

**Table 15.5: SAR Measurement Variability for Body LTE B7 (1g)**

Frequency		Mode	Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz							
21350	2560	1RB_Mid	Bottom	10	1.08	1.06	1.02	/

**Table 15.6: SAR Measurement Variability for Body LTE B41 (1g)**

Frequency		Mode	Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz							
40620	2593	1RB_Low	Bottom	10	0.929	0.915	1.02	/

**Table 15.7: SAR Measurement Variability for HeadWiFi-5G (1g)**

Frequency		Mode	Side	Test Position	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz							
60	5300	11a-18M	Left	Touch	0.913	0.901	1.01	/

## 16 Measurement Uncertainty

### 16.1 Measurement Uncertainty for Normal SAR Tests (300MHz~3GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
<b>Measurement system</b>										
1	Probe calibration	B	6.0	N	1	1	1	6.0	6.0	∞
2	Isotropy	B	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	N	1	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	$\sqrt{3}$	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	$\sqrt{3}$	1	1	0	0	∞
10	RF ambient conditions-reflection	B	0	R	$\sqrt{3}$	1	1	0	0	∞
11	Probe positioned mech. restrictions	B	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	∞
12	Probe positioning with respect to phantom shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
13	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
<b>Test sample related</b>										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
15	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
16	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
<b>Phantom and set-up</b>										
17	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
18	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
19	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
20	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
21	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521

Combined standard uncertainty	$u_c = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$					9.55	9.43	257
Expanded uncertainty (confidence interval of 95 %)	$u_e = 2u_c$					19.1	18.9	

### 16.2 Measurement Uncertainty for Normal SAR Tests (3~6GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
<b>Measurement system</b>										
1	Probe calibration	B	6.55	N	1	1	1	6.55	6.55	∞
2	Isotropy	B	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	2.0	R	$\sqrt{3}$	1	1	1.2	1.2	∞
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	$\sqrt{3}$	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	$\sqrt{3}$	1	1	0	0	∞
10	RFambient conditions-reflection	B	0	R	$\sqrt{3}$	1	1	0	0	∞
11	Probe positioned mech. restrictions	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
12	Probe positioning with respect to phantom shell	B	6.7	R	$\sqrt{3}$	1	1	3.9	3.9	∞
13	Post-processing	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
<b>Test sample related</b>										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
15	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
16	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
<b>Phantom and set-up</b>										
17	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
18	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
19	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
20	Liquid permittivity	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞

	(target)									
21	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$						10.7	10.6	257
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$						21.4	21.1	

### 16.3 Measurement Uncertainty for Fast SAR Tests (300MHz~3GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
<b>Measurement system</b>										
1	Probe calibration	B	6.0	N	1	1	1	6.0	6.0	$\infty$
2	Isotropy	B	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	$\infty$
3	Boundary effect	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	$\infty$
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	$\infty$
5	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	$\infty$
6	Readout electronics	B	0.3	R	$\sqrt{3}$	1	1	0.3	0.3	$\infty$
7	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	$\infty$
8	Integration time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	$\infty$
9	RF ambient conditions-noise	B	0	R	$\sqrt{3}$	1	1	0	0	$\infty$
10	RFambient conditions-reflection	B	0	R	$\sqrt{3}$	1	1	0	0	$\infty$
11	Probe positioned mech. Restrictions	B	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	$\infty$
12	Probe positioning with respect to phantom shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	$\infty$
13	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	$\infty$
14	Fast SAR z-Approximation	B	7.0	R	$\sqrt{3}$	1	1	4.0	4.0	$\infty$
<b>Test sample related</b>										
15	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
16	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
17	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	$\infty$
<b>Phantom and set-up</b>										
18	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	$\infty$

19	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	$\infty$
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	$\infty$
22	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						10.4	10.3	257
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$						20.8	20.6	

#### 16.4 Measurement Uncertainty for Fast SAR Tests (3~6GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
<b>Measurement system</b>										
1	Probe calibration	B	6.55	N	1	1	1	6.55	6.55	$\infty$
2	Isotropy	B	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	$\infty$
3	Boundary effect	B	2.0	R	$\sqrt{3}$	1	1	1.2	1.2	$\infty$
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	$\infty$
5	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	$\infty$
6	Readout electronics	B	0.3	R	$\sqrt{3}$	1	1	0.3	0.3	$\infty$
7	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	$\infty$
8	Integration time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	$\infty$
9	RF ambient conditions-noise	B	0	R	$\sqrt{3}$	1	1	0	0	$\infty$
10	RFambient conditions-reflection	B	0	R	$\sqrt{3}$	1	1	0	0	$\infty$
11	Probe positioned mech. Restrictions	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	$\infty$
12	Probe positioning with respect to phantom shell	B	6.7	R	$\sqrt{3}$	1	1	3.9	3.9	$\infty$
13	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	$\infty$
14	Fast SAR z-Approximation	B	14.0	R	$\sqrt{3}$	1	1	8.1	8.1	$\infty$
<b>Test sample related</b>										
15	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
16	Device holder	A	3.4	N	1	1	1	3.4	3.4	5

	uncertainty									
17	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	$\infty$
<b>Phantom and set-up</b>										
18	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	$\infty$
19	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	$\infty$
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	$\infty$
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 24, 2018	One year
02	Power meter	NRVD	102083	November 01, 2017	One year
03	Power sensor	NRV-Z5	100542		
04	Signal Generator	E4438C	MY49071430	January 2, 2018	One Year
05	Amplifier	60S1G4	0331848	No Calibration Requested	
06	BTS	E5515C	MY50263375	January 23, 2018	One year
07	BTS	CMW500	149646	October 31, 2017	One year
08	E-field Probe	SPEAG EX3DV4	7464	September 12, 2017	One year
09	DAE	SPEAG DAE4	1525	October 2, 2017	One year
10	Dipole Validation Kit	SPEAG D750V3	1017	July 19, 2017	One year
11	Dipole Validation Kit	SPEAG D835V2	4d069	July 19, 2017	One year
12	Dipole Validation Kit	SPEAG D1750V2	1003	July 21, 2017	One year
13	Dipole Validation Kit	SPEAG D1900V2	5d101	July 26, 2017	One year
14	Dipole Validation Kit	SPEAG D2450V2	853	July 21, 2017	One year
15	Dipole Validation Kit	SPEAG D2600V2	1012	July 21, 2017	One year
16	Dipole Validation Kit	SPEAG D5GHZV2	1060	July 25, 2017	One year

\*\*\*END OF REPORT BODY\*\*\*

## ANNEX A Graph Results

### 850 Right Cheek High

Date: 2018-5-2

Electronics: DAE4 Sn1525

Medium: Head 850 MHz

Medium parameters used:  $f = 848.8$  MHz;  $\sigma = 0.912$  mho/m;  $\epsilon_r = 41.72$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:2

Probe: EX3DV4 –SN7464ConvF(10.28, 10.28, 10.28)

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

Maximum value of SAR (interpolated) = 0.295 W/kg

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

Reference Value = 6.523 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.394 W/kg

SAR(1 g) = 0.322 W/kg; SAR(10 g) = 0.254 W/kg

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

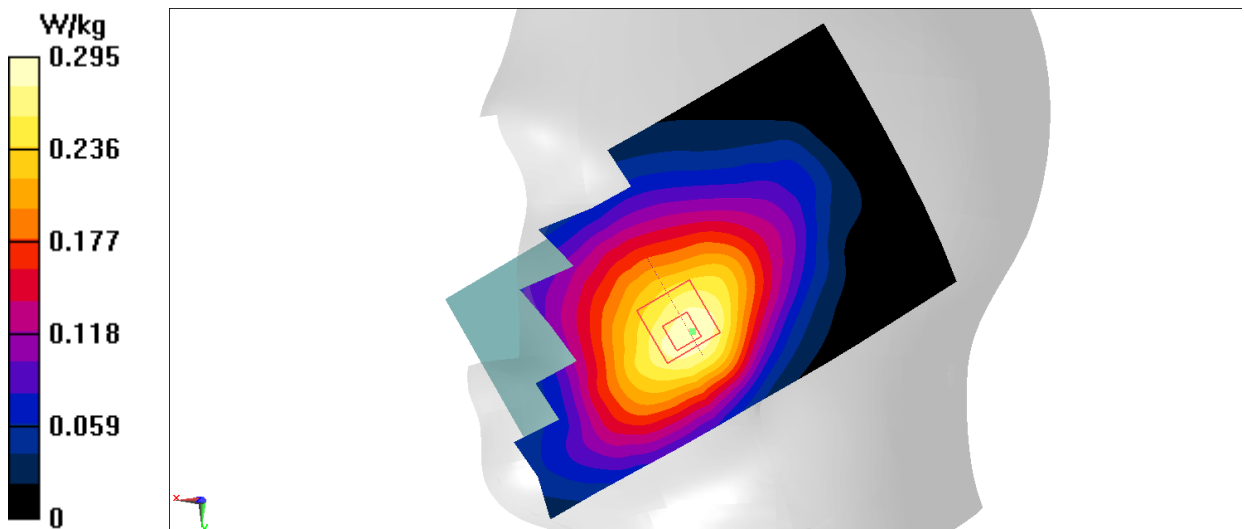


Fig.1 850MHz

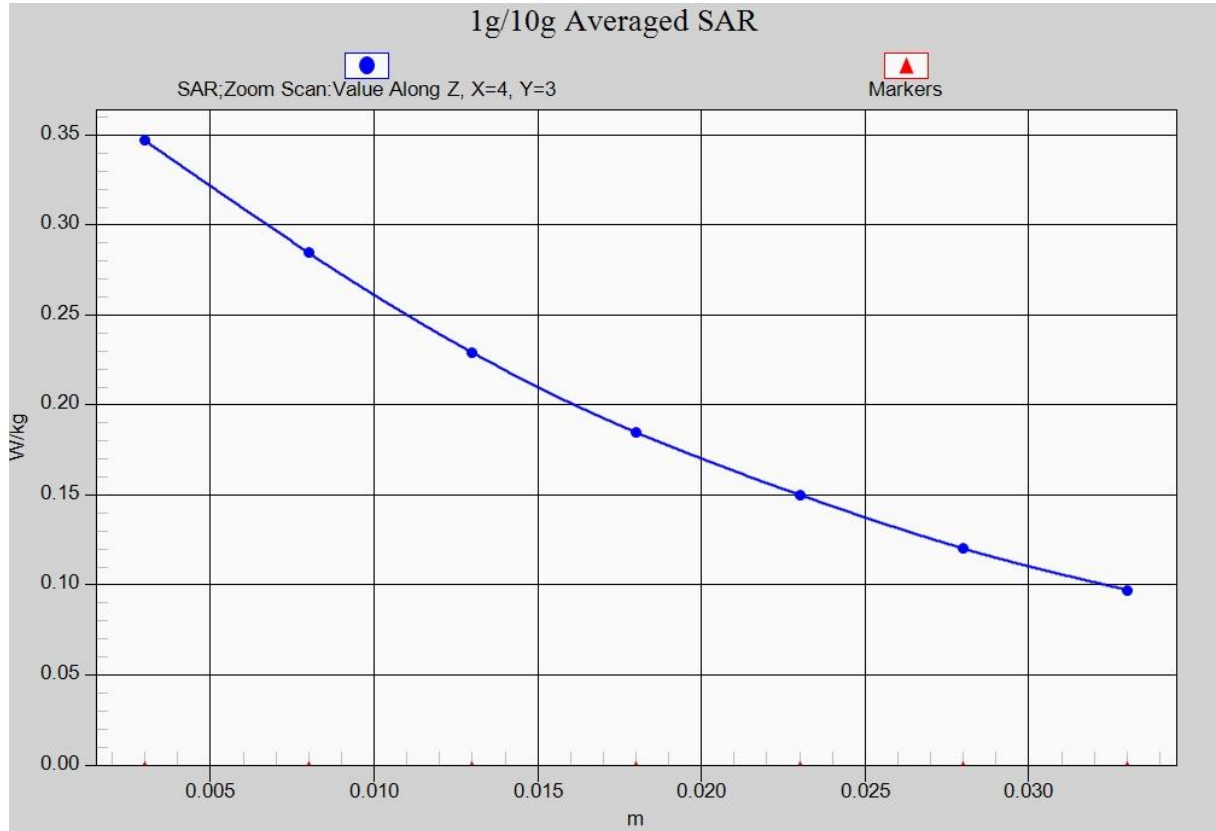


Fig. 1-1 Z-Scan at power reference point (850 MHz)



