Figure 77 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; σ = 1.43 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.106 mW/g

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

Reference Value = 8.20 V/m; Power Drift = 0.117 dB

Peak SAR (extrapolated) = 0.138 W/kg

SAR(1 g) = 0.095 mW/g; SAR(10 g) = 0.061 mW/g
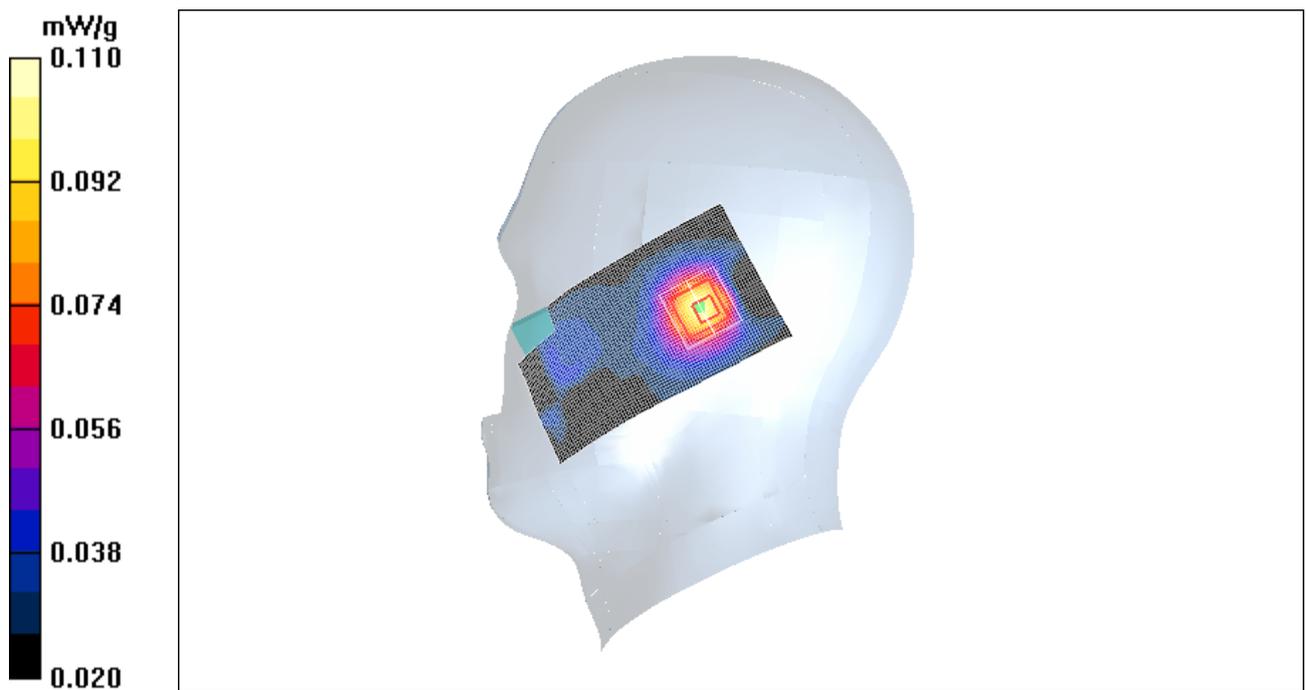
Maximum value of SAR (measured) = 0.110 mW/g
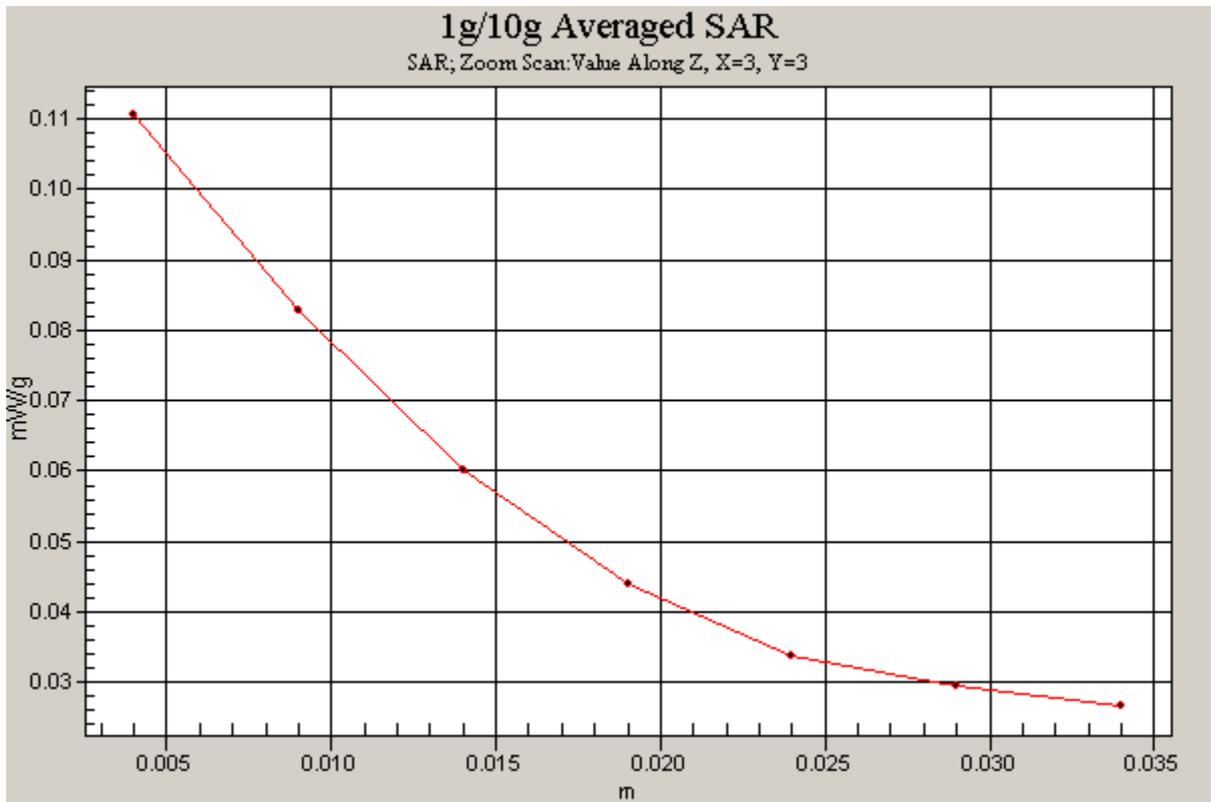

Figure 78 Right Hand Tilt 15° Close GSM 1900 Channel 810

Figure 79 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; σ = 1.4 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.081 mW/g

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

Reference Value = 7.74 V/m; Power Drift = 0.026 dB

Peak SAR (extrapolated) = 0.108 W/kg

SAR(1 g) = 0.072 mW/g; SAR(10 g) = 0.051 mW/g
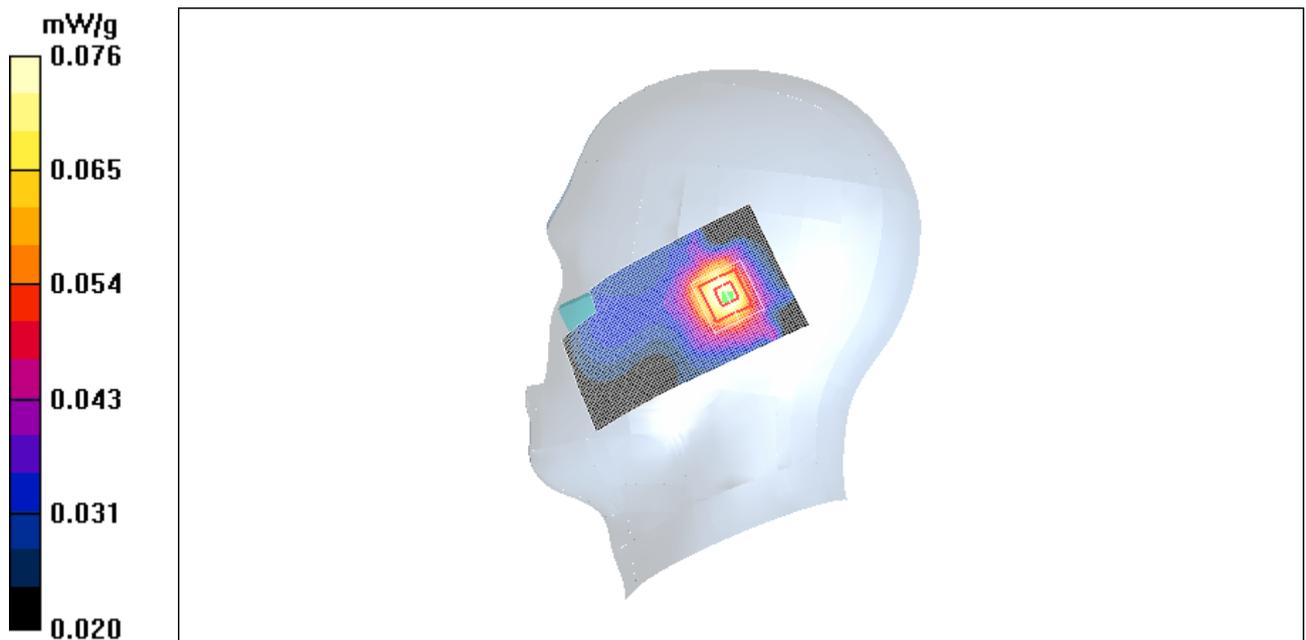
Maximum value of SAR (measured) = 0.076 mW/g
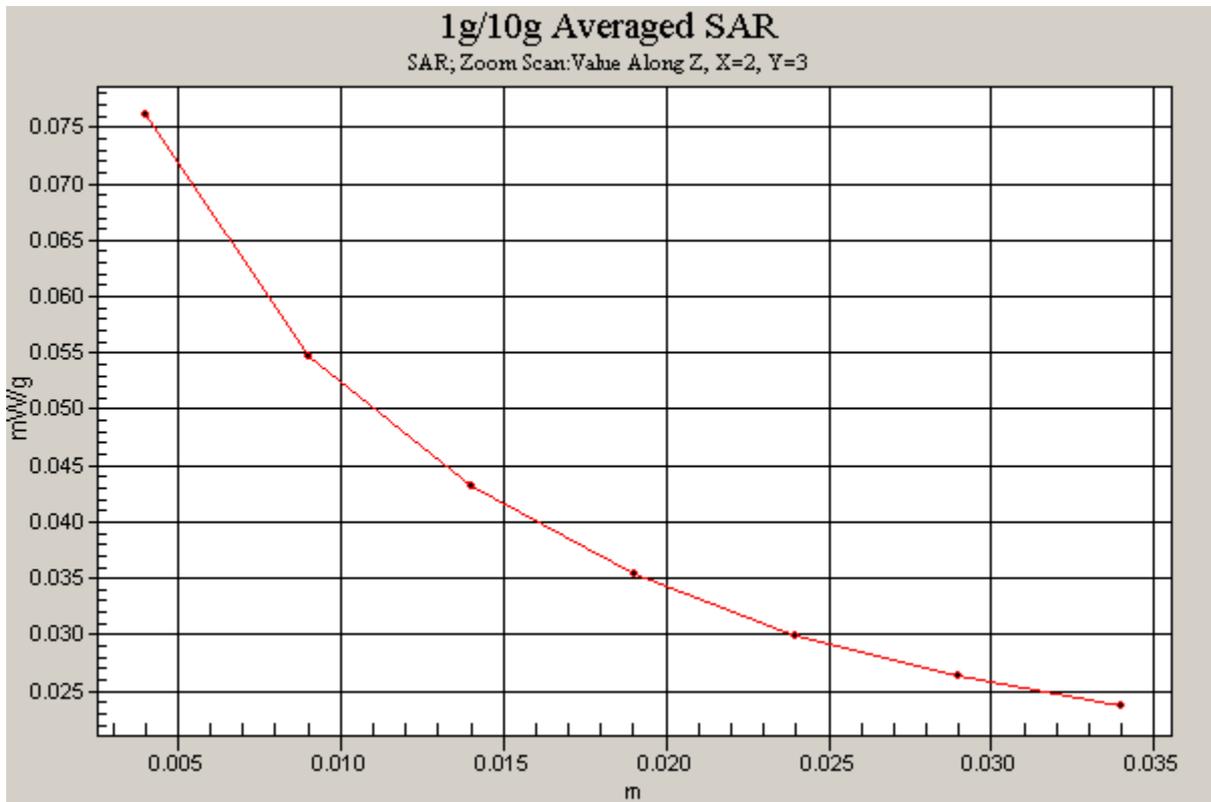

Figure 80 Right Hand Tilt 15° Close GSM 1900 Channel 661

Figure 81 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; σ = 1.39 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.085 mW/g

