

ANNEX A Graph Results

850 Right Cheek High

Date: 2018-5-27

Electronics: DAE4 Sn1525

Medium: Head 850 MHz

Medium parameters used: $f = 848.8 \text{ MHz}$; $\sigma = 0.901 \text{ mho/m}$; $\epsilon_r = 41.93$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:2.67

Probe: EX3DV4 – SN7464 ConvF(10.28, 10.28, 10.28)

Area Scan (71x121x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.373 W/kg

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

Reference Value = 3.901 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.425 W/kg

SAR(1 g) = 0.340 W/kg; SAR(10 g) = 0.258 W/kg

Maximum value of SAR (measured) = 0.374 W/kg

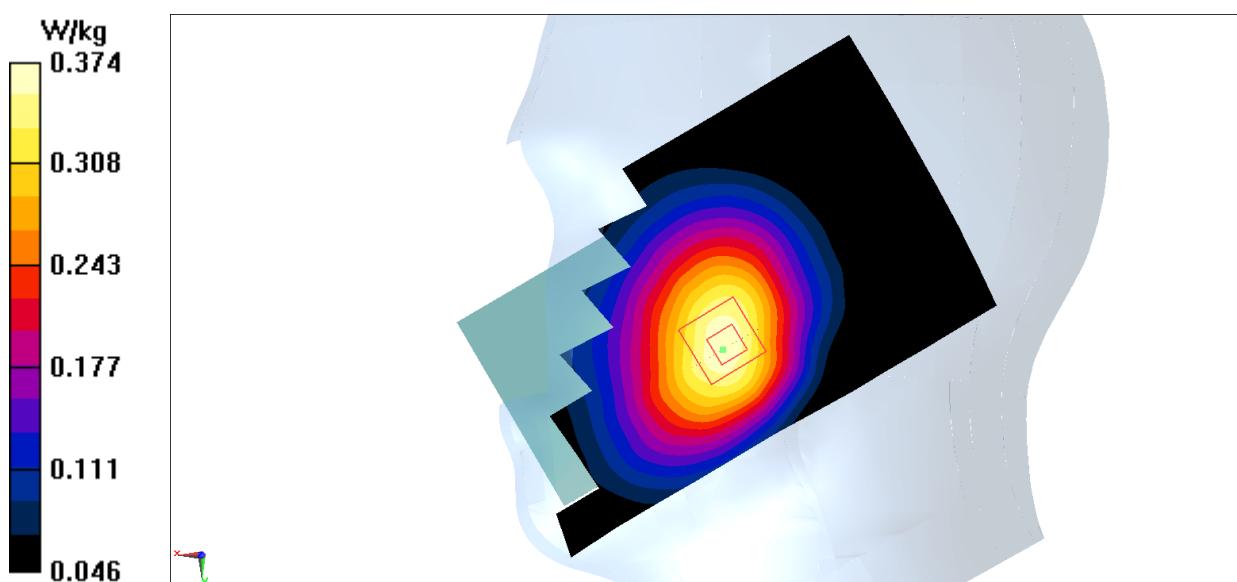


Fig.1 850MHz

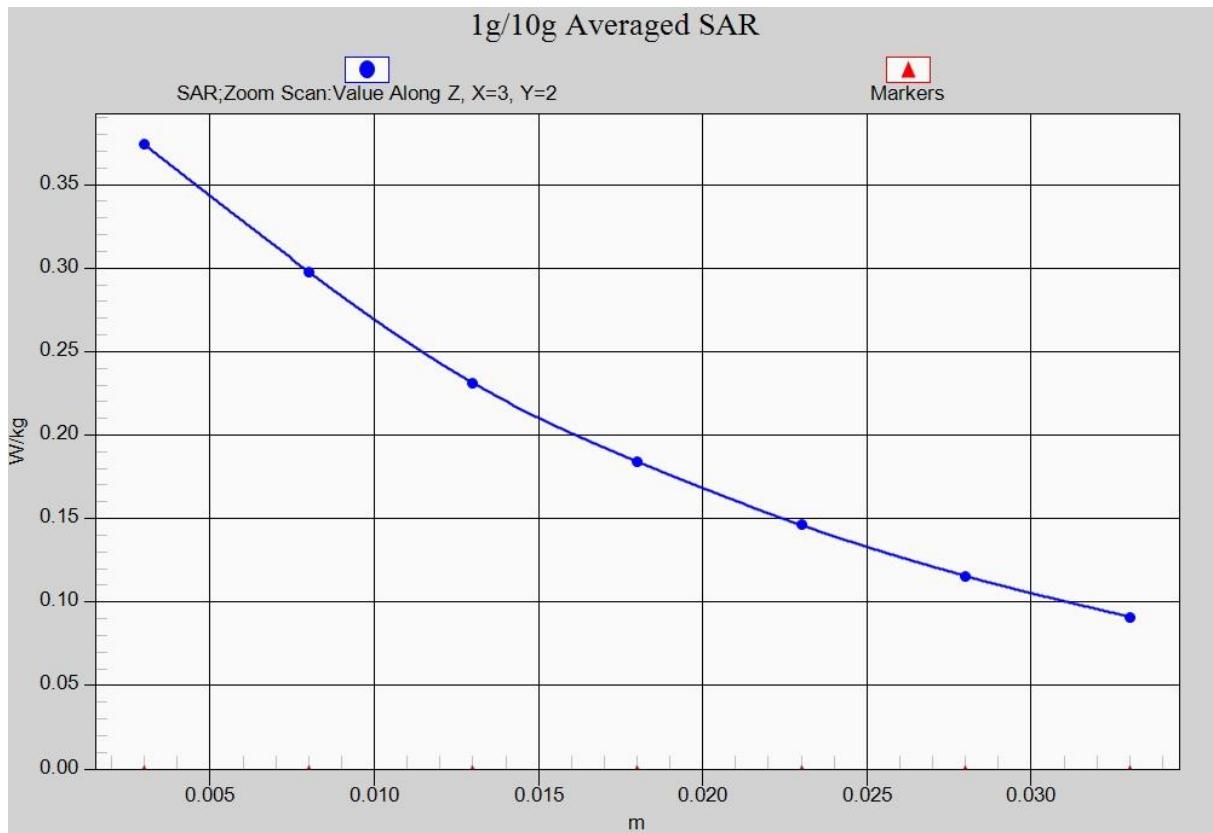


Fig. 1-1 Z-Scan at power reference point (850 MHz)

850 Body Rear High

Date: 2018-5-27

Electronics: DAE4 Sn1525

Medium: Body 850 MHz

Medium parameters used: $f = 848.8 \text{ MHz}$; $\sigma = 0.993 \text{ mho/m}$; $\epsilon_r = 55.76$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:2.67

Probe: EX3DV4 – SN7464 ConvF(10.21, 10.21, 10.21)

Area Scan (71x131x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.655 W/kg

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

Reference Value = 20.44 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.930 W/kg

SAR(1 g) = 0.544 W/kg; SAR(10 g) = 0.310 W/kg

Maximum value of SAR (measured) = 0.676 W/kg

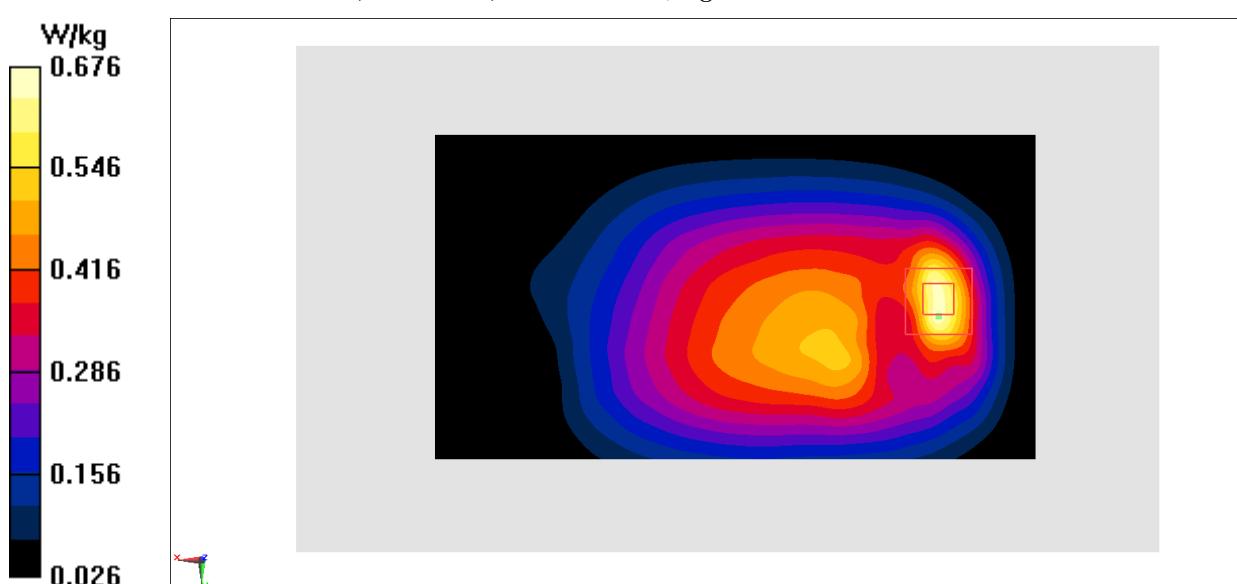


Fig.2 850 MHz

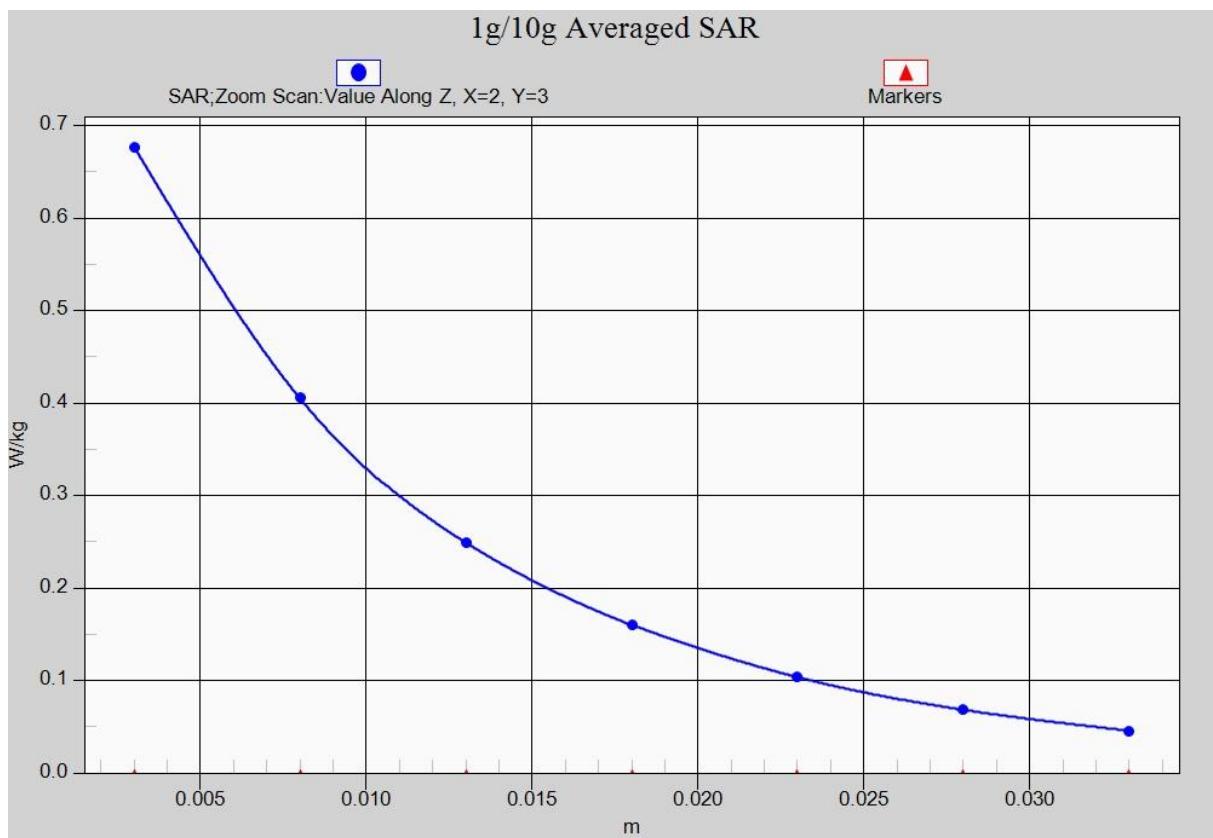


Fig. 2-1 Z-Scan at power reference point (850 MHz)

1900 Right Cheek Middle

Date: 2018-5-28

Electronics: DAE4 Sn1525

Medium: Head 1900 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.446 \text{ mho/m}$; $\epsilon_r = 40.71$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: GSM 1900MHz Frequency: 1880 MHz Duty Cycle: 1:2

Probe: EX3DV4– SN7464 ConvF(8.39, 8.39, 8.39)

Area Scan (71x121x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.247 W/kg

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

Reference Value = 4.724 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.292 W/kg

SAR(1 g) = 0.189 W/kg; SAR(10 g) = 0.115 W/kg

Maximum value of SAR (measured) = 0.224 W/kg

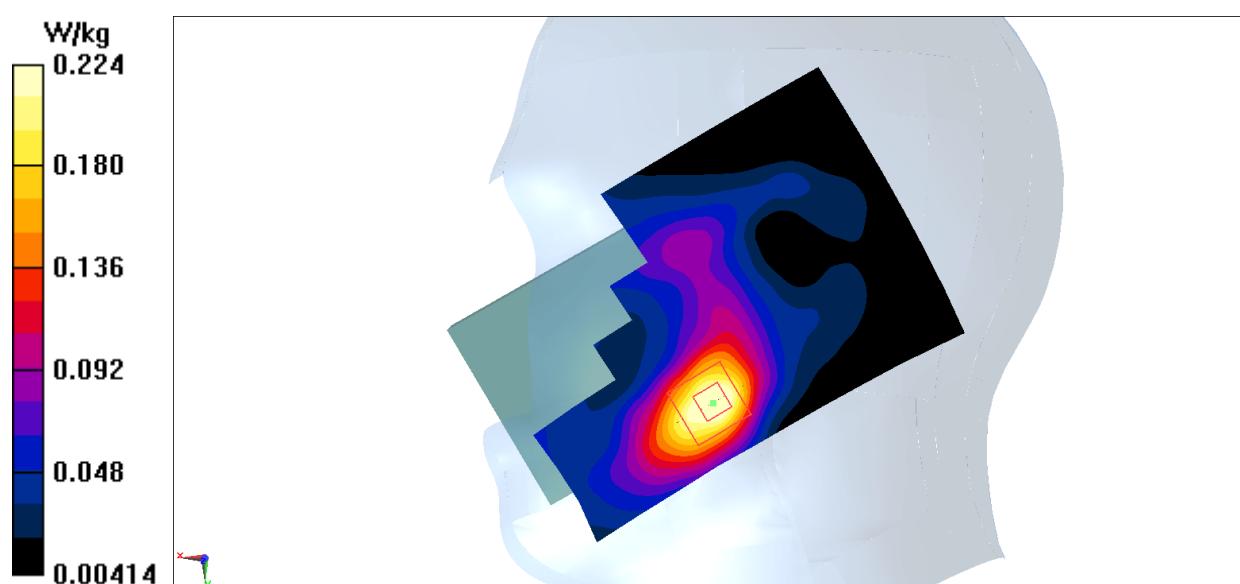


Fig.3 1900 MHz

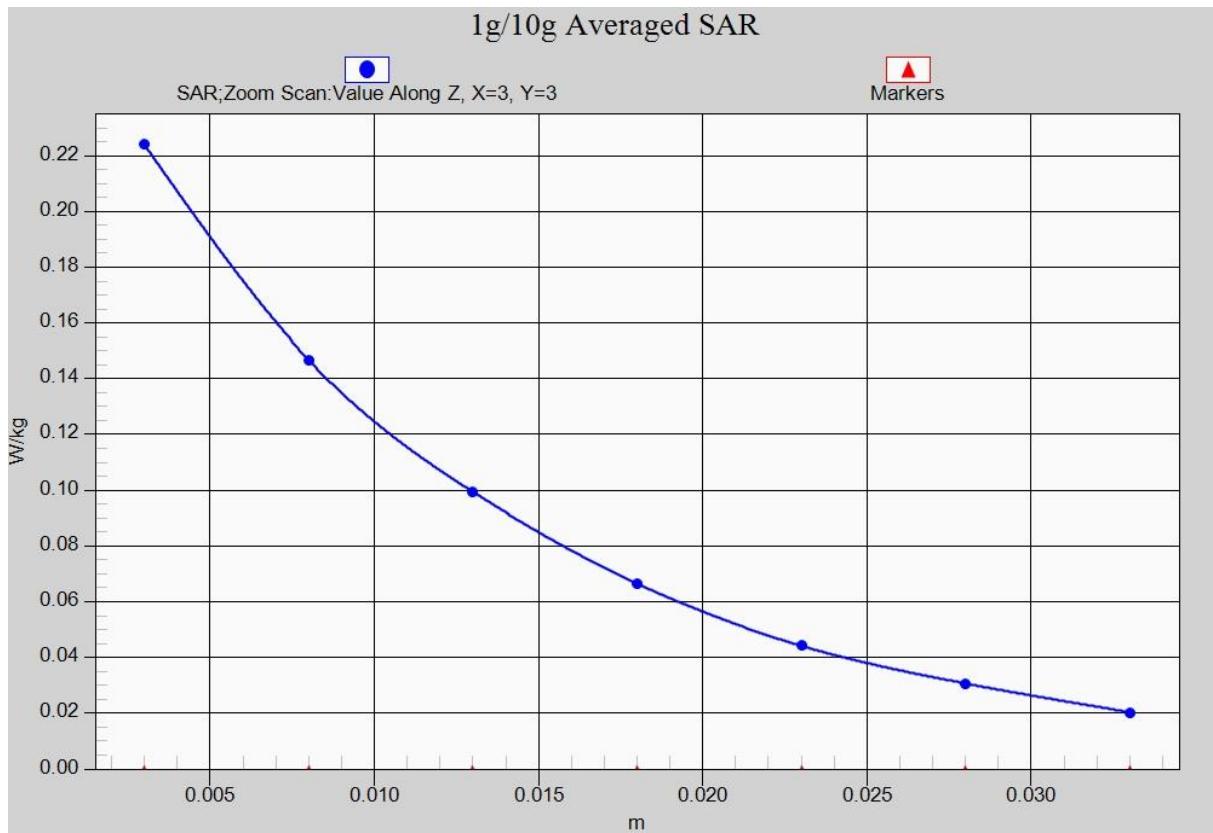


Fig. 3-1 Z-Scan at power reference point (1900 MHz)

1900 Body Rear High

Date: 2018-5-28

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used (interpolated): $f = 1909.8 \text{ MHz}$; $\sigma = 1.594 \text{ mho/m}$; $\epsilon_r = 52.88$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: GSM 1900MHz GPRS Frequency: 1909.8 MHz Duty Cycle: 1:2

Probe: EX3DV4– SN7464 ConvF(8.32, 8.32, 8.32)

Area Scan (121x71x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.831 W/kg

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

Reference Value = 7.397 V/m ; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.28 W/kg

SAR(1 g) = 0.738 W/kg ; SAR(10 g) = 0.387 W/kg

Maximum value of SAR (measured) = 0.888 W/kg

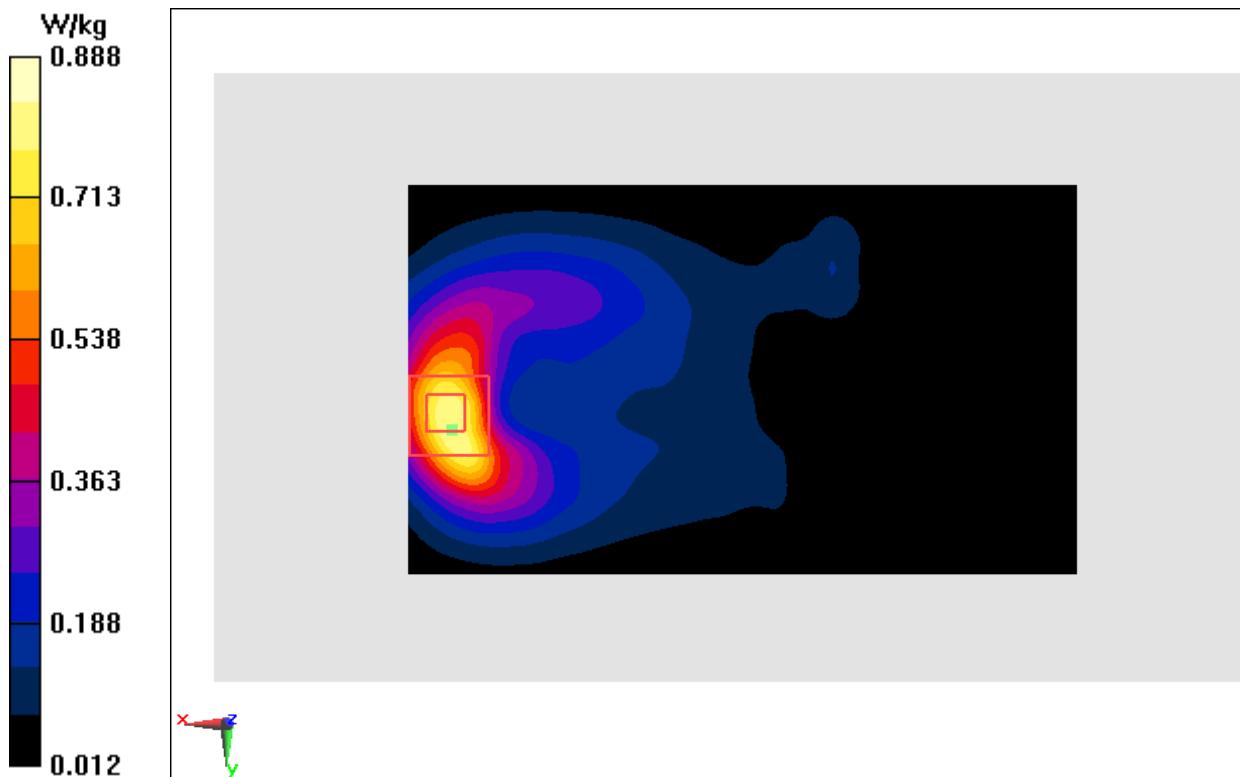


Fig.4 1900 MHz

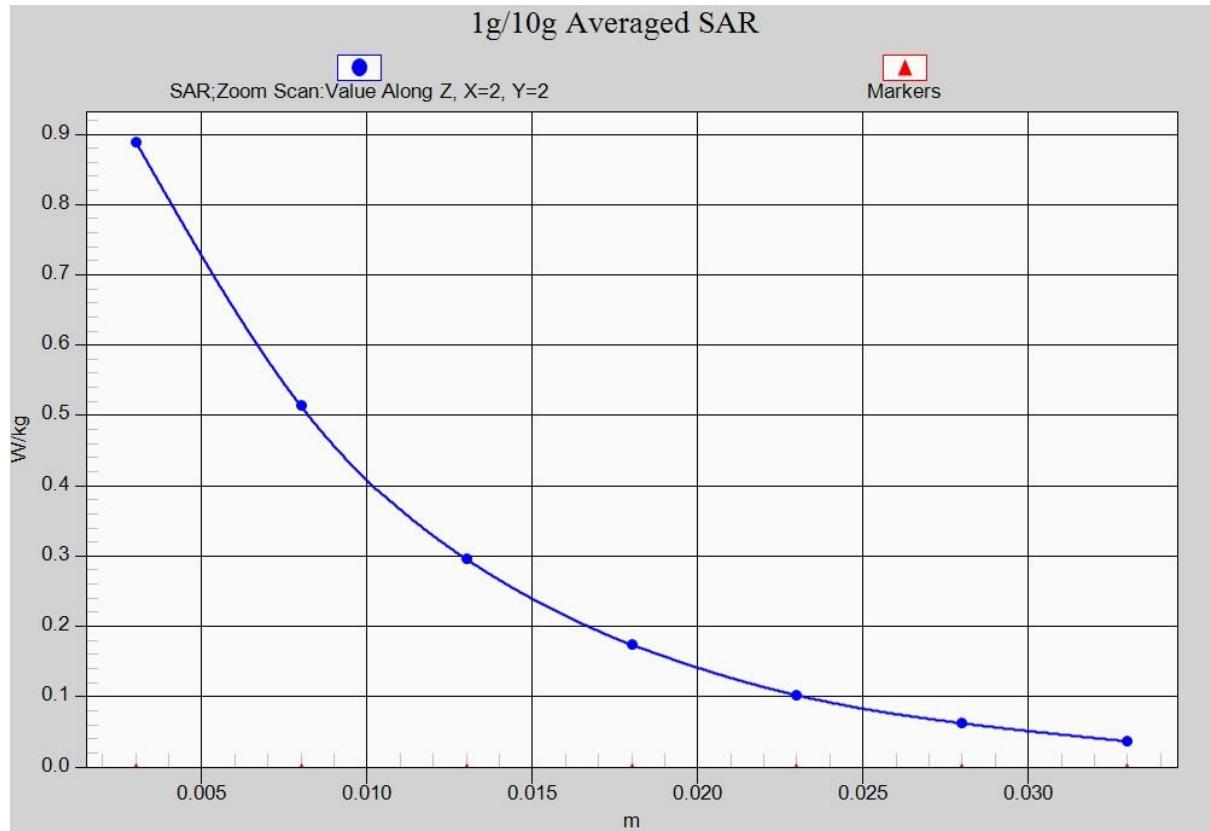


Fig. 4-1 Z-Scan at power reference point (1900 MHz)

WCDMA 850 Right Cheek Middle

Date: 2018-5-27

Electronics: DAE4 Sn1525

Medium: Head 850 MHz

Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.889$ mho/m; $\epsilon_r = 42.065$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

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

Probe: EX3DV4 – SN7464 ConvF(10.28, 10.28, 10.28)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.221 W/kg

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

Reference Value = 3.916 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.255 W/kg

SAR(1 g) = 0.201 W/kg; SAR(10 g) = 0.151 W/kg

Maximum value of SAR (measured) = 0.219 W/kg

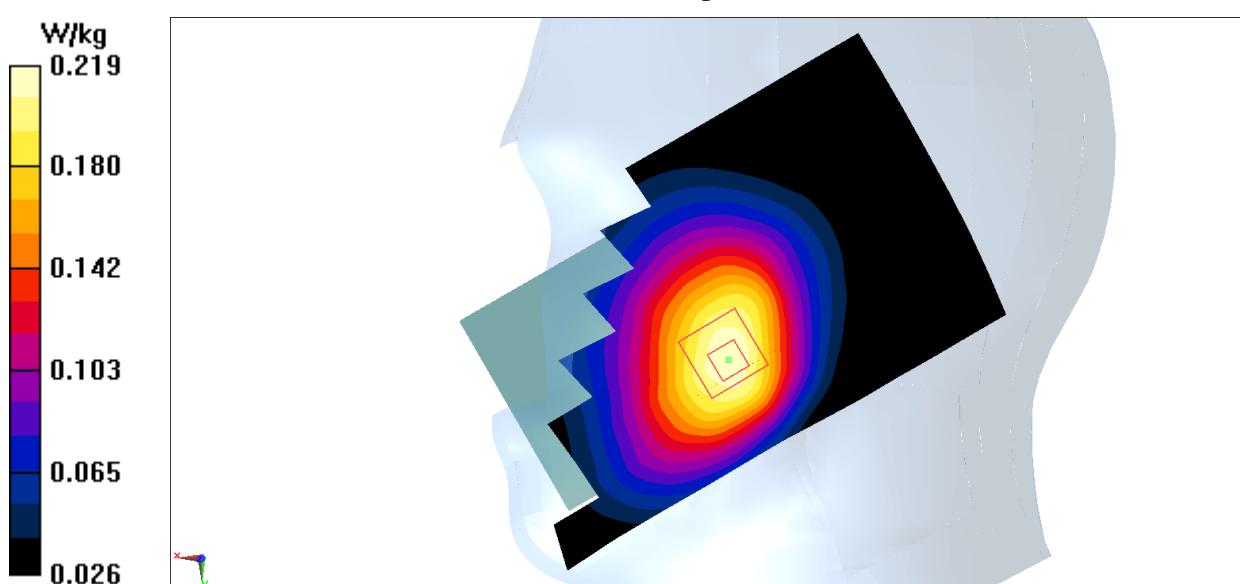


Fig.5 WCDMA 850

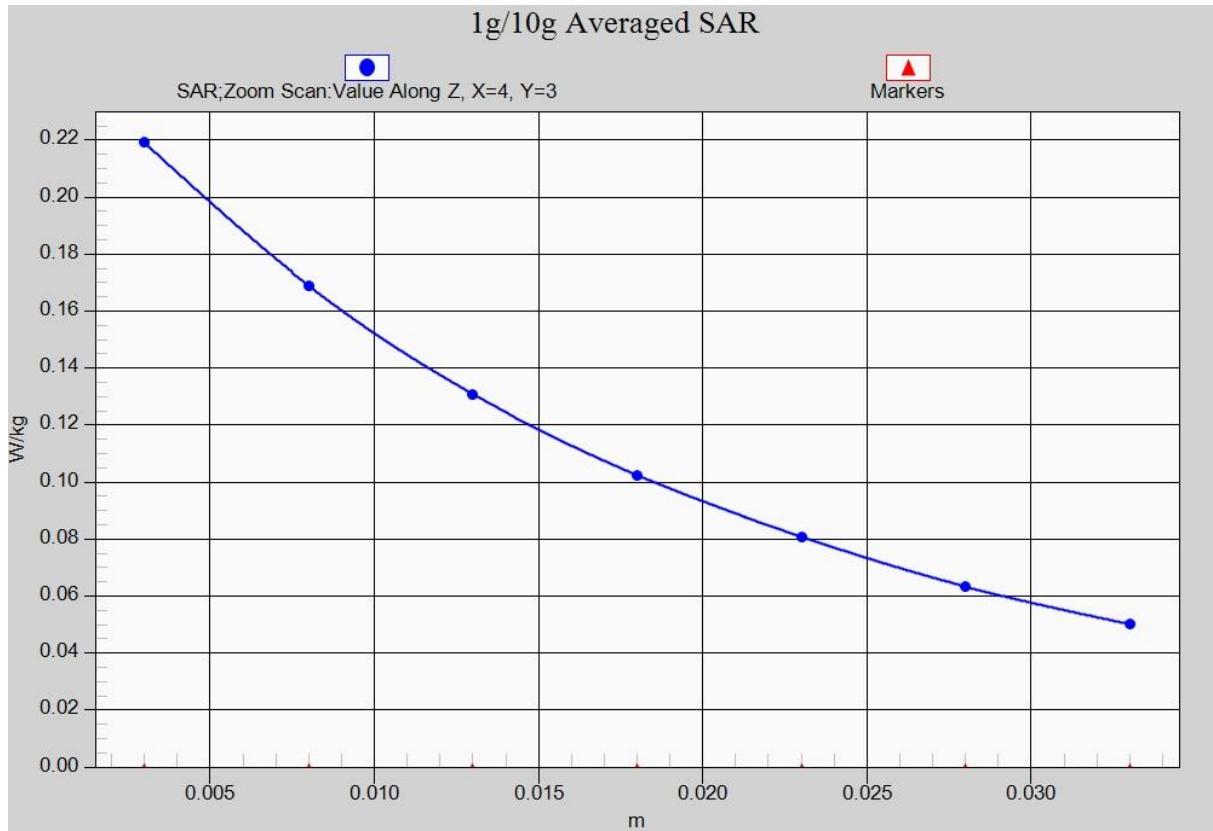


Fig. 5-1 Z-Scan at power reference point (850 MHz)