### 850Body Rear High

Date: 2018-5-2

Electronics: DAE4 Sn1525

Medium: Body 850 MHz

Medium parameters used:  $f = 848.8$  MHz;  $\sigma = 0.984$  mho/m;  $\epsilon_r = 55.87$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:2

Probe: EX3DV4 –SN7464ConvF(10.21, 10.21, 10.21)

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

Maximum value of SAR (interpolated) = 0.707 W/kg

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

Reference Value = 15.47 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.620 W/kg; SAR(10 g) = 0.367 W/kg

Maximum value of SAR (measured) = 0.684 W/kg

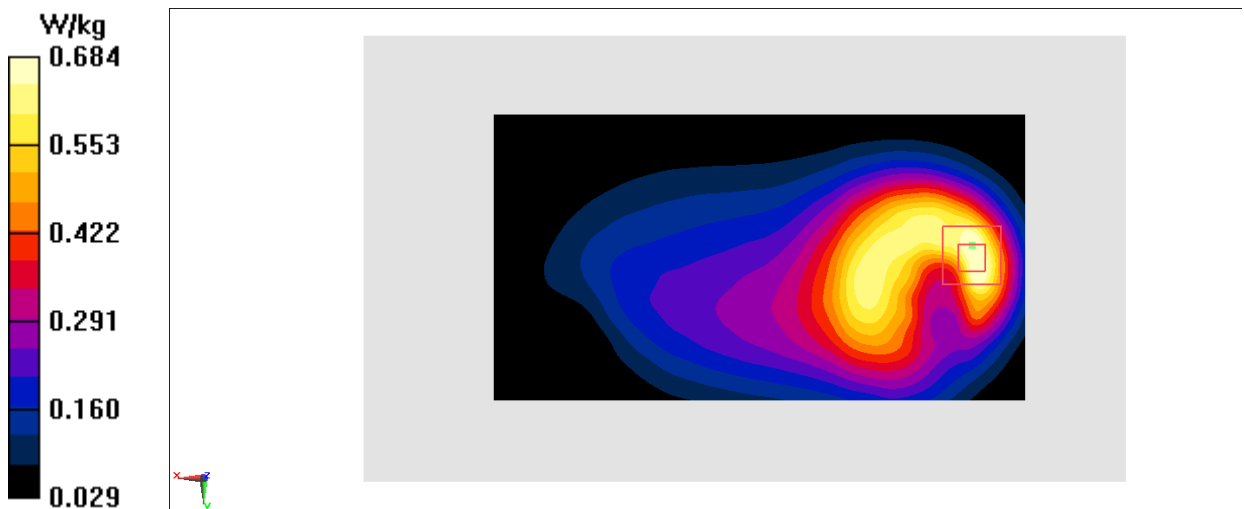


Fig.2 850 MHz

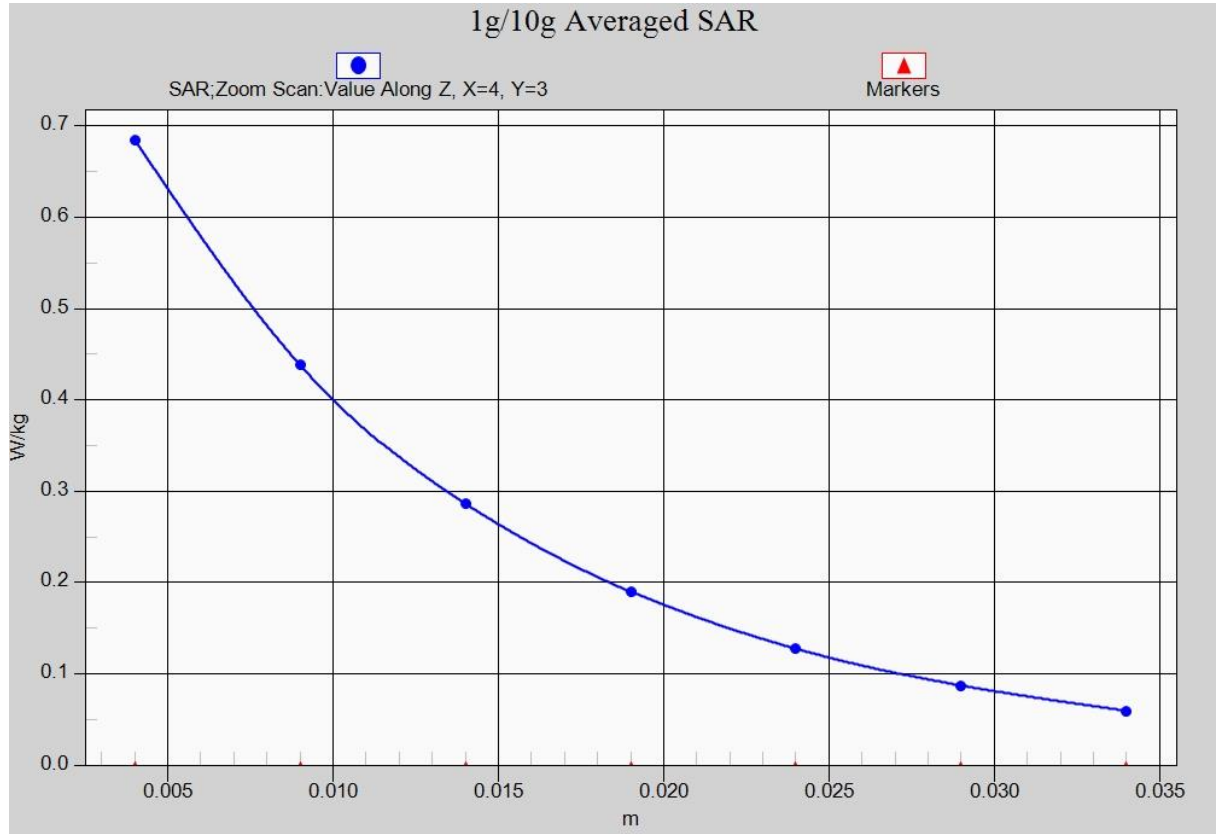


Fig. 2-1Z-Scan at power reference point (850 MHz)

### 1900 LeftCheek High

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Head 1900 MHz

Medium parameters used (interpolated):  $f = 1909.8$  MHz;  $\sigma = 1.452$  mho/m;  $\epsilon_r = 40.39$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: GSM 1900MHz Frequency: 1909.8 MHz Duty Cycle: 1:2.67

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

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

Maximum value of SAR (interpolated) = 0.647 W/kg

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

Reference Value = 13.22 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 0.985 W/kg

