	uncertainty									
17	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
18	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
19	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
20	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
21	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
22	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c' = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						13.5	13.4	257
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$						27.0	26.8	

17 MAIN TEST INSTRUMENTS

Table 17.1: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	E5071C	MY46110673	January 13, 2017	One year
02	Power meter	NRVD	102083	September 22, 2016	One year
03	Power sensor	NRV-Z5	100595		
04	Signal Generator	E4438C	MY49071430	January 13,2017	One Year
05	Amplifier	60S1G4	0331848	No Calibration Requested	
06	BTS	E5515C	MY50263375	January 16, 2017	One year
07	BTS	CMW500	159890	November 25, 2016	One year
08	E-field Probe	SPEAG EX3DV4	3846	January 13, 2017	One year
09	DAE	SPEAG DAE4	1331	January 19, 2017	One year
10	Dipole Validation Kit	SPEAG D835V2	4d069	July 20,2016	One year
11	Dipole Validation Kit	SPEAG D1900V2	5d101	July 28,2016	One year
12	Dipole Validation Kit	SPEAG D2450V2	853	July 25,2016	One year
13	Dipole Validation Kit	SPEAG D2600V2	1012	July 25,2016	One year

END OF REPORT BODY

ANNEX A Graph Results

850 Right Cheek High

Date: 2017-7-14
Electronics: DAE4 Sn1331
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.92 mho/m; εr = 42.17; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.0°C
Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3
Probe: EX3DV4 – SN3846 ConvF(9.33, 9.33, 9.33)

Area Scan (91x131x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.285 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.800 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.330 W/kg
SAR(1 g) = 0.261 W/kg; SAR(10 g) = 0.199 W/kg
Maximum value of SAR (measured) = 0.286 W/kg

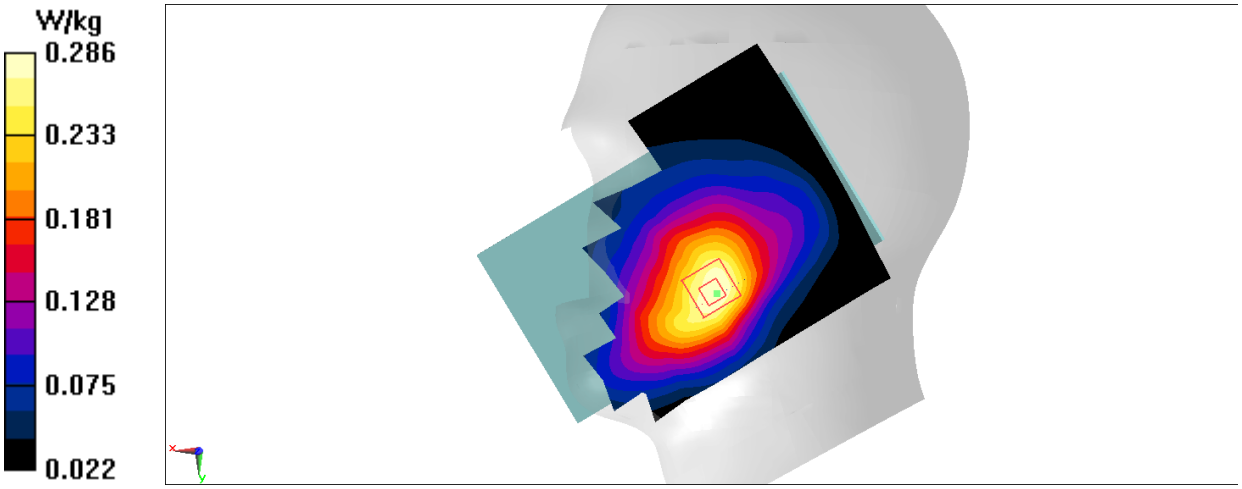


Fig.1 850MHz

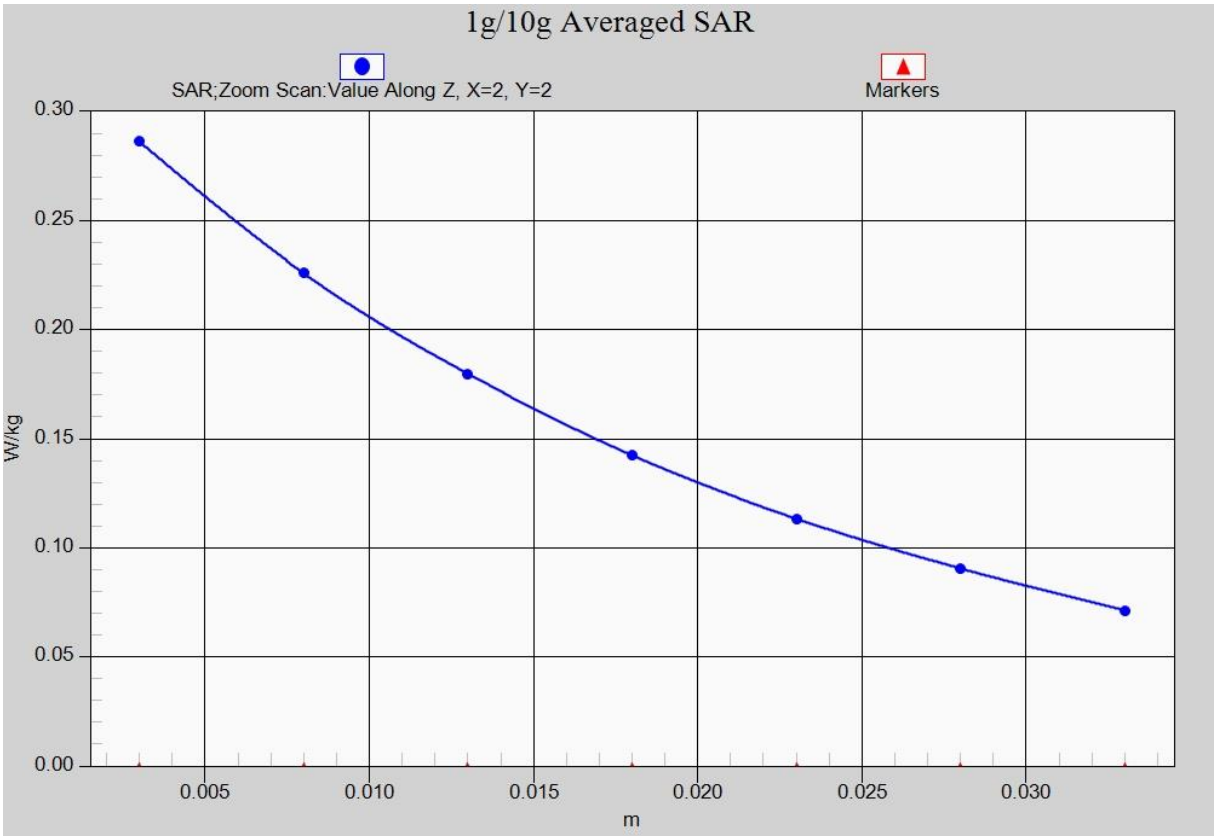


Fig. 1-1 Z-Scan at power reference point (850 MHz)

850 Body Left High

Date: 2017-7-14
Electronics: DAE4 Sn1331
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.993 mho/m; εr = 54.01; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.0ºC
Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:2
Probe: EX3DV4 – SN3846 ConvF(9.52, 9.52, 9.52)

Area Scan (151x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.44 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.74 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.97 W/kg
SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.615 W/kg
Maximum value of SAR (measured) = 1.56 W/kg

