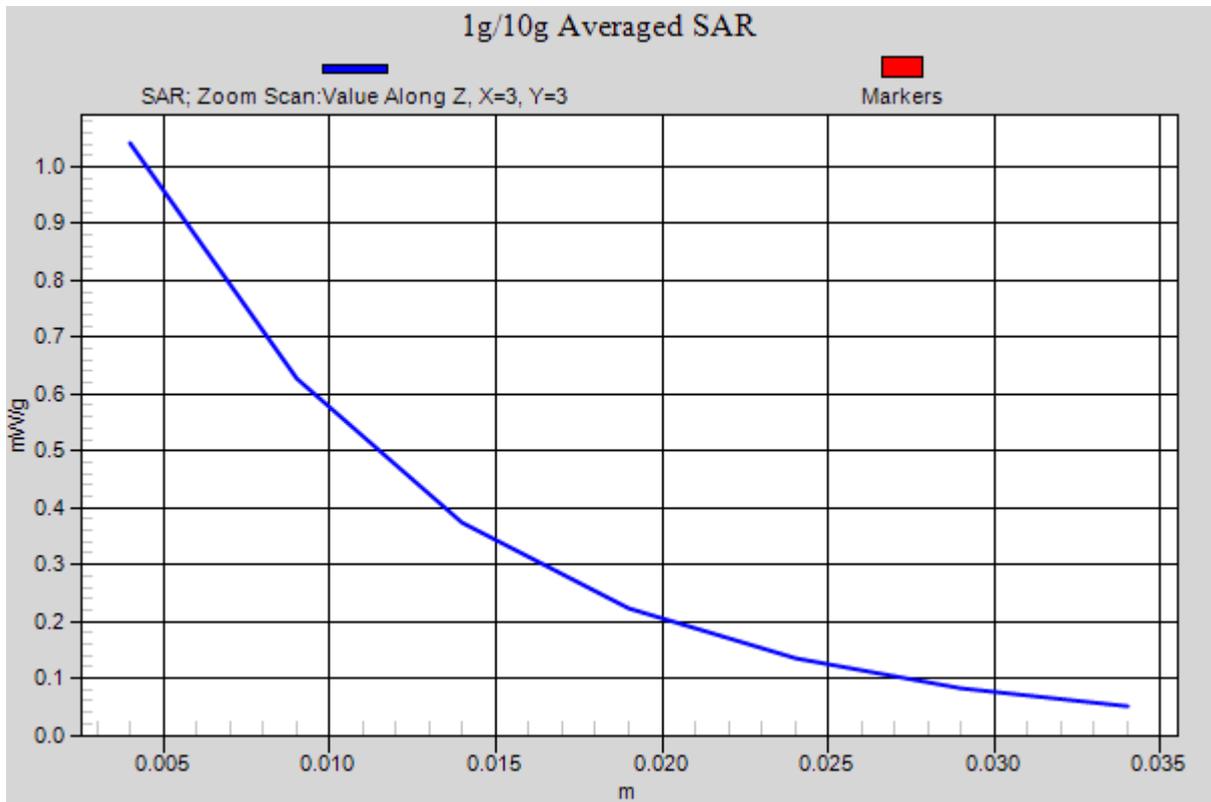


Figure 79 Z-Scan at power reference point [WCDMA Band IV with IBM T61 Test Position 2 Channel 1513]

WCDMA Band IV with IBM T61 Test Position 2 Middle

Date/Time: 12/15/2009 9:20:01 AM

Communication System: WCDMA Band IV; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.6$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.7, 7.7, 7.7); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 2 Middle/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.977 mW/g

Test Position 2 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.5 V/m; Power Drift = 0.162 dB

Peak SAR (extrapolated) = 1.46 W/kg

SAR(1 g) = 0.853 mW/g; SAR(10 g) = 0.470 mW/g

Maximum value of SAR (measured) = 0.942 mW/g

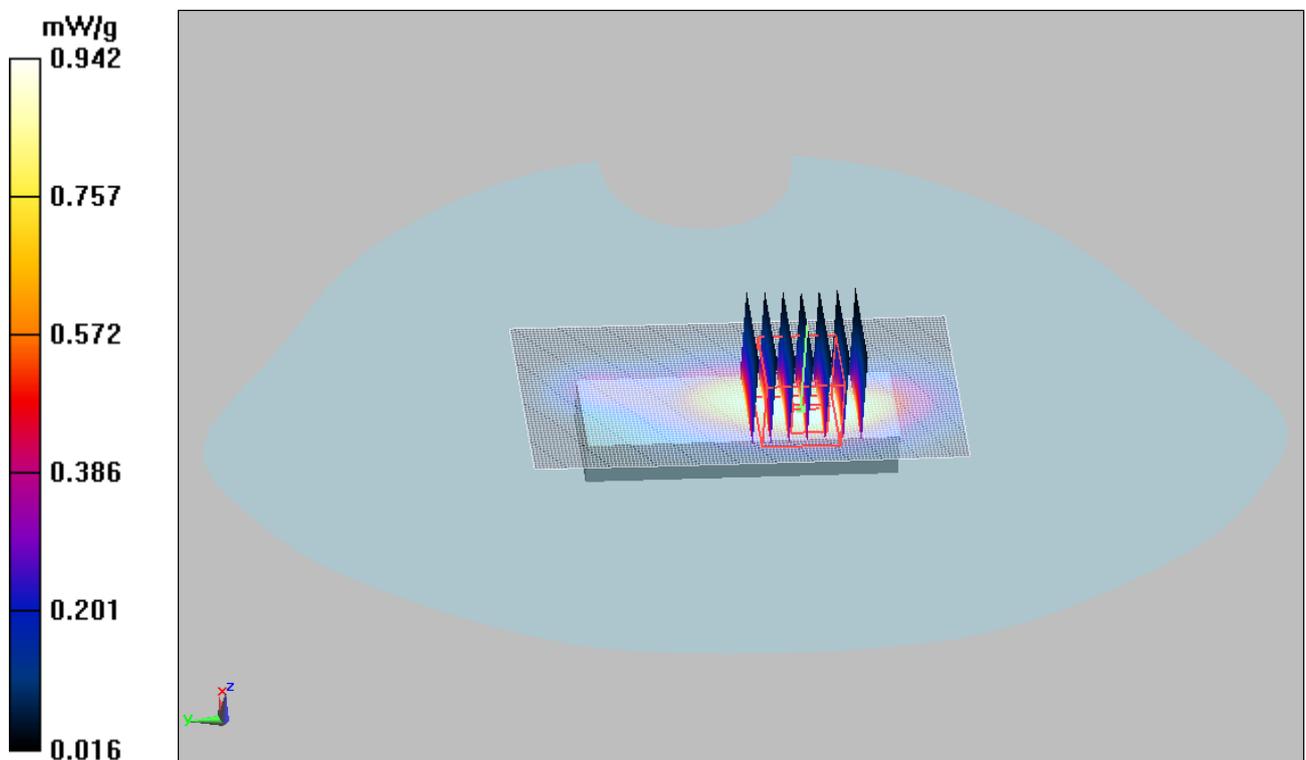


Figure 80 WCDMA Band IV with IBM T61 Test Position 2 Channel 1413

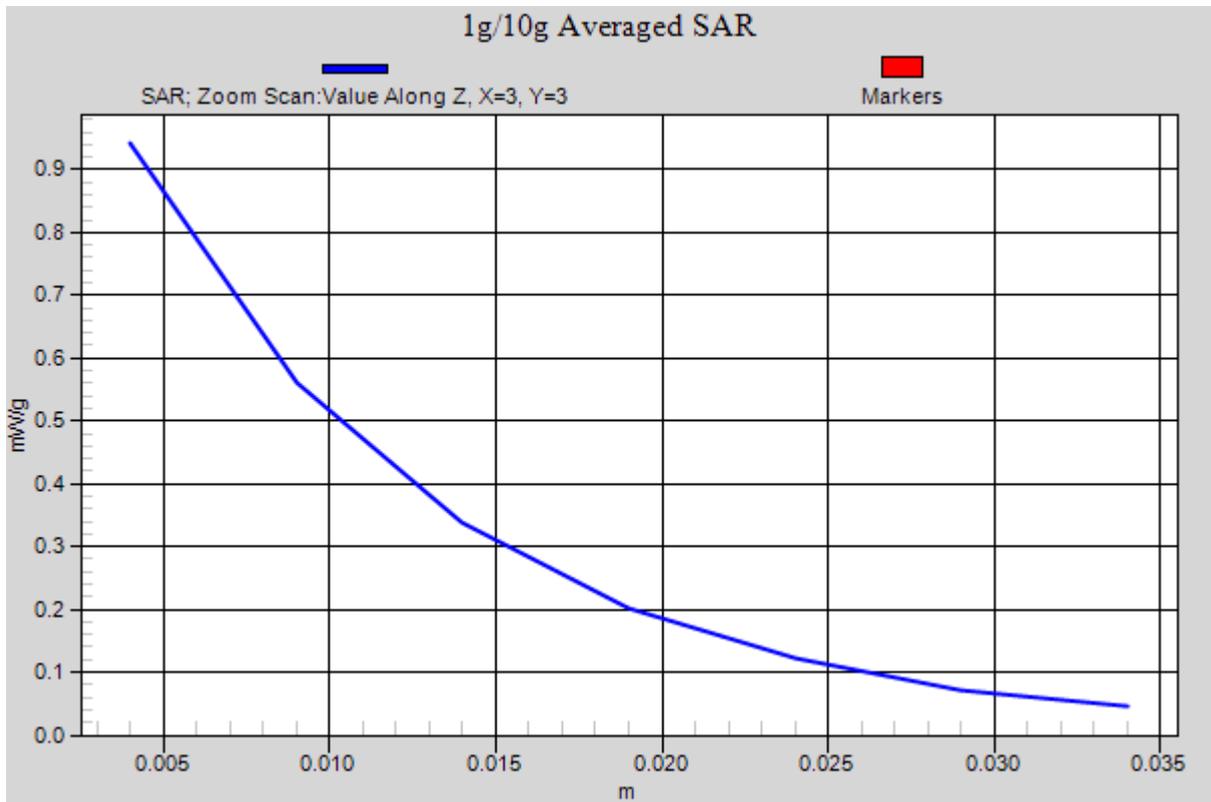


Figure 81 Z-Scan at power reference point [WCDMA Band IV with IBM T61 Test Position 2 Channel 1413]

WCDMA Band IV with IBM T61 Test Position 2 Low

Date/Time: 12/15/2009 10:10:09 AM

Communication System: WCDMA Band IV; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1712.4$ MHz; $\sigma = 1.43$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.7, 7.7, 7.7); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 2 Low/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.984 mW/g

Test Position 2 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.8 V/m; Power Drift = 0.020 dB

Peak SAR (extrapolated) = 1.47 W/kg

SAR(1 g) = 0.871 mW/g; SAR(10 g) = 0.476 mW/g

Maximum value of SAR (measured) = 0.968 mW/g

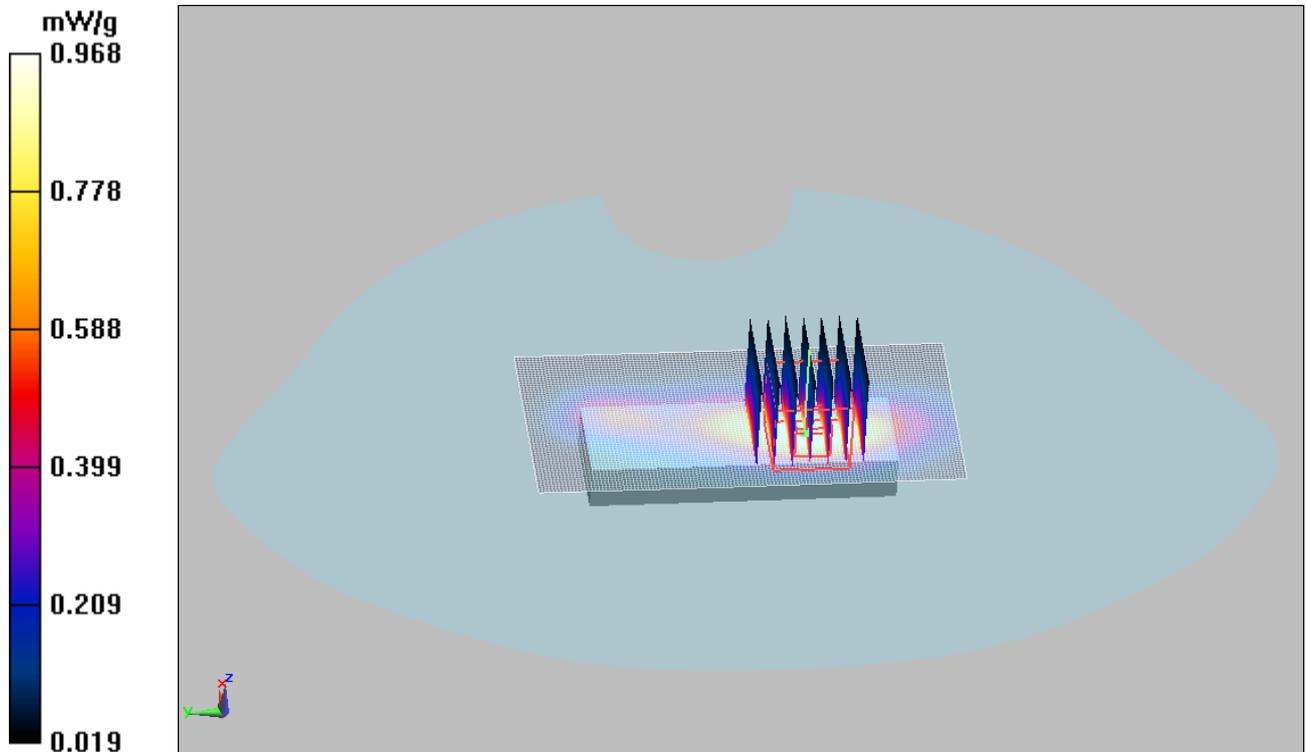


Figure 82 WCDMA Band IV with IBM T61 Test Position 2 Channel 1312

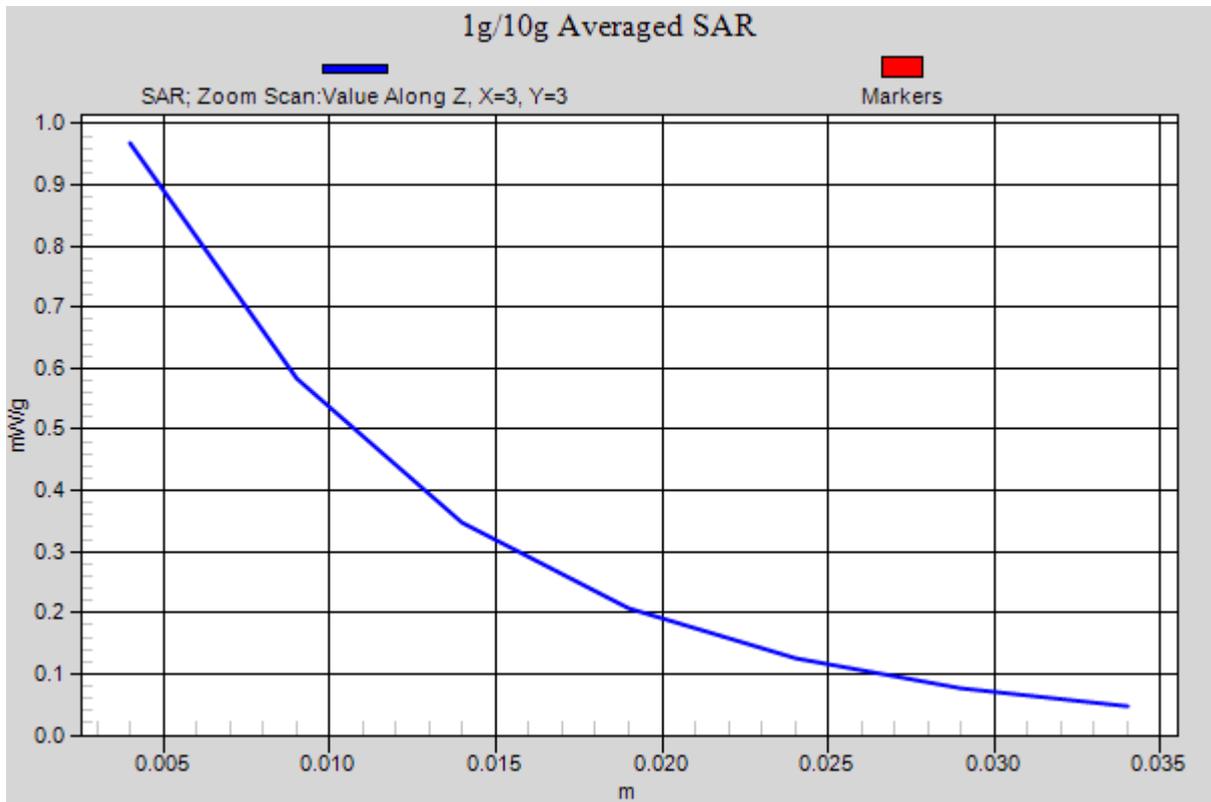


Figure 83 Z-Scan at power reference point [WCDMA Band IV with IBM T61 Test Position 2 Channel 1312]