SAR(1 g) = 0.426 W/kg; SAR(10 g) = 0.207 W/kg

Maximum value of SAR (measured) = 0.548 W/kg

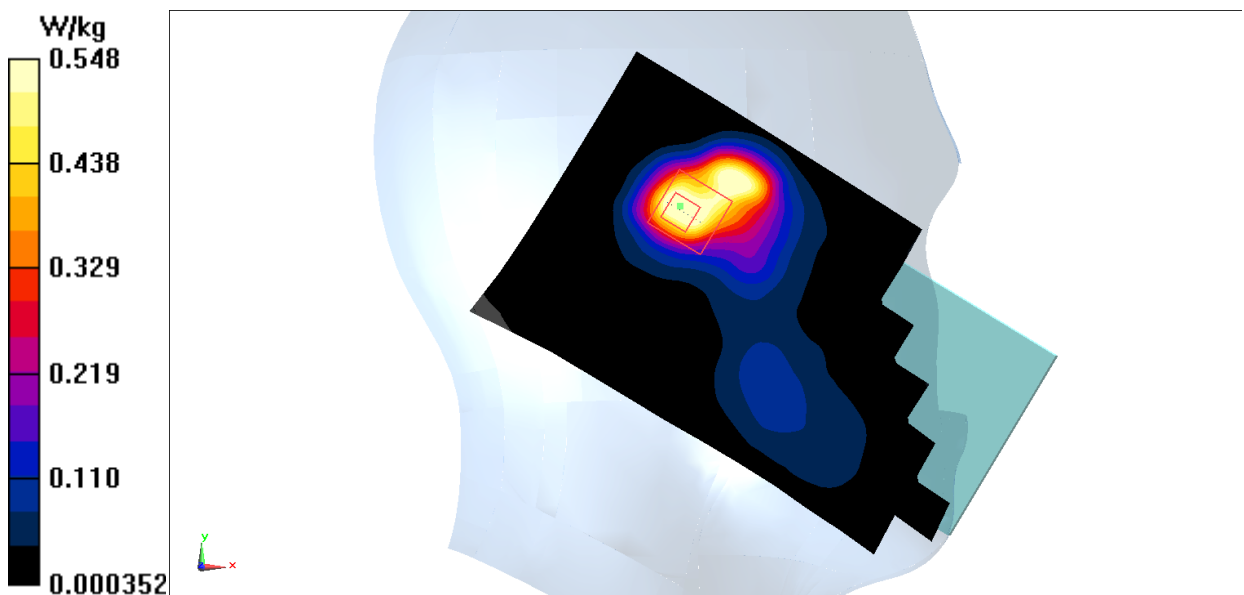


Fig.3 1900 MHz

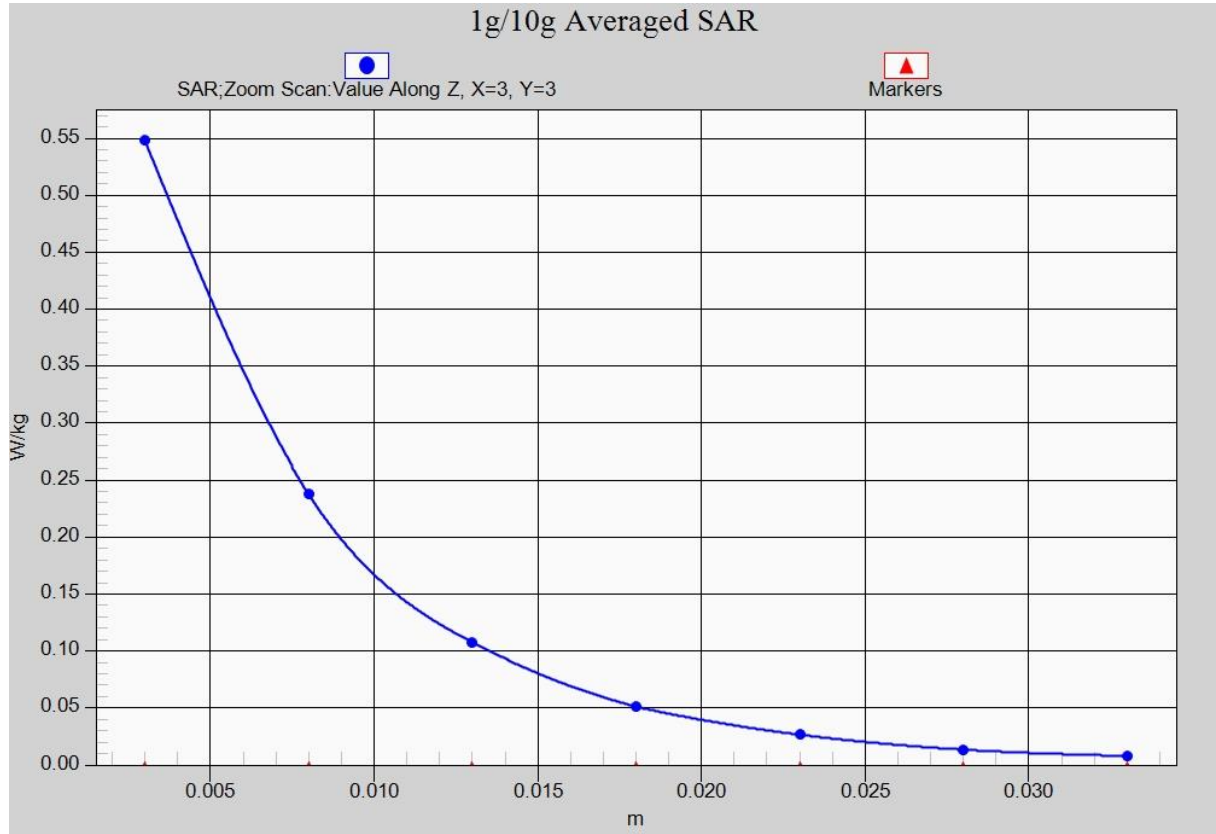


Fig. 3-1Z-Scan at power reference point (1900 MHz)

### 1900 Body BottomLow

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used:  $f = 1850.2$  MHz;  $\sigma = 1.515$  mho/m;  $\epsilon_r = 52.83$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: GSM 1900MHz GPRS Frequency: 1850.2 MHz Duty Cycle: 1:2.67

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

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

Maximum value of SAR (interpolated) = 1.78 W/kg

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

Reference Value = 25.29 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 1.39 W/kg

SAR(1 g) = 0.844 W/kg; SAR(10 g) = 0.474 W/kg

Maximum value of SAR (measured) = 1.02 W/kg

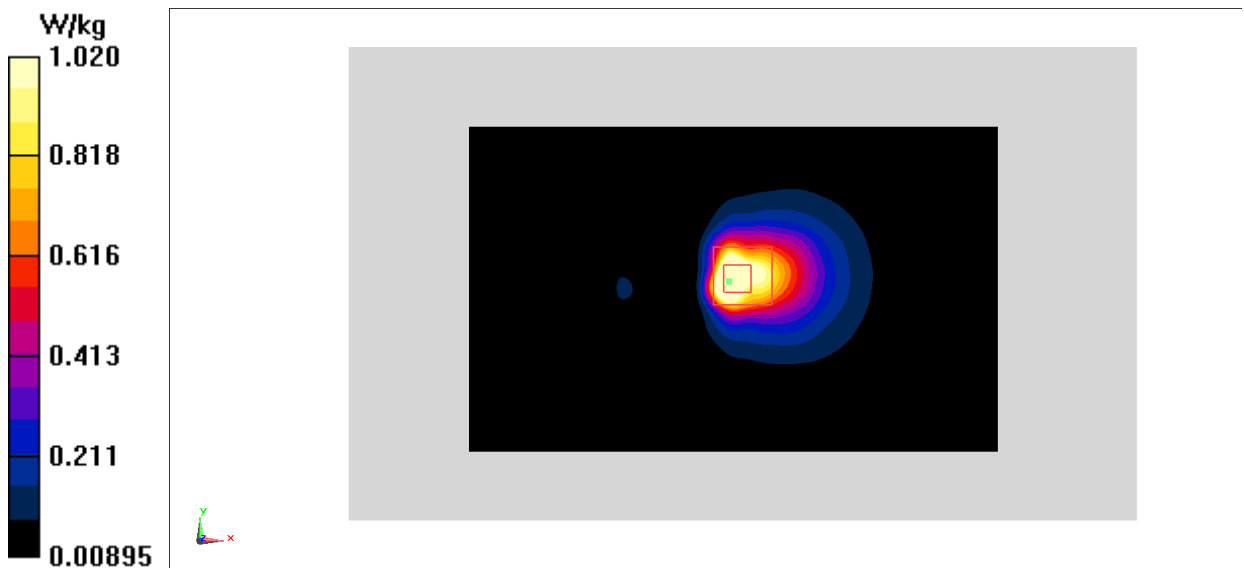


Fig.4 1900 MHz

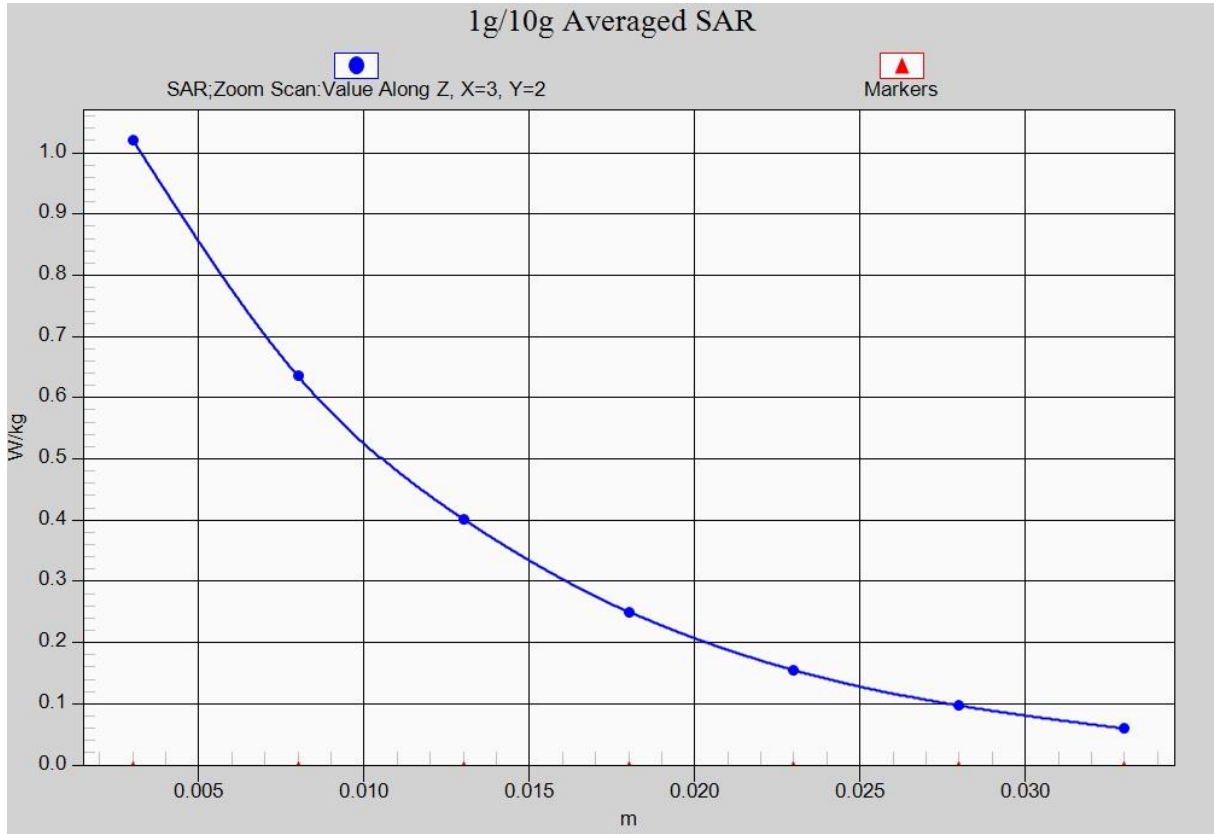


Fig. 4-1Z-Scan at power reference point (1900 MHz)

### 1900 Body Rear High

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used:  $f = 1909.8$  MHz;  $\sigma = 1.575$  mho/m;  $\epsilon_r = 52.65$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: GSM 1900MHz GPRS Frequency: 1909.8 MHz Duty Cycle: 1:2.67

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

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

Maximum value of SAR (interpolated) = 0.446 W/kg

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

Reference Value = 6.437 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.644 W/kg