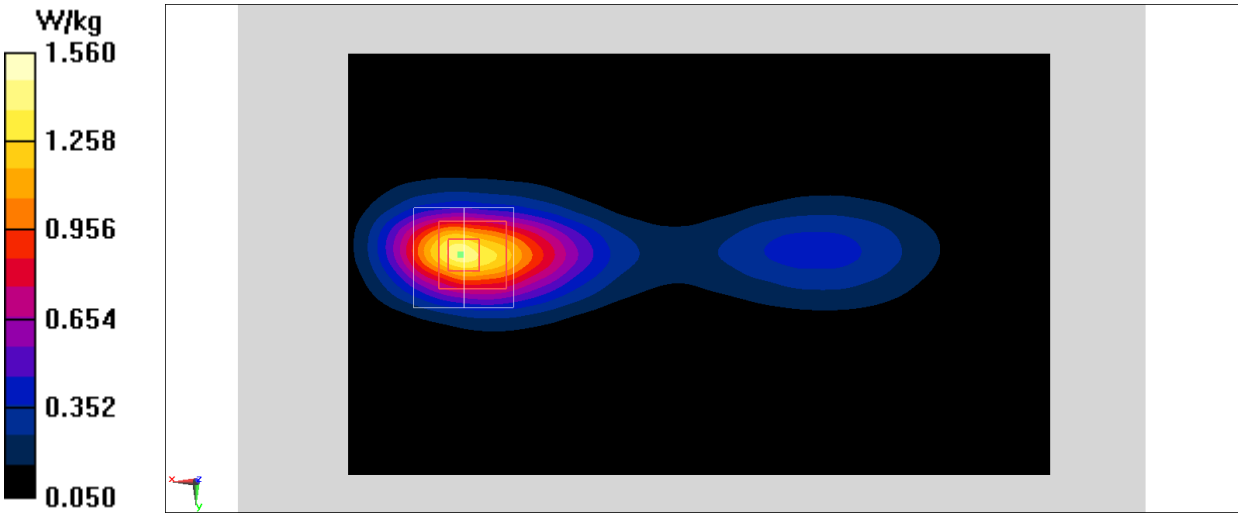


Fig.2 850 MHz

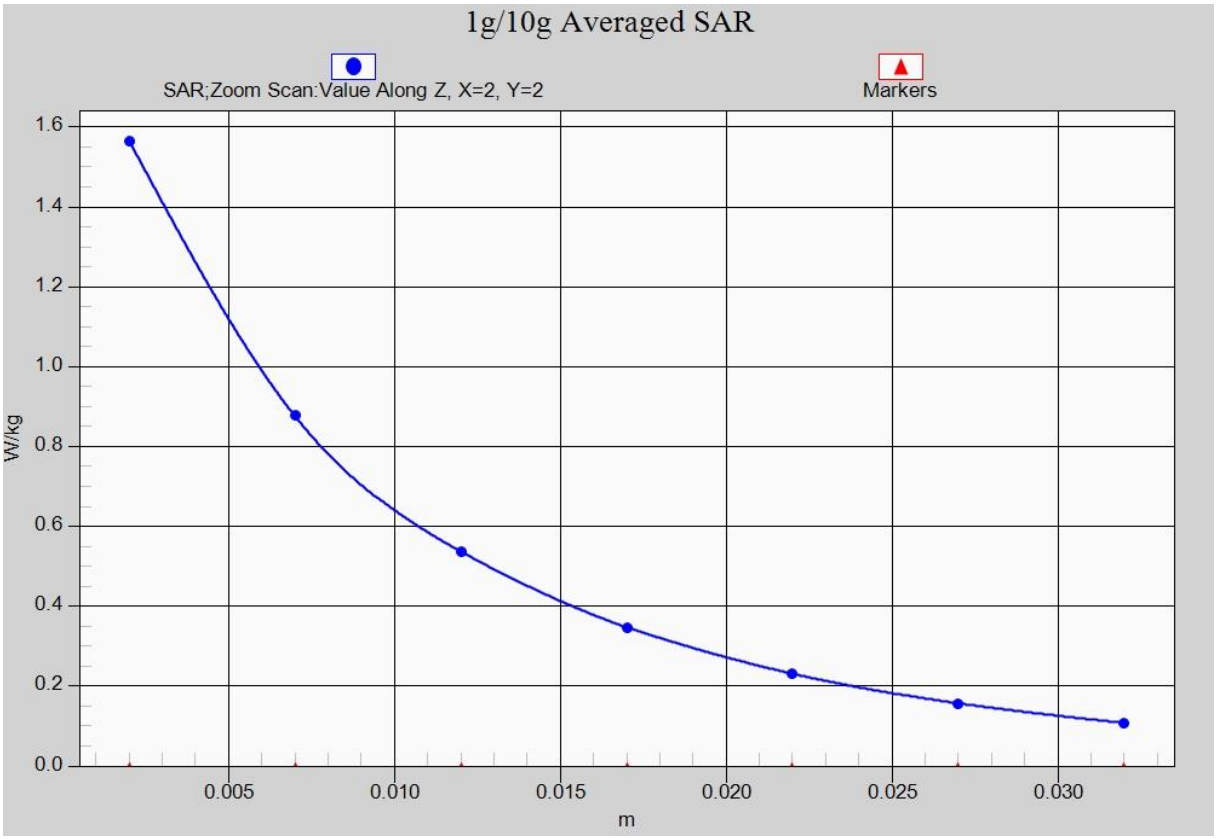


Fig. 2-1 Z-Scan at power reference point (850 MHz)

1900 Left Cheek Low

Date: 2017-7-15
Electronics: DAE4 Sn1331
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.405 mho/m; εr = 40.58; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.0°C
Communication System: GSM 1900MHz Frequency: 1850.2 MHz Duty Cycle: 1:8.3
Probe: EX3DV4– SN3846 ConvF(7.89, 7.89, 7.89)

Area Scan (81x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0585 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.567 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.0690 W/kg
SAR(1 g) = 0.049 W/kg; SAR(10 g) = 0.033 W/kg
Maximum value of SAR (measured) = 0.0522 W/kg