WCDMA Band IV with BenQ Joybook R55V Test Position 3 Middle

Date/Time: 12/15/2009 2:37:08 PM

Communication System: WCDMA Band IV; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.6$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.7, 7.7, 7.7); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 3 Middle/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.480 mW/g

Test Position 3 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.2 V/m; Power Drift = 0.020 dB

Peak SAR (extrapolated) = 0.729 W/kg

SAR(1 g) = 0.419 mW/g; SAR(10 g) = 0.228 mW/g

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

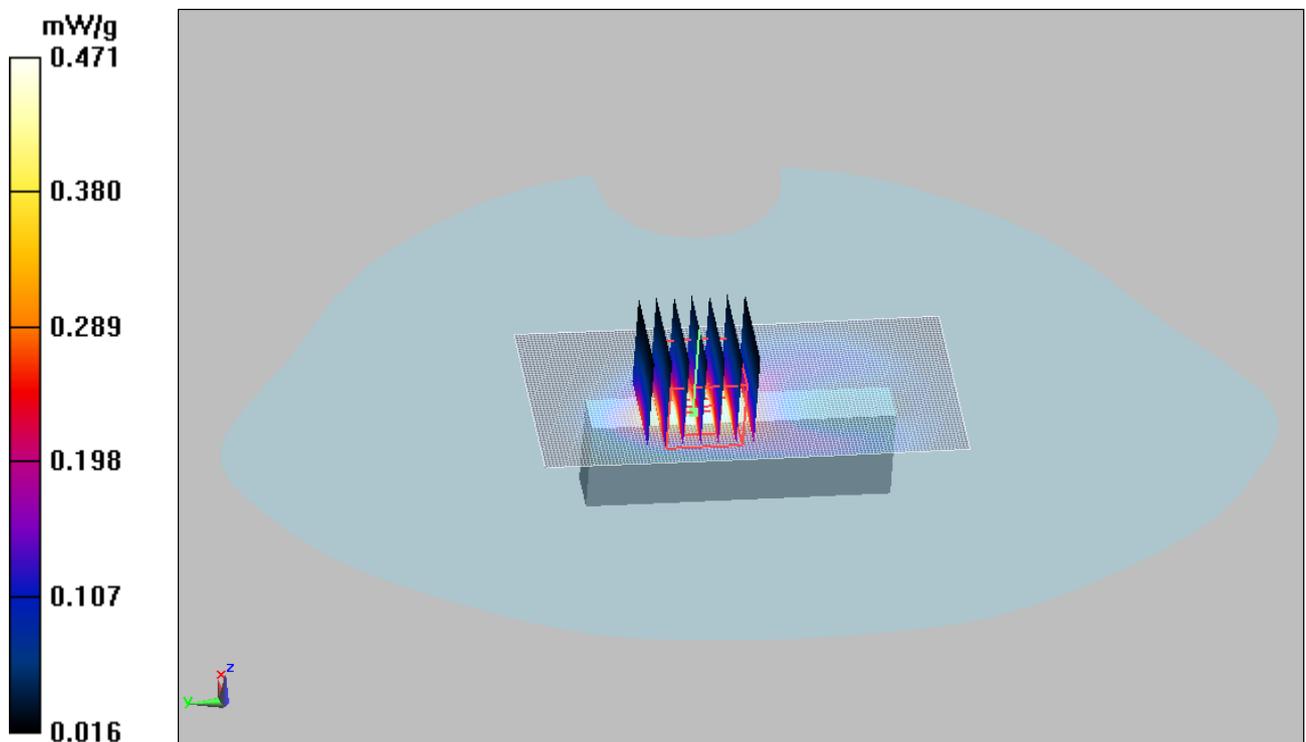


Figure 84 WCDMA Band IV with BenQ Joybook R55V Test Position 3 Channel 1413

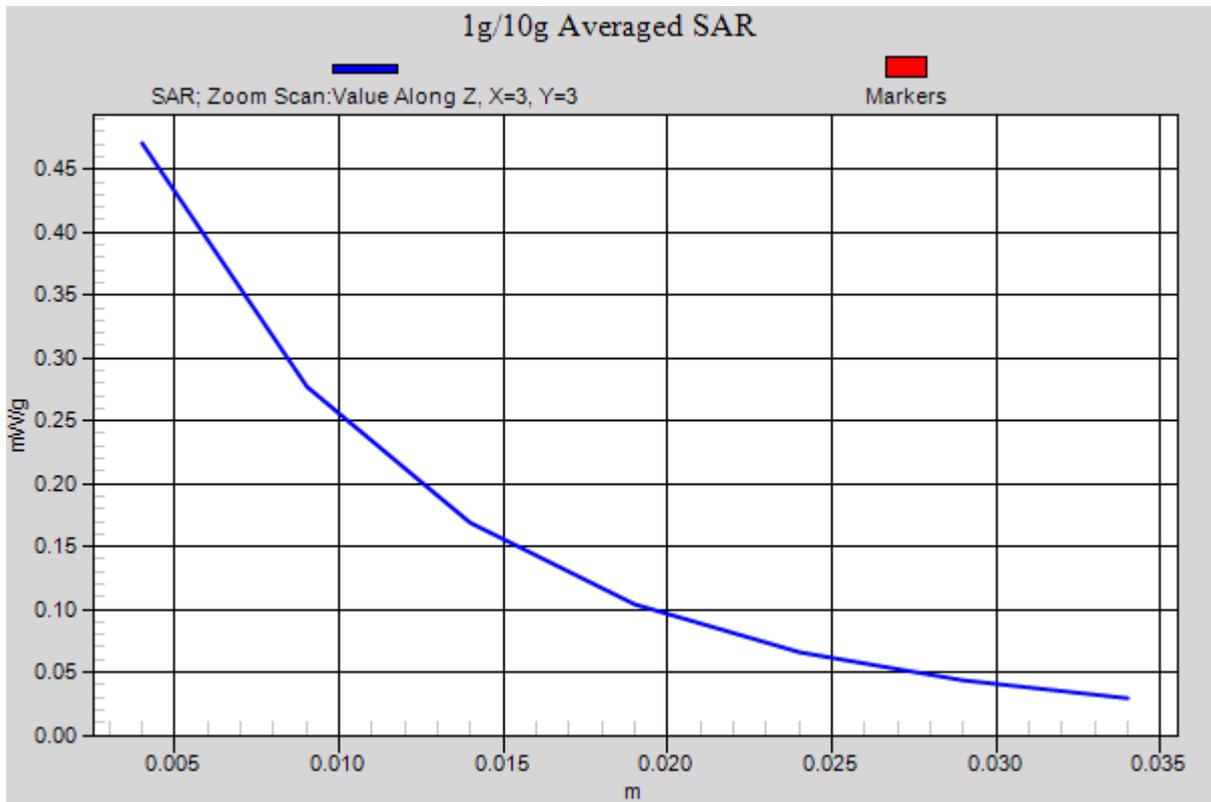


Figure 85 Z-Scan at power reference point [WCDMA Band IV with BenQ Joybook R55V Test Position 3 Channel 1413]

WCDMA Band IV with BenQ Joybook R55V Test Position 4 Middle

Date/Time: 12/15/2009 1:12:34 PM

Communication System: WCDMA Band IV; Frequency: 1732.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1732.6$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.7, 7.7, 7.7); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 4 Middle/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.1 mW/g

Test Position 4 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 27.3 V/m; Power Drift = -0.011 dB

Peak SAR (extrapolated) = 1.25 W/kg

SAR(1 g) = 0.752 mW/g; SAR(10 g) = 0.436 mW/g

Maximum value of SAR (measured) = 0.837 mW/g

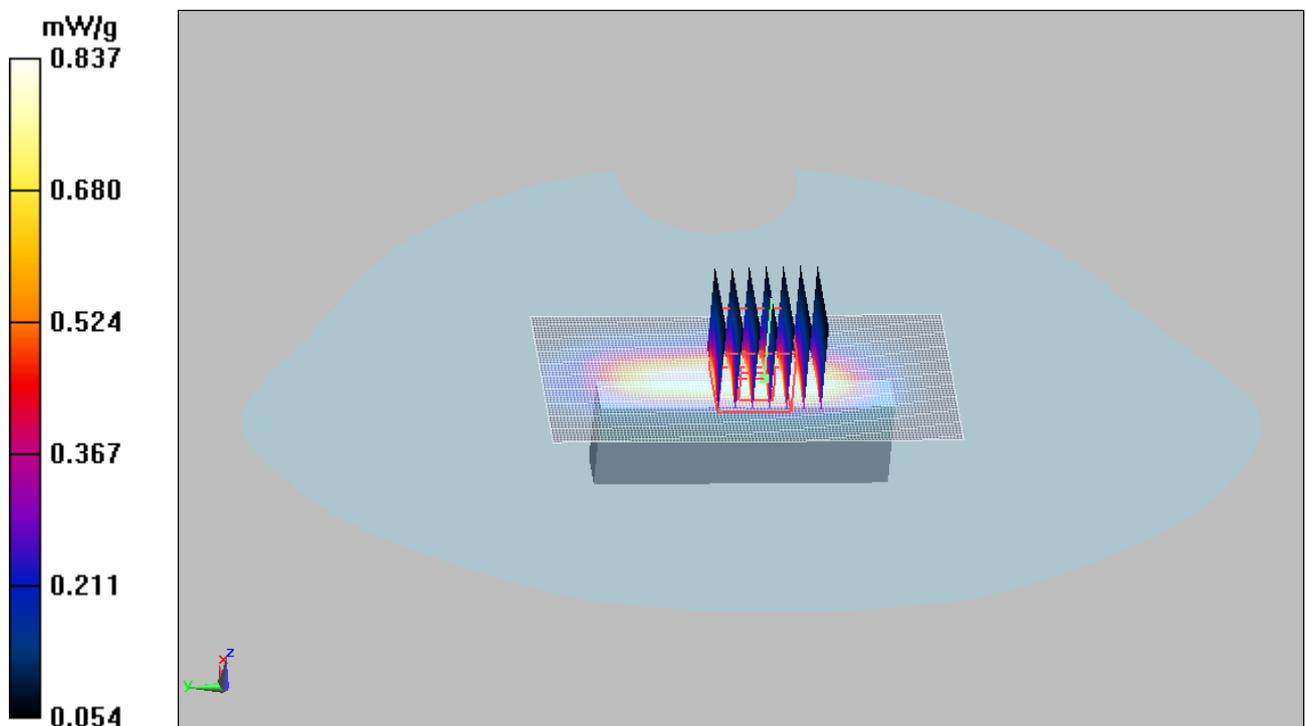


Figure 86 WCDMA Band IV with BenQ Joybook R55V Test Position 4 Channel 1413

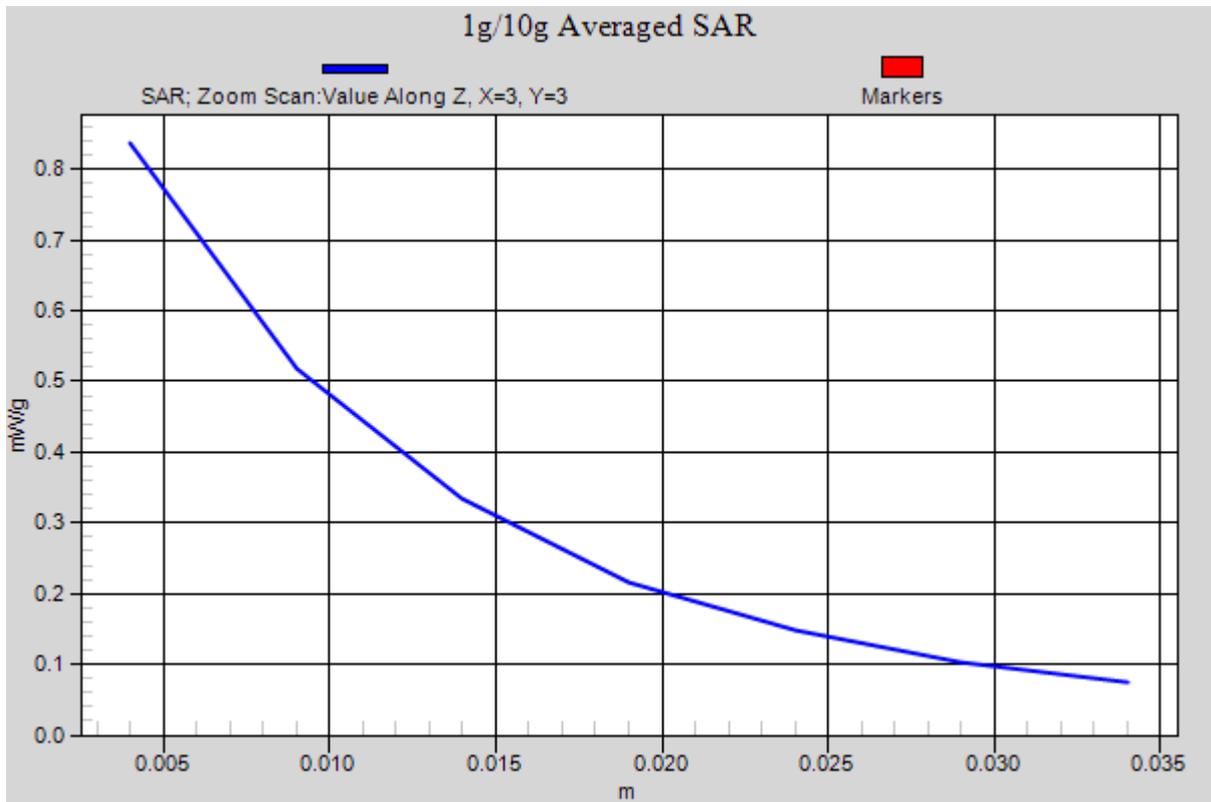


Figure 87 Z-Scan at power reference point [WCDMA Band IV with BenQ Joybook R55V Test Position 4 Channel 1413]