SAR(1 g) = 0.397 W/kg; SAR(10 g) = 0.229 W/kg

Maximum value of SAR (measured) = 0.470 W/kg

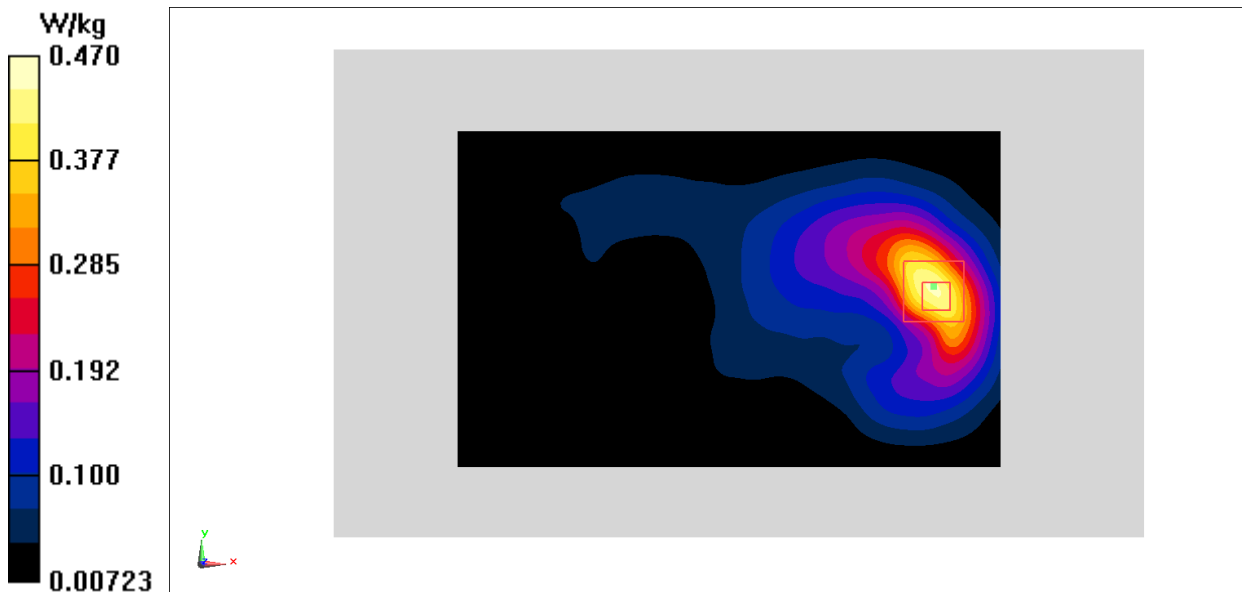


Fig.5 1900 MHz

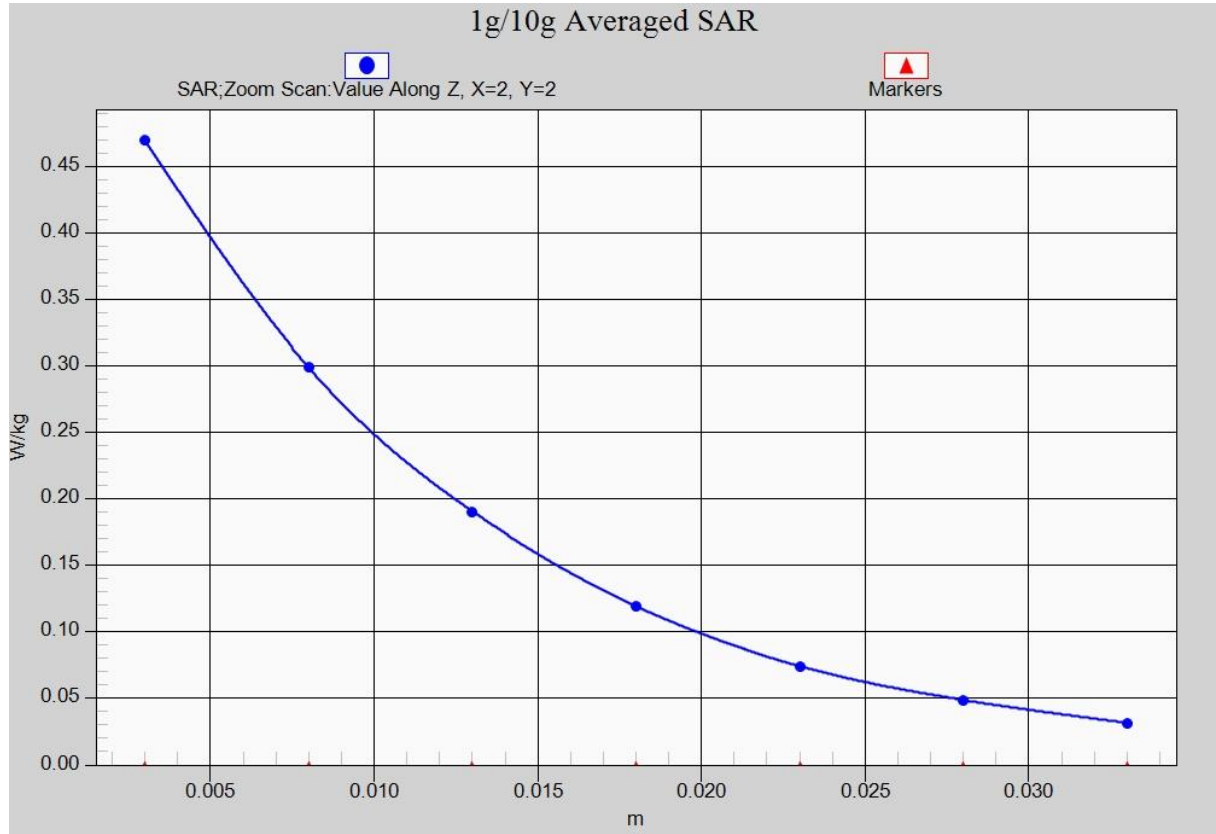


Fig. 5-1 Z-Scan at power reference point (1900 MHz)



### WCDMA 850 Right Cheek Middle

Date: 2018-5-2

Electronics: DAE4 Sn1525

Medium: Head 850 MHz

Medium parameters used (interpolated):  $f = 836.4$  MHz;  $\sigma = 0.9$  mho/m;  $\epsilon_r = 41.855$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

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

Probe: EX3DV4 –SN7464ConvF(10.28, 10.28, 10.28)

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

Maximum value of SAR (interpolated) = 0.290 W/kg

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

Reference Value = 6.348 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.325 W/kg

SAR(1 g) = 0.262 W/kg; SAR(10 g) = 0.206 W/kg

Maximum value of SAR (measured) = 0.285 W/kg

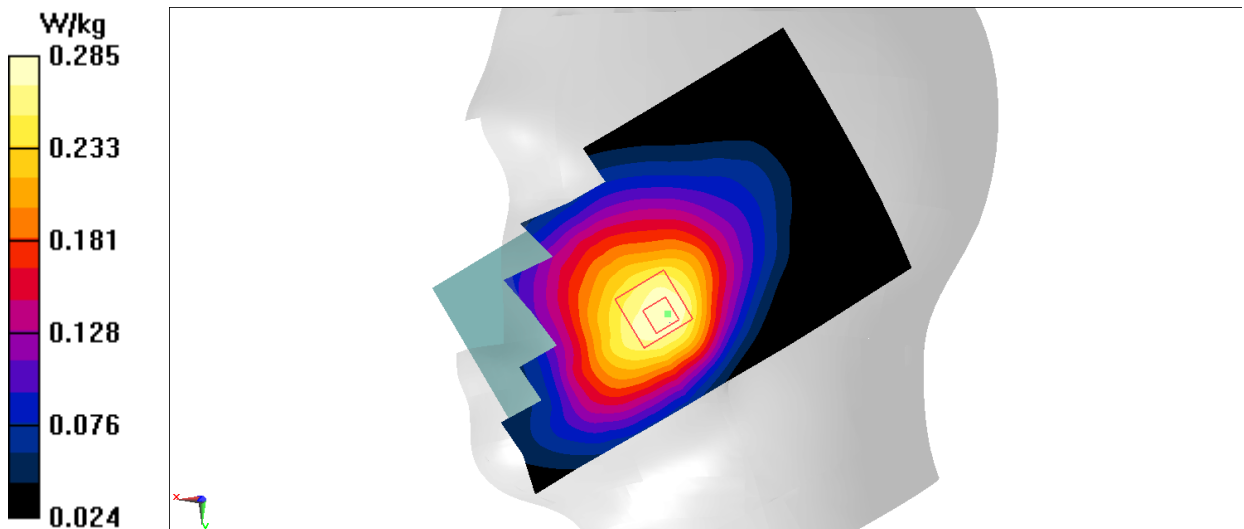


Fig.6 WCDMA 850

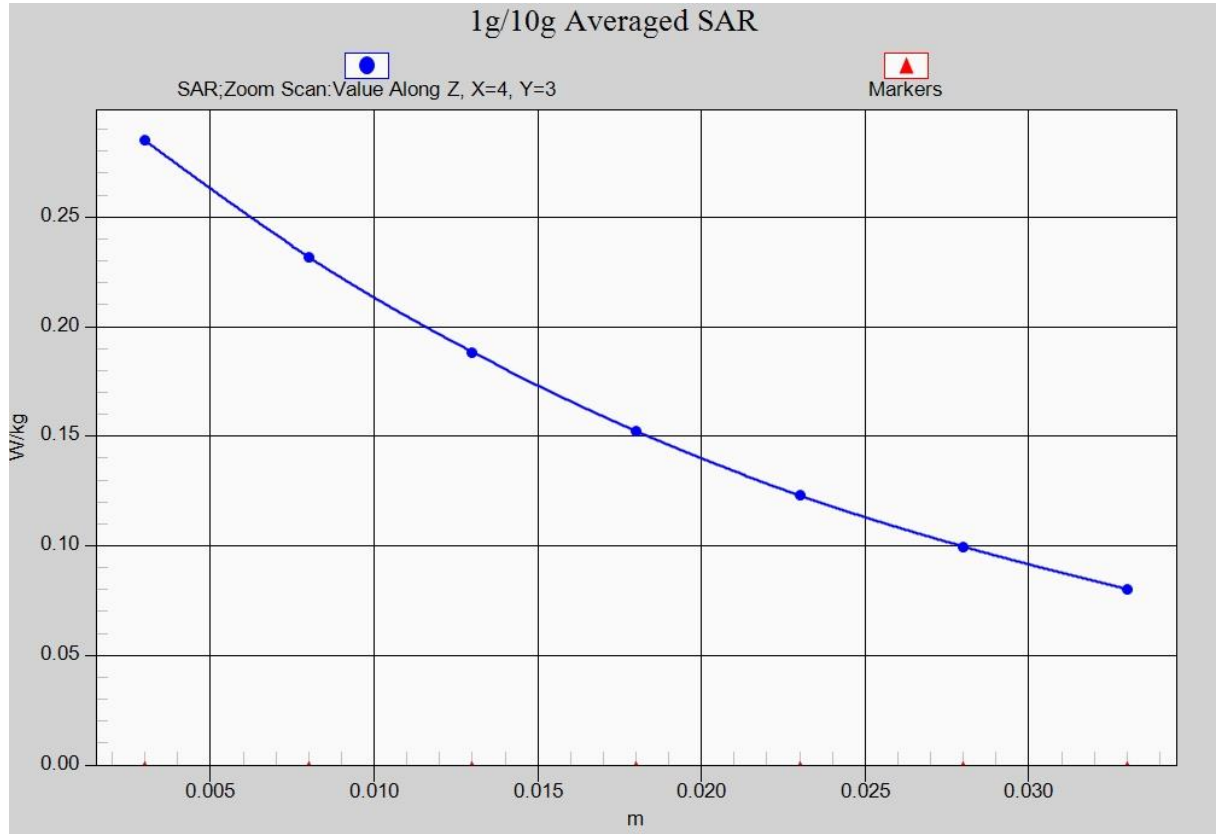


Fig. 6-1Z-Scan at power reference point (850 MHz)

### WCDMA 850Body RearHigh

Date: 2018-5-2

Electronics: DAE4 Sn1525

Medium: Body 850 MHz

Medium parameters used (interpolated):  $f = 846.6$  MHz;  $\sigma = 0.981$  mho/m;  $\epsilon_r = 55.876$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: WCDMA; Frequency: 846.6 MHz; Duty Cycle: 1:1