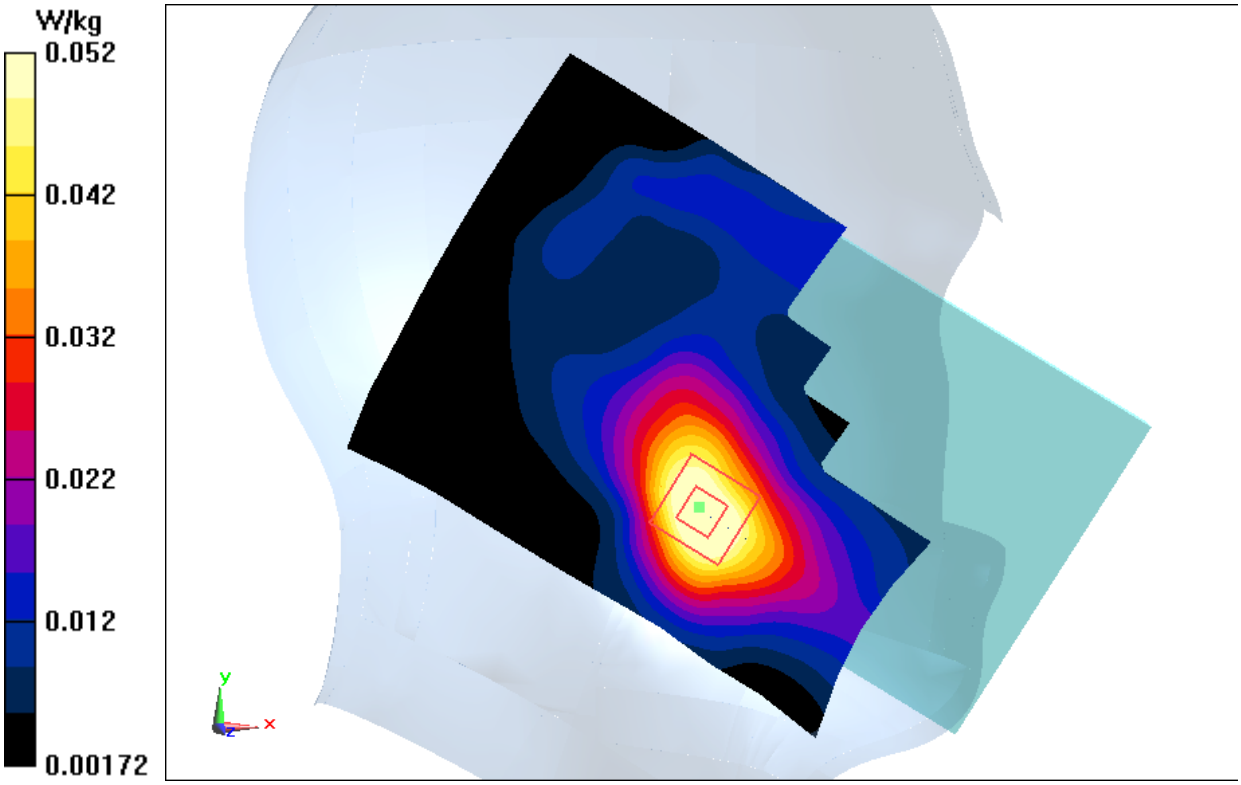


Fig.3 1900 MHz

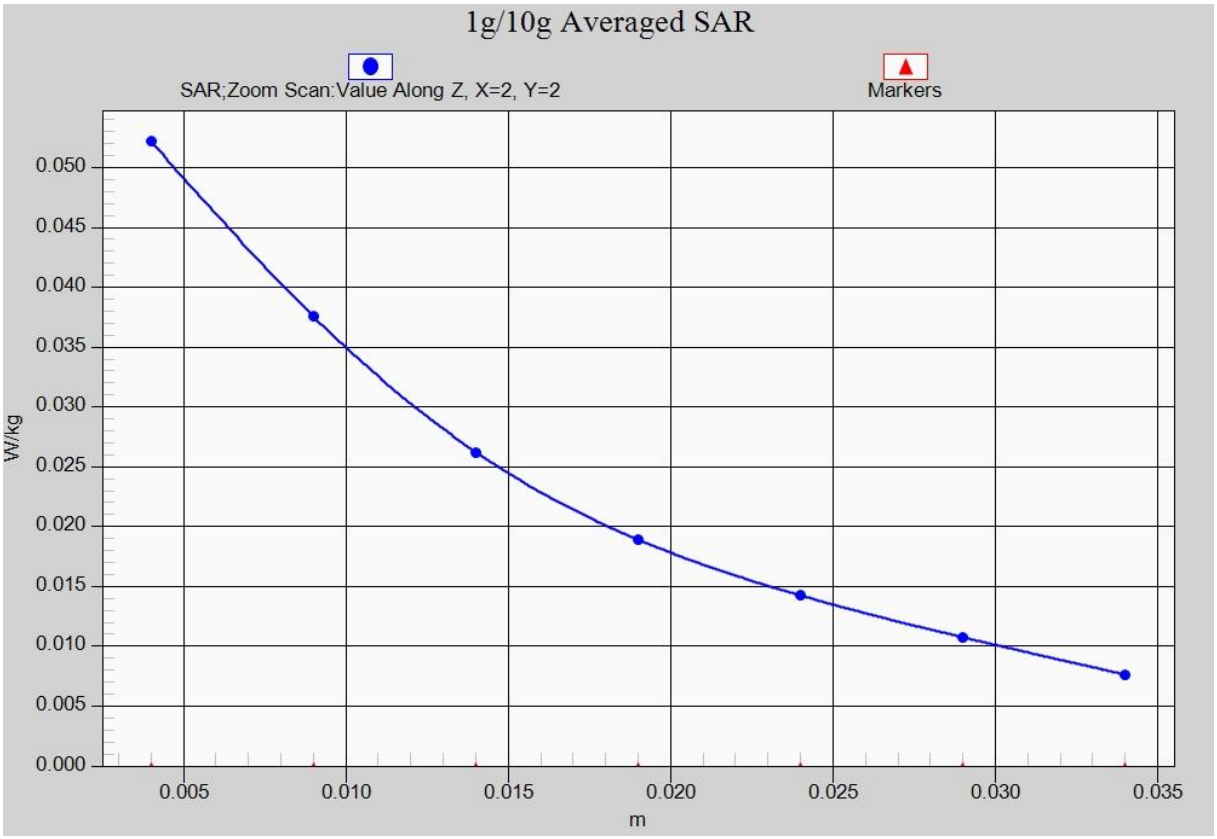


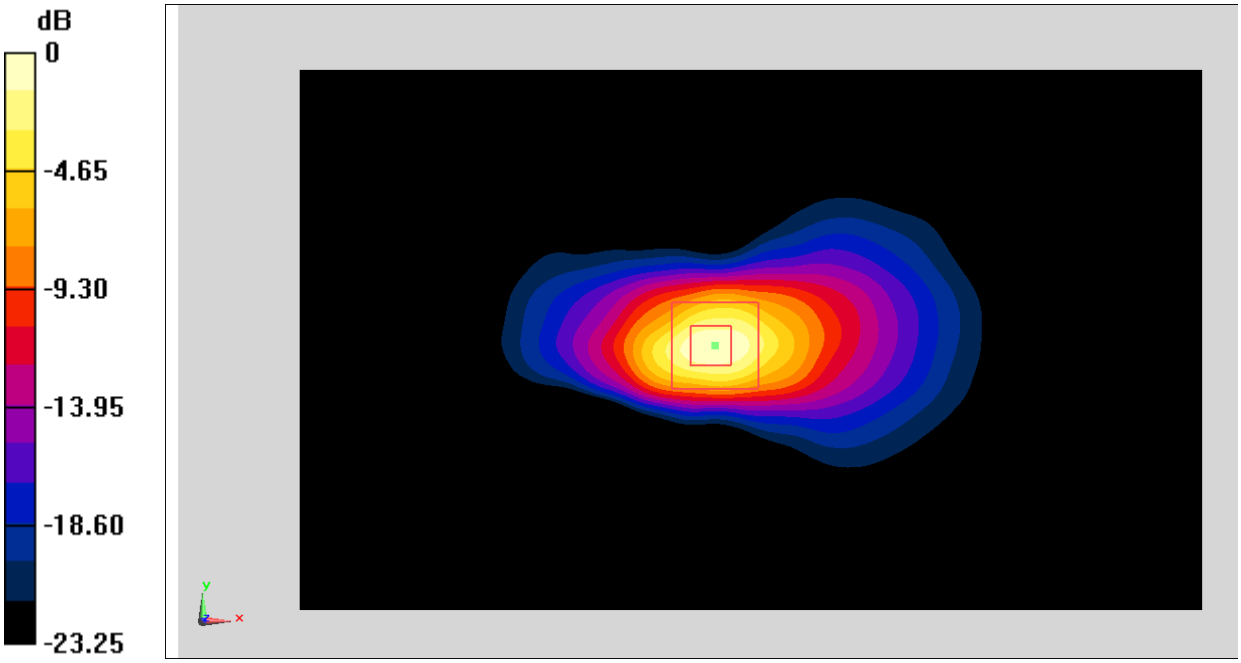
Fig. 3-1 Z-Scan at power reference point (1900 MHz)

1900 Body Bottom Middle

Date: 2017-7-15
Electronics: DAE4 Sn1331
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ =1.546 mho/m; εr = 52.3; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.0ºC
Communication System: GSM 1900MHz GPRS Frequency: 1880 MHz Duty Cycle: 1:2.67
Probe: EX3DV4– SN3846 ConvF(7.57, 7.57, 7.57)

Area Scan (151x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.946 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.15 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.58 W/kg
SAR(1 g) = 0.723 W/kg; SAR(10 g) = 0.300 W/kg
Maximum value of SAR (measured) = 1.21 W/kg



0 dB = 0.946 W/kg = -0.24 dBW/kg

Fig.4 1900 MHz

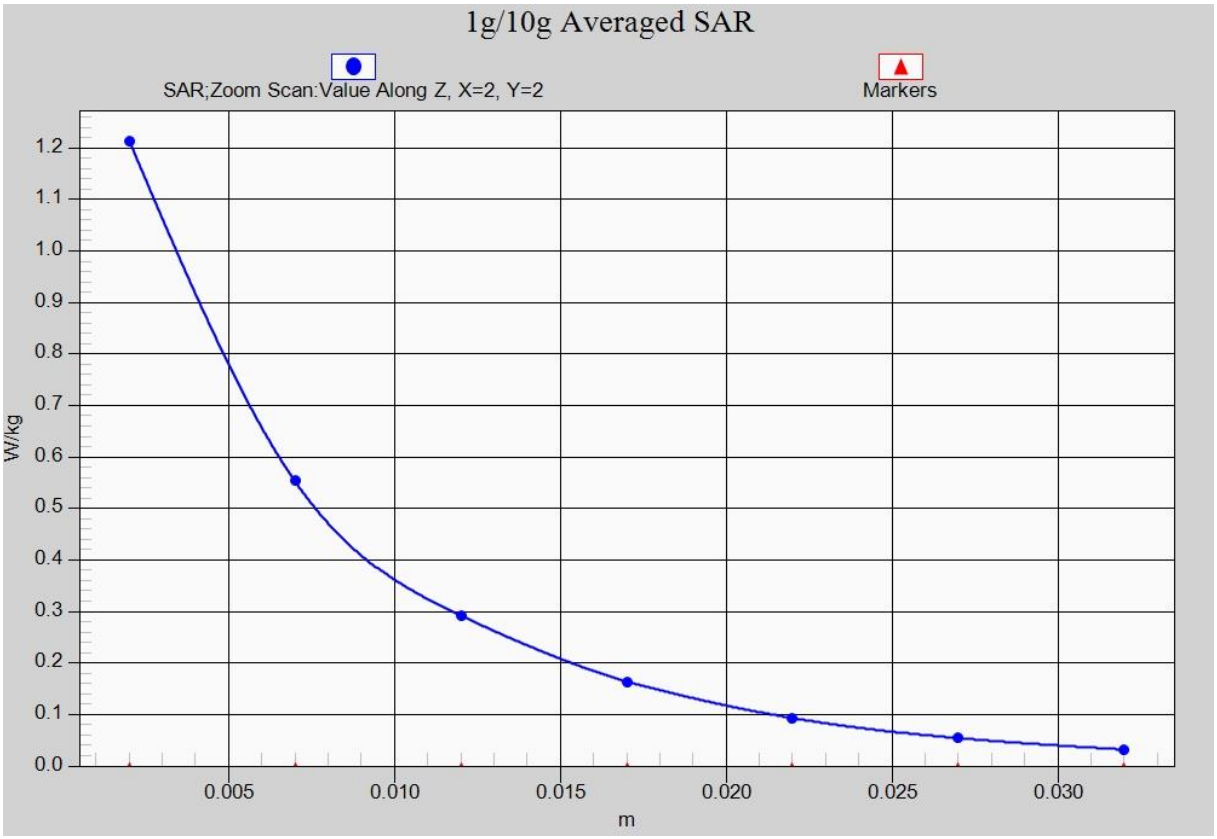


Fig. 4-1 Z-Scan at power reference point (1900 MHz)

WCDMA 850 Right Cheek Middle

Date: 2017-7-14
Electronics: DAE4 Sn1331
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.908 mho/m; εr = 42.305; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.0°C
Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(9.33, 9.33, 9.33)

Area Scan (91x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.308 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.069 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.367 W/kg
SAR(1 g) = 0.287 W/kg; SAR(10 g) = 0.218 W/kg
Maximum value of SAR (measured) = 0.318 W/kg