WCDMA 850 Body Rear Low

Date: 2018-5-27

Electronics: DAE4 Sn1525

Medium: Body 850 MHz

Medium parameters used (interpolated): $f = 826.4$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 55.956$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

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

Probe: EX3DV4 – SN7464 ConvF(10.21, 10.21, 10.21)

Area Scan (71x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.394 W/kg

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

Reference Value = 15.71 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.562 W/kg

SAR(1 g) = 0.328 W/kg; SAR(10 g) = 0.190 W/kg

Maximum value of SAR (measured) = 0.401 W/kg

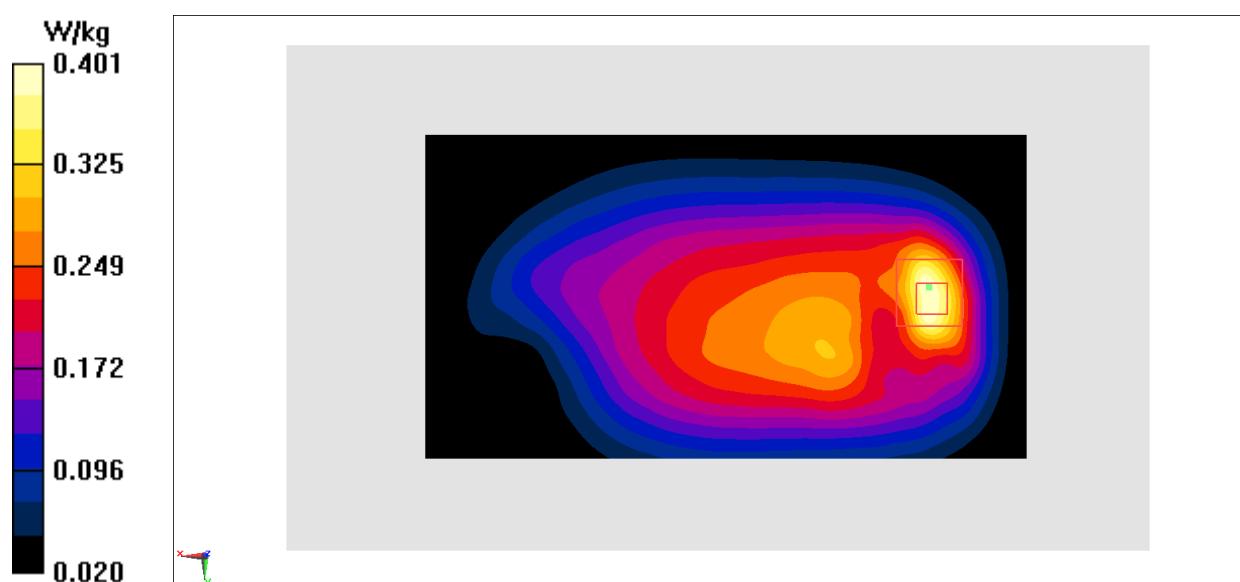


Fig.6 WCDMA 850

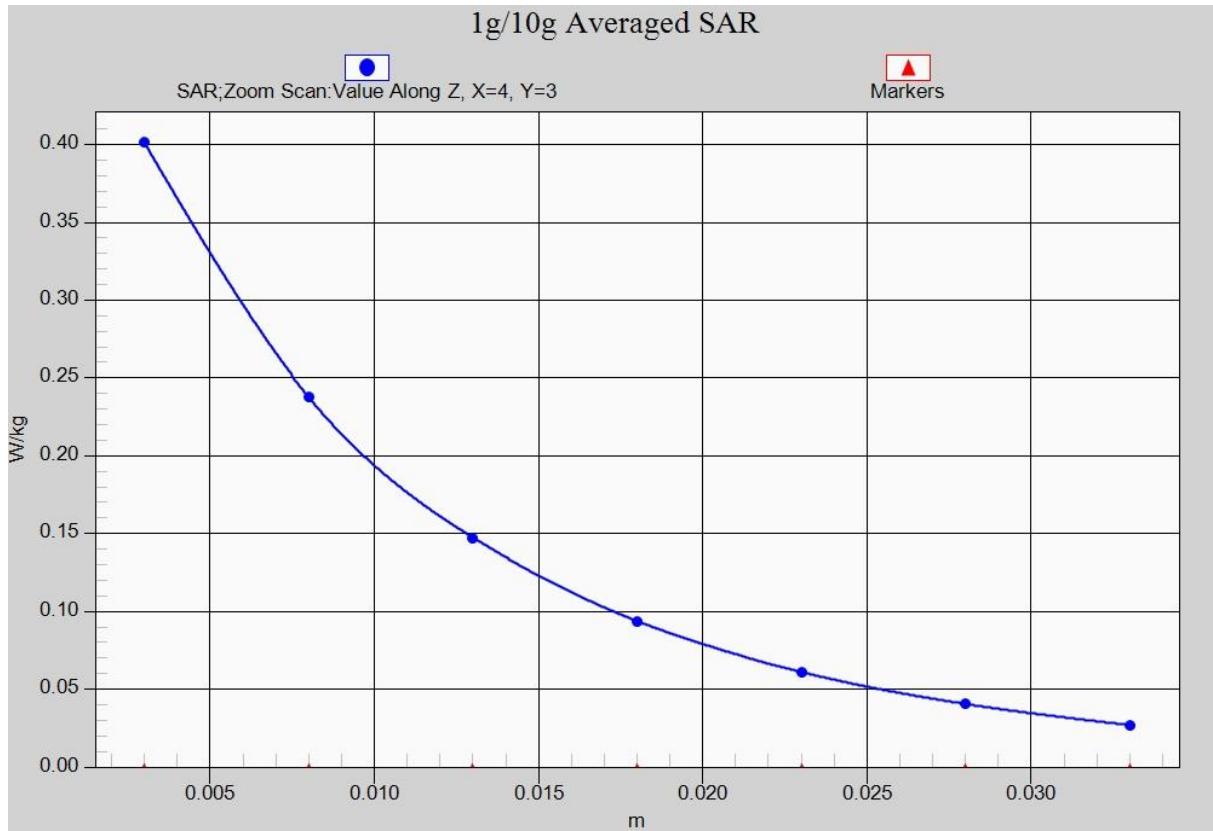


Fig. 6-1 Z-Scan at power reference point (WCDMA850)

WCDMA 1700 Left Cheek Low

Date: 2018-5-29

Electronics: DAE4 Sn1525

Medium: Head 1750 MHz

Medium parameters used (interpolated): $f = 1712.4$ MHz; $\sigma = 1.307$ mho/m; $\epsilon_r = 40.677$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1750 Frequency: 1712.4 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7464 ConvF(8.70, 8.70, 8.70)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.237 W/kg

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

Reference Value = 5.211 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.313 W/kg

SAR(1 g) = 0.203 W/kg; SAR(10 g) = 0.129 W/kg

Maximum value of SAR (measured) = 0.234 W/kg

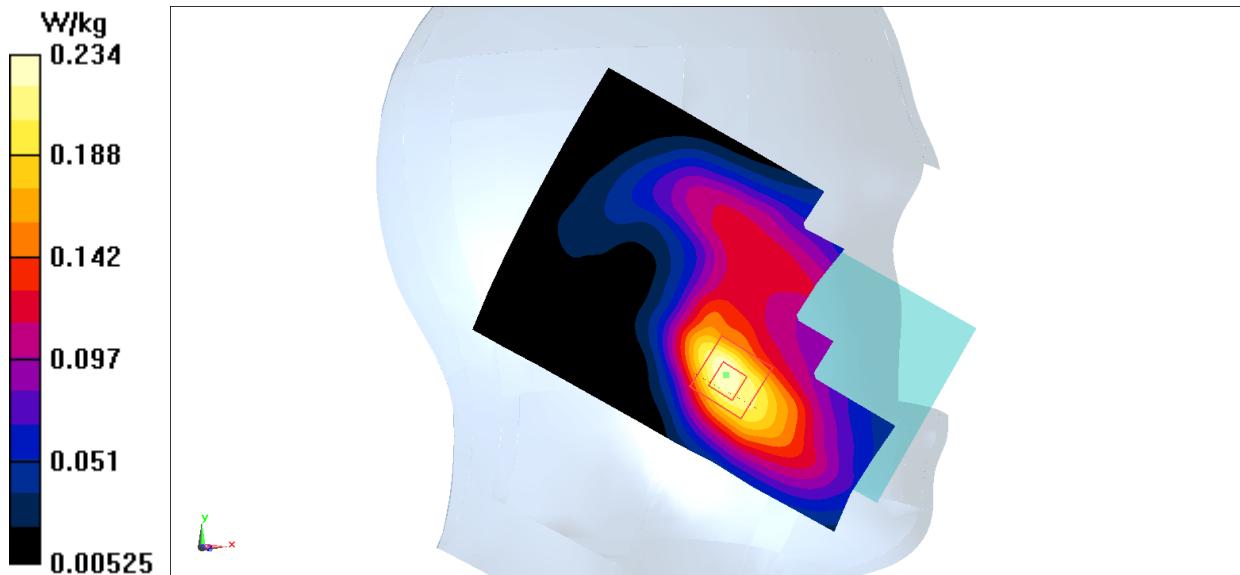


Fig.7 WCDMA1700

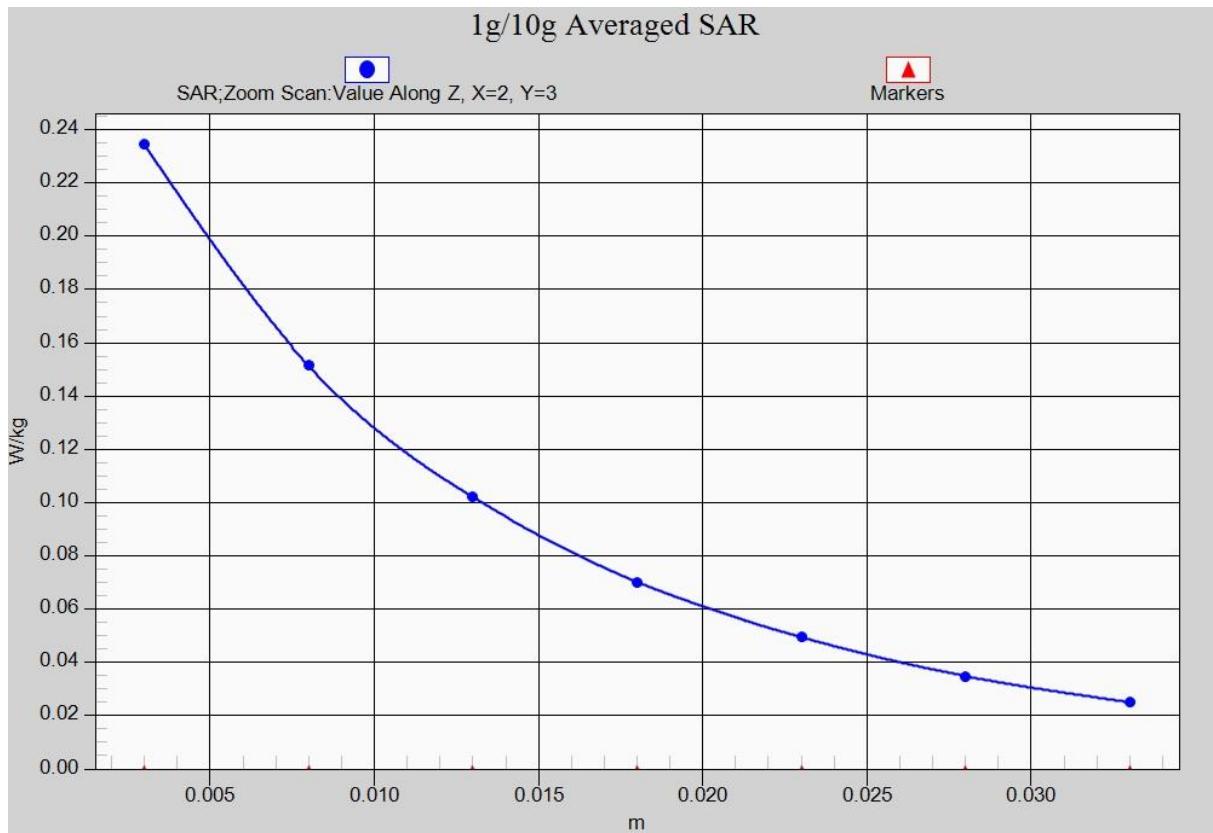


Fig. 7-1 Z-Scan at power reference point (WCDMA1700)

WCDMA 1700 Body Rear Low

Date: 2018-5-29

Electronics: DAE4 Sn1525

Medium: Body 1750 MHz

Medium parameters used (interpolated): $f = 1712.4$ MHz; $\sigma = 1.503$ mho/m; $\epsilon_r = 53.618$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1900 Frequency: 1712.4 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7464 ConvF(8.60, 8.60, 8.60)

Area Scan (71x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.21 W/kg

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

Reference Value = 10.54 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.87 W/kg

SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.582 W/kg

Maximum value of SAR (measured) = 1.32 W/kg

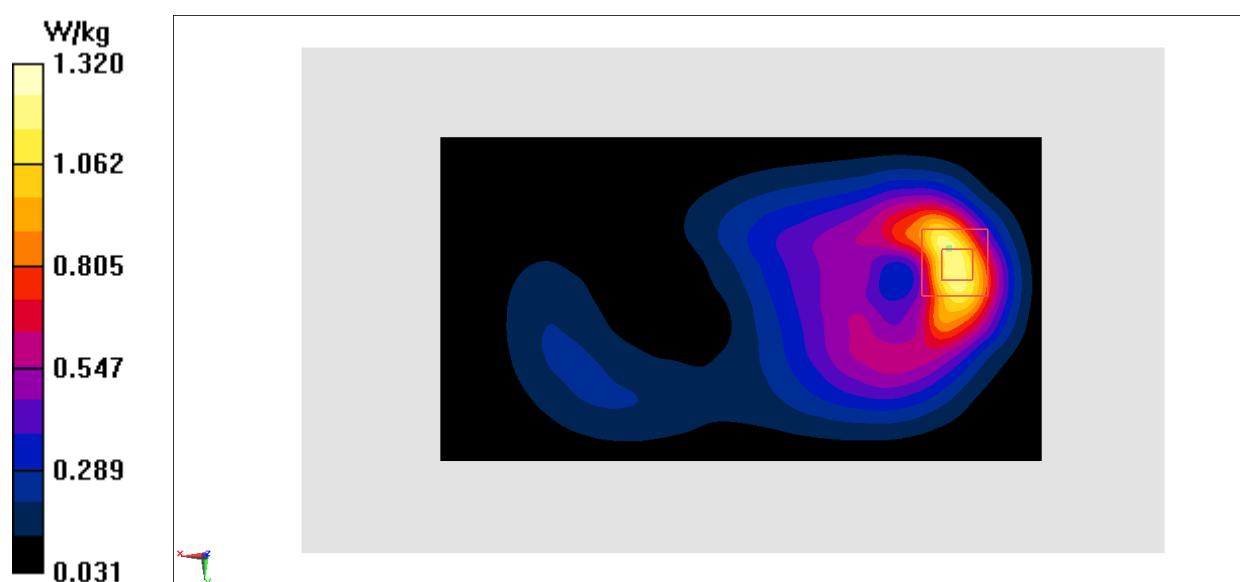


Fig.8 WCDMA1700

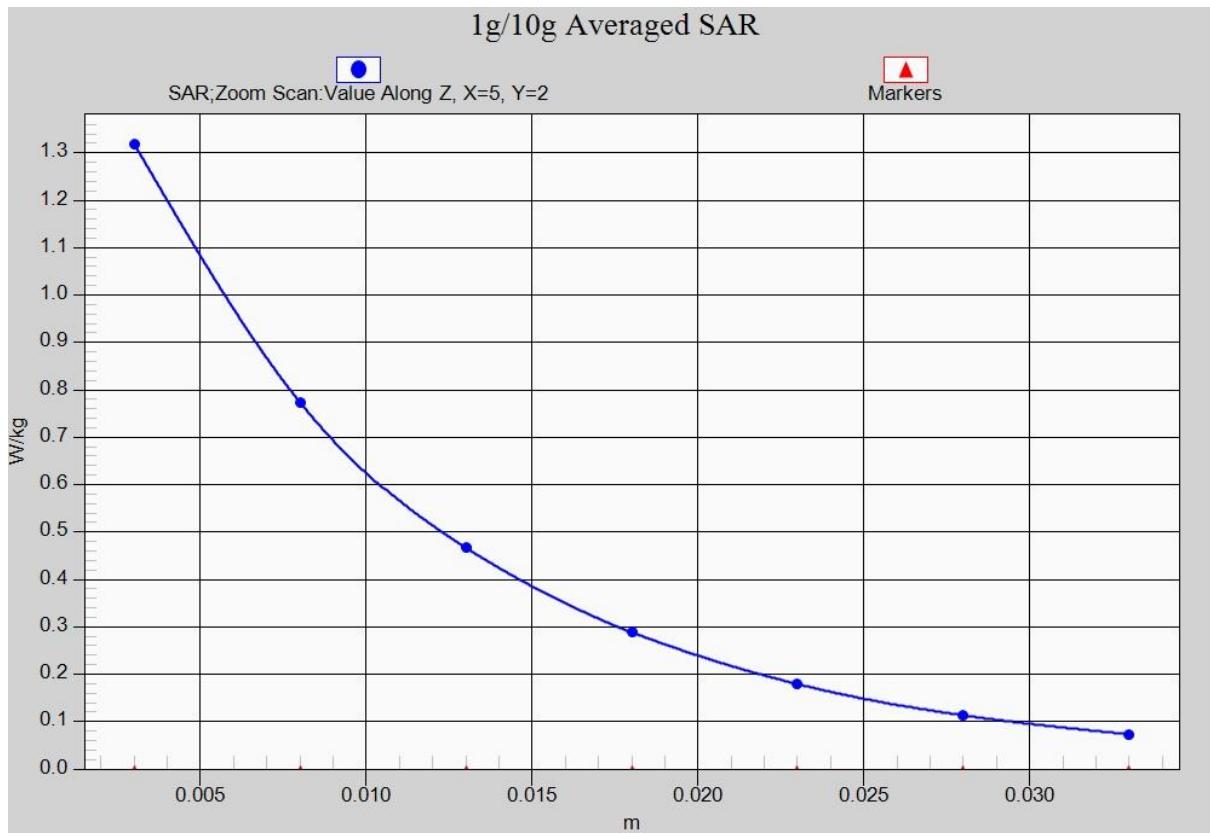


Fig. 8-1 Z-Scan at power reference point (WCDMA1700)

WCDMA 1900 Right Cheek Middle

Date: 2018-5-28

Electronics: DAE4 Sn1525

Medium: Head 1900 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.446 \text{ mho/m}$; $\epsilon_r = 40.71$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1900 Frequency: 1880 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7464 ConvF(8.39, 8.39, 8.39)

Area Scan (71x121x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.273 W/kg

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

Reference Value = 5.546 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.321 W/kg

SAR(1 g) = 0.210 W/kg; SAR(10 g) = 0.129 W/kg

Maximum value of SAR (measured) = 0.249 W/kg

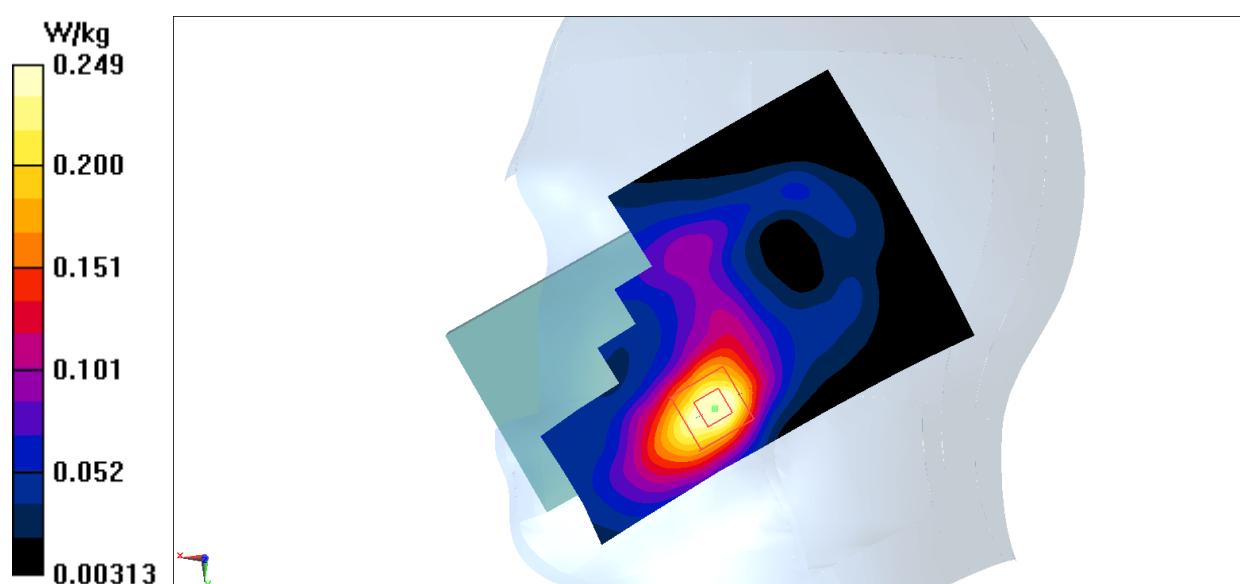


Fig.9 WCDMA1900

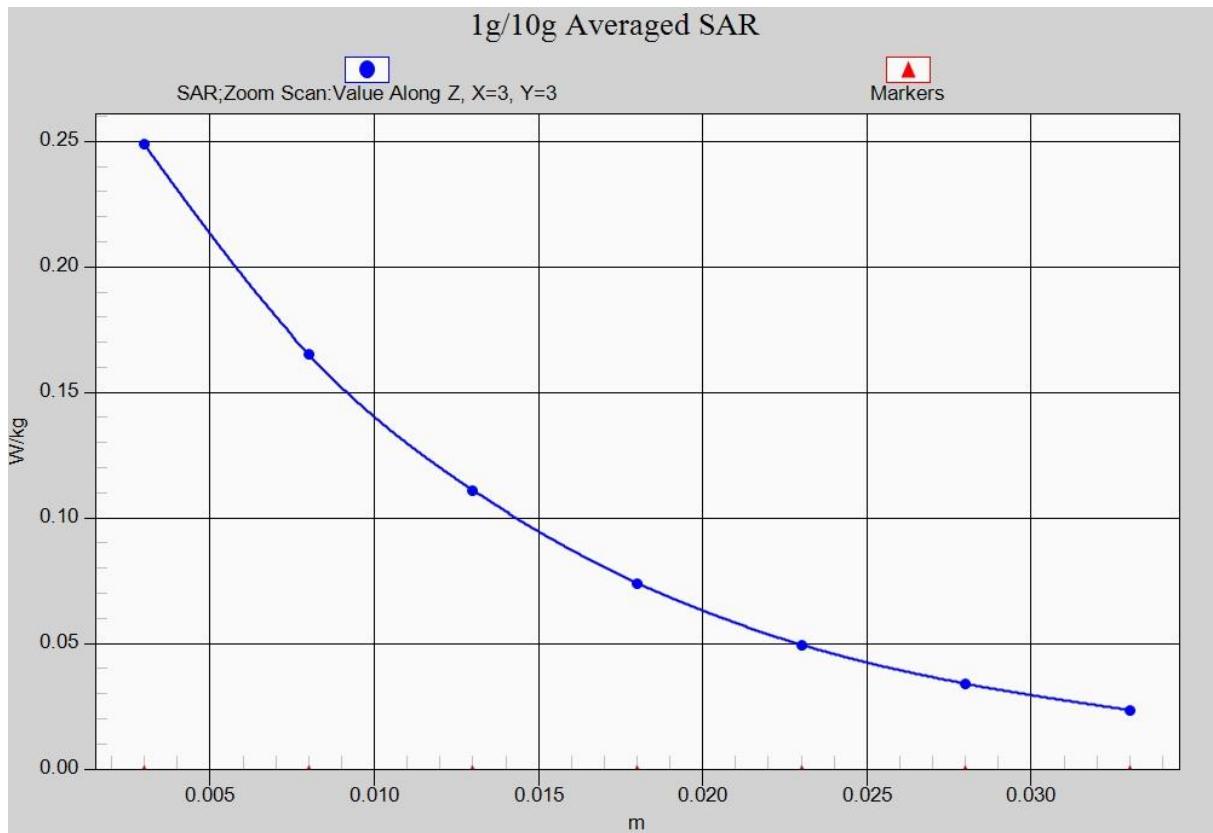


Fig. 9-1 Z-Scan at power reference point (WCDMA1900)

WCDMA 1900 Body Rear High

Date: 2018-5-28

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used (interpolated): $f = 1907.6$ MHz; $\sigma = 1.592$ mho/m; $\epsilon_r = 53.15$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7464 ConvF(8.32, 8.32, 8.32)

Area Scan (71x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.28 W/kg

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

Reference Value = 8.127 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 1.90 W/kg

