

Figure 60 Z-Scan at power reference point (Left Hand Touch Cheek Close GSM 1900 Channel 810)

**GSM 1900 Left Cheek Middle Close**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE3 Sn452;

**Cheek Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.231 mW/g

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

Reference Value = 5.93 V/m; Power Drift = 0.022 dB

Peak SAR (extrapolated) = 0.328 W/kg

**SAR(1 g) = 0.213 mW/g; SAR(10 g) = 0.132 mW/g**

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

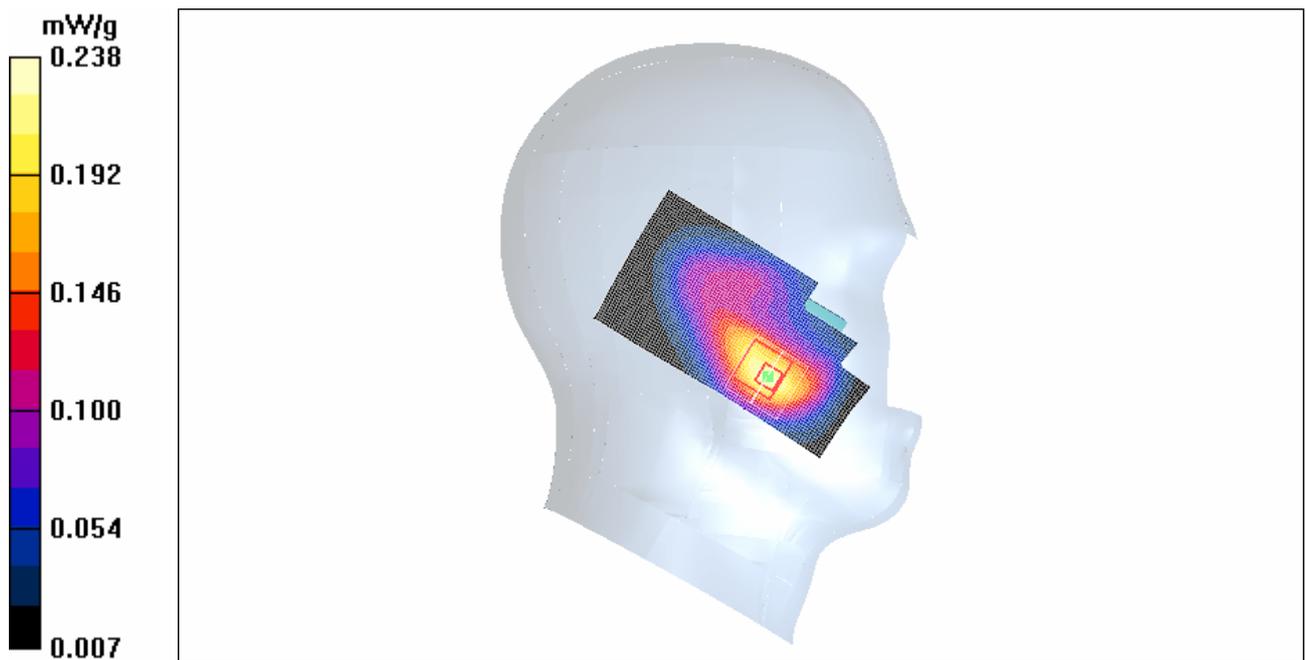


Figure 61 Left Hand Touch Cheek Close GSM 1900 Channel 661

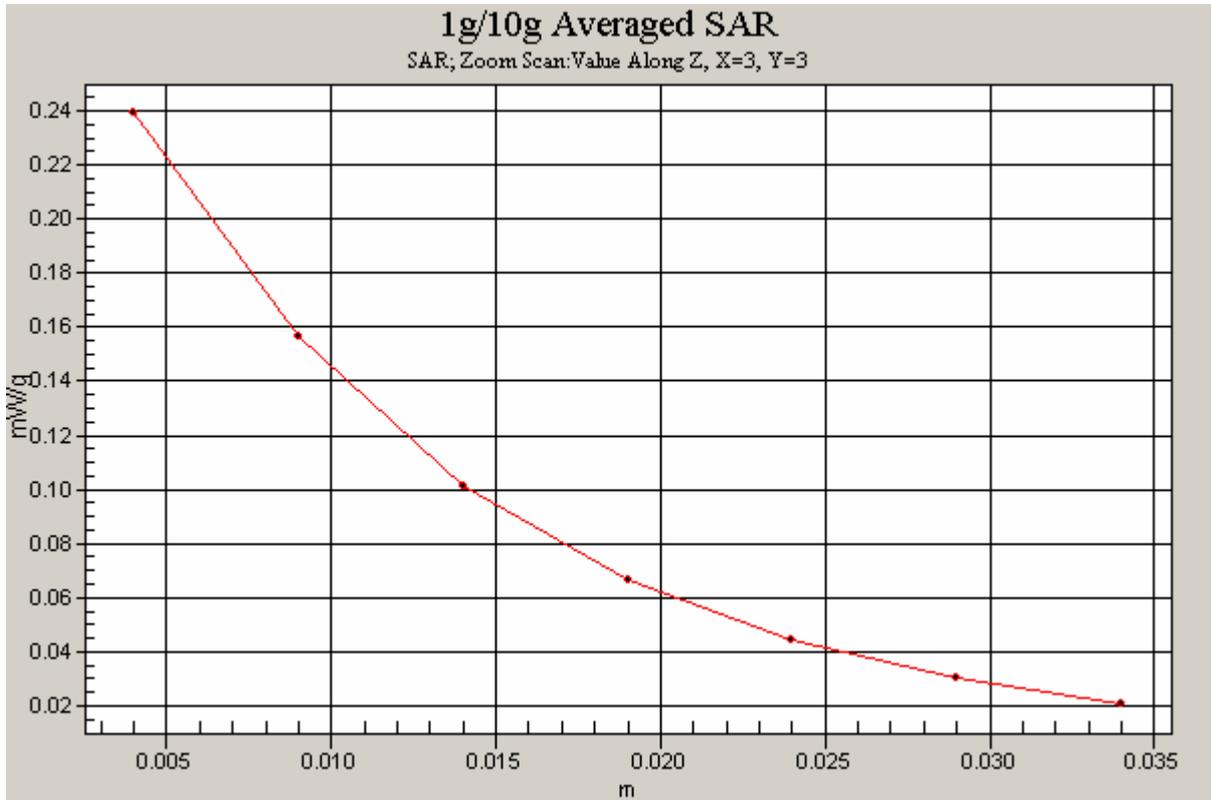


Figure 62 Z-Scan at power reference point (Left Hand Touch Cheek Close GSM 1900 Channel 661)

**GSM 1900 Left Cheek Low Close**

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.39$  mho/m;  $\epsilon_r = 39.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE3 Sn452;

**Cheek Low/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.215 mW/g

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

Reference Value = 6.15 V/m; Power Drift = -0.002 dB

Peak SAR (extrapolated) = 0.305 W/kg

**SAR(1 g) = 0.200 mW/g; SAR(10 g) = 0.125 mW/g**

Maximum value of SAR (measured) = 0.218 mW/g

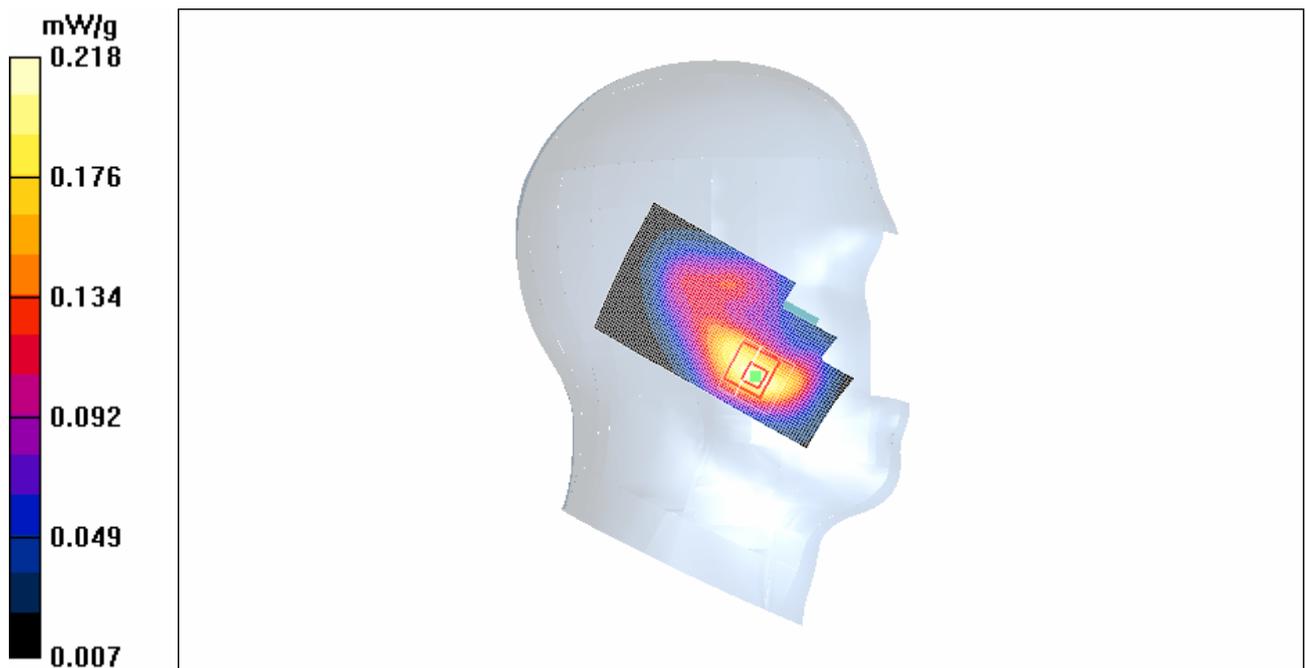


Figure 63 Left Hand Touch Cheek Close GSM 1900 Channel 512

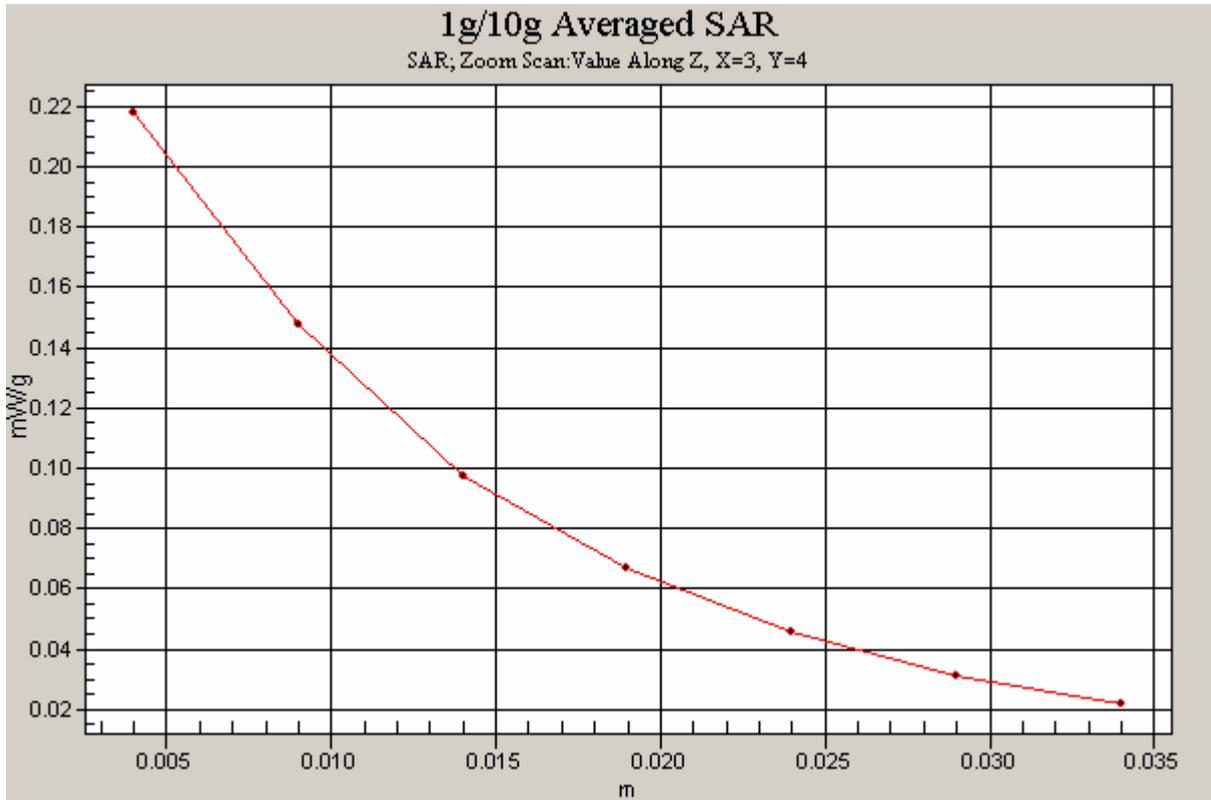


Figure 64 Z-Scan at power reference point (Left Hand Touch Cheek Close GSM 1900 Channel 512)

### GSM 1900 Left Tilt High Close

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.44$  mho/m;  $\epsilon_r = 39.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE3 Sn452;

**Tilt High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.156 mW/g

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

Reference Value = 9.89 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 0.192 W/kg

**SAR(1 g) = 0.139 mW/g; SAR(10 g) = 0.088 mW/g**

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

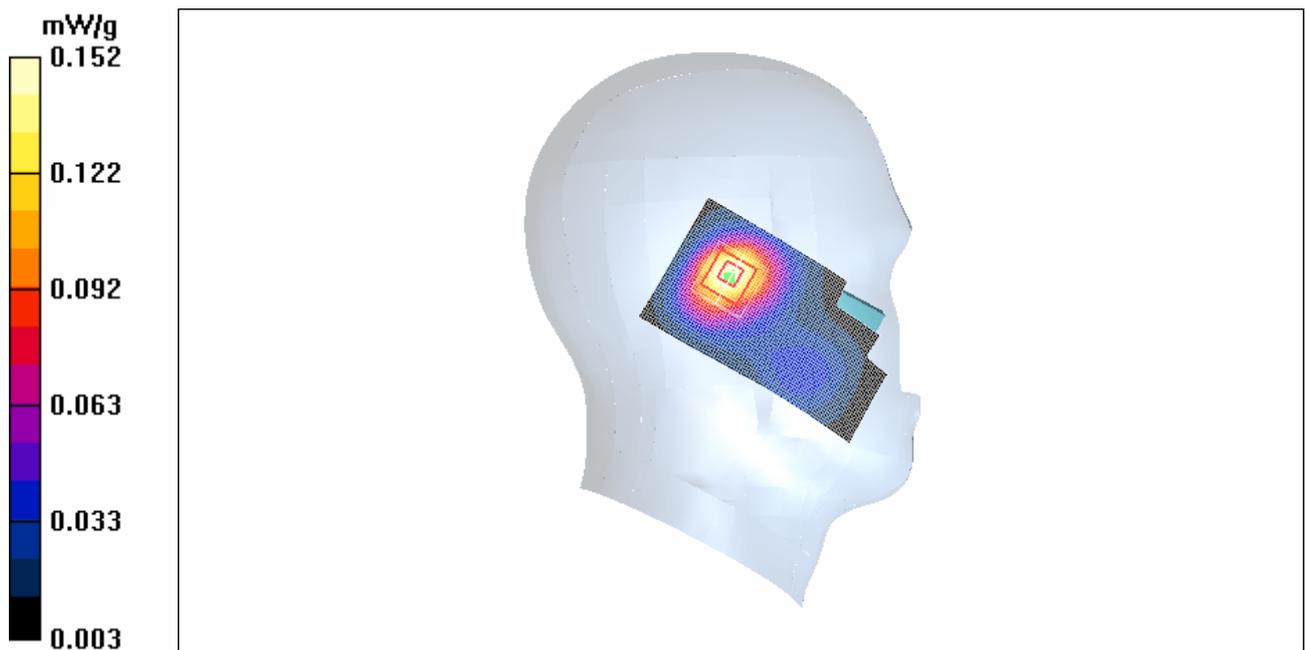


Figure 65 Left Hand Tilt 15°Close GSM 1900 Channel 810

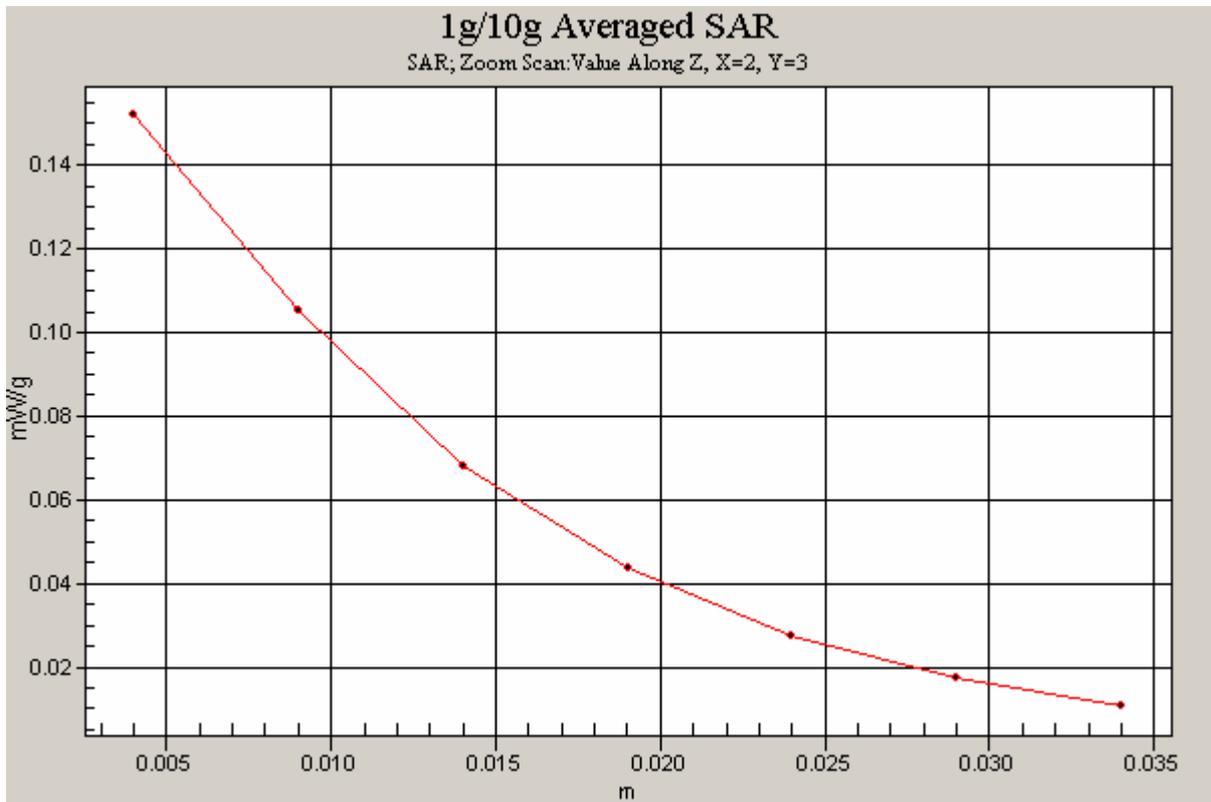


Figure 66 Z-Scan at power reference point (Left Hand Tilt 15° Close GSM 1900 Channel 810)

**GSM 1900 Left Tilt Middle Close**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE3 Sn452;

**Tilt Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.139 mW/g

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

Reference Value = 9.00 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 0.168 W/kg