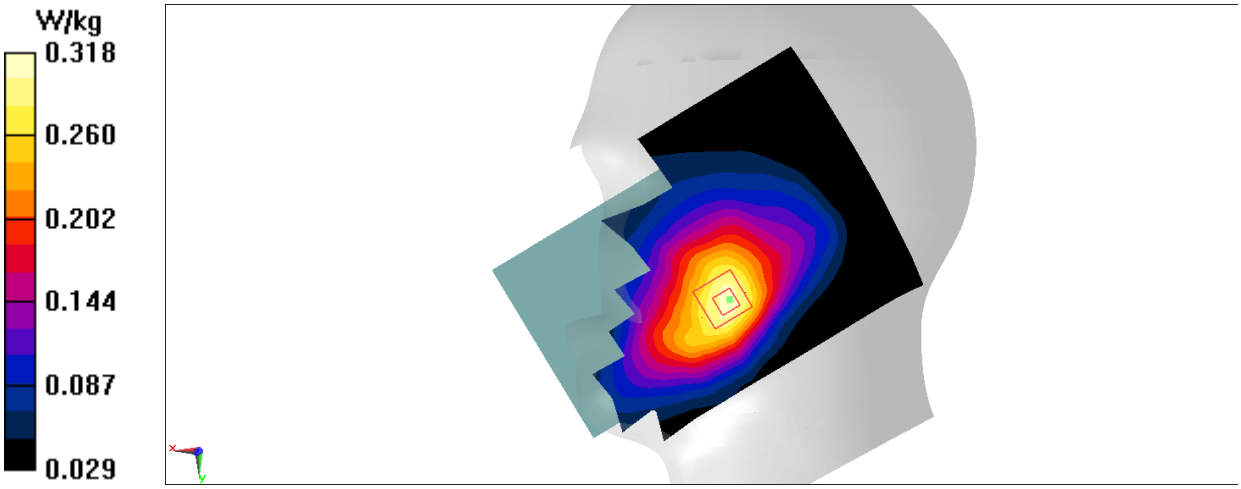


Fig.5 WCDMA 850

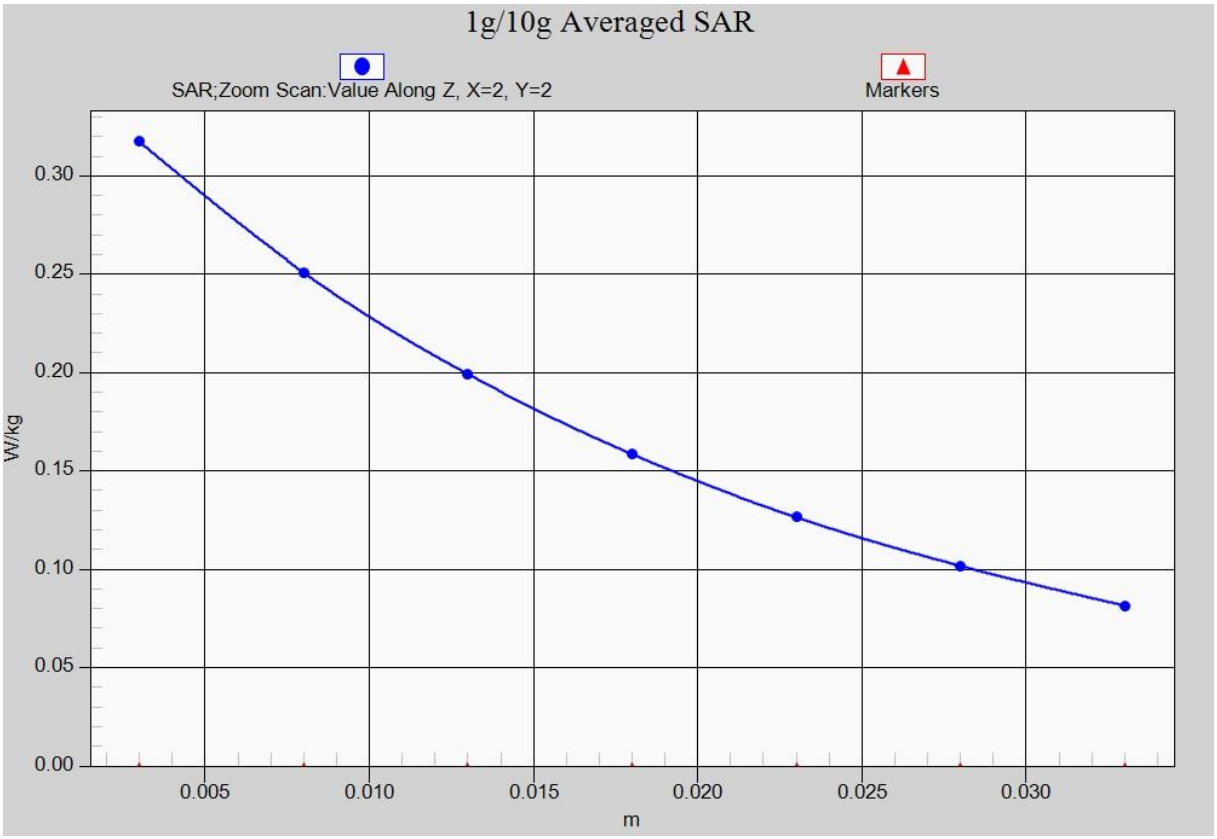


Fig. 5-1 Z-Scan at power reference point (850 MHz)

WCDMA 850 Body Left Middle

Date: 2017-7-14
Electronics: DAE4 Sn1331
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.98 mho/m; εr = 54.116; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.0°C
Communication System: WCDMA; Frequency: 836.4 MHz; Duty Cycle: 1:1
Probe: EX3DV4 – SN3846 ConvF(9.52, 9.52, 9.52)

Area Scan (111x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.37 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.30 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.87 W/kg
SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.616 W/kg
Maximum value of SAR (measured) = 1.20 W/kg