SAR(1 g) = 1.08 W/kg; SAR(10 g) = 0.570 W/kg

Maximum value of SAR (measured) = 1.37 W/kg

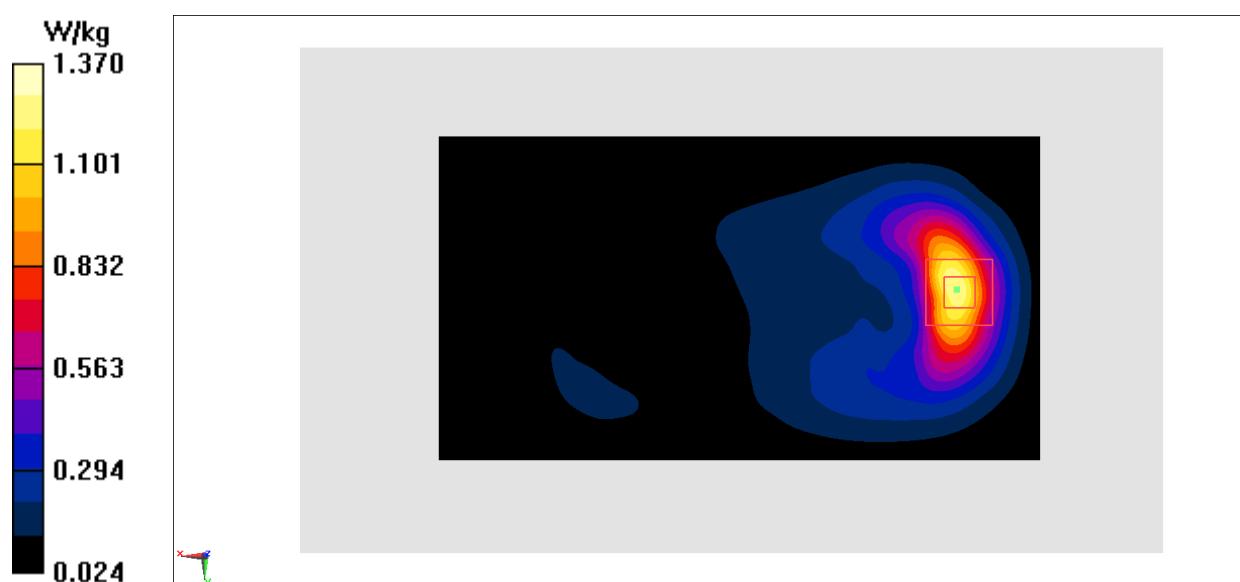


Fig.10 WCDMA1900

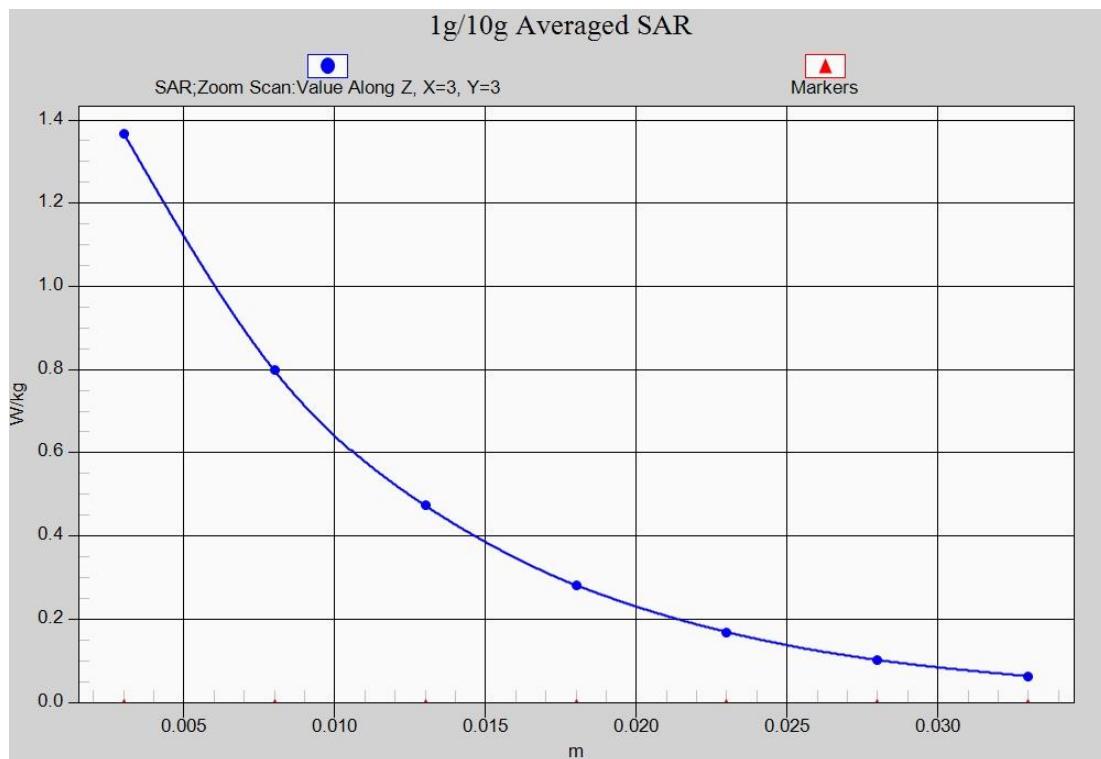


Fig. 10-1 Z-Scan at power reference point (WCDMA1900)

LTE Band2 Right Cheek High with QPSK_20M_1RB_Middle

Date: 2018-5-28

Electronics: DAE4 Sn1525

Medium: Head 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.432 \text{ mho/m}$; $\epsilon_r = 40.81$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band2 Frequency: 1900 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7464 ConvF(8.39, 8.39, 8.39)

Area Scan (71x121x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.246 W/kg

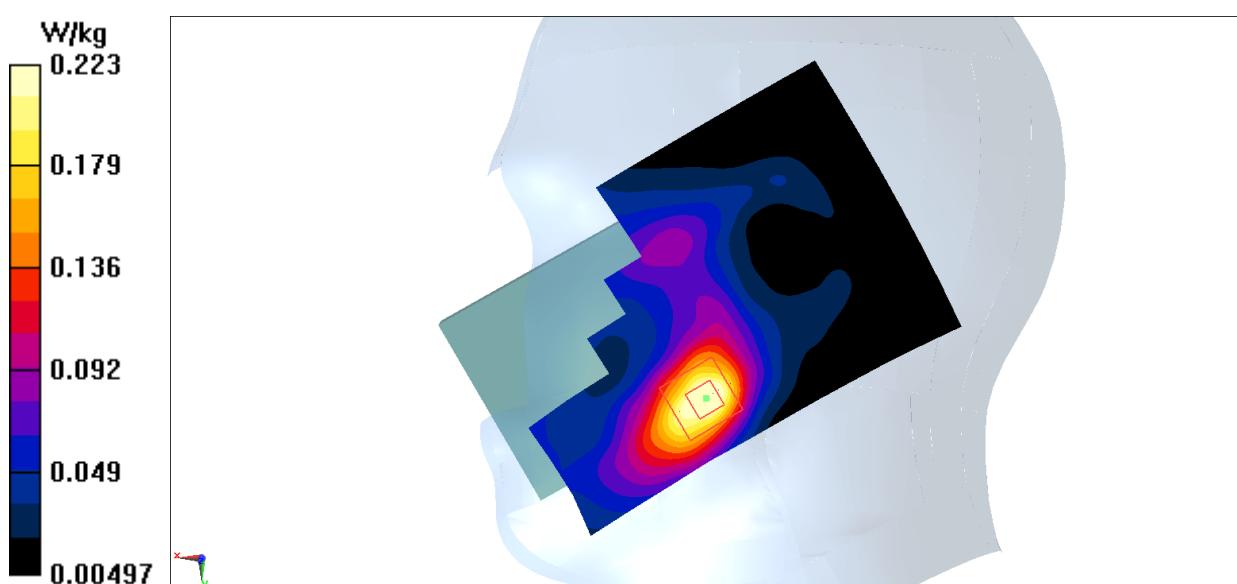
Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.736 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.291 W/kg

SAR(1 g) = 0.187 W/kg; SAR(10 g) = 0.113 W/kg

Maximum value of SAR (measured) = 0.223 W/kg

**Fig.11 LTE Band2**

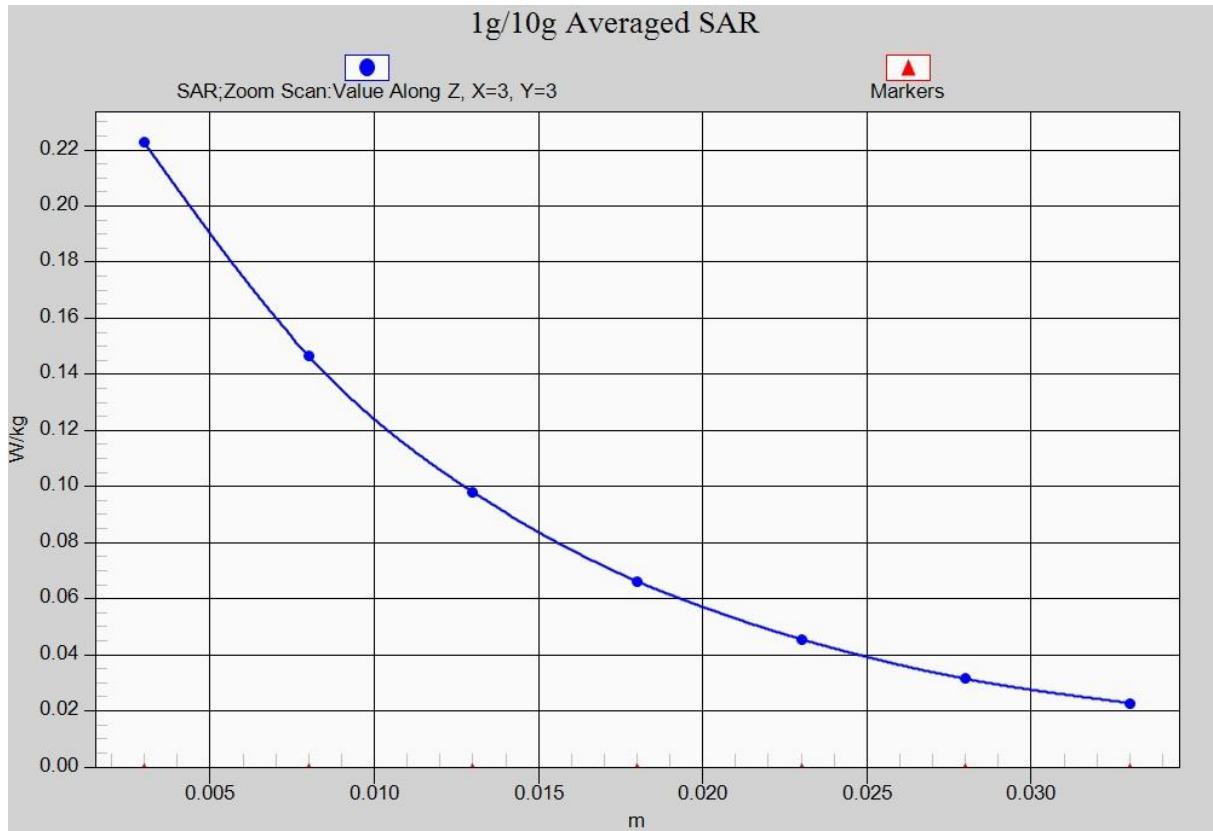


Fig. 11-1 Z-Scan at power reference point (LTE Band2)

LTE Band2 Body Rear High with QPSK_20M_1RB_Middle

Date: 2018-5-28

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.548 \text{ mho/m}$; $\epsilon_r = 52.94$; $\rho = 1000 \text{ kg/m}^3$ Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band2 Frequency: 1900 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7464 ConvF(8.32, 8.32, 8.32)

Area Scan (71x131x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 1.17 W/kg

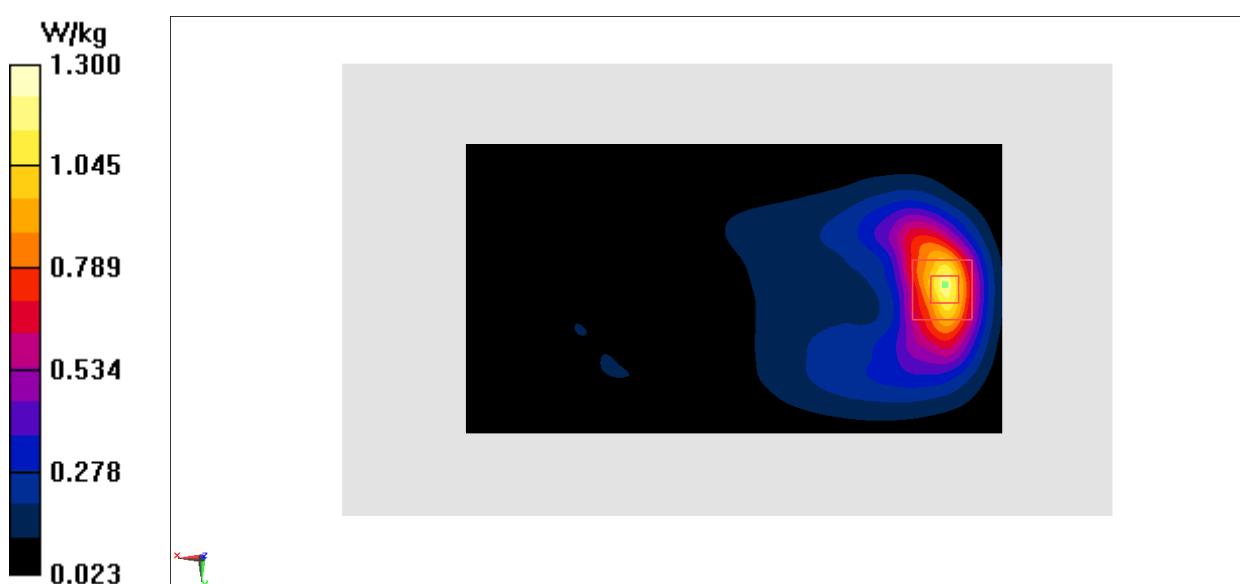
Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.150 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.84 W/kg

SAR(1 g) = 1.03 W/kg; SAR(10 g) = 0.539 W/kg

Maximum value of SAR (measured) = 1.30 W/kg

**Fig.12 LTE Band2**

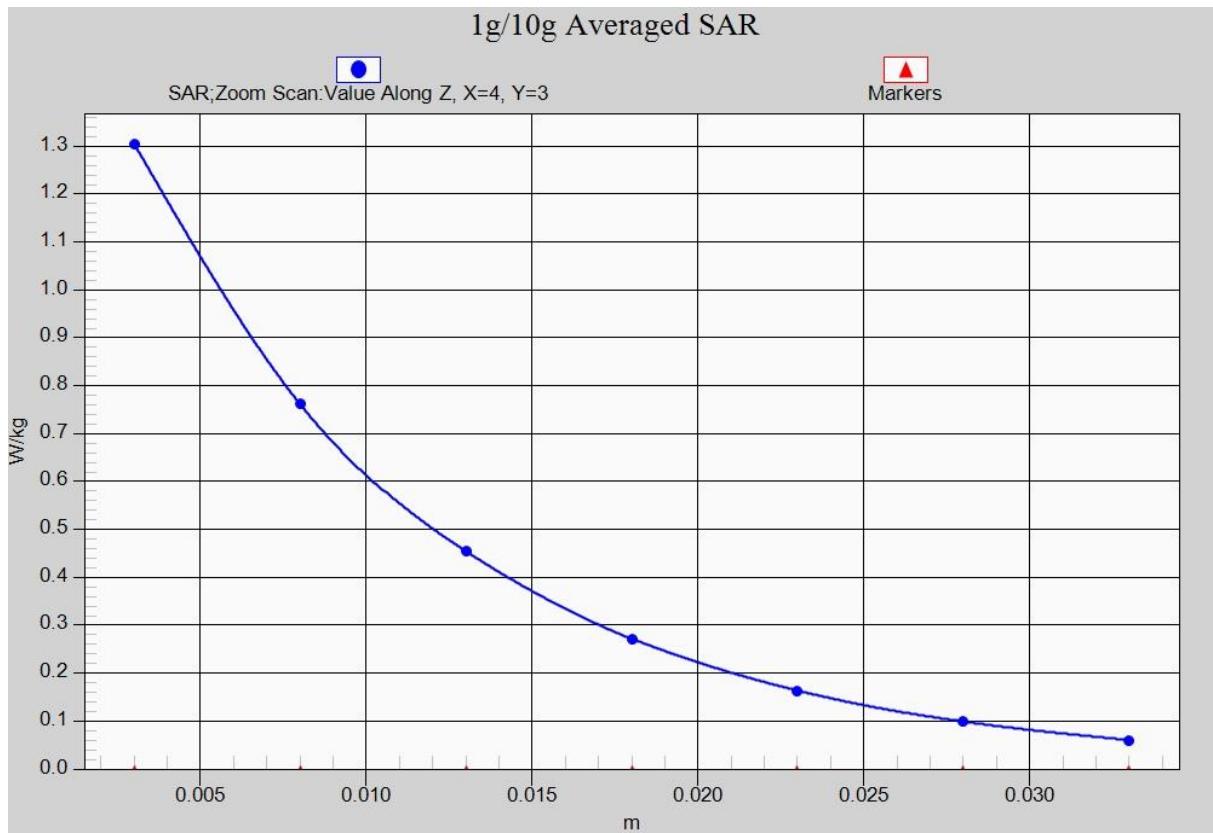


Fig. 12-1 Z-Scan at power reference point (LTE Band2)

LTE Band4 Right Cheek Middle with QPSK_20M_1RB_High

Date: 2018-5-29

Electronics: DAE4 Sn1525

Medium: Head 1750 MHz

Medium parameters used (interpolated): $f = 1732.5$ MHz; $\sigma = 1.39$ mho/m; $\epsilon_r = 42.261$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band4 Frequency: 1732.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(8.70, 8.70, 8.70)

Area Scan (71x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.267 W/kg

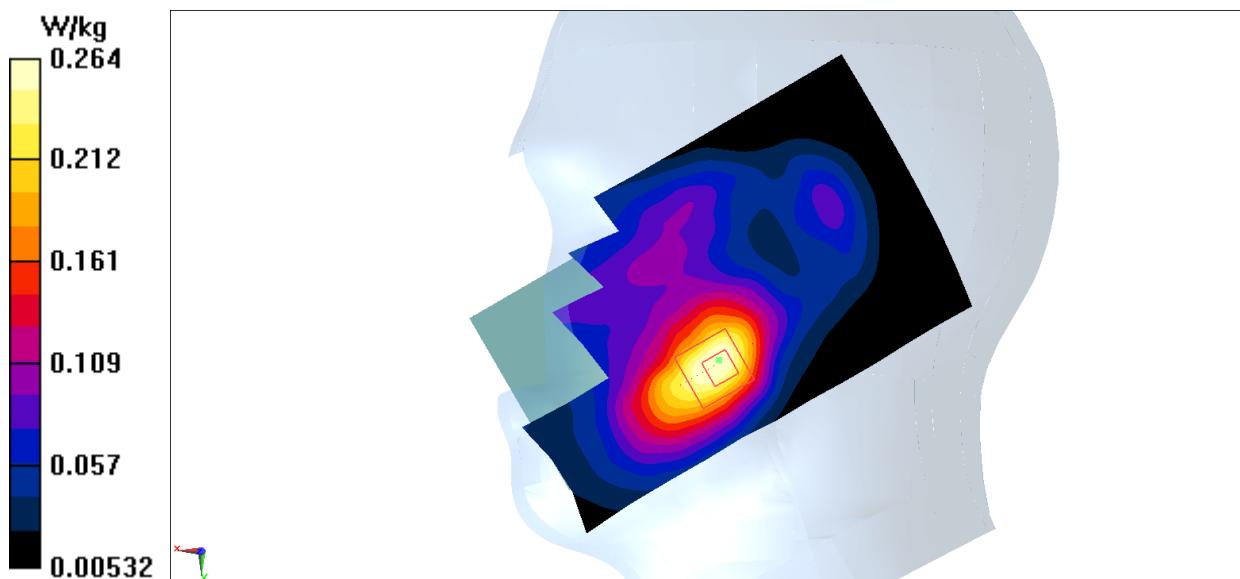
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.822 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.339 W/kg

SAR(1 g) = 0.230 W/kg; SAR(10 g) = 0.146 W/kg

Maximum value of SAR (measured) = 0.264 W/kg

**Fig.13 LTE Band4**

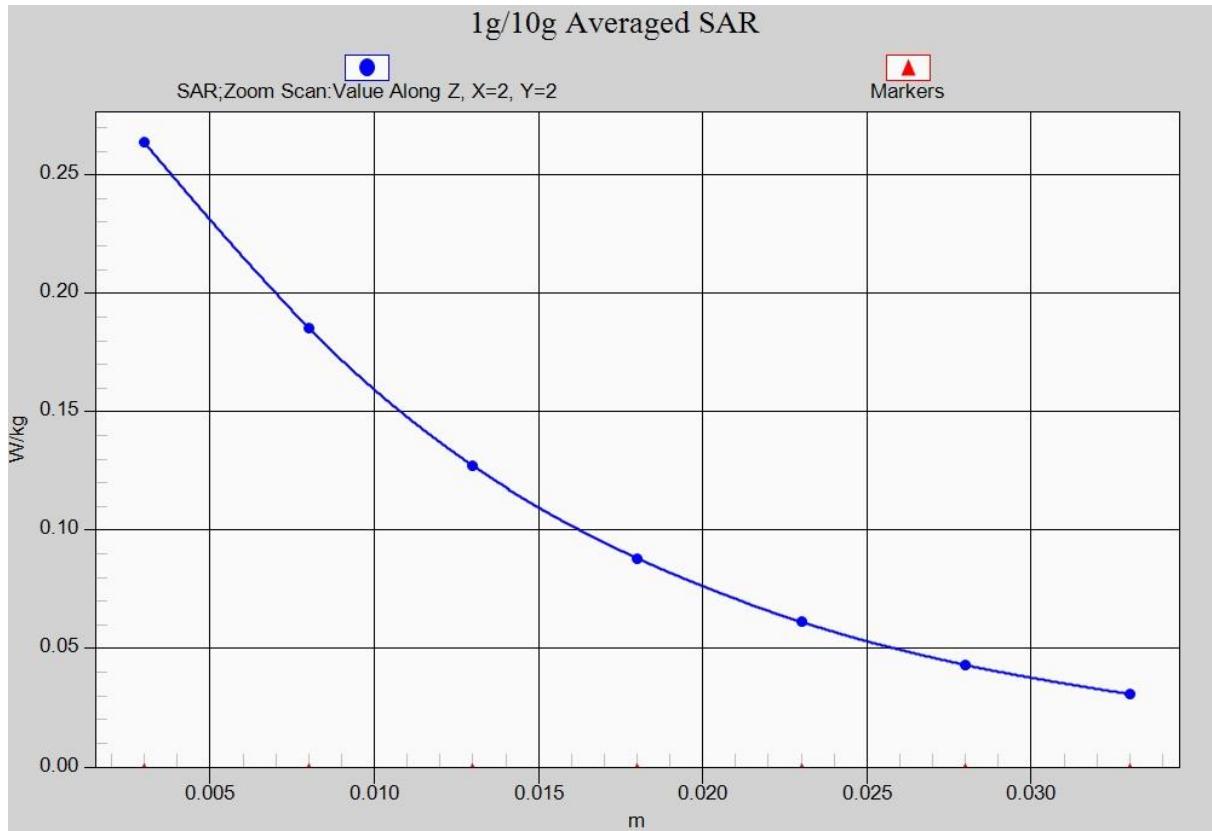


Fig. 13-1 Z-Scan at power reference point (LTE Band4)

LTE Band4 Body Rear Low with QPSK_20M_1RB_Low

Date: 2018-5-29

Electronics: DAE4 Sn1525

Medium: Body 1750 MHz

Medium parameters used: $f = 1720$ MHz; $\sigma = 1.513$ mho/m; $\epsilon_r = 53.504$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band4 Frequency: 1720 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(8.60, 8.60, 8.60)

Area Scan (131x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.12 W/kg

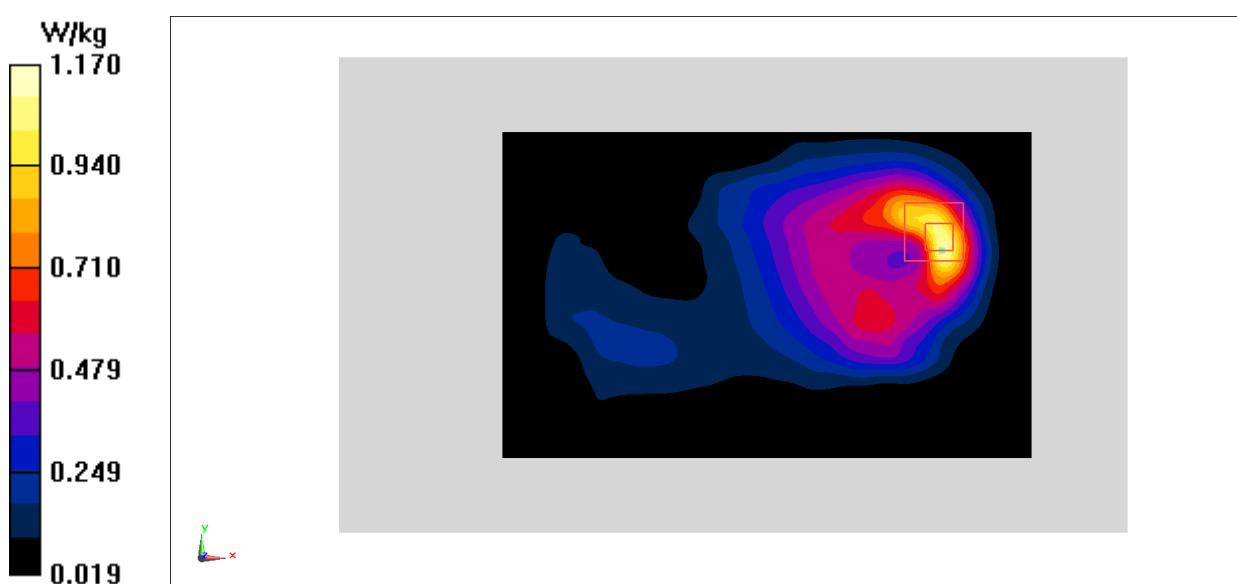
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.22 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.68 W/kg

SAR(1 g) = 0.952 W/kg; SAR(10 g) = 0.515 W/kg

Maximum value of SAR (measured) = 1.17 W/kg

**Fig.14 LTE Band4**

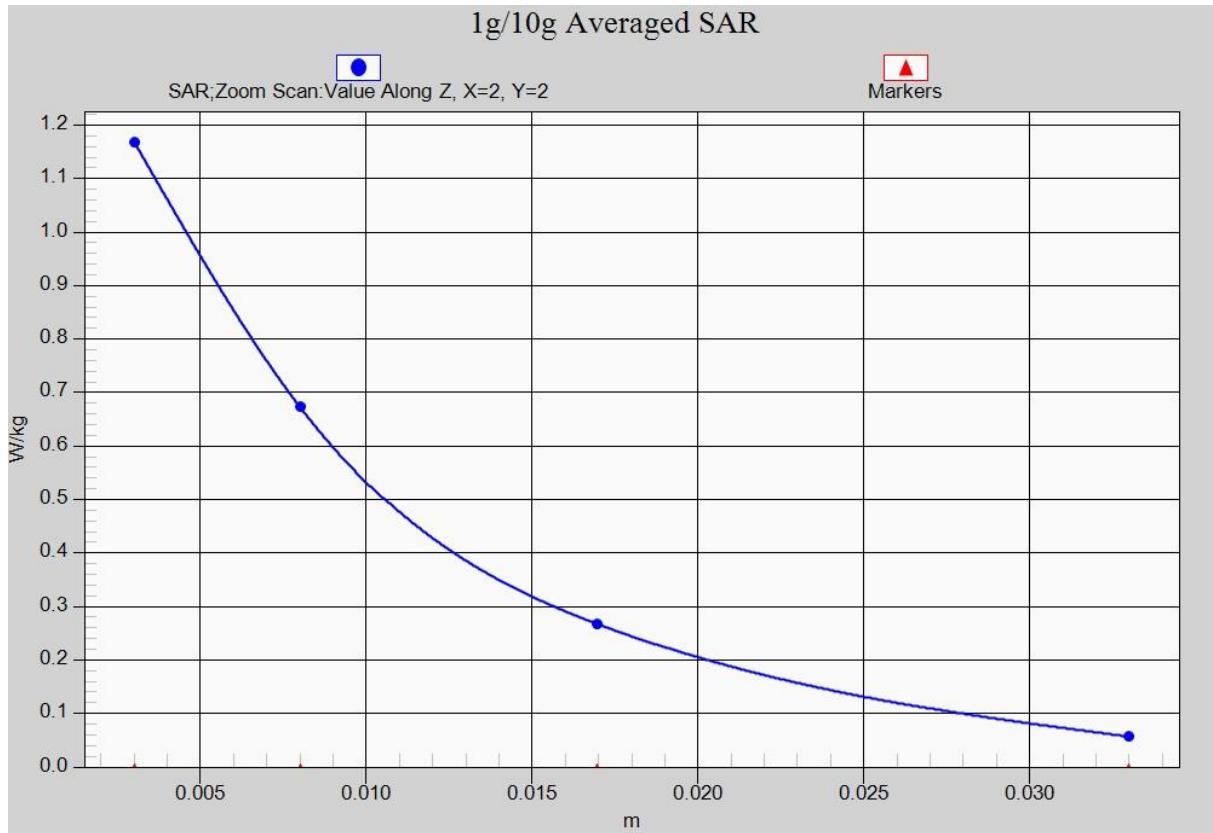


Fig. 14-1 Z-Scan at power reference point (LTE Band4)

LTE Band7 Left Cheek Middle with QPSK_20M_1RB_High

Date: 2018-5-30

Electronics: DAE4 Sn1525

Medium: Head 2600 MHz

Medium parameters used: $f = 2535$ MHz; $\sigma = 1.925$ mho/m; $\epsilon_r = 38.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band7 Frequency: 2535 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7464 ConvF(7.76, 7.76, 7.76)