WCDMA Band IV + HSDPA with IBM T61 Test Position 2 High

Date/Time: 12/15/2009 10:45:28 AM

Communication System: WCDMA Band IV+HSDPA; Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1752.6$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.7, 7.7, 7.7); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 2 High/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

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

Test Position 2 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.8 V/m; Power Drift = -0.074 dB

Peak SAR (extrapolated) = 1.45 W/kg

SAR(1 g) = 0.883 mW/g; SAR(10 g) = 0.515 mW/g

Maximum value of SAR (measured) = 0.969 mW/g

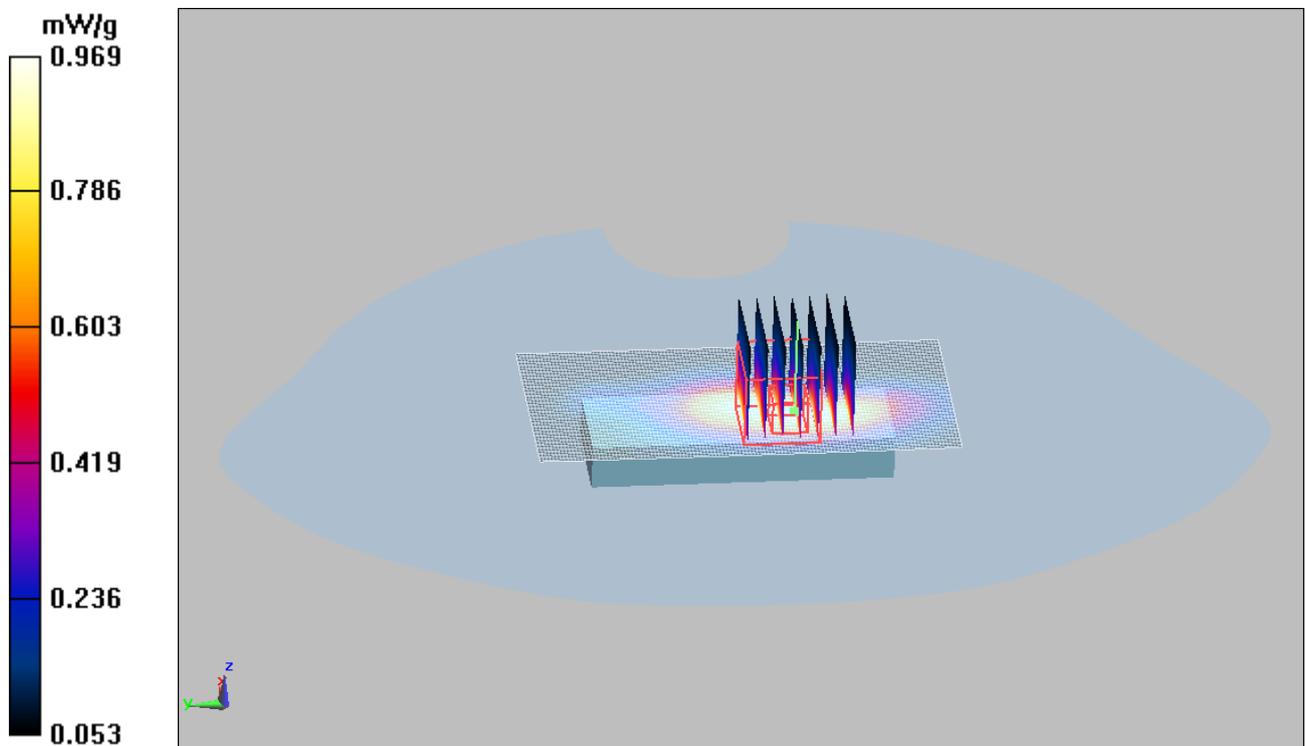


Figure 88 WCDMA Band IV+ HSDPA with IBM T61 Test Position 2 Channel 1513

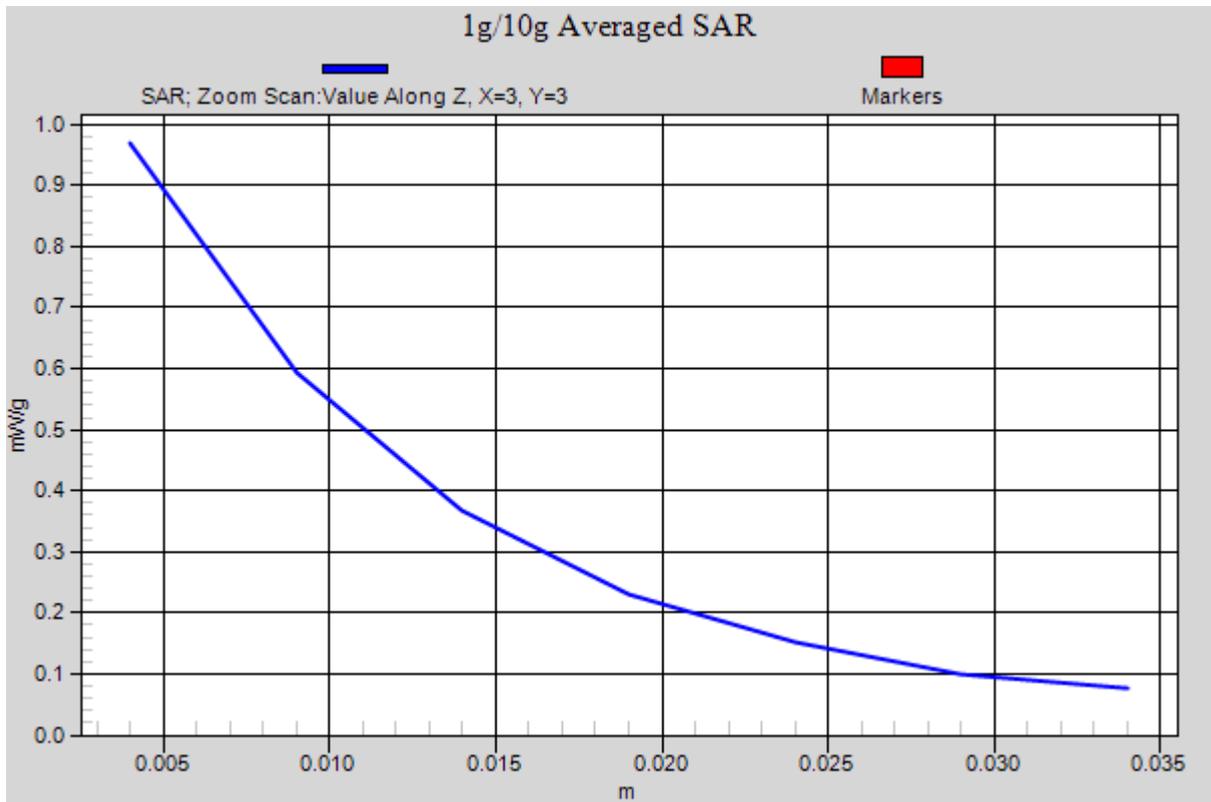


Figure 89 Z-Scan at power reference point [WCDMA Band IV+ HSDPA with IBM T61 Test Position 2 Channel 1513]

WCDMA Band IV + HSUPA with IBM T61 Test Position 2 High

Date/Time: 12/15/2009 11:01:44 AM

Communication System: WCDMA Band IV+HSUPA; Frequency: 1752.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 1752.6$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.8$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(7.7, 7.7, 7.7); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM2; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 2 High/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.873 mW/g

Test Position 2 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.7 V/m; Power Drift = -0.055 dB

Peak SAR (extrapolated) = 1.28 W/kg

SAR(1 g) = 0.767 mW/g; SAR(10 g) = 0.441 mW/g

Maximum value of SAR (measured) = 0.848 mW/g

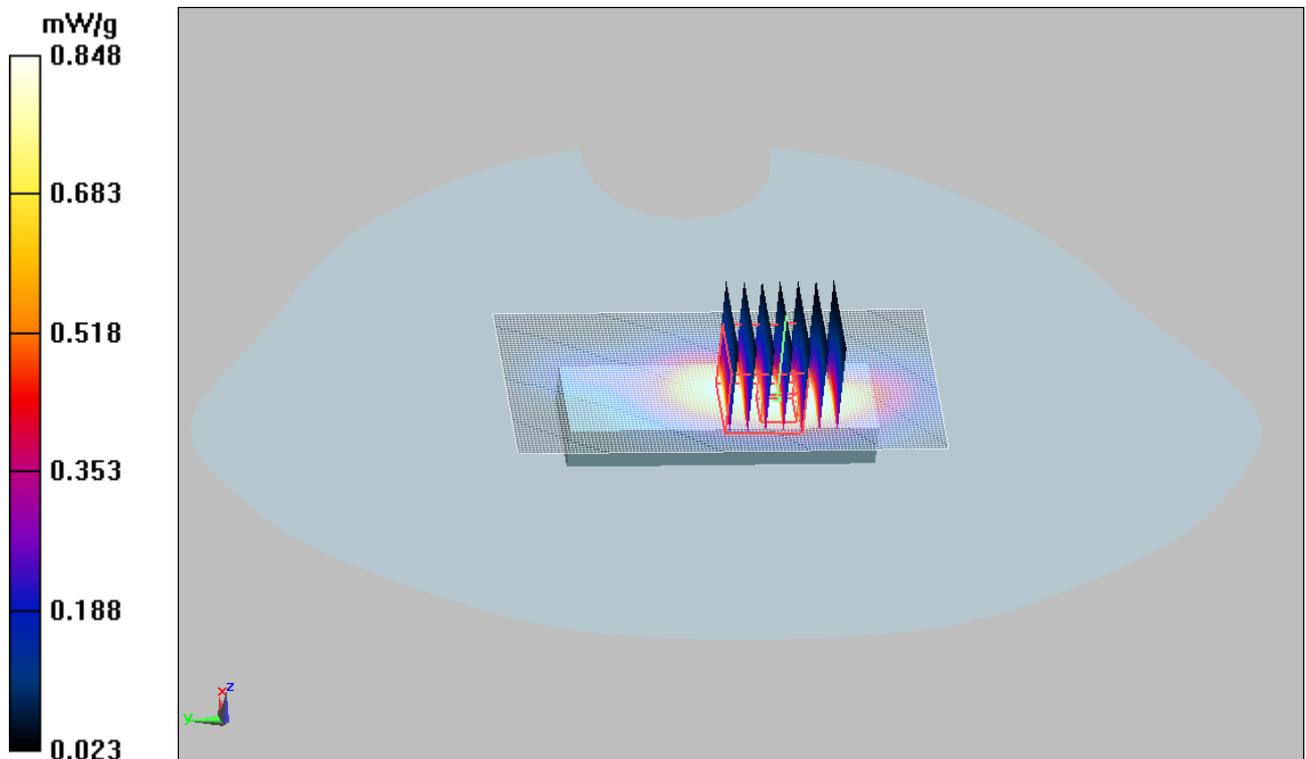


Figure 90 WCDMA Band IV+ HSUPA with IBM T61 Test Position 2 Channel 1513

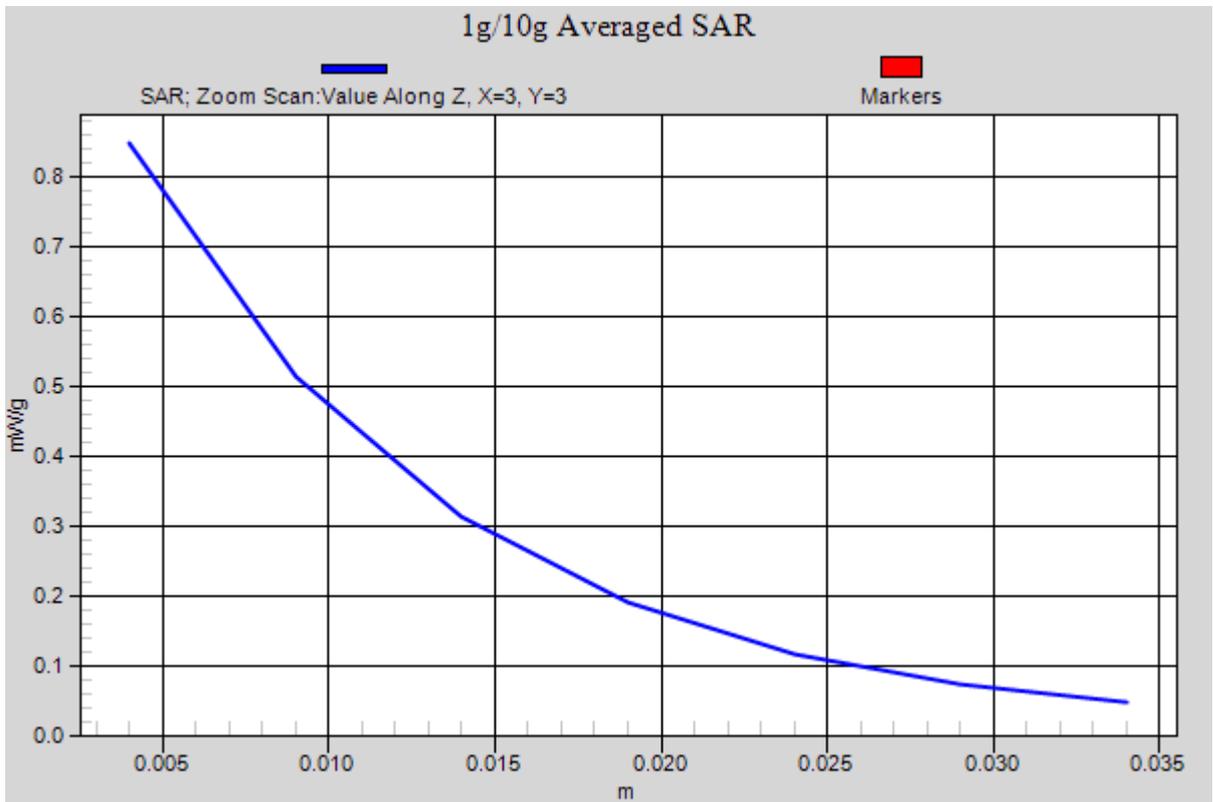


Figure 91 Z-Scan at power reference point [WCDMA Band IV+ HSUPA with IBM T61 Test Position 2 Channel 1513]