**SAR(1 g) = 0.122 mW/g; SAR(10 g) = 0.077 mW/g**

Maximum value of SAR (measured) = 0.134 mW/g

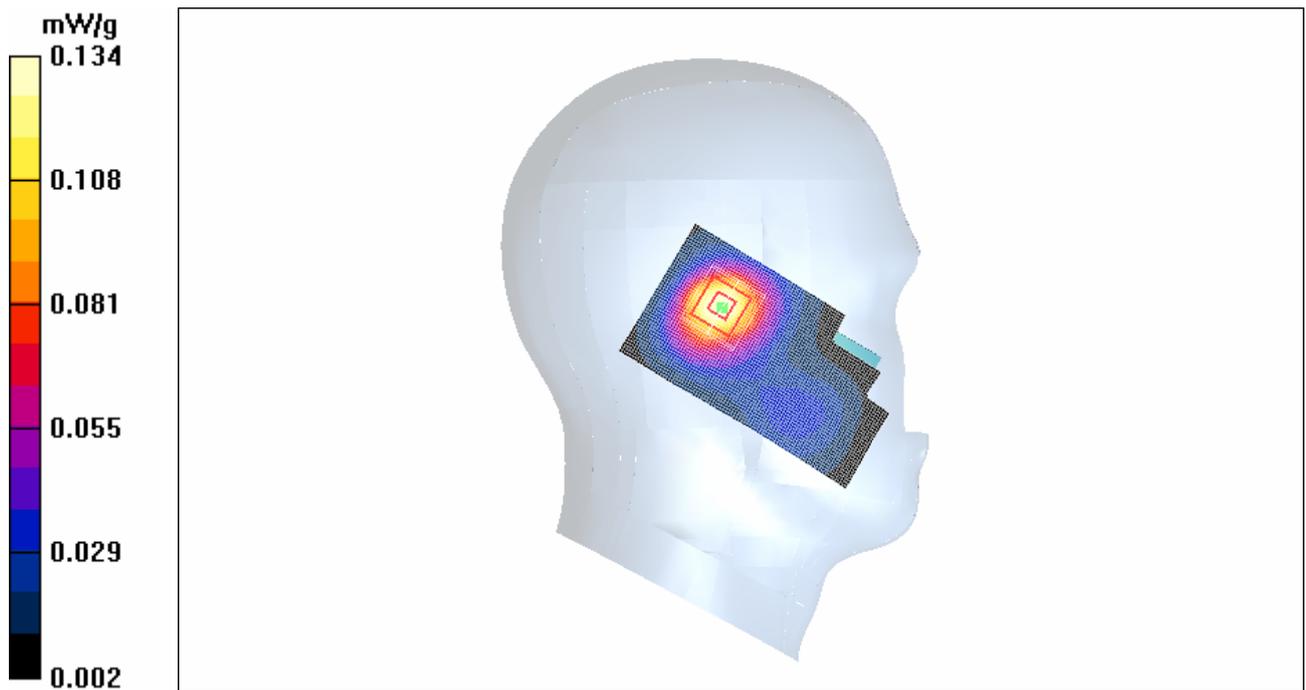


Figure 67 Left Hand Tilt 15° Close GSM 1900 Channel 661

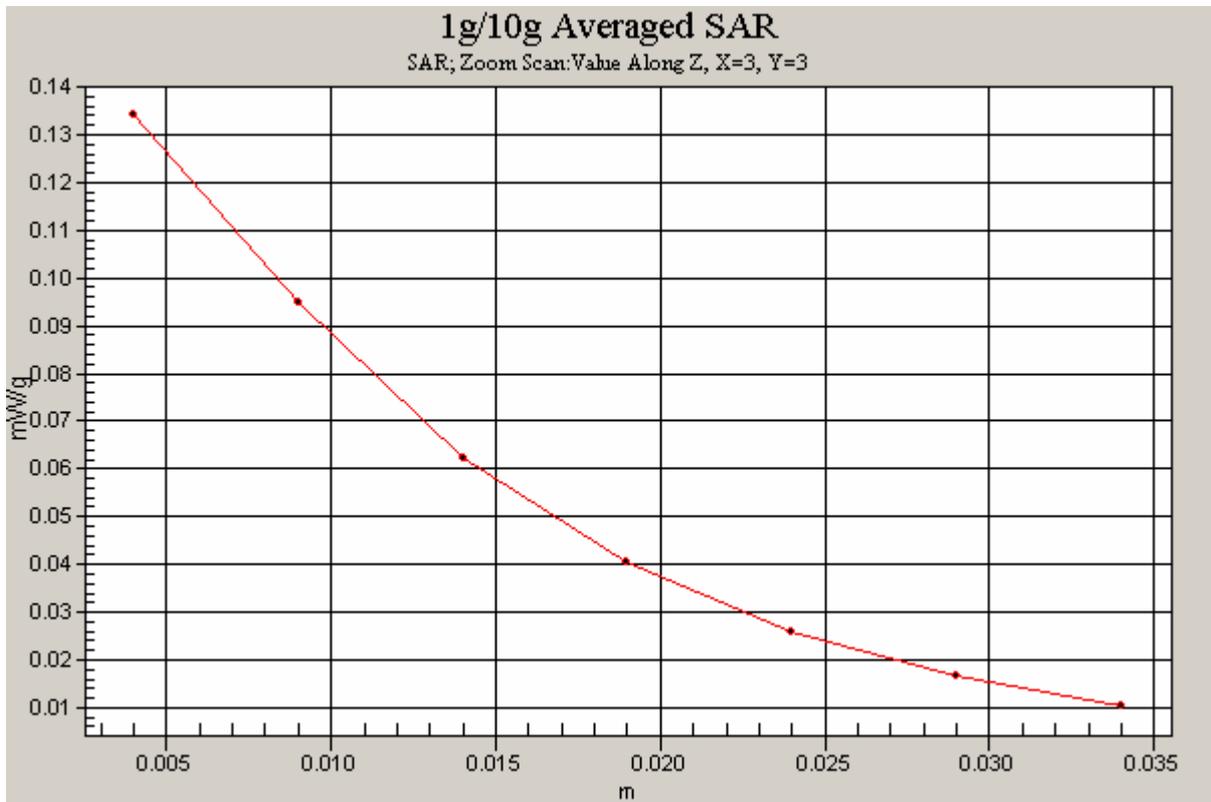


Figure 68 Z-Scan at power reference point (Left Hand Tilt 15° Close GSM 1900 Channel 661)

### GSM 1900 Left Tilt Low Close

Communication System: PCS 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.39$  mho/m;  $\epsilon_r = 39.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE3 Sn452;

**Tilt Low/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.151 mW/g

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

Reference Value = 9.16 V/m; Power Drift = 0.025 dB

Peak SAR (extrapolated) = 0.186 W/kg

**SAR(1 g) = 0.136 mW/g; SAR(10 g) = 0.085 mW/g**

Maximum value of SAR (measured) = 0.149 mW/g

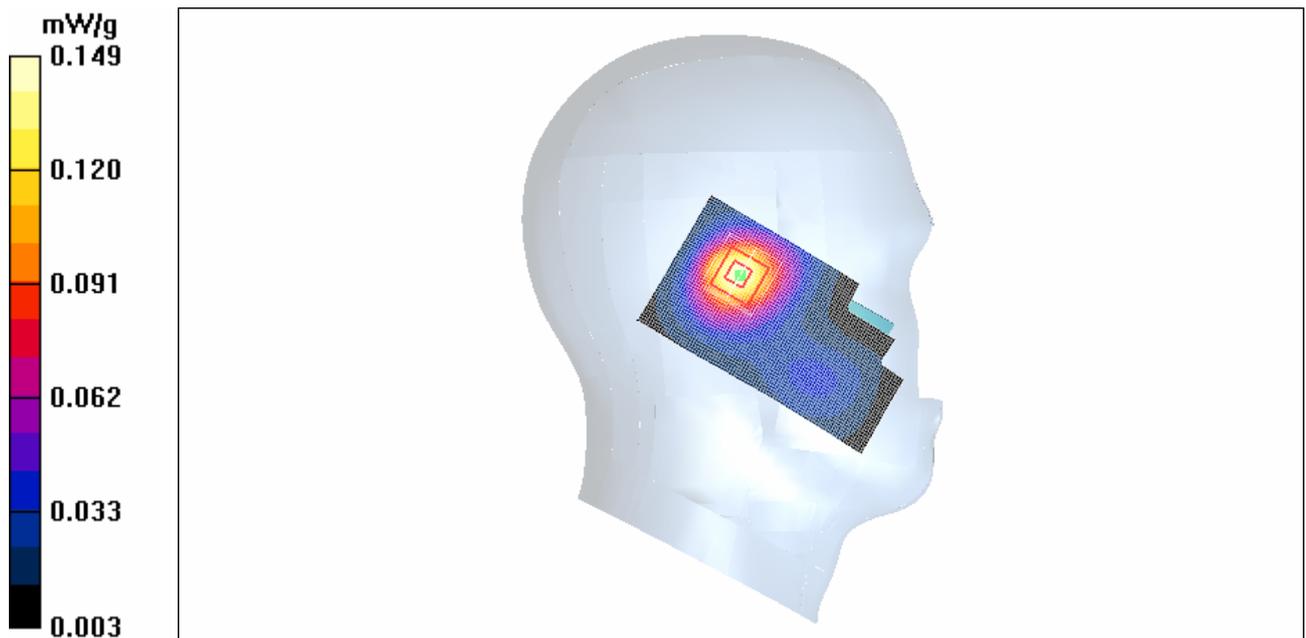


Figure 69 Left Hand Tilt 15° Close GSM 1900 Channel 512

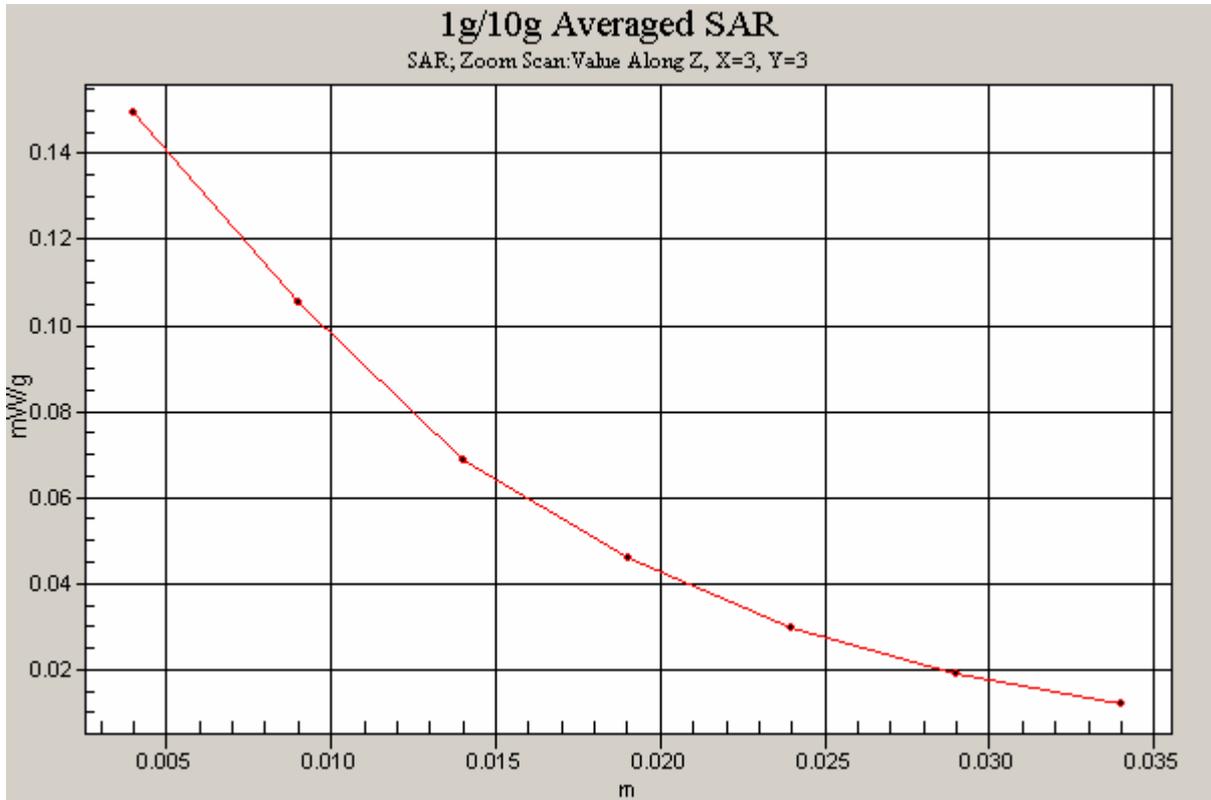


Figure 70 Z-Scan at power reference point (Left Hand Tilt 15° Close GSM 1900 Channel 512)

### GSM 1900 Right Cheek High Close

Communication System: PCS 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.44$  mho/m;  $\epsilon_r = 39.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15); Electronics: DAE3 Sn452;

**Cheek High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.224 mW/g

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

Reference Value = 9.92 V/m; Power Drift = -0.078 dB

Peak SAR (extrapolated) = 0.320 W/kg

**SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.135 mW/g**

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

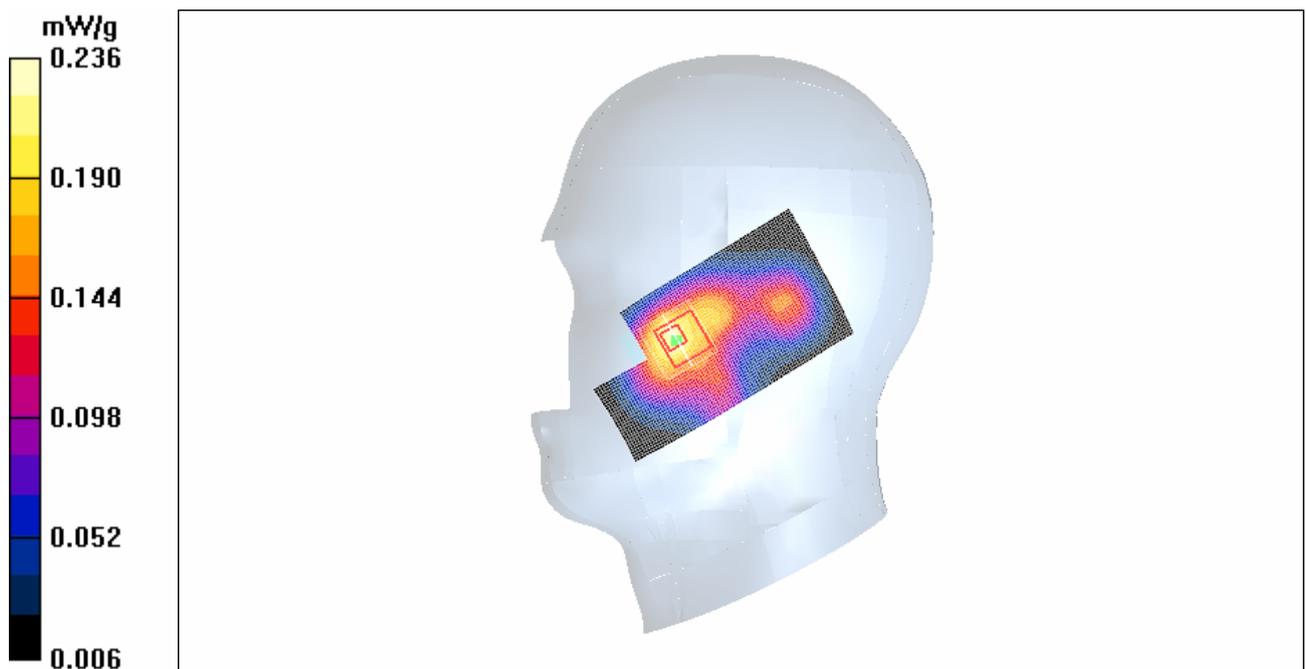


Figure 71 Right Hand Touch Cheek Close GSM 1900 Channel 810

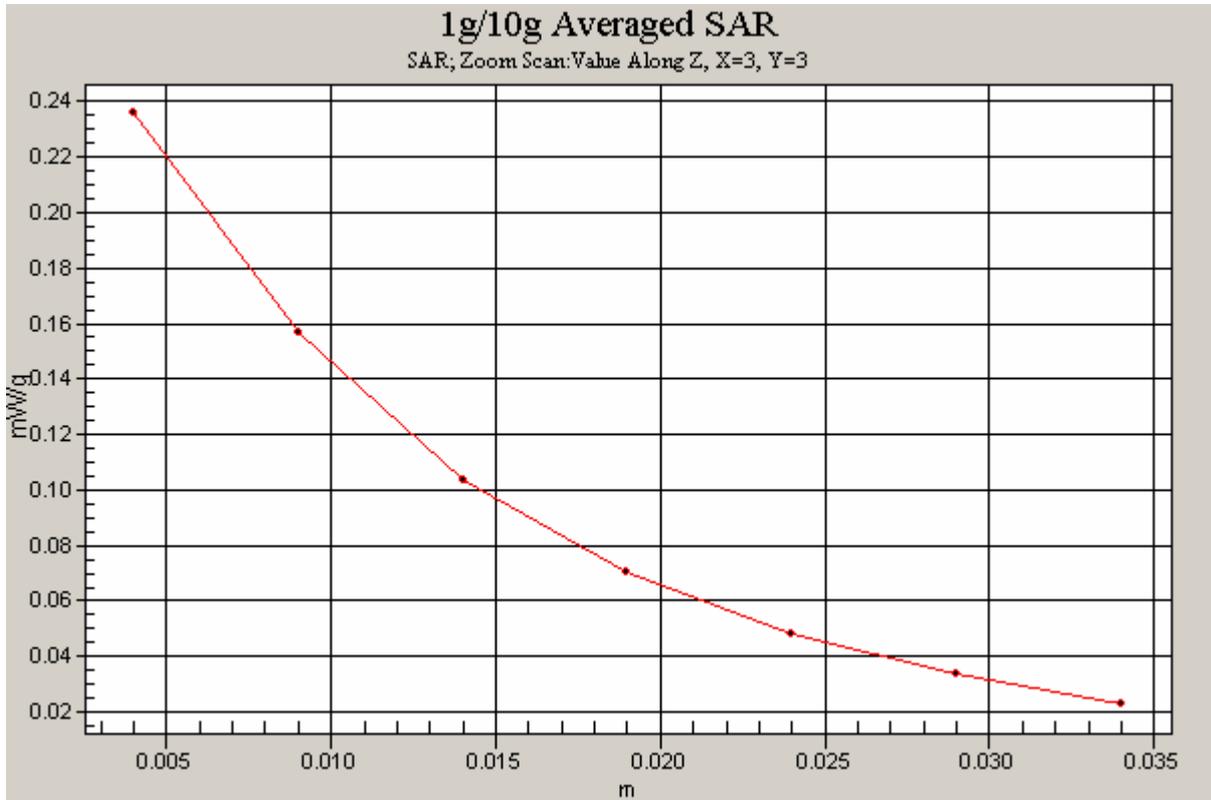


Figure 72 Z-Scan at power reference point (Right Hand Touch Cheek Close GSM 1900 Channel 810)

### GSM 1900 Right Cheek Middle Close

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE3 Sn452;