Area Scan (91x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.494 W/kg

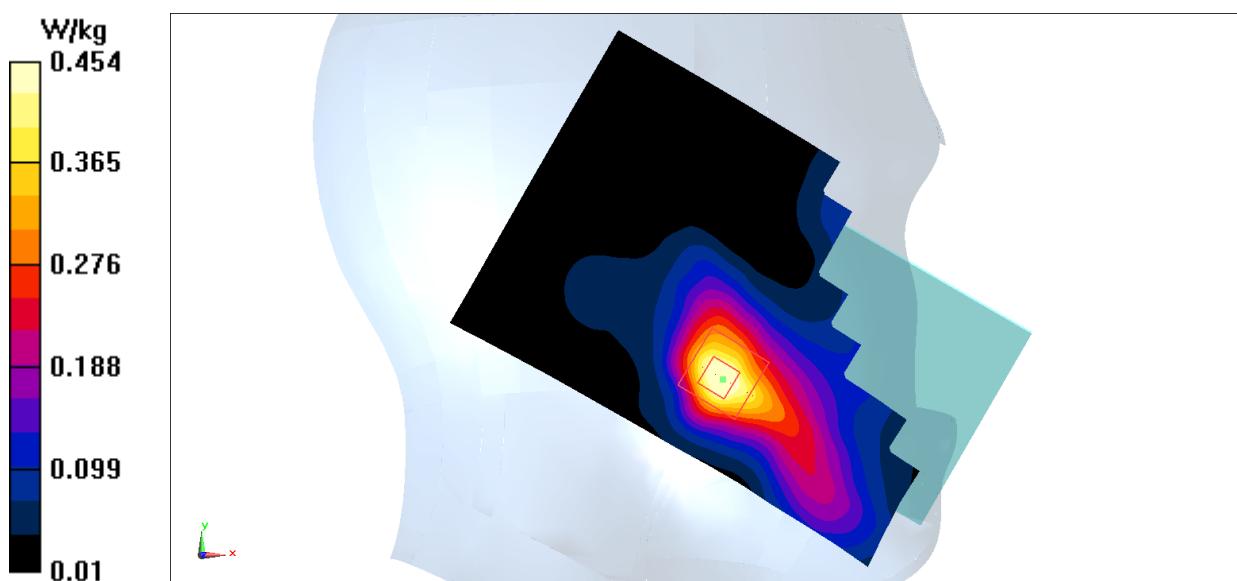
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.900 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.700 W/kg

SAR(1 g) = 0.362 W/kg; SAR(10 g) = 0.188 W/kg

Maximum value of SAR (measured) = 0.454 W/kg

**Fig.15 LTE Band7**

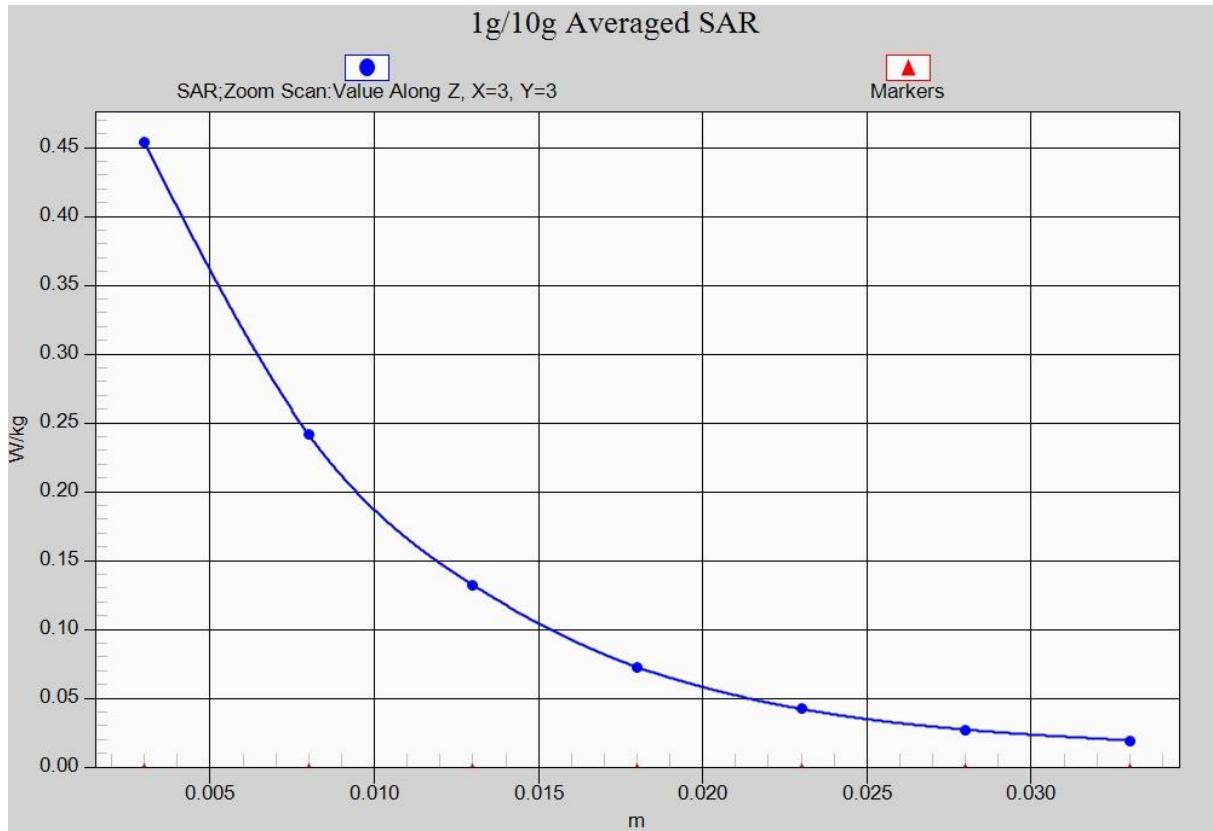


Fig. 15-1 Z-Scan at power reference point (LTE Band7)

LTE Band7 Body Rear Middle with QPSK_20M_1RB_High

Date: 2018-5-30

Electronics: DAE4 Sn1525

Medium: Body 2600 MHz

Medium parameters used: $f = 2535$ MHz; $\sigma = 2.212$ mho/m; $\epsilon_r = 51.54$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band7 Frequency: 2535 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7464 ConvF(7.84, 7.84, 7.84)

Area Scan (131x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.995 W/kg

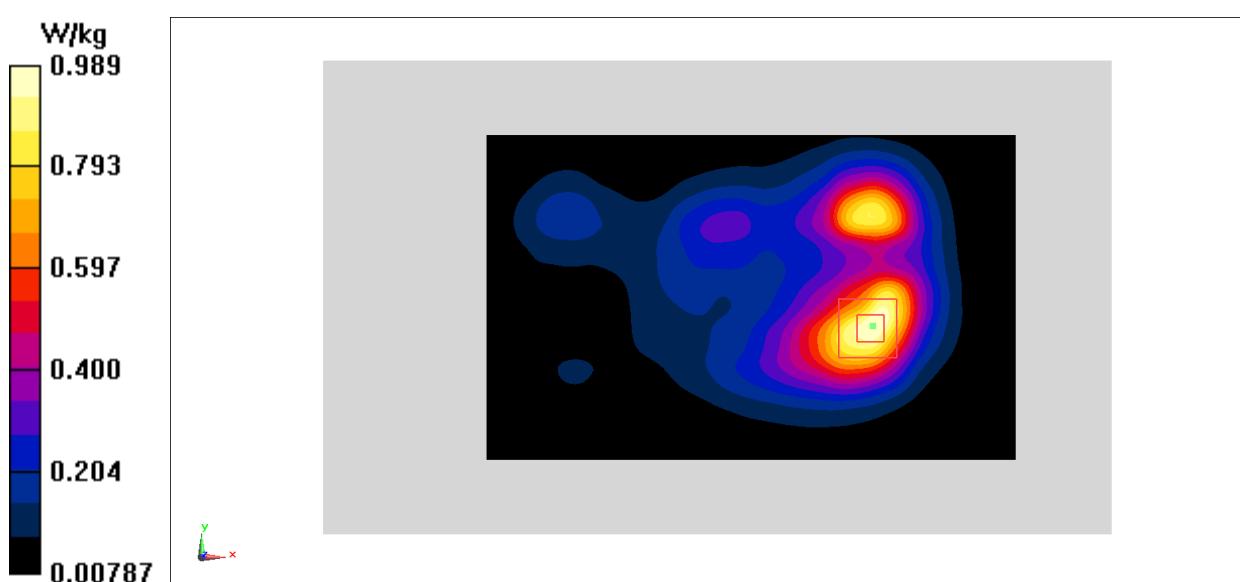
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.931 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.38 W/kg

SAR(1 g) = 0.808 W/kg; SAR(10 g) = 0.442 W/kg

Maximum value of SAR (measured) = 0.989 W/kg

**Fig.16 LTE Band7**

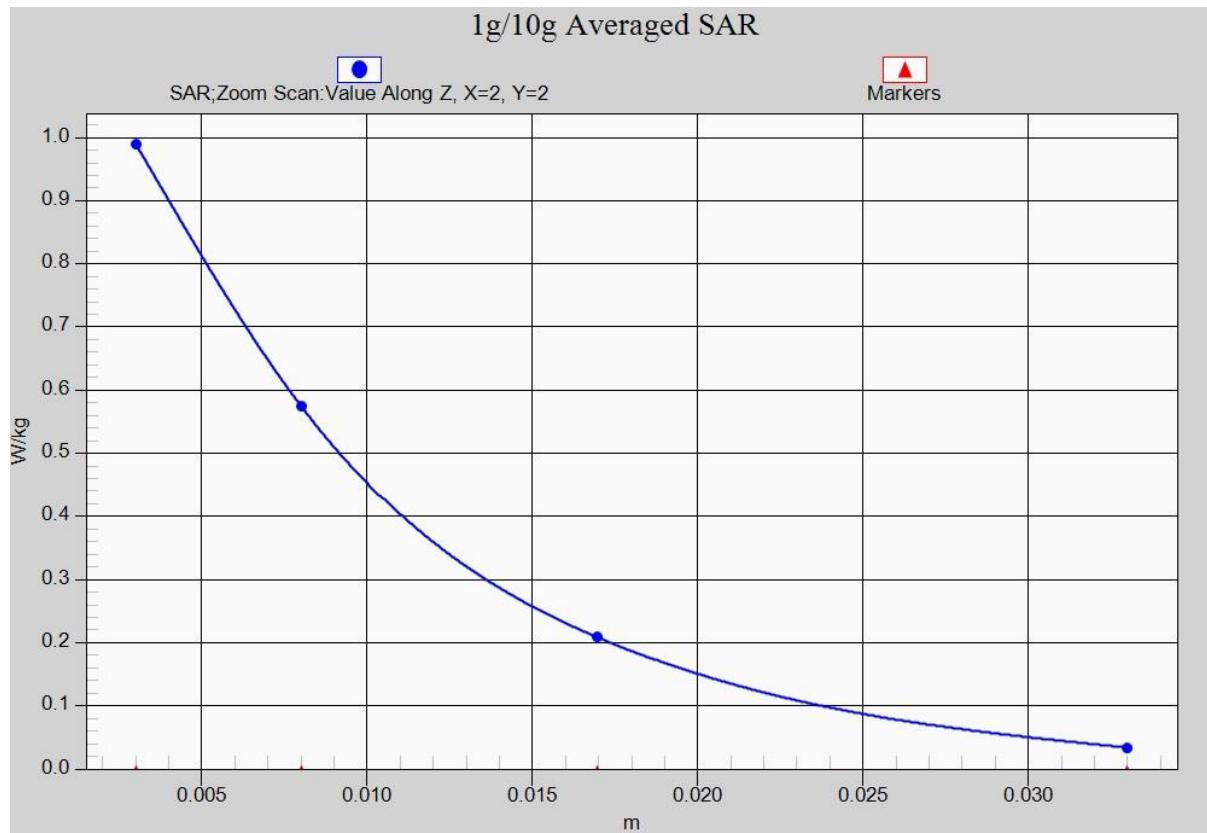


Fig. 16-1 Z-Scan at power reference point (LTE Band7)

LTE Band12 Right Cheek High with QPSK_10M_1RB_High

Date: 2018-5-29

Electronics: DAE4 Sn1525

Medium: Head 750 MHz

Medium parameters used (interpolated): $f = 711$ MHz; $\sigma = 0.859$ mho/m; $\epsilon_r = 42.63$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band12 Frequency: 711 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7464 ConvF(10.57, 10.57, 10.57)

Area Scan (91x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.173 W/kg

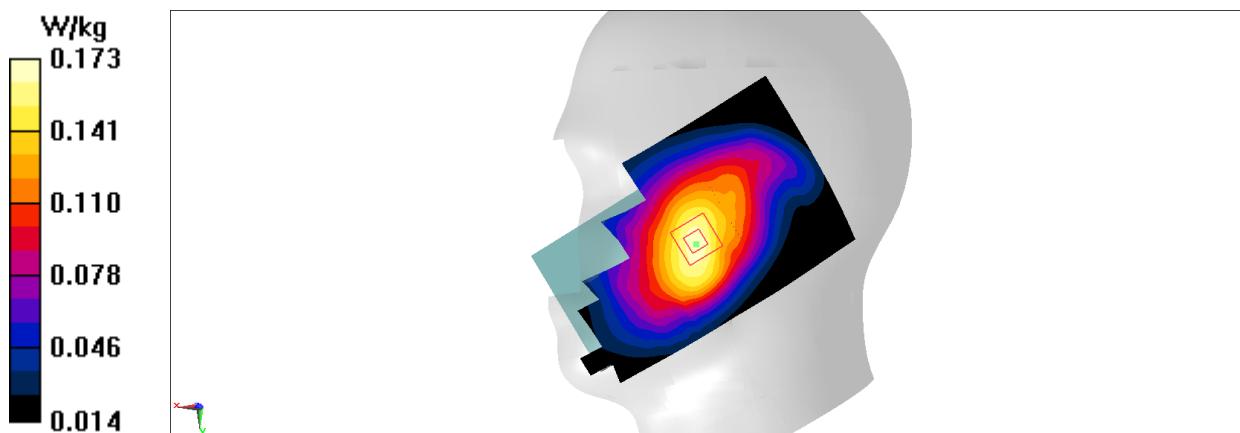
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.863 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.193 W/kg

SAR(1 g) = 0.159 W/kg; SAR(10 g) = 0.126 W/kg

Maximum value of SAR (measured) = 0.173 W/kg

**Fig.17 LTE Band12**

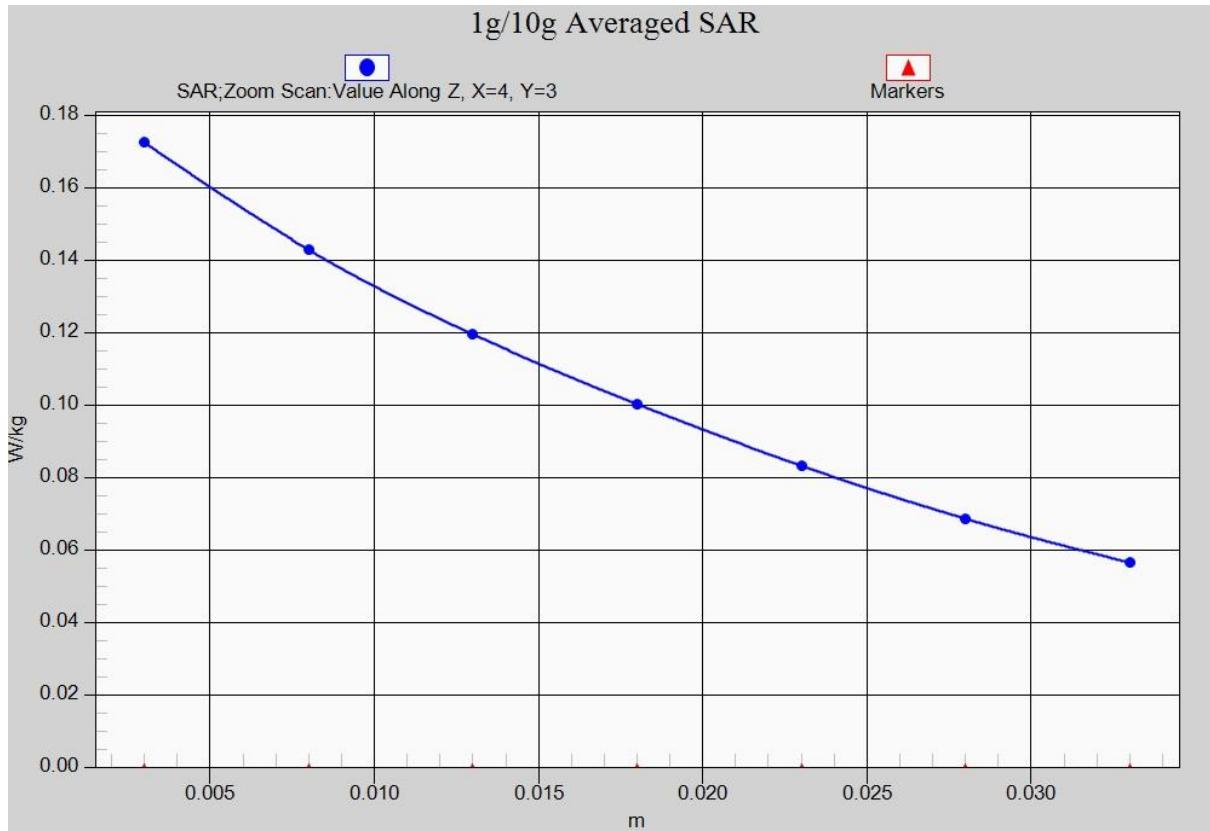


Fig. 17-1 Z-Scan at power reference point (LTE Band12)

LTE Band12 Body Rear High with QPSK_10M_1RB_High

Date: 2018-5-29

Electronics: DAE4 Sn1525

Medium: Body750 MHz

Medium parameters used (interpolated): $f = 711$ MHz; $\sigma = 0.944$ mho/m; $\epsilon_r = 56.56$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band12Frequency: 711 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7464 ConvF(10.63, 10.63, 10.63)

Area Scan (121x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.344 W/kg

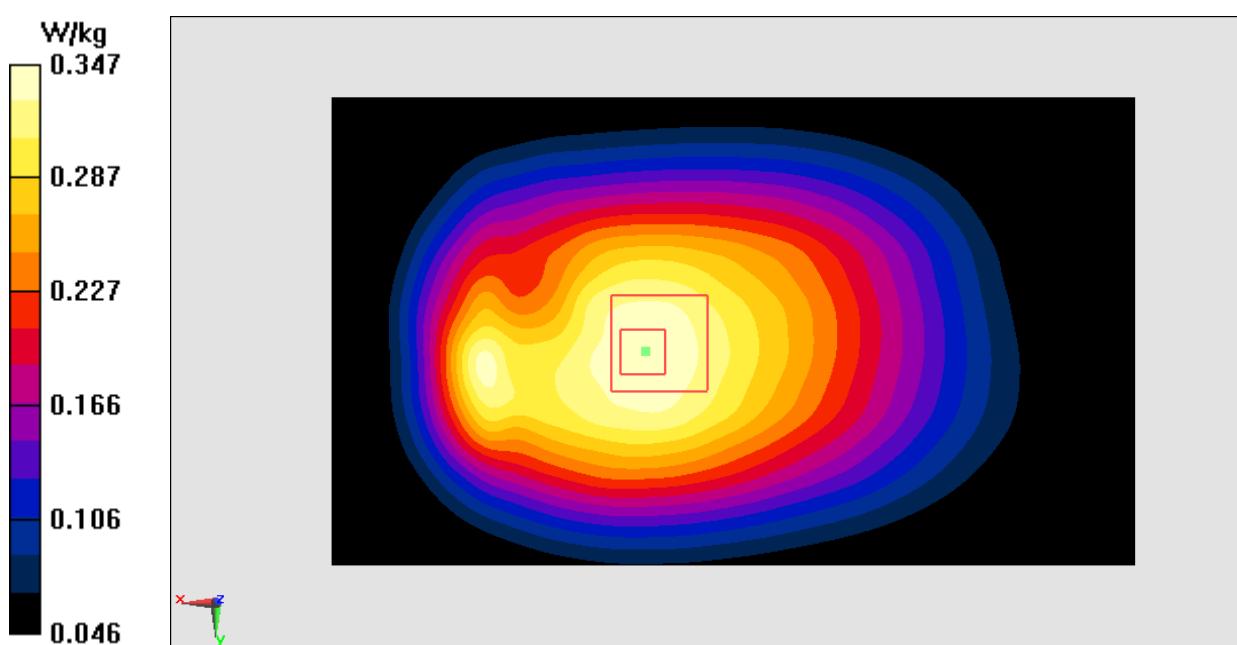
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.20 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.404 W/kg

SAR(1 g) = 0.317 W/kg; SAR(10 g) = 0.244 W/kg

Maximum value of SAR (measured) = 0.347 W/kg

**Fig.18 LTE Band12**

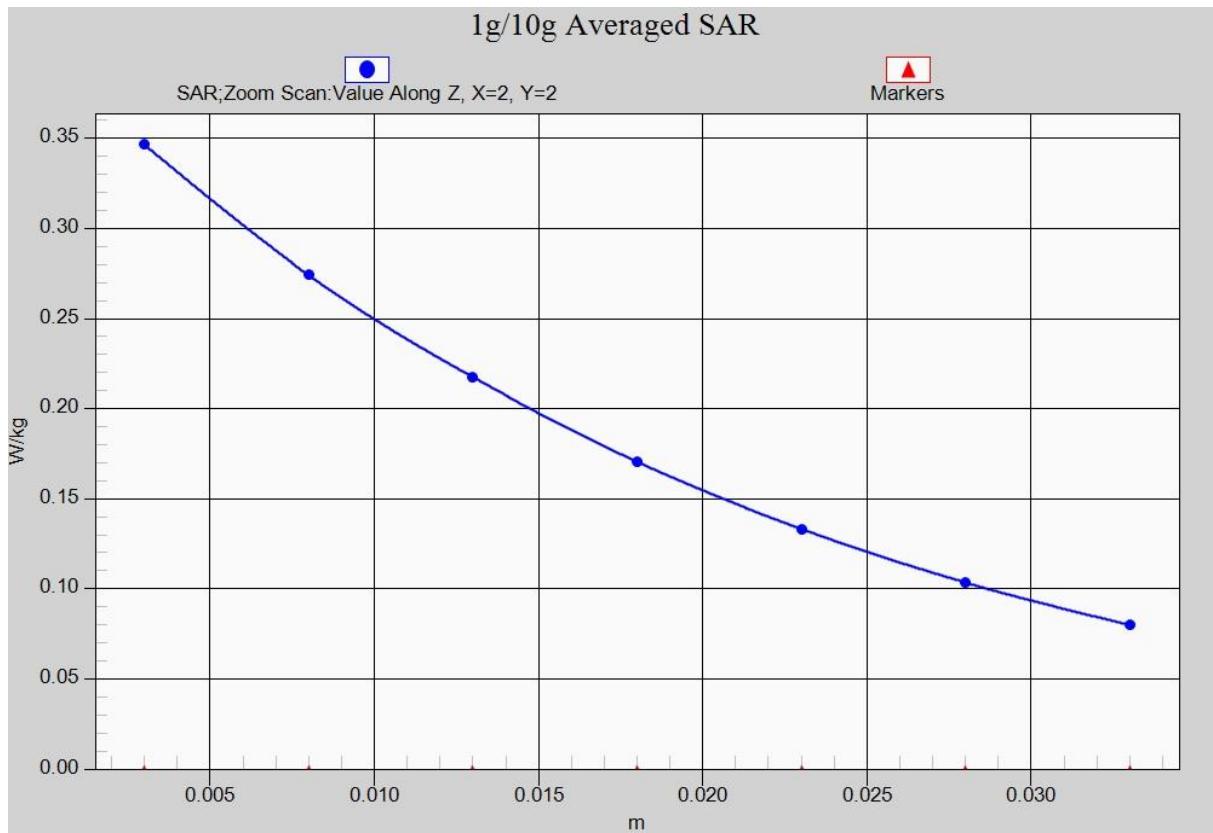


Fig. 18-1 Z-Scan at power reference point (LTE Band12)

LTE Band26 Right Cheek High with QPSK_15M_1RB_High

Date: 2018-5-27

Electronics: DAE4 Sn1525

Medium: Head 835 MHz

Medium parameters used (interpolated): $f = 841.5$ MHz; $\sigma = 0.907$ mho/m; $\epsilon_r = 41.97$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: LTE Band26 841.5 MHz Duty Cycle: 1: 1

Probe: EX3DV4 – SN7464 ConvF(10.28, 10.28, 10.28)

Area Scan (91x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.218 W/kg

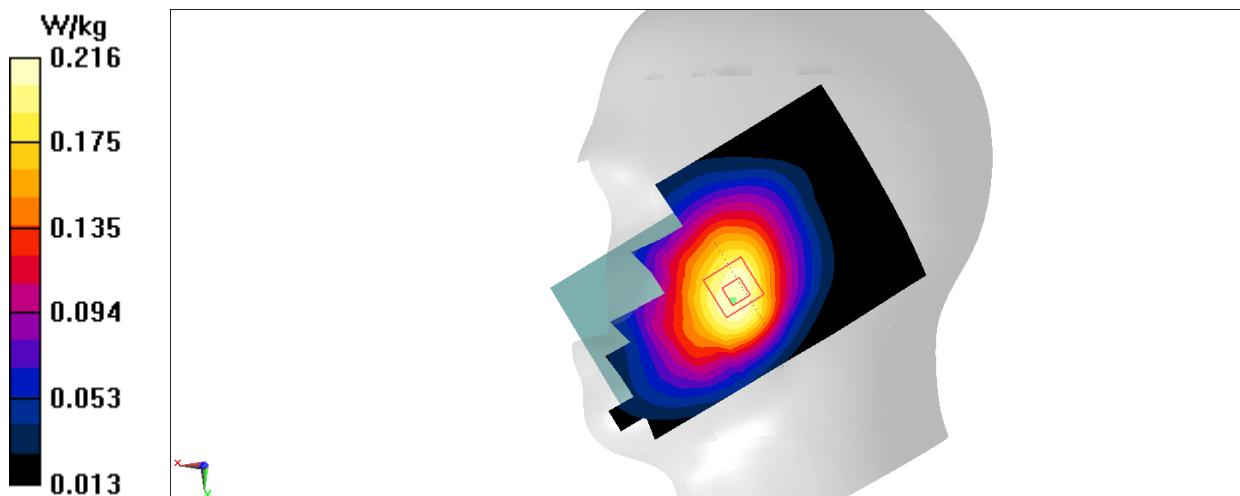
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.140 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.253 W/kg

SAR(1 g) = 0.200 W/kg; SAR(10 g) = 0.153 W/kg

Maximum value of SAR (measured) = 0.216 W/kg

**Fig.19 LTE Band26**

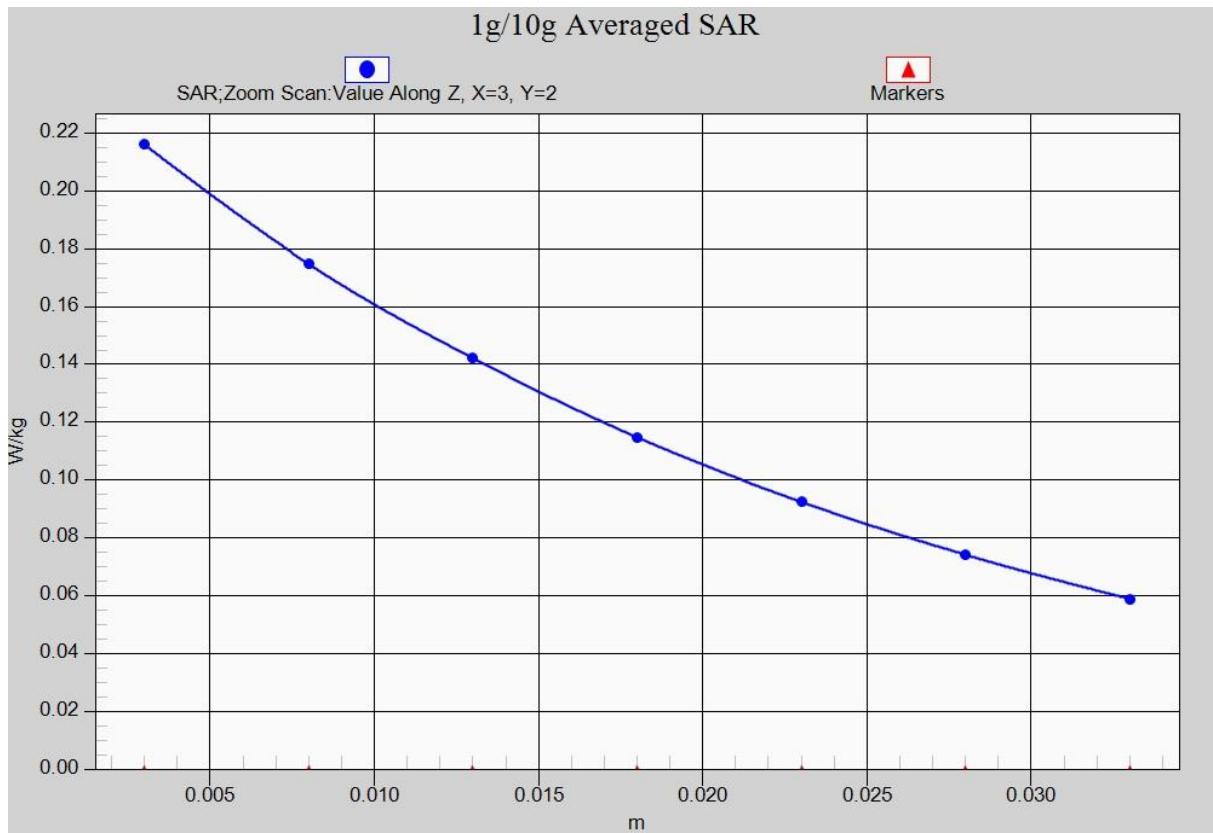


Fig. 19-1 Z-Scan at power reference point (LTE Band26)