WCDMA Band V with IBM T61 Test Position 1 High

Date/Time: 12/14/2009 6:23:20 PM

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

Medium parameters used: $f = 847$ MHz; $\sigma = 1$ mho/m; $\epsilon_r = 53.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM1; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 1 High/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.340 mW/g

Test Position 1 High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18 V/m; Power Drift = 0.144 dB

Peak SAR (extrapolated) = 0.502 W/kg

SAR(1 g) = 0.310 mW/g; SAR(10 g) = 0.185 mW/g

Maximum value of SAR (measured) = 0.340 mW/g

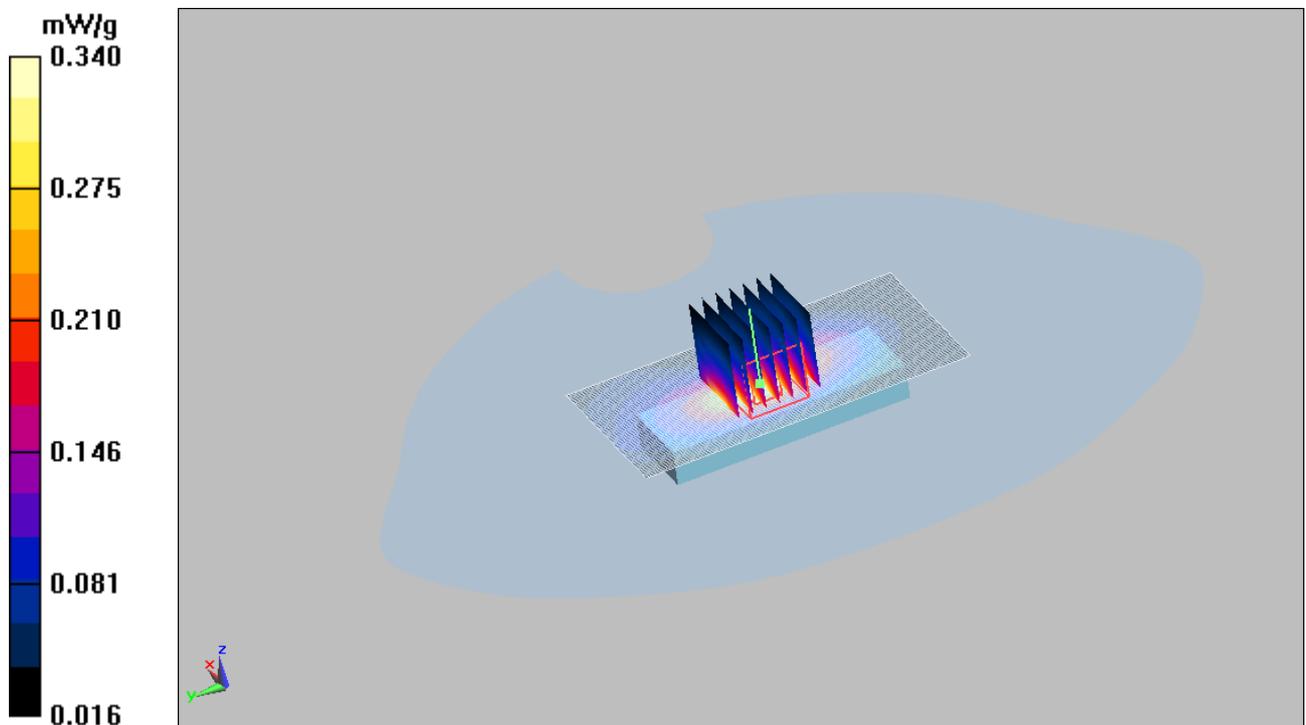


Figure 92 WCDMA Band V with IBM T61 Test Position 1 Channel 4233

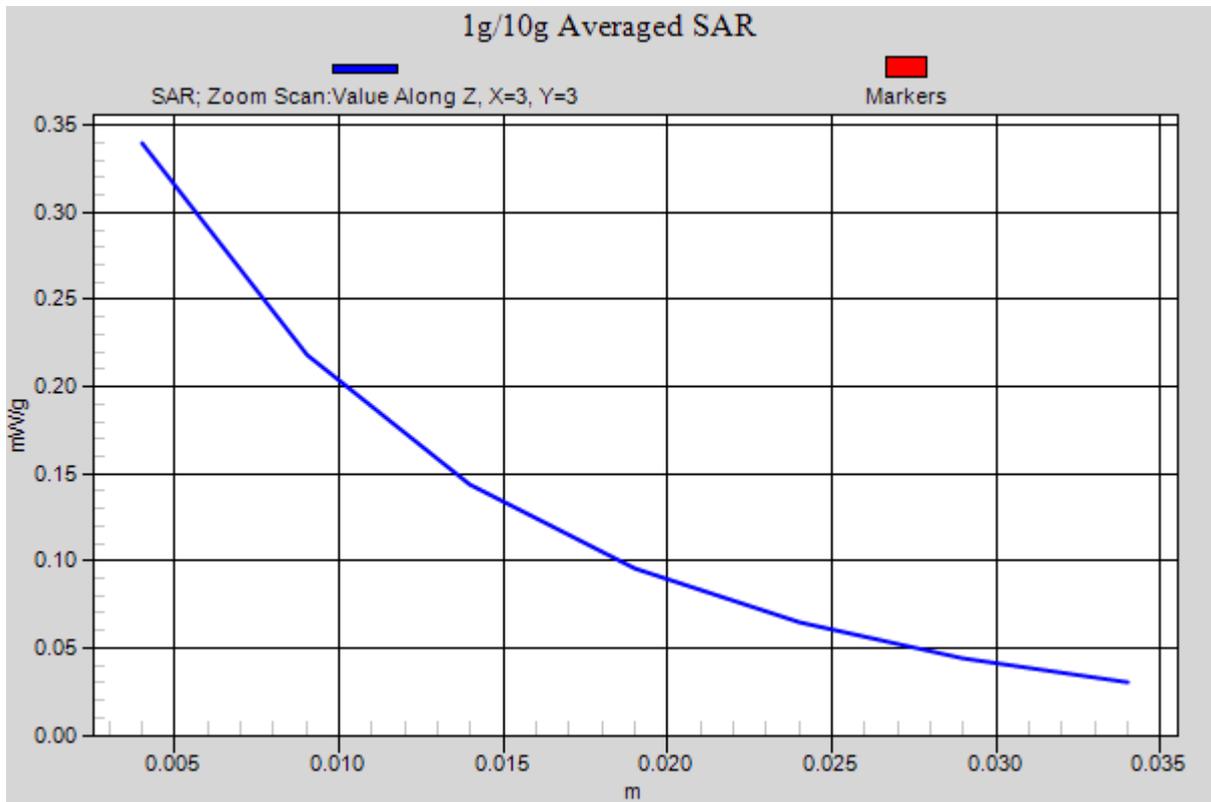


Figure 93 Z-Scan at power reference point [WCDMA Band V with IBM T61 Test Position 1 Channel 4233]

WCDMA Band V with IBM T61 Test Position 1 Middle

Date/Time: 12/14/2009 10:26:20 AM

Communication System: WCDMA Band V; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.989$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM1; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 1 Middle/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.334 mW/g

Test Position 1 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.1 V/m; Power Drift = 0.076 dB

Peak SAR (extrapolated) = 0.493 W/kg

SAR(1 g) = 0.304 mW/g; SAR(10 g) = 0.183 mW/g

Maximum value of SAR (measured) = 0.337 mW/g

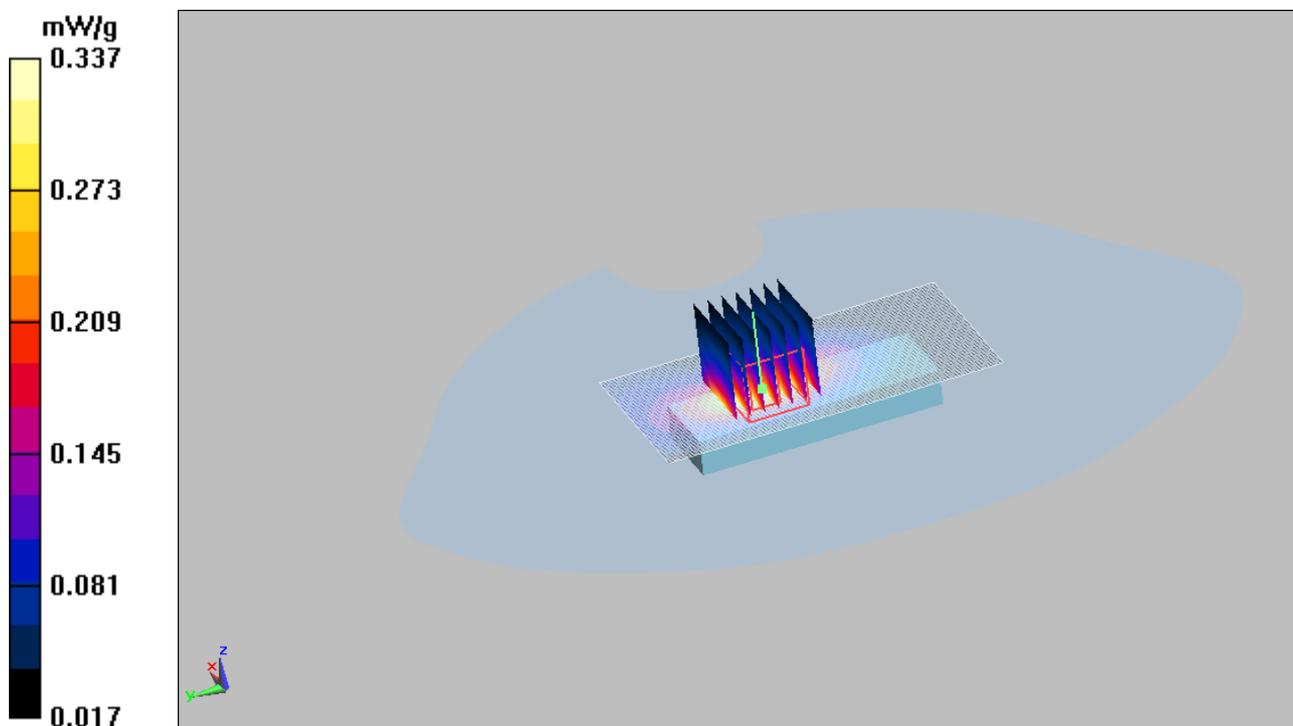


Figure 94 WCDMA Band V with IBM T61 Test Position 1 Channel 4183

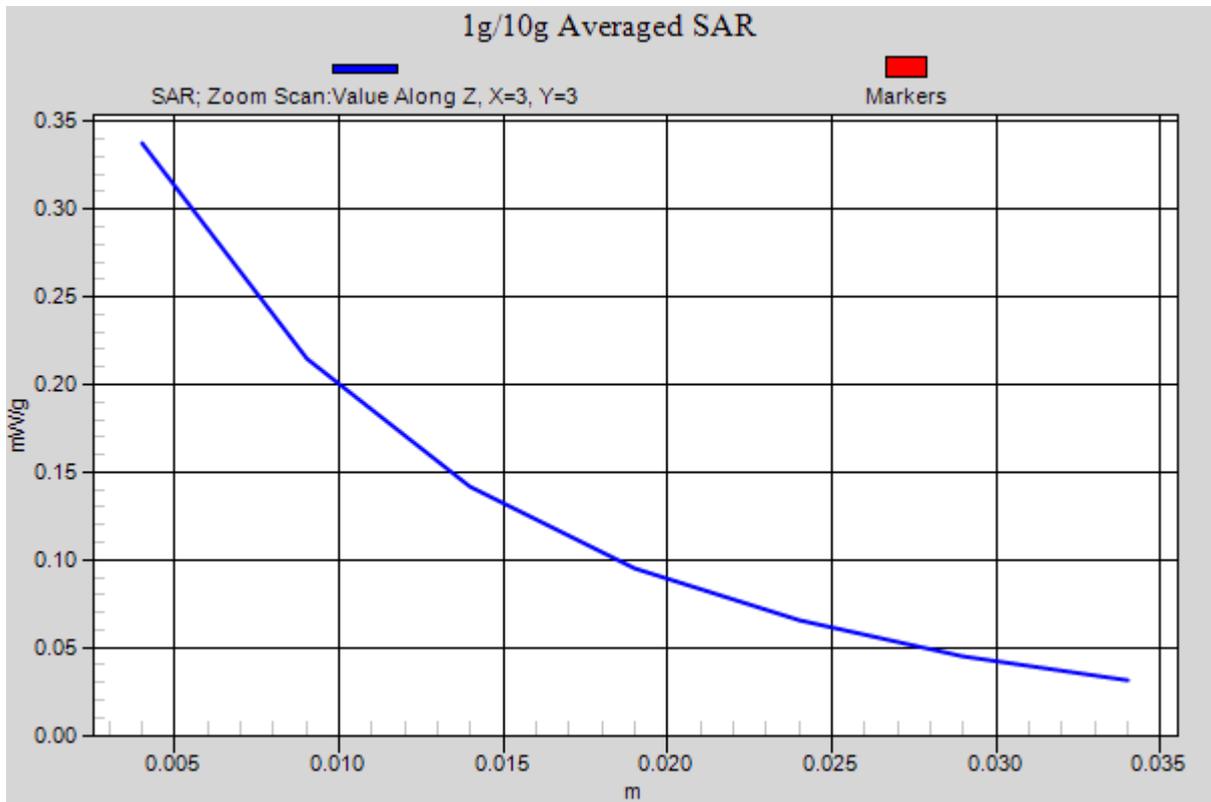


Figure 95 Z-Scan at power reference point [WCDMA Band V with IBM T61 Test Position 1 Channel 4183]

WCDMA Band V with IBM T61 Test Position 1 Low

Date/Time: 12/14/2009 6:47:47 PM

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

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.974$ mho/m; $\epsilon_r = 53.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM1; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 1 Low/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.366 mW/g

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19 V/m; Power Drift = 0.057 dB