**Cheek Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 9.26 V/m; Power Drift = 0.080 dB

Peak SAR (extrapolated) = 0.274 W/kg

**SAR(1 g) = 0.184 mW/g; SAR(10 g) = 0.118 mW/g**

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

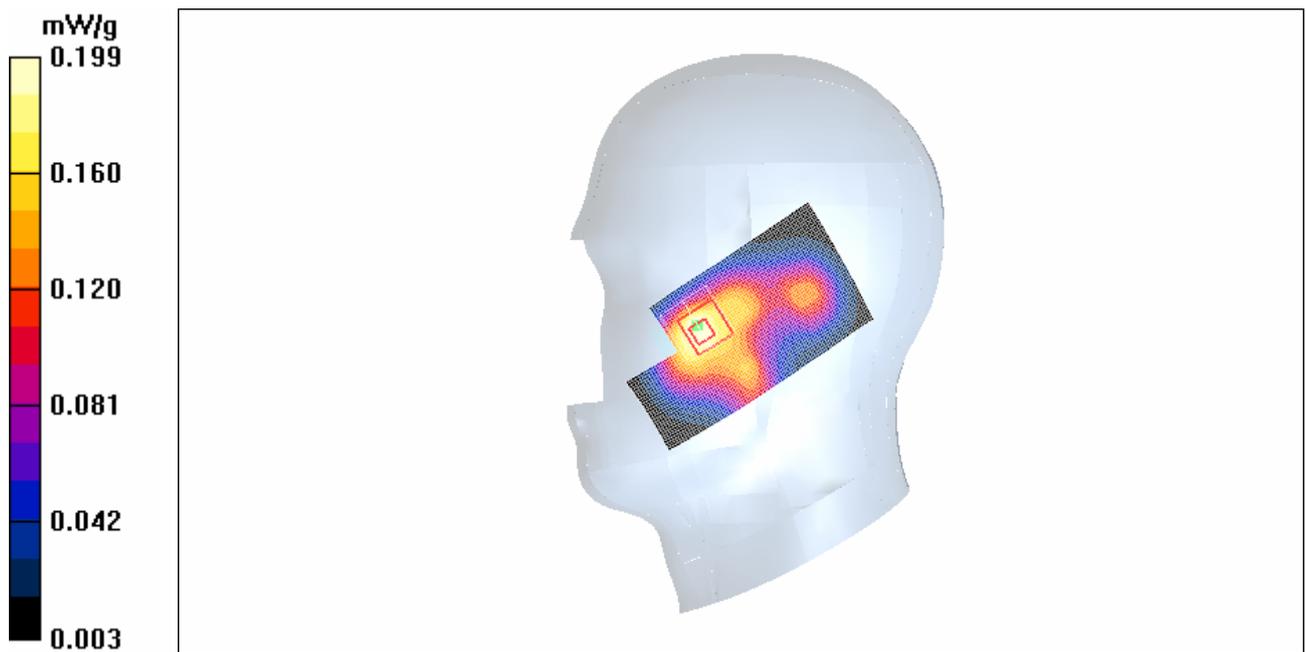


Figure 73 Right Hand Touch Cheek Close GSM 1900 Channel 661

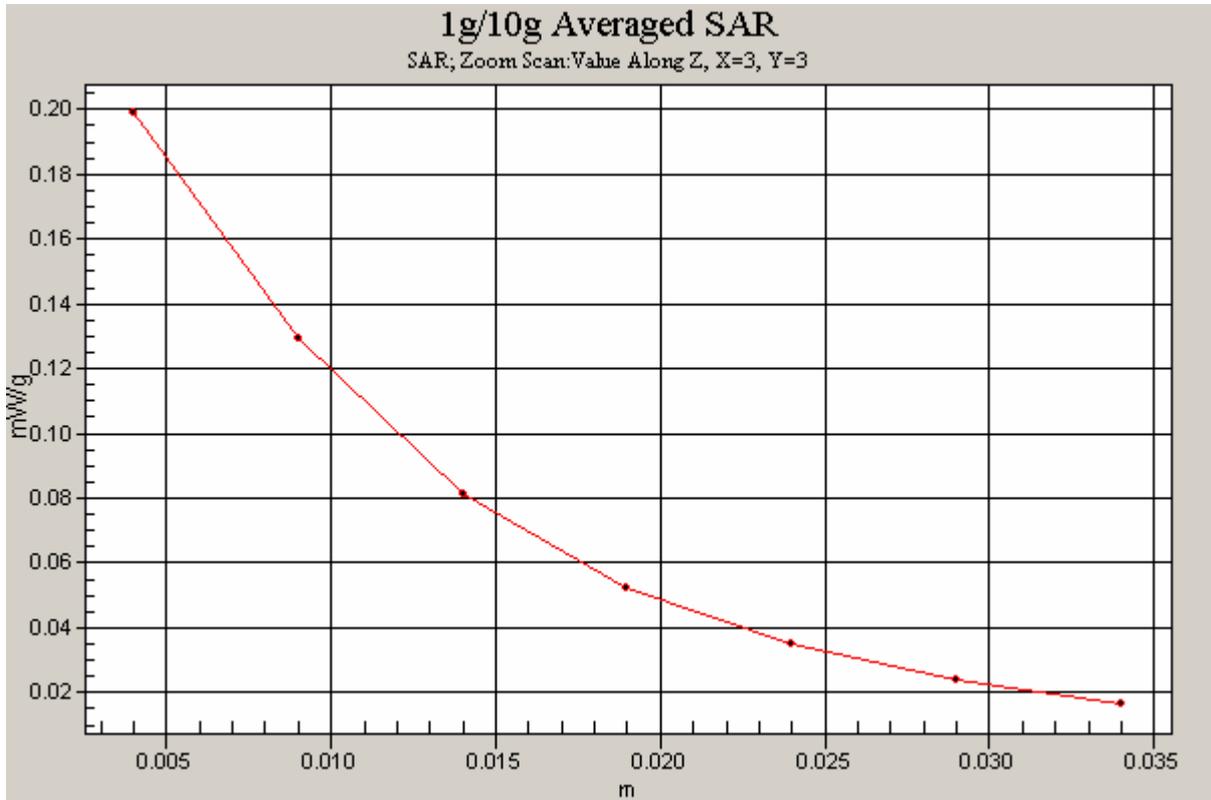


Figure 74 Z-Scan at power reference point (Right Hand Touch Cheek Close GSM 1900 Channel 661)

### GSM 1900 Right Cheek Low Close

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.39$  mho/m;  $\epsilon_r = 39.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE3 Sn452;

**Cheek Low/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.206 mW/g

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

Reference Value = 9.68 V/m; Power Drift = -0.096 dB

Peak SAR (extrapolated) = 0.265 W/kg

**SAR(1 g) = 0.181 mW/g; SAR(10 g) = 0.122 mW/g**

Maximum value of SAR (measured) = 0.197 mW/g

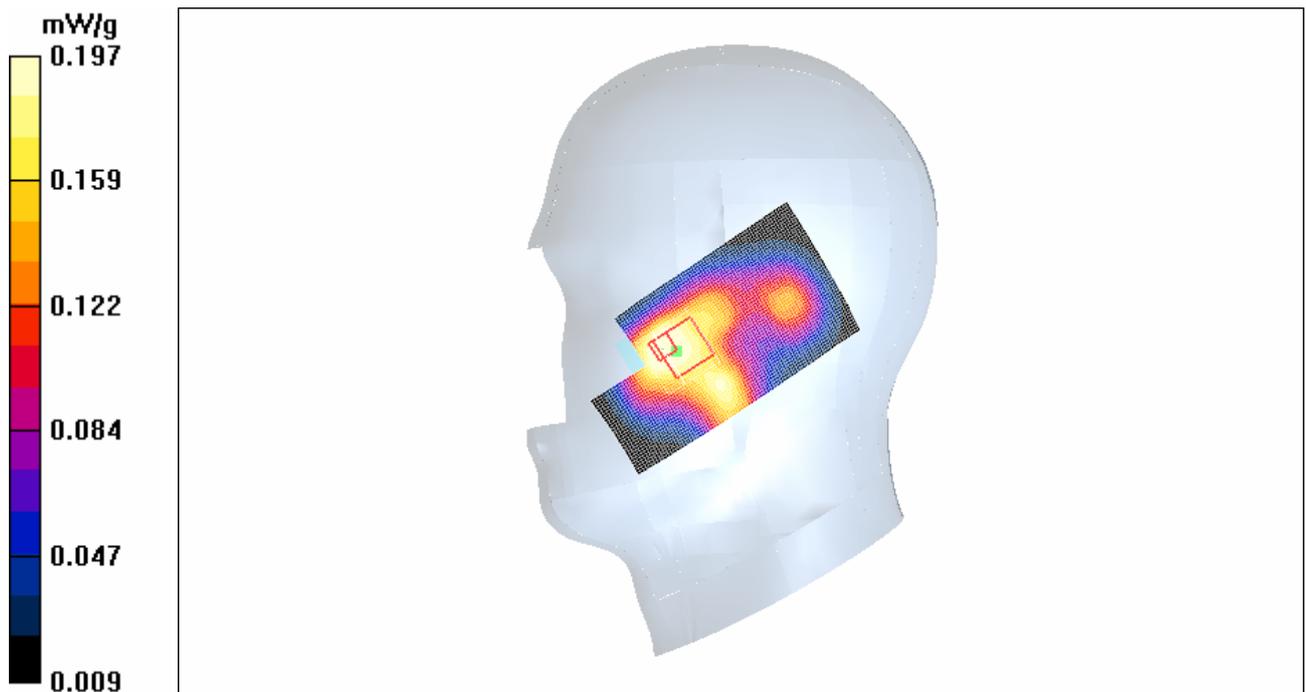


Figure 75 Right Hand Touch Cheek Close GSM 1900 Channel 512

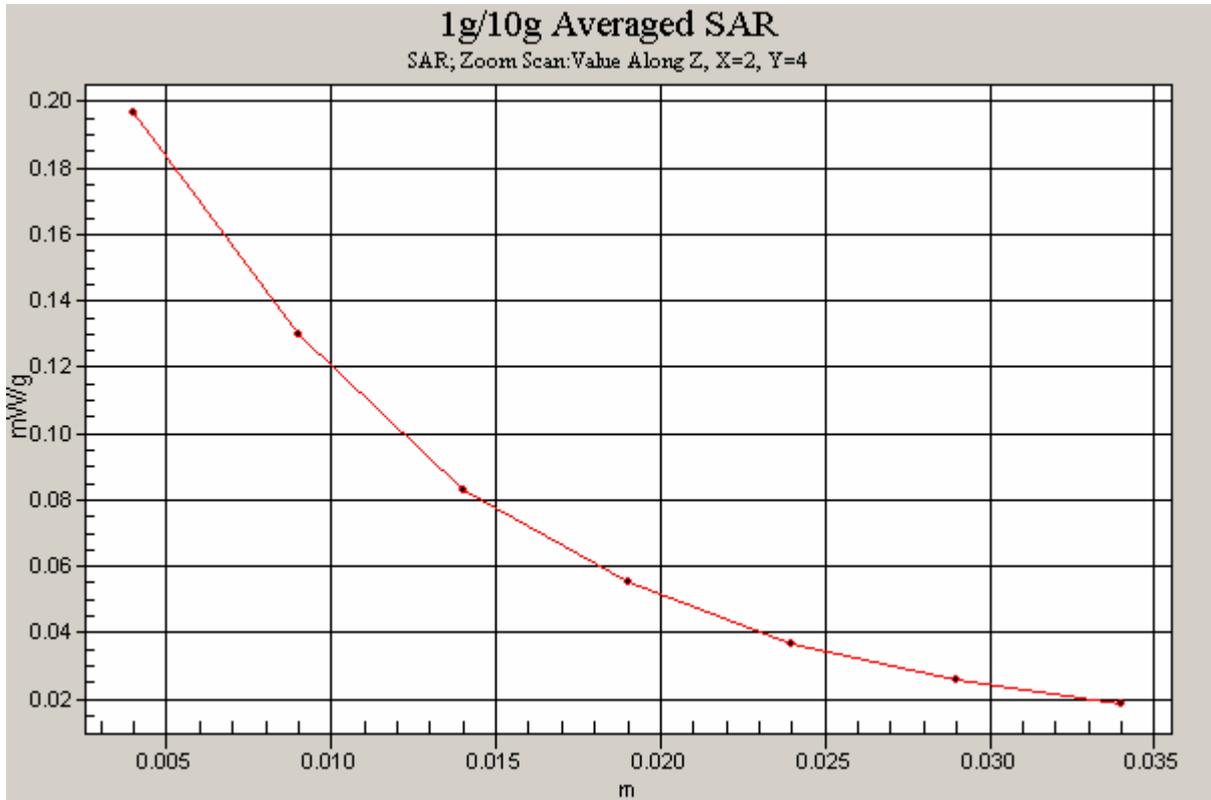


Figure 76 Z-Scan at power reference point (Right Hand Touch Cheek Close GSM 1900 Channel 512)

### GSM 1900 Right Tilt High Close

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.44$  mho/m;  $\epsilon_r = 39.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE3 Sn452;

**Tilt High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.173 mW/g

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

Reference Value = 11.4 V/m; Power Drift = -0.019 dB

Peak SAR (extrapolated) = 0.212 W/kg

**SAR(1 g) = 0.156 mW/g; SAR(10 g) = 0.096 mW/g**

Maximum value of SAR (measured) = 0.170 mW/g

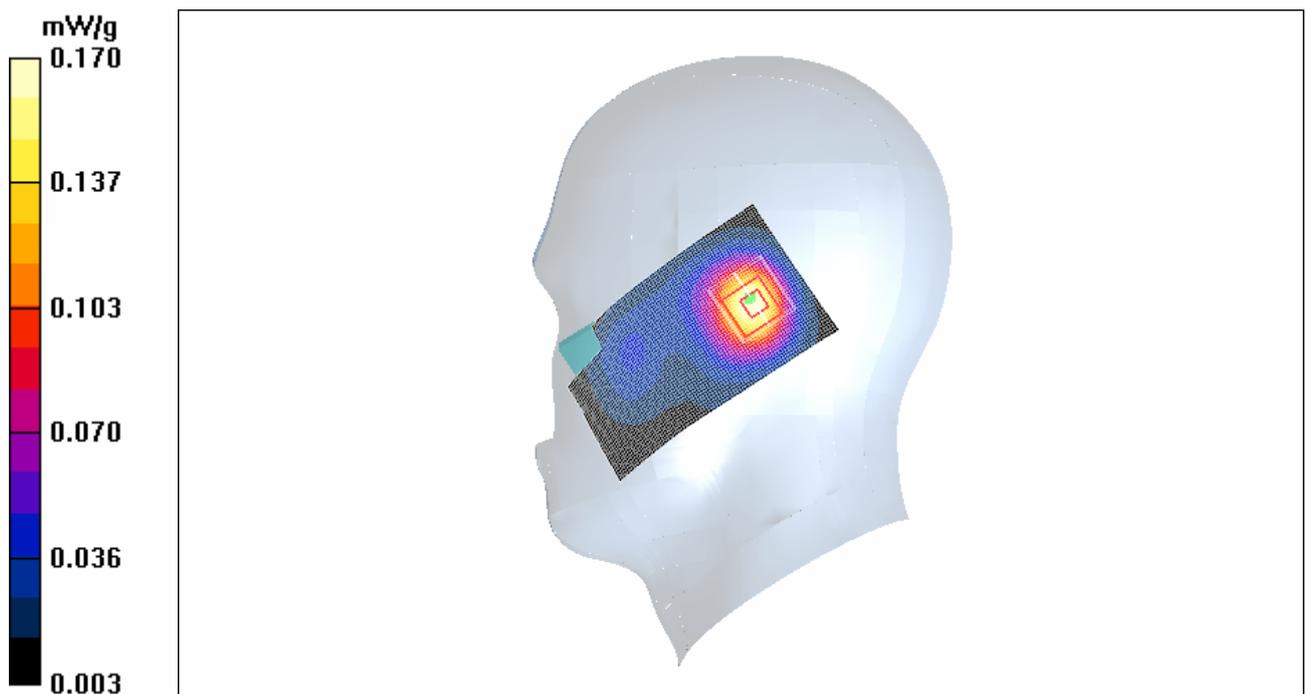


Figure 77 Right Hand Tilt 15° Close GSM 1900 Channel 810

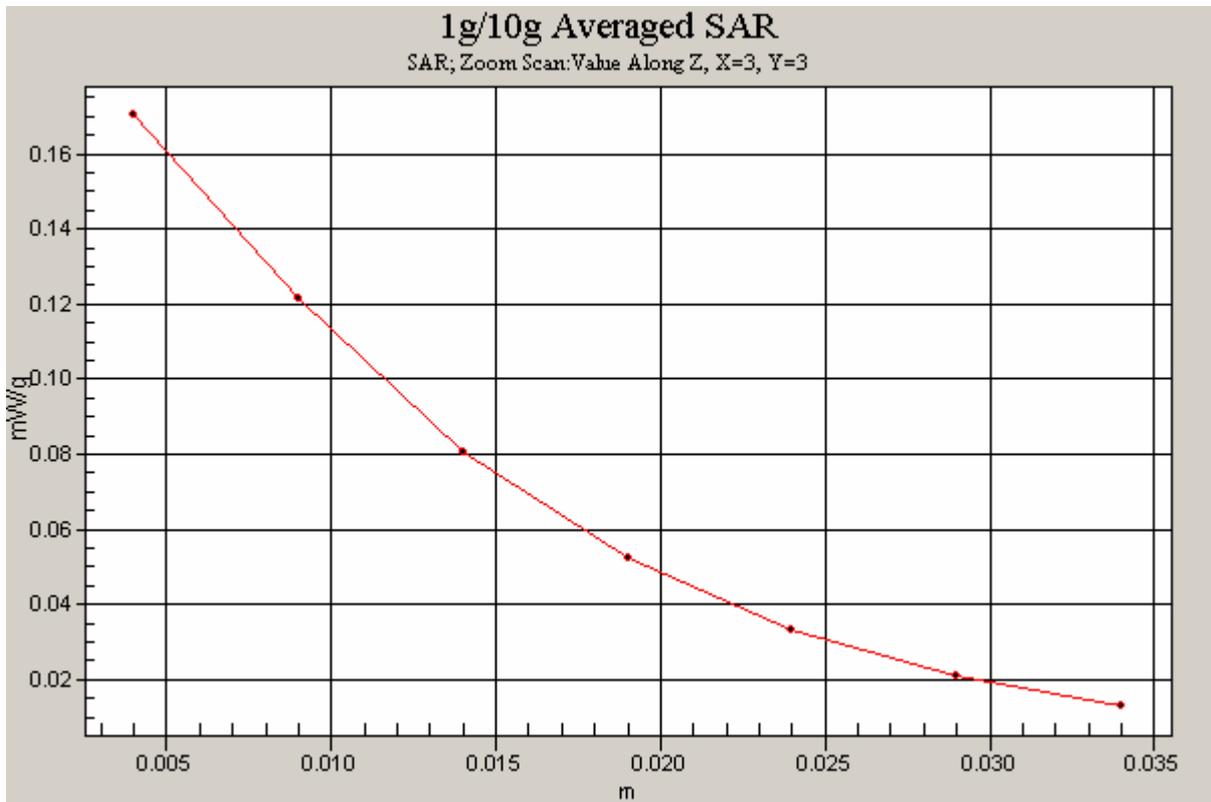


Figure 78 Z-Scan at power reference point (Right Hand Tilt 15° Close GSM 1900 Channel 810)

### GSM 1900 Right Tilt Middle Close

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.41$  mho/m;  $\epsilon_r = 39.7$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE3 Sn452;

**Tilt Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.143 mW/g

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

Reference Value = 10.4 V/m; Power Drift = 0.026 dB

Peak SAR (extrapolated) = 0.175 W/kg

**SAR(1 g) = 0.131 mW/g; SAR(10 g) = 0.082 mW/g**

Maximum value of SAR (measured) = 0.143 mW/g

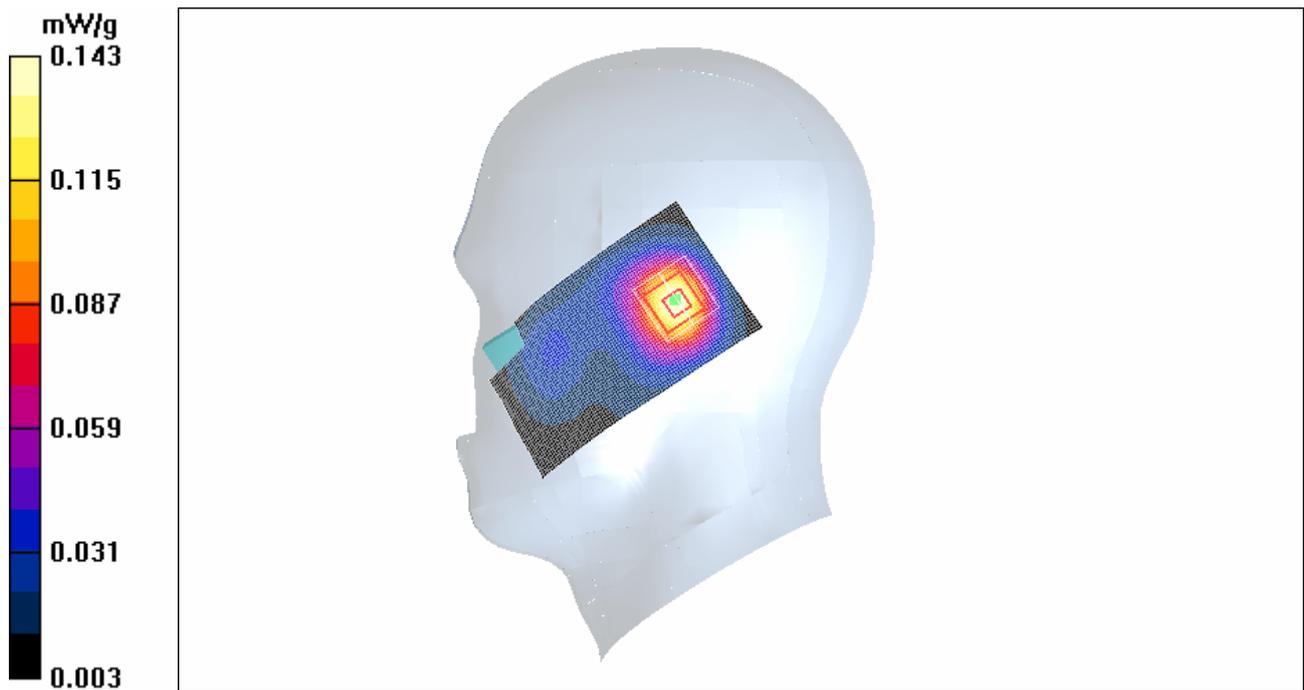


Figure 79 Right Hand Tilt 15° Close GSM 1900 Channel 661

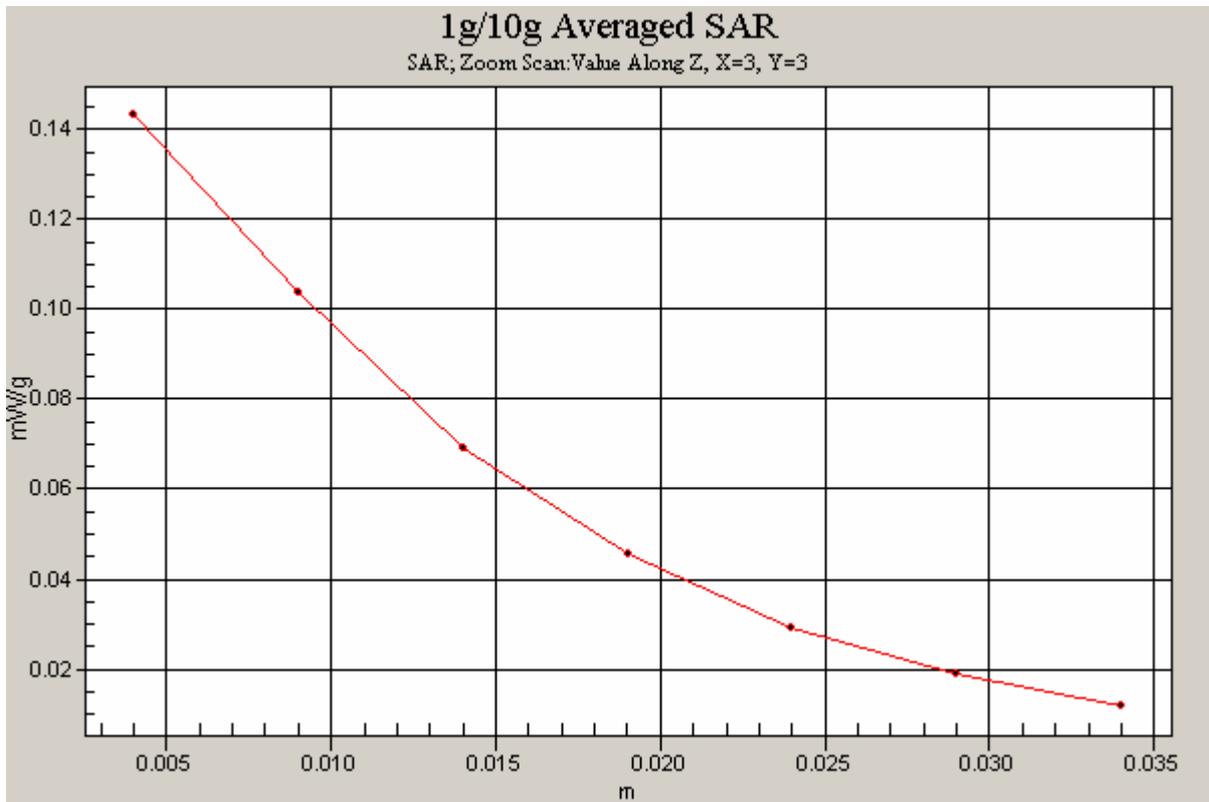


Figure 80 Z-Scan at power reference point (Right Hand Tilt 15° Close GSM 1900 Channel 661)