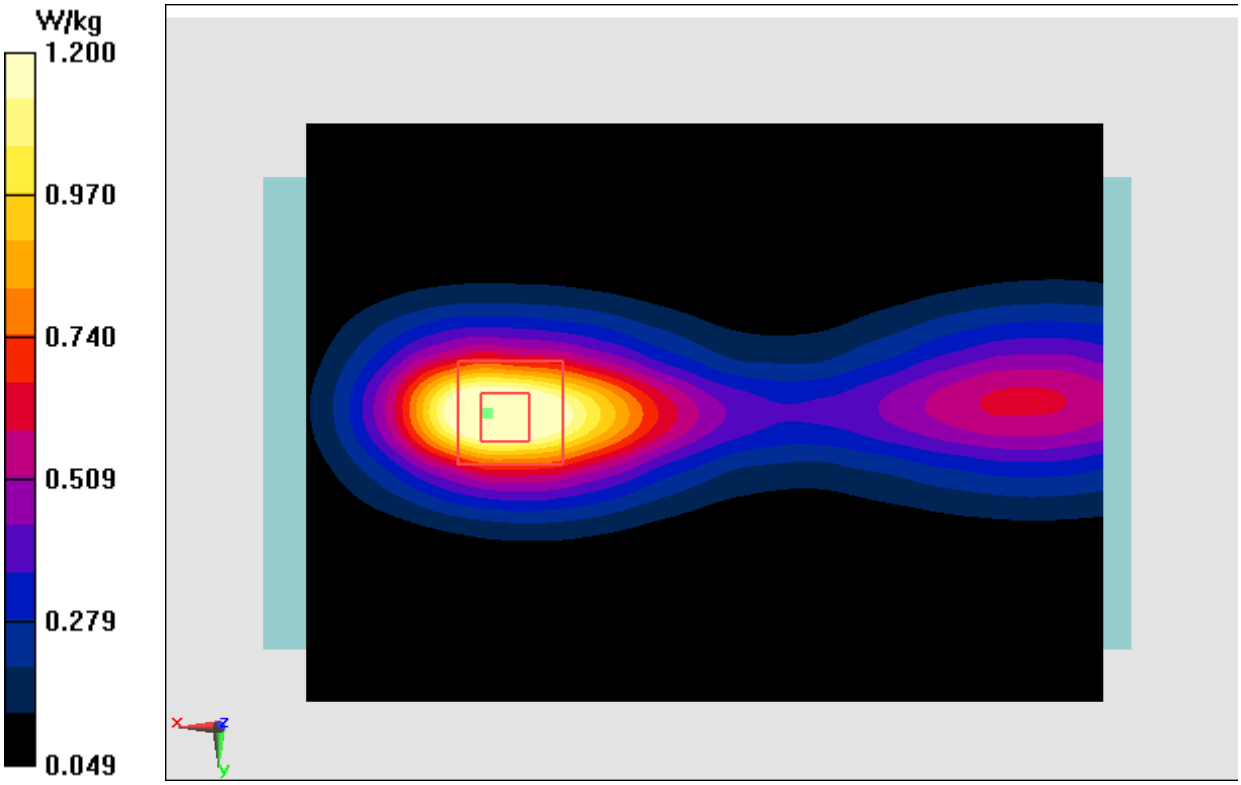


Fig.6 WCDMA 850

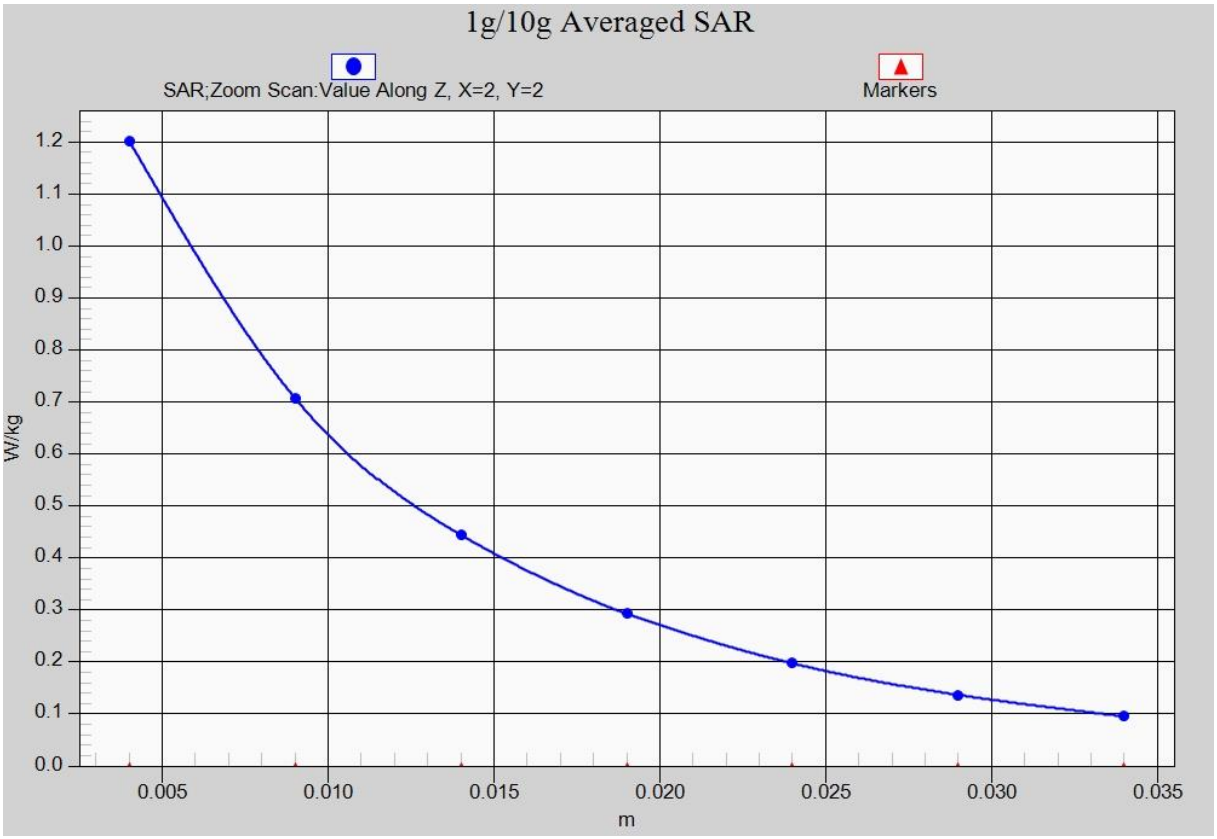


Fig. 6-1 Z-Scan at power reference point (WCDMA850)

WCDMA 1900 Left Cheek High

Date: 2017-7-15
Electronics: DAE4 Sn1331
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.481 mho/m; εr = 40.726; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C Liquid Temperature: 22.0°C
Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: EX3DV4– SN3846 ConvF(7.89, 7.89, 7.89)

Area Scan (81x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.113 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.018 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.131 W/kg
SAR(1 g) = 0.095 W/kg; SAR(10 g) = 0.061 W/kg
Maximum value of SAR (measured) = 0.101 W/kg

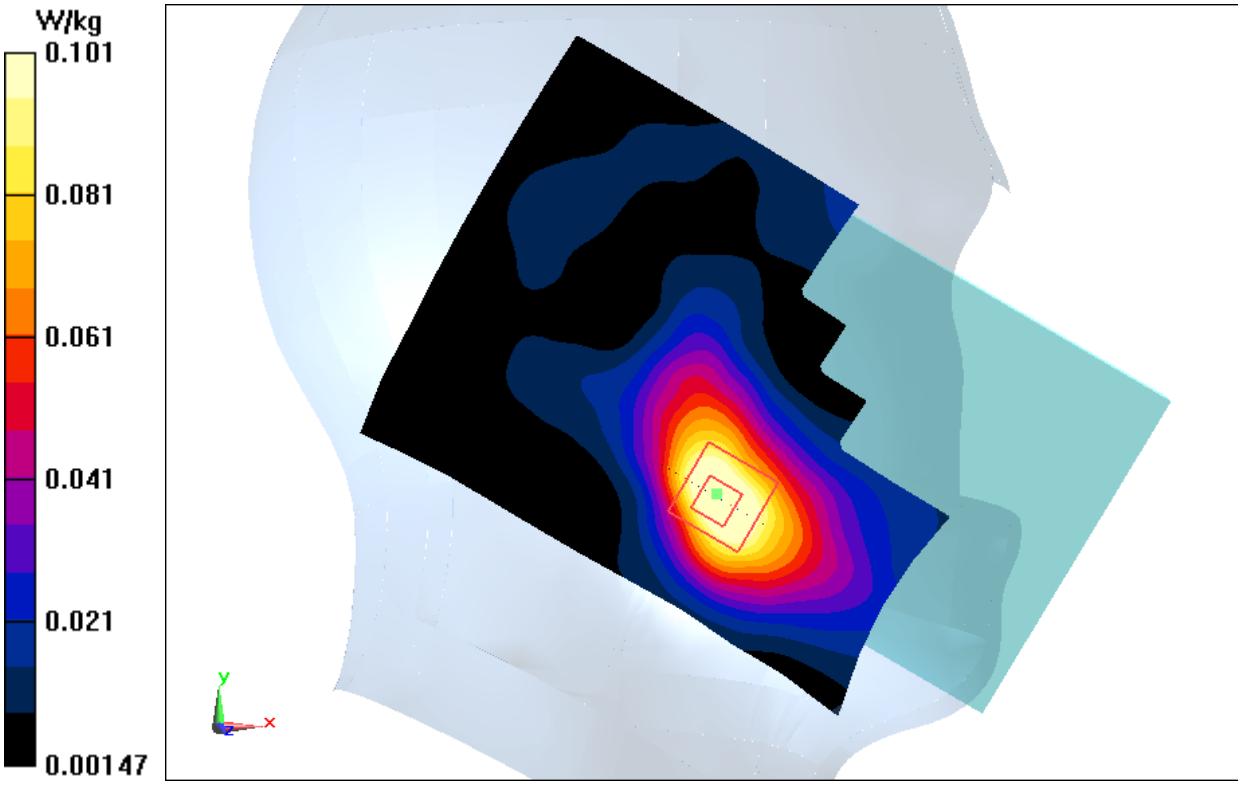


Fig.7 WCDMA1900

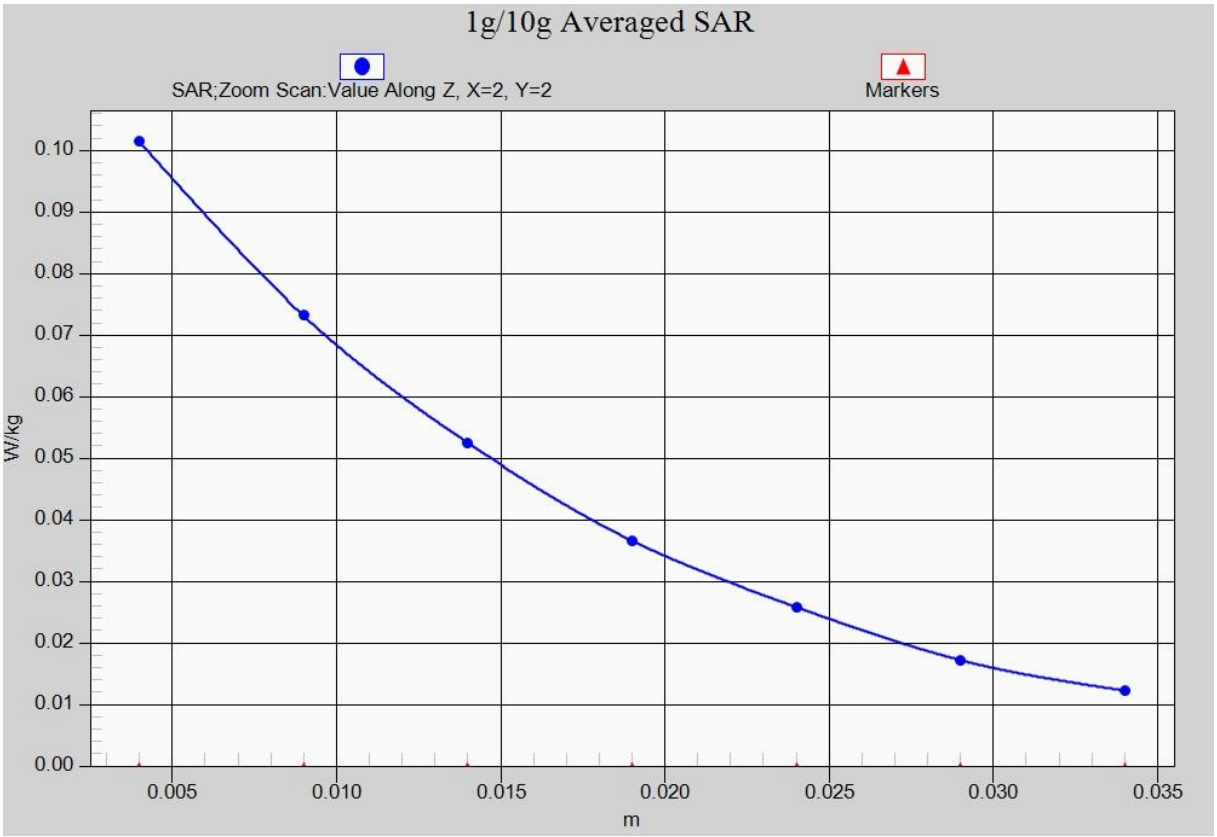


Fig. 7-1 Z-Scan at power reference point (WCDMA1900)

WCDMA 1900 Body Bottom High

Date: 2017-7-15
Electronics: DAE4 Sn1331
Medium: Body 1900 MHz
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.562 mho/m; εr = 52.57; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.0ºC
Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: EX3DV4– SN3846 ConvF(7.57, 7.57, 7.57)

Area Scan (151x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.87 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.65 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 2.50 W/kg
SAR(1 g) = 1.13 W/kg; SAR(10 g) = 0.467 W/kg
Maximum value of SAR (measured) = 1.81 W/kg