Peak SAR (extrapolated) = 0.531 W/kg

SAR(1 g) = 0.331 mW/g; SAR(10 g) = 0.199 mW/g

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

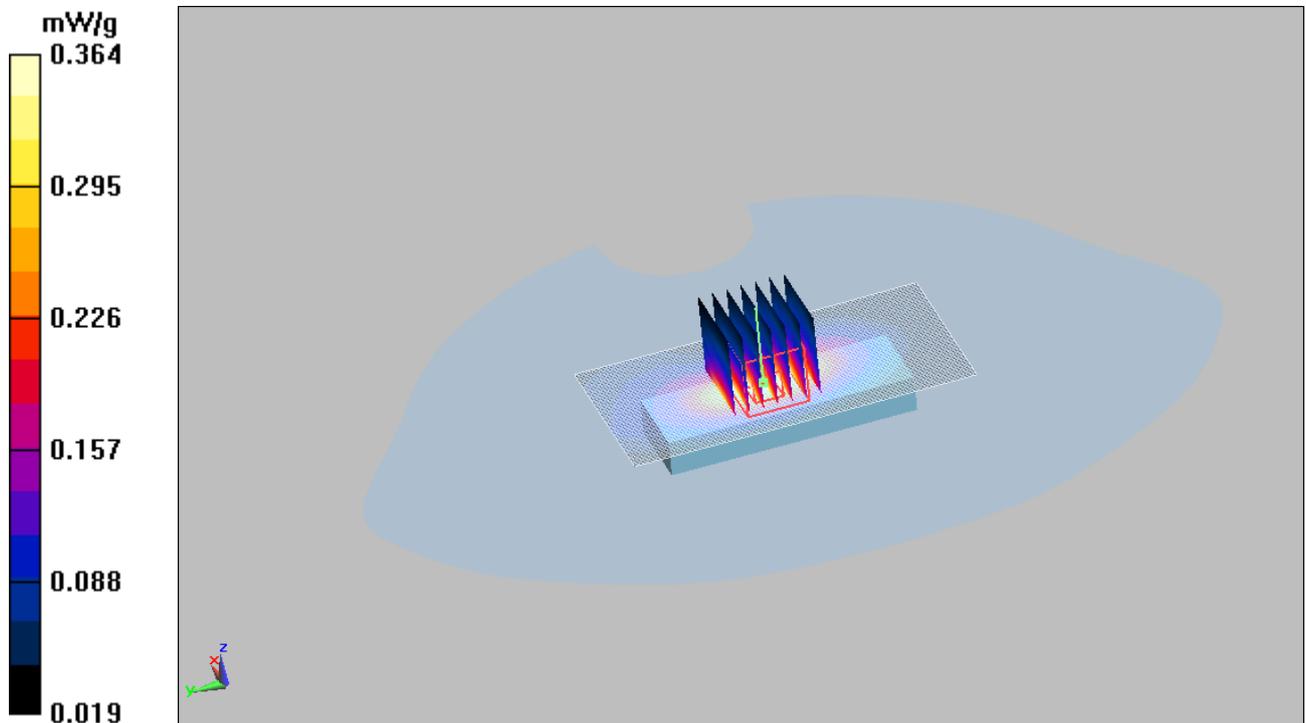


Figure 96 WCDMA Band V with IBM T61 Test Position 1 Channel 4132

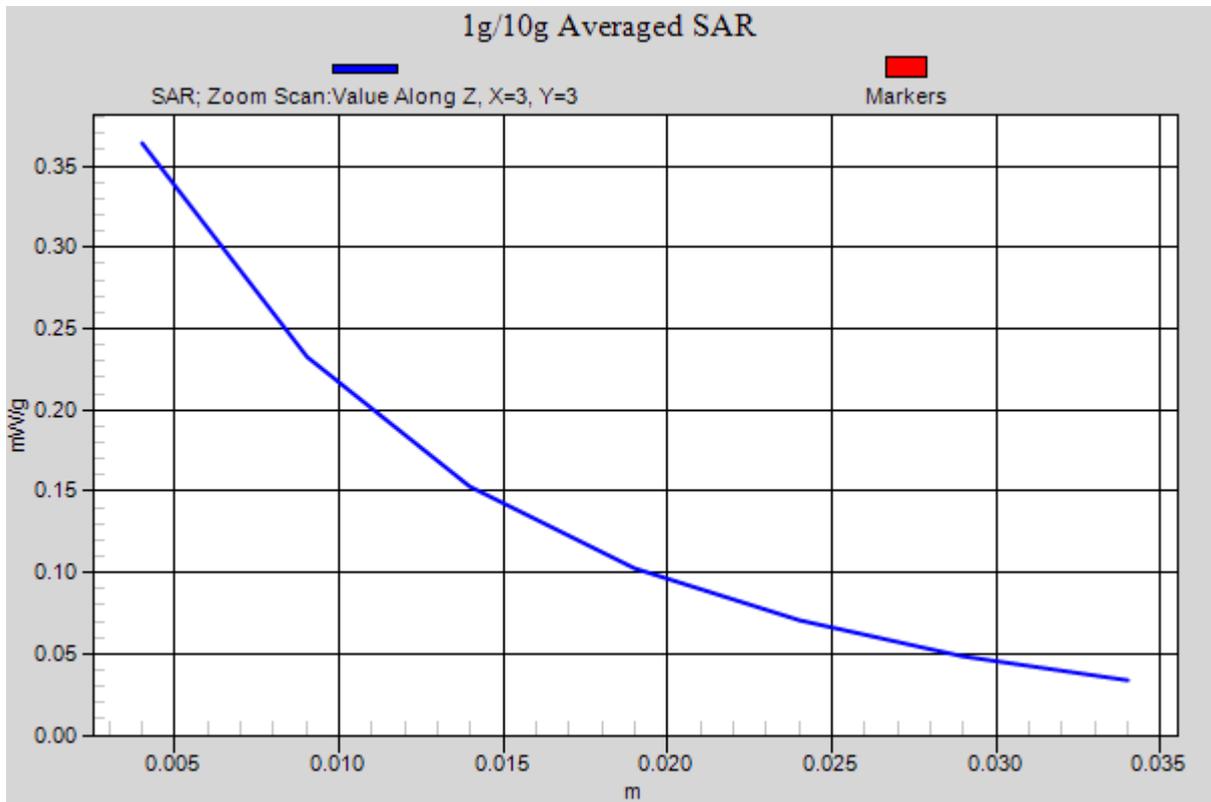


Figure 97 Z-Scan at power reference point [WCDMA Band V with IBM T61 Test Position 1 Channel 4132]

WCDMA Band V with IBM T61 Test Position 2 Middle

Date/Time: 12/14/2009 5:24:30 PM

Communication System: WCDMA Band V; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.989$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM1; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 2 Middle /Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.137 mW/g

Test Position 2 Middle /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.57 V/m; Power Drift = 0.026 dB

Peak SAR (extrapolated) = 0.206 W/kg

SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.076 mW/g

Maximum value of SAR (measured) = 0.138 mW/g

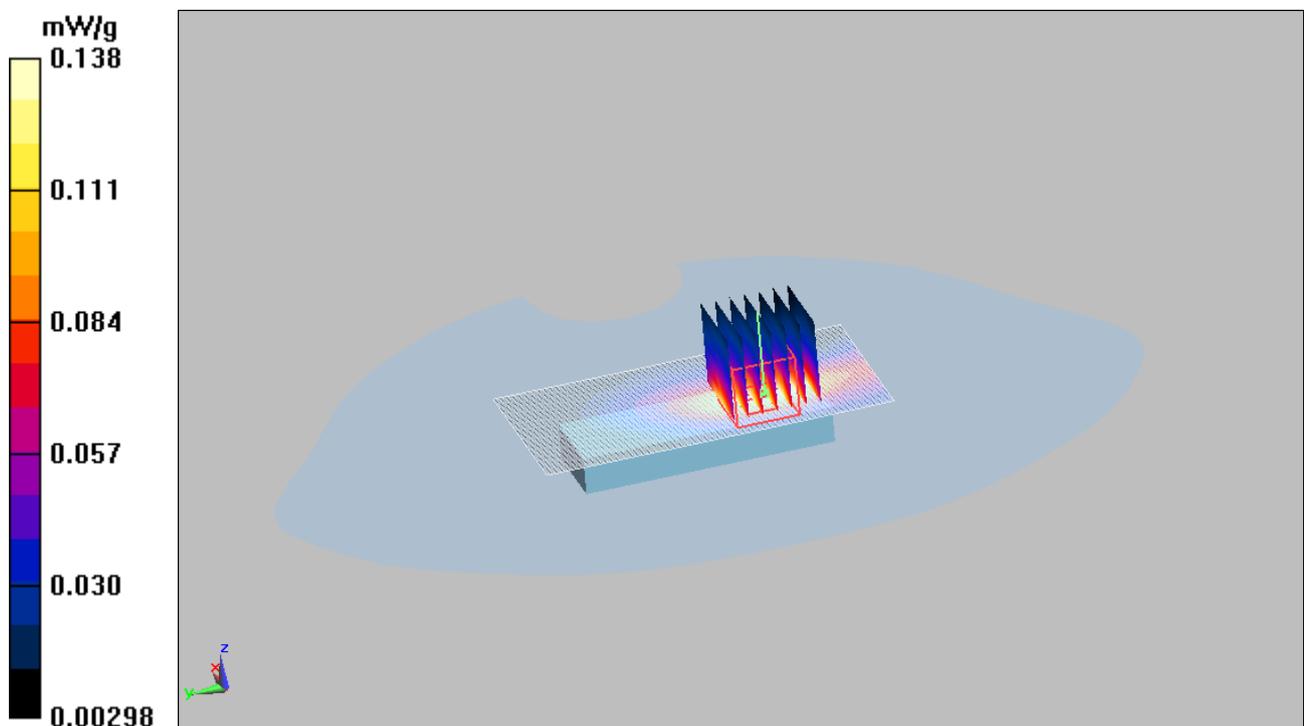


Figure 98 WCDMA Band V with IBM T61 Test Position 2 Channel 4183

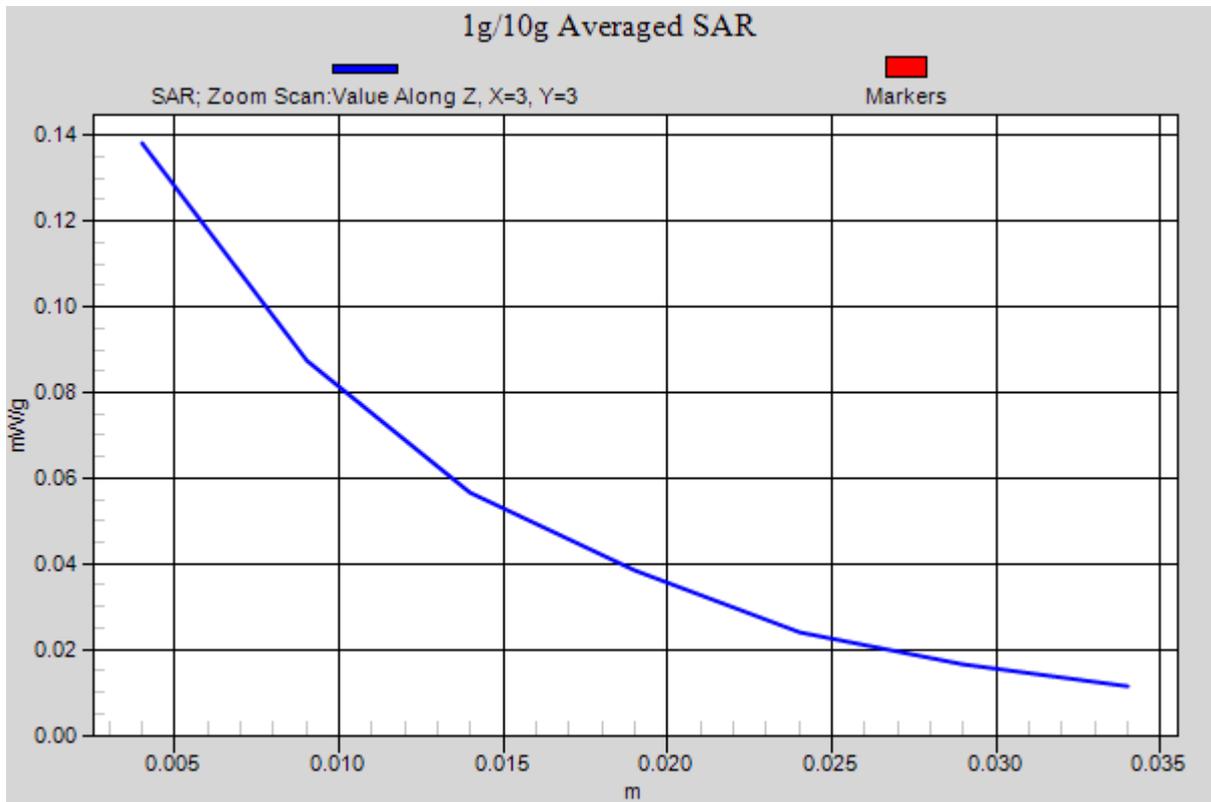


Figure 99 Z-Scan at power reference point [WCDMA Band V with IBM T61 Test Position 2 Channel 4183]

WCDMA Band V with BenQ Joybook R55V Test Position 3 Middle

Date/Time: 12/14/2009 4:16:52 PM

Communication System: WCDMA Band V; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 837$ MHz; $\sigma = 0.989$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM1; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 3 Middle/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.064 mW/g

Test Position 3 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.02 V/m; Power Drift = 0.026 dB