**GSM 1900 Right Tilt Low Close**

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.39$  mho/m;  $\epsilon_r = 39.9$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE3 Sn452;

**Tilt Low/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.145 mW/g

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

Reference Value = 10.5 V/m; Power Drift = 0.025 dB

Peak SAR (extrapolated) = 0.175 W/kg

**SAR(1 g) = 0.133 mW/g; SAR(10 g) = 0.085 mW/g**

Maximum value of SAR (measured) = 0.144 mW/g

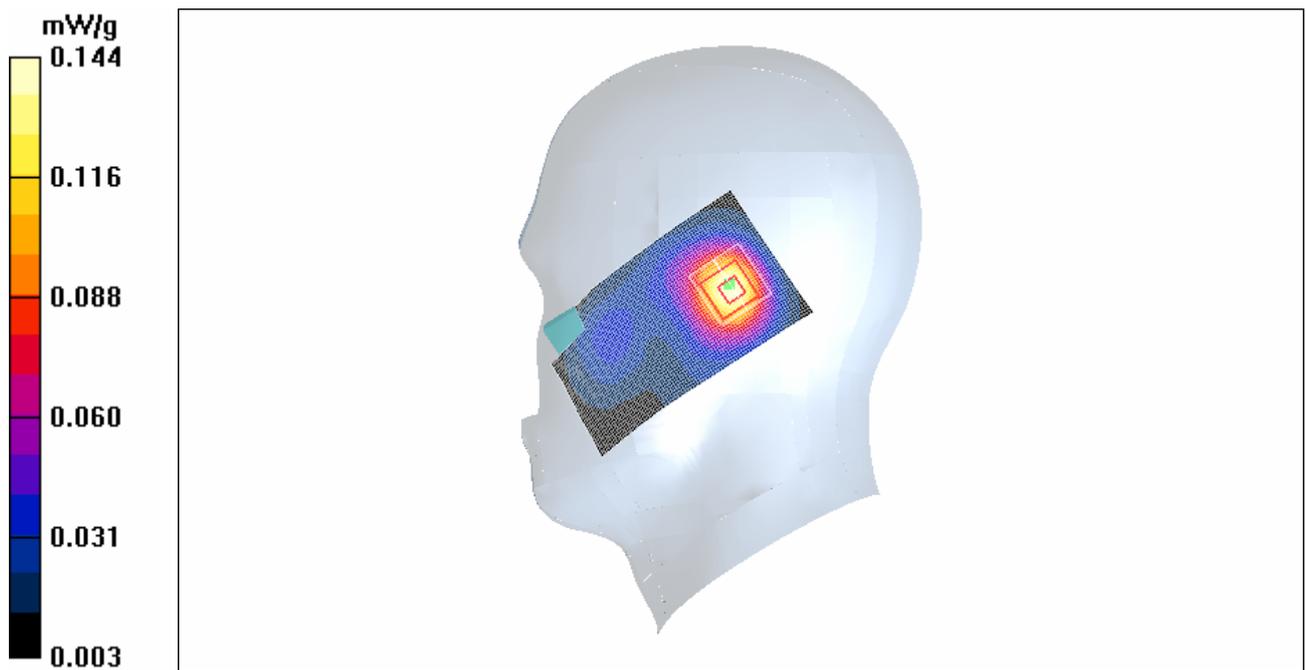


Figure 81 Right Hand Tilt 15° Close GSM 1900 Channel 512

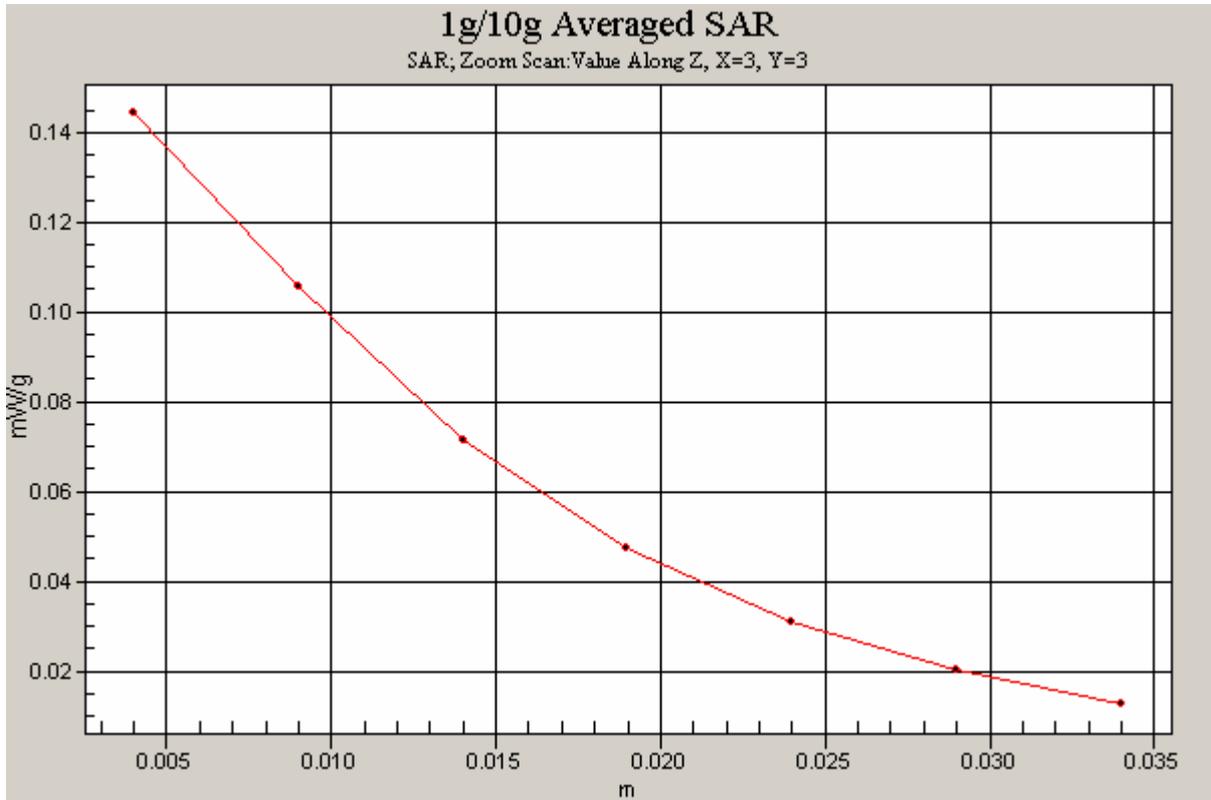


Figure 82 Z-Scan at power reference point (Right Hand Tilt 15° Close GSM 1900 Channel 512)

**GSM 1900 Towards Ground High Close**

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.53$  mho/m;  $\epsilon_r = 52.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE3 Sn452;

**Towards Ground High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.577 mW/g

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

Reference Value = 8.34 V/m; Power Drift = -0.017 dB

Peak SAR (extrapolated) = 0.764 W/kg

**SAR(1 g) = 0.489 mW/g; SAR(10 g) = 0.296 mW/g**

Maximum value of SAR (measured) = 0.534 mW/g

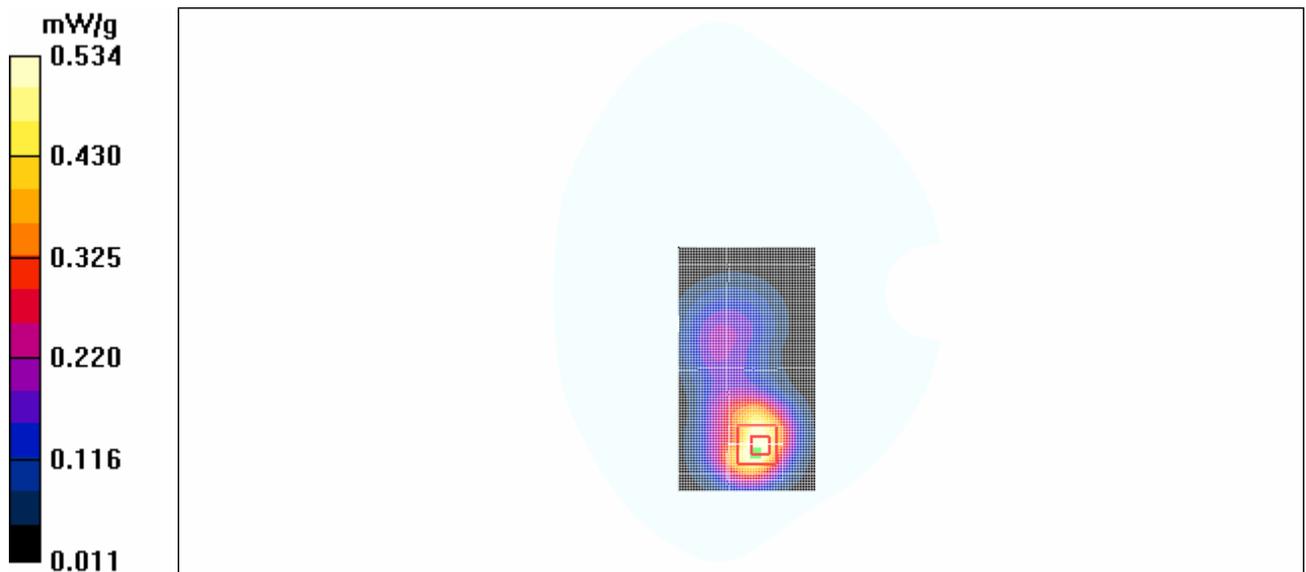


Figure 83 Body, Towards Ground, Close GSM 1900 Channel 810

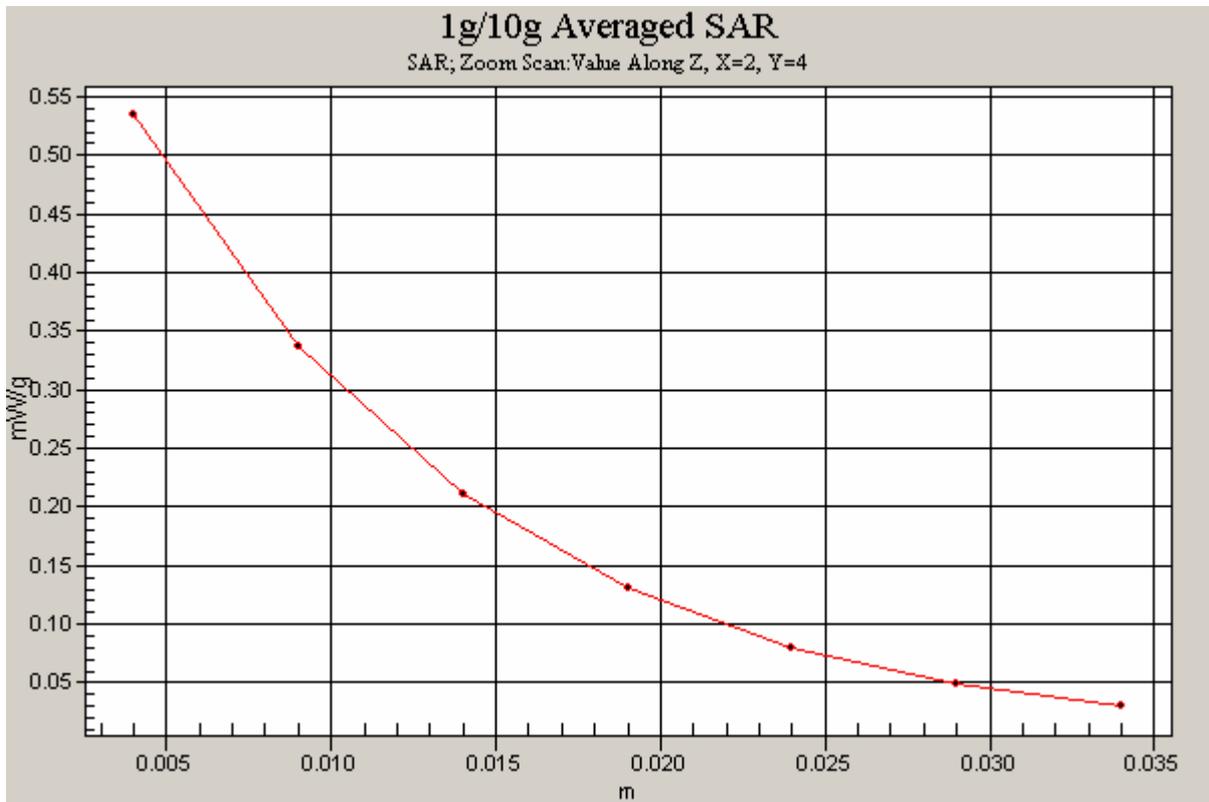


Figure 84 Z-Scan at power reference point (Body, Towards Ground, Close GSM 1900 Channel 810)

**GSM 1900 Towards Ground Middle Close**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.52$  mho/m;  $\epsilon_r = 52.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE3 Sn452;

**Towards Ground Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.541 mW/g

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

Reference Value = 8.53 V/m; Power Drift = 0.004 dB

Peak SAR (extrapolated) = 0.693 W/kg

**SAR(1 g) = 0.448 mW/g; SAR(10 g) = 0.270 mW/g**

Maximum value of SAR (measured) = 0.487 mW/g

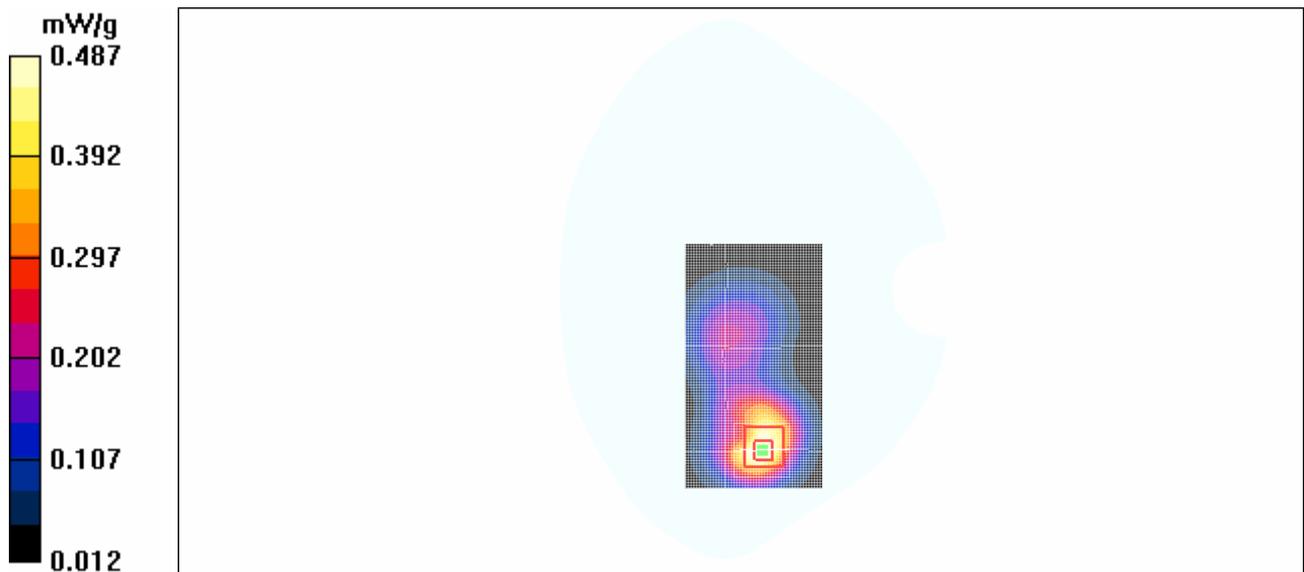


Figure 85 Body, Towards Ground, Close GSM 1900 Channel 661

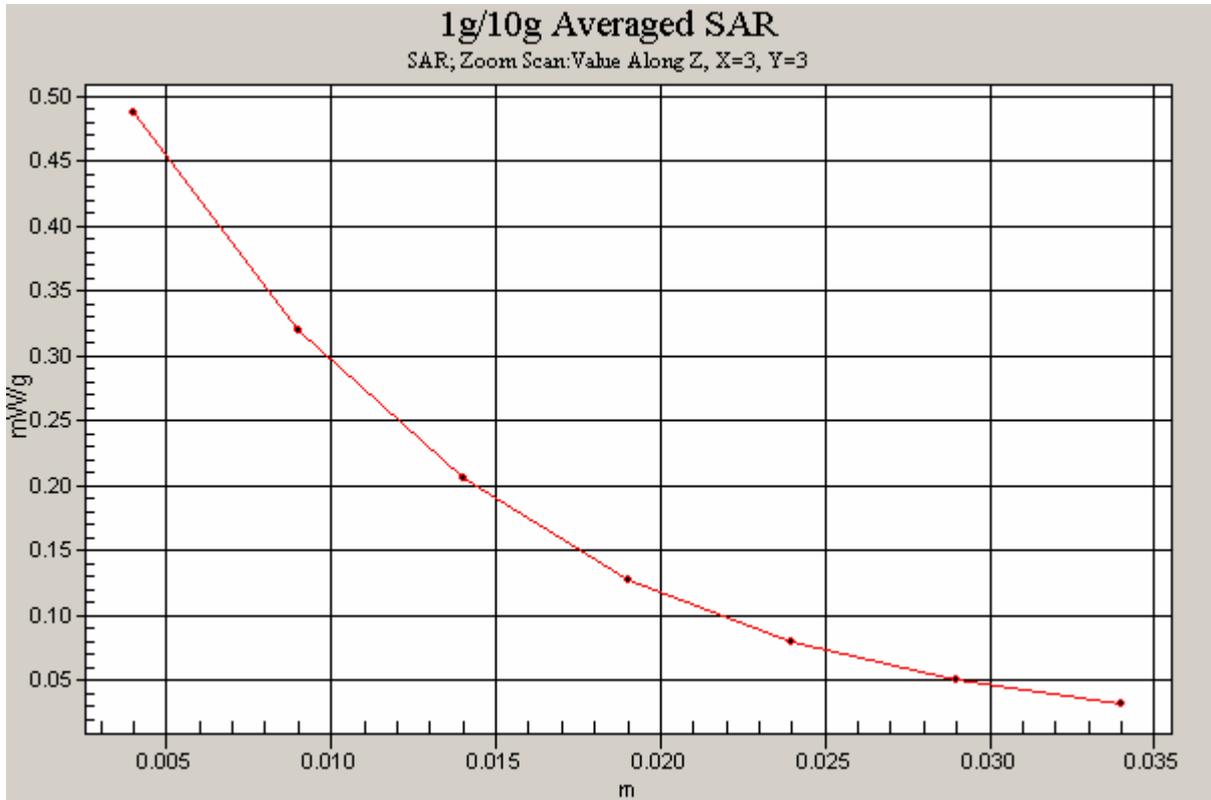


Figure 86 Z-Scan at power reference point (Body, Towards Ground, Close GSM 1900 Channel 661)