Probe: EX3DV4 –SN7464ConvF(10.21, 10.21, 10.21)

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

Maximum value of SAR (interpolated) = 0.498 W/kg

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

Reference Value = 13.70 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.697 W/kg

SAR(1 g) = 0.432 W/kg; SAR(10 g) = 0.259 W/kg

Maximum value of SAR (measured) = 0.478 W/kg

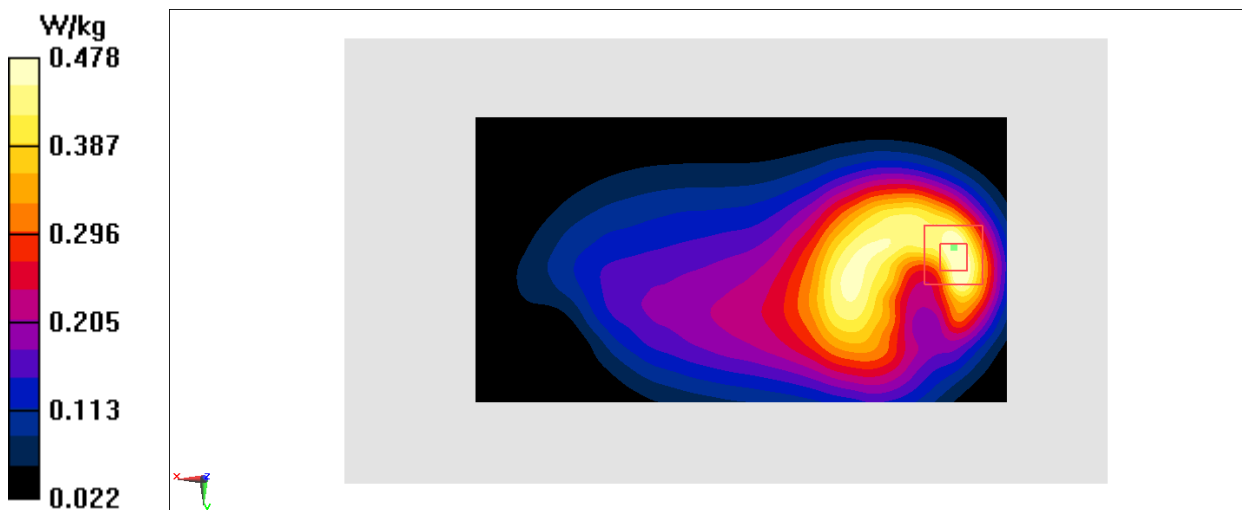


Fig.7 WCDMA 850

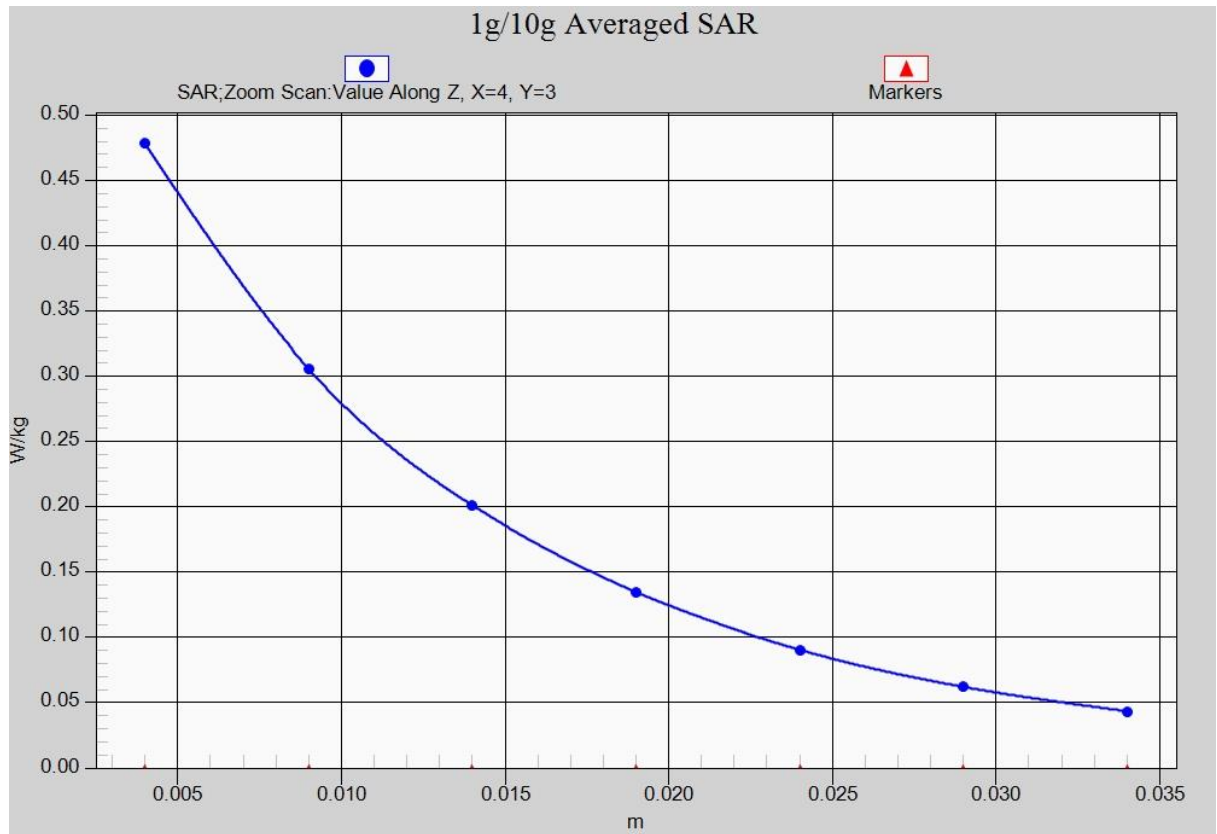


Fig. 7-1 Z-Scan at power reference point (WCDMA850)

### WCDMA 1700Left Cheek Low

Date: 2018-5-3

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/m<sup>3</sup>

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 (71x131x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

Maximum value of SAR (interpolated) = 0.156 W/kg

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

Reference Value = 4.648 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.193 W/kg

SAR(1 g) = 0.133 W/kg; SAR(10 g) = 0.088 W/kg

Maximum value of SAR (measured) = 0.155 W/kg

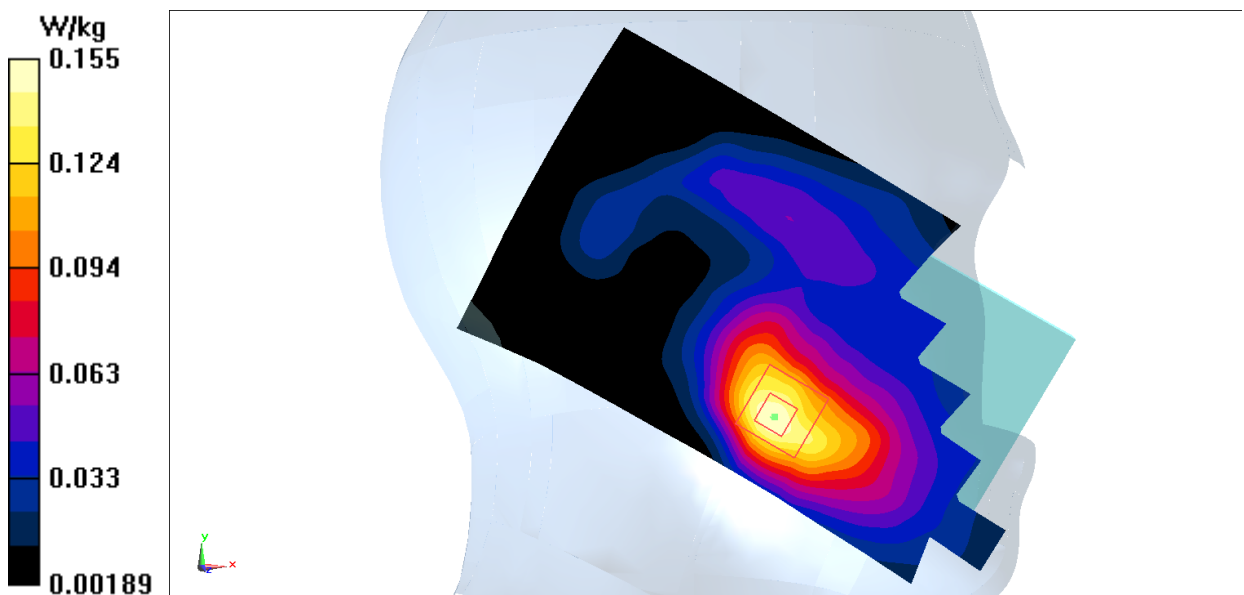


Fig.8WCDMA1700

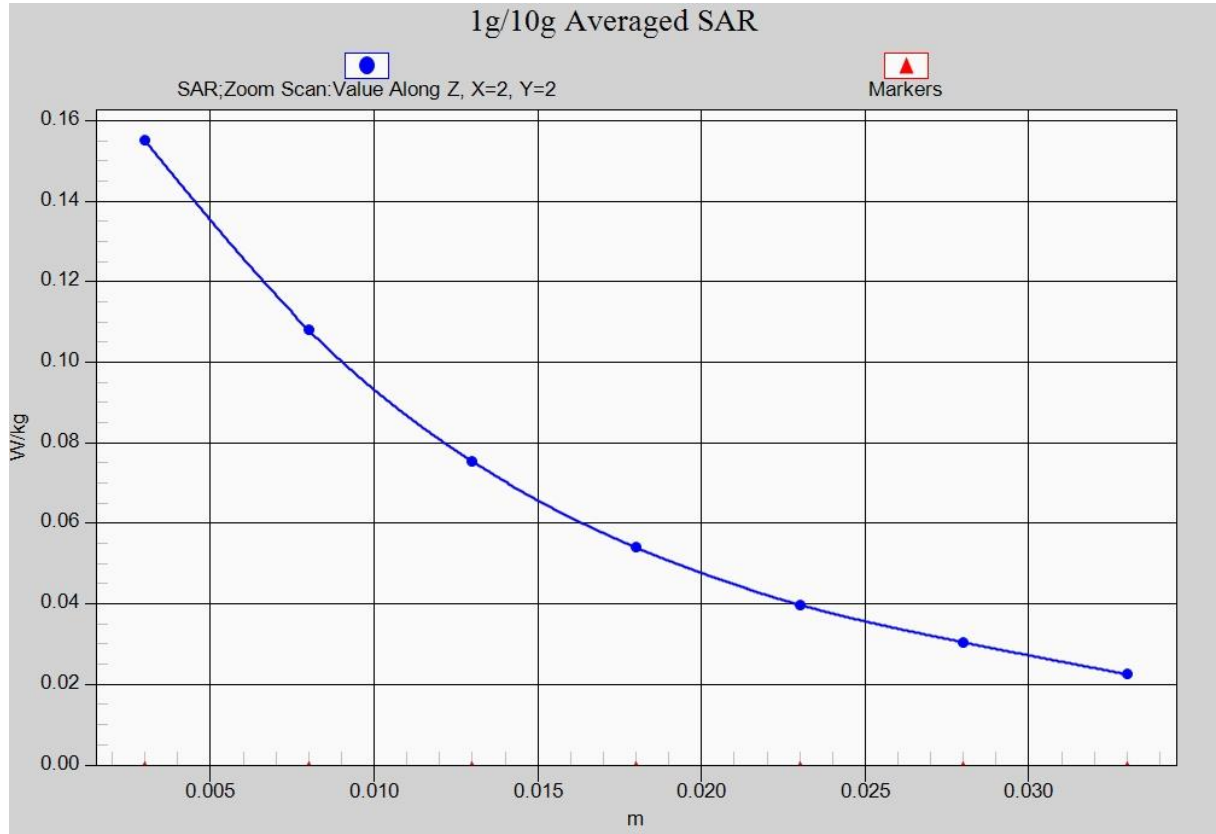


Fig. 8-1 Z-Scan at power reference point (WCDMA1700)