Peak SAR (extrapolated) = 0.096 W/kg

SAR(1 g) = 0.061 mW/g; SAR(10 g) = 0.039 mW/g

Maximum value of SAR (measured) = 0.067 mW/g

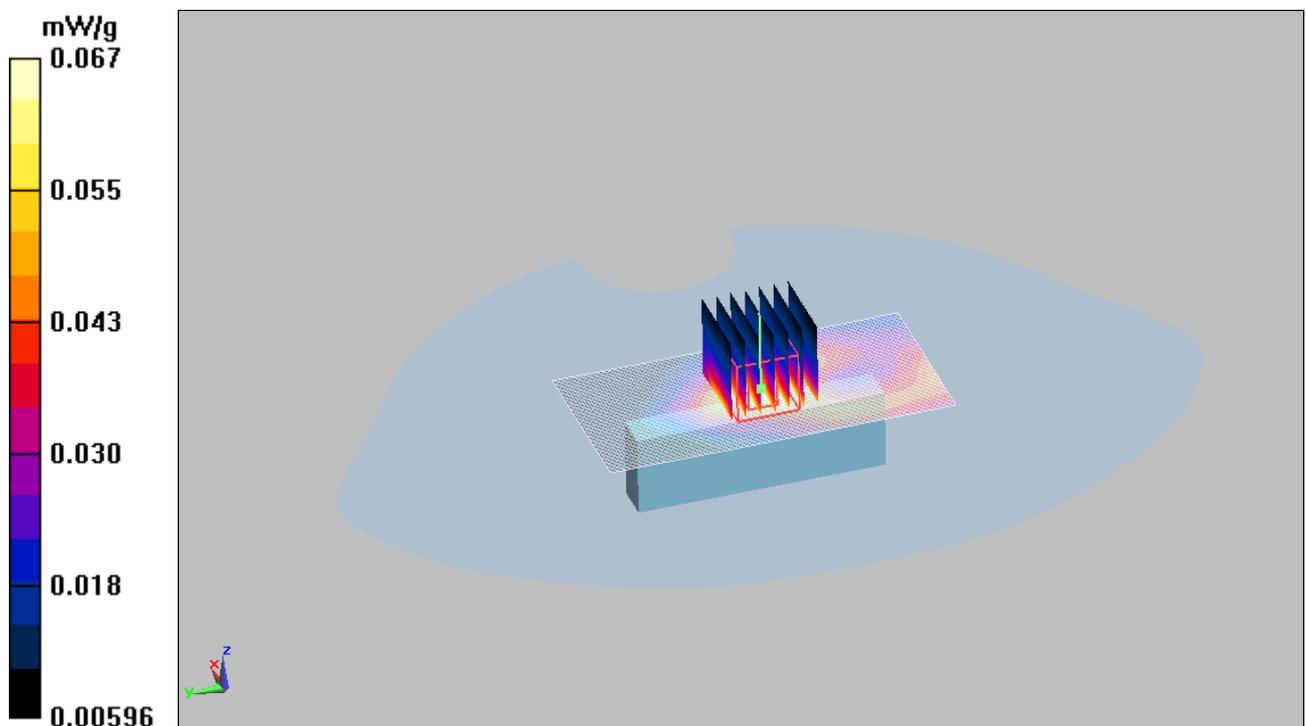


Figure 100 WCDMA Band V with BenQ Joybook R55V Test Position 3 Channel 4183

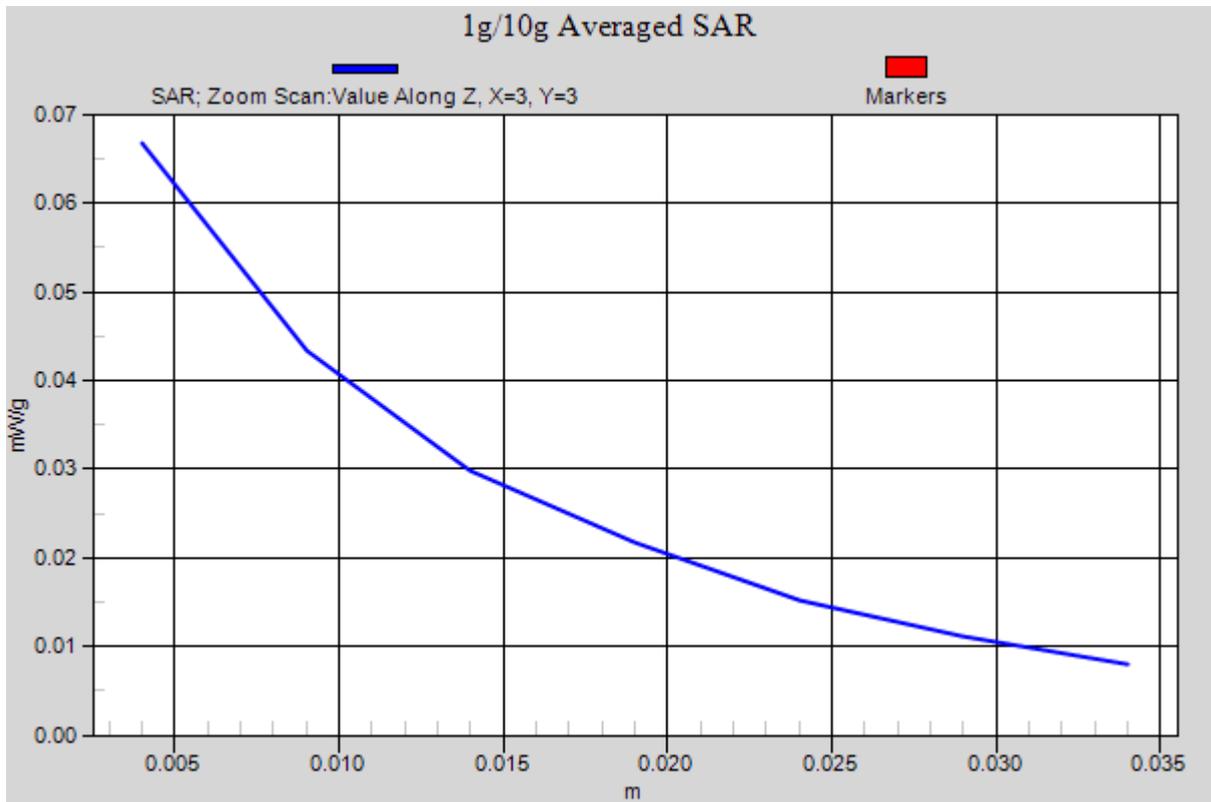


Figure 101 Z-Scan at power reference point [WCDMA Band V with BenQ Joybook R55V Test Position 3 Channel 4183]

WCDMA Band V with BenQ Joybook R55V Test Position 4 Middle

Date/Time: 12/14/2009 1:58:17 PM

Communication System: WCDMA Band V; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 837$ MHz; $\sigma = 0.989$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³
Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM1; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 4 Middle/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.199 mW/g

Test Position 4 Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.2 V/m; Power Drift = 0.066 dB

Peak SAR (extrapolated) = 0.282 W/kg

SAR(1 g) = 0.183 mW/g; SAR(10 g) = 0.120 mW/g

Maximum value of SAR (measured) = 0.199 mW/g

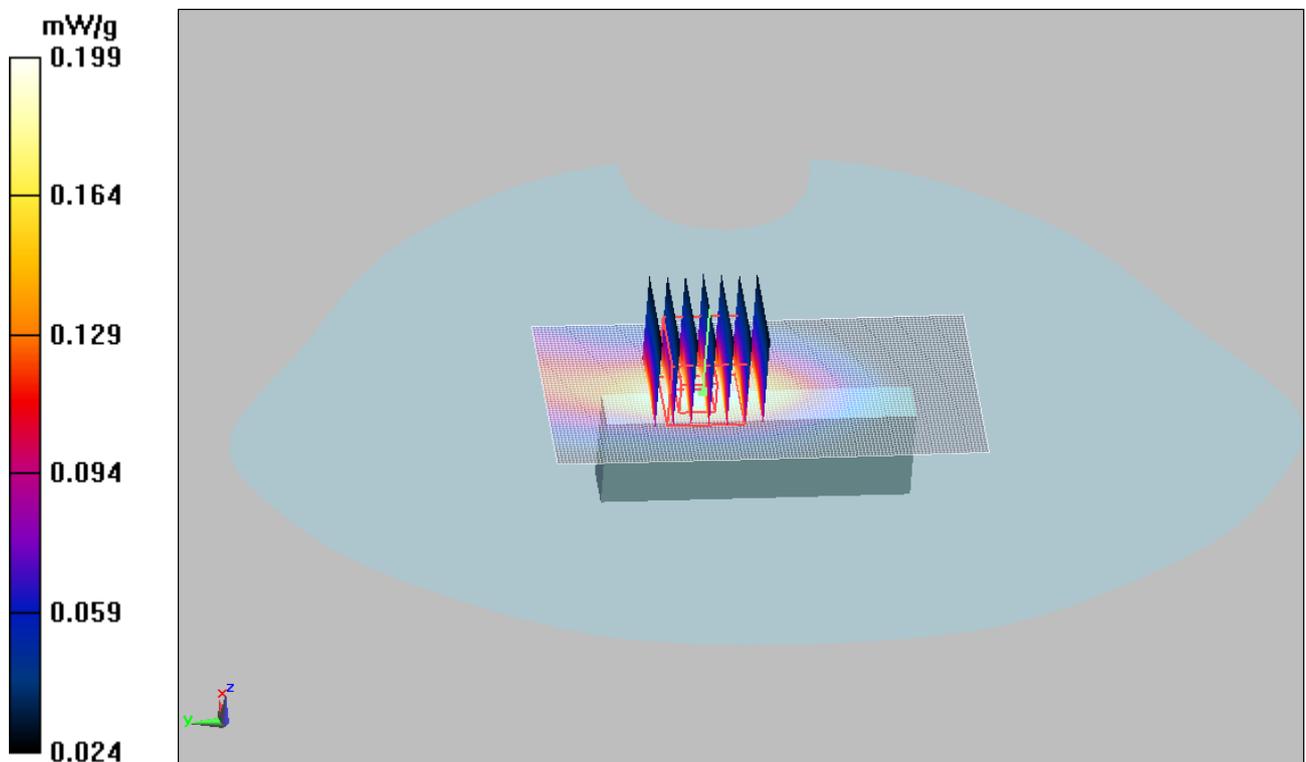


Figure 102 WCDMA Band V with BenQ Joybook R55V Test Position 4 Channel 4183

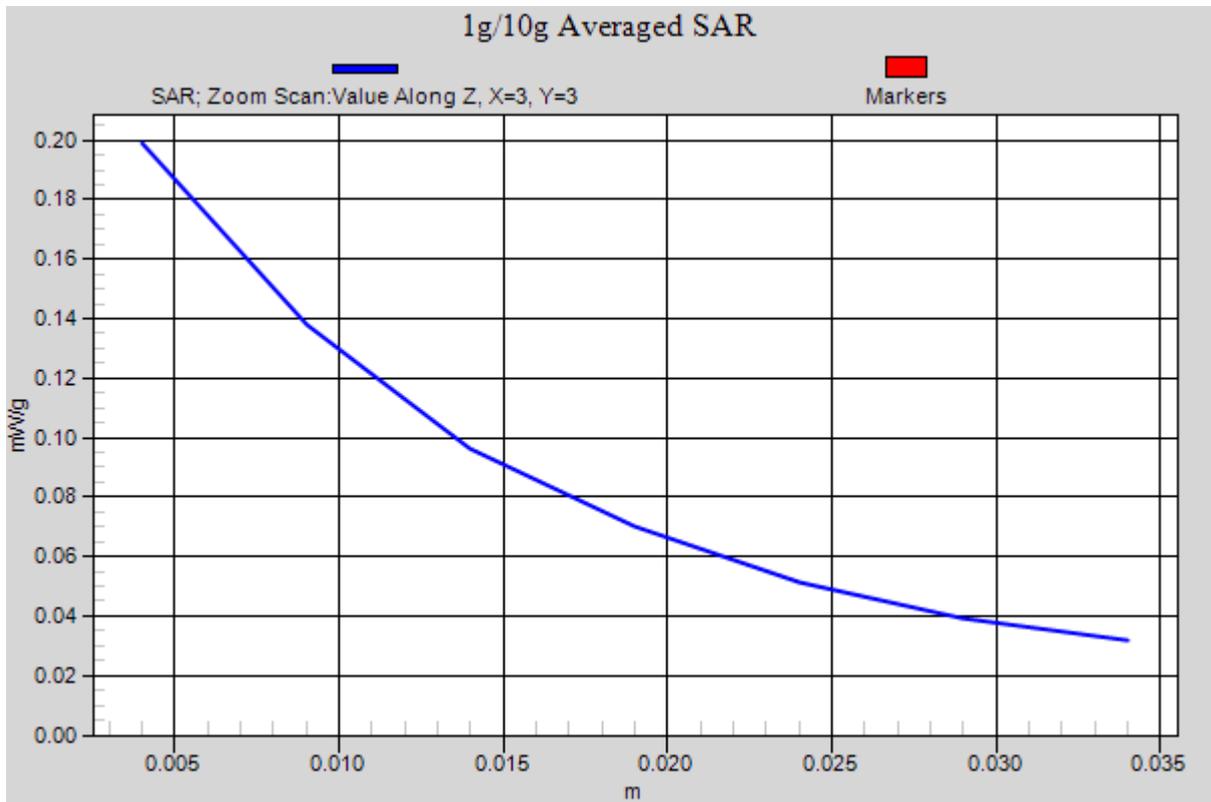


Figure 103 Z-Scan at power reference point [WCDMA Band V with BenQ Joybook R55V Test Position 4 Channel 4183]

WCDMA Band V + HSDPA with IBM T61 Test Position 1 Low

Date/Time: 12/15/2009 11:14:10 PM

Communication System: WCDMA Band V+HSDPA; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.974$ mho/m; $\epsilon_r = 53.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM1; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 1 Low/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.401 mW/g

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.8 V/m; Power Drift = -0.057 dB