**GSM 1900 Towards Ground Low Close**

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 52.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE3 Sn452;

**Towards Ground Low/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.597 mW/g

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

Reference Value = 8.98 V/m; Power Drift = 0.006 dB

Peak SAR (extrapolated) = 0.814 W/kg

**SAR(1 g) = 0.542 mW/g; SAR(10 g) = 0.321 mW/g**

Maximum value of SAR (measured) = 0.593 mW/g

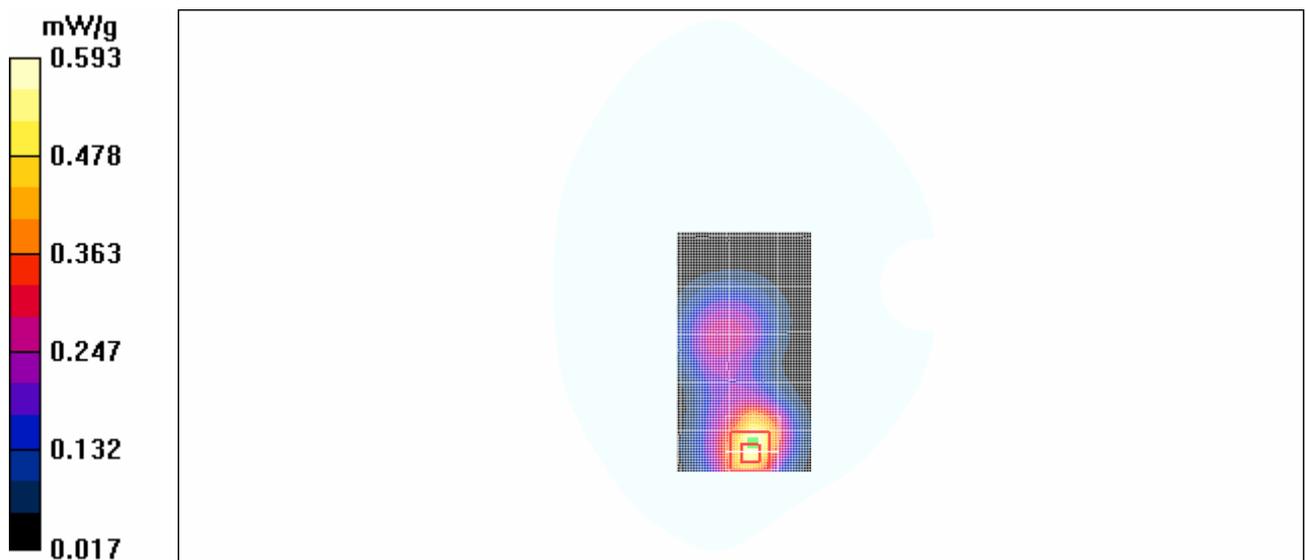


Figure 87 Body, Towards Ground, Close GSM 1900 Channel 512

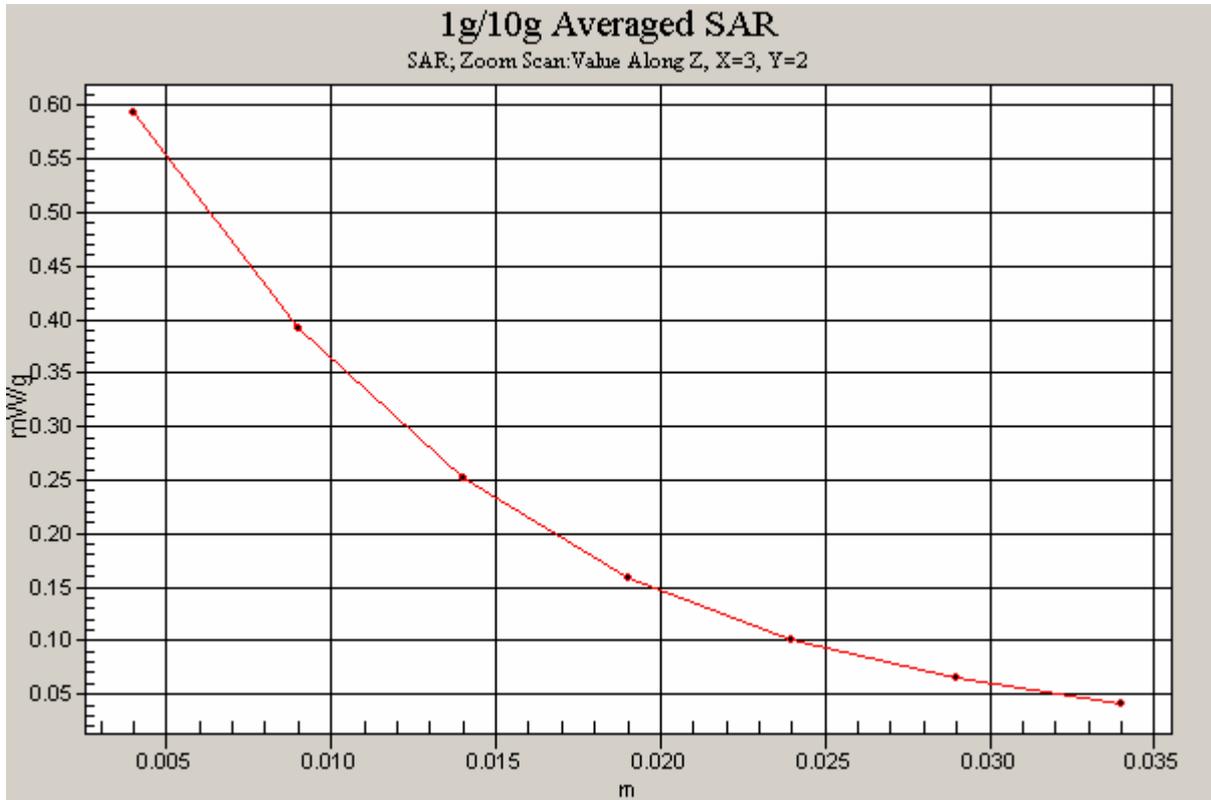


Figure 88 Z-Scan at power reference point (Body, Towards Ground, Close GSM 1900 Channel 512)

### GSM 1900 Towards Phantom High Close

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.53$  mho/m;  $\epsilon_r = 52.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE3 Sn452;

**Towards Phantom High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.125 mW/g

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

Reference Value = 6.45 V/m; Power Drift = -0.026 dB

Peak SAR (extrapolated) = 0.184 W/kg

**SAR(1 g) = 0.115 mW/g; SAR(10 g) = 0.073 mW/g**

Maximum value of SAR (measured) = 0.123 mW/g

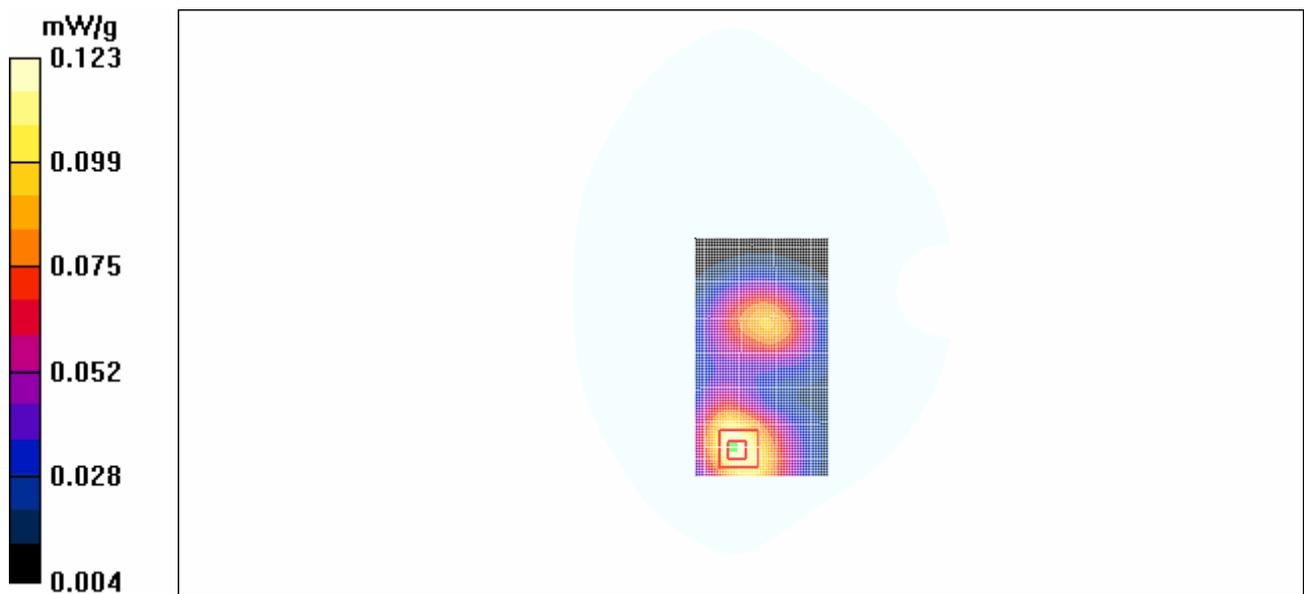


Figure 89 Body, Towards Phantom, Close GSM 1900 Channel 810

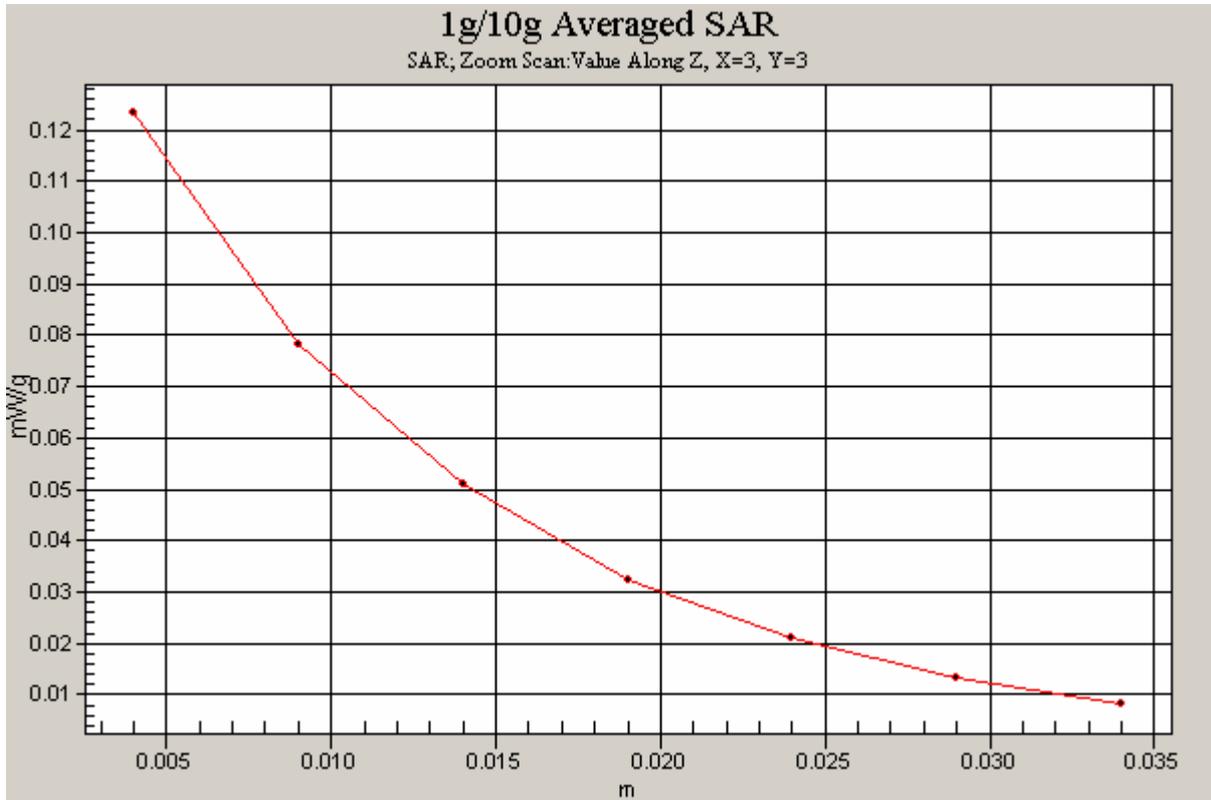


Figure 90 Z-Scan at power reference point (Body, Towards Phantom, Close GSM 1900 Channel 810)

**GSM 1900 Towards Phantom Middle Close**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.52$  mho/m;  $\epsilon_r = 52.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE3 Sn452;

**Towards Phantom Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.120 mW/g

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

Reference Value = 5.76 V/m; Power Drift = -0.013 dB

Peak SAR (extrapolated) = 0.174 W/kg

**SAR(1 g) = 0.109 mW/g; SAR(10 g) = 0.069 mW/g**

Maximum value of SAR (measured) = 0.118 mW/g

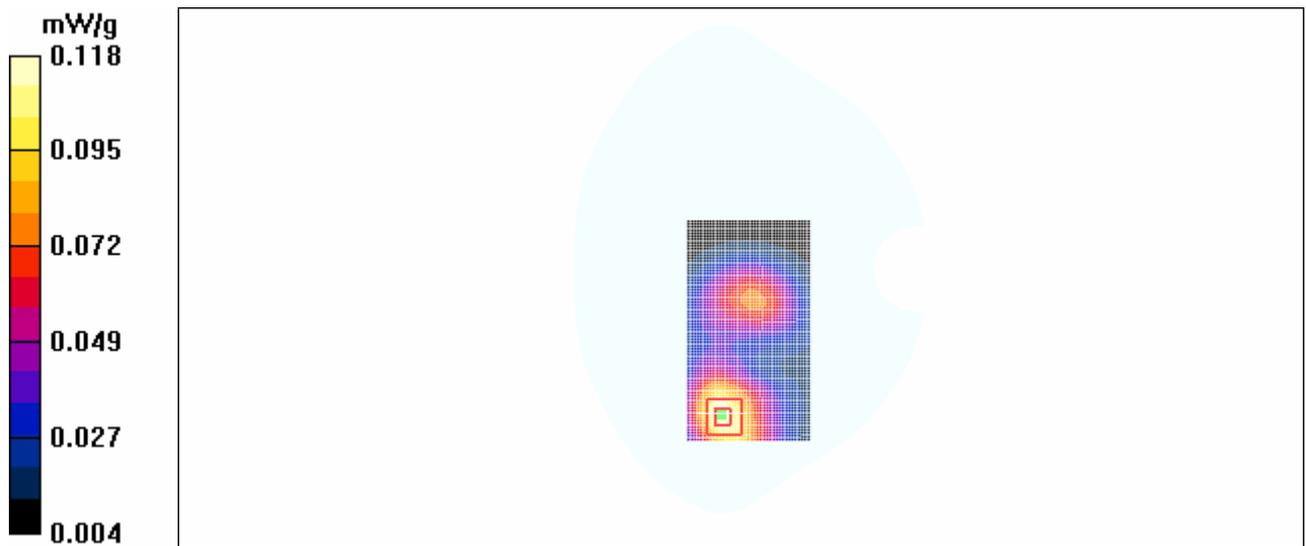


Figure 91 Body, Towards Phantom, Close GSM 1900 Channel 661

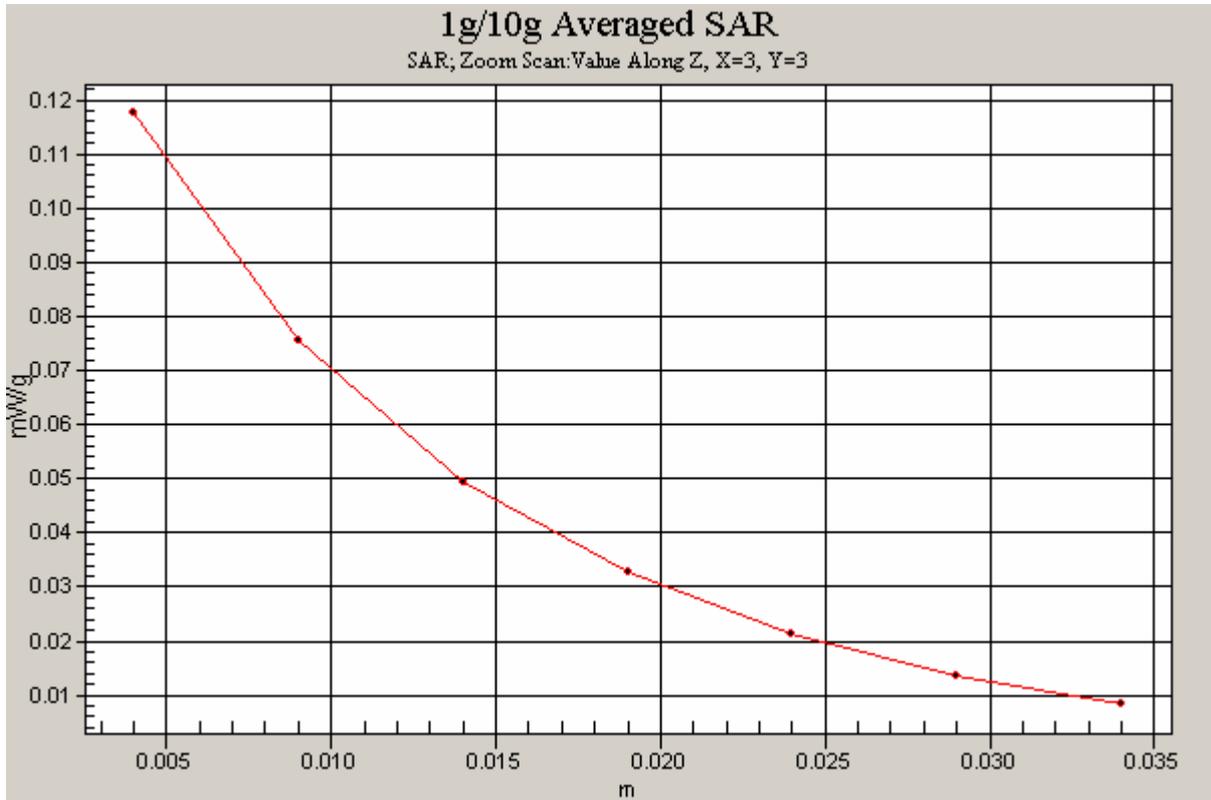


Figure 92 Z-Scan at power reference point (Body, Towards Phantom, Close GSM 1900 Channel 661)

### GSM 1900 Towards Phantom Low Close

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 52.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE3 Sn452;