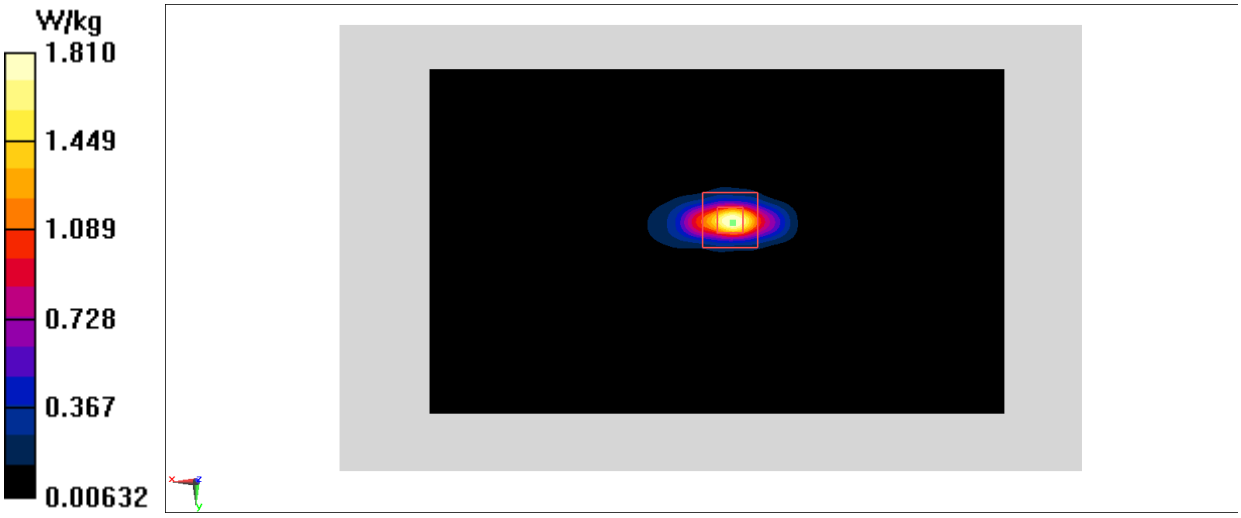


Fig.8 WCDMA1900

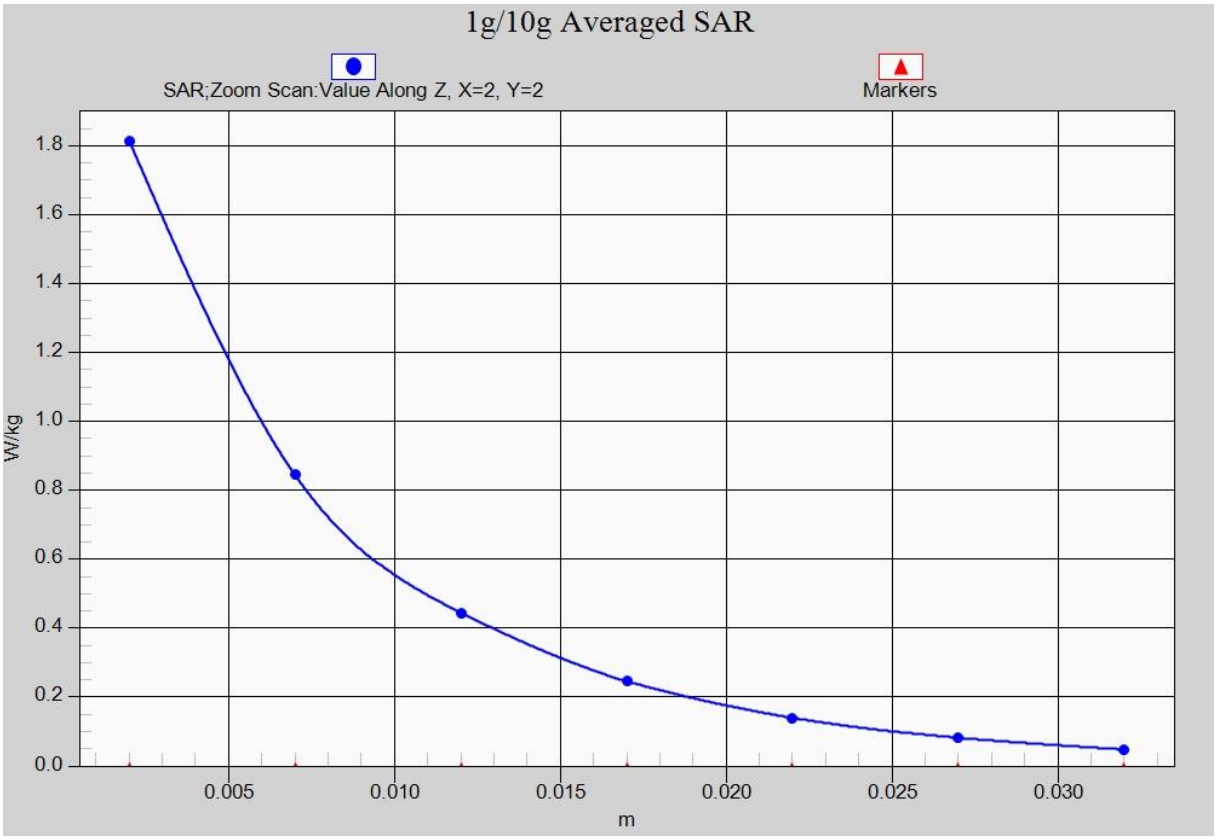


Fig. 8-1 Z-Scan at power reference point (WCDMA1900)

LTE Band2 Left Cheek Low with QPSK_20M_1RB_Low
Date: 2017-7-15
Electronics: DAE4 Sn1331
Medium: Head 1900 MHz
Medium parameters used: f = 1860 MHz; σ =1.373. mho/m; εr = 40.71; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.0ºC
Communication System: LTE Band2 Frequency: 1860 MHz Duty Cycle: 1:1
Probe: EX3DV4– SN3846 ConvF(7.89, 7.89, 7.89)

Area Scan (81x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0819 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.415 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.100 W/kg
SAR(1 g) = 0.072 W/kg; SAR(10 g) = 0.046 W/kg
Maximum value of SAR (measured) = 0.0749 W/kg