Peak SAR (extrapolated) = 0.531 W/kg

SAR(1 g) = 0.333 mW/g; SAR(10 g) = 0.205 mW/g

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

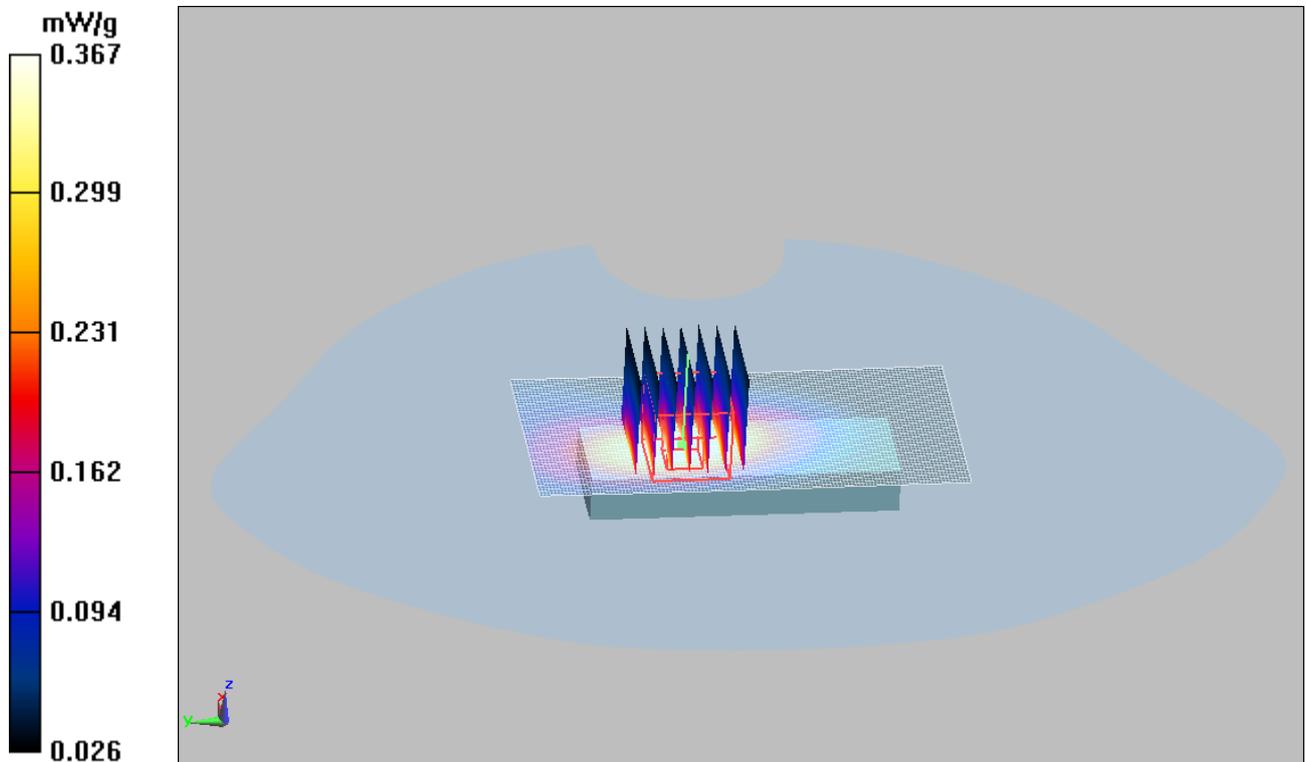


Figure 104 WCDMA Band V+ HSDPA with IBM T61 Test Position 1 Channel 4132

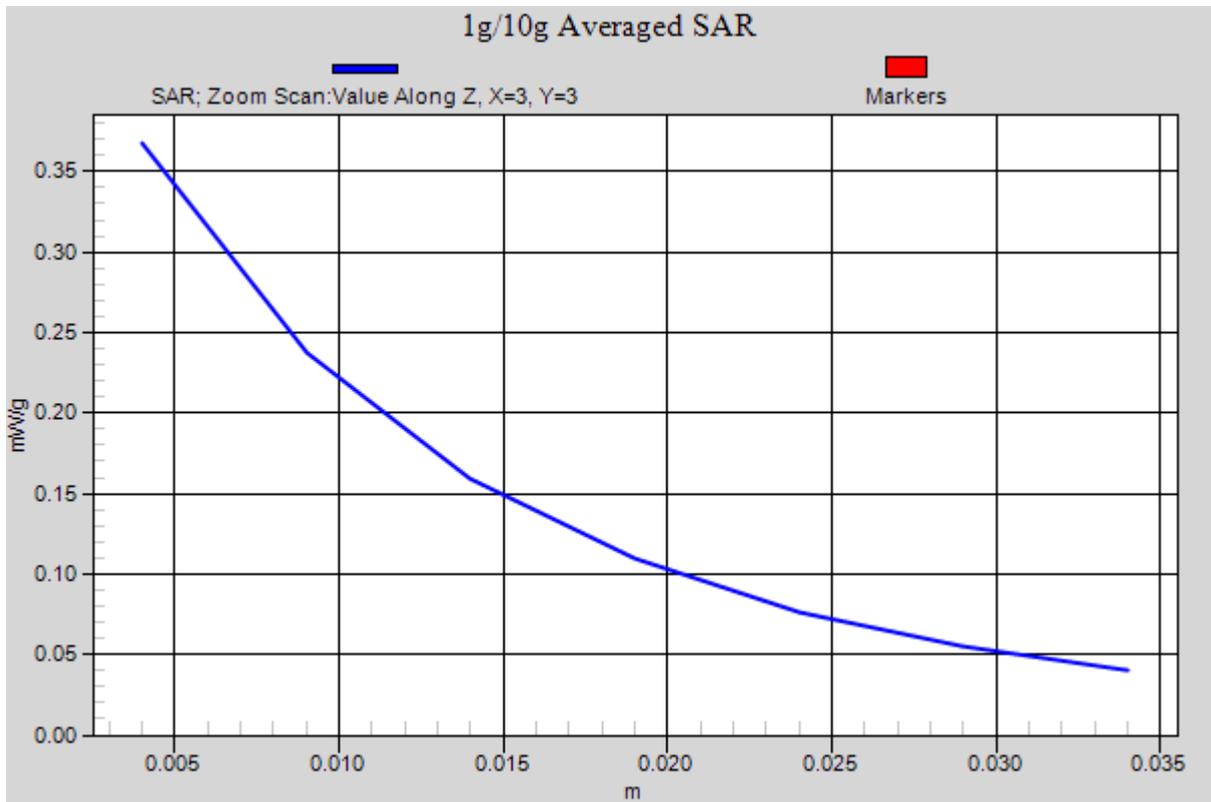


Figure 105 Z-Scan at power reference point [WCDMA Band V+ HSDPA with IBM T61 Test Position 1 Channel 4132]

WCDMA Band V + HSUPA with IBM T61 Test Position 1 Low

Date/Time: 12/14/2009 11:40:34 PM

Communication System: WCDMA Band V+HSUPA; Frequency: 826.4 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.974$ mho/m; $\epsilon_r = 53.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.3 °C Liquid Temperature: 21.5 °C

DASY5 Configuration:

Probe: EX3DV4 - SN3677; ConvF(9.11, 9.11, 9.11); Calibrated: 9/23/2009

Electronics: DAE4 Sn905; Calibrated: 6/24/2009

Phantom: SAM1; Type: SAM;

Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Test Position 1 Low/Area Scan (61x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.348 mW/g

Test Position 1 Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.9 V/m; Power Drift = 0.034 dB

Peak SAR (extrapolated) = 0.505 W/kg

SAR(1 g) = 0.317 mW/g; SAR(10 g) = 0.195 mW/g

Maximum value of SAR (measured) = 0.349 mW/g

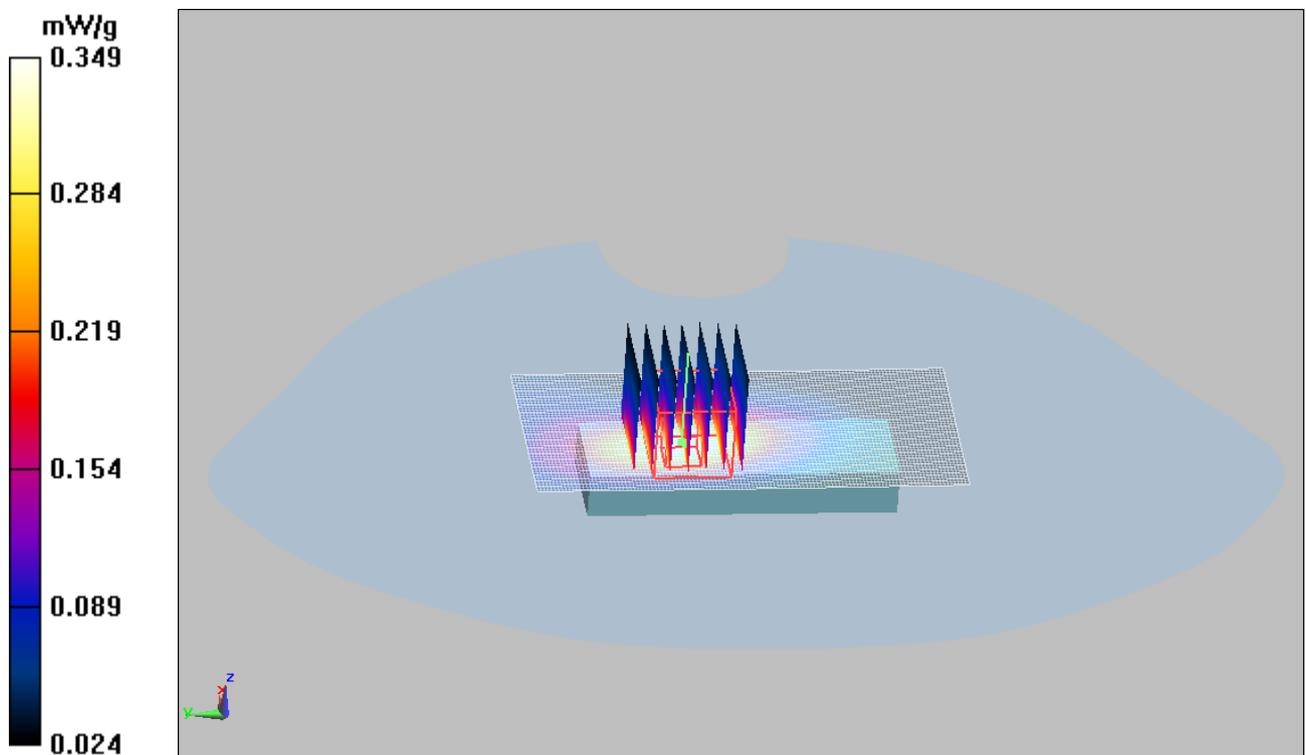


Figure 106 WCDMA Band V+ HSUPA with IBM T61 Test Position 1 Channel 4132

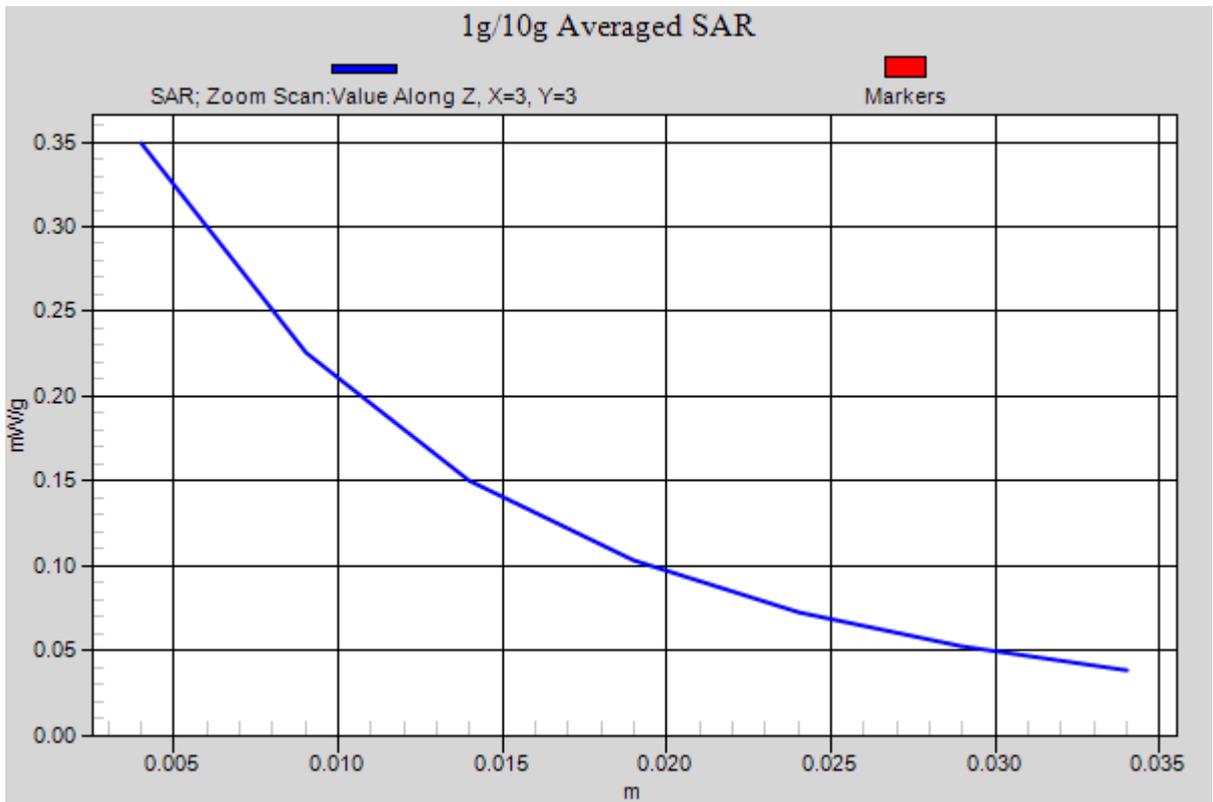


Figure 107 Z-Scan at power reference point [WCDMA Band V+ HSUPA with IBM T61 Test Position 1 Channel 4132]

TA Technology (Shanghai) Co., Ltd. Test Report

Report No. RZA2009-1689

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ANNEX D: Probe Calibration Certificate

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



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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**

Client **TA (Auden)**

Certificate No: **EX3-3677_Sep09**

CALIBRATION CERTIFICATE																																																			
Object	EX3DV4 - SN:3677																																																		
Calibration procedure(s)	QA CAL-01.v6, QA CAL-12.v5, QA CAL-23.v3 and QA CAL-25.v2 Calibration procedure for dosimetric E-field probes																																																		
Calibration date:	September 23, 2009																																																		
Condition of the calibrated item	In Tolerance																																																		
<p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.</p> <p>Calibration Equipment used (M&TE critical for calibration)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Primary Standards</th> <th style="width: 15%;">ID #</th> <th style="width: 30%;">Cal Date (Certificate No.)</th> <th style="width: 25%;">Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power meter E4419B</td> <td>GB41293874</td> <td>1-Apr-09 (No. 217-01030)</td> <td>Apr-10</td> </tr> <tr> <td>Power sensor E4412A</td> <td>MY41495277</td> <td>1-Apr-09 (No. 217-01030)</td> <td>Apr-10</td> </tr> <tr> <td>Power sensor E4412A</td> <td>MY41498087</td> <td>1-Apr-09 (No. 217-01030)</td> <td>Apr-10</td> </tr> <tr> <td>Reference 3 dB Attenuator</td> <td>SN: S5054 (3c)</td> <td>31-Mar-09 (No. 217-01026)</td> <td>Mar-10</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN: S5086 (20b)</td> <td>31-Mar-09 (No. 217-01028)</td> <td>Mar-10</td> </tr> <tr> <td>Reference 30 dB Attenuator</td> <td>SN: S5129 (30b)</td> <td>31-Mar-09 (No. 217-01027)</td> <td>Mar-10</td> </tr> <tr> <td>Reference Probe ES3DV2</td> <td>SN: 3013</td> <td>2-Jan-09 (No. ES3-3013_Jan09)</td> <td>Jan-10</td> </tr> <tr> <td>DAE4</td> <td>SN: 660</td> <td>9-Sep-08 (No. DAE4-660_Sep08)</td> <td>Sep-09</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Secondary Standards</th> <th style="width: 15%;">ID #</th> <th style="width: 30%;">Check Date (in house)</th> <th style="width: 25%;">Scheduled Check</th> </tr> </thead> <tbody> <tr> <td>RF generator HP 8648C</td> <td>US3642U01700</td> <td>4-Aug-99 (in house check Oct-07)</td> <td>In house check: Oct-09</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585</td> <td>18-Oct-01 (in house check Oct-08)</td> <td>In house check: Oct-09</td> </tr> </tbody> </table>				Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Power meter E4419B	GB41293874	1-Apr-09 (No. 217-01030)	Apr-10	Power sensor E4412A	MY41495277	1-Apr-09 (No. 217-01030)	Apr-10	Power sensor E4412A	MY41498087	1-Apr-09 (No. 217-01030)	Apr-10	Reference 3 dB Attenuator	SN: S5054 (3c)	31-Mar-09 (No. 217-01026)	Mar-10	Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-09 (No. 217-01028)	Mar-10	Reference 30 dB Attenuator	SN: S5129 (30b)	31-Mar-09 (No. 217-01027)	Mar-10	Reference Probe ES3DV2	SN: 3013	2-Jan-09 (No. ES3-3013_Jan09)	Jan-10	DAE4	SN: 660	9-Sep-08 (No. DAE4-660_Sep08)	Sep-09	Secondary Standards	ID #	Check Date (in house)	Scheduled Check	RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-07)	In house check: Oct-09	Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-08)	In house check: Oct-09
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Calibrated by:	Name Claudio Leubler	Function Laboratory Technician	Signature 																																																
Approved by:	Name Katja Pokovic	Technical Manager																																																	
Issued: September 23, 2009																																																			
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.																																																			

Certificate No: EX3-3677_Sep09

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TA Technology (Shanghai) Co., Ltd.

Test Report

Report No. RZA2009-1689

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Calibration Laboratory of
Schmid & Partner
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S Servizio svizzero di taratura
S Swiss Calibration Service

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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
ConvF	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:

- 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 effect the E²-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.