**Towards Phantom Low/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.140 mW/g

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

Reference Value = 5.64 V/m; Power Drift = -0.058 dB

Peak SAR (extrapolated) = 0.203 W/kg

**SAR(1 g) = 0.129 mW/g; SAR(10 g) = 0.081 mW/g**

Maximum value of SAR (measured) = 0.139 mW/g

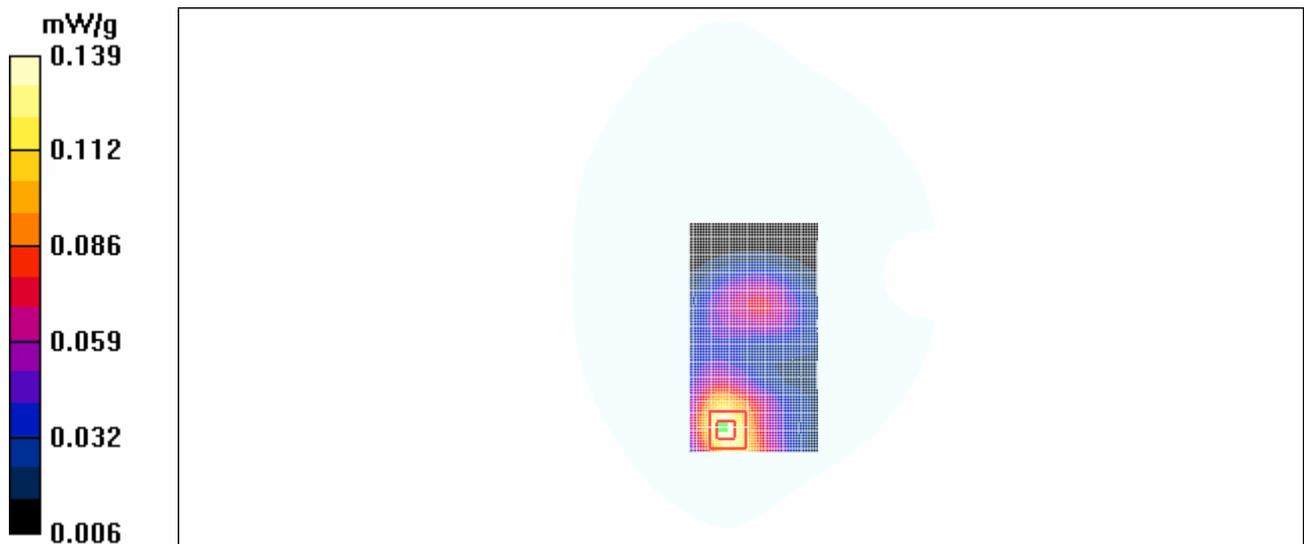


Figure 93 Body, Towards Phantom, Close GSM 1900 Channel 512

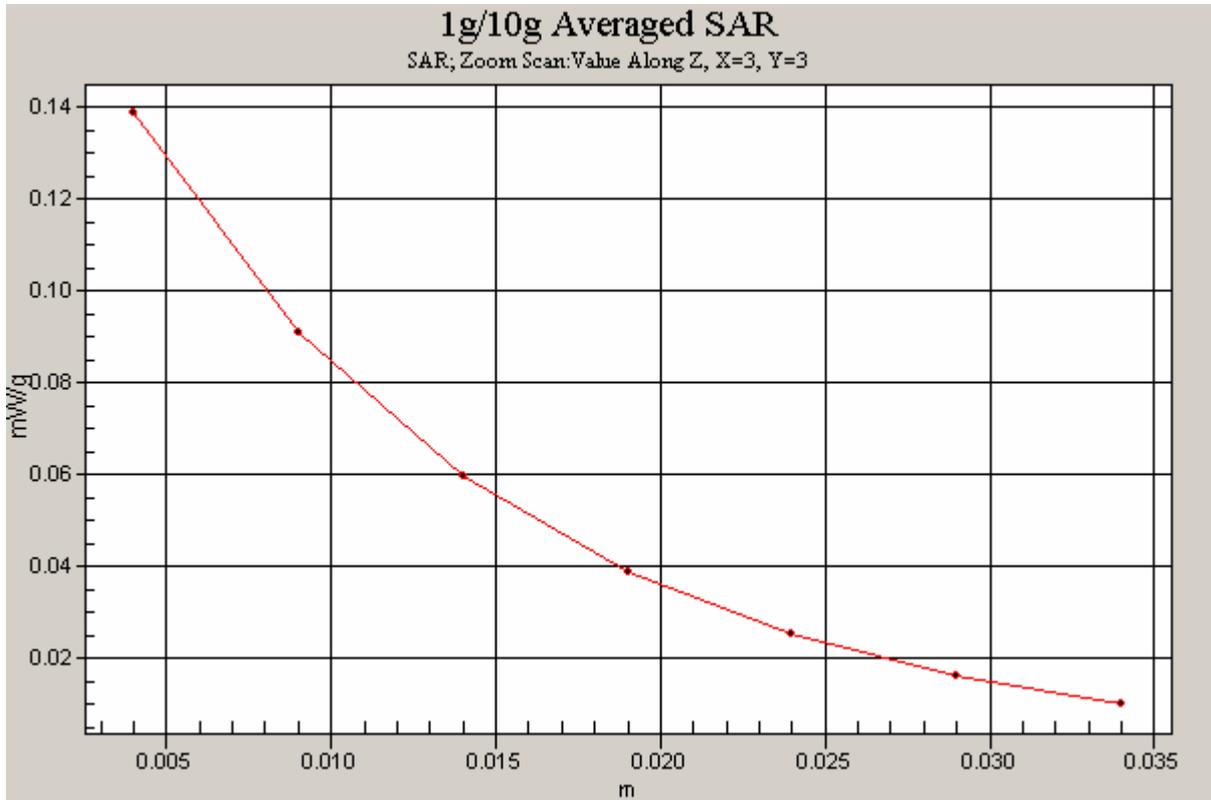


Figure 94 Z-Scan at power reference point (Body, Towards Phantom, Close GSM 1900 Channel 512)

**GSM 1900 Earphone Towards Ground Low Close**

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 52.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE3 Sn452;

**Towards Ground High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 8.75 V/m; Power Drift = -0.010 dB

Peak SAR (extrapolated) = 0.739 W/kg

**SAR(1 g) = 0.485 mW/g; SAR(10 g) = 0.291 mW/g**

Maximum value of SAR (measured) = 0.530 mW/g

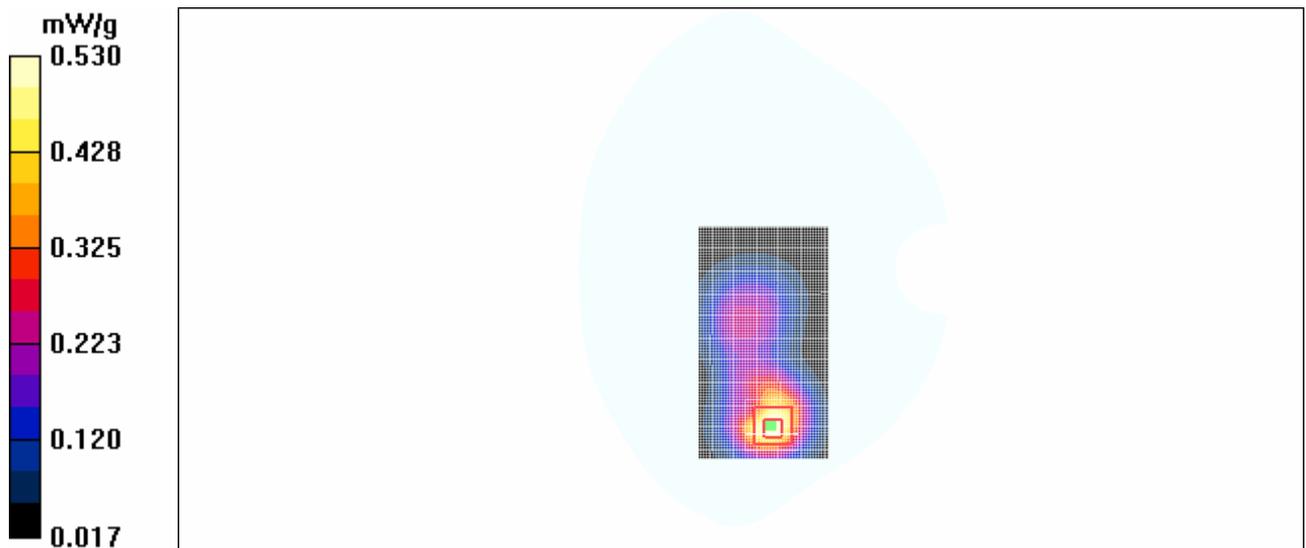


Figure 95 Body with Earphone, Towards Ground, Close GSM 1900, Channel 512

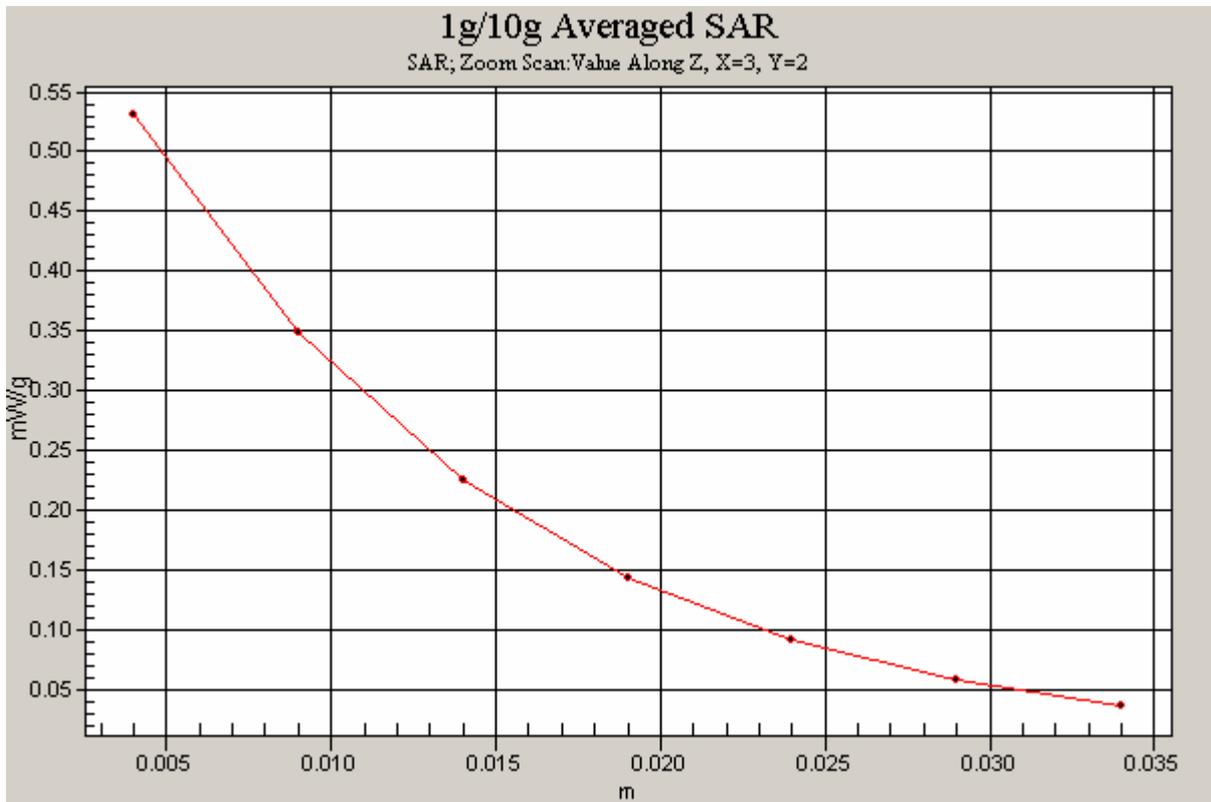


Figure 96 Z-Scan at power reference point (Body with Earphone, Towards Ground, Close GSM 1900, Channel 512)

### GSM 1900 Bluetooth Earphone Towards Ground Low Close

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 52.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE3 Sn452;

**Towards Ground High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.654 mW/g

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

Reference Value = 9.34 V/m; Power Drift = -0.046 dB

Peak SAR (extrapolated) = 0.835 W/kg

**SAR(1 g) = 0.547 mW/g; SAR(10 g) = 0.324 mW/g**

Maximum value of SAR (measured) = 0.598 mW/g

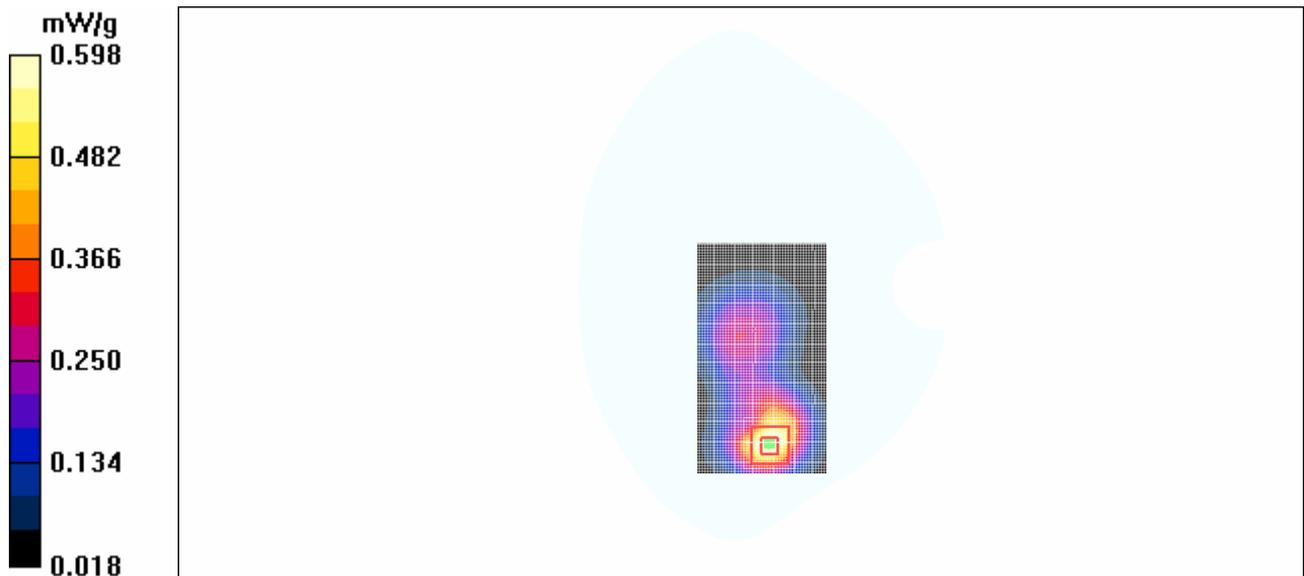


Figure 97 Body with Bluetooth earphone, Towards Ground, Close GSM 1900, Channel 512

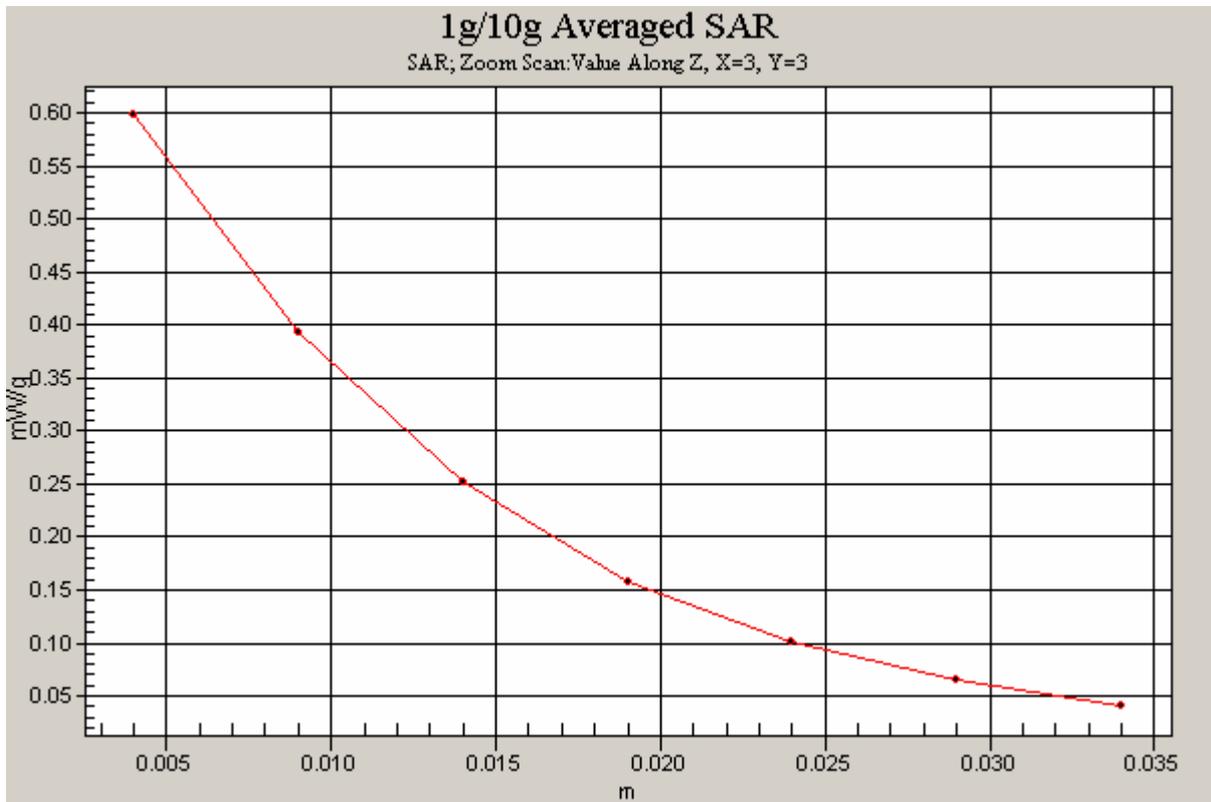


Figure 98 Z-Scan at power reference point (Body with Bluetooth earphone, Towards Ground, Close GSM 1900, Channel 512)

**GSM 1900 GPRS Towards Ground High Close**

Communication System: GSM 1900+GPRS(2Up); Frequency: 1909.8 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.53$  mho/m;  $\epsilon_r = 52.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE3 Sn452;