LTE Band26 Body Rear High with QPSK_15M_1RB_High

Date: 2018-5-27

Electronics: DAE4 Sn1525

Medium: Body835 MHz

Medium parameters used (interpolated): $f = 841.5$ MHz; $\sigma = 1.001$ mho/m; $\epsilon_r = 55.84$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C, Liquid Temperature: 22.5°C

Communication System: LTE Band26 841.5 MHz Duty Cycle: 1: 1

Probe: EX3DV4 – SN7464 ConvF(10.21, 10.21, 10.21)

Area Scan (121x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.394 W/kg

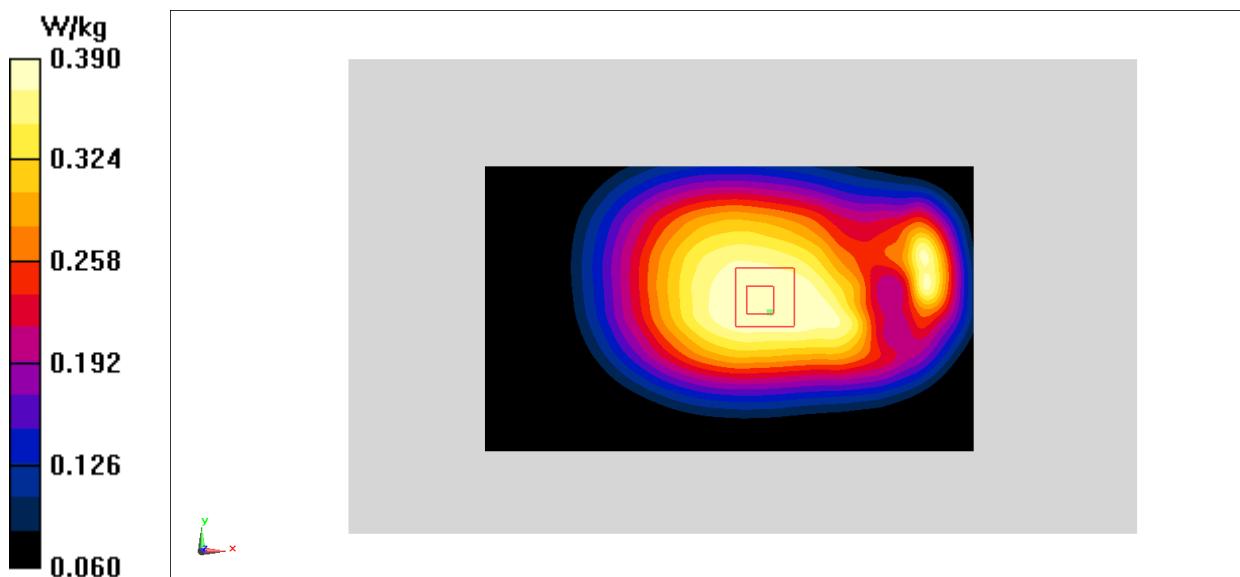
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.80 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.453 W/kg

SAR(1 g) = 0.358 W/kg; SAR(10 g) = 0.277 W/kg

Maximum value of SAR (measured) = 0.390 W/kg

**Fig.20 LTE Band26**

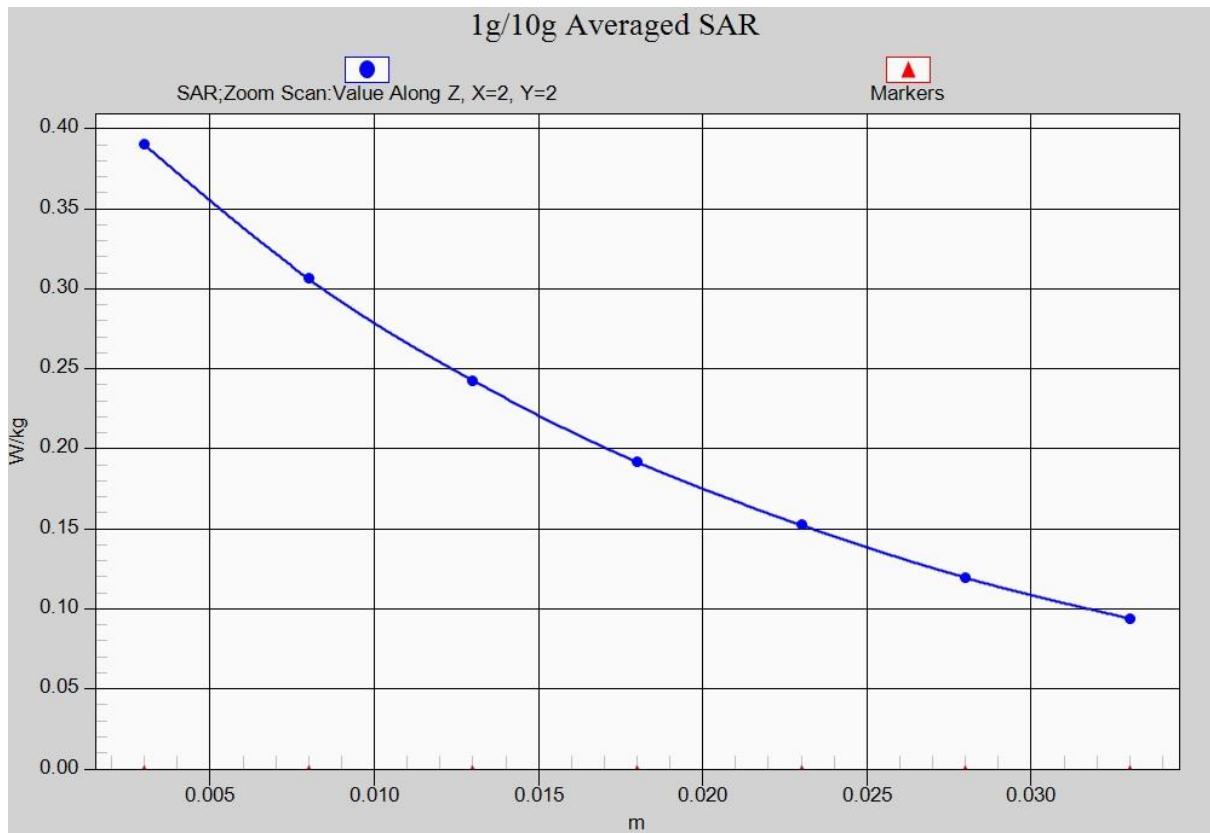


Fig. 20-1 Z-Scan at power reference point (LTE Band26)

LTE Band 41 Left Cheek with QPSK_20M_1RB_Low

Date: 2018-5-30

Electronics: DAE4 Sn1525

Medium: Head 2600 MHz

Medium parameters used: $f = 2680$ MHz; $\sigma = 2.008$ mho/m; $\epsilon_r = 38.98$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band41 Frequency: 2680 MHz Duty Cycle: 1:1.58

Probe: EX3DV4 - SN7464 ConvF(7.76, 7.76, 7.76)

Area Scan (91x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.208 W/kg

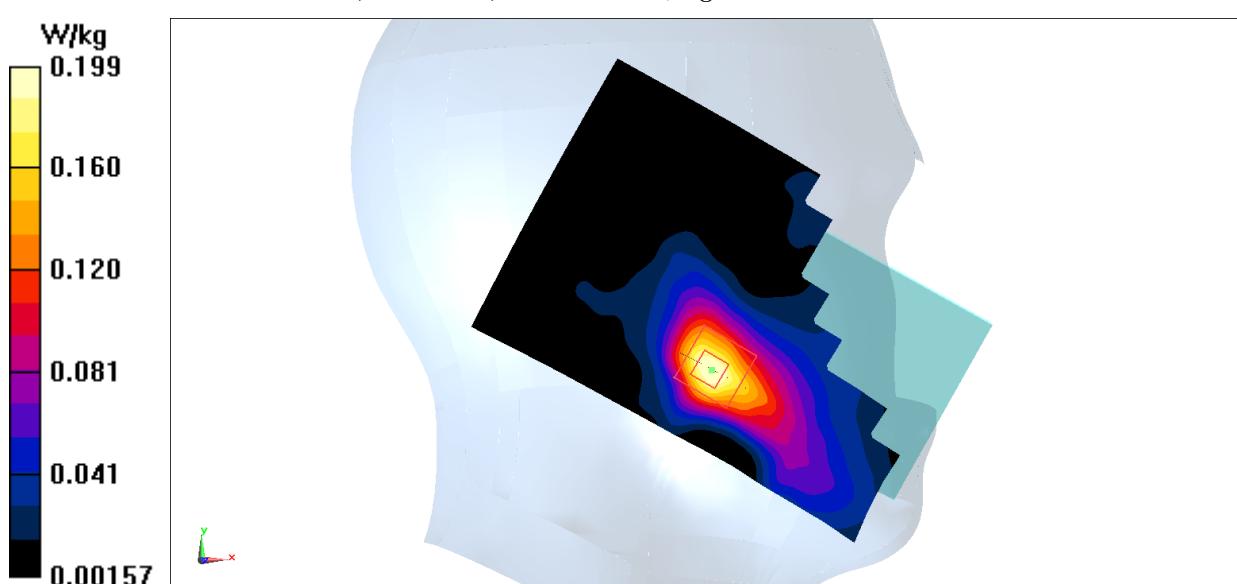
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.173 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.318 W/kg

SAR(1 g) = 0.155 W/kg; SAR(10 g) = 0.077 W/kg

Maximum value of SAR (measured) = 0.199 W/kg

**Fig.21 LTE Band 41**

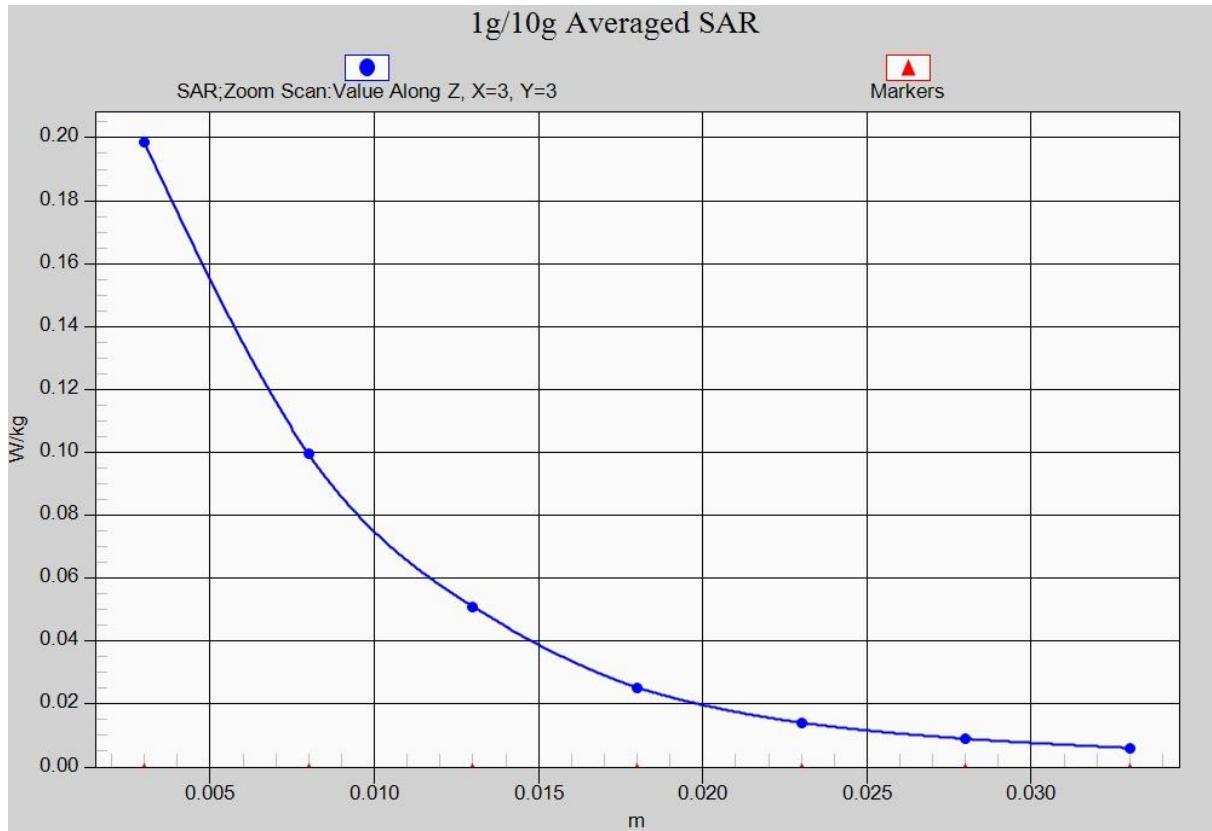


Fig. 21-1 Z-Scan at power reference point (LTE Band 41)

LTE Band 41 Body Bottom with QPSK_20M_1RB_Low

Date: 2018-5-30

Electronics: DAE4 Sn1525

Medium: Body 2600 MHz

Medium parameters use: $f = 2680 \text{ MHz}$; $\sigma = 2.306 \text{ mho/m}$; $\epsilon_r = 51.329$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: LTE Band41 Frequency: 2680 MHz Duty Cycle: 1:1.58

Probe: EX3DV4 - SN7464 ConvF(7.84, 7.84, 7.84)

Area Scan (91x31x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 0.438 W/kg

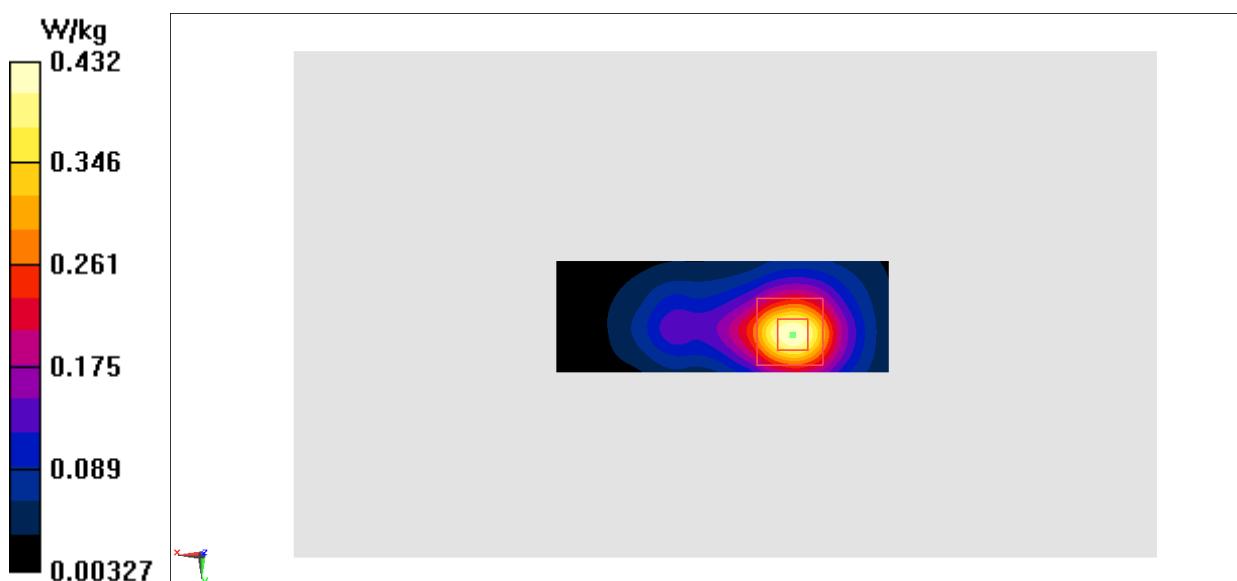
Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.208 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.639 W/kg

SAR(1 g) = 0.333 W/kg; SAR(10 g) = 0.163 W/kg

Maximum value of SAR (measured) = 0.432 W/kg

**Fig.22 LTE Band 41**

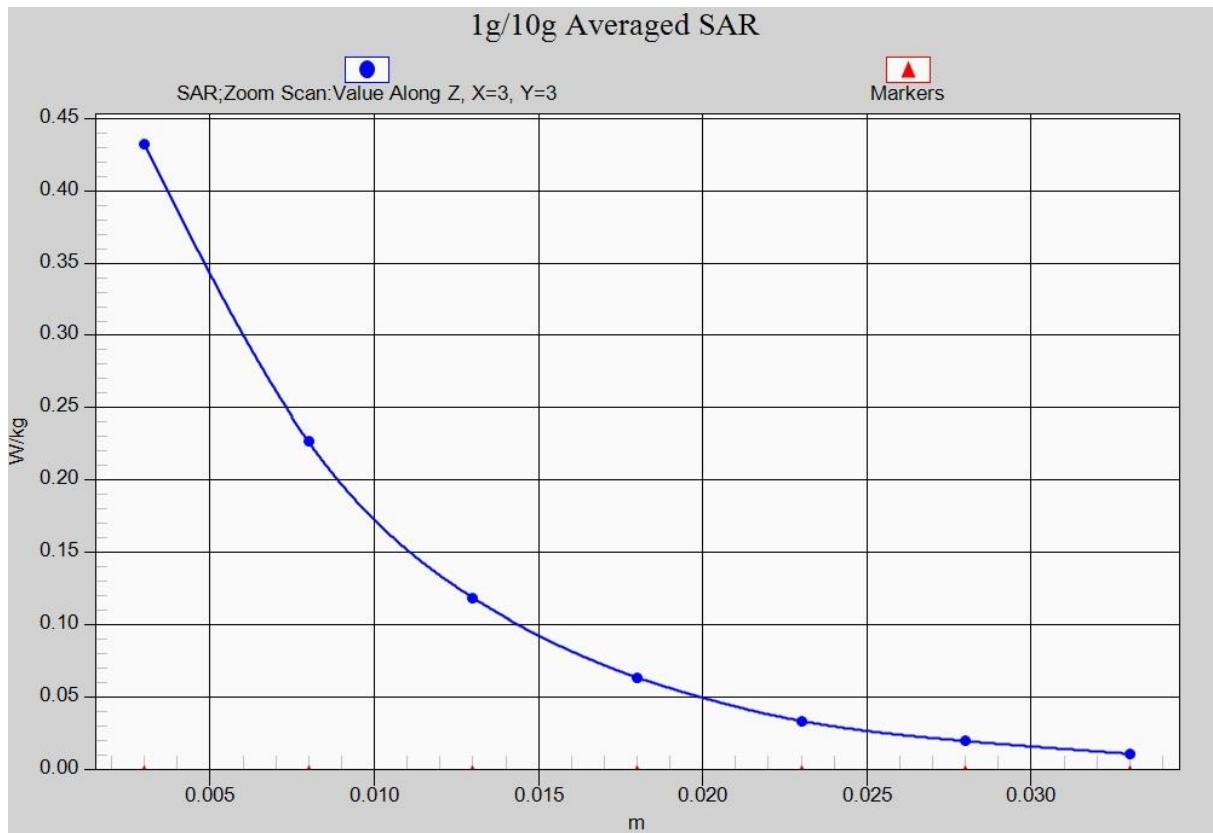


Fig. 22-1 Z-Scan at power reference point (LTE Band 41)

Wifi 802.11b Left Tilt Channel 1

Date: 2018-5-31

Electronics: DAE4 Sn1525

Medium: Head 2450 MHz

Medium parameters used (interpolated): $f = 2412$ MHz; $\sigma = 1.794$ mho/m; $\epsilon_r = 38.85$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WLan 2450 Frequency: 2412 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7464 ConvF(7.89, 7.89, 7.89)

Area Scan (91x151x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.08 W/kg

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

Reference Value = 15.88 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.81 W/kg

SAR(1 g) = 0.812 W/kg; SAR(10 g) = 0.341 W/kg

Maximum value of SAR (measured) = 1.13 W/kg

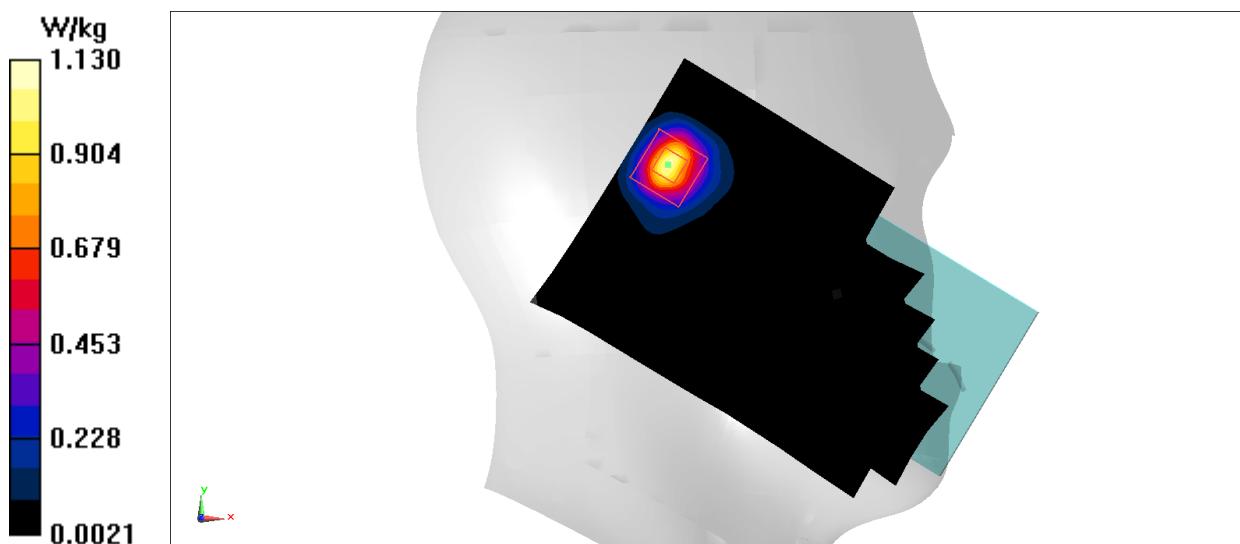


Fig.23 2450 MHz

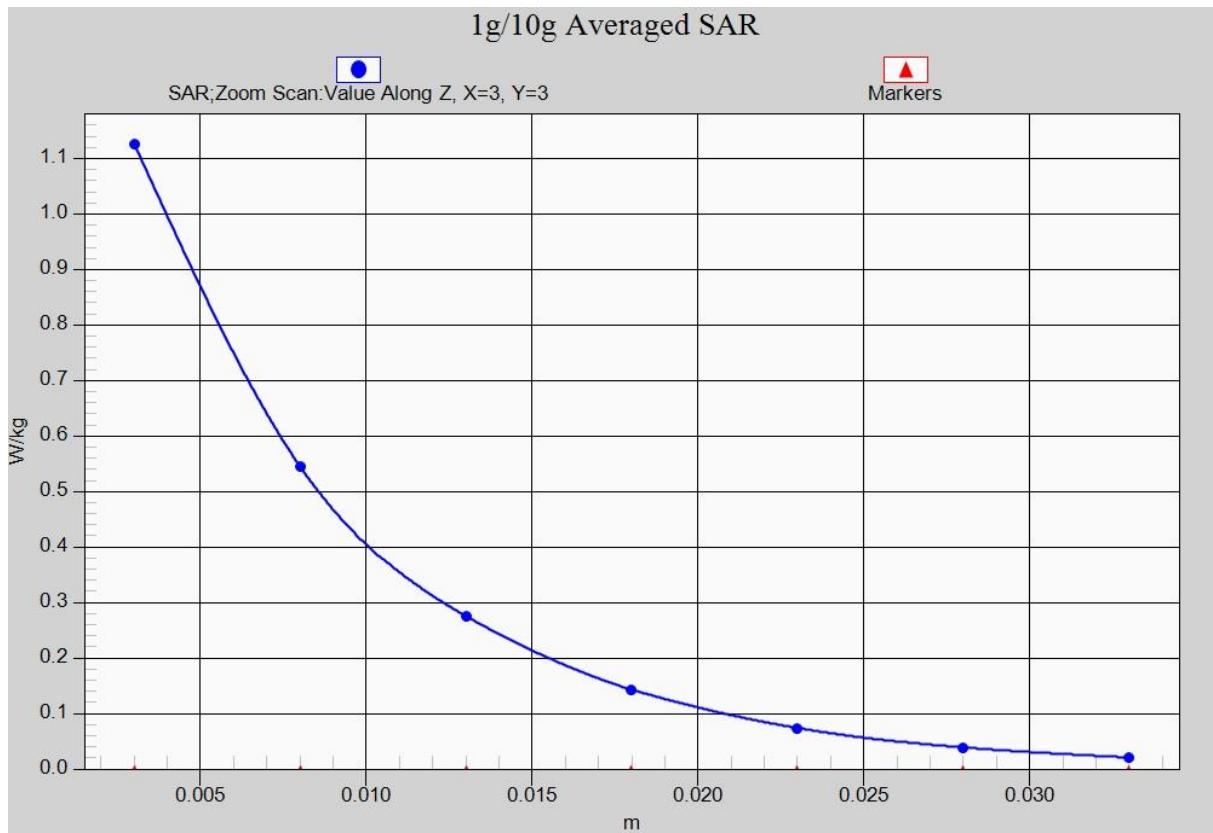


Fig. 23-1 Z-Scan at power reference point (2450 MHz)

Wifi 802.11b Body Top Edge Channel 1

Date: 2018-5-31

Electronics: DAE4 Sn1525

Medium: Body 2450 MHz

Medium parameters used (interpolated): $f = 2412$ MHz; $\sigma = 1.918$ mho/m; $\epsilon_r = 52.29$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WLan 2450 Frequency: 2412 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(8.09, 8.09, 8.09)

Area Scan (151x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.681 W/kg

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

Reference Value = 9.607 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.921 W/kg