### WCDMA 1700 Body RearHigh

Date: 2018-5-3

Electronics: DAE4 Sn1525

Medium: Body 1750 MHz

Medium parameters used (interpolated):  $f = 1752.6$  MHz;  $\sigma = 1.509$  mho/m;  $\epsilon_r = 53.718$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: WCDMA 1900 Frequency: 1752.6 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) = 1.04 W/kg

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

Reference Value = 7.752 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.58 W/kg

SAR(1 g) = 0.927 W/kg; SAR(10 g) = 0.493 W/kg

Maximum value of SAR (measured) = 1.14 W/kg

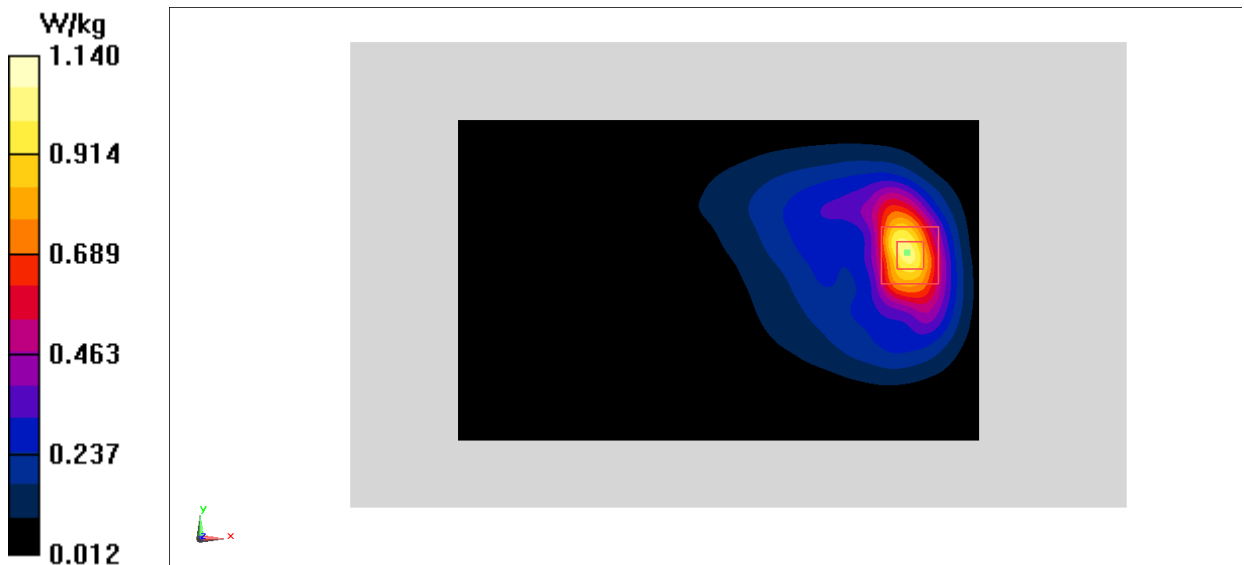


Fig.9WCDMA1700

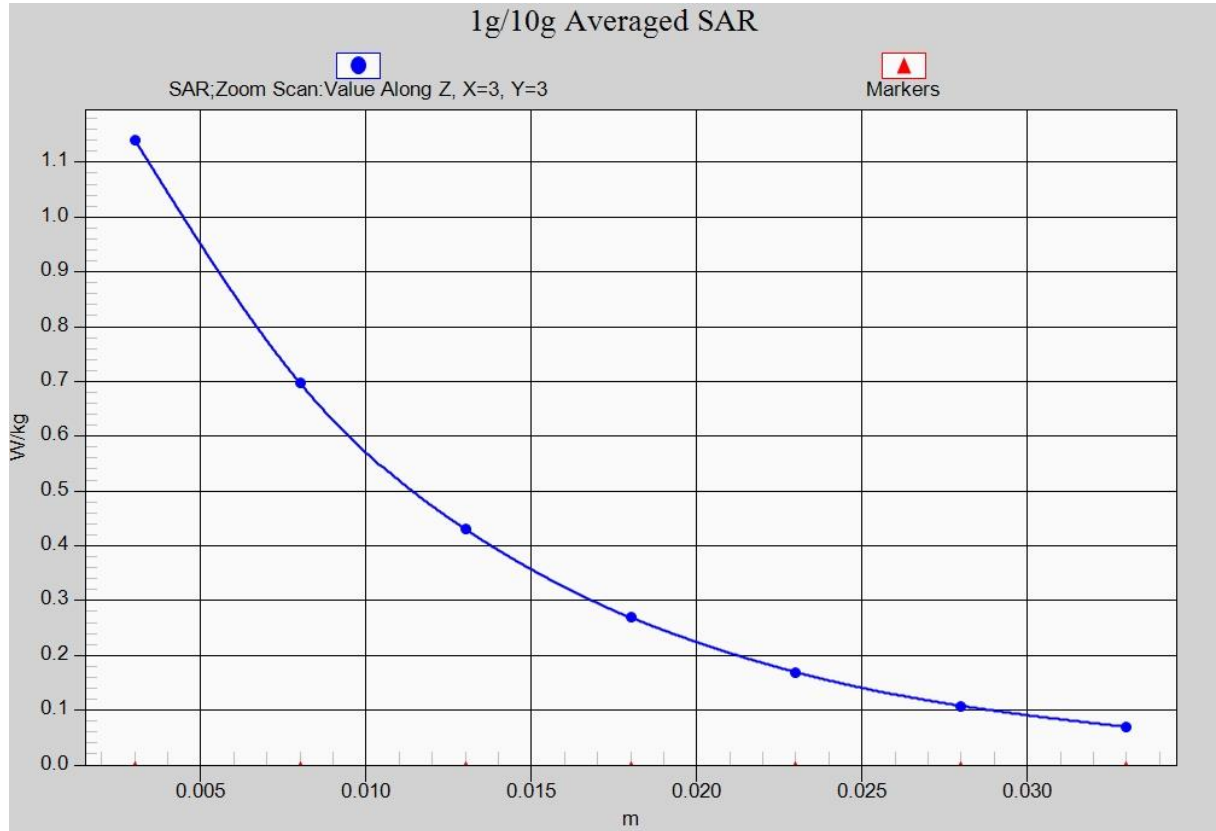


Fig. 9-1 Z-Scan at power reference point (WCDMA1700)



### WCDMA 1700 Body Rear Low

Date: 2018-5-3

Electronics: DAE4 Sn1525

Medium: Body 1750 MHz

Medium parameters used (interpolated):  $f = 1712.4$  MHz;  $\sigma = 1.481$  mho/m;  $\epsilon_r = 53.828$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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 (131x81x1):** Interpolated grid:  $dx=1.000$  mm,  $dy=1.000$  mm

Maximum value of SAR (interpolated) = 0.671 W/kg

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

Reference Value = 7.729 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.909 W/kg