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

Reference Value = 7.51 V/m; Power Drift = 0.019 dB

Peak SAR (extrapolated) = 0.089 W/kg

SAR(1 g) = 0.076 mW/g; SAR(10 g) = 0.056 mW/g

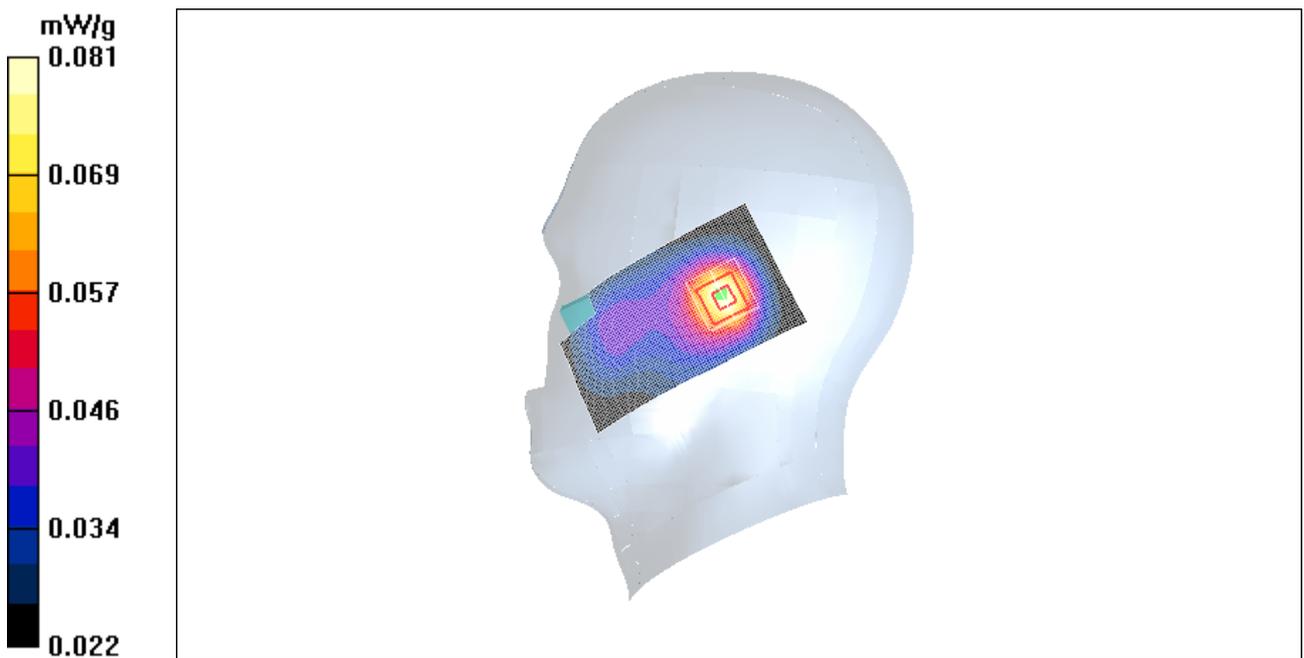Maximum value of SAR (measured) = 0.081 mW/g

Figure 82 Right Hand Tilt 15° Close GSM 1900 Channel 512

Figure 83 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; σ = 1.53 mho/m; $ε_r$ = 53.1; ρ = 1000 kg/m³

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

Electronics: DAE4 Sn679;

Towards Ground High/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.347 mW/g

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

Reference Value = 5.54 V/m; Power Drift = 0.034 dB

Peak SAR (extrapolated) = 0.507 W/kg

SAR(1 g) = 0.316 mW/g; SAR(10 g) = 0.186 mW/g

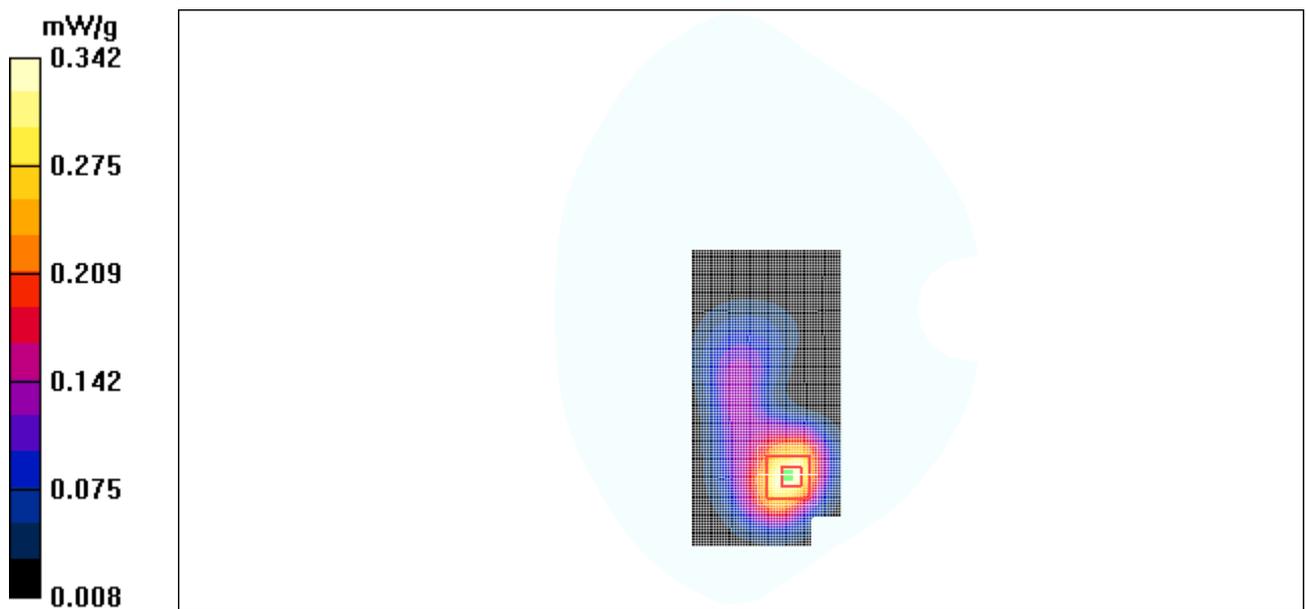Maximum value of SAR (measured) = 0.342 mW/g

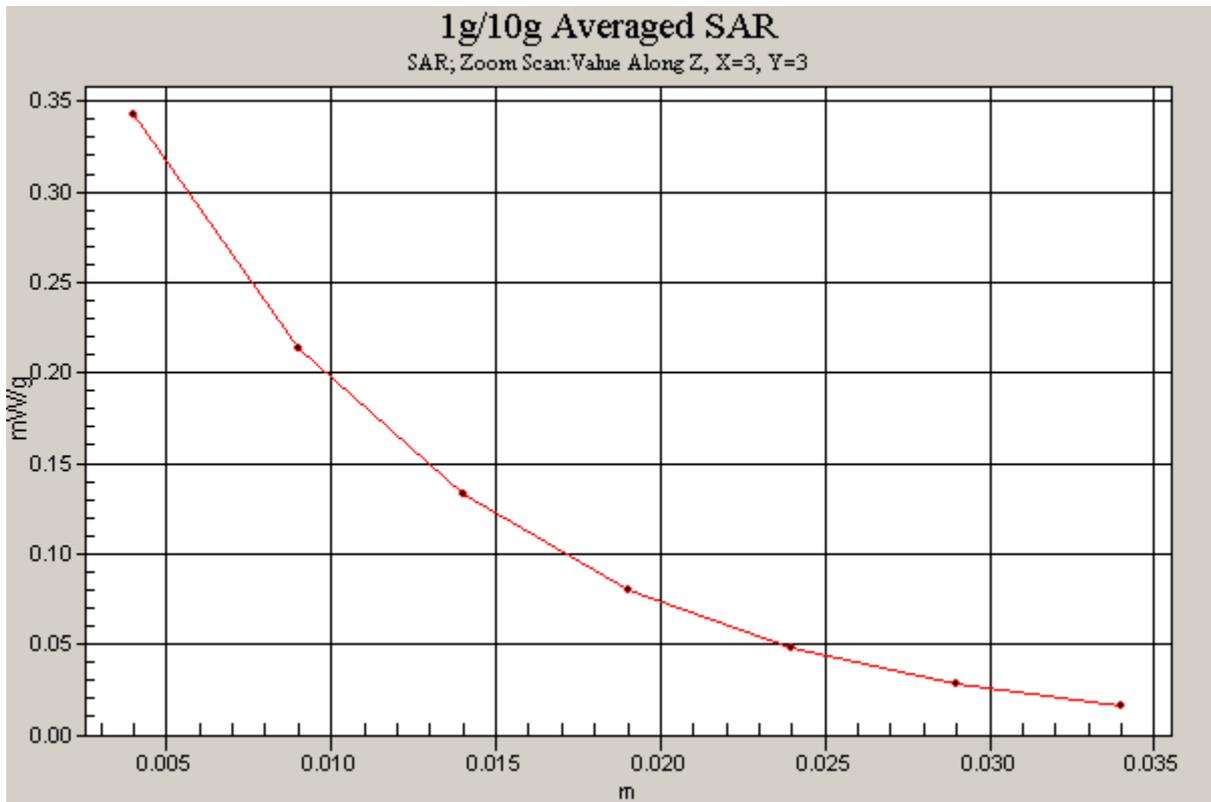Figure 84 Body, Towards Ground, Close GSM 1900 Channel 810

Figure 85 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; σ = 1.51 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

Towards ground,Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.297 mW/g

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

Reference Value = 5.44 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 0.433 W/kg

SAR(1 g) = 0.270 mW/g; SAR(10 g) = 0.158 mW/g

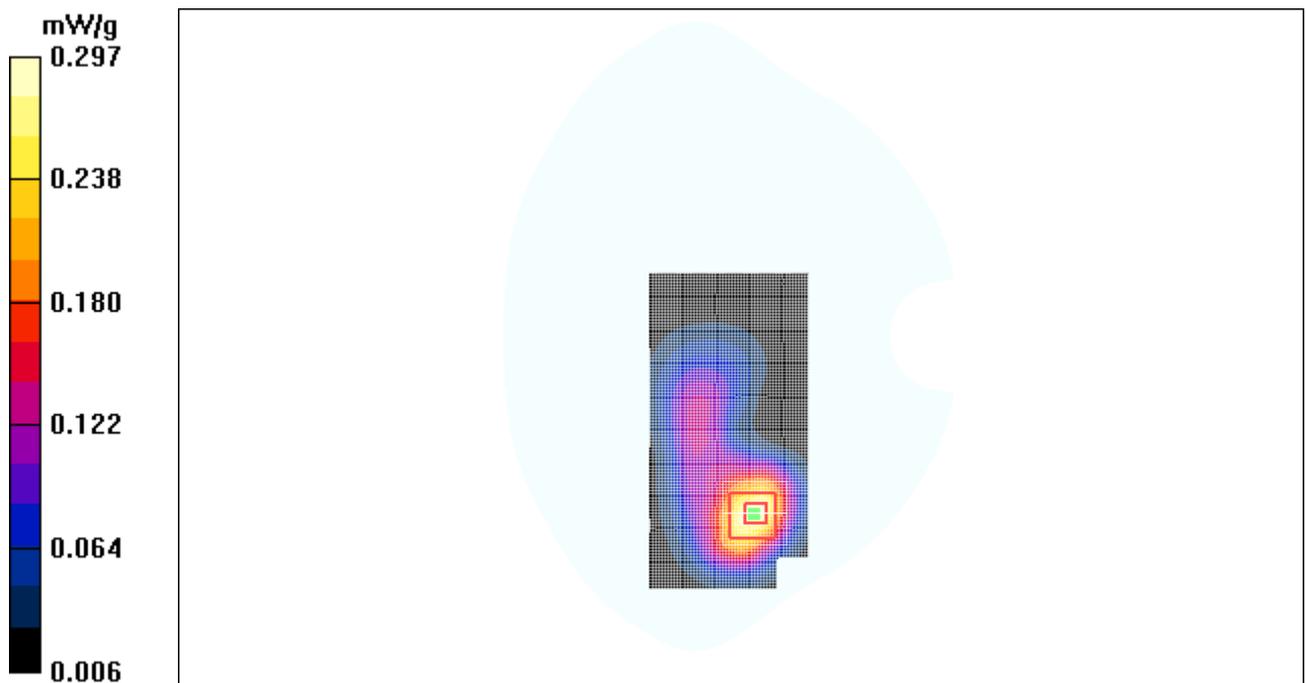Maximum value of SAR (measured) = 0.297 mW/g

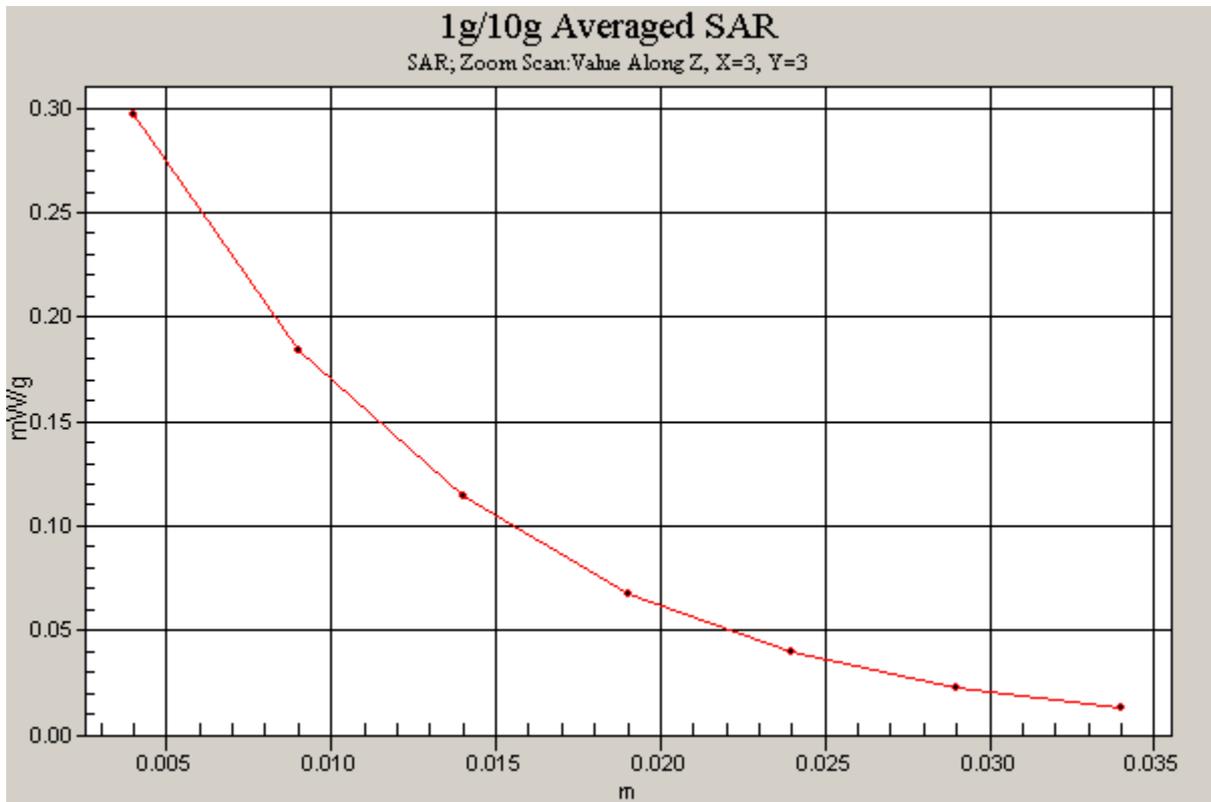Figure 86 Body, Towards Ground, Close GSM 1900 Channel 661