SAR(1 g) = 0.487 W/kg; SAR(10 g) = 0.230 W/kg

Maximum value of SAR (measured) = 0.636 W/kg

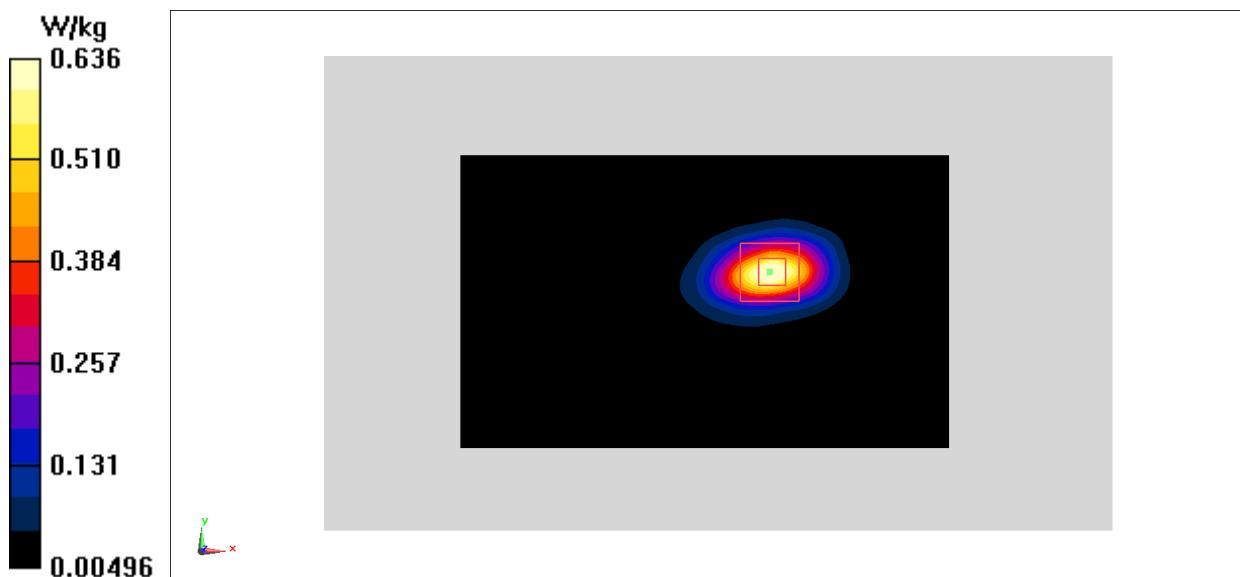


Fig.24 2450 MHz

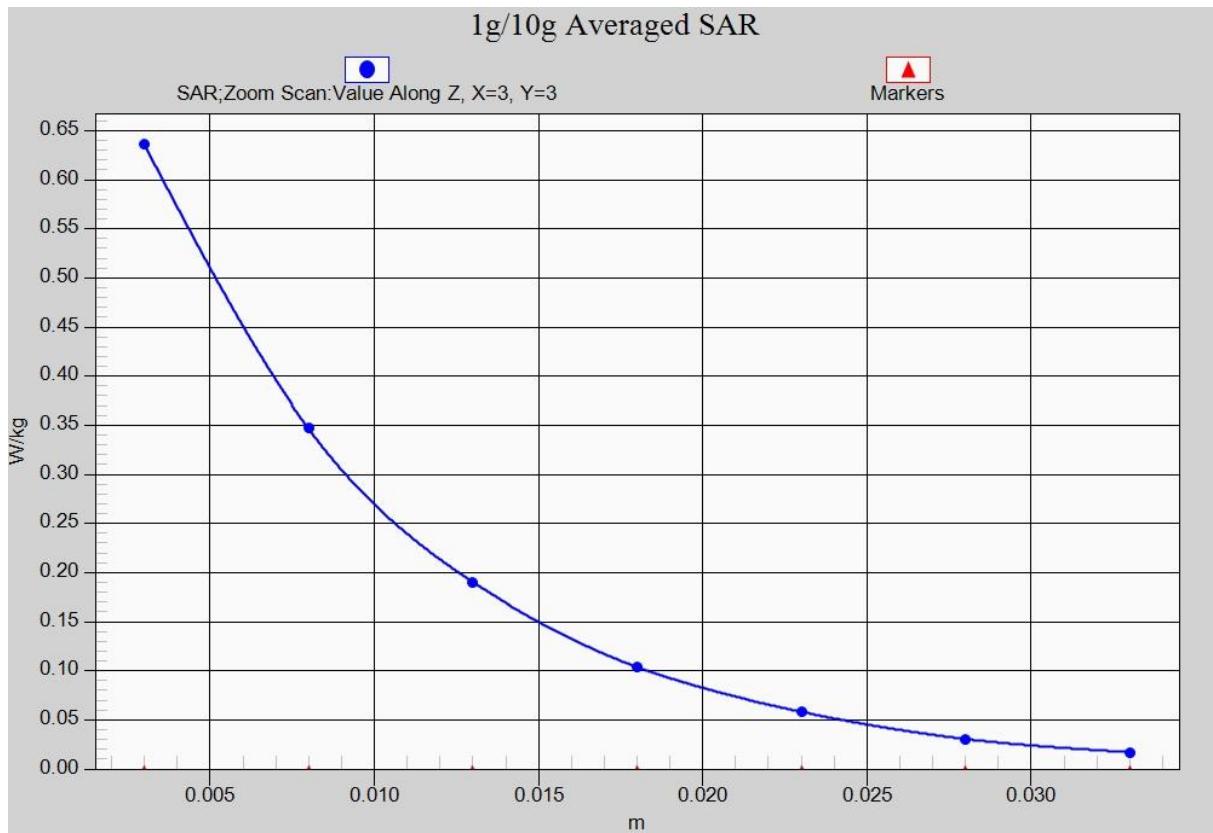


Fig. 24-1 Z-Scan at power reference point (2450 MHz)

Wifi 802.11a Right Cheek Channel 56

Date: 2018-5-31

Electronics: DAE4 Sn1525

Medium: Head 5 GHz

Medium parameters used: $f = 5280$ MHz; $\sigma = 4.729$ mho/m; $\epsilon_r = 36.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WLAN 5G Frequency: 5280 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(5.53, 5.53, 5.53)

Area Scan (101x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.746 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 7.523 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 2.25 W/kg

SAR(1 g) = 0.479 W/kg; SAR(10 g) = 0.153 W/kg

Maximum value of SAR (measured) = 1.27 W/kg

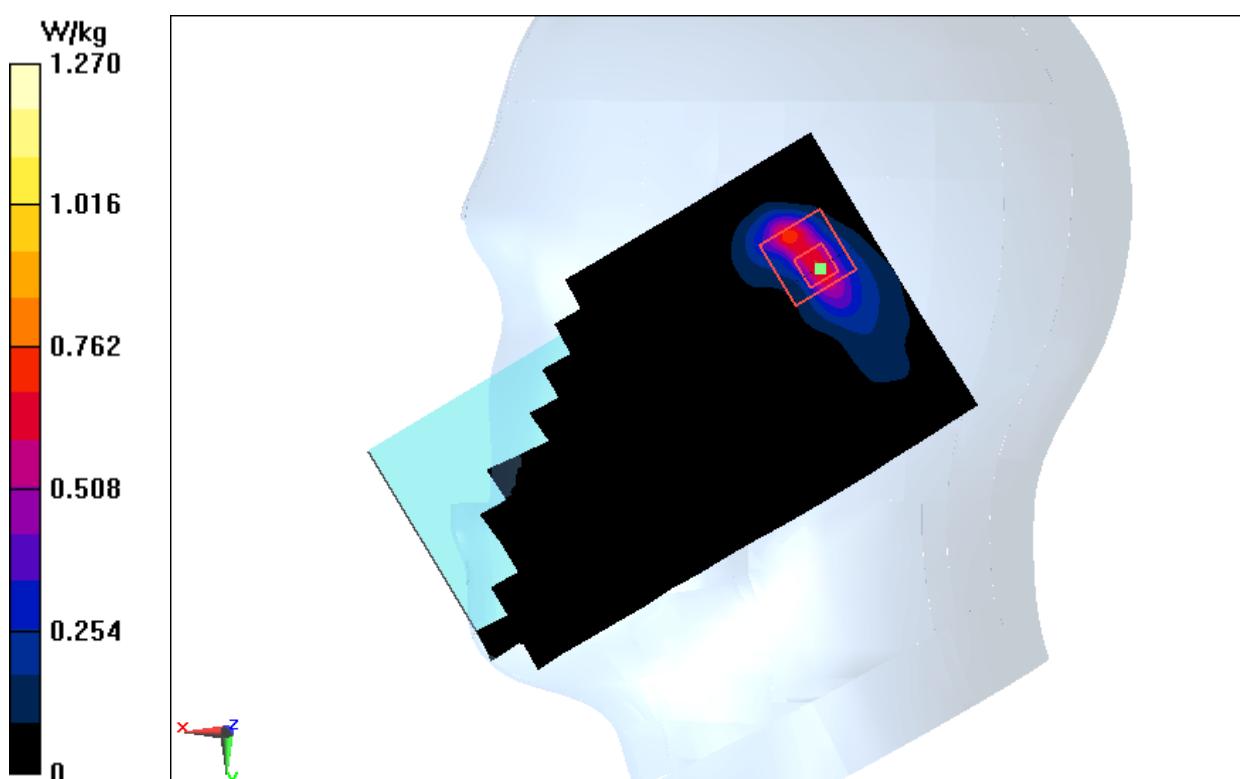


Fig.25 5GHz

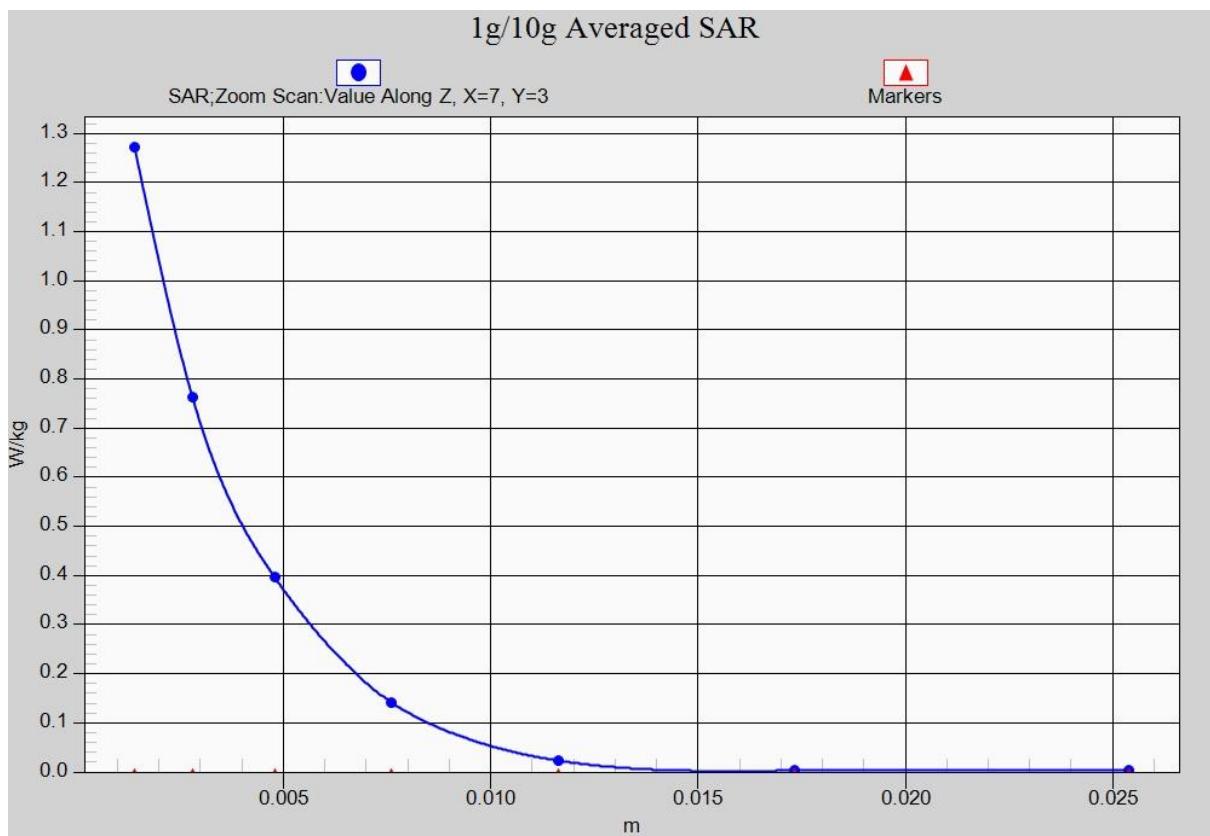


Fig. 25-1 Z-Scan at power reference point (5GHz)

Wifi 802.11a Top Edge Channel 132

Date: 2018-5-31

Electronics: DAE4 Sn1525

Medium: Body 5 GHz

Medium parameters used: $f = 5660$ MHz; $\sigma = 5.779$ mho/m; $\epsilon_r = 46.89$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: WLAN 5G Frequency: 5660 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(4.50, 4.50, 4.50)

Area Scan (121x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 0.742 W/kg

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 5.445 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.82 W/kg

SAR(1 g) = 0.467 W/kg; SAR(10 g) = 0.169 W/kg

Maximum value of SAR (measured) = 1.07 W/kg

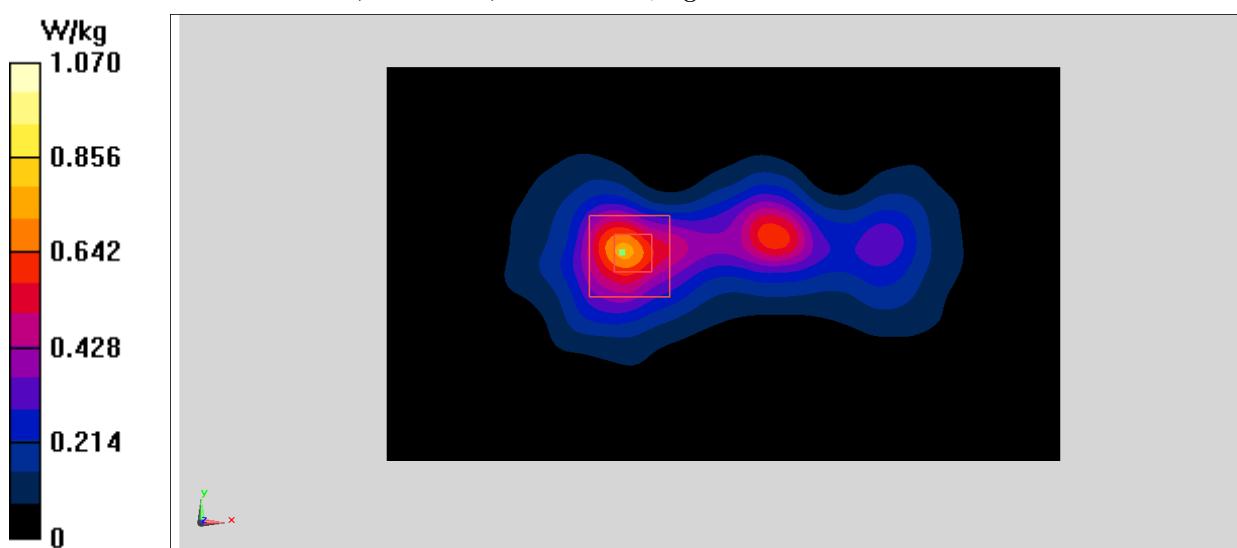


Fig.26 5GHz

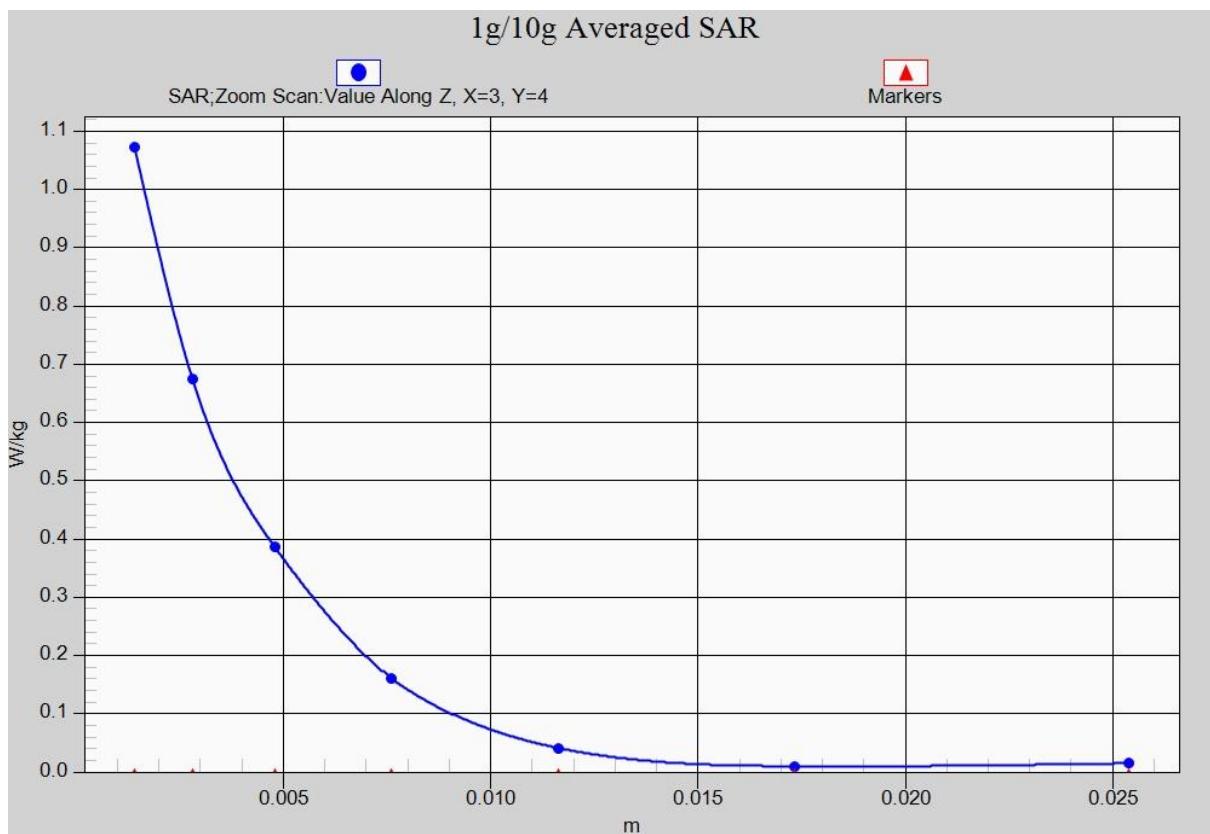


Fig. 26-1 Z-Scan at power reference point (5GHz)

ANNEX B System Verification Results

750MHz

Date: 2018-5-29

Electronics: DAE4 Sn1525

Medium: Head 750 MHz

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.874 \text{ mho/m}$; $\epsilon_r = 42.51$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 750 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(10.57, 10.57, 10.57)

System Validation /Area Scan (81x191x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 50.02 V/m; Power Drift = 0.04 dB

Fast SAR: $\text{SAR}(1 \text{ g}) = 2.15 \text{ W/kg}$; $\text{SAR}(10 \text{ g}) = 1.41 \text{ W/kg}$

Maximum value of SAR (interpolated) = 2.28 W/kg

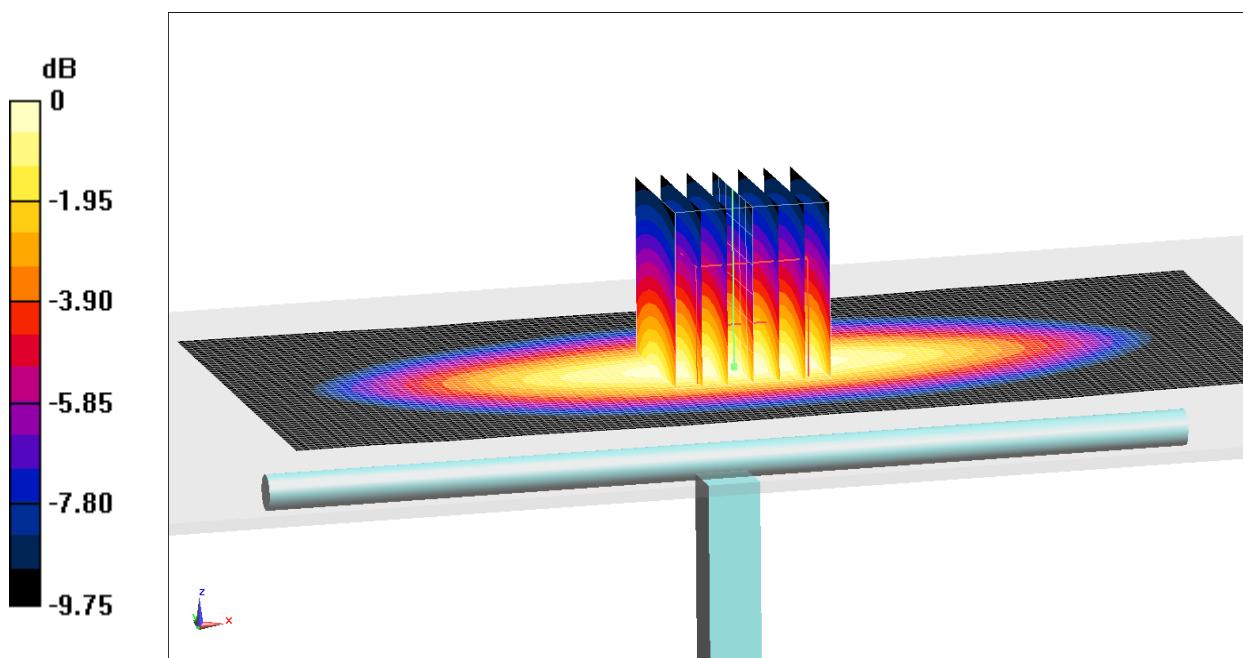
System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 50.02 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 2.92 W/kg

SAR(1 g) = 2.12 W/kg; SAR(10 g) = 1.39 W/kg

Maximum value of SAR (measured) = 2.25 W/kg



$0 \text{ dB} = 2.25 \text{ W/kg} = 3.52 \text{ dB W/kg}$

Fig.B.1 validation 750MHz 250mW

750MHz

Date: 2018-5-29

Electronics: DAE4 Sn1525

Medium: Body750 MHz

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.955 \text{ mho/m}$; $\epsilon_r = 56.53$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 750 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(10.63, 10.63, 10.63)

System Validation/Area Scan (81x191x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 51.01 V/m; Power Drift = -0.03 dB

Fast SAR: $\text{SAR}(1 \text{ g}) = 2.23 \text{ W/kg}$; $\text{SAR}(10 \text{ g}) = 1.45 \text{ W/kg}$

Maximum value of SAR (interpolated) = 2.47 W/kg

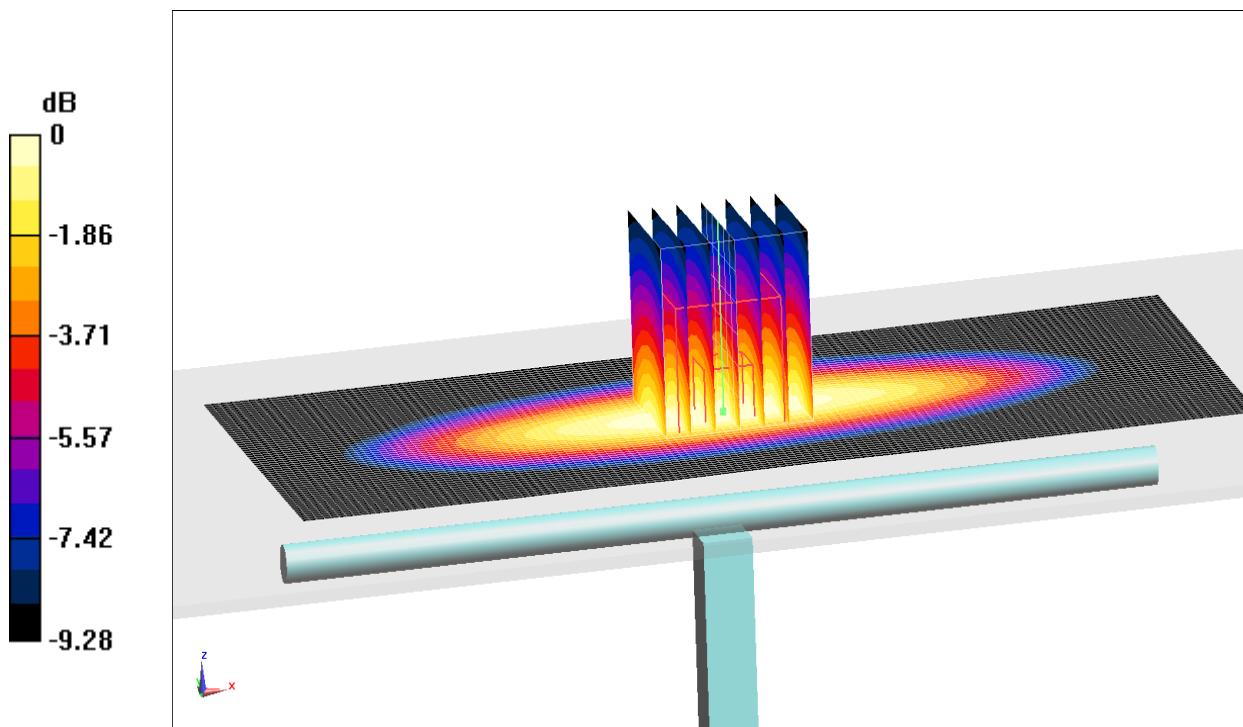
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 51.01 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 3.01 W/kg

SAR(1 g) = 2.25 W/kg; SAR(10 g) = 1.47 W/kg

Maximum value of SAR (measured) = 2.49 W/kg



0 dB = 2.49 W/kg = 3.96 dB W/kg

Fig.B.2 validation 750MHz 250mW

835MHz

Date: 2018-5-27

Electronics: DAE4 Sn1525

Medium: Head 850 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.897 \text{ S/m}$; $\epsilon_r = 41.97$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

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

Probe: EX3DV4 – SN7464 ConvF(10.28, 10.28, 10.28)

System Validation/Area Scan (61x121x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 54.21 V/m; Power Drift = 0.05 dB

Fast SAR: $\text{SAR}(1 \text{ g}) = 2.34 \text{ W/kg}$; $\text{SAR}(10 \text{ g}) = 1.51 \text{ W/kg}$

Maximum value of SAR (interpolated) = 2.54 W/kg

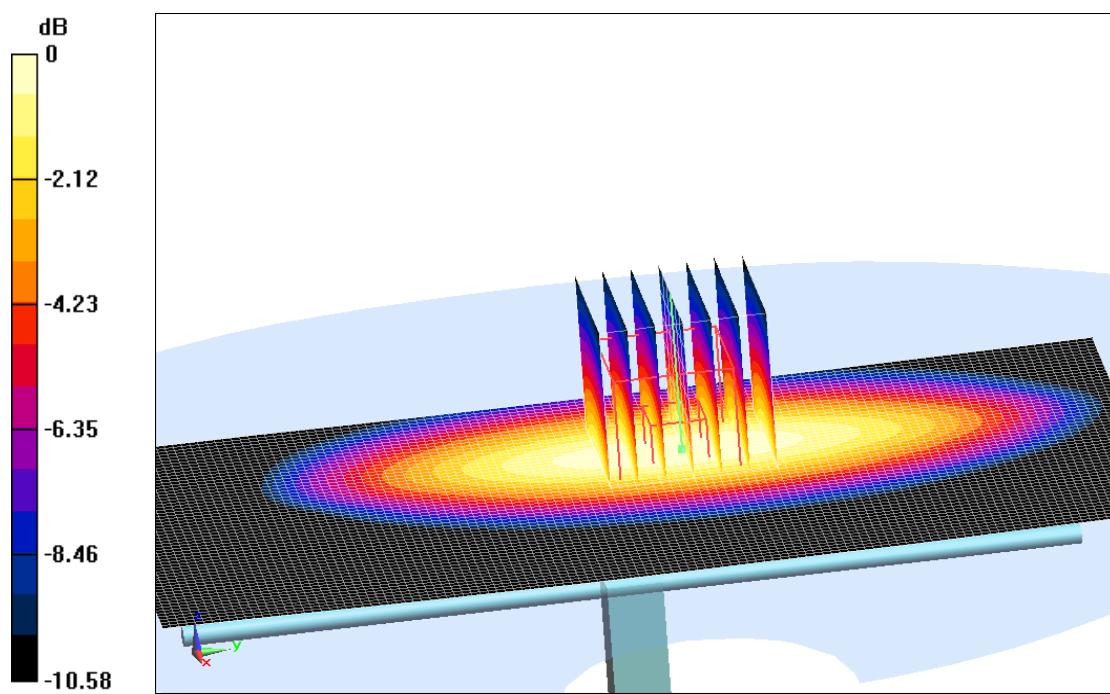
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 54.21 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 3.08 W/kg

SAR(1 g) = 2.31 W/kg; SAR(10 g) = 1.49 W/kg

Maximum value of SAR (measured) = 2.51 W/kg



$$0 \text{ dB} = 2.51 \text{ W/kg} = 4.00 \text{ dBW/kg}$$

Fig.B.3 validation 835MHz 250mW

835MHz

Date: 2018-5-27

Electronics: DAE4 Sn1525

Medium: Body 850 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.988 \text{ S/m}$; $\epsilon_r = 55.8$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

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

Probe: EX3DV4 – SN7464 ConvF(10.21, 10.21, 10.21)

System Validation /Area Scan (61x121x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 52.53 V/m; Power Drift = 0.02 dB

Fast SAR: $\text{SAR}(1 \text{ g}) = 2.35 \text{ W/kg}$; $\text{SAR}(10 \text{ g}) = 1.52 \text{ W/kg}$

Maximum value of SAR (interpolated) = 2.68 W/kg

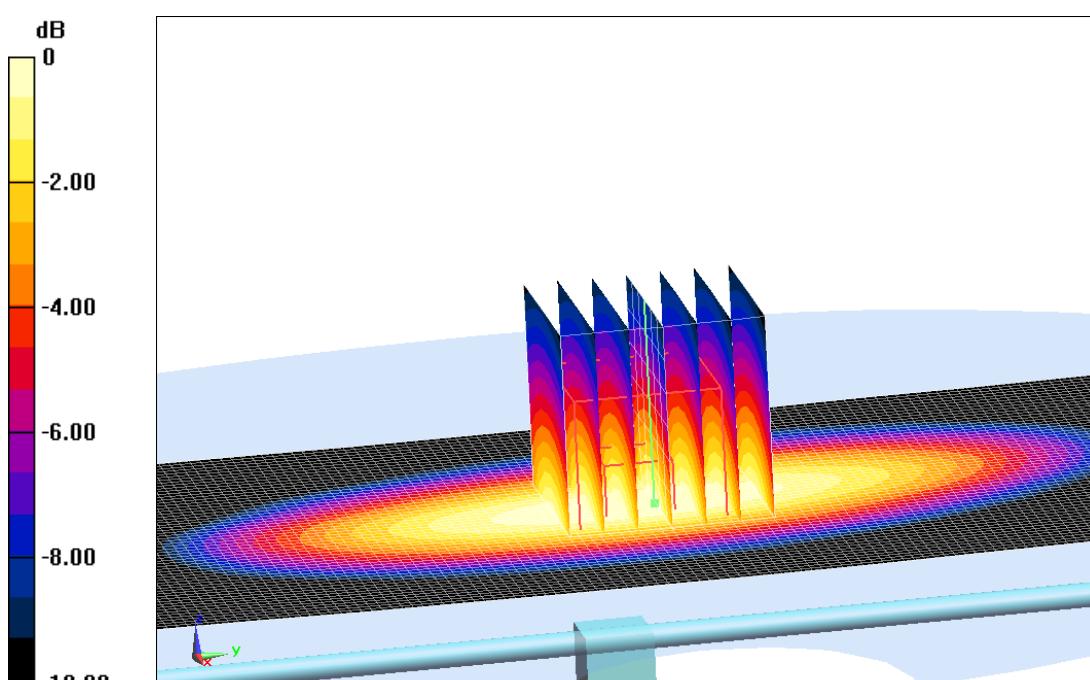
System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 52.53 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 3.12 W/kg