SAR(1 g) = 0.588 W/kg; SAR(10 g) = 0.356 W/kg

Maximum value of SAR (measured) = 0.705 W/kg

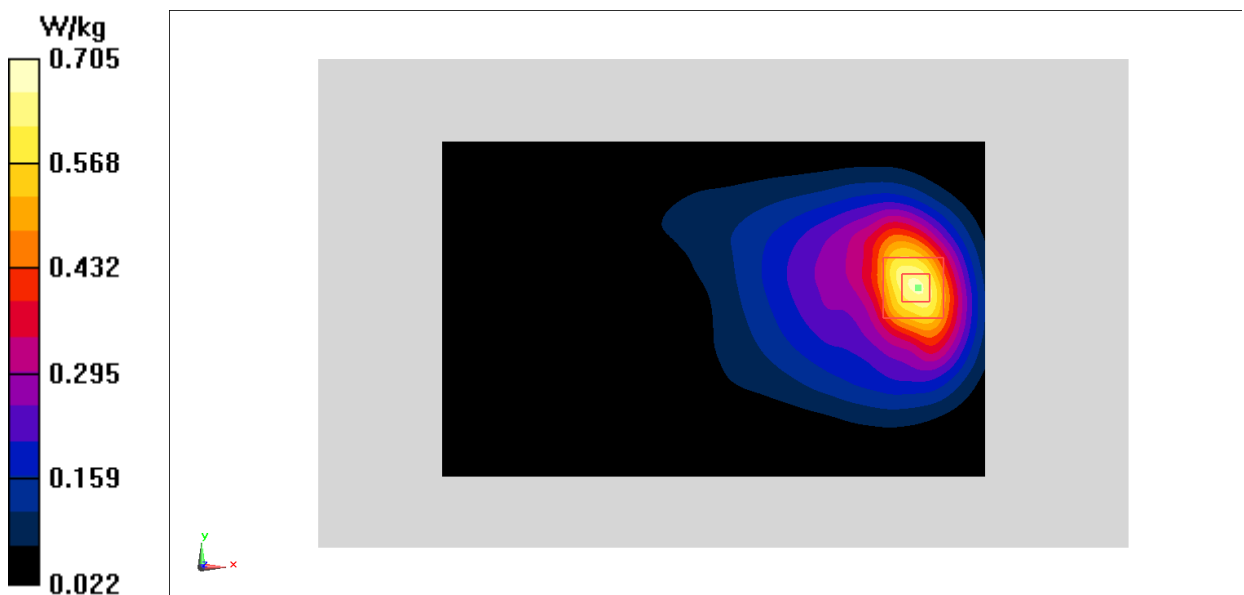


Fig.10WCDMA1700

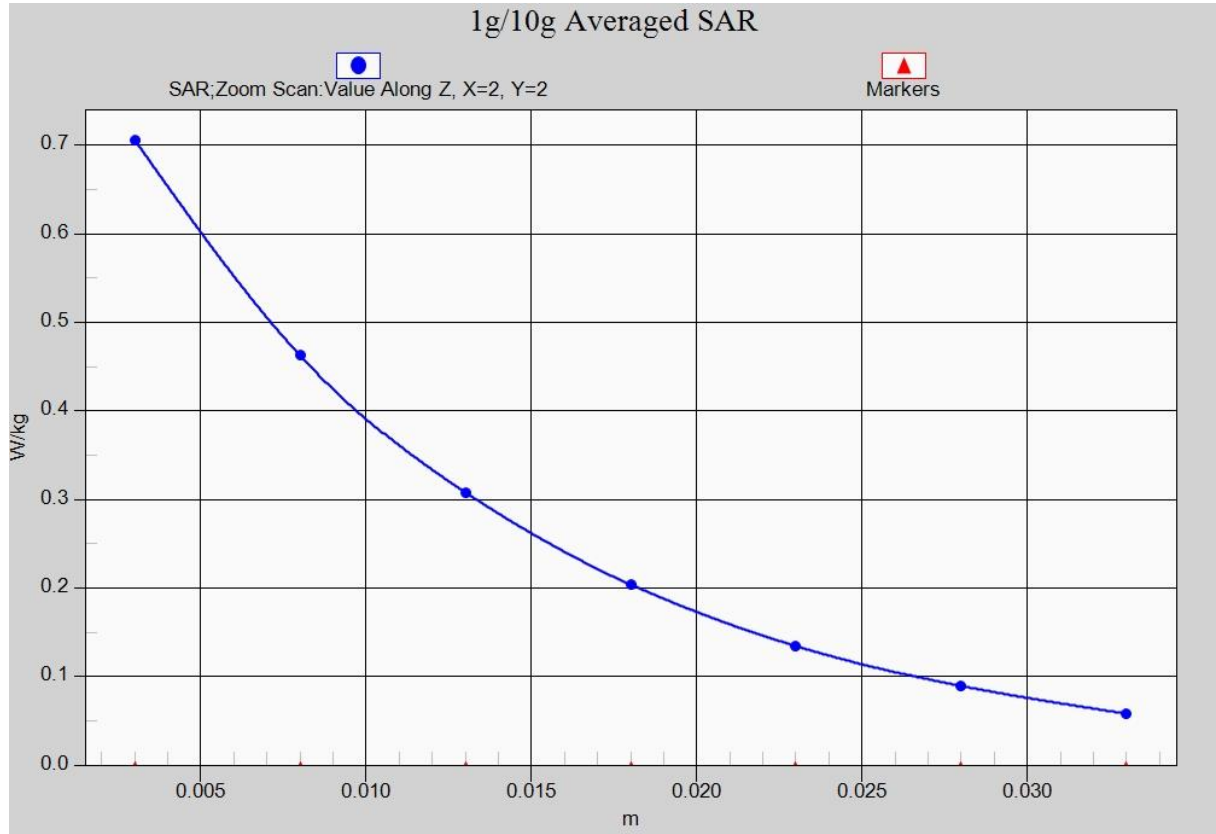


Fig. 10-1 Z-Scan at power reference point (WCDMA1700)

### WCDMA 1900 Left Cheek High

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Head 1900 MHz

Medium parameters used (interpolated):  $f = 1907.6$  MHz;  $\sigma = 1.465$  mho/m;  $\epsilon_r = 40.806$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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(8.39, 8.39, 8.39)

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

Maximum value of SAR (interpolated) = 0.202 W/kg

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

Reference Value = 4.173 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.268 W/kg

SAR(1 g) = 0.180 W/kg; SAR(10 g) = 0.114 W/kg

Maximum value of SAR (measured) = 0.210 W/kg

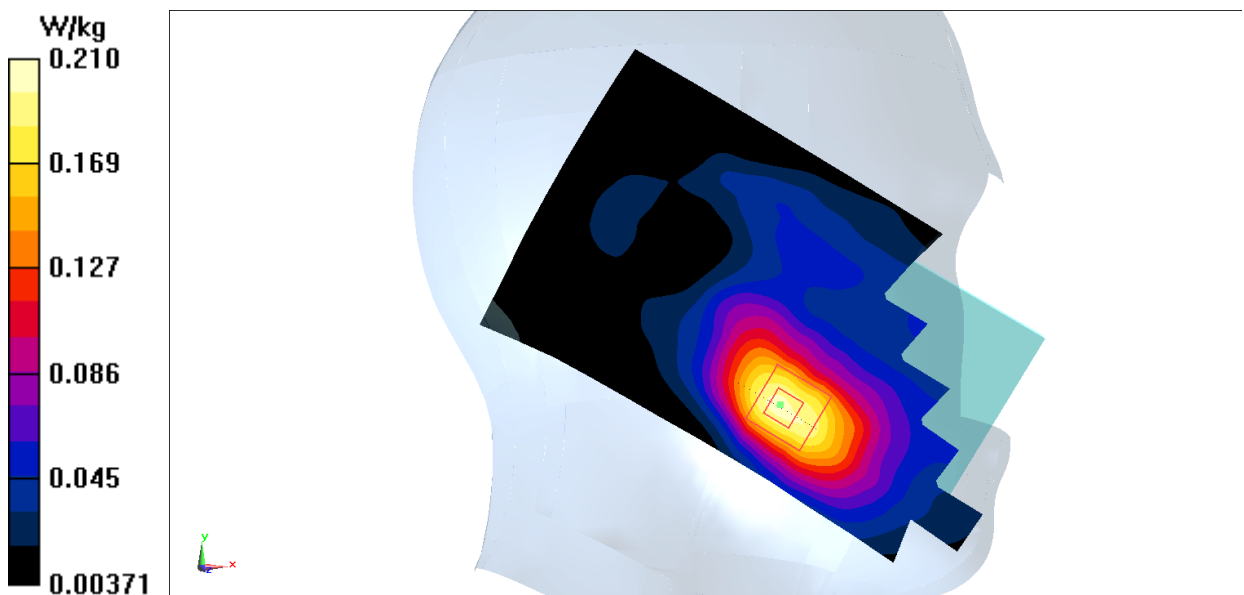


Fig.11WCDMA1900

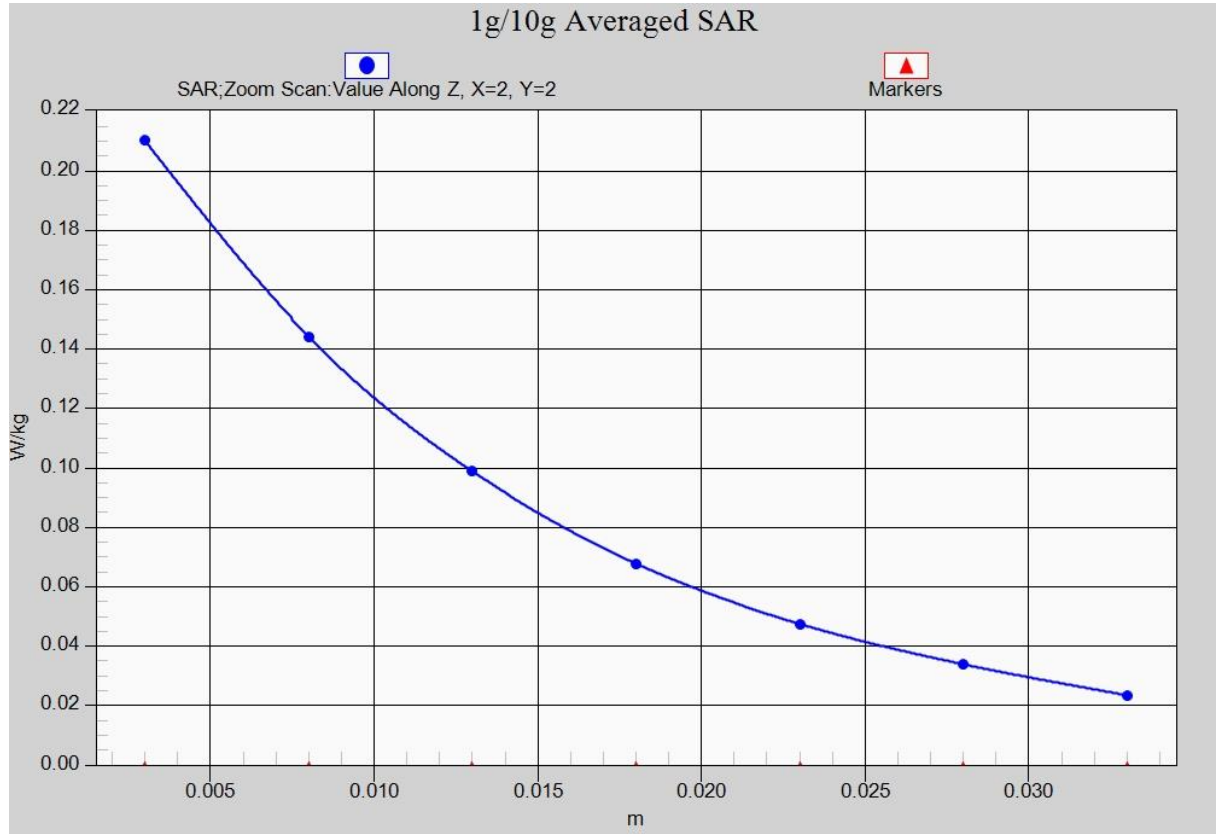


Fig. 11-1 Z-Scan at power reference point (WCDMA1900)

### WCDMA 1900 Body BottomMiddle

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.561$  mho/m;  $\epsilon_r = 53$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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(8.32, 8.32, 8.32)

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

Maximum value of SAR (interpolated) = 1.53 W/kg

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

Reference Value = 20.45 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.74 W/kg

