

LTE Band4 Left Cheek High with QPSK_20M_1RB_Middle

Date: 2019-6-15

Electronics: DAE4 Sn1525

Medium: Head 1750 MHz

Medium parameters used $f = 1745$ MHz; $\sigma = 1.398$ mho/m; $\epsilon_r = 40.405$; $\rho = 1000$ kg/m³

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

Communication System: LTE Band4 Frequency: 1745MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7514 ConvF(8.10, 8.10, 8.10)

Area Scan (81x131x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.164 W/kg

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

Reference Value = 4.944 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.198 W/kg

SAR(1 g) = 0.135 W/kg; SAR(10 g) = 0.086 W/kg

Maximum value of SAR (measured) = 0.166 W/kg

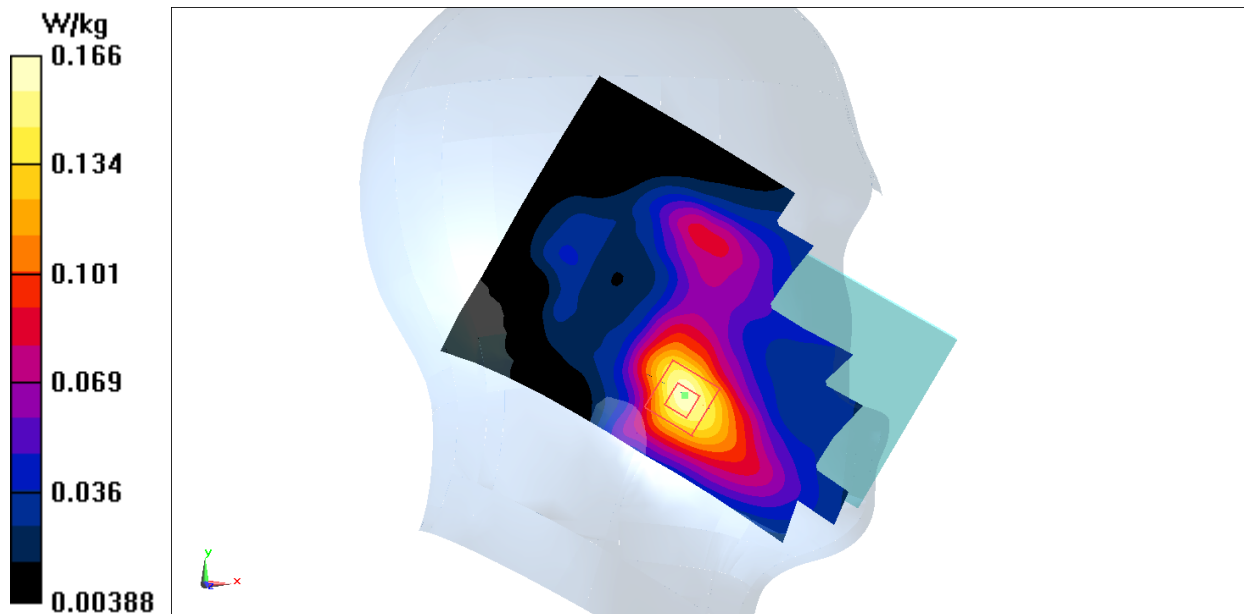


Fig.13 LTE Band4

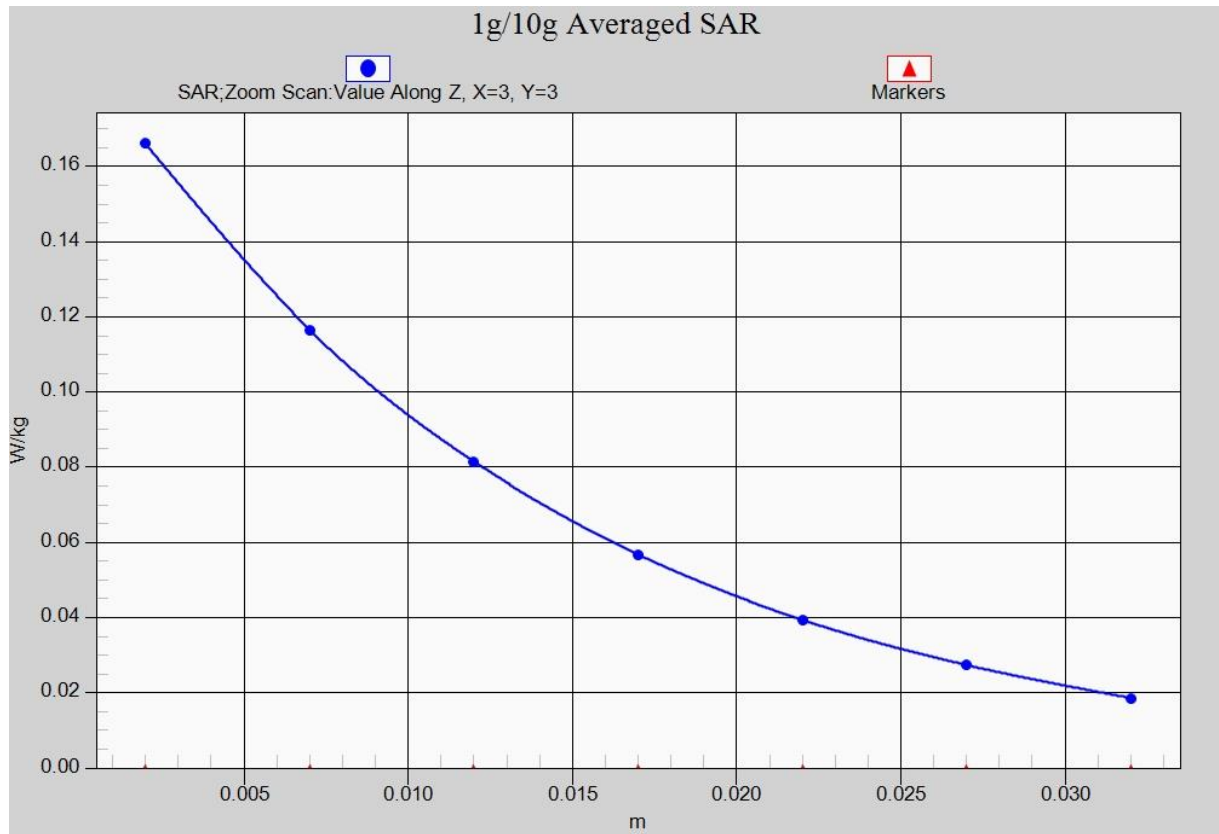


Fig. 13-1 Z-Scan at power reference point (LTE Band4)

LTE Band4 Body Rear Low with QPSK_20M_1RB_Middle

Date: 2019-6-15

Electronics: DAE4 Sn1525

Medium: Body 1750 MHz

Medium parameters used: $f = 1720$ MHz; $\sigma = 1.474$ mho/m; $\epsilon_r = 53.714$; $\rho = 1000$ 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 – SN7514 ConvF(7.82, 7.82, 7.82)

Area Scan (81x131x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 1.15 W/kg

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

Reference Value = 7.104 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 0.813 W/kg; SAR(10 g) = 0.458 W/kg

Maximum value of SAR (measured) = 1.10 W/kg

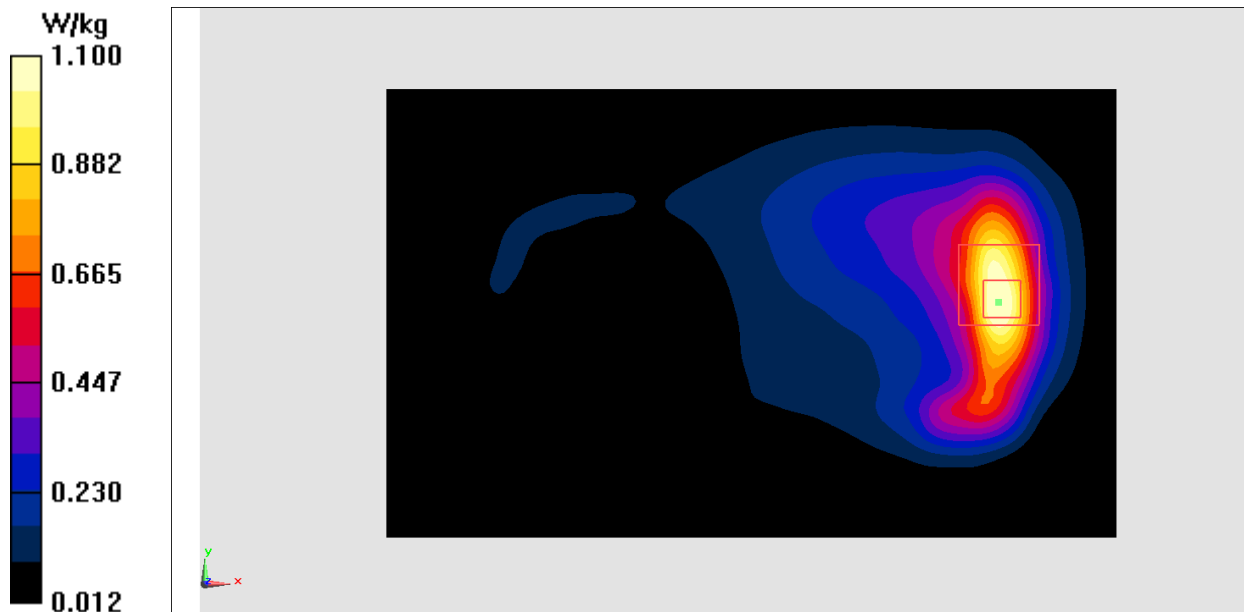


Fig.14 LTE Band4

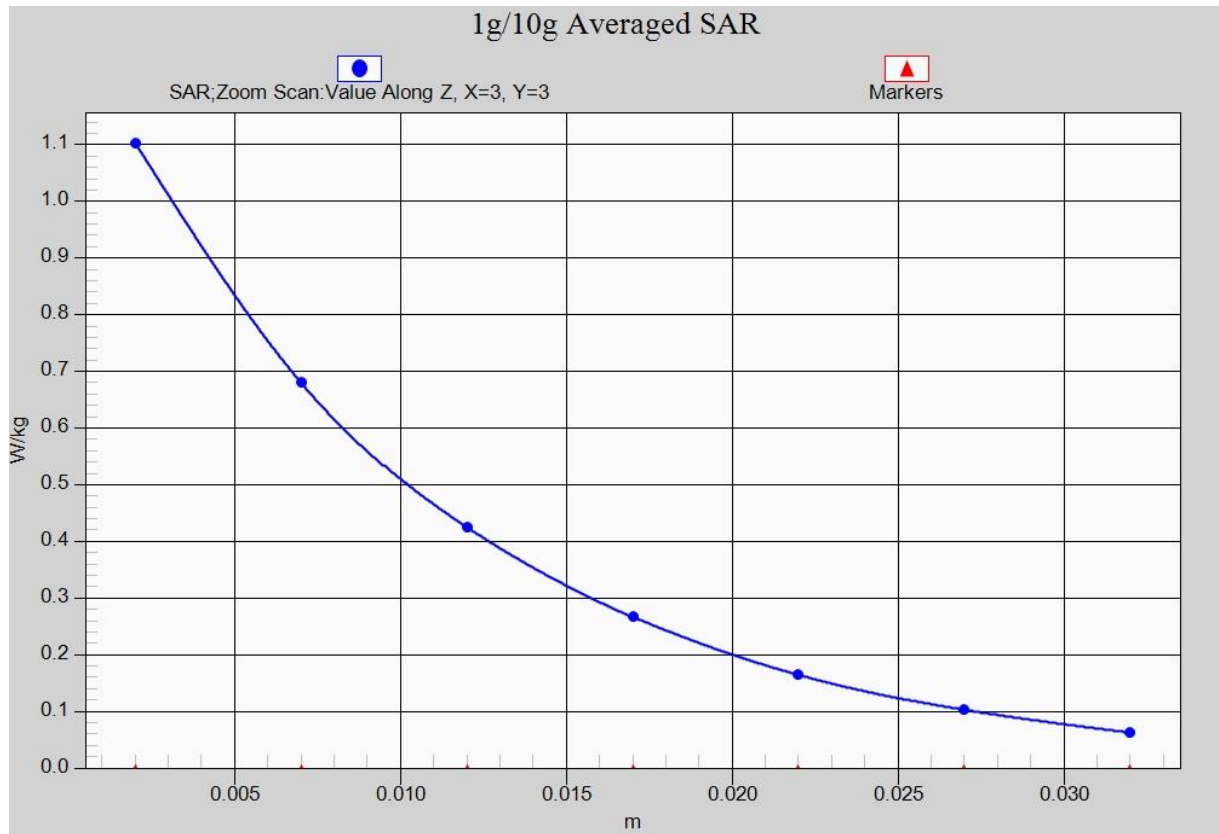


Fig. 14-1 Z-Scan at power reference point (LTE Band4)

LTE Band5 Left Cheek Middle with QPSK_10M_1RB_Middle

Date: 2019-6-12

Electronics: DAE4 Sn1525

Medium: Head 850 MHz

Medium parameters used (interpolated): $f = 836.5$ MHz; $\sigma = 0.902$ mho/m; $\epsilon_r = 42.111$; $\rho = 1000$ kg/m³

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

Communication System: LTE Band5 Frequency: 836.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7514 ConvF(9.09, 9.09, 9.09)

Area Scan (81x131x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.195 W/kg

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

Reference Value = 4.268 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.243 W/kg

SAR(1 g) = 0.167 W/kg; SAR(10 g) = 0.124 W/kg

Maximum value of SAR (measured) = 0.215 W/kg

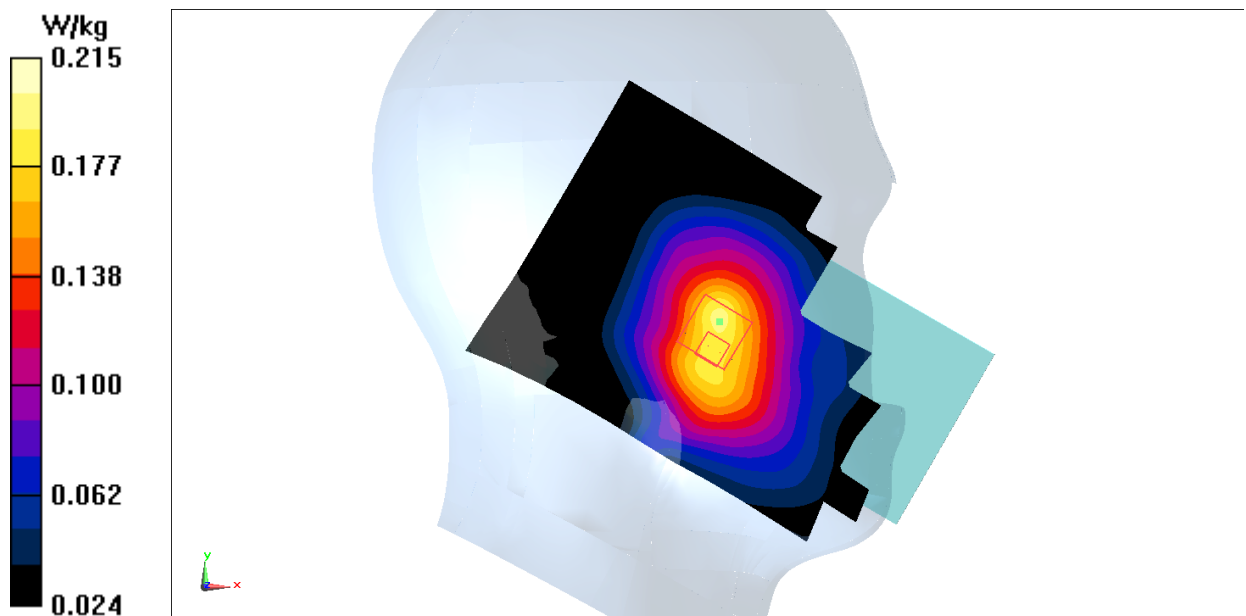


Fig.15 LTE Band5

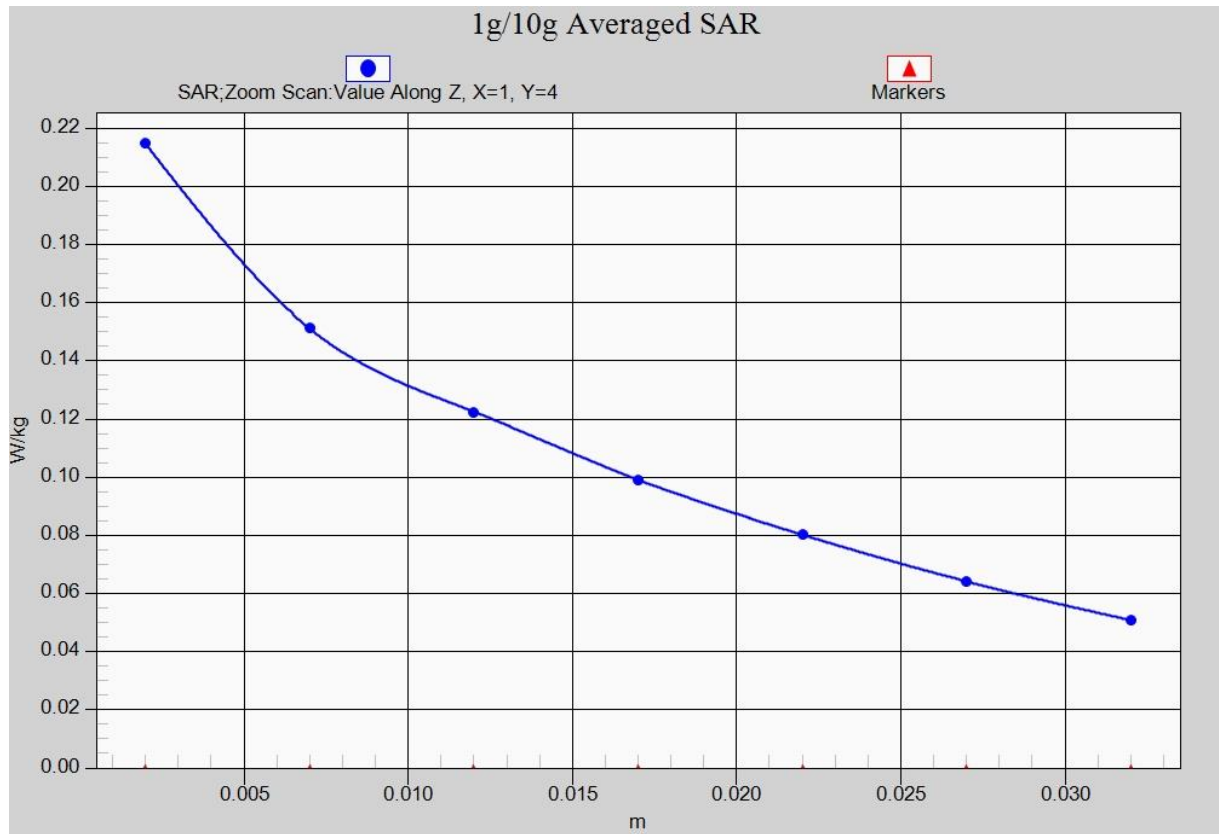


Fig. 15-1 Z-Scan at power reference point (LTE Band5)

LTE Band5 Body Rear Middle with QPSK_10M_1RB_Middle

Date: 2019-6-12

Electronics: DAE4 Sn1525

Medium: Body 850 MHz

Medium parameters used (interpolated): $f = 836.5$ MHz; $\sigma = 1.013$ mho/m; $\epsilon_r = 55.004$; $\rho = 1000$ kg/m³

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

Communication System: LTE Band5 Frequency: 836.5 MHz Duty Cycle: 1:1

Probe: EX3DV4 - SN7514 ConvF(9.47, 9.47, 9.47)

Area Scan (81x131x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.581 W/kg

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

Reference Value = 15.45 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.766 W/kg

SAR(1 g) = 0.411 W/kg; SAR(10 g) = 0.229 W/kg.

Maximum value of SAR (measured) = 0.585 W/kg

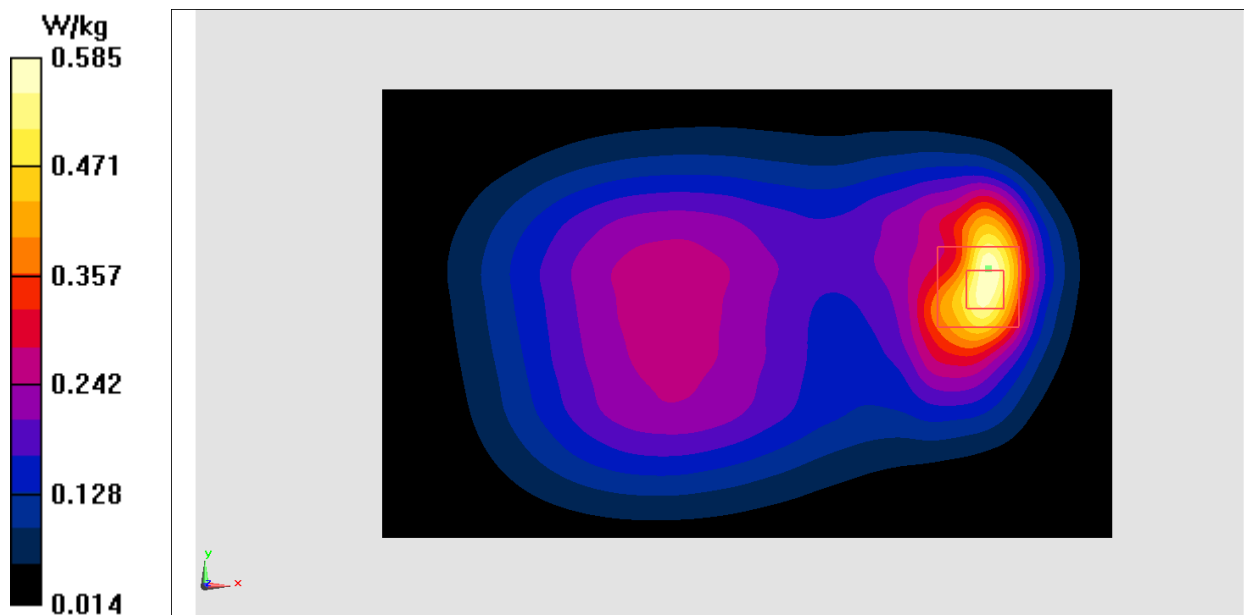


Fig.16 LTE Band5

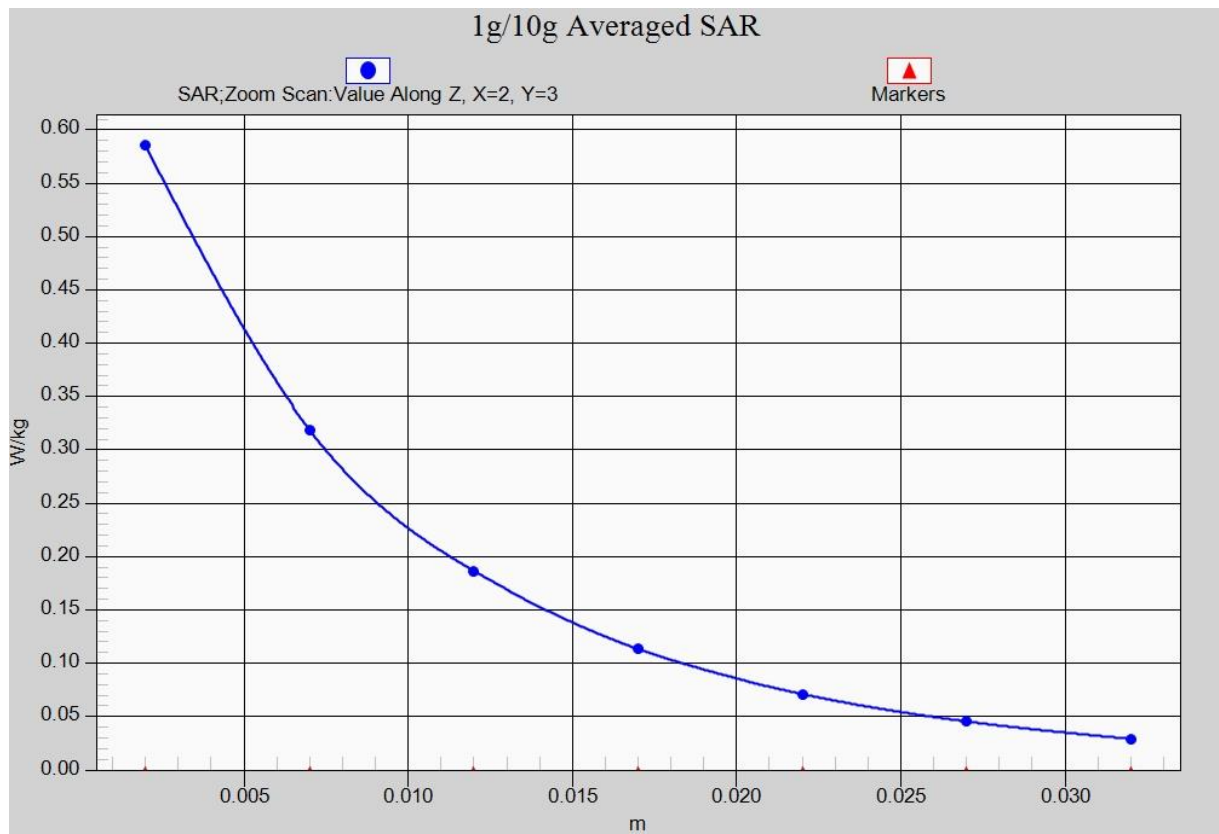


Fig. 16-1 Z-Scan at power reference point (LTE Band5)

LTE Band7 Right Cheek High with QPSK_20M_1RB_Middle

Date: 2019-6-17

Electronics: DAE4 Sn1525

Medium: Head 2600 MHz

Medium parameters used: $f = 2560$ MHz; $\sigma = 1.981$ mho/m; $\epsilon_r = 38.44$; $\rho = 1000$ kg/m³

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

Communication System: LTE Band7 Frequency: 2560 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7514 ConvF(6.92, 6.92, 6.92)

Area Scan (101x161x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.0792 W/kg

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

Reference Value = 1.716 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.104 W/kg

SAR(1 g) = 0.057 W/kg; SAR(10 g) = 0.030 W/kg

Maximum value of SAR (measured) = 0.0803 W/kg

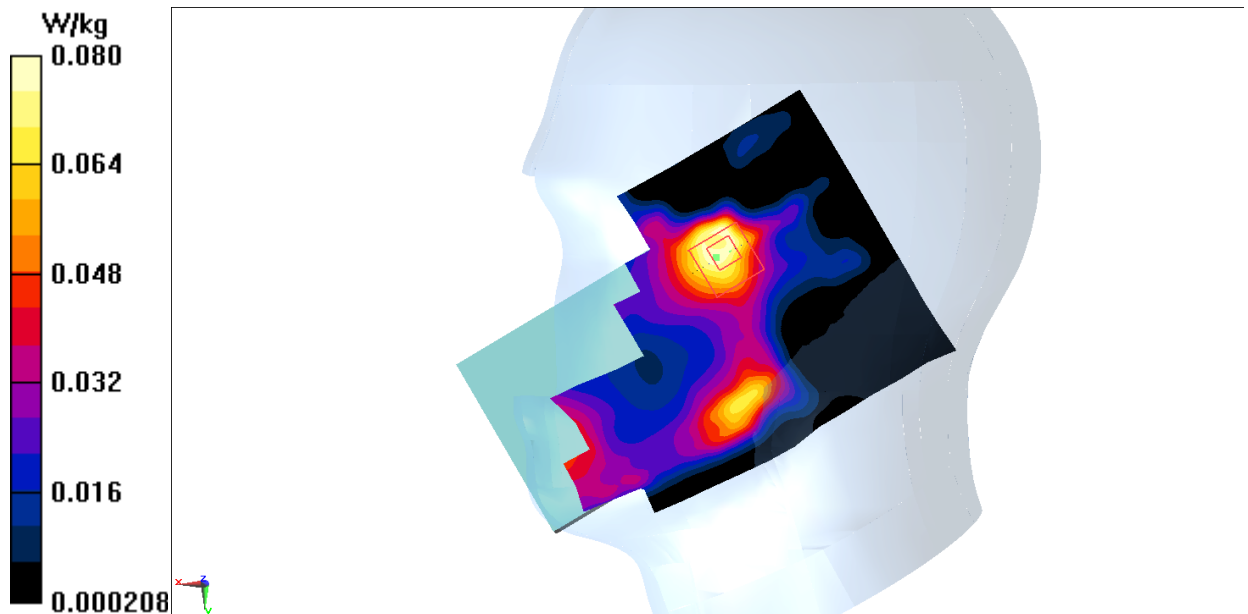


Fig.17 LTE Band7

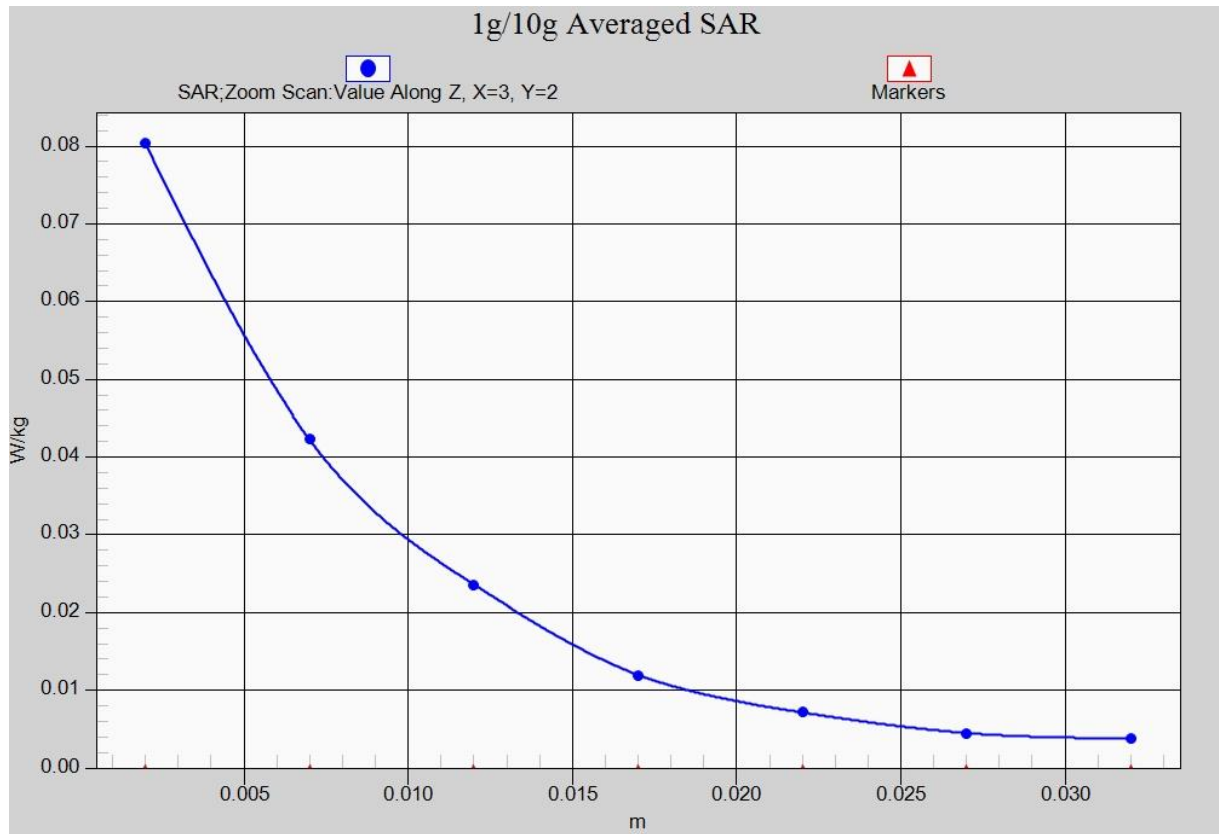


Fig. 17-1 Z-Scan at power reference point (LTE Band7)

LTE Band7 Body Rear High with QPSK_20M_1RB_Middle

Date: 2019-6-17

Electronics: DAE4 Sn1525

Medium: Body 2600 MHz

Medium parameters used: $f = 2560$ MHz; $\sigma = 2.213$ mho/m; $\epsilon_r = 51.82$; $\rho = 1000$ kg/m³

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

Communication System: LTE Band7 Frequency: 2560 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7514 ConvF(7.06, 7.06, 7.06)

Area Scan (101x171x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.848 W/kg

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

Reference Value = 3.031 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.10 W/kg

SAR(1 g) = 0.588 W/kg; SAR(10 g) = 0.311 W/kg

Maximum value of SAR (measured) = 0.838 W/kg

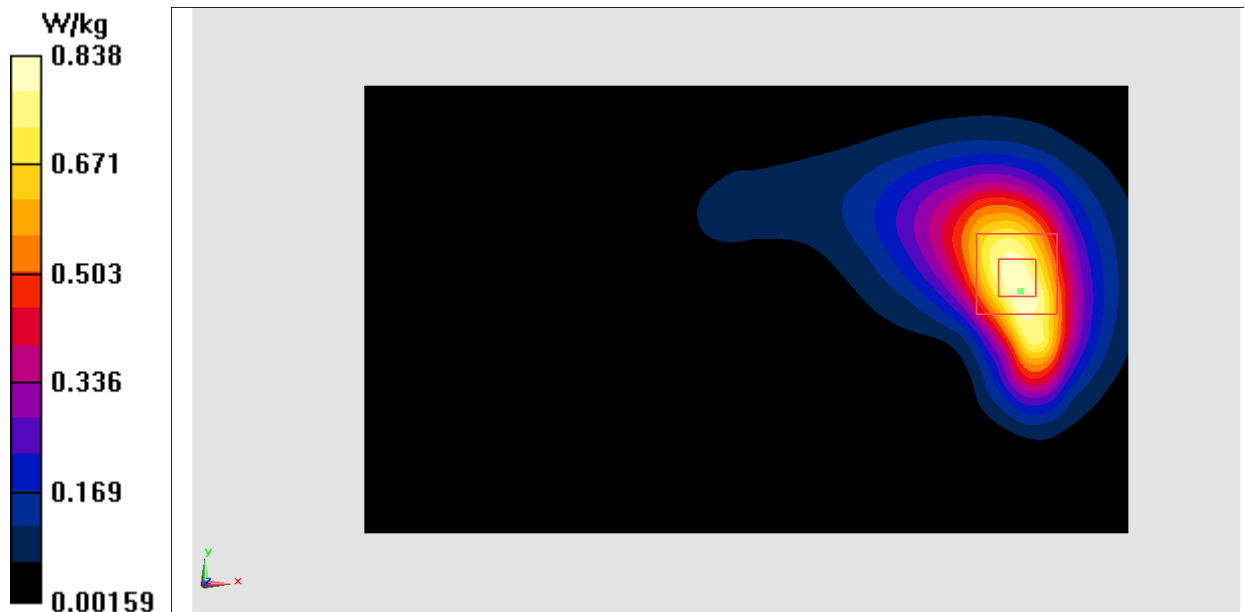


Fig.18 LTE Band7

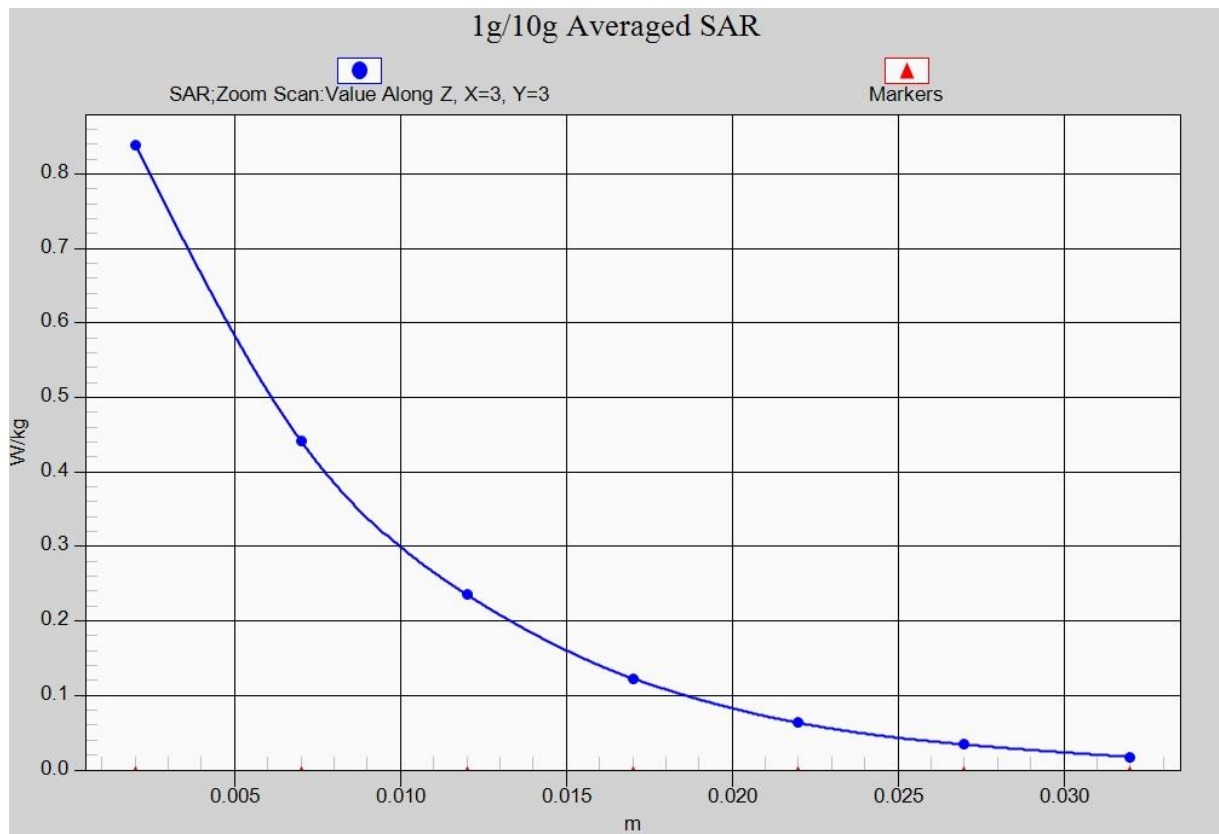


Fig. 18-1 Z-Scan at power reference point (LTE Band7)

LTE Band12 Left Cheek High with QPSK_10M_1RB_Middle

Date: 2019-6-14

Electronics: DAE4 Sn1525

Medium: Head 750 MHz

Medium parameters used (interpolated): $f = 711$ MHz; $\sigma = 0.86$ mho/m; $\epsilon_r = 42.5$; $\rho = 1000$ 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– SN7514 ConvF(9.47, 9.47, 9.47)

Area Scan (81x131x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.145 W/kg

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

Reference Value = 4.135 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.181 W/kg

SAR(1 g) = 0.128 W/kg; SAR(10 g) = 0.099 W/kg

Maximum value of SAR (measured) = 0.162 W/kg

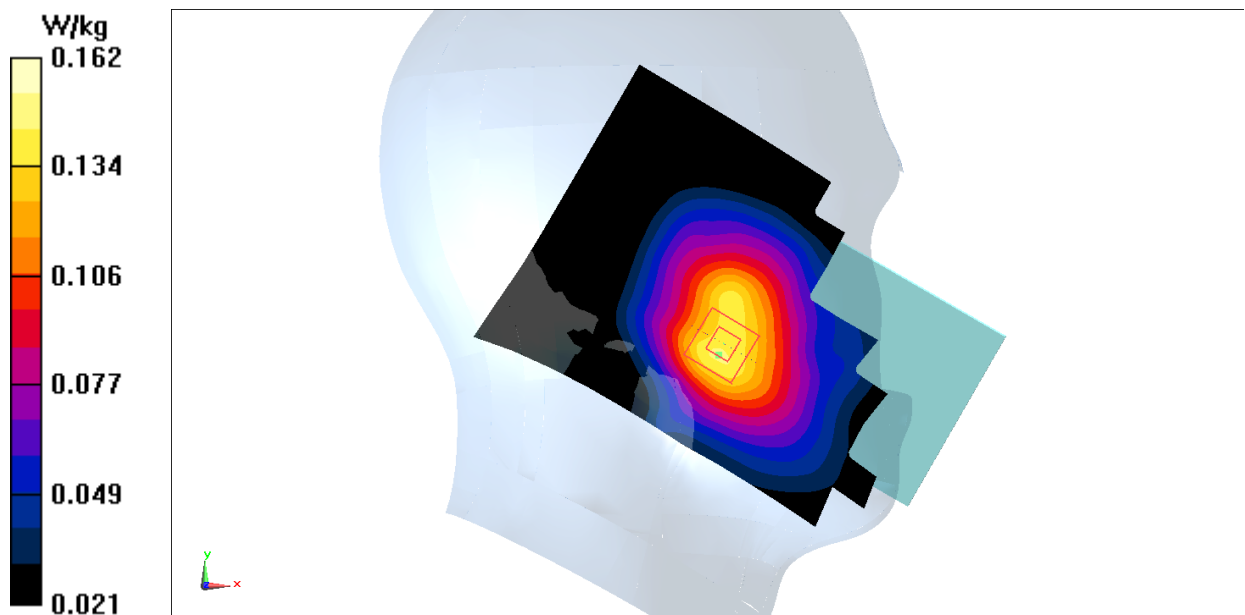


Fig.19 LTE Band12

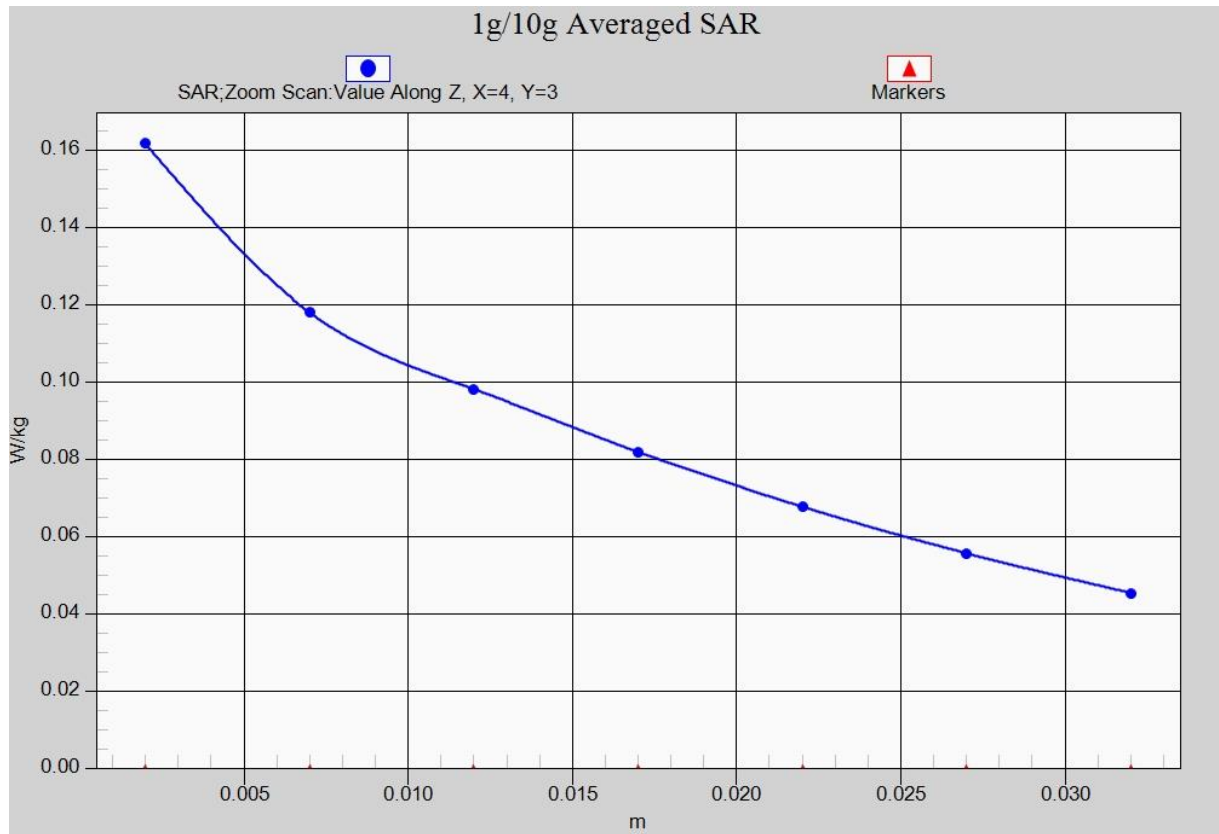


Fig. 19-1 Z-Scan at power reference point (LTE Band12)

LTE Band12 Body Rear Edge High with QPSK_10M_1RB_Middle

Date: 2019-6-14

Electronics: DAE4 Sn1525

Medium: Body750 MHz

Medium parameters used (interpolated): $f = 711$ MHz; $\sigma = 0.964$ mho/m; $\epsilon_r = 54.61$; $\rho = 1000$ kg/m³

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

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

Probe: EX3DV4– SN7514 ConvF(9.68, 9.68, 9.68)

Area Scan (81x131x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.323 W/kg

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

Reference Value = 17.50 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.406 W/kg

SAR(1 g) = 0.226 W/kg; SAR(10 g) = 0.145 W/kg

Maximum value of SAR (measured) = 0.312 W/kg

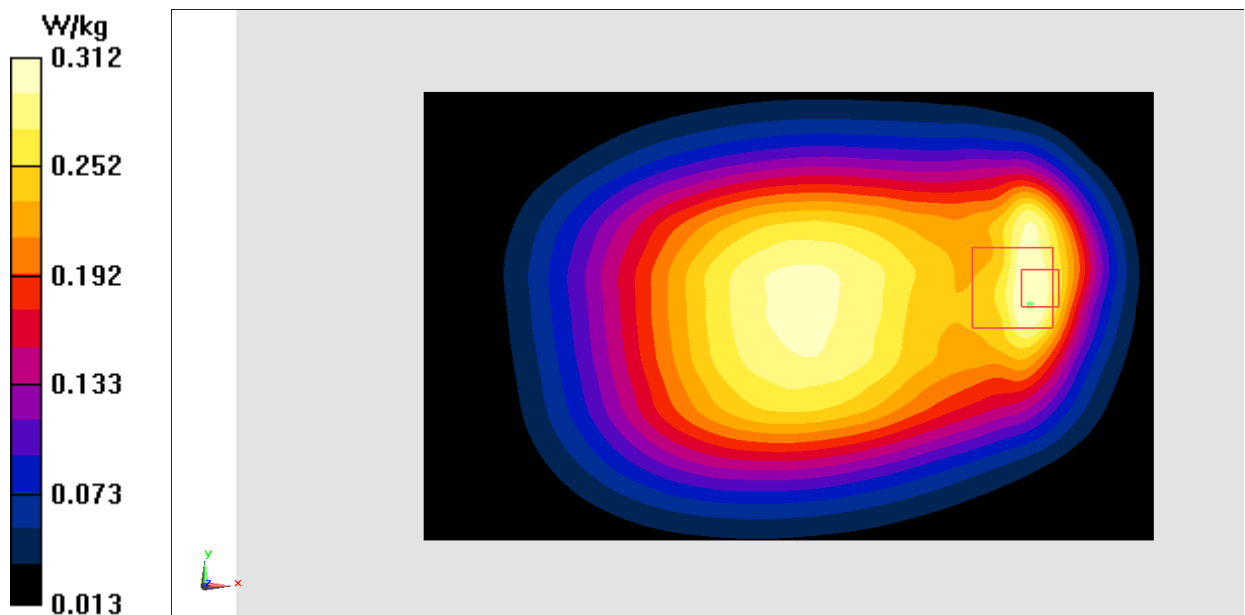


Fig.20 LTE Band12

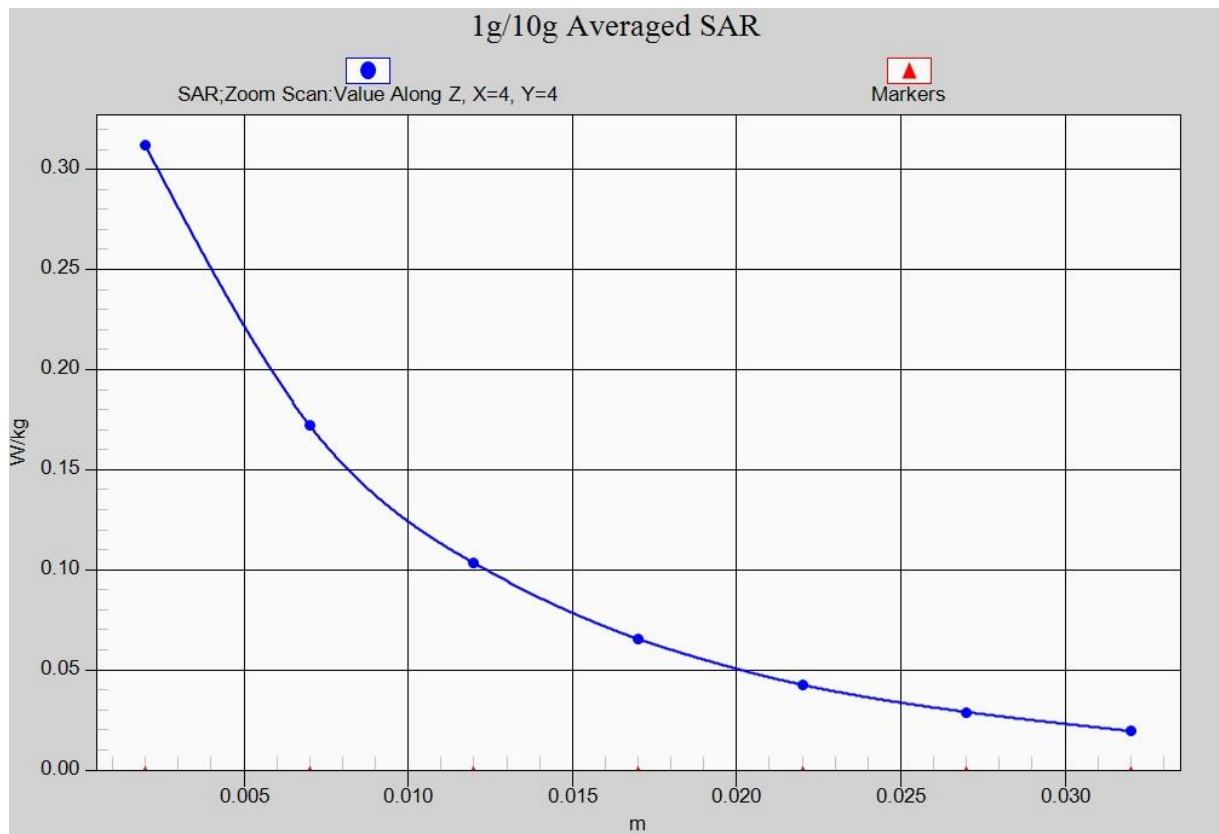


Fig. 20-1 Z-Scan at power reference point (LTE Band12)

Wifi 802.11b Left Tilt Channel 11

Date: 2019-6-16

Electronics: DAE4 Sn1525

Medium: Head 2450 MHz

Medium parameters used (interpolated): $f = 2462$ MHz; $\sigma = 1.807$ mho/m; $\epsilon_r = 38.86$; $\rho = 1000$ kg/m³

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

Communication System: Wlan 2450 Frequency: 2462 MHz Duty Cycle: 1:1

Probe: EX3DV4– SN7514 ConvF(6.95, 6.95, 6.95)

Area Scan (101x161x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.462 W/kg

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

Reference Value = 6.408 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.492 W/kg

SAR(1 g) = 0.210 W/kg; SAR(10 g) = 0.112 W/kg

Maximum value of SAR (measured) = 0.329 W/kg

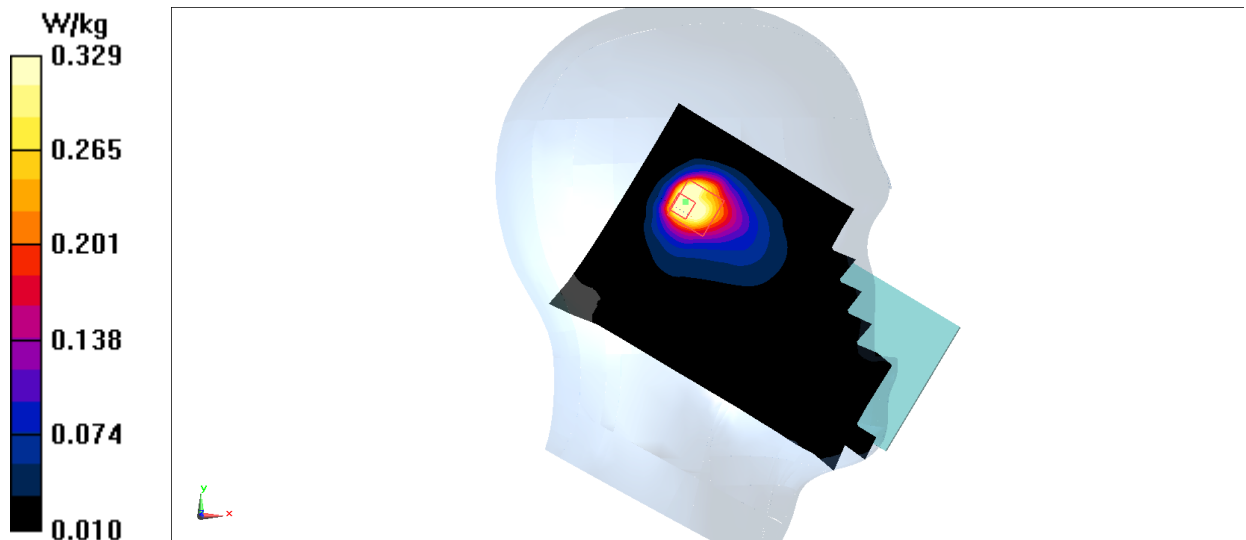


Fig.21 2450 MHz

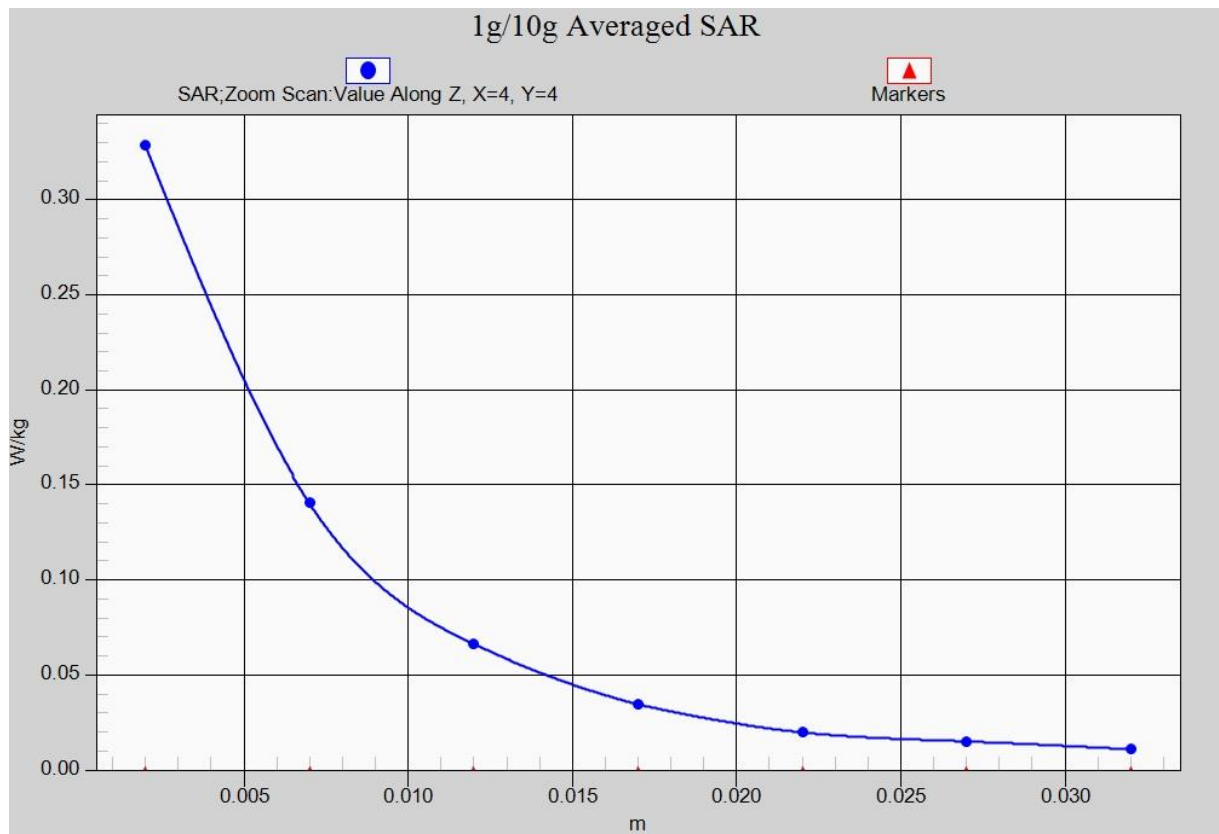


Fig. 21-1 Z-Scan at power reference point (2450 MHz)

Wifi 802.11b Body Rear Channel 11

Date: 2019-6-16

Electronics: DAE4 Sn1525

Medium: Body 2450 MHz

Medium parameters used (interpolated): $f = 2462$ MHz; $\sigma = 1.93$ mho/m; $\epsilon_r = 51.91$; $\rho = 1000$ kg/m³

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

Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7514 ConvF(7.13, 7.13, 7.13)

Area Scan (161x91x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 0.121 W/kg

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

Reference Value = 3.595 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.155 W/kg

SAR(1 g) = 0.094 W/kg; SAR(10 g) = 0.058 W/kg

Maximum value of SAR (measured) = 0.124 W/kg

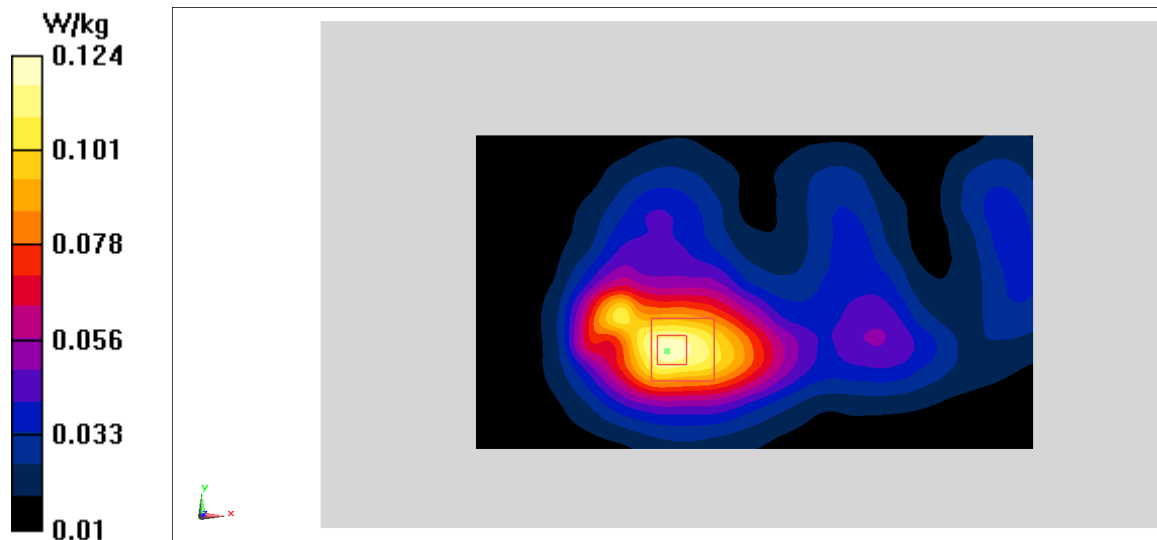


Fig.22 2450 MHz

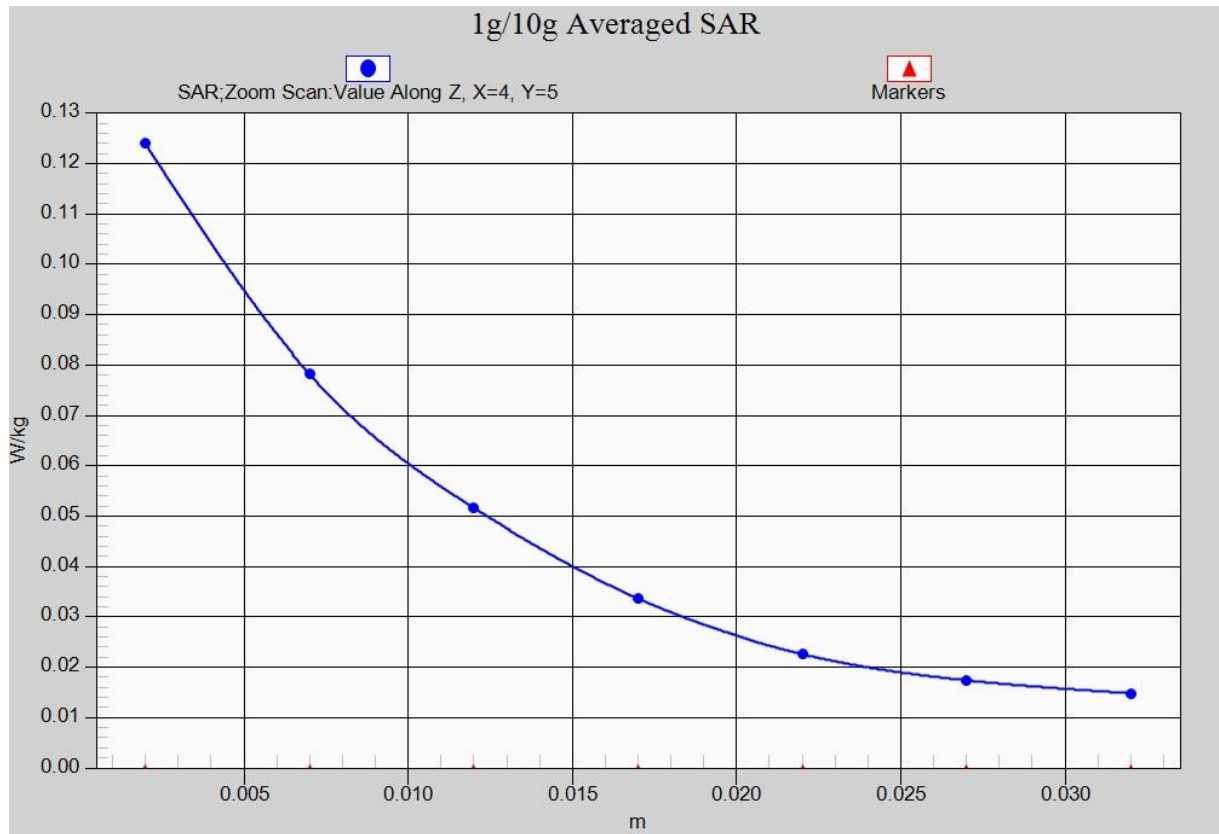


Fig. 22-1 Z-Scan at power reference point (2450 MHz)

ANNEX B System Verification Results

750MHz

Date: 2019-6-14

Electronics: DAE4 Sn1525

Medium: Head 750 MHz

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.875 \text{ mho/m}$; $\epsilon_r = 42.38$; $\rho = 1000 \text{ kg/m}^3$

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

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

Probe: EX3DV4 – SN7514 ConvF(9.47, 9.47, 9.47)

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

Reference Value = 49.45 V/m ; Power Drift = 0.05 dB

Fast SAR: SAR(1 g) = 2.09 W/kg ; SAR(10 g) = 1.38 W/kg

Maximum value of SAR (interpolated) = 2.21 W/kg

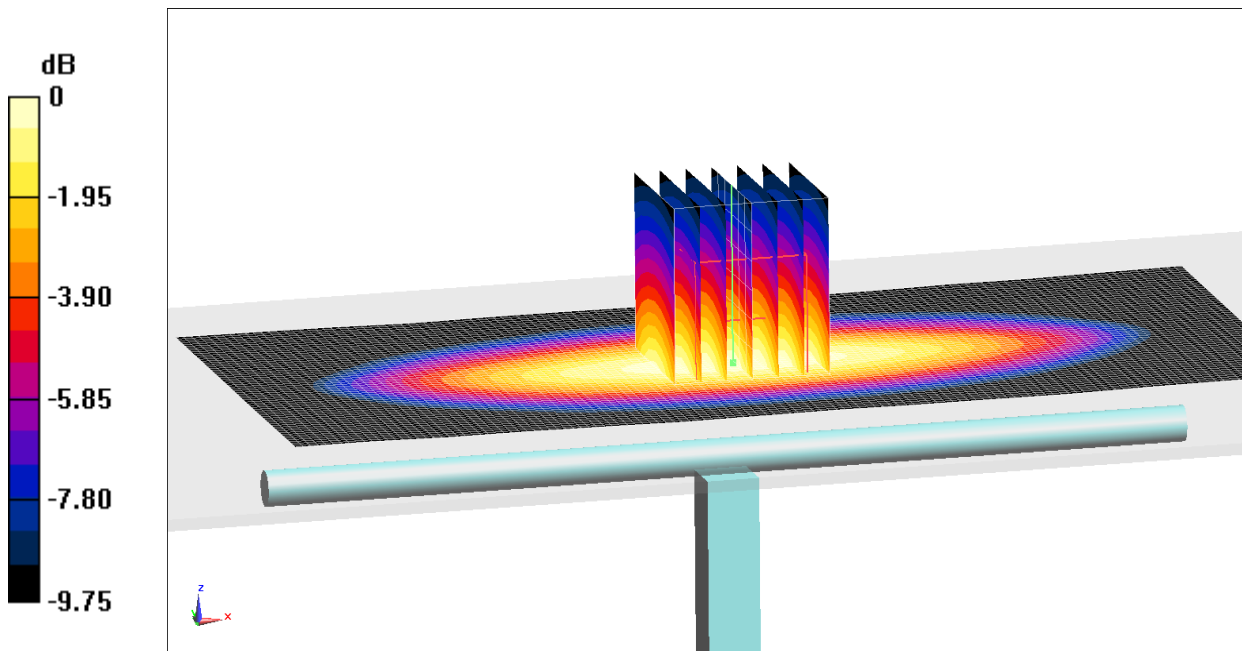
System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 49.45 V/m ; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 2.86 W/kg

SAR(1 g) = 2.07 W/kg ; SAR(10 g) = 1.36 W/kg

Maximum value of SAR (measured) = 2.19 W/kg



0 dB = 2.19 W/kg = 3.40 dB W/kg

Fig.B.1 validation 750MHz 250mW

750MHz

Date: 2019-6-14

Electronics: DAE4 Sn1525

Medium: Body750 MHz

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.976 \text{ mho/m}$; $\epsilon_r = 56.56$; $\rho = 1000 \text{ kg/m}^3$

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

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

Probe: EX3DV4 – SN7514 ConvF(9.68, 9.68, 9.68)

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

Reference Value = 51.669 V/m ; Power Drift = -0.05 dB

Fast SAR: SAR(1 g) = 2.16 W/kg ; SAR(10 g) = 1.42 W/kg

Maximum value of SAR (interpolated) = 2.41 W/kg

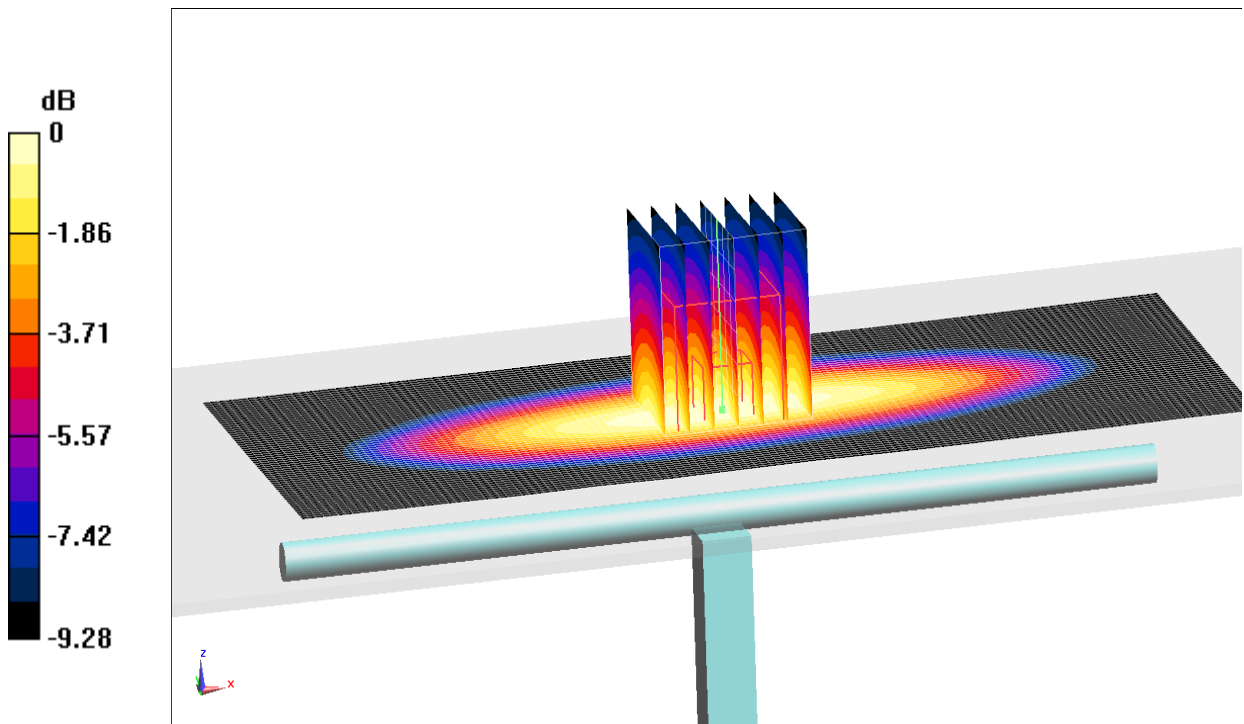
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 51.669 V/m ; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 3.06 W/kg

SAR(1 g) = 2.19 W/kg ; SAR(10 g) = 1.44 W/kg

Maximum value of SAR (measured) = 2.43 W/kg



0 dB = 2.43 W/kg = 3.86 dB W/kg

Fig.B.2 validation 750MHz 250mW

835MHz

Date: 2019-6-12

Electronics: DAE4 Sn1525

Medium: Head 850 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.901 \text{ S/m}$; $\epsilon_r = 42.1$; $\rho = 1000 \text{ kg/m}^3$

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

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

Probe: EX3DV4 – SN7514 ConvF(9.09, 9.09, 9.09)

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

Reference Value = 53.95 V/m ; Power Drift = -0.04 dB

Fast SAR: SAR(1 g) = 2.32 W/kg ; SAR(10 g) = 1.49 W/kg

Maximum value of SAR (interpolated) = 2.52 W/kg

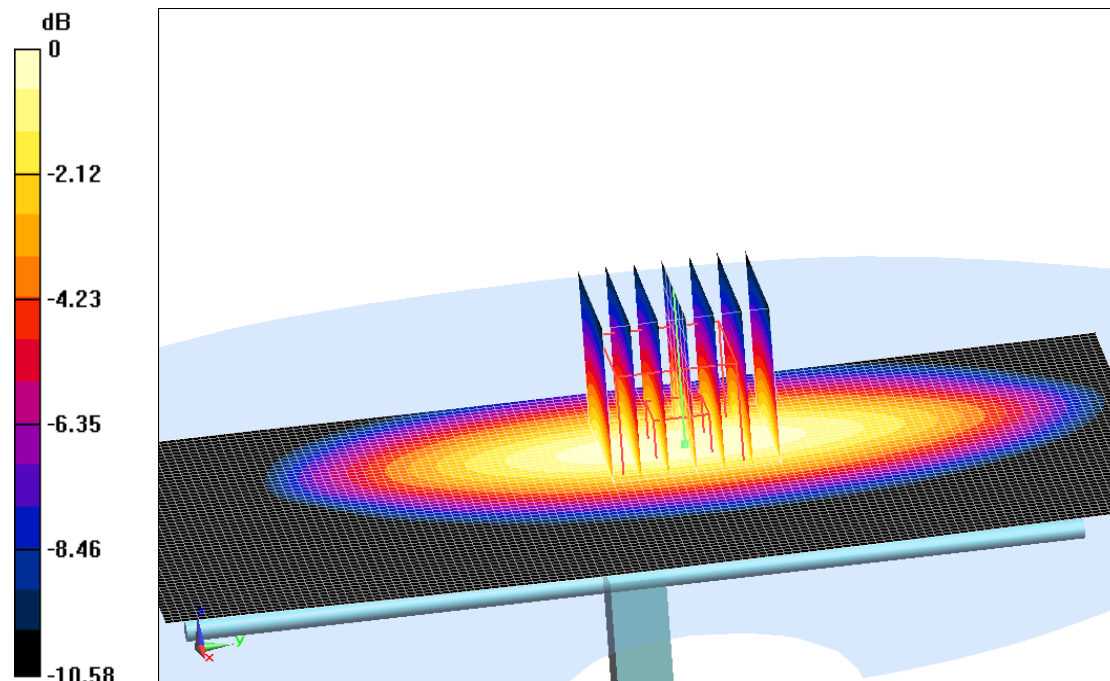
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 53.95 V/m ; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 3.04 W/kg

SAR(1 g) = 2.29 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 dBW/kg

Fig.B.3 validation 835MHz 250mW

835MHz

Date: 2019-6-12

Electronics: DAE4 Sn1525

Medium: Body 850 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.985 \text{ S/m}$; $\epsilon_r = 55.27$; $\rho = 1000 \text{ kg/m}^3$

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

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

Probe: EX3DV4 – SN7514 ConvF(9.47, 9.47, 9.47)

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

Reference Value = 52.89 V/m ; Power Drift = -0.02 dB

Fast SAR: SAR(1 g) = 2.4 W/kg ; SAR(10 g) = 1.59 W/kg

Maximum value of SAR (interpolated) = 2.73 W/kg

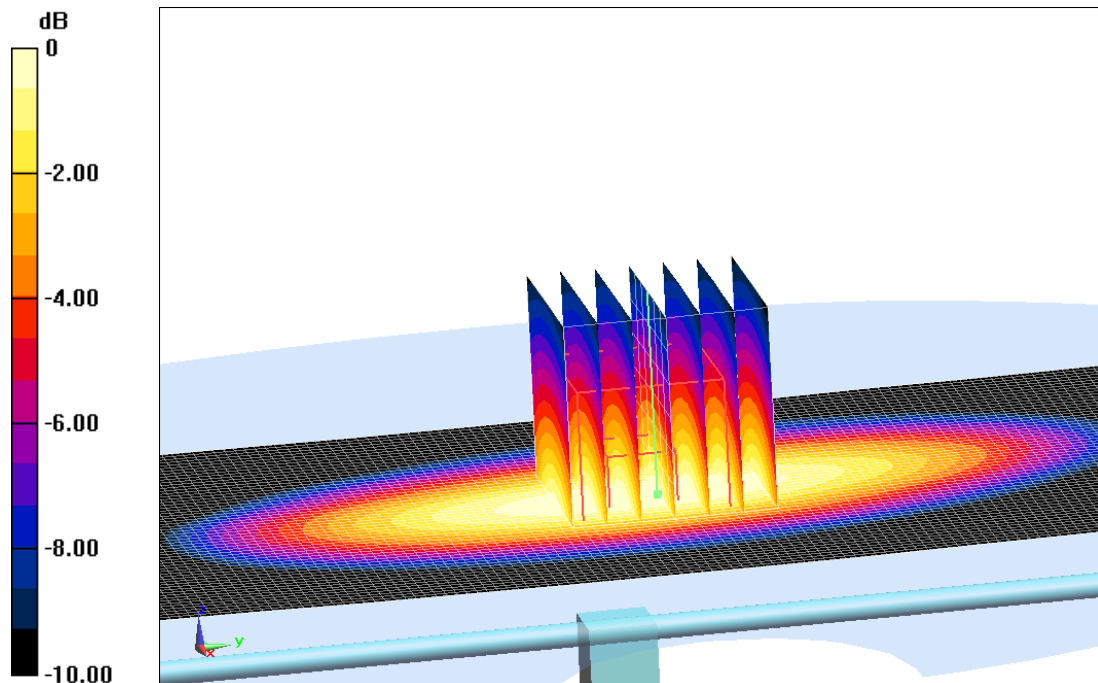
System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 52.89 V/m ; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 3.17 W/kg

SAR(1 g) = 2.43 W/kg ; SAR(10 g) = 1.61 W/kg

Maximum value of SAR (measured) = 2.76 W/kg



0 dB = 2.76 W/kg = 4.41 dBW/kg

Fig.B.4 validation 835MHz 250mW

1750MHz

Date: 2019-6-15

Electronics: DAE4 Sn1525

Medium: Head 1750 MHz

Medium parameters used: $f=1750$ MHz; $\sigma = 1.386$ mho/m; $\epsilon_r = 40.49$; $\rho = 1000$ kg/m³

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

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

Probe: EX3DV4 – SN7514 ConvF(8.10, 8.10, 8.10)

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

Reference Value = 89.61 V/m; Power Drift = 0.06 dB

Fast SAR: SAR(1 g) = 9.08 W/kg; SAR(10 g) = 4.80 W/kg

Maximum value of SAR (interpolated) = 10.0 W/kg

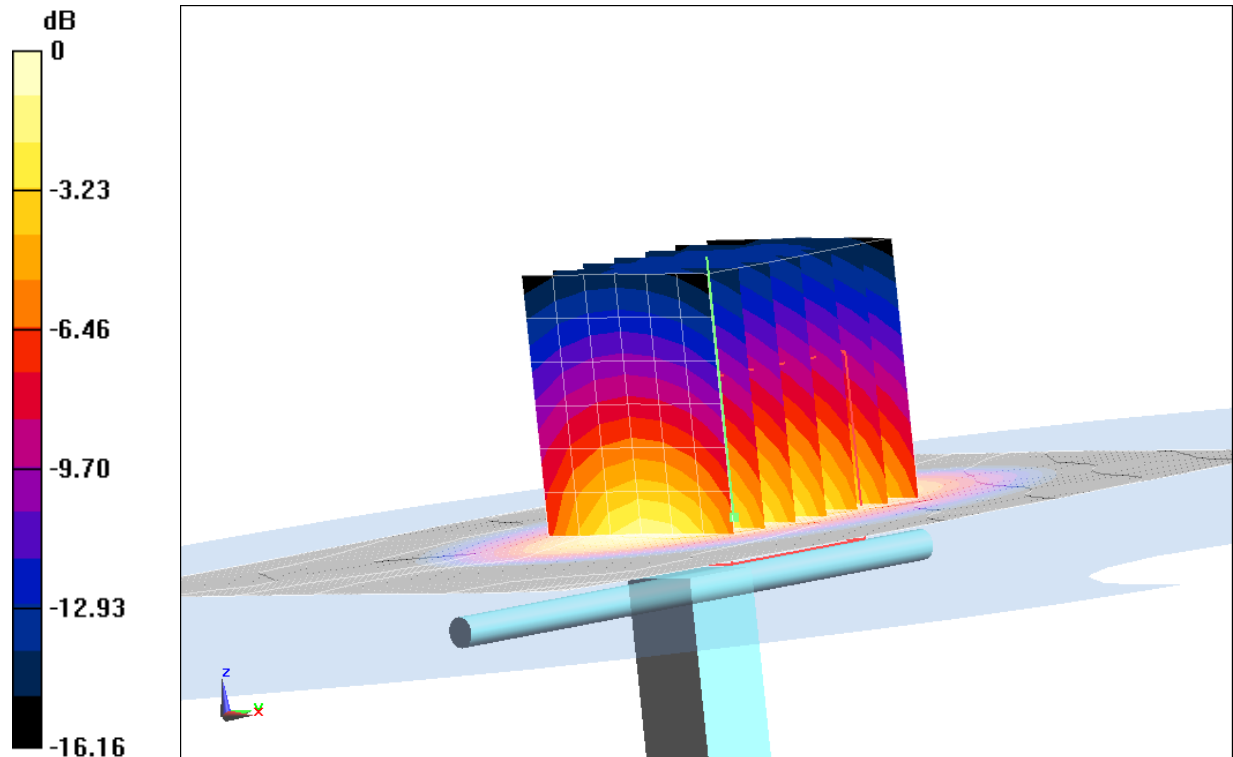
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 89.61 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 15.59 W/kg

SAR(1 g) = 9.18 W/kg; SAR(10 g) = 4.86 W/kg

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



0 dB = 10.1 W/kg = 10.04 dB W/kg

Fig.B.5 validation 1750MHz 250mW

1750MHz

Date: 2019-6-15

Electronics: DAE4 Sn1525

Medium: Body 1750 MHz

Medium parameters used: $f=1750$ MHz; $\sigma = 1.456$ mho/m; $\epsilon_r = 54.4$; $\rho = 1000$ kg/m³

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

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

Probe: EX3DV4 – SN7514 ConvF(7.82, 7.82, 7.82)

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

Reference Value = 95.17 V/m; Power Drift = -0.03 dB

Fast SAR: SAR(1 g) = 9.51 W/kg; SAR(10 g) = 5.07 W/kg

Maximum value of SAR (interpolated) = 10.4 W/kg

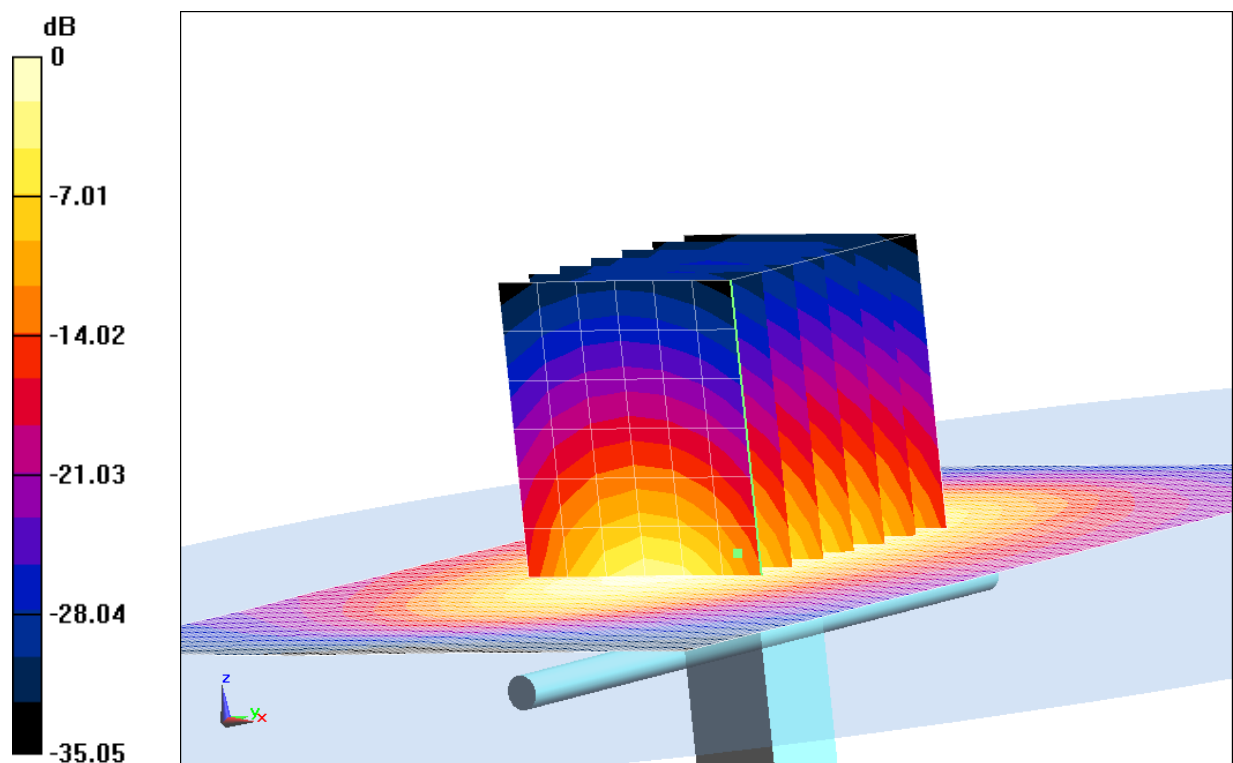
System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 95.17 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 15.54 W/kg

SAR(1 g) = 9.42 W/kg; SAR(10 g) = 4.98 W/kg

Maximum value of SAR (measured) = 10.3 W/kg



0 dB = 10.3 W/kg = 10.13 dB W/kg

Fig.B.6 validation 1750MHz 250mW

1900MHz

Date: 2019-6-13

Electronics: DAE4 Sn1525

Medium: Head 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.395 \text{ mho/m}$; $\epsilon_r = 40.25$; $\rho = 1000 \text{ kg/m}^3$

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

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

Probe: EX3DV4 – SN7514 ConvF (7.73, 7.73, 7.73)

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

Reference Value = 92.3 V/m ; Power Drift = 0.02 dB

SAR(1 g) = 10.3 W/kg ; SAR(10 g) = 5.51 W/kg

Maximum value of SAR (interpolated) = 12.5 W/kg

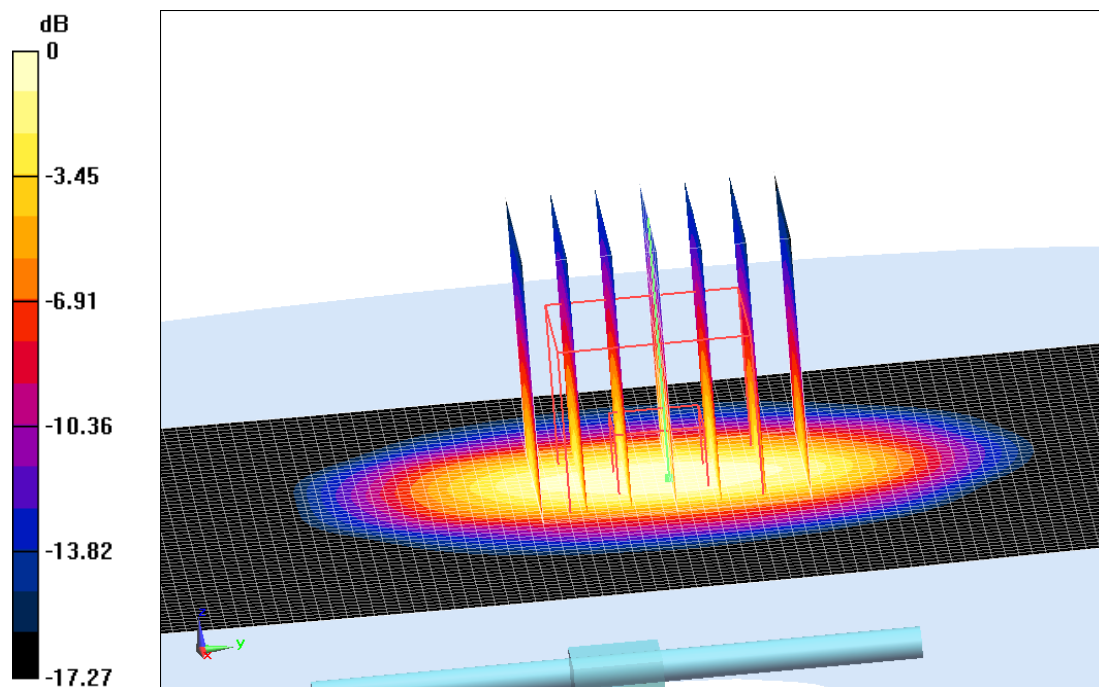
System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 92.3 V/m ; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 18.05 W/kg

SAR(1 g) = 10.2 W/kg ; SAR(10 g) = 5.42 W/kg

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



$0 \text{ dB} = 12.4 \text{ W/kg} = 10.93 \text{ dBW/kg}$

Fig.B.7 validation 1900MHz 250mW