SAR(1 g) = 2.39 W/kg; SAR(10 g) = 1.55 W/kg

Maximum value of SAR (measured) = 2.72 W/kg



$$0 \text{ dB} = 2.72 \text{ W/kg} = 4.35 \text{ dBW/kg}$$

Fig.B.4 validation 835MHz 250mW

1750MHz

Date: 2018-5-29

Electronics: DAE4 Sn1525

Medium: Head 1750 MHz

Medium parameters used: $f=1750$ MHz; $\sigma = 1.401$ mho/m; $\epsilon_r = 40.64$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 1750 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(8.70, 8.70, 8.70)

System Validation/Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 90.25 V/m; Power Drift = -0.06 dB

Fast SAR: SAR(1 g) = 9.15 W/kg; SAR(10 g) = 4.83 W/kg

Maximum value of SAR (interpolated) = 10.1 W/kg

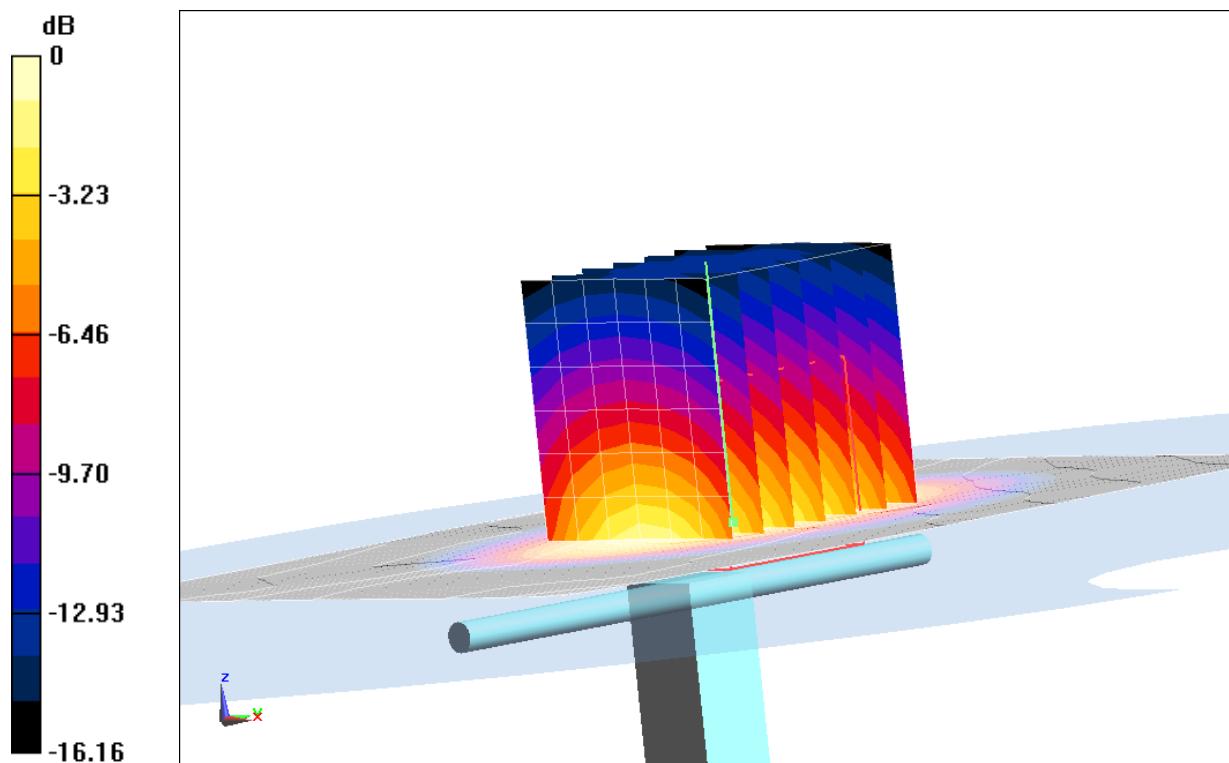
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 90.25 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 15.66 W/kg

SAR(1 g) = 9.24 W/kg; SAR(10 g) = 4.91 W/kg

Maximum value of SAR (measured) = 10.2 W/kg



$$0 \text{ dB} = 10.2 \text{ W/kg} = 10.09 \text{ dB W/kg}$$

Fig.B.5 validation 1750MHz 250mW

1750MHz

Date: 2018-5-29

Electronics: DAE4 Sn1525

Medium: Body 1750 MHz

Medium parameters used: $f=1750$ MHz; $\sigma = 1.528$ mho/m; $\epsilon_r = 53.51$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 1750 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(8.60, 8.60, 8.60)

System Validation/Area Scan (81x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 92.68 V/m; Power Drift = 0.03 dB

Fast SAR: SAR(1 g) = 9.27 W/kg; SAR(10 g) = 4.97 W/kg

Maximum value of SAR (interpolated) = 10.2 W/kg

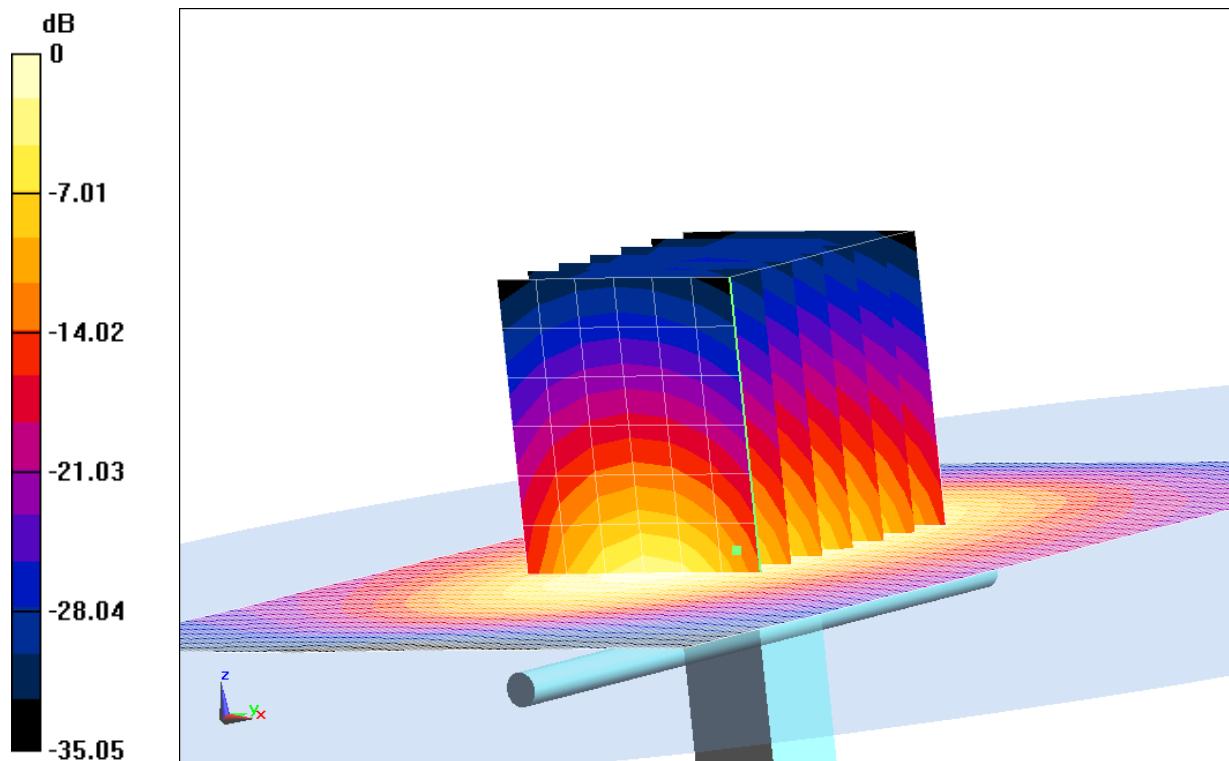
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 92.68 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 15.28 W/kg

SAR(1 g) = 9.17 W/kg; SAR(10 g) = 4.89 W/kg

Maximum value of SAR (measured) = 10.1 W/kg



$$0 \text{ dB} = 10.1 \text{ W/kg} = 10.04 \text{ dB W/kg}$$

Fig.B.6 validation 1750MHz 250mW

1900MHz

Date: 2018-5-28

Electronics: DAE4 Sn1525

Medium: Head 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.432 \text{ mho/m}$; $\epsilon_r = 40.81$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

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

Probe: EX3DV4 – SN7464 ConvF (8.39, 8.39, 8.39)

System Validation /Area Scan(61x81x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 91.02 V/m; Power Drift = -0.05 dB

SAR(1 g) = 10.2 W/kg; SAR(10 g) = 5.39 W/kg

Maximum value of SAR (interpolated) = 12.4 W/kg

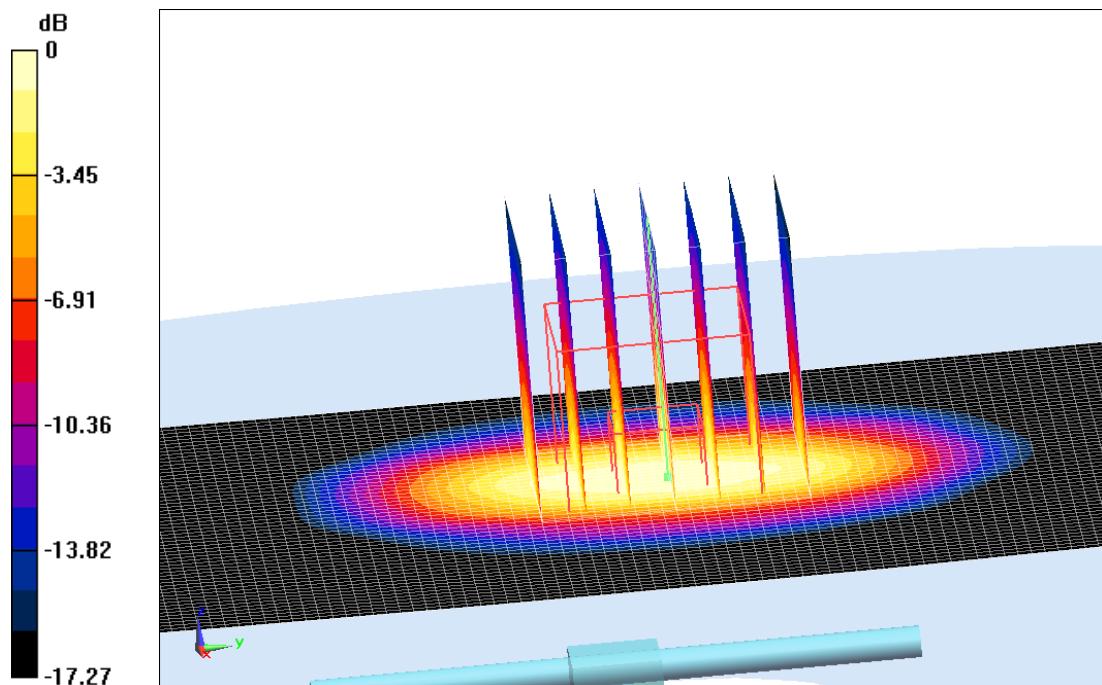
System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 91.02 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 17.91 W/kg

SAR(1 g) = 10.1 W/kg; SAR(10 g) = 5.3 W/kg

Maximum value of SAR (measured) = 12.3 W/kg



$$0 \text{ dB} = 12.3 \text{ W/kg} = 10.90 \text{ dBW/kg}$$

Fig.B.7 validation 1900MHz 250mW

1900MHz

Date: 2018-5-28

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.548 \text{ S/m}$; $\epsilon_r = 52.94$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

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

Probe: EX3DV4 – SN7464 ConvF(8.32, 8.32, 8.32)

System Validation/Area Scan (81x121x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 93.51 V/m; Power Drift = -0.04 dB

Fast SAR: $\text{SAR}(1 \text{ g}) = 10.4 \text{ W/kg}$; $\text{SAR}(10 \text{ g}) = 5.52 \text{ W/kg}$

Maximum value of SAR (interpolated) = 12.4 W/kg

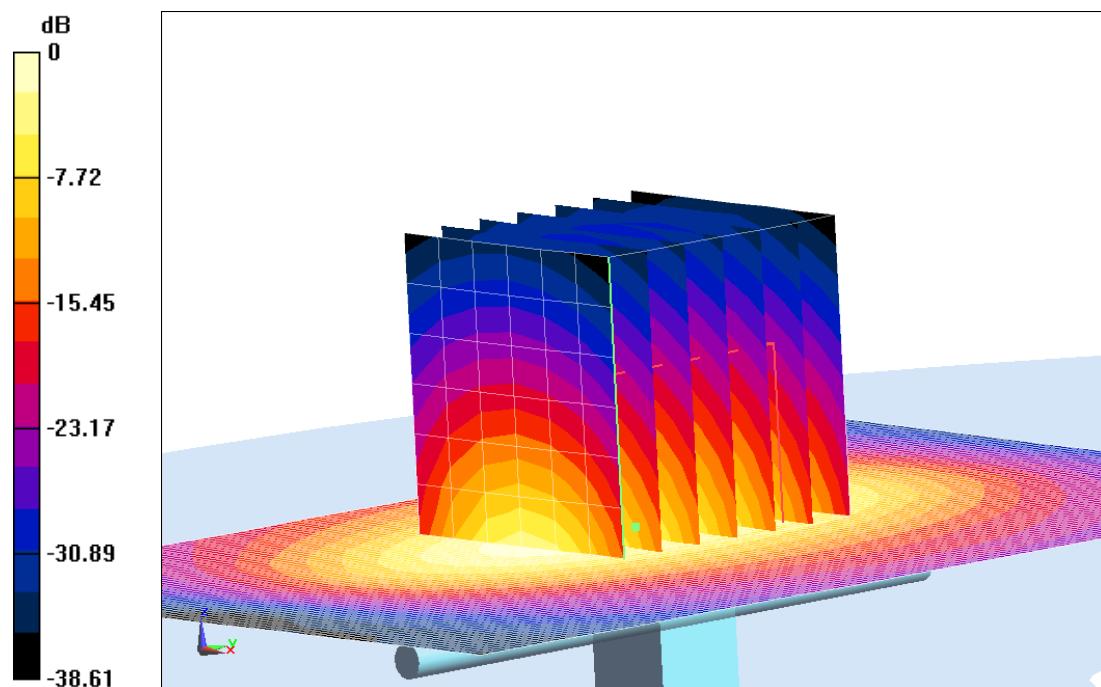
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 93.51 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 18.89 W/kg

SAR(1 g) = 10.3 W/kg; SAR(10 g) = 5.43 W/kg

Maximum value of SAR (measured) = 12.3 W/kg



0 dB = 12.3 W/kg = 10.90 dB W/kg

Fig.B.8 validation 1900MHz 250mW

2450MHz

Date: 2018-5-31

Electronics: DAE4 Sn1525

Medium: Head 2450 MHz

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.834 \text{ mho/m}$; $\epsilon_r = 38.7$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 2450 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(7.89, 7.89, 7.89)

System Validation /Area Scan (61x81x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 86.2 V/m; Power Drift = 0.01 dB

SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.22 W/kg

Maximum value of SAR (interpolated) = 16.3 W/kg

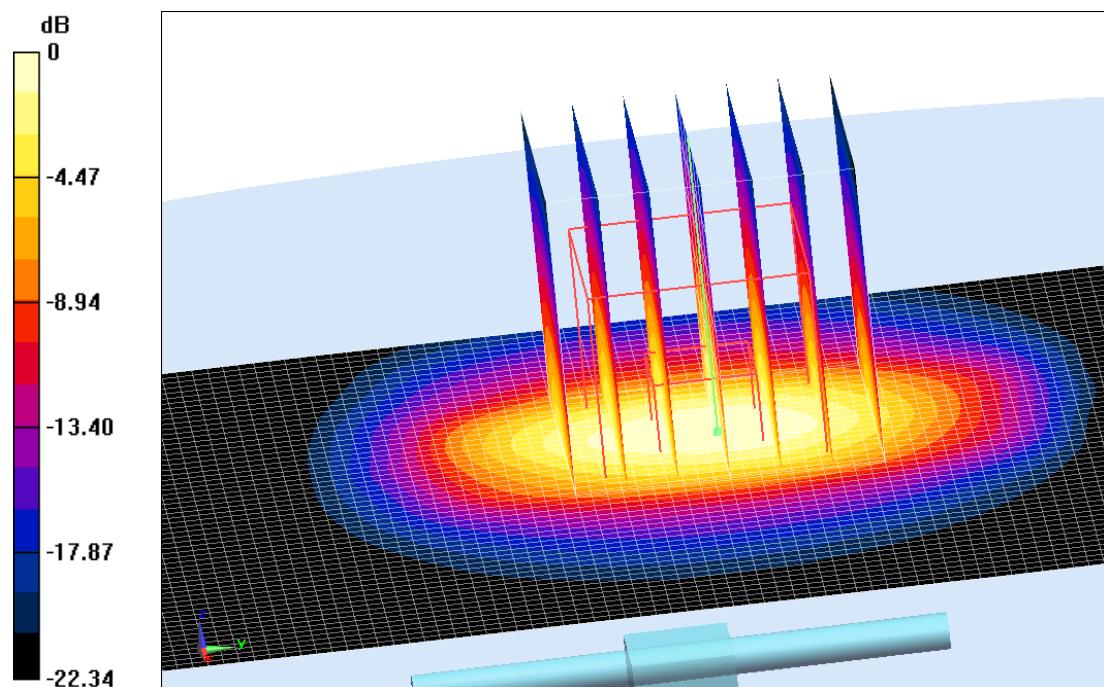
System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 86.2 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 26.97 W/kg

SAR(1 g) = 12.9 W/kg; SAR(10 g) = 6.05 W/kg

Maximum value of SAR (measured) = 16.1 W/kg



$$0 \text{ dB} = 16.1 \text{ W/kg} = 12.07 \text{ dBW/kg}$$

Fig.B.9 validation 2450MHz 250mW

2450MHz

Date: 2018-5-31

Electronics: DAE4 Sn1525

Medium: Body 2450 MHz

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.962 \text{ S/m}$; $\epsilon_r = 52.18$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 2450 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(8.09, 8.09, 8.09)

System Validation/Area Scan (81x101x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 88.35 V/m; Power Drift = 0.02 dB

SAR(1 g) = 12.6 W/kg; SAR(10 g) = 5.81 W/kg

Maximum value of SAR (interpolated) = 14.2 W/kg

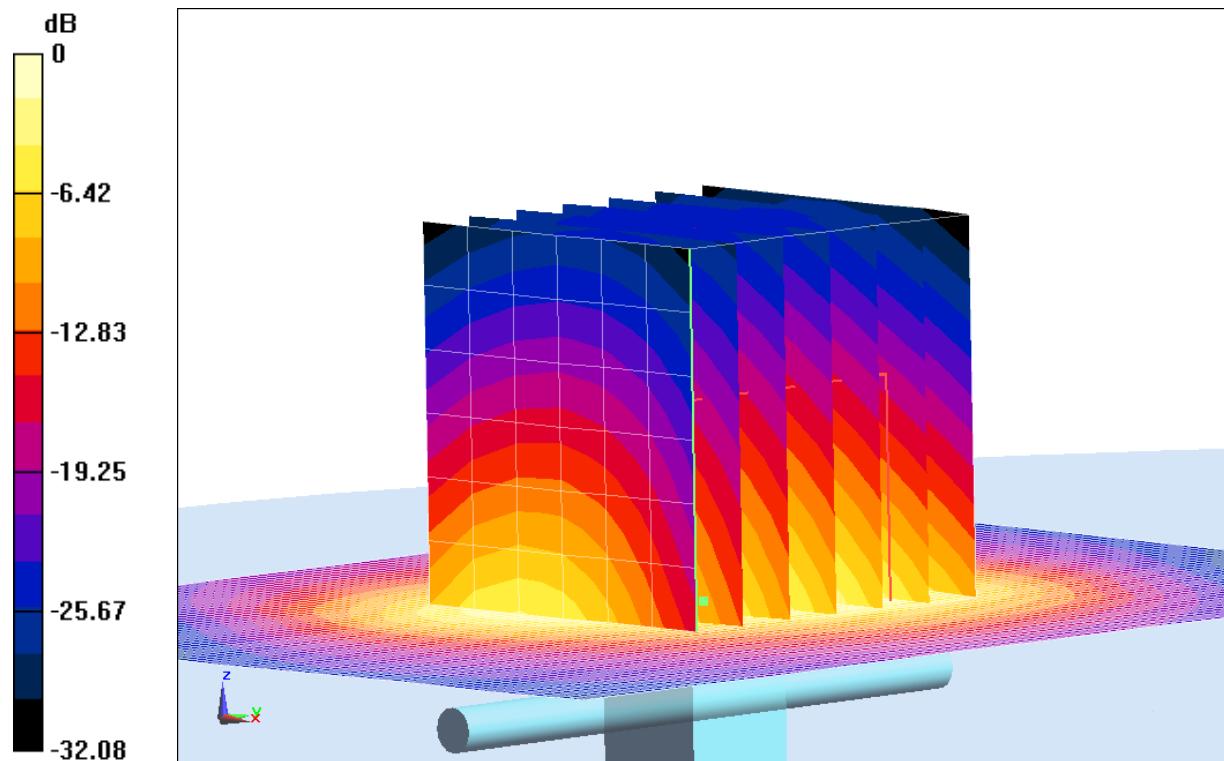
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 88.35 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 24.41 W/kg

SAR(1 g) = 12.8 W/kg; SAR(10 g) = 5.99 W/kg

Maximum value of SAR (measured) = 14.4 W/kg



$$0 \text{ dB} = 14.4 \text{ W/kg} = 11.58 \text{ dB W/kg}$$

Fig.B.10 validation 2450MHz 250mW

2600MHz

Date: 2018-5-30

Electronics: DAE4 Sn1525

Medium: Head 2600 MHz

Medium parameters used: $f = 2600 \text{ MHz}$; $\sigma = 1.928 \text{ mho/m}$; $\epsilon_r = 38.27$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 2600 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(7.76, 7.76, 7.76)

System Validation/Area Scan(81x81x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 79.46 V/m; Power Drift = -0.03 dB

SAR(1 g) = 14.6 W/kg; SAR(10 g) = 6.56 W/kg

Maximum value of SAR (interpolated) = 22.2 W/kg

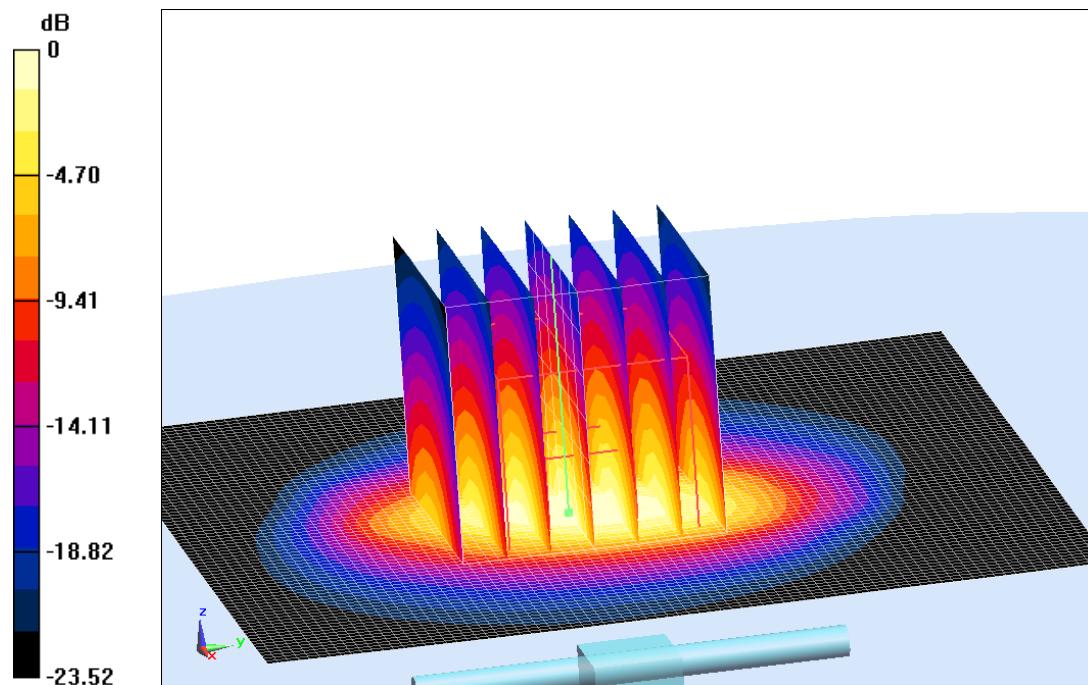
System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 79.46 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 30.86 W/kg

SAR(1 g) = 14.4 W/kg; SAR(10 g) = 6.39 W/kg

Maximum value of SAR (measured) = 22 W/kg



$$0 \text{ dB} = 22 \text{ W/kg} = 13.42 \text{ dBW/kg}$$

Fig.B.11 validation 2600MHz 250mW

2600MHz

Date: 2018-5-30

Electronics: DAE4 Sn1525

Medium: Body 2600 MHz

Medium parameters used: $f = 2600 \text{ MHz}$; $\sigma = 2.24 \text{ mho/m}$; $\epsilon_r = 51.6$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 2600 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(7.84, 7.84, 7.84)

System Validation /Area Scan(81x121x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Reference Value = 82.21 V/m; Power Drift = -0.02 dB

Fast SAR: $\text{SAR}(1 \text{ g}) = 14.3 \text{ W/kg}$; $\text{SAR}(10 \text{ g}) = 6.39 \text{ W/kg}$

Maximum value of SAR (interpolated) = 22.4 W/kg

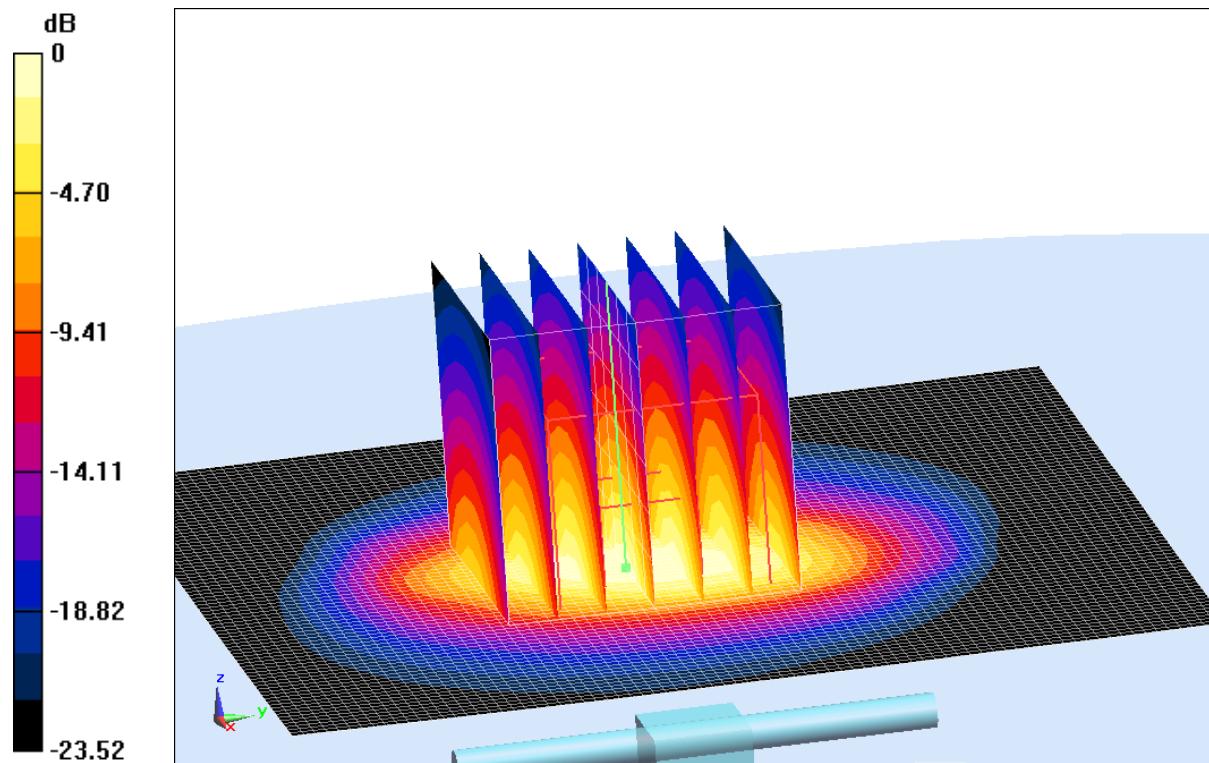
System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 82.21 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 31.02 W/kg