**Towards Ground High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 11.0 V/m; Power Drift = -0.023 dB

Peak SAR (extrapolated) = 1.40 W/kg

**SAR(1 g) = 0.895 mW/g; SAR(10 g) = 0.548 mW/g**

Maximum value of SAR (measured) = 0.982 mW/g

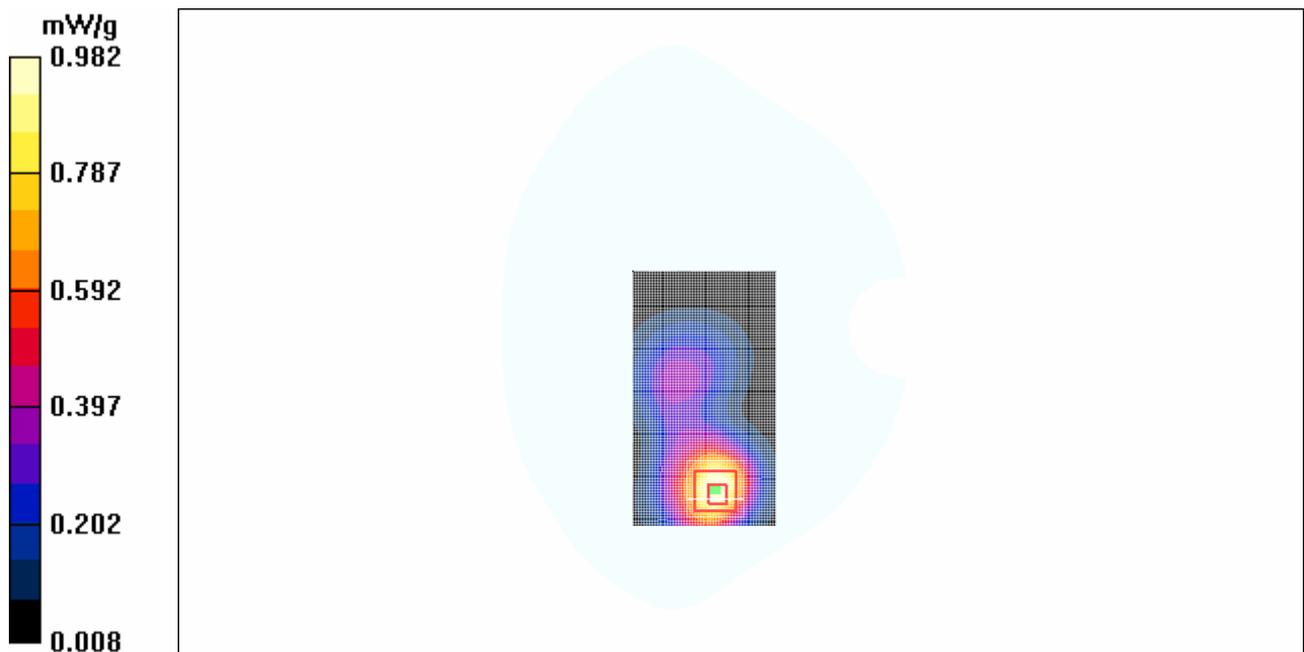


Figure 99 Body, Towards Ground, Close GSM 1900 GPRS, Channel 810

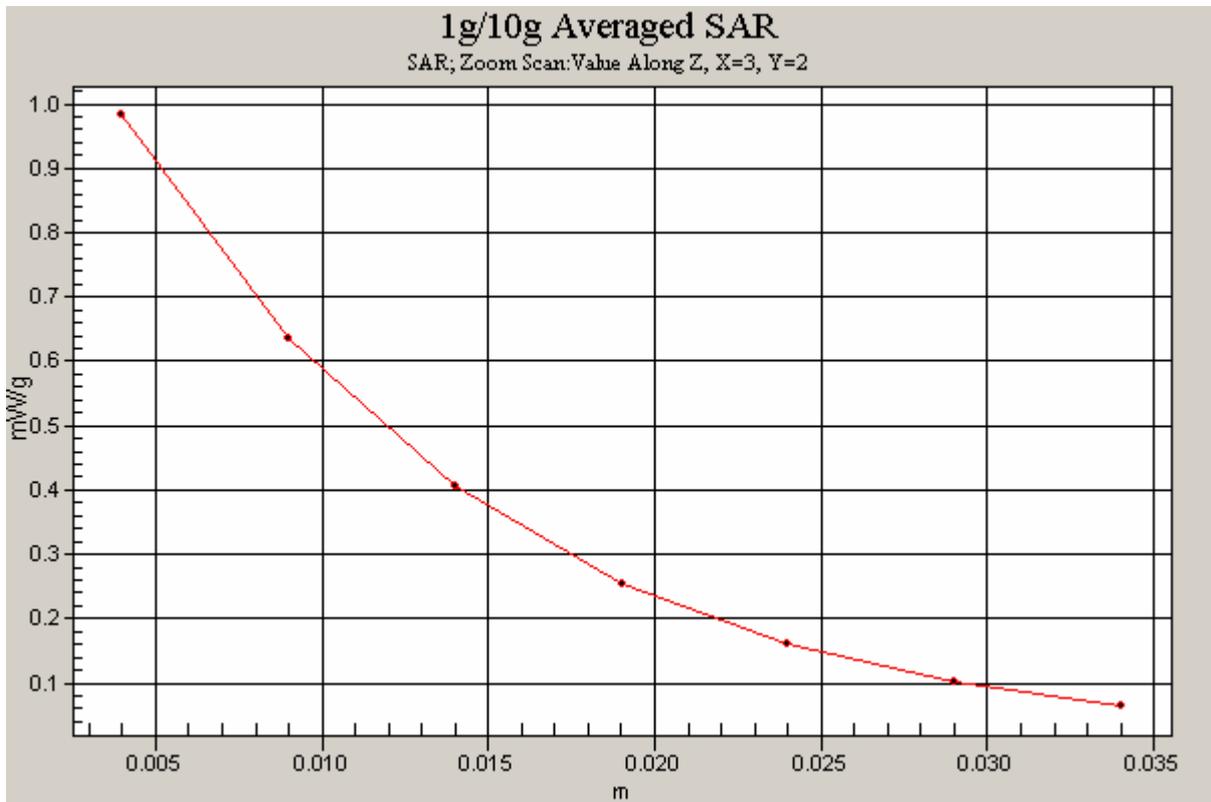


Figure 100 Z-Scan at power reference point (Body, Towards Ground, Close GSM 1900 GPRS, Channel 810)

**GSM 1900 GPRS Towards Ground Middle Close**

Communication System: GSM 1900+GPRS(2Up); Frequency: 1880 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.52$  mho/m;  $\epsilon_r = 52.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE3 Sn452;

**Towards Ground Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 11.3 V/m; Power Drift = -0.046 dB

Peak SAR (extrapolated) = 1.29 W/kg

**SAR(1 g) = 0.844 mW/g; SAR(10 g) = 0.509 mW/g**

Maximum value of SAR (measured) = 0.929 mW/g

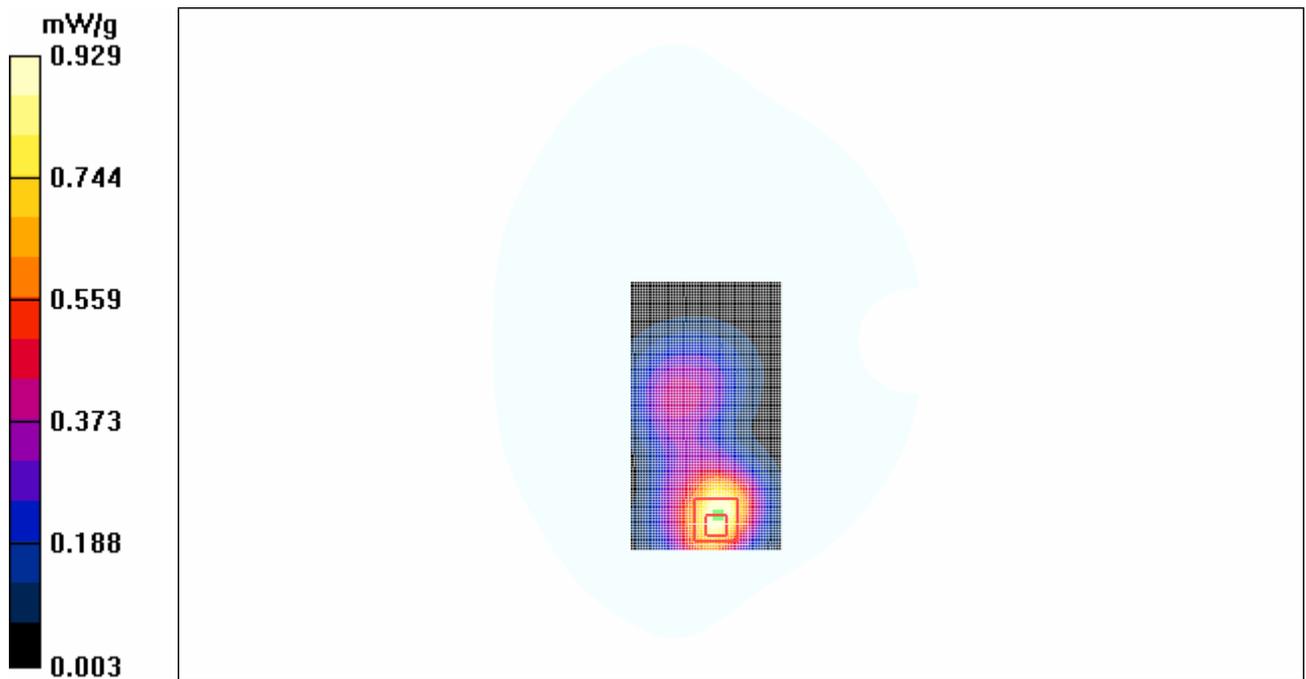


Figure 101 Body, Towards Ground, Close GSM 1900 GPRS Channel 661

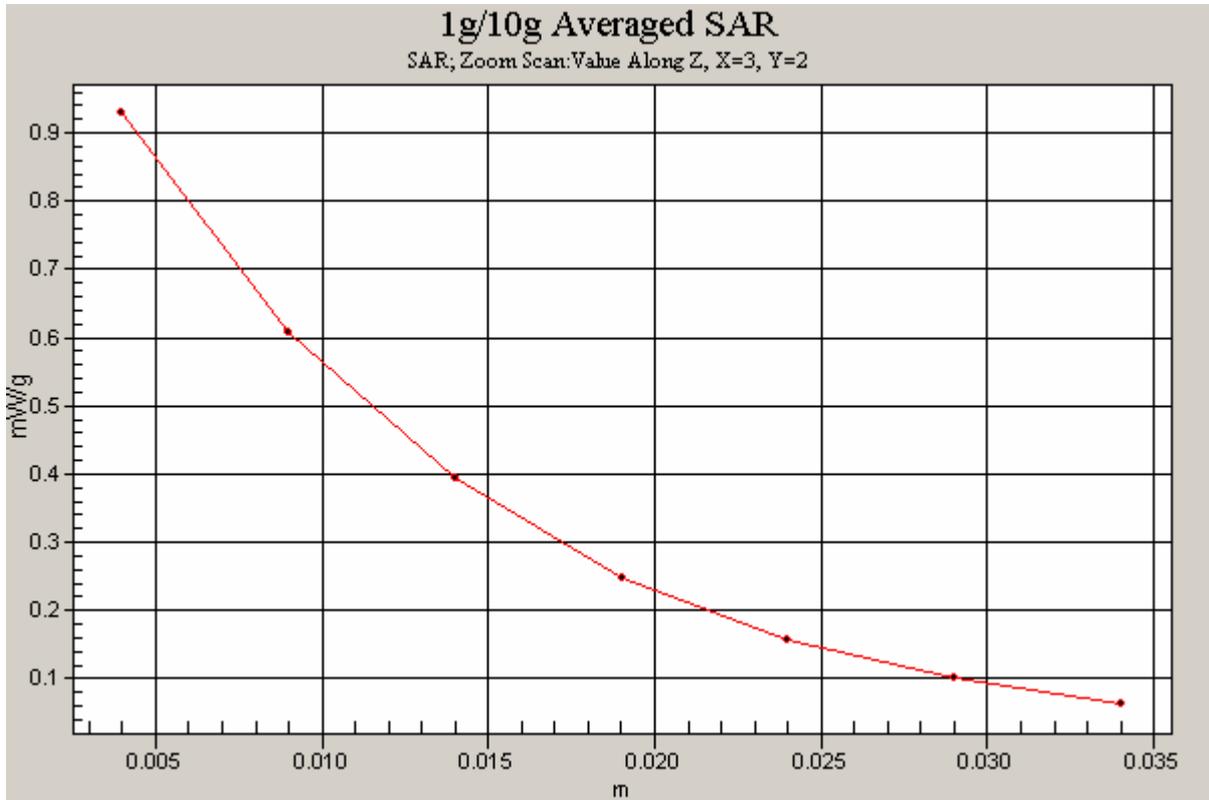


Figure 102 Z-Scan at power reference point (Body, Towards Ground, Close GSM 1900 GPRS Channel 661)

**GSM 1900 GPRS Towards Ground Low Close**

Communication System: GSM 1900+GPRS(2Up); Frequency: 1850.2 MHz; Duty Cycle: 1:4

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 52.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE3 Sn452;

**Towards Ground Low/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 12.7 V/m; Power Drift = 0.041 dB

Peak SAR (extrapolated) = 1.58 W/kg

**SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.604 mW/g**

Maximum value of SAR (measured) = 1.15 mW/g

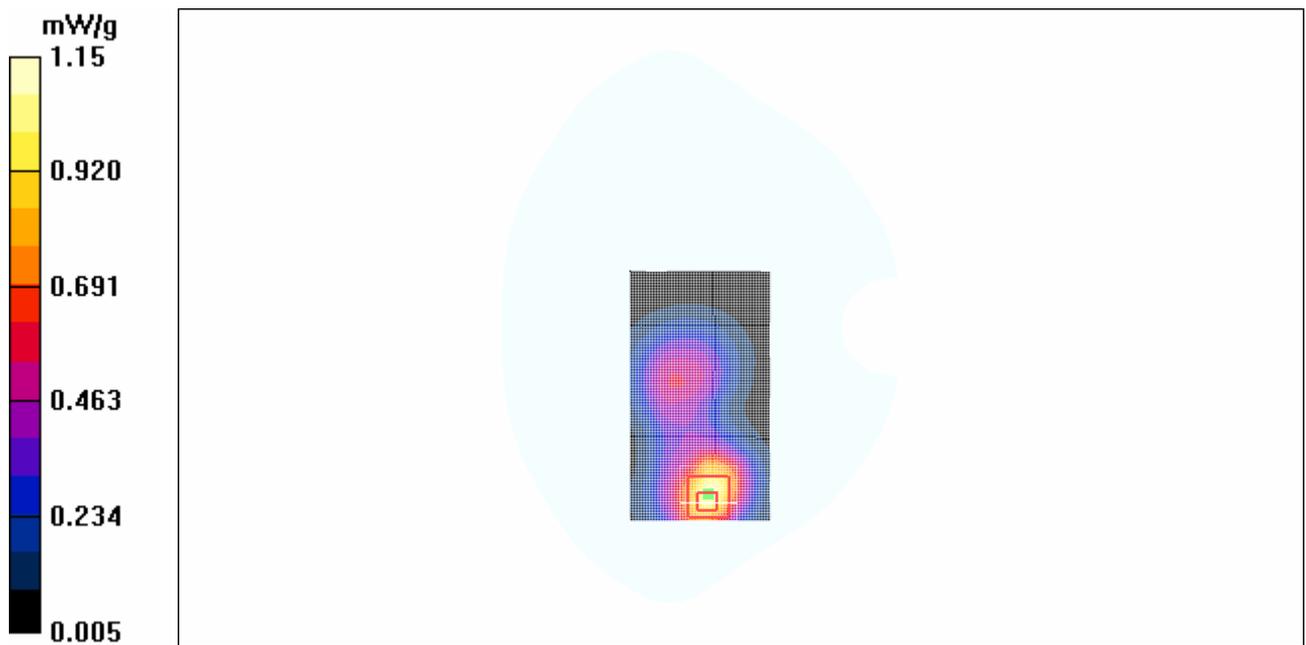


Figure 103 Body, Towards Ground, Close GSM 1900 GPRS Channel 512

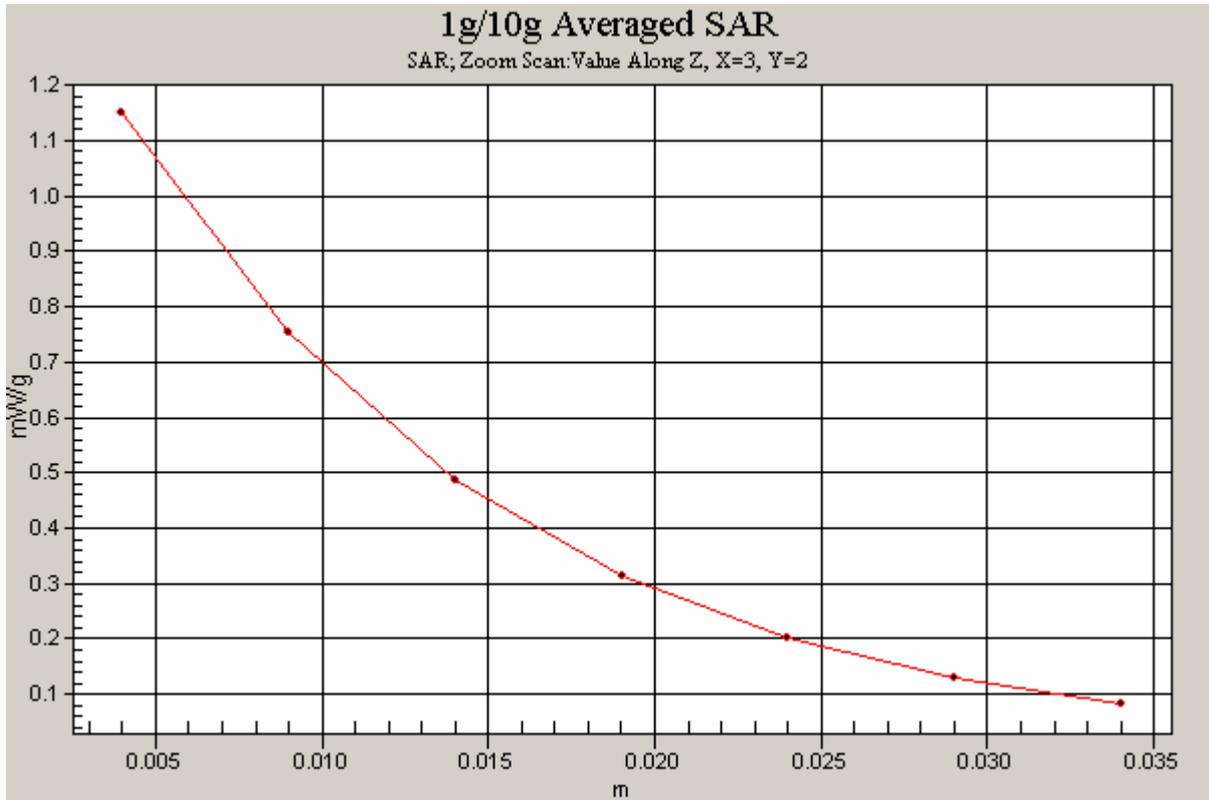


Figure 104 Z-Scan at power reference point (Body, Towards Ground, Close GSM 1900 GPRS Channel 512)

**GSM 1900 GPRS Towards Phantom High Close**

Communication System: GSM 1900+GPRS(2Up); Frequency: 1909.8 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 1910$  MHz;  $\sigma = 1.53$  mho/m;  $\epsilon_r = 52.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE3 Sn452;

**Towards Phantom High/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.223 mW/g

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

Reference Value = 8.91 V/m; Power Drift = -0.038 dB

Peak SAR (extrapolated) = 0.571 W/kg

**SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.128 mW/g**

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

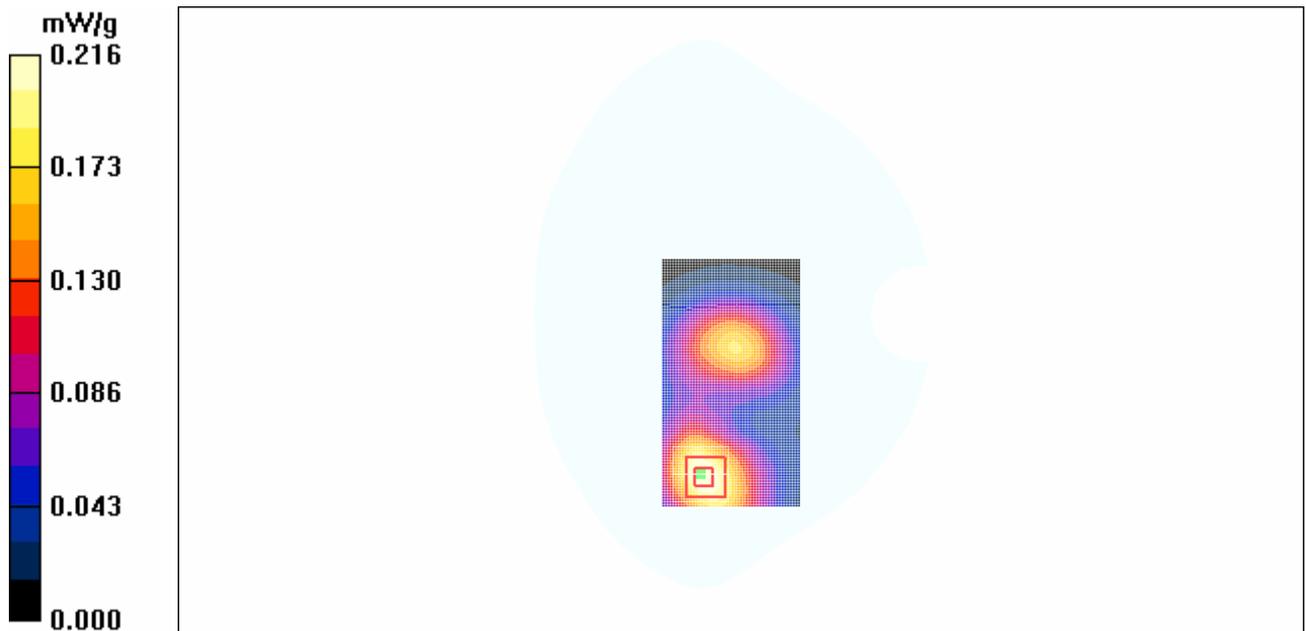


Figure 105 Body, Towards Phantom, Close GSM 1900 GPRS, Channel 810

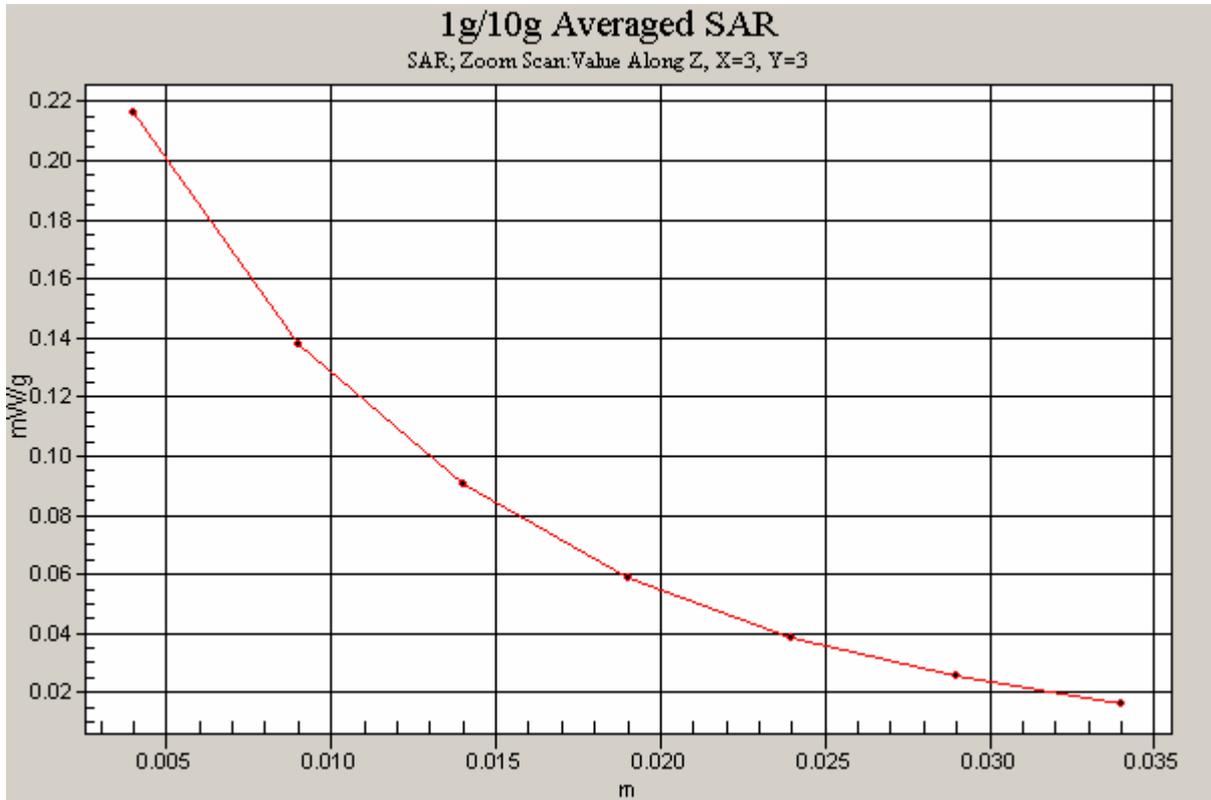


Figure 106 Z-Scan at power reference point (Body, Towards Phantom, Close GSM 1900 GPRS, Channel 810)