Figure 87 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; σ = 1.48 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

Towards ground,Low/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.262 mW/g

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

Reference Value = 5.05 V/m; Power Drift = -0.002 dB

Peak SAR (extrapolated) = 0.389 W/kg

SAR(1 g) = 0.241 mW/g; SAR(10 g) = 0.142 mW/g

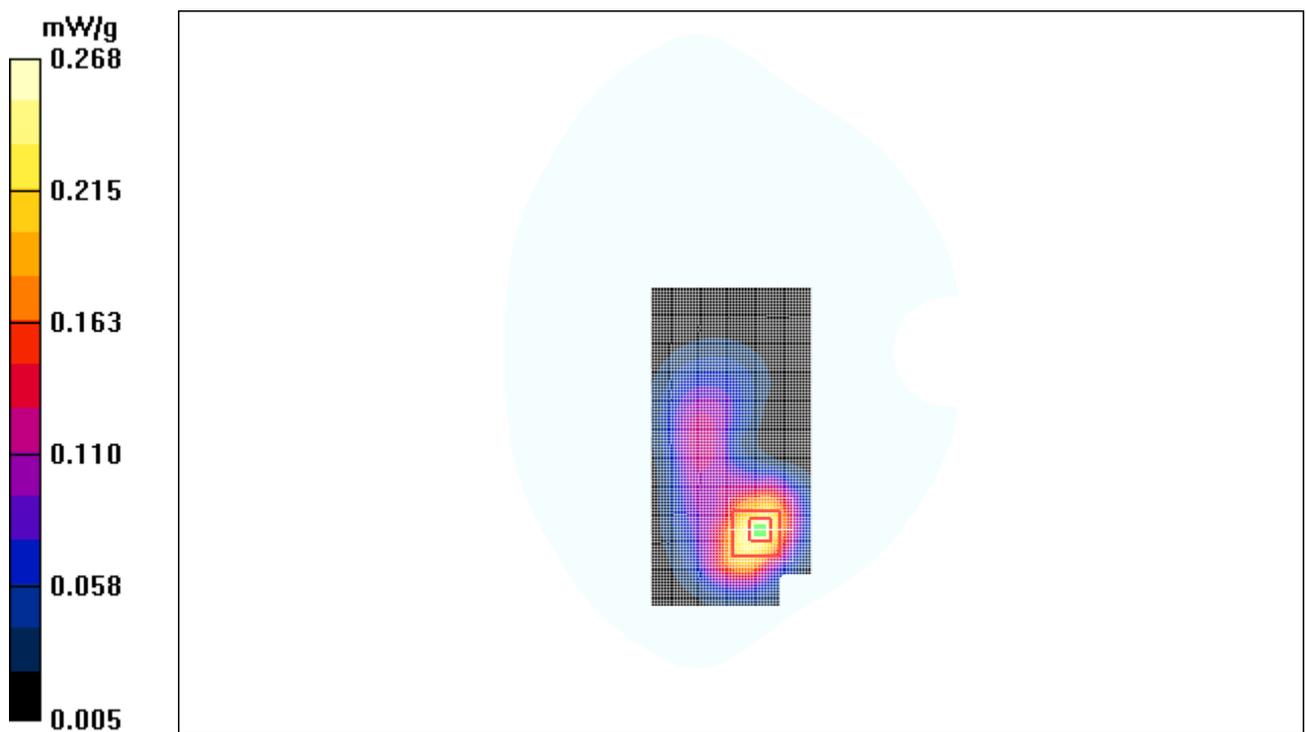Maximum value of SAR (measured) = 0.268 mW/g

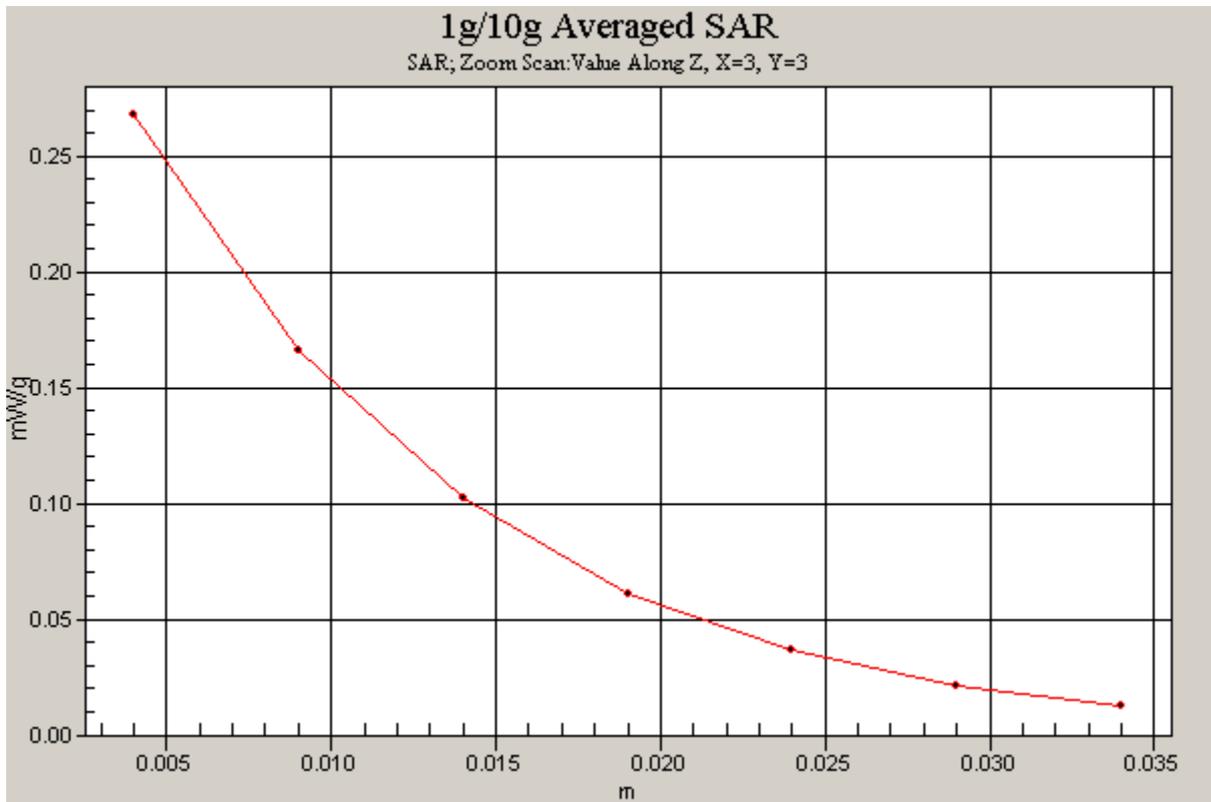Figure 88 Body, Towards Ground, Close GSM 1900 Channel 512

Figure 89 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; σ = 1.53 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

Towards phantom,High/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.084 mW/g

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

Reference Value = 5.38 V/m; Power Drift = -0.076 dB

Peak SAR (extrapolated) = 0.128 W/kg

SAR(1 g) = 0.079 mW/g; SAR(10 g) = 0.050 mW/g

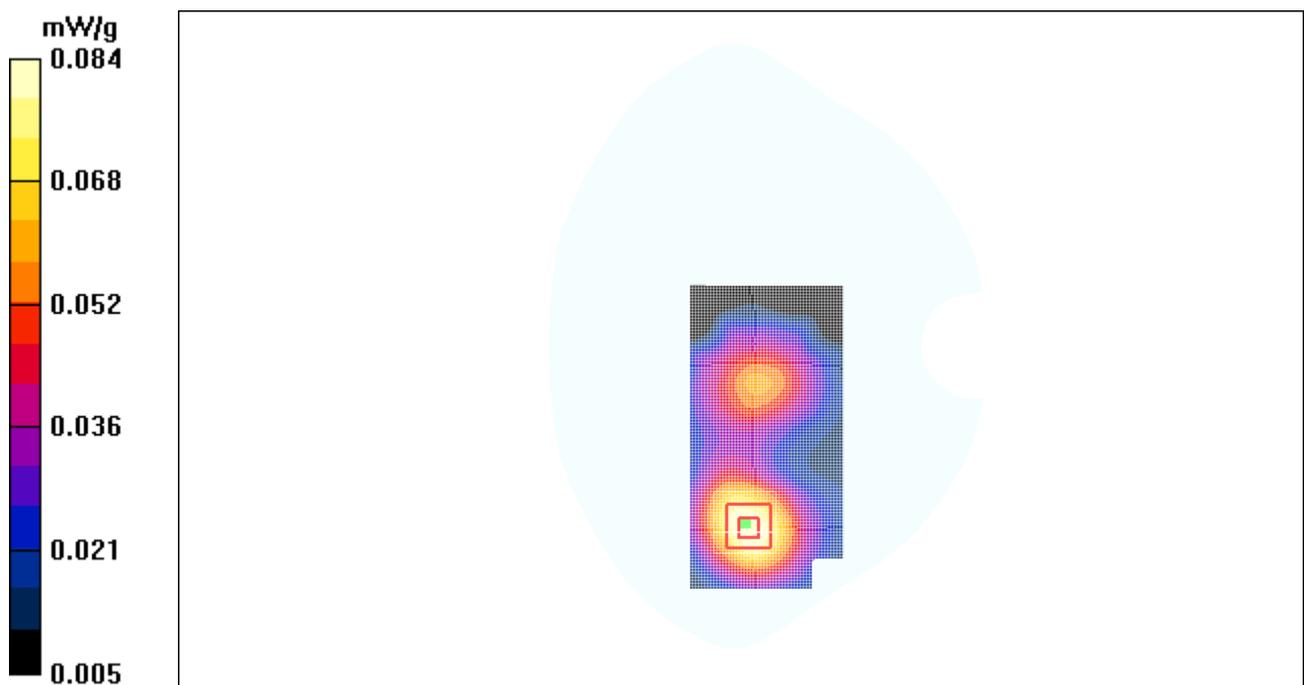Maximum value of SAR (measured) = 0.084 mW/g

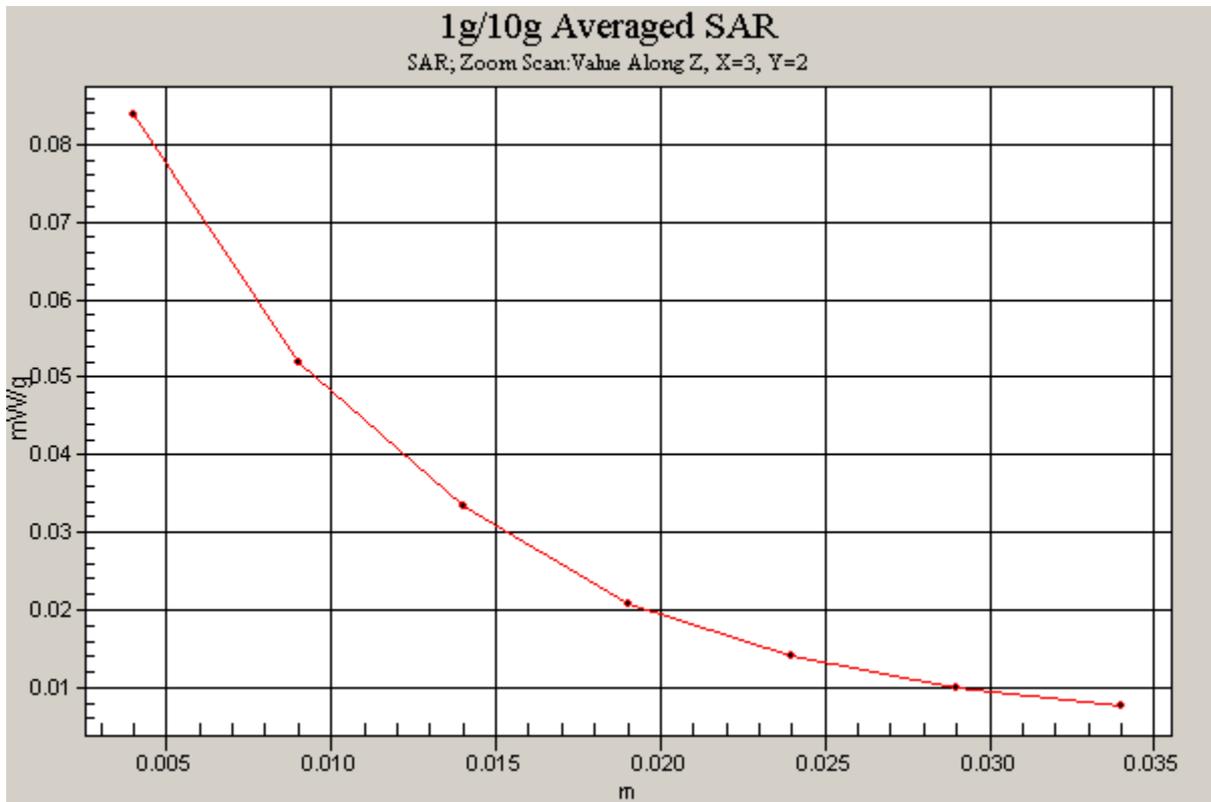Figure 90 Body, Towards Phantom, Close GSM 1900 Channel 810