SAR(1 g) = 1.04 W/kg; SAR(10 g) = 0.617 W/kg

Maximum value of SAR (measured) = 1.24 W/kg

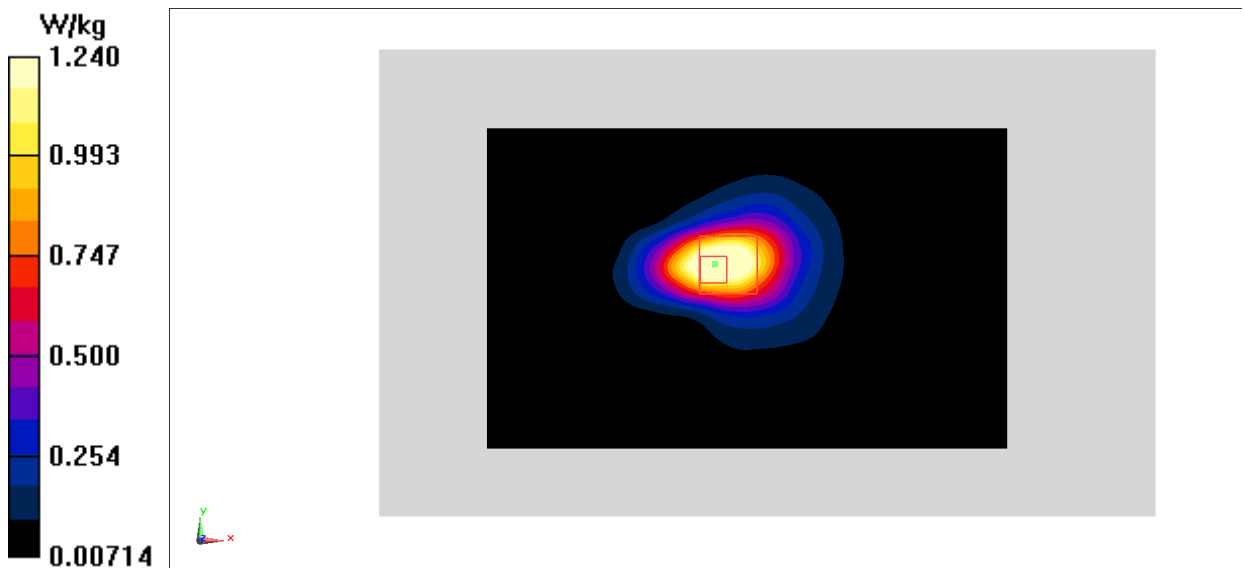


Fig.12WCDMA1900

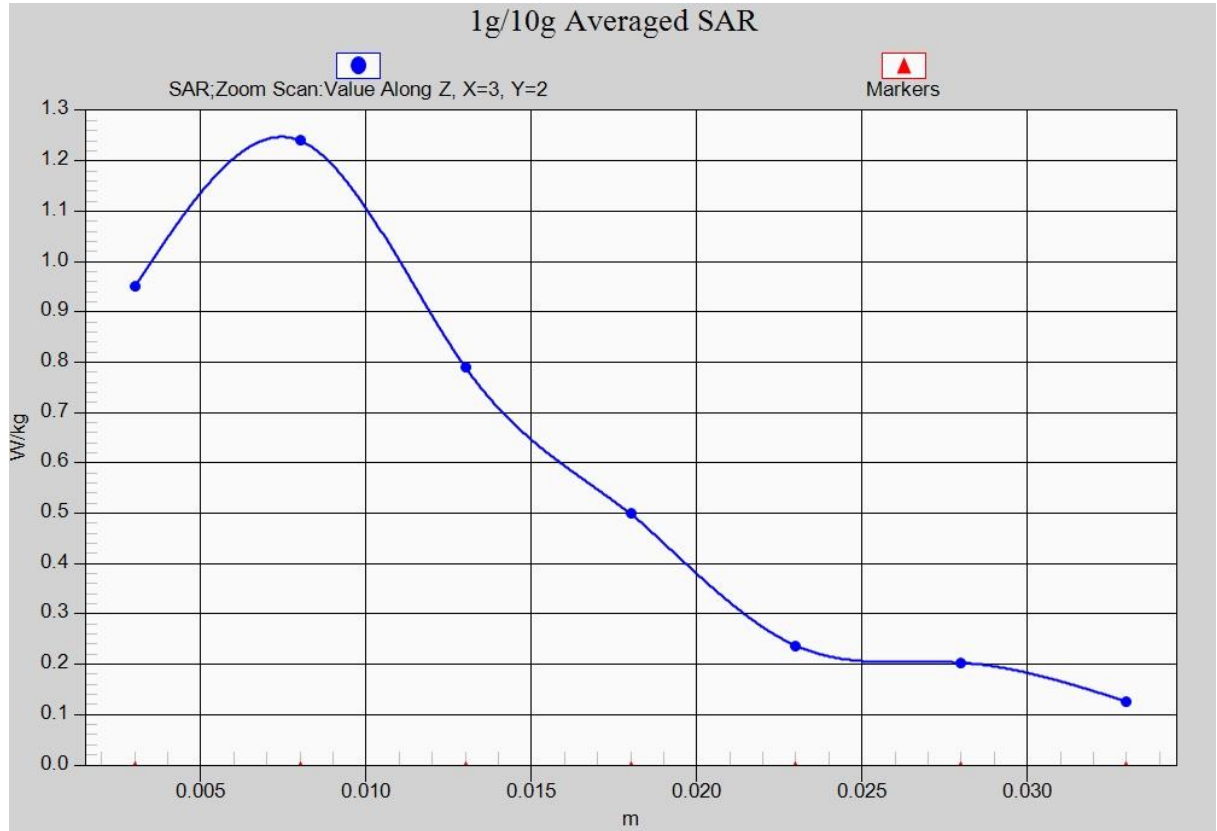


Fig. 12-1 Z-Scan at power reference point (WCDMA1900)

### WCDMA 1900 Body RearMiddle

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.561$  mho/m;  $\epsilon_r = 53$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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(8.32, 8.32, 8.32)

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

Maximum value of SAR (interpolated) = 0.543 W/kg

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

Reference Value = 6.421 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.764 W/kg

SAR(1 g) = 0.472 W/kg; SAR(10 g) = 0.273 W/kg

Maximum value of SAR (measured) = 0.568 W/kg

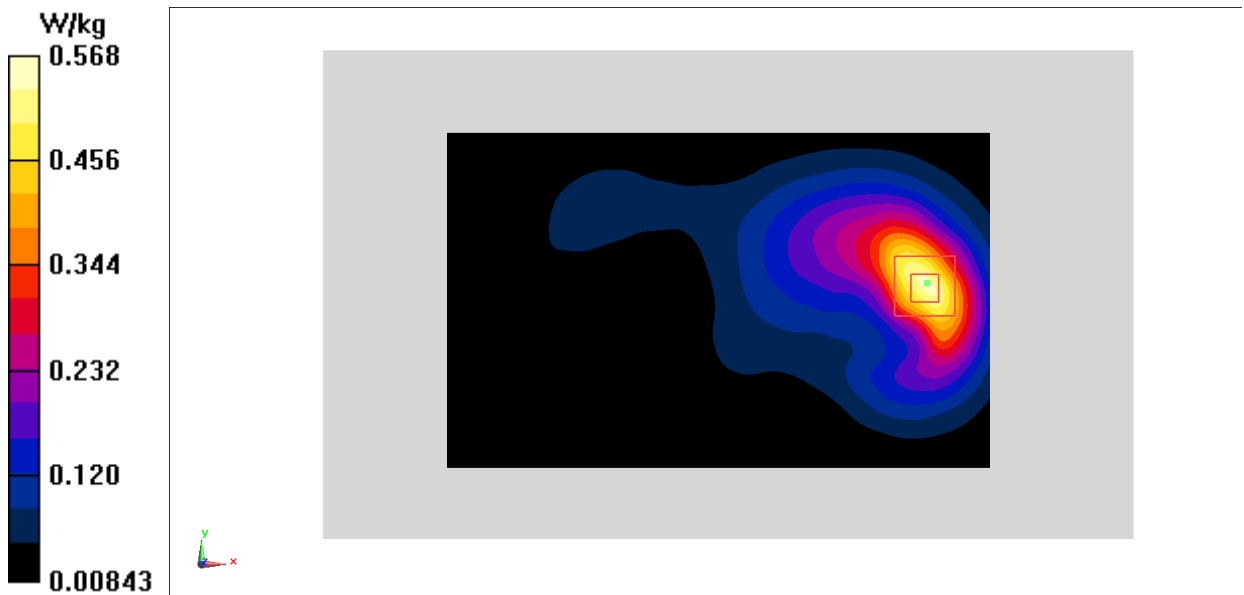


Fig.13WCDMA1900

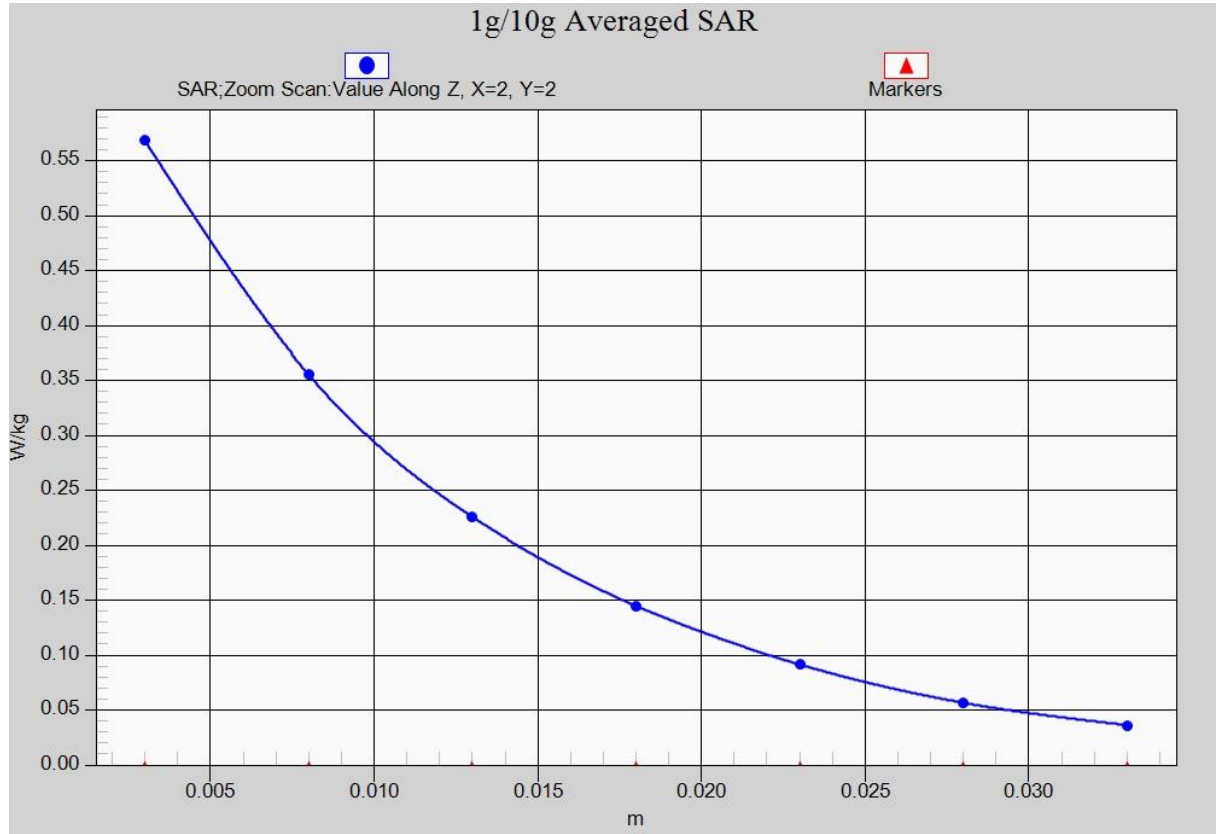


Fig. 13-1 Z-Scan at power reference point (WCDMA1900)



### LTE Band2Left Cheek Middle with QPSK\_20M\_1RB\_Middle

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Head 1900 MHz

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.393$  mho/m;  $\epsilon_r = 40.69$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE Band2Frequency: 1880 MHz Duty Cycle: 1:1

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

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

Maximum value of SAR (interpolated) = 0.278 