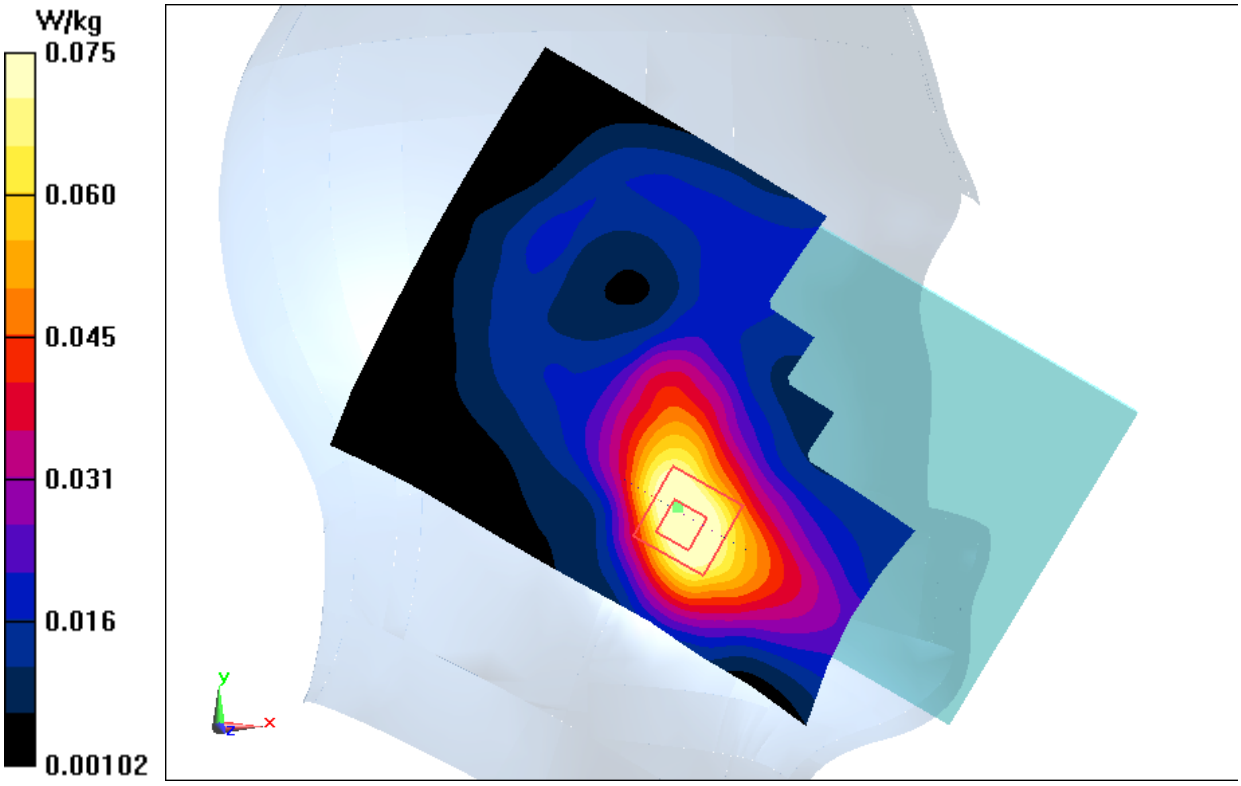


Fig.9 LTE Band2

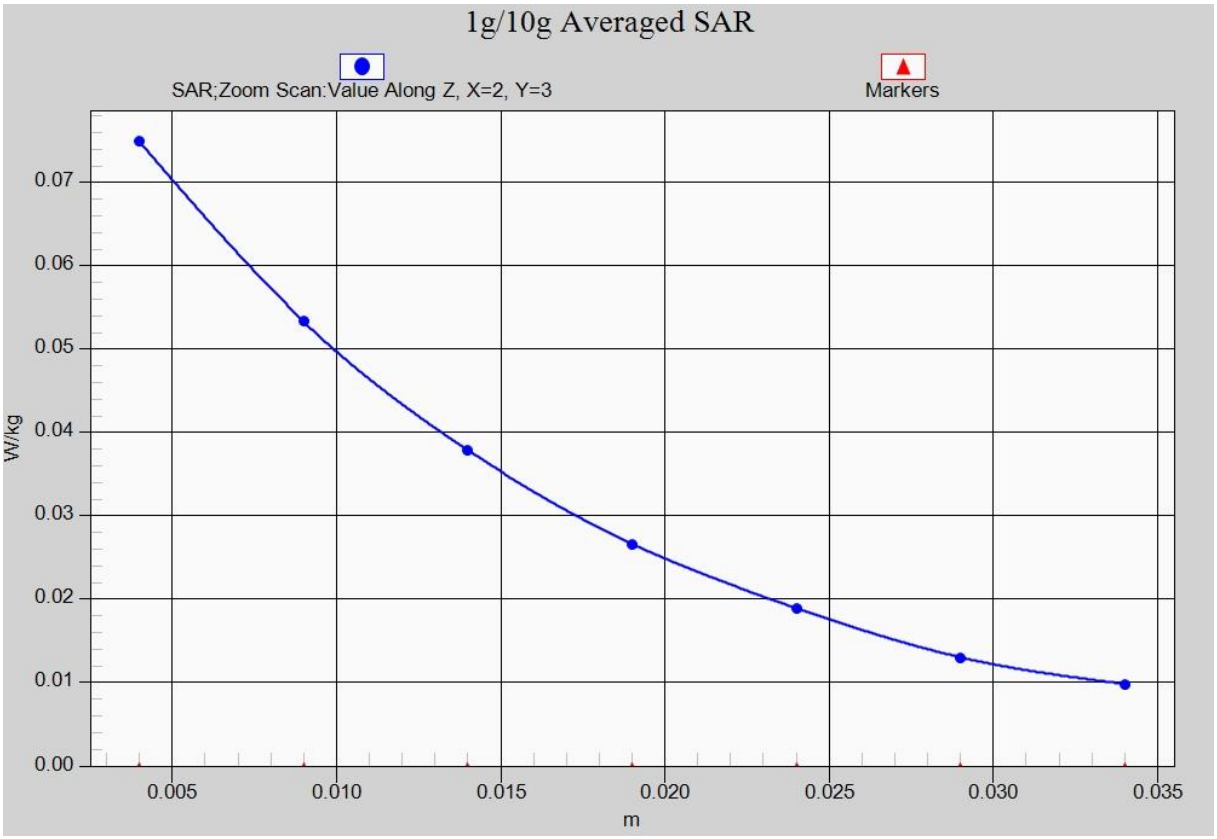
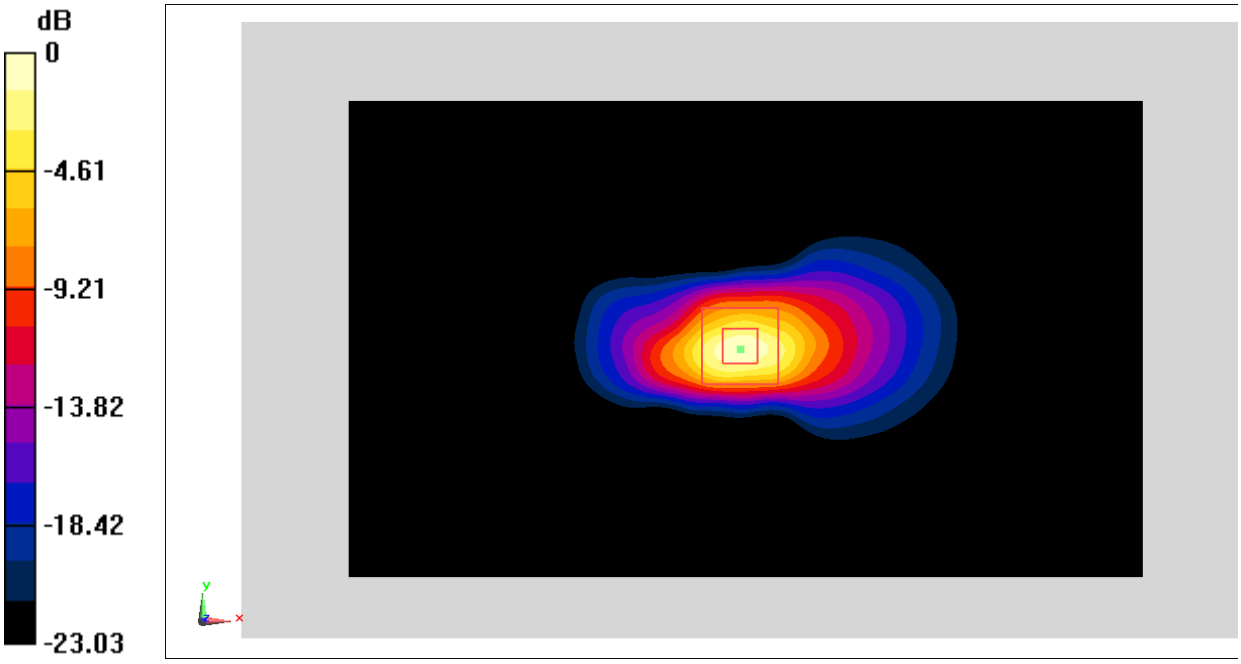


Fig. 9-1 Z-Scan at power reference point (LTE Band2)

LTE Band2 Body Bottom High with QPSK_20M_50RB_Low
Date: 2017-7-15
Electronics: DAE4 Sn1331
Medium: Body 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.528 mho/m; εr = 52.28; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.0ºC
Communication System: LTE Band2 Frequency: 1900 MHz Duty Cycle: 1:1
Probe: EX3DV4– SN3846 ConvF(7.57, 7.57, 7.57)

Area Scan (151x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.34 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.60 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 2.03 W/kg
SAR(1 g) = 0.917 W/kg; SAR(10 g) = 0.378 W/kg
Maximum value of SAR (measured) = 1.55 W/kg



0 dB = 1.34 W/kg = 1.27 dBW/kg

Fig.10 LTE Band2

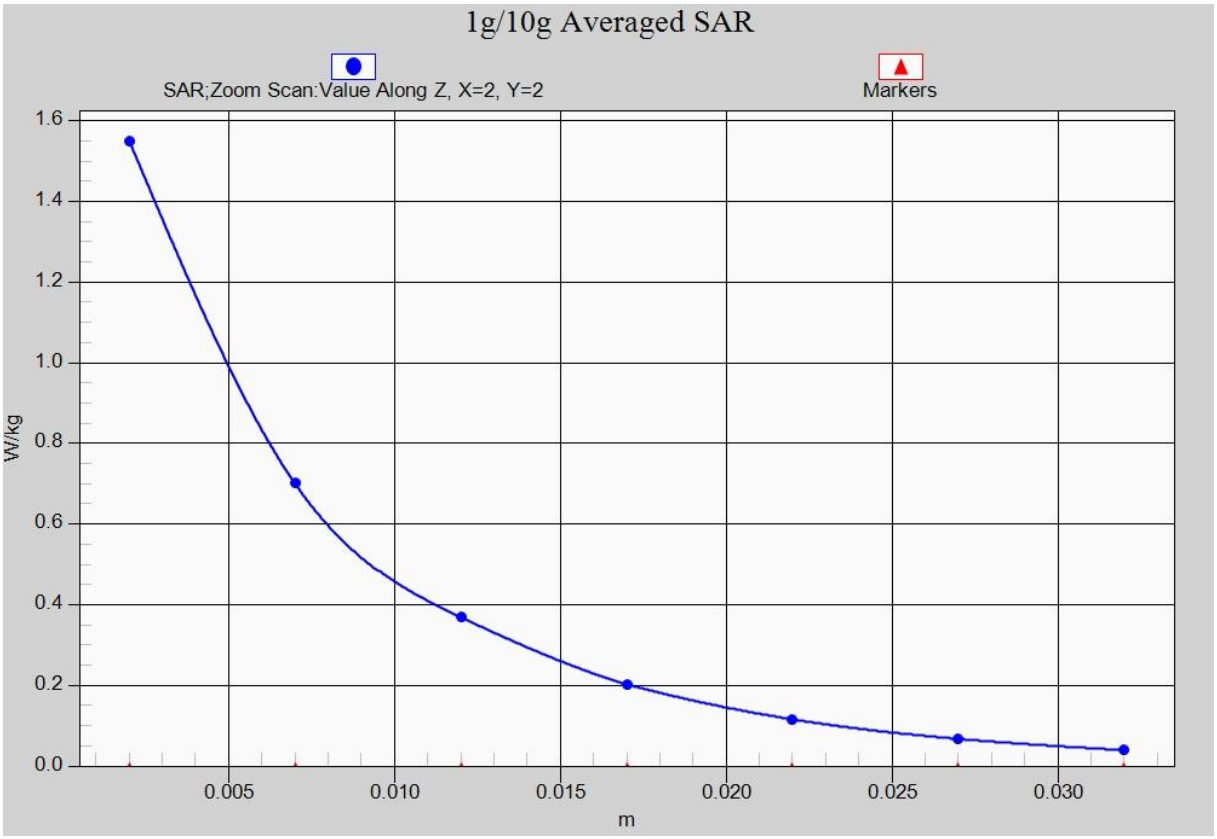


Fig. 10-1 Z-Scan at power reference point (LTE Band2)