### GSM 1900 GPRS Towards Phantom Middle Close

Communication System: GSM 1900+GPRS(2Up); Frequency: 1880 MHz; Duty Cycle: 1:4

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.52$  mho/m;  $\epsilon_r = 52.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE3 Sn452;

**Towards Phantom Middle/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.208 mW/g

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

Reference Value = 7.92 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 0.305 W/kg

**SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.119 mW/g**

Maximum value of SAR (measured) = 0.204 mW/g

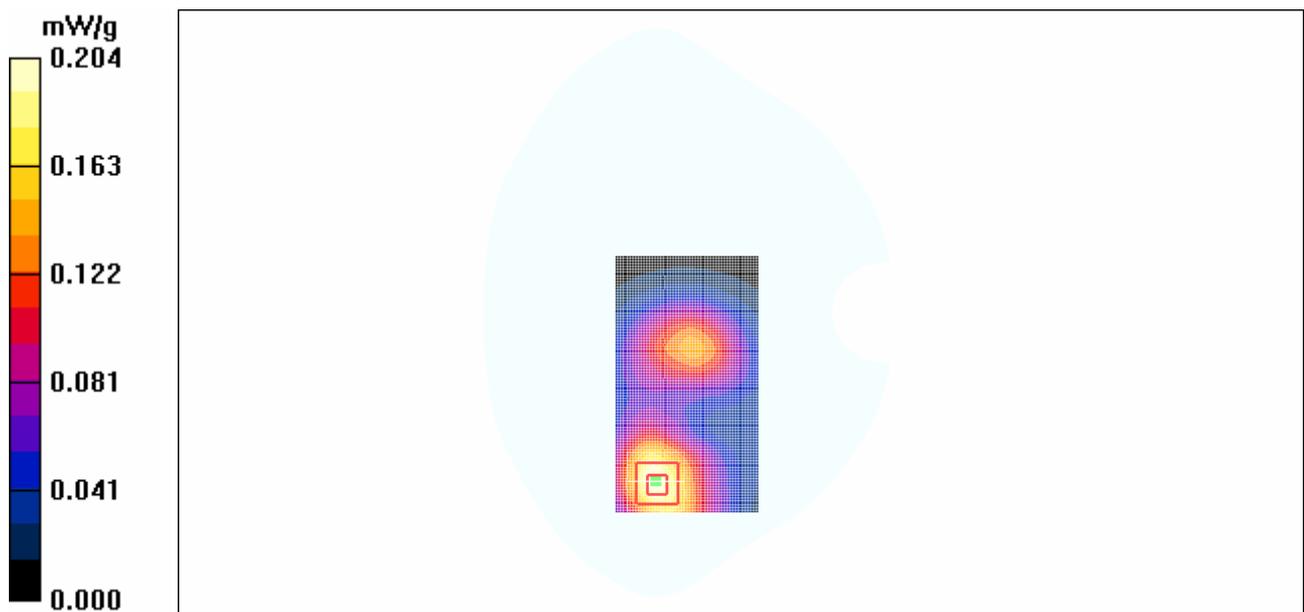


Figure 107 Body, Towards Phantom, Close GSM 1900 GPRS Channel 661

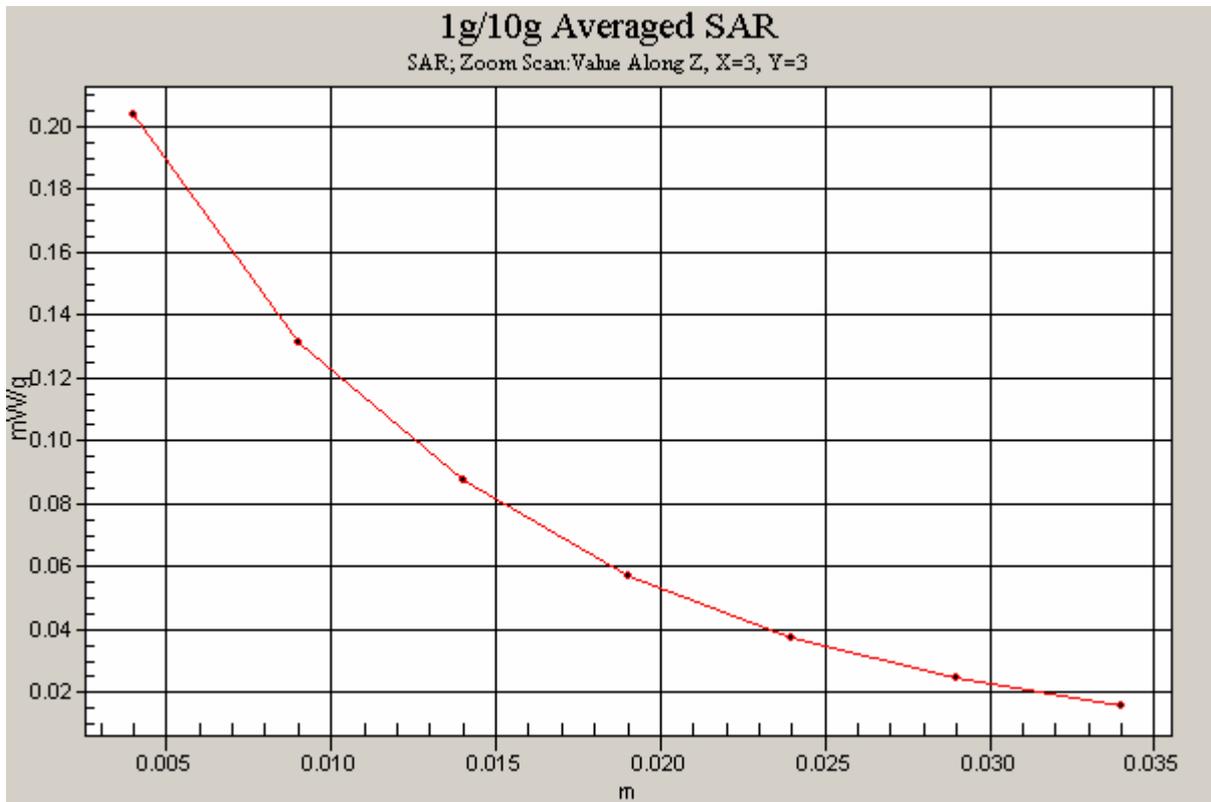


Figure 108 Z-Scan at power reference point (Body, Towards Phantom, Close GSM 1900 GPRS Channel 661)

**GSM 1900 GPRS Towards Phantom Low Close**

Communication System: GSM 1900+GPRS(2Up); Frequency: 1850.2 MHz; Duty Cycle: 1:4

Medium parameters used (interpolated):  $f = 1850.2$  MHz;  $\sigma = 1.47$  mho/m;  $\epsilon_r = 52.2$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);

Electronics: DAE3 Sn452;

**Towards Phantom Low/Area Scan (51x91x1):** Measurement grid: dx=15mm, dy=15mm

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

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

Reference Value = 7.61 V/m; Power Drift = 0.031 dB

Peak SAR (extrapolated) = 0.332 W/kg

**SAR(1 g) = 0.217 mW/g; SAR(10 g) = 0.138 mW/g**

Maximum value of SAR (measured) = 0.232 mW/g

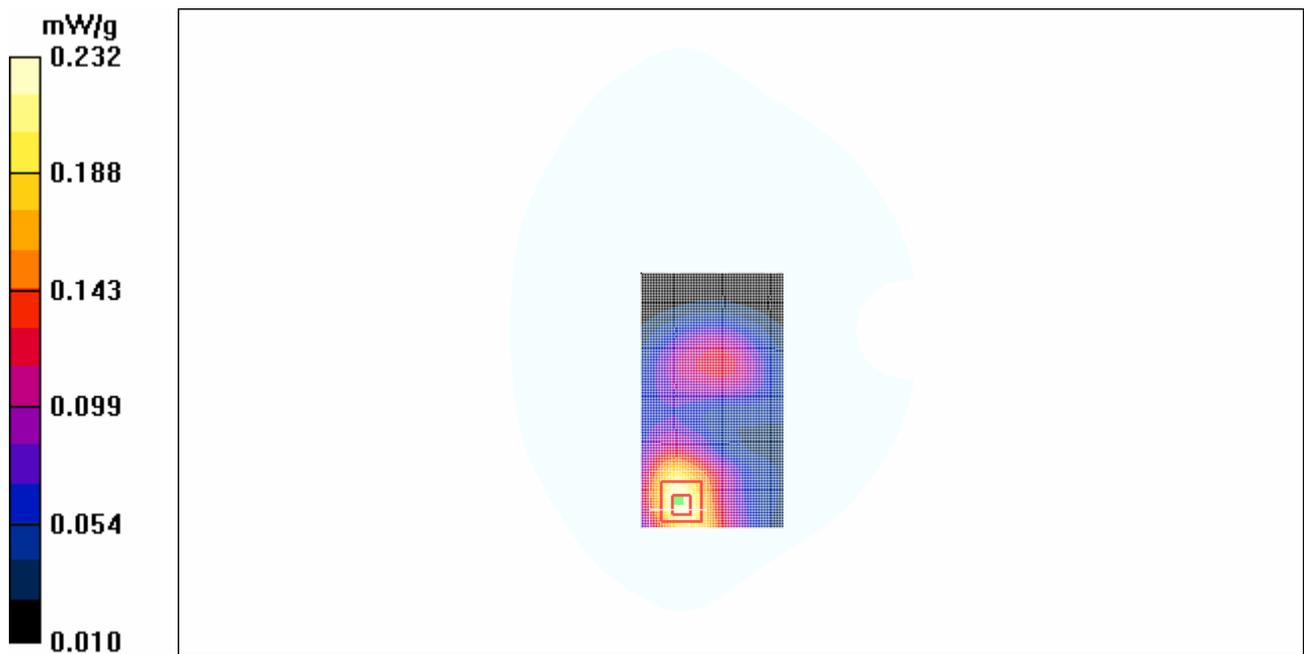


Figure 109 Body, Towards Phantom, Close GSM 1900 GPRS Channel 512

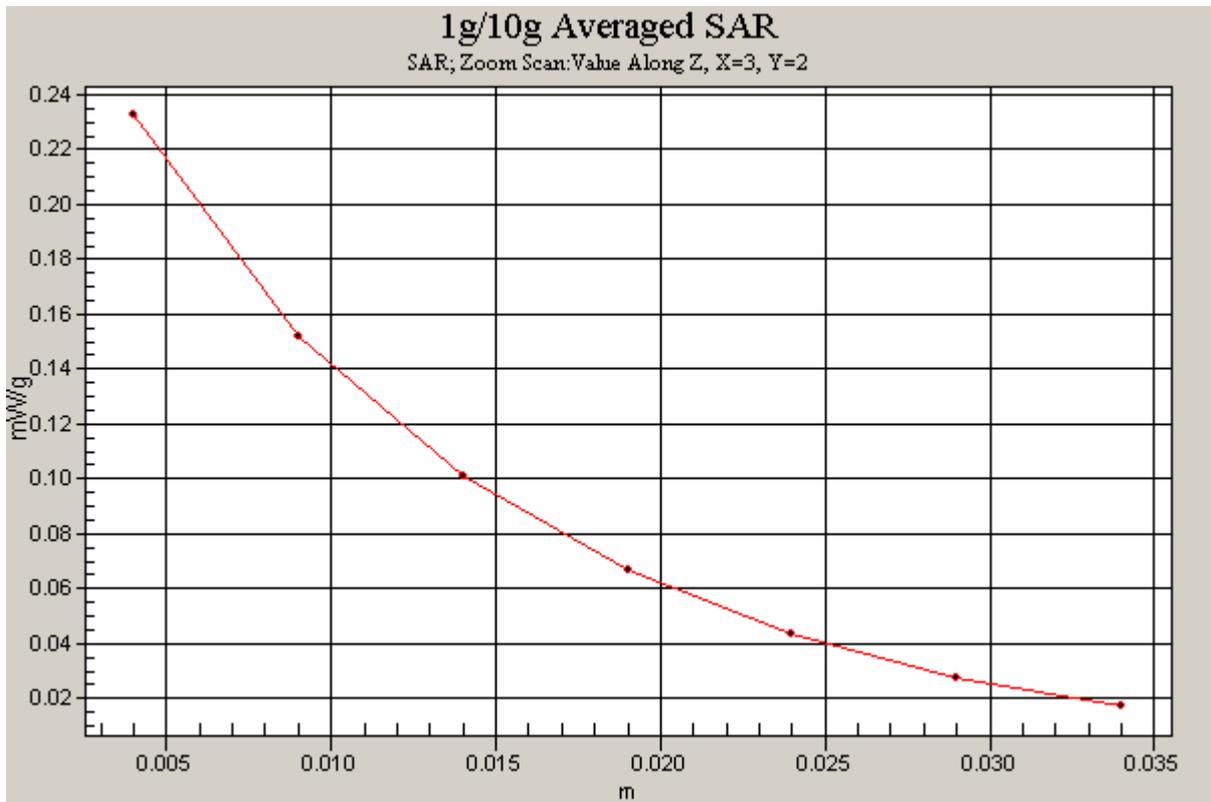


Figure 110 Z-Scan at power reference point (Body, Towards Phantom, Close GSM 1900 GPRS Channel 512)

## ANNEX D: SYSTEM VALIDATION RESULTS

### System Performance Check at 1900 MHz

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d018

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

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.43$  mho/m;  $\epsilon_r = 39.68$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE3 Sn452;

**d=10mm, Pin=250mW 2/Area Scan (101x121x1):** Measurement grid: dx=10mm, dy=10mm

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

**d=10mm, Pin=250mW 2/Zoom Scan (7x7x7) /Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 92.8 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 16.0 W/kg

**SAR(1 g) = 9.36 mW/g; SAR(10 g) = 4.93 mW/g**

Maximum value of SAR (measured) = 10.7 mW/g

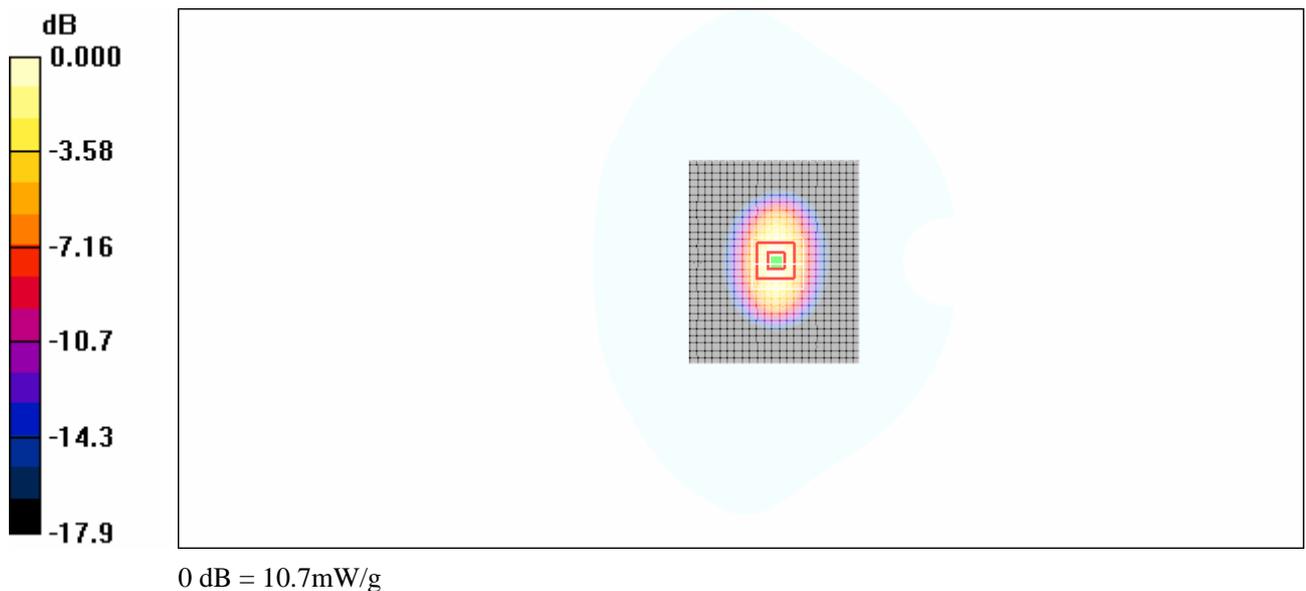


Figure 111 System Performance Check 1900MHz 250mW

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## ANNEX E: PROBE 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 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: **ATL (Auden)**

Certificate No: **ET3-1531\_Jan08**

**CALIBRATION CERTIFICATE**

Object: **ET3DV6 - SN:1531**

Calibration procedure(s): **QA CAL-01.v6 and QA CAL-12.v5  
Calibration procedure for dosimetric E-field probes**

Calibration date: **January 29, 2008**

Condition of the calibrated item: **In Tolerance**

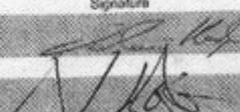
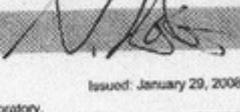
This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).  
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

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 E4419B	GB41293874	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	8-Aug-07 (METAS, No. 217-00719)	Aug-08
Reference 20 dB Attenuator	SN: S5088 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	8-Aug-07 (METAS, No. 217-00720)	Aug-08
Reference Probe ES3DV2	SN: 3013	2-Jan-08 (SPEAG, No. ES3-3013_Jan08)	Jan-09
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8548C	US3642U01700	4-Aug-99 (SPEAG, in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37300565	18-Oct-01 (SPEAG, in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Katja Polovic	Technical Manager	
Approved by:	Nils Kuster	Quality Manager	

Issued: January 29, 2008

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

Certificate No: ET3-1531\_Jan08

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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 <sub>x,y,z</sub>	sensitivity in free space
ConF	sensitivity in TSL / NORM <sub>x,y,z</sub>
DCP	diode compression point
Polarization $\phi$	$\phi$ rotation around probe axis
Polarization $\vartheta$	$\vartheta$ 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<sub>x,y,z</sub>**: Assessed for E-field polarization  $\vartheta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not effect the E<sup>2</sup>-field uncertainty inside TSL (see below *ConvF*).
- NORM(f)<sub>x,y,z</sub> = NORM<sub>x,y,z</sub> \* 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<sub>x,y,z</sub>**: 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<sub>x,y,z</sub> \* *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  $\pm 50$  MHz to  $\pm 100$  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.

ET3DV6 SN:1531

January 29, 2008

# Probe ET3DV6

## SN:1531

Manufactured:	July 15, 2000
Last calibrated:	January 22, 2007
Recalibrated:	January 29, 2008

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)