EX3DV4 SN:3677

September 23, 2009

Probe EX3DV4

SN:3677

Manufactured:	September 9, 2008
Last calibrated:	November 7, 2008
Recalibrated:	September 23, 2009

Calibrated for DASY Systems

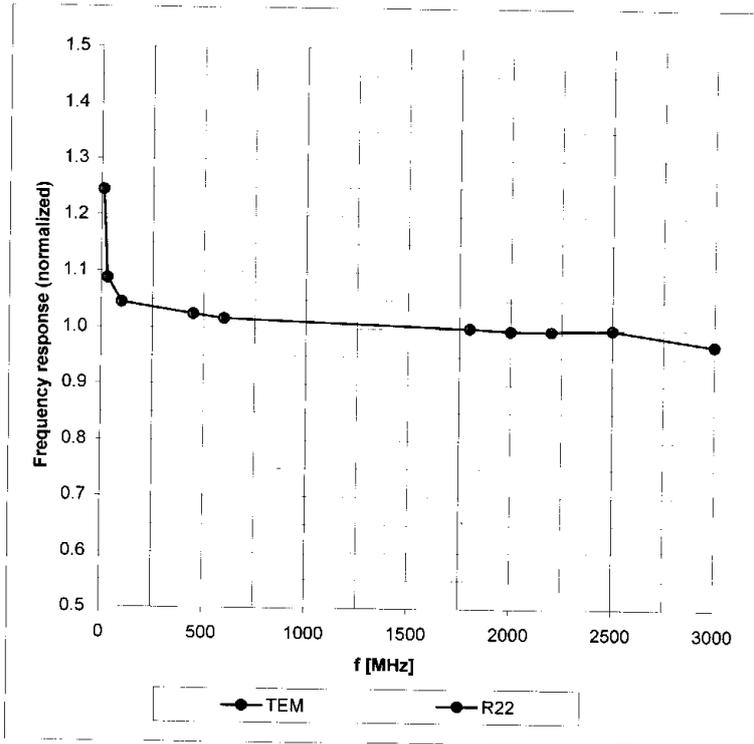
(Note: non-compatible with DASY2 system!)

EX3DV4 SN:3677

September 23, 2009

Frequency Response of E-Field

(TEM-Cell: ifi110 EXX, Waveguide: R22)

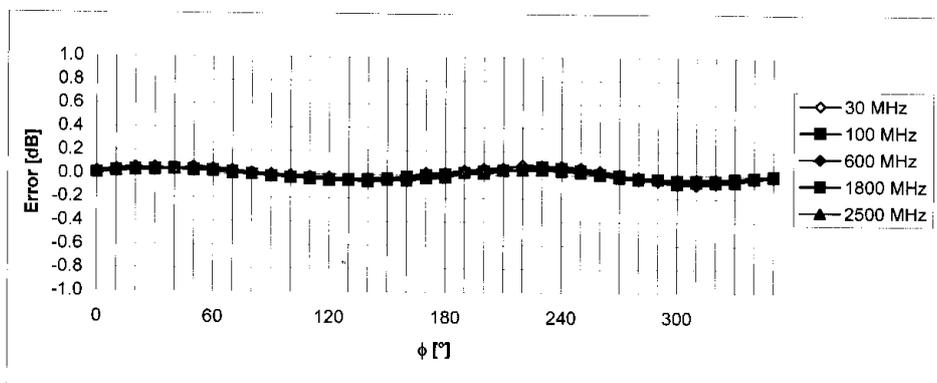
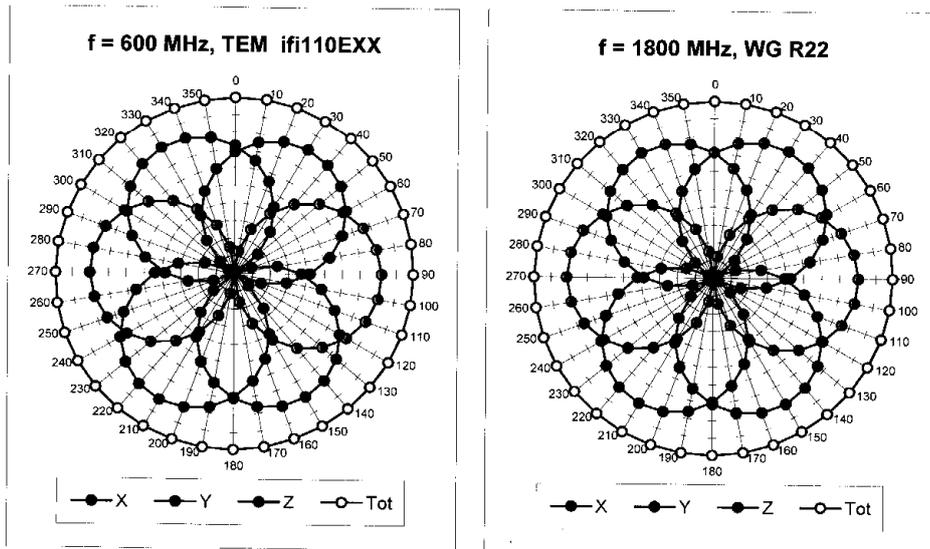


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

EX3DV4 SN:3677

September 23, 2009

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

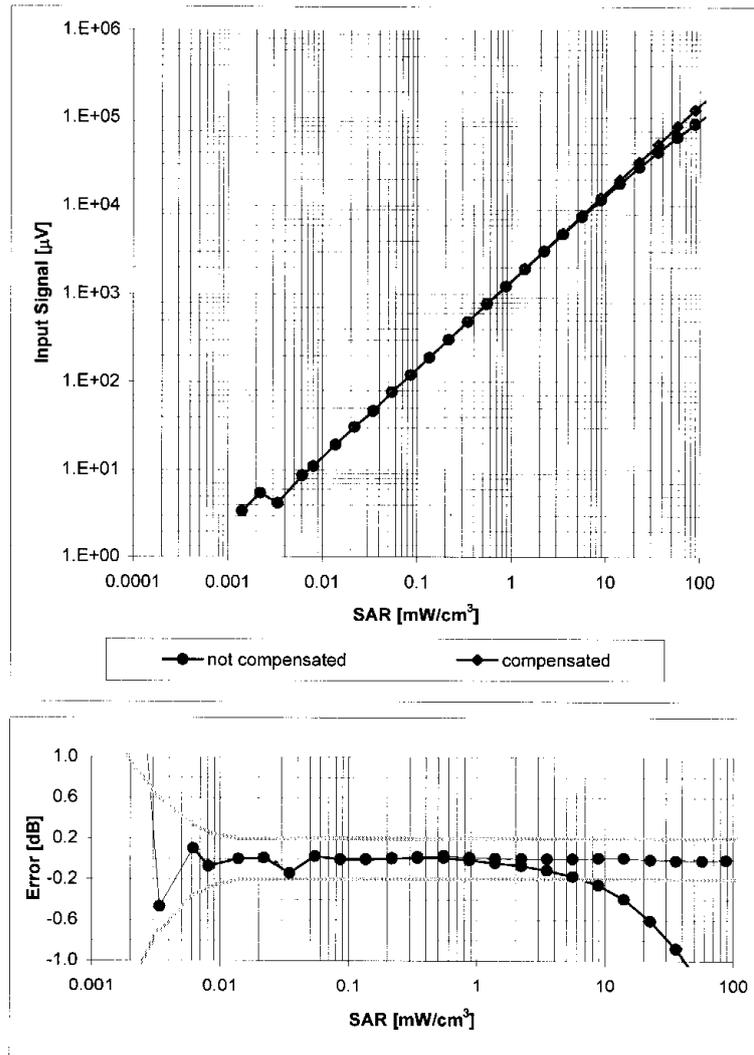


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

EX3DV4 SN:3677

September 23, 2009

Dynamic Range $f(SAR_{head})$
(Waveguide R22, $f = 1800$ MHz)

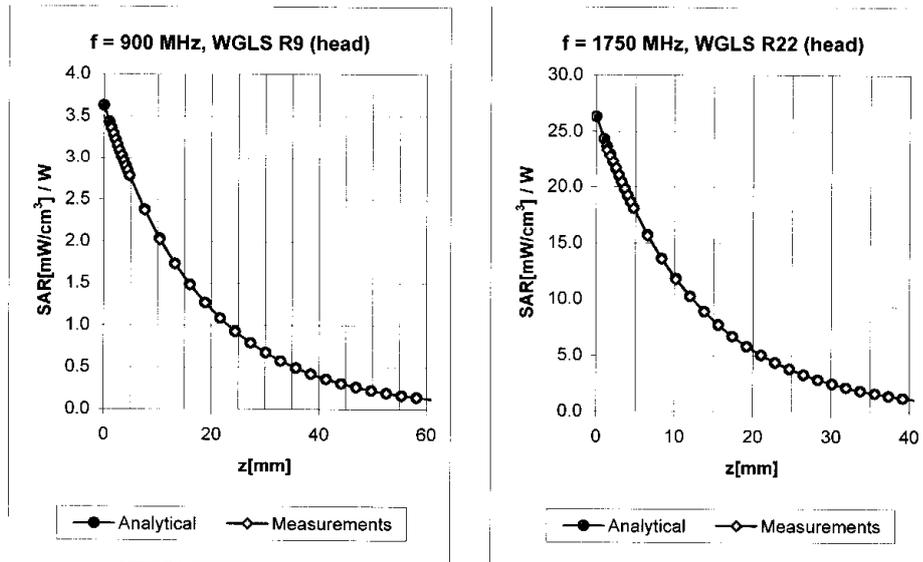


Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

EX3DV4 SN:3677

September 23, 2009

Conversion Factor Assessment



f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.68	0.64	9.20 ± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.71	0.62	8.91 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.68	0.62	8.04 ± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.70	0.60	7.53 ± 11.0% (k=2)
450	± 50 / ± 100	Body	56.7 ± 5%	0.94 ± 5%	0.32	0.49	10.43 ± 13.3% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.54	0.73	9.11 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.63	0.71	8.89 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.55	0.74	7.70 ± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.30	1.01	7.62 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.56	0.68	7.28 ± 11.0% (k=2)

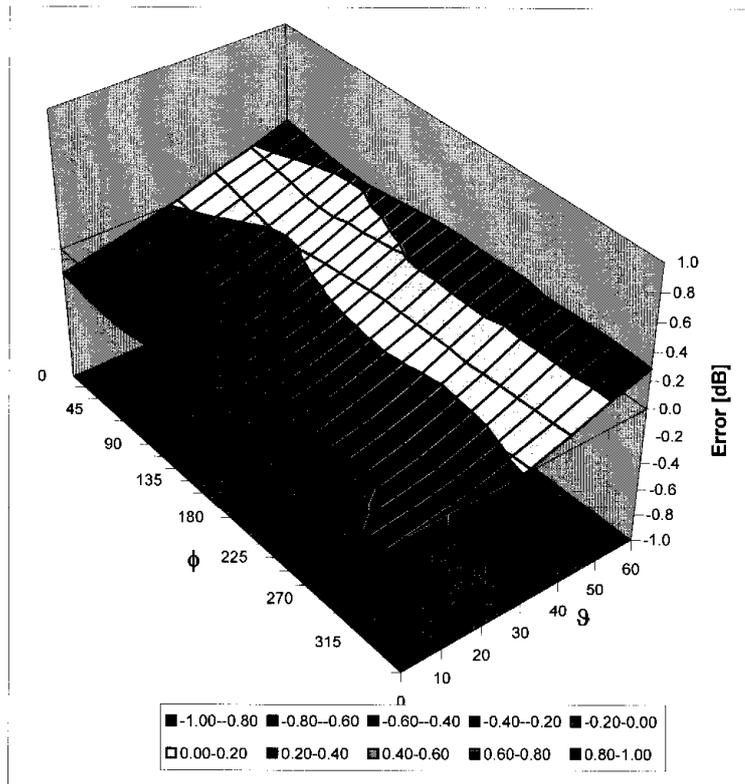
^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

EX3DV4 SN:3677

September 23, 2009

Deviation from Isotropy in HSL

Error (ϕ , ϑ), $f = 900$ MHz



Uncertainty of Spherical Isotropy Assessment: $\pm 2.6\%$ ($k=2$)

TA Technology (Shanghai) Co., Ltd. Test Report

Report No. RZA2009-1689

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ANNEX E: D835V2 Dipole Calibration Certificate

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



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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: **CMCS (Austria)**

Certificate No.: **D835V2-4d031_Jan09**

CALIBRATION CERTIFICATE																																															
Object	D835V2 - SN: 4d031																																														
Calibration procedure(s)	QA CAL-05-W Calibration procedure for dipole validation kits																																														
Calibration date:	January 22, 2009																																														
Condition of the calibrated item	In Tolerance																																														
<p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.</p> <p>Calibration Equipment used (M&TE critical for calibration)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Primary Standards</th> <th style="width: 15%;">ID #</th> <th style="width: 30%;">Cal Date (Certificate No.)</th> <th style="width: 25%;">Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power meter EPM-442A</td> <td>GB37480704</td> <td>08-Oct-08 (No. 217-00898)</td> <td>Oct-09</td> </tr> <tr> <td>Power sensor HP 8481A</td> <td>US37292783</td> <td>08-Oct-08 (No. 217-00898)</td> <td>Oct-09</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN: 5086 (20g)</td> <td>01-Jul-08 (No. 217-00864)</td> <td>Jul-09</td> </tr> <tr> <td>Type-N mismatch combination</td> <td>SN: 5047.2 / 06327</td> <td>01-Jul-08 (No. 217-00867)</td> <td>Jul-09</td> </tr> <tr> <td>Reference Probe ES3DV2</td> <td>SN: 3025</td> <td>28-Apr-08 (No. ES3-3025_Apr08)</td> <td>Apr-09</td> </tr> <tr> <td>DAE4</td> <td>SN: 601</td> <td>14-Mar-08 (No. DAE4-601_Mar08)</td> <td>Mar-09</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Secondary Standards</th> <th style="width: 15%;">ID #</th> <th style="width: 30%;">Check Date (in house)</th> <th style="width: 25%;">Scheduled Check</th> </tr> </thead> <tbody> <tr> <td>Power sensor HP 8481A</td> <td>MY41092317</td> <td>18-Oct-02 (in house check Oct-07)</td> <td>In house check: Oct-09</td> </tr> <tr> <td>RF generator R&S SMT-06</td> <td>100005</td> <td>4-Aug-99 (in house check Oct-07)</td> <td>In house check: Oct-09</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585 S4206</td> <td>18-Oct-01 (in house check Oct-08)</td> <td>In house check: Oct-09</td> </tr> </tbody> </table>				Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09	Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09	Reference 20 dB Attenuator	SN: 5086 (20g)	01-Jul-08 (No. 217-00864)	Jul-09	Type-N mismatch combination	SN: 5047.2 / 06327	01-Jul-08 (No. 217-00867)	Jul-09	Reference Probe ES3DV2	SN: 3025	28-Apr-08 (No. ES3-3025_Apr08)	Apr-09	DAE4	SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09	Secondary Standards	ID #	Check Date (in house)	Scheduled Check	Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09	RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09	Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09
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Calibrated by:	Name Mike Moll	Function Laboratory Technician	Signature 																																												
Approved by:	Name Katja Pokovic	Technical Manager 																																													
			Issued: January 27, 2009																																												
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S Swiss Calibration Service

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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:

- 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) DASY4/5 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.