SAR(1 g) = 14.2 W/kg; SAR(10 g) = 6.31 W/kg

Maximum value of SAR (measured) = 22.3 W/kg



$$0 \text{ dB} = 22.3 \text{ W/kg} = 13.48 \text{ dB W/kg}$$

Fig.B.12 validation 2600MHz 250mW

5200MHz

Date: 2018-5-31

Electronics: DAE4 Sn1525

Medium: Head 5 GHz

Medium parameters used: $f = 5200$ MHz; $\sigma = 4.726$ mho/m; $\epsilon_r = 36.62$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 5200 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(5.82, 5.82, 5.82)

System Validation /Area Scan (91x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 17.9 W/kg

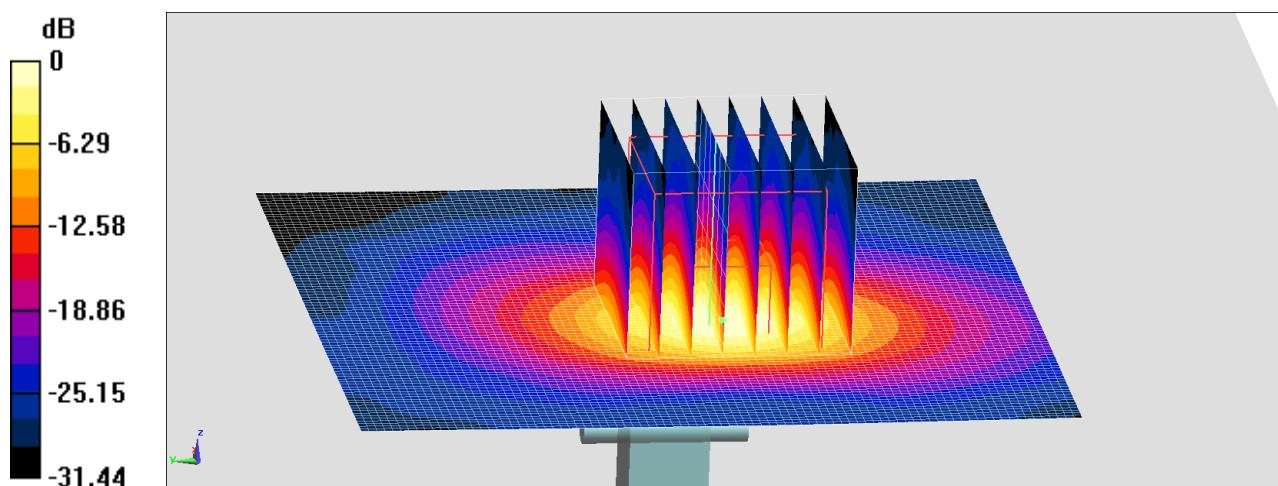
System Validation /Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 57.41 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 31.32 W/kg

SAR(1 g) = 7.93 W/kg; SAR(10 g) = 2.25 W/kg

Maximum value of SAR (measured) = 18.1 W/kg



0 dB = 18.1 W/kg = 12.58 dBW/kg

Fig.B.13 validation 5200MHz 100mW

5200MHz

Date: 2018-5-31

Electronics: DAE4 Sn1525

Medium: Body 5 GHz

Medium parameters used: $f = 5200$ MHz; $\sigma = 5.402$ mho/m; $\epsilon_r = 49.67$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 5200 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(5.39, 5.39, 5.39)

System Validation /Area Scan (91x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 18.1 W/kg

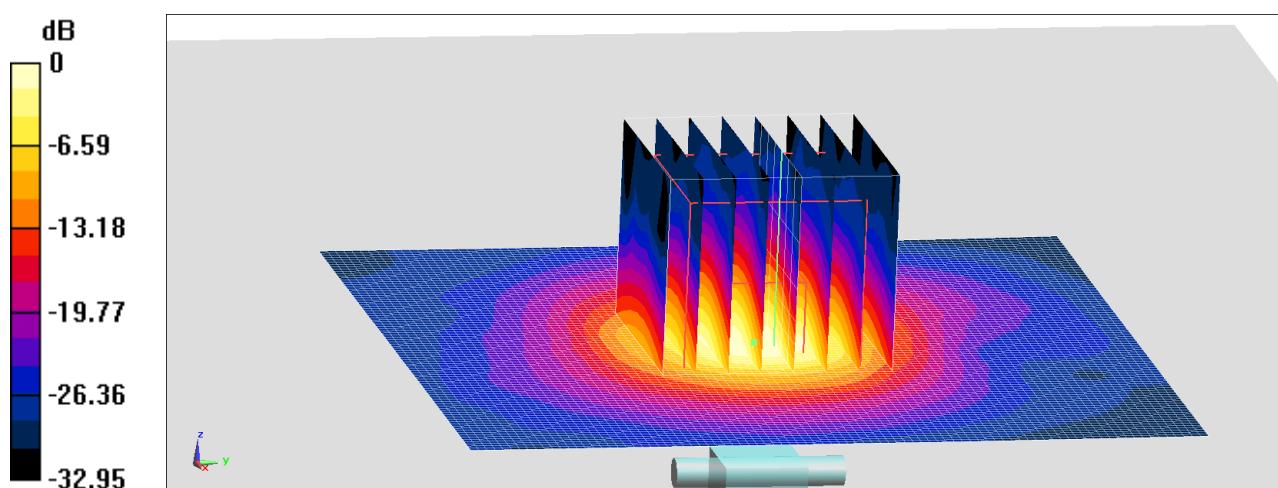
System Validation /Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 53.28 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 29.59 W/kg

SAR(1 g) = 7.36 W/kg; SAR(10 g) = 2.05 W/kg

Maximum value of SAR (measured) = 17.9 W/kg



$$0 \text{ dB} = 17.9 \text{ W/kg} = 12.53 \text{ dBW/kg}$$

Fig.B.14 validation 5200MHz 100mW

5300MHz

Date: 2018-5-31

Electronics: DAE4 Sn1525

Medium: Head 5 GHz

Medium parameters used: $f = 5300$ MHz; $\sigma = 4.828$ mho/m; $\epsilon_r = 36.9$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 5300 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(5.53, 5.53, 5.53)

System Validation /Area Scan (91x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 19.3 W/kg

System Validation /Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 73.64 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 35.42 W/kg

SAR(1 g) = 8.25 W/kg; SAR(10 g) = 2.36 W/kg

Maximum value of SAR (measured) = 19.5 W/kg

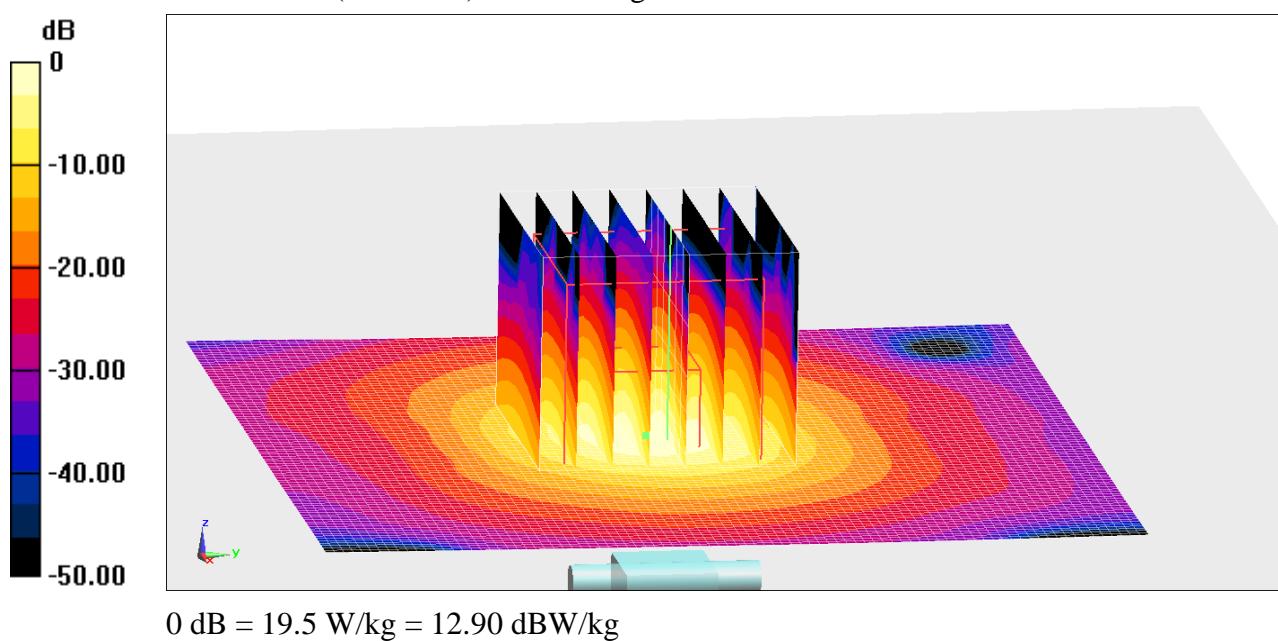


Fig.B.15 validation 5300MHz 100mW

5300MHz

Date: 2018-5-31

Electronics: DAE4 Sn1525

Medium: Body 5 GHz

Medium parameters used: $f = 5300$ MHz; $\sigma = 5.311$ mho/m; $\epsilon_r = 47.7$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 5300 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(5.11, 5.11, 5.11)

System Validation /Area Scan (91x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 18.4 W/kg

System Validation /Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 64.17 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 31.54 W/kg

SAR(1 g) = 7.55 W/kg; SAR(10 g) = 2.11 W/kg

Maximum value of SAR (measured) = 18.2 W/kg

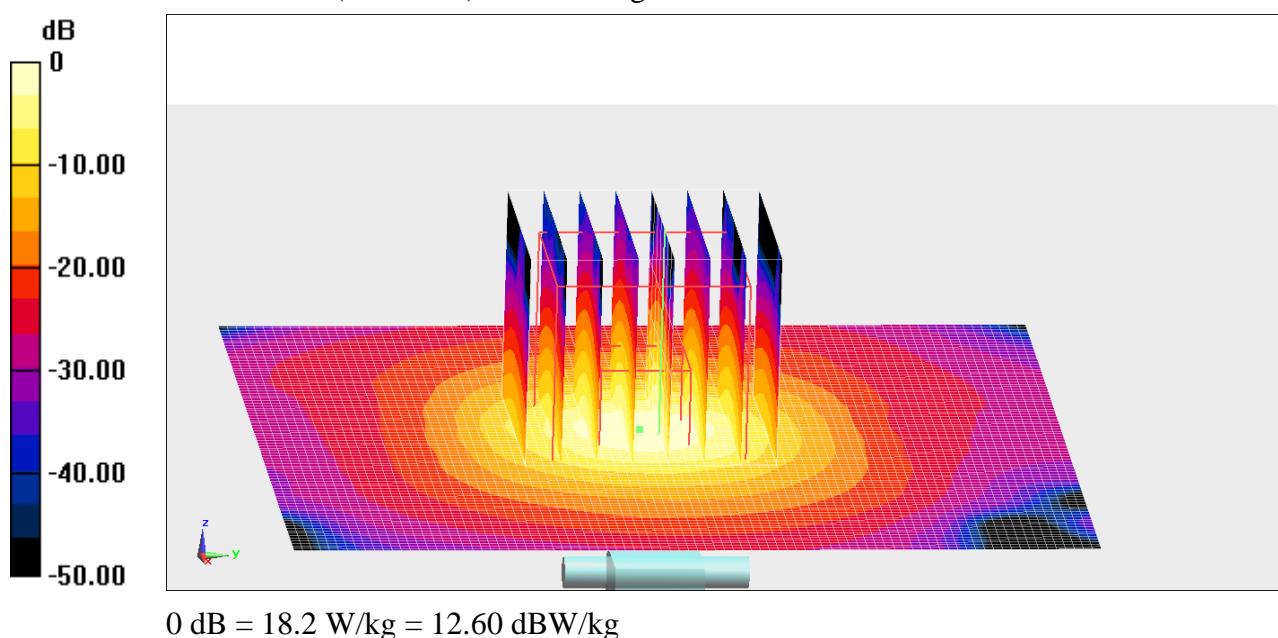


Fig.B.16 validation 5300MHz 100mW

5600MHz

Date: 2018-5-31

Electronics: DAE4 Sn1525

Medium: Head 5 GHz

Medium parameters used: $f = 5600$ MHz; $\sigma = 5.171$ mho/m; $\epsilon_r = 36.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 5600 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(4.98, 4.98, 4.98)

System Validation /Area Scan (91x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 19.8 W/kg

System Validation /Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 74.66 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 35.4 W/kg

SAR(1 g) = 8.3 W/kg; SAR(10 g) = 2.35 W/kg

Maximum value of SAR (measured) = 19.6 W/kg

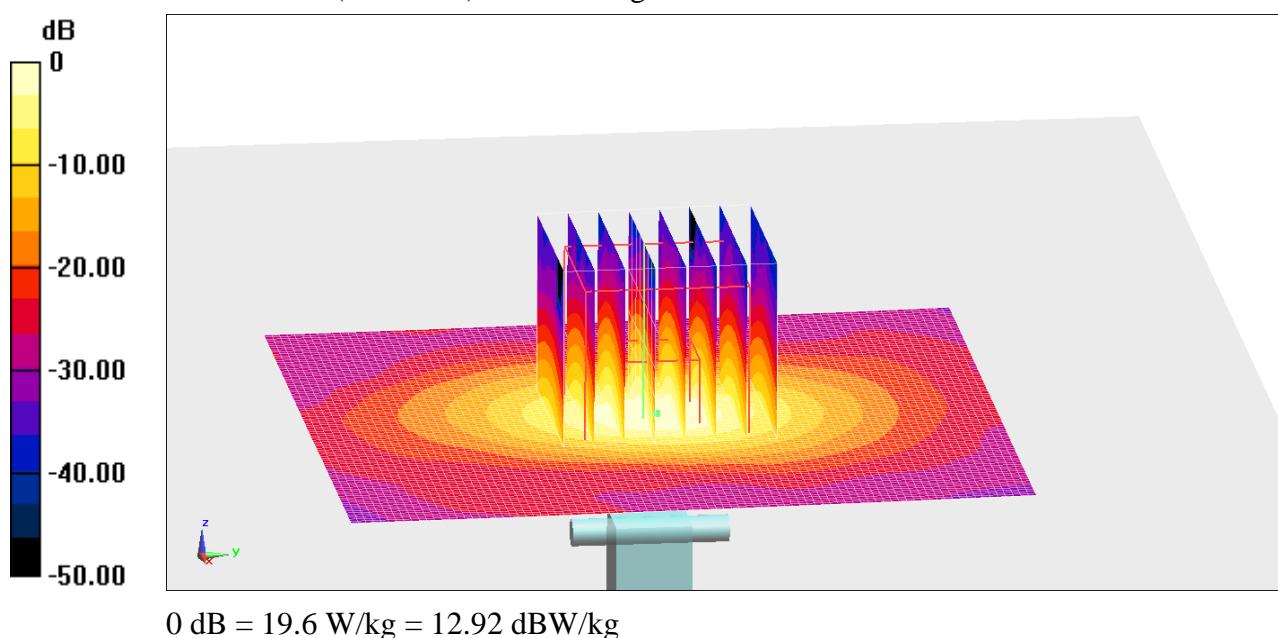


Fig.B.17 validation 5600MHz 100mW

5600MHz

Date: 2018-5-31

Electronics: DAE4 Sn1525

Medium: Body 5 GHz

Medium parameters used: $f = 5600$ MHz; $\sigma = 5.729$ mho/m; $\epsilon_r = 47.04$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 5600 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(4.50, 4.50, 4.50)

System Validation /Area Scan (91x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 20.3 W/kg

System Validation /Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 66.62 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 37.13 W/kg

SAR(1 g) = 7.93 W/kg; SAR(10 g) = 2.23 W/kg

Maximum value of SAR (measured) = 20.1 W/kg

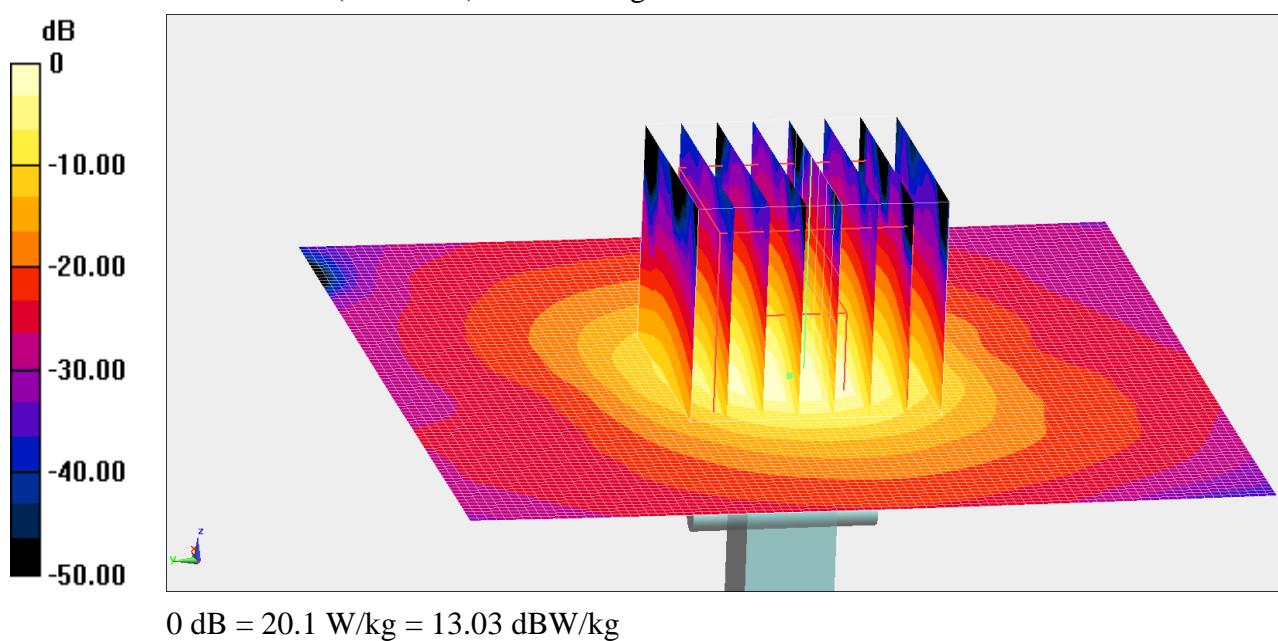


Fig.B.18 validation 5600MHz 100mW

5800MHz

Date: 2018-5-31

Electronics: DAE4 Sn1525

Medium: Head 5 GHz

Medium parameters used: $f = 5800$ MHz; $\sigma = 5.381$ mho/m; $\epsilon_r = 35.81$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 5800 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(5.11, 5.11, 5.11)

System Validation /Area Scan (91x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 20.1 W/kg

System Validation /Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm

Reference Value = 70.92 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 39.95 W/kg

SAR(1 g) = 8.01 W/kg; SAR(10 g) = 2.28 W/kg

Maximum value of SAR (measured) = 20.3 W/kg

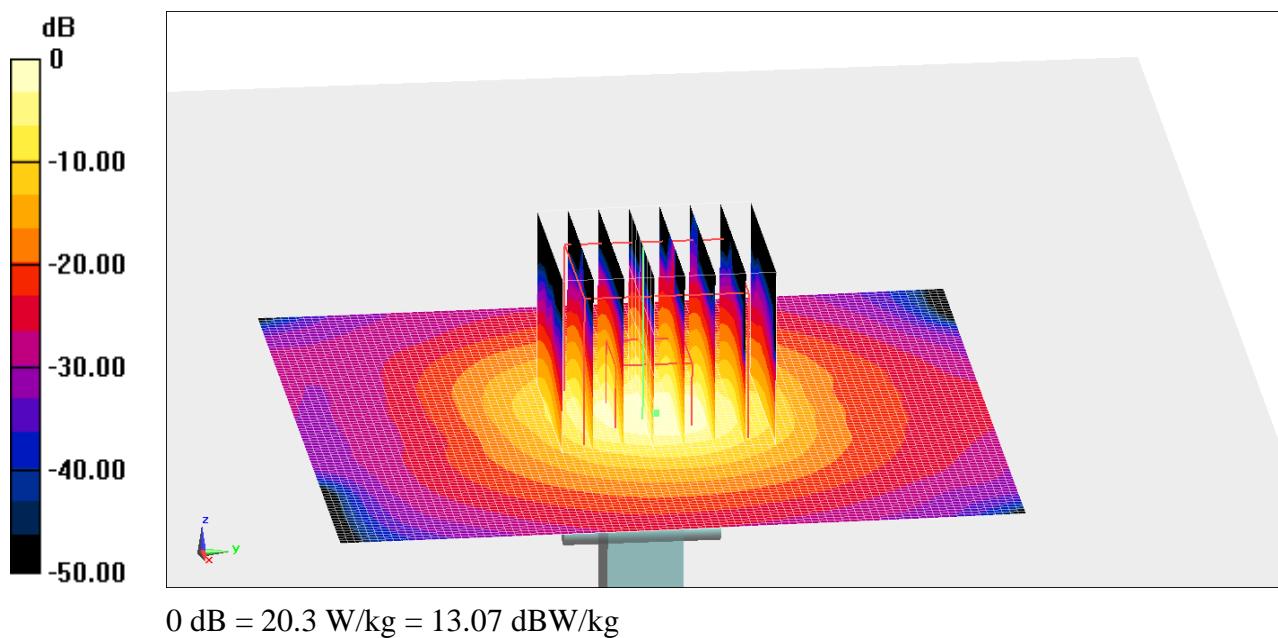


Fig.B.19 validation 5800MHz 100mW

5800MHz

Date: 2018-5-31

Electronics: DAE4 Sn1525

Medium: Body 5 GHz

Medium parameters used: $f = 5800 \text{ MHz}$; $\sigma = 6.008 \text{ mho/m}$; $\epsilon_r = 46.64$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.9°C Liquid Temperature: 22.5°C

Communication System: CW Frequency: 5800 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7464 ConvF(4.67, 4.67, 4.67)

System Validation /Area Scan (91x91x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$
Maximum value of SAR (interpolated) = 18.6 W/kg

System Validation /Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$

Reference Value = 67.15 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 35.63 W/kg

SAR(1 g) = 7.65 W/kg; SAR(10 g) = 2.15 W/kg

Maximum value of SAR (measured) = 18.8 W/kg

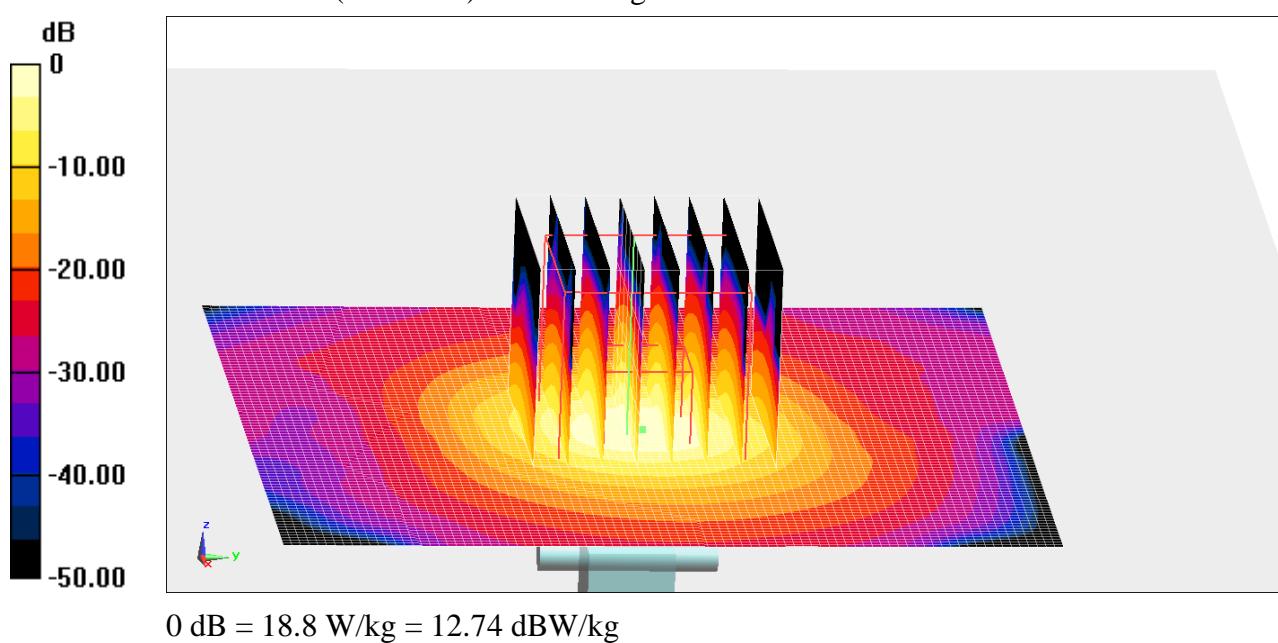


Fig.B.20 validation 5800MHz 100mW

The SAR system verification must be required that the area scan estimated 1-g SAR is within 3% of the zoom scan 1-g SAR.

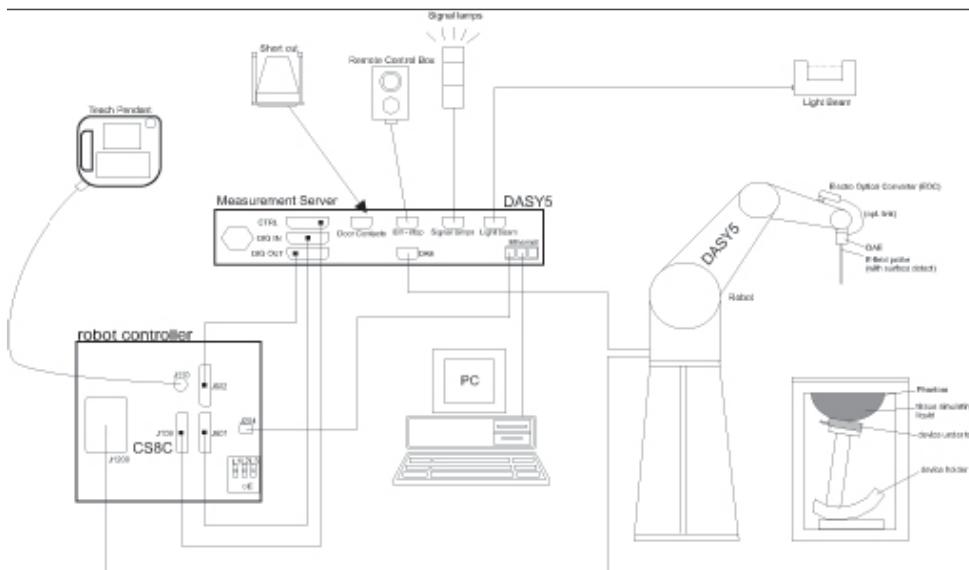
Table B.1 Comparison between area scan and zoom scan for system verification

| Date | Band | Position | Area scan (1g) | Zoom scan (1g) | Drift (%) |
|-----------|------|----------|-------------------|-------------------|-----------|
| 2018-5-29 | 750 | Head | 2.15 | 2.12 | 1.42 |
| | 750 | Body | 2.23 | 2.25 | -0.89 |
| 2018-5-27 | 835 | Head | 2.34 | 2.31 | 1.30 |
| | 835 | Body | 2.35 | 2.39 | -1.67 |
| 2018-5-29 | 1750 | Head | 9.15 | 9.24 | -0.97 |
| | 1750 | Body | 9.27 | 9.17 | 1.09 |
| 2018-5-28 | 1900 | Head | 10.2 | 10.1 | 0.99 |
| | 1900 | Body | 10.4 | 10.3 | 0.97 |
| 2018-5-31 | 2450 | Head | 13.1 | 12.9 | 1.55 |
| | 2450 | Body | 12.6 | 12.8 | -1.56 |
| 2018-5-30 | 2600 | Head | 14.6 | 14.4 | 1.39 |
| | 2600 | Body | 14.3 | 14.2 | 0.70 |

ANNEX C SAR Measurement Setup

C.1 Measurement Set-up

The Dasy4 or DASY5 system for performing compliance tests is illustrated above graphically. This system consists of the following items:



Picture C.1SAR Lab Test Measurement Set-up

- A standard high precision 6-axis robot (StäubliTX=RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP and the DASY4 or DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.