Figure 91 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; σ = 1.51 mho/m; $ε_r$ = 53.1; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

Towards phantom,Middle/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.071 mW/g

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

Reference Value = 4.76 V/m; Power Drift = 0.062 dB

Peak SAR (extrapolated) = 0.108 W/kg

SAR(1 g) = 0.066 mW/g; SAR(10 g) = 0.041 mW/g
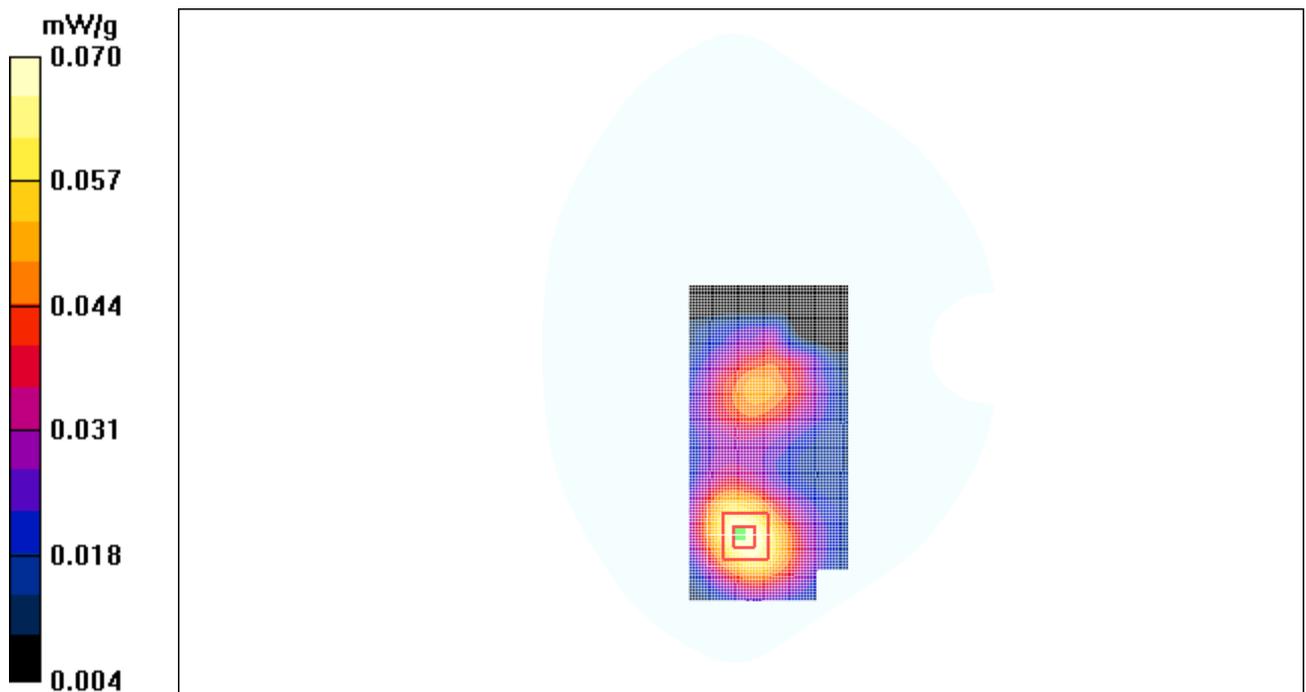
Maximum value of SAR (measured) = 0.070 mW/g

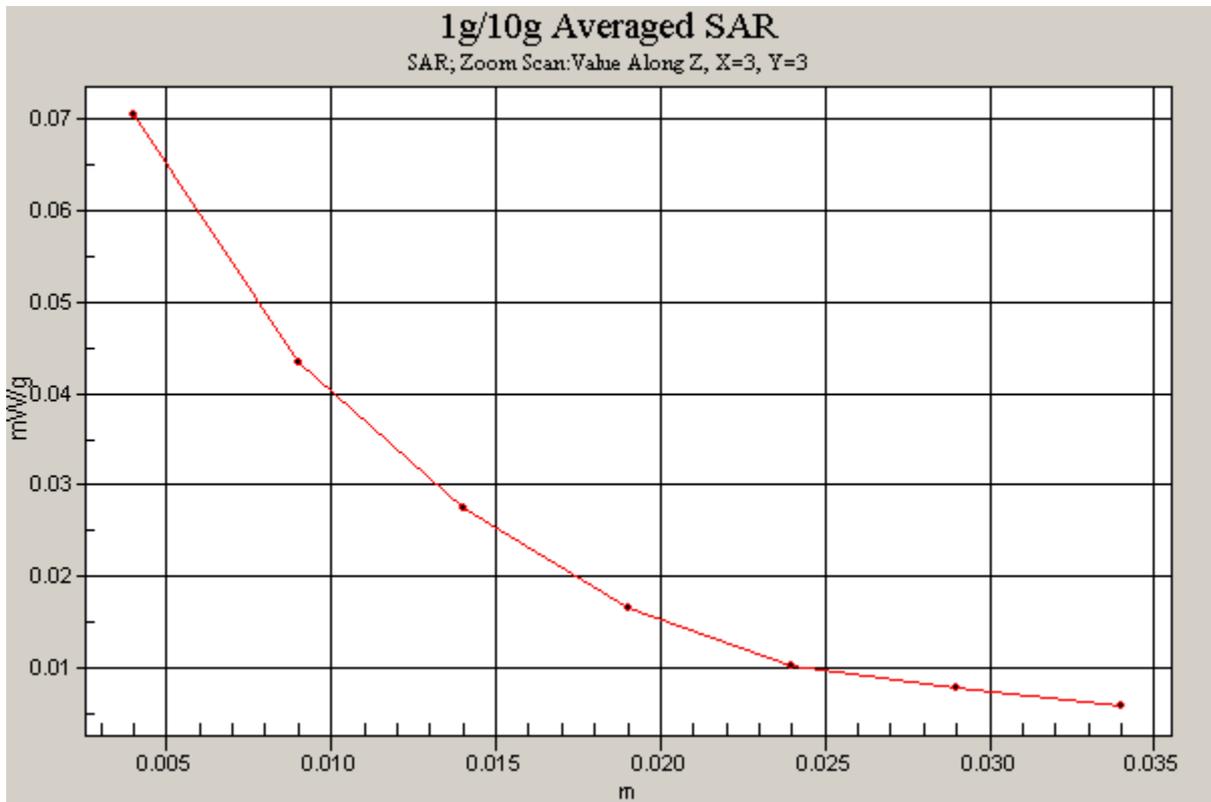Figure 92 Body, Towards Phantom, Close GSM 1900 Channel 661

Figure 93 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; σ = 1.48 mho/m; $ε_r$ = 53.1; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

Towards phantom,Low/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.057 mW/g

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

Reference Value = 3.95 V/m; Power Drift = -0.065 dB

Peak SAR (extrapolated) = 0.086 W/kg

SAR(1 g) = 0.052 mW/g; SAR(10 g) = 0.032 mW/g

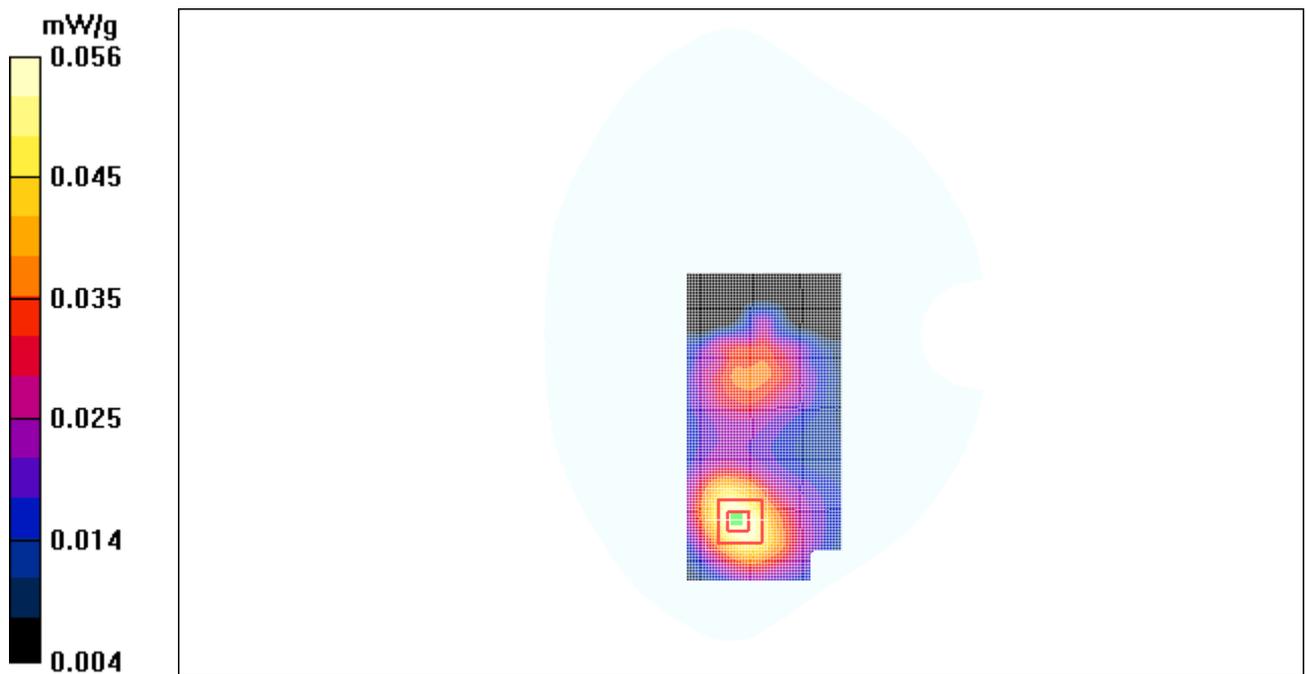Maximum value of SAR (measured) = 0.056 mW/g

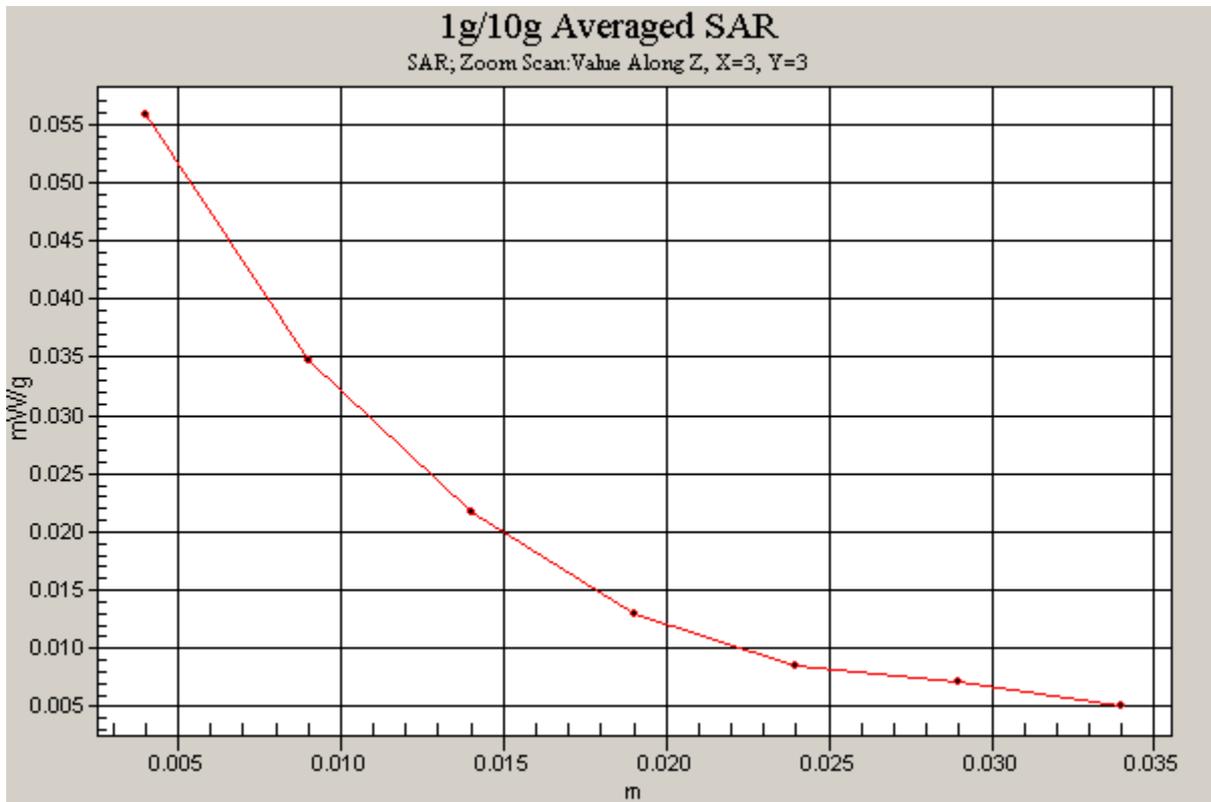Figure 94 Body, Towards Phantom, Close GSM 1900 Channel 512

Figure 95 Z-Scan at power reference point (Body, Towards Phantom, Close GSM 1900 Channel 512)

GSM 1900 Earphone Towards Ground High Close

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

Medium parameters used: f = 1910 MHz; σ = 1.53 mho/m; $ε_r$ = 53.1; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

Towards ground,High/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.428 mW/g

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

Reference Value = 5.62 V/m; Power Drift = 0.006 dB

Peak SAR (extrapolated) = 0.599 W/kg

SAR(1 g) = 0.366 mW/g; SAR(10 g) = 0.210 mW/g

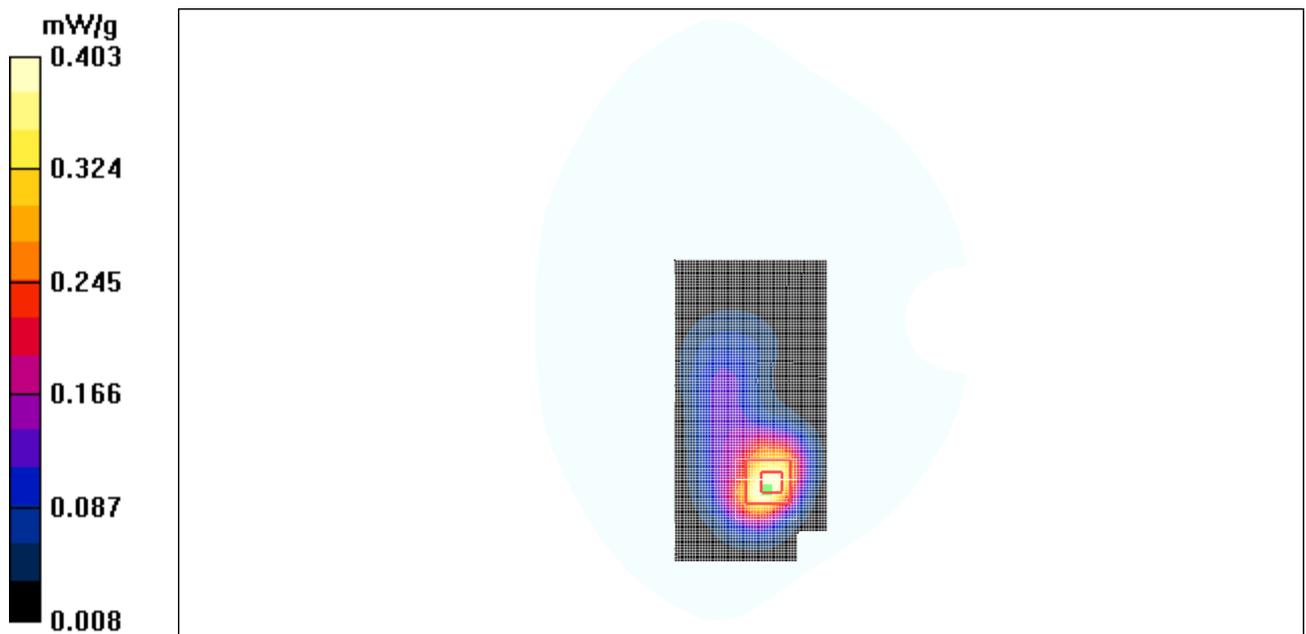Maximum value of SAR (measured) = 0.403 mW/g

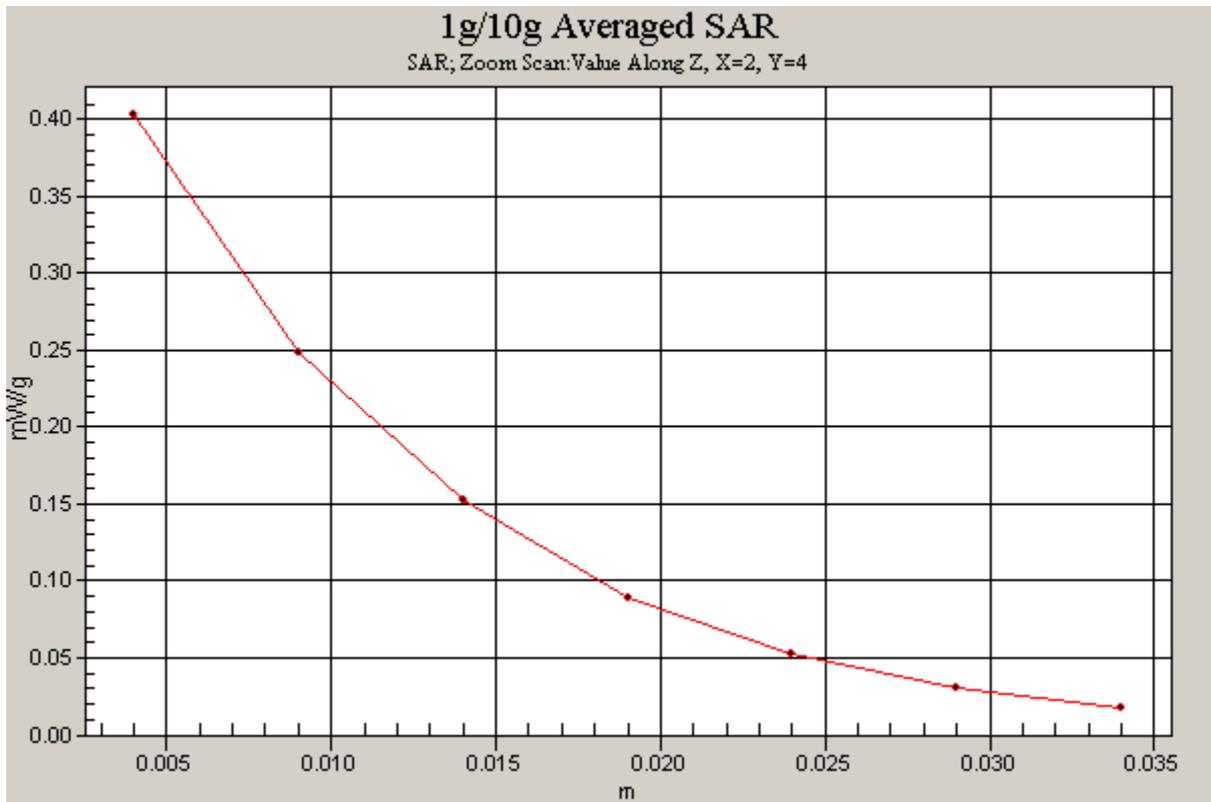Figure 96 Body with Earphone, Towards Ground, Close GSM 1900, Channel 810

Figure 97 Z-Scan at power reference point (Body with Earphone, Towards Ground, Close GSM 1900, Channel 810)

GSM 1900 Bluetooth Earphone Towards Ground High Close

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

Medium parameters used: f = 1910 MHz; σ = 1.53 mho/m; $ε_r$ = 53.1; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

Towards ground,High/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.447 mW/g

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

Reference Value = 5.81 V/m; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 0.637 W/kg

SAR(1 g) = 0.391 mW/g; SAR(10 g) = 0.225 mW/g

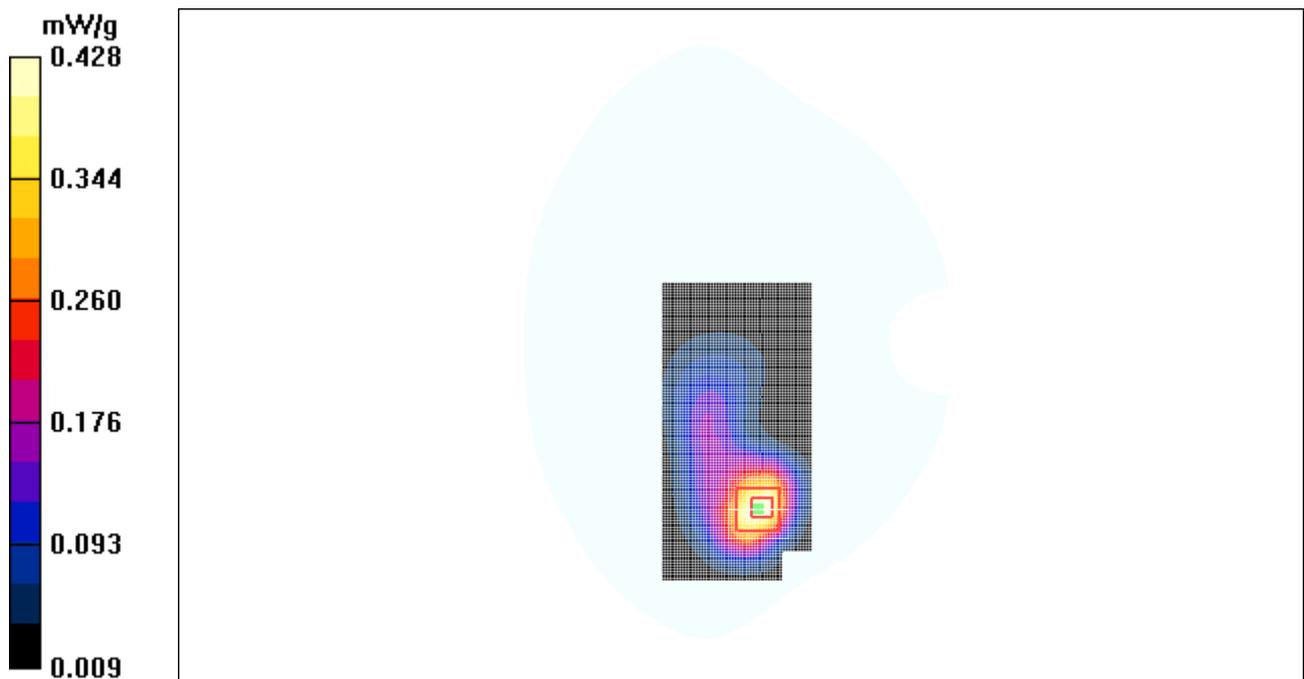Maximum value of SAR (measured) = 0.428 mW/g

Figure 98 Body with Bluetooth earphone, Towards Ground, Close GSM 1900, Channel 810

Figure 99 Z-Scan at power reference point (Body with Bluetooth earphone, Towards Ground, Close GSM 1900, Channel 810)

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; σ = 1.53 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.751 mW/g

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

Reference Value = 7.82 V/m; Power Drift = -0.061 dB

Peak SAR (extrapolated) = 2.83 W/kg

SAR(1 g) = 0.720 mW/g; SAR(10 g) = 0.404 mW/g

Maximum value of SAR (measured) = 0.728 mW/g
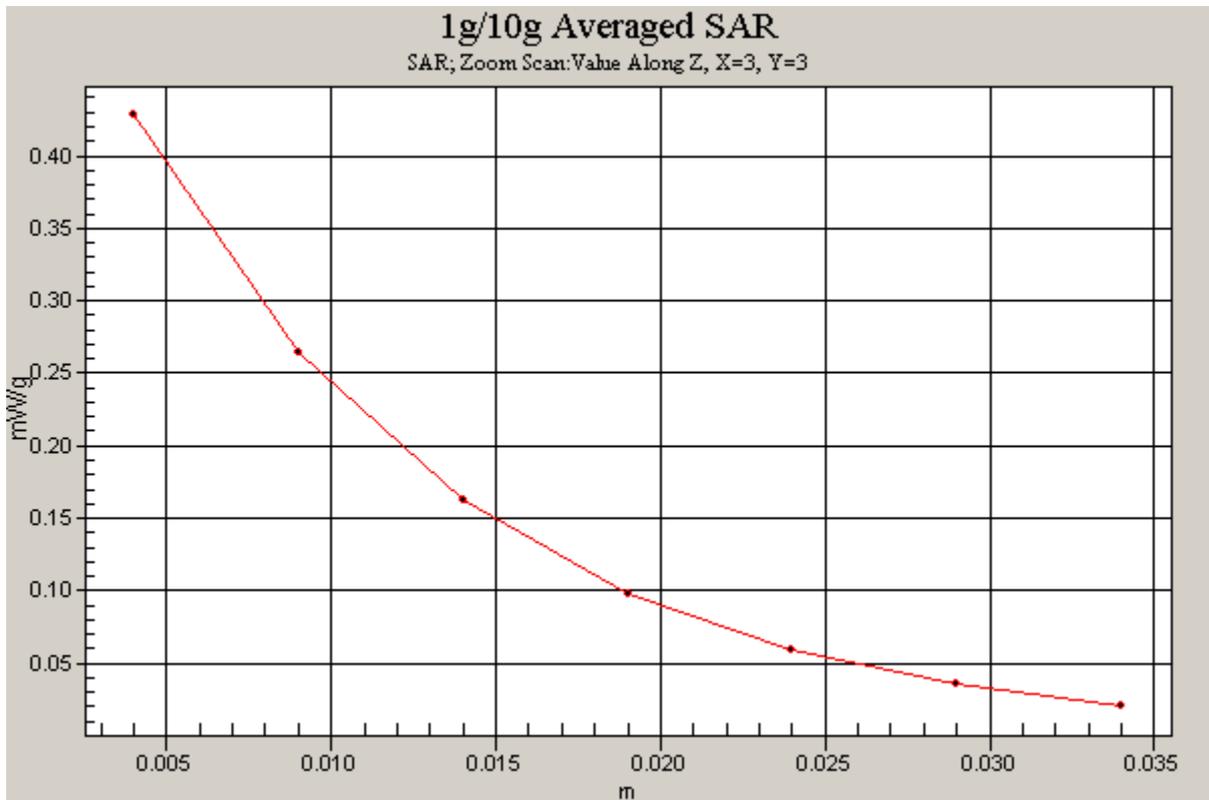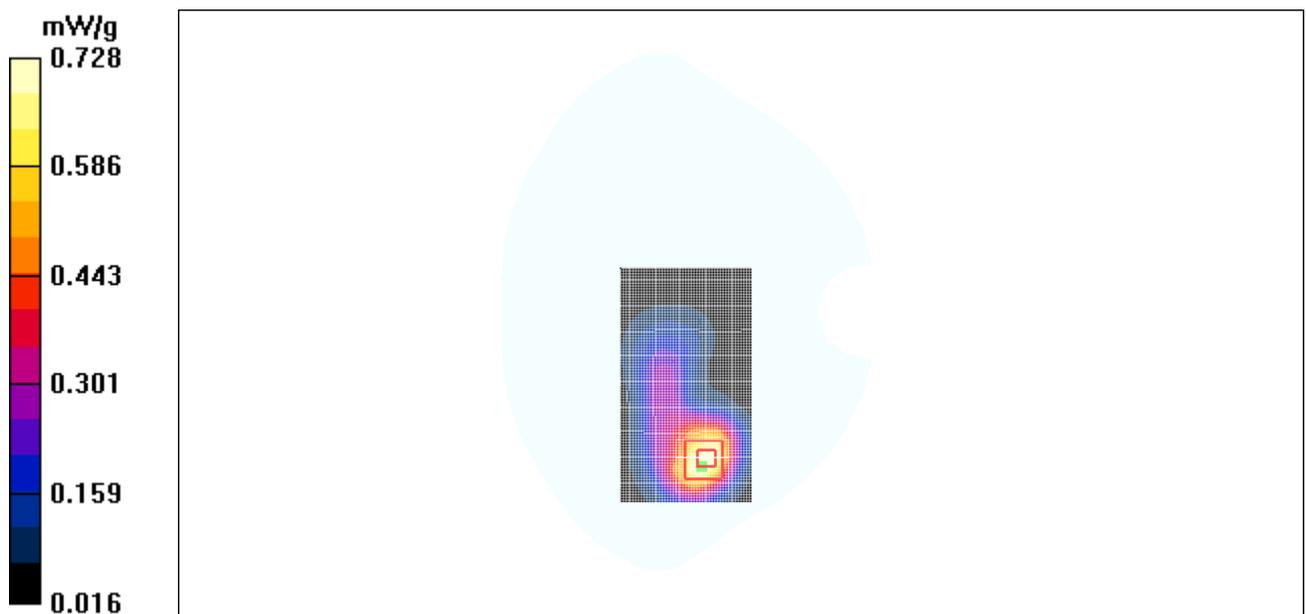

Figure 100 Body, Towards Ground, Close GSM 1900 GPRS, Channel 810

Figure 101 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; σ = 1.51 mho/m; $ε_r$ = 53.1; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.648 mW/g

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

Reference Value = 7.70 V/m; Power Drift = 0.022 dB

Peak SAR (extrapolated) = 0.909 W/kg

SAR(1 g) = 0.573 mW/g; SAR(10 g) = 0.340 mW/g

Maximum value of SAR (measured) = 0.623 mW/g

Figure 102 Body, Towards Ground, Close GSM 1900 GPRS Channel 661

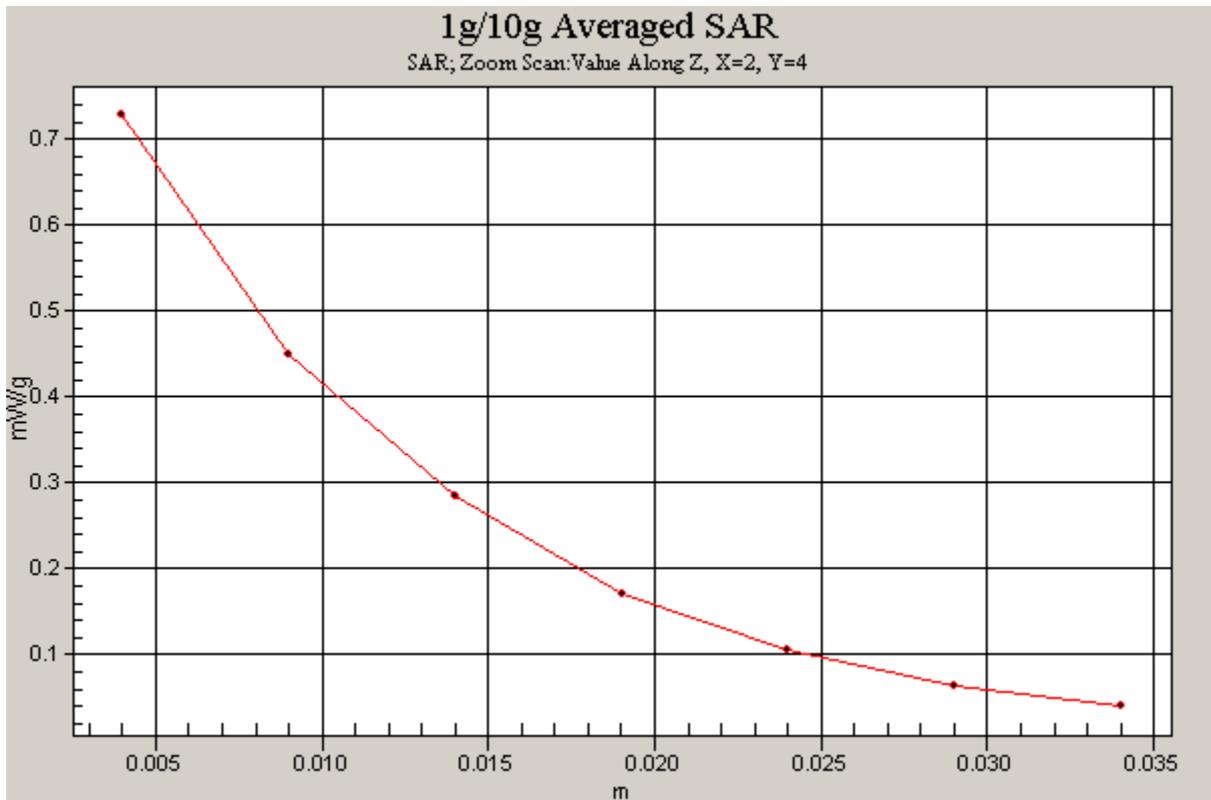Figure 103 Z-Scan at power reference point (Body, Towards Ground, Close GSM 1900 GPRS Channel 661)

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; σ = 1.48 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

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

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

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

Reference Value = 7.37 V/m; Power Drift = -0.050 dB

Peak SAR (extrapolated) = 0.736 W/kg

SAR(1 g) = 0.471 mW/g; SAR(10 g) = 0.281 mW/g

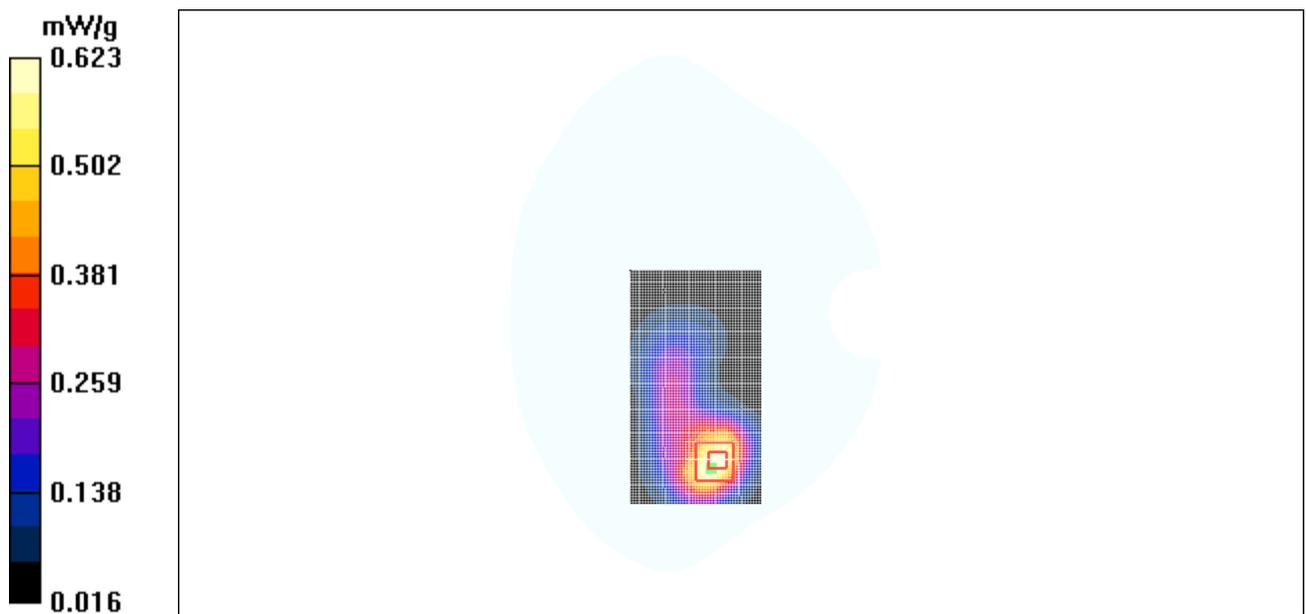Maximum value of SAR (measured) = 0.519 mW/g

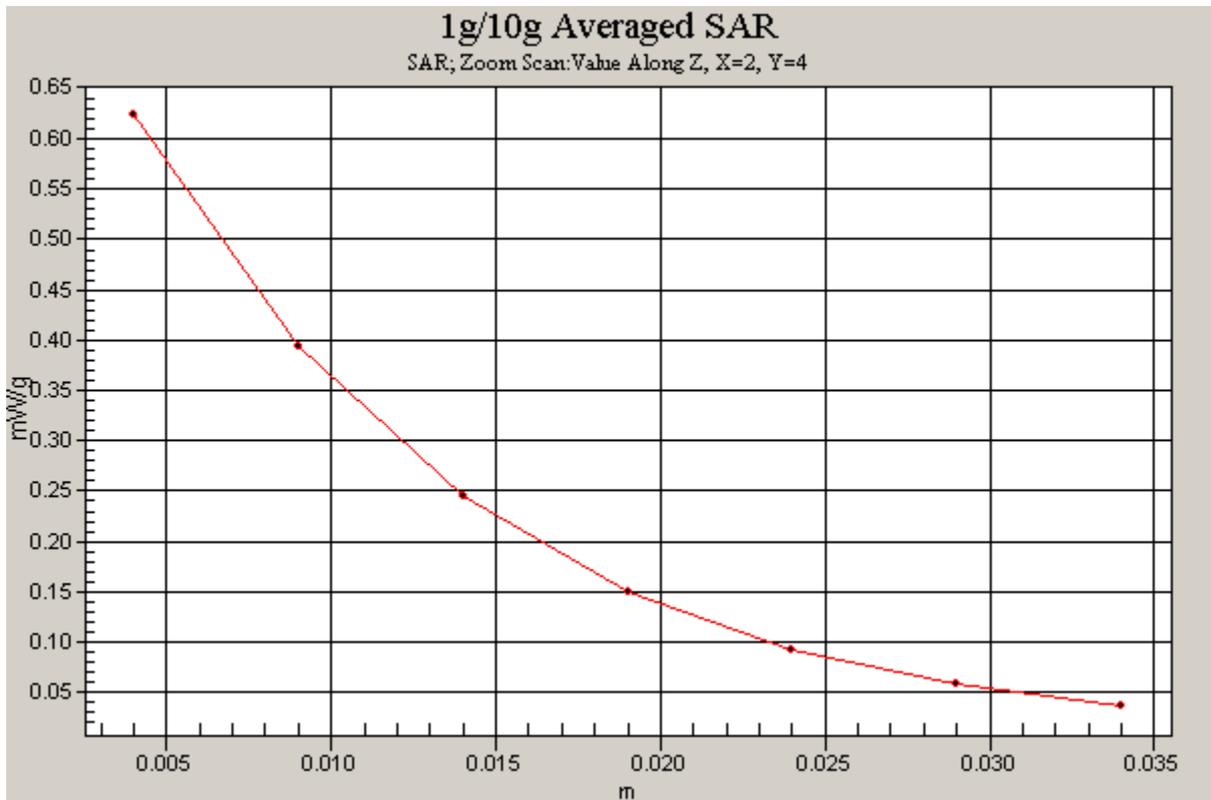Figure 104 Body, Towards Ground, Close GSM 1900 GPRS Channel 512

Figure 105 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; σ = 1.53 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

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

Maximum value of SAR (interpolated) = 0.142 mW/g

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

Reference Value = 7.57 V/m; Power Drift = -0.072 dB

Peak SAR (extrapolated) = 0.202 W/kg

SAR(1 g) = 0.128 mW/g; SAR(10 g) = 0.082 mW/g
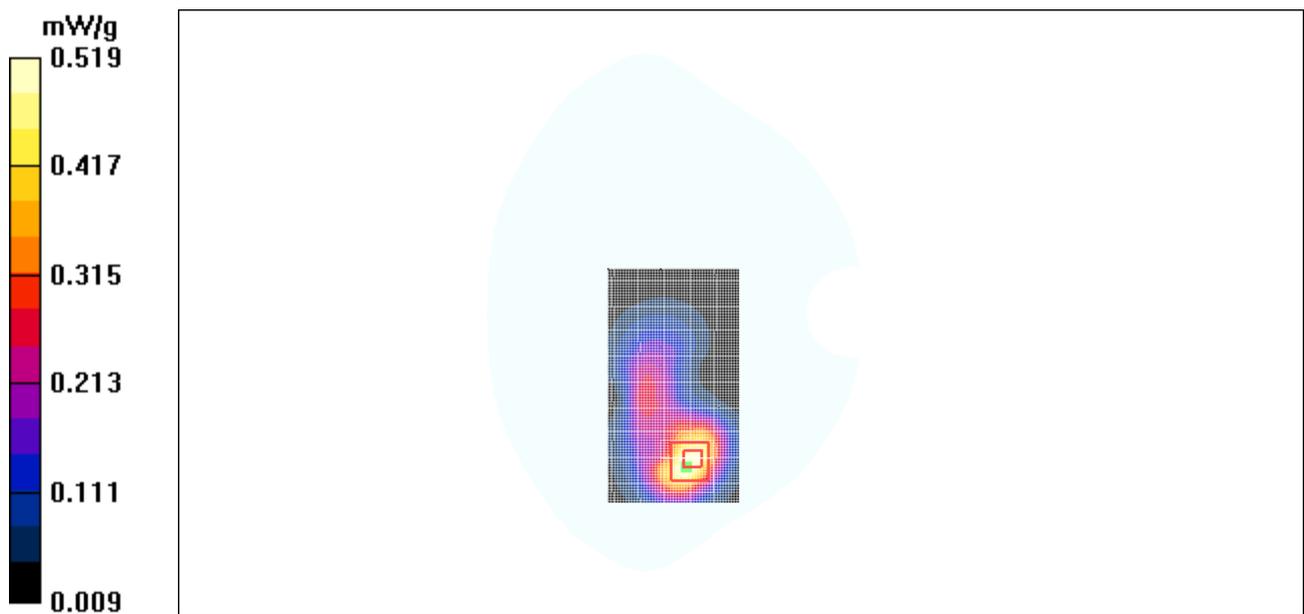
Maximum value of SAR (measured) = 0.138 mW/g

Figure 106 Body, Towards Phantom, Close GSM 1900 GPRS, Channel 810

Figure 107 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; σ = 1.51 mho/m; $ε_r$ = 53.1; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

Towards phantom,Middle 2/Area Scan (71x131x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.115 mW/g

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

Reference Value = 6.95 V/m; Power Drift = -0.061 dB

Peak SAR (extrapolated) = 0.175 W/kg

SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.068 mW/g

Maximum value of SAR (measured) = 0.112 mW/g

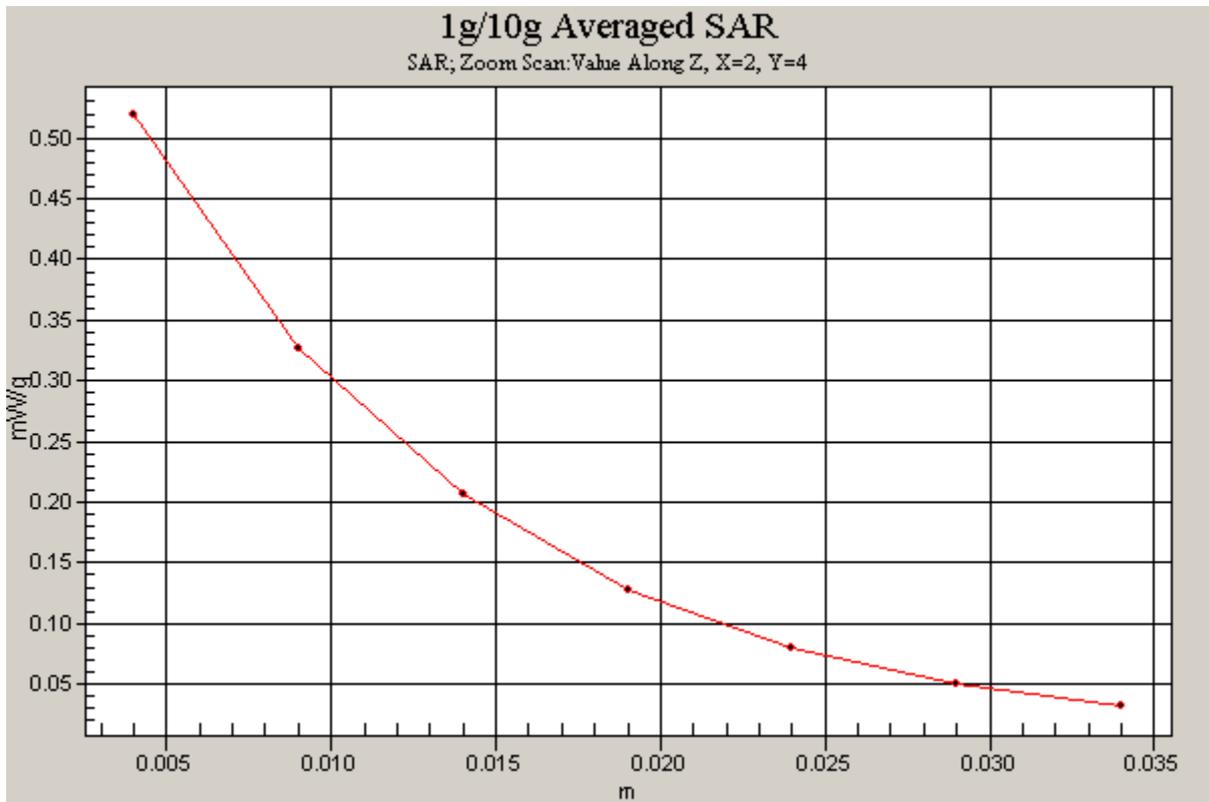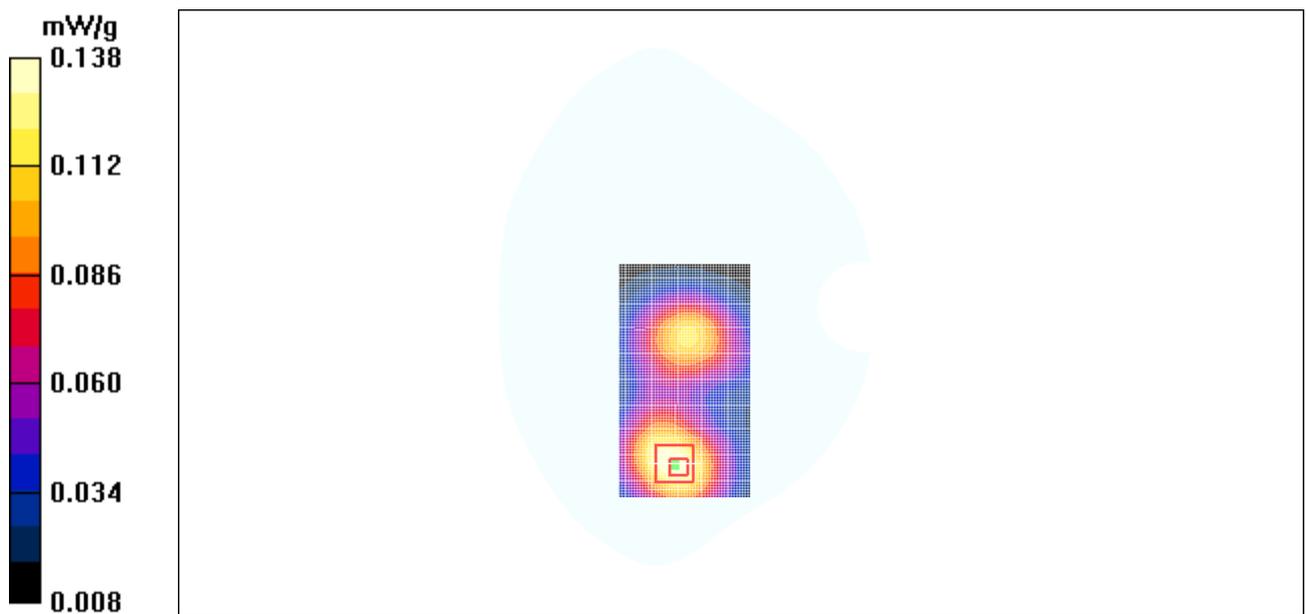Figure 108 Body, Towards Phantom, Close GSM 1900 GPRS Channel 661
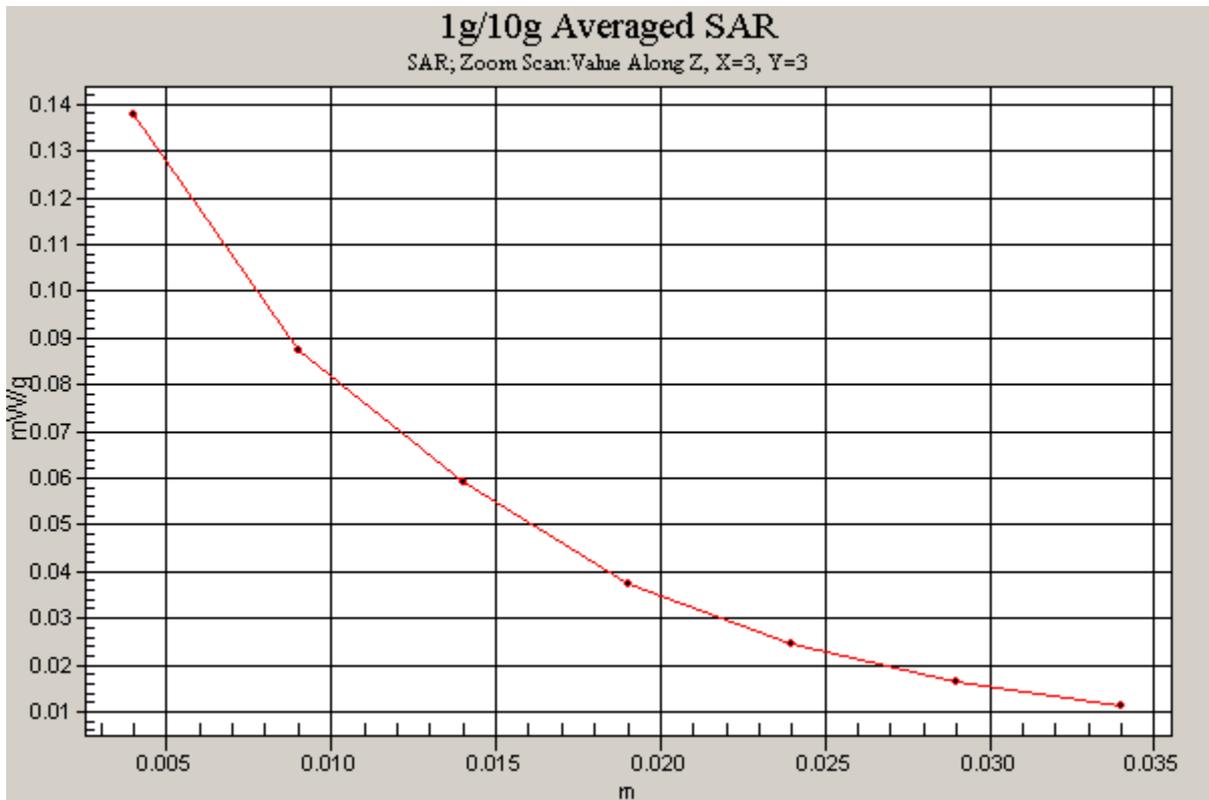
Figure 109 Z-Scan at power reference point (Body, Towards Phantom, Close GSM 1900 GPRS Channel 661)

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; σ = 1.48 mho/m; ε_r = 53.1; ρ = 1000 kg/m^3

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

Electronics: DAE4 Sn679;

Towards phantom,Low/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.099 mW/g

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

Reference Value = 5.98 V/m; Power Drift = 0.094 dB

Peak SAR (extrapolated) = 0.147 W/kg

SAR(1 g) = 0.091 mW/g; SAR(10 g) = 0.058 mW/g
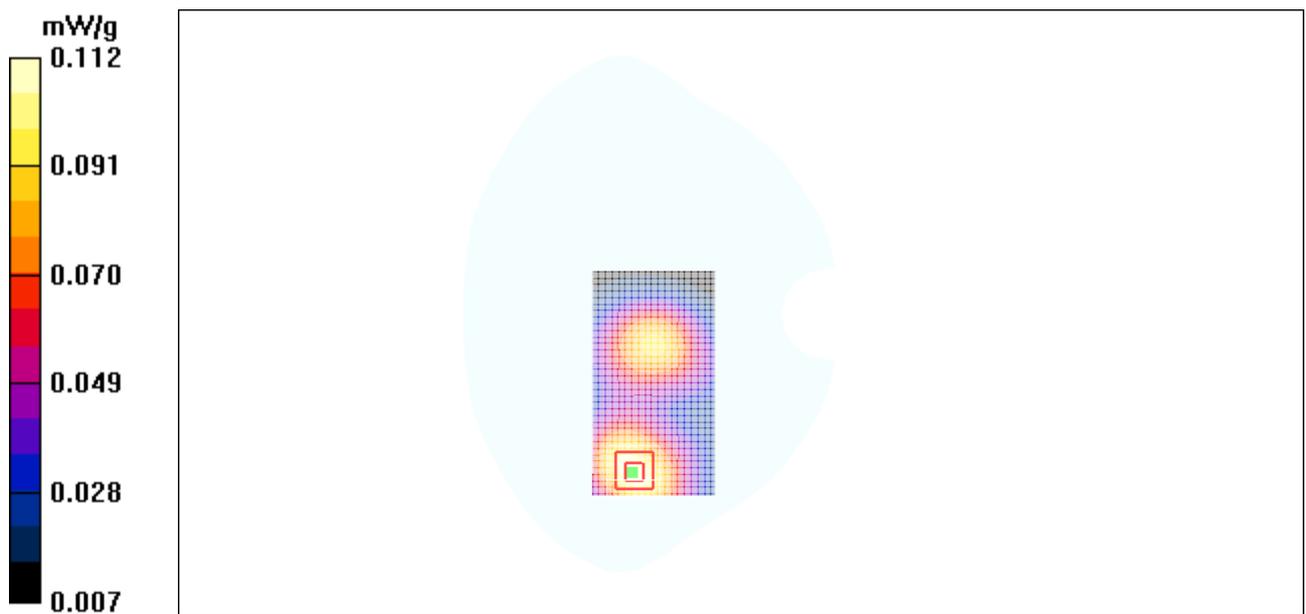
Maximum value of SAR (measured) = 0.097 mW/g
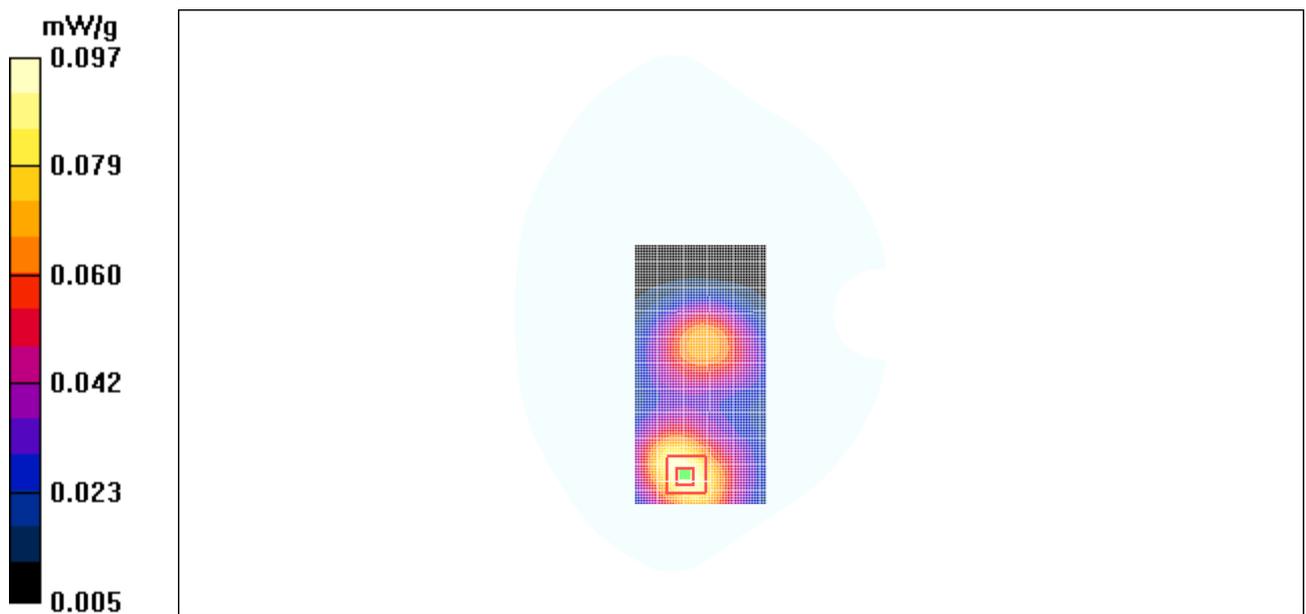
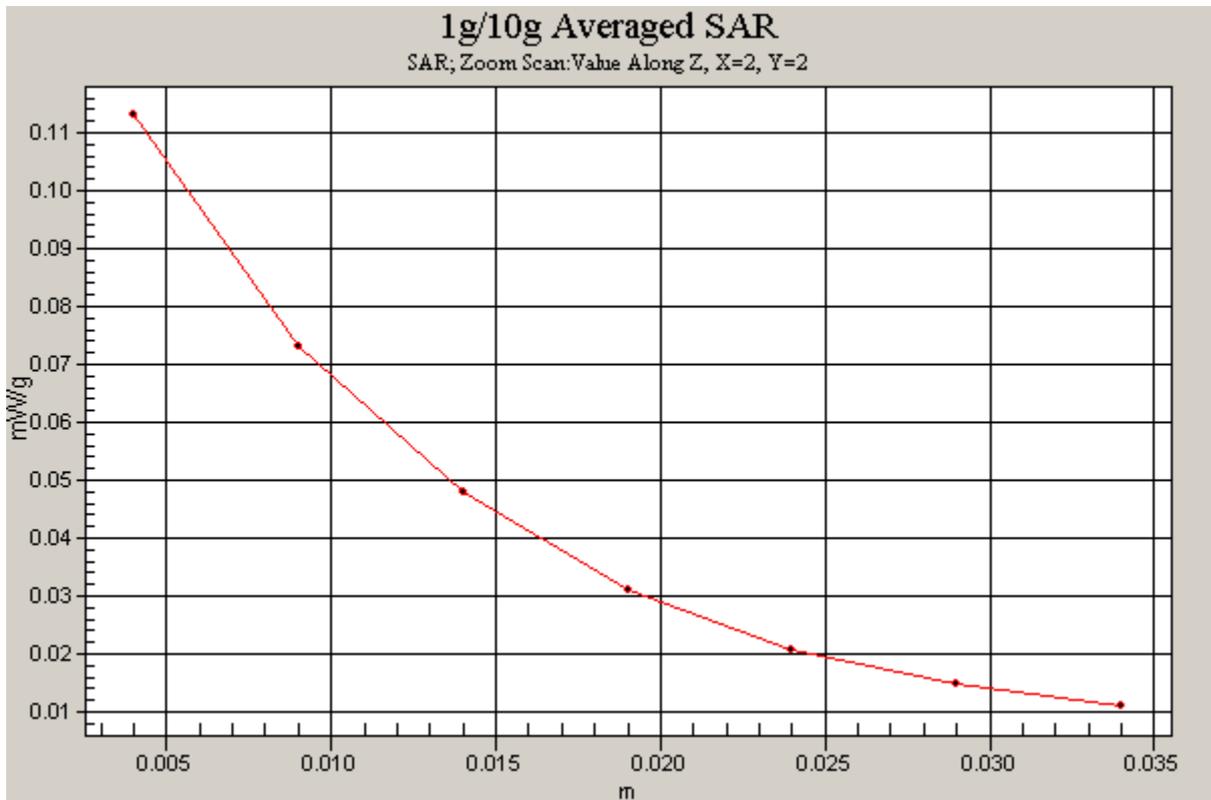Figure 110 Body, Towards Phantom, Close GSM 1900 GPRS Channel 512
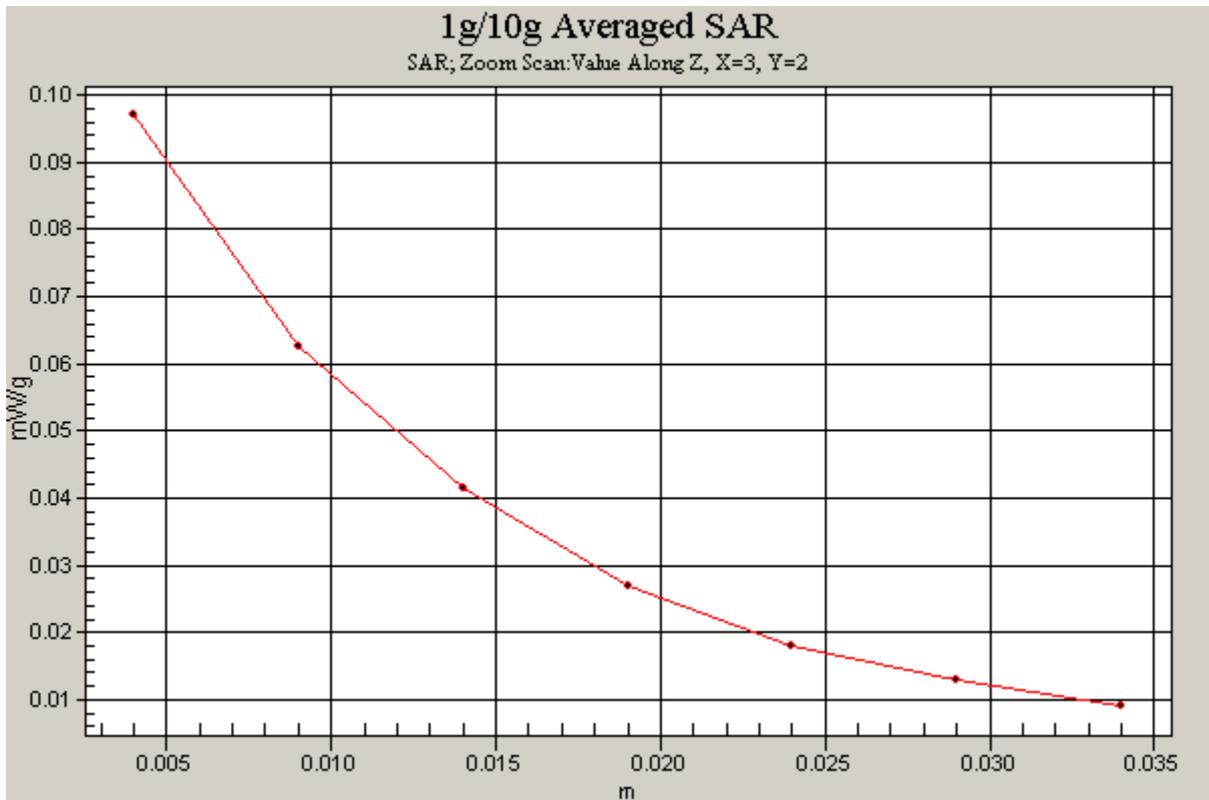
Figure 111 Z-Scan at power reference point (Body, Towards Phantom, Close GSM 1900 GPRS Channel 512)

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; σ = 1.44 mho/m; ε_r = 39.99; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE4 Sn679;
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

0 dB = 10.7mW/g

Figure 112 System Performance Check 1900MHz 250mW

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

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Accredited by the Swiss Accreditation Service (SAS)   Accreditation No.: SCS 108
The Swiss Accreditation Service is one of the signatories to the EA
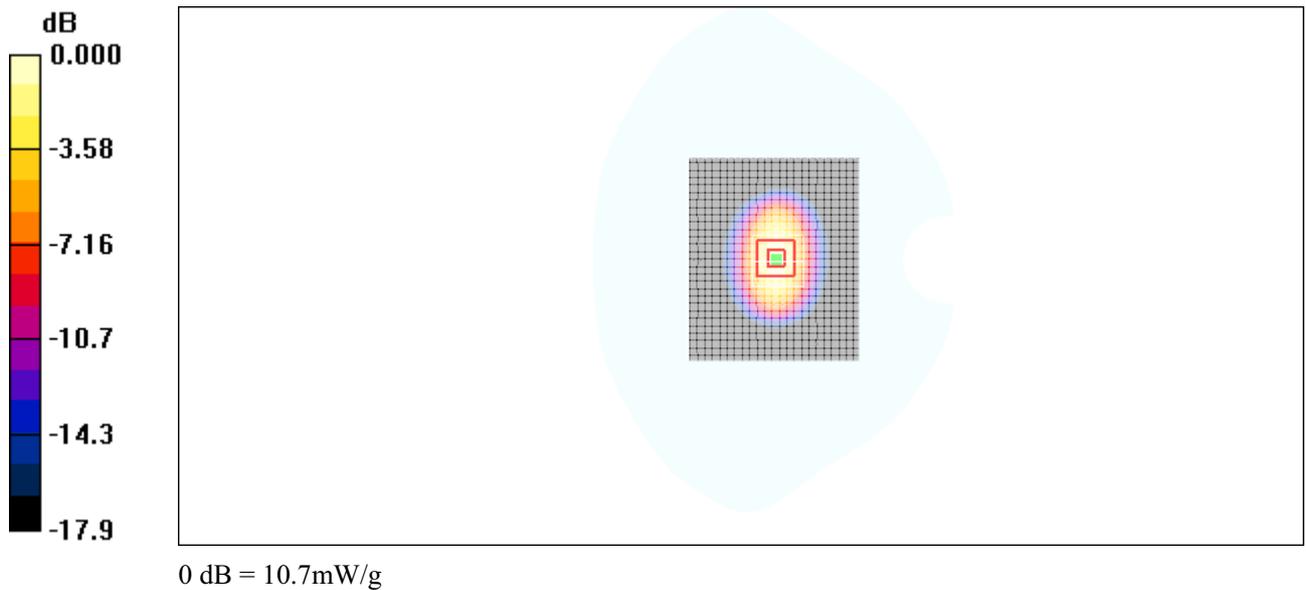Multilateral Agreement for the recognition of calibration certificates

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: S5056 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: 85129 (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 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-07)	In house check: Oct-08

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels 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   Page 1 of 9

Calibration Laboratory of
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S   Servizio svizzero di taratura
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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
NORMx,y,z	sensitivity in free space
ConF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis

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

Methods Applied and Interpretation of Parameters:
- *NORMx,y,z:* Assessed for E-field polarization $\vartheta = 0$ (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConF*).
- *NORM(f)x,y,z = NORMx,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 *ConF*.
- *DCPx,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.
- *ConF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 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 NORMx,y,z * ConF whereby the uncertainty corresponds to that given for *ConF*. A frequency dependent *ConF* 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.