LTE Band7 Left Cheek Low with QPSK_20M_1RB_Low
Date: 2017-7-23
Electronics: DAE4 Sn1331
Medium: Head 2600 MHz
Medium parameters used: f = 2510 MHz; σ = 1.944 mho/m; εr = 39.19; ρ = 1000 kg/m^3
Ambient Temperature: 22.8ºC Liquid Temperature: 22.4ºC
Communication System: LTE Band7Frequency: 2510 MHz Duty Cycle: 1:1
Probe: EX3DV4– SN3846 ConvF(7.12, 7.12, 7.12)

Area Scan (91x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0912 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.1690 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.275 W/kg
SAR(1 g) = 0.064 W/kg; SAR(10 g) = 0.034 W/kg
Maximum value of SAR (measured) = 0.0780 W/kg

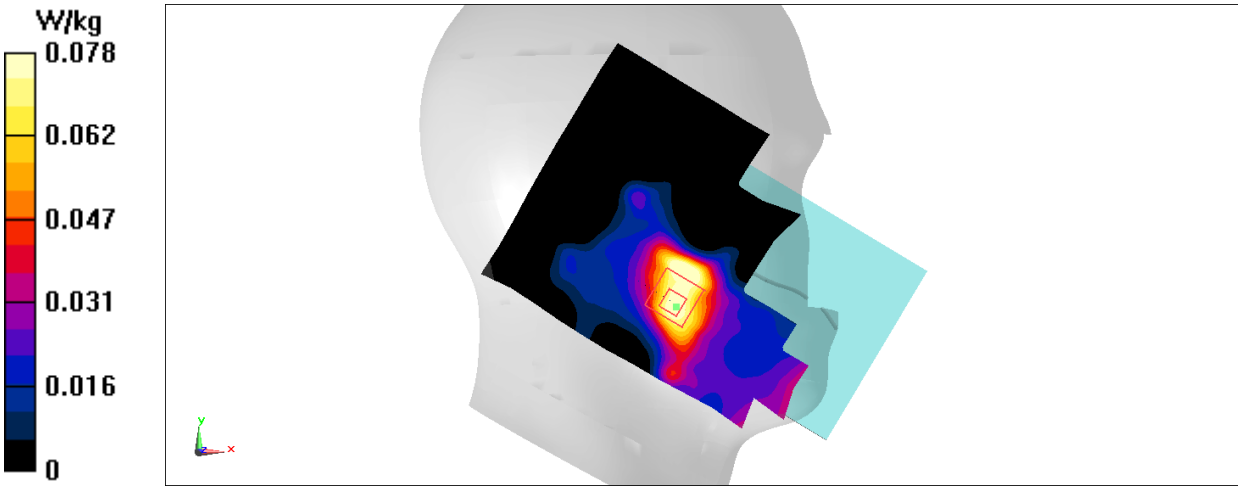


Fig.11 LTE Band7

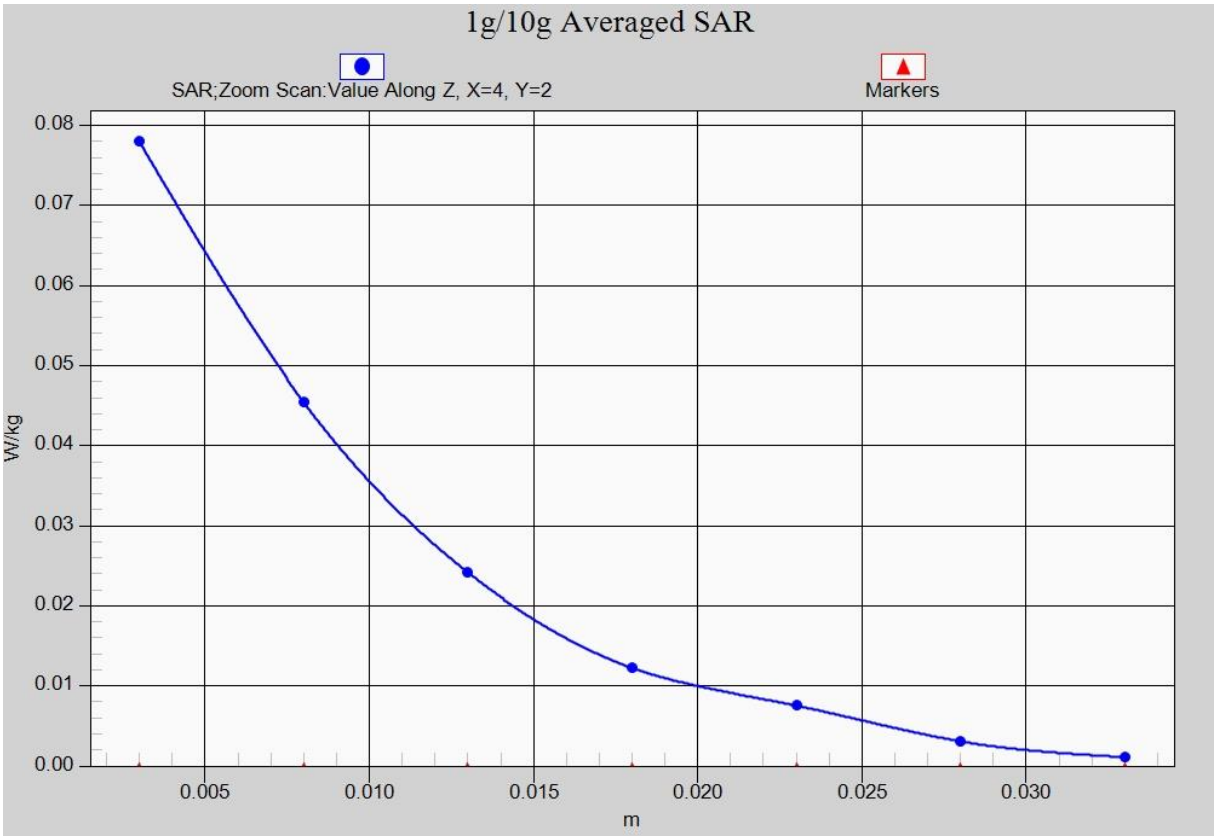


Fig. 11-1 Z-Scan at power reference point (LTE Band7)

LTE Band7 Body Left Low with QPSK_20M_1RB_Low
Date: 2017-7-23
Electronics: DAE4 Sn1331
Medium: Body 2600 MHz
Medium parameters used: f = 2510 MHz; σ = 2.117 mho/m; εr = 52.18; ρ = 1000 kg/m^3
Ambient Temperature: 22.8ºC Liquid Temperature: 22.4ºC
Communication System: LTE Band7 Frequency: 2510 MHz Duty Cycle: 1:1
Probe: EX3DV4– SN3846 ConvF(7.25, 7.25, 7.25)

Area Scan (151x91x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.80 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.96 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 2.33 W/kg
SAR(1 g) = 1.14 W/kg; SAR(10 g) = 0.525 W/kg
Maximum value of SAR (measured) = 1.63 W/kg

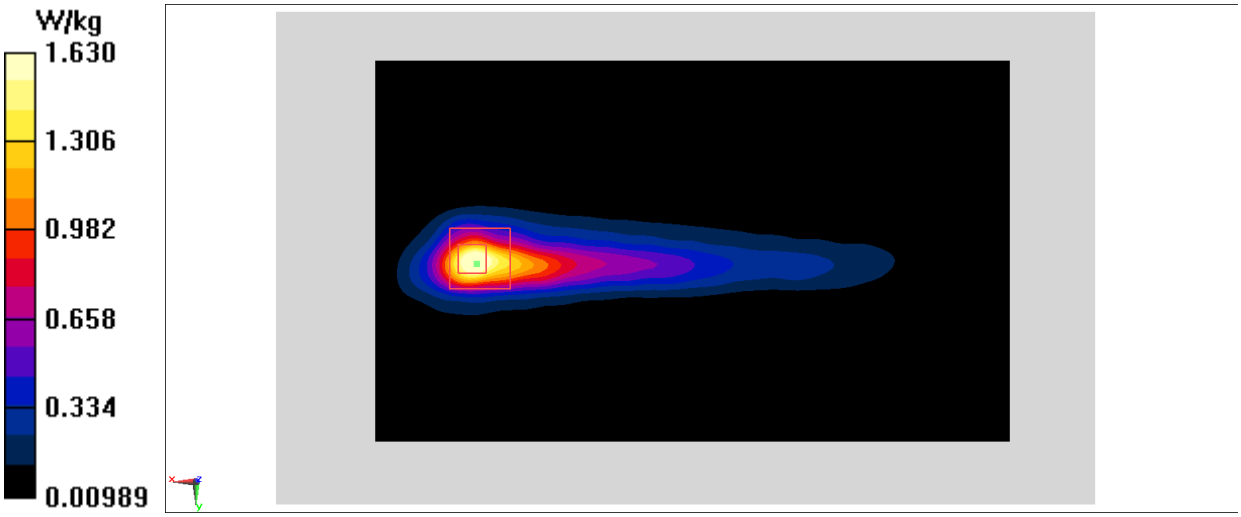


Fig.12 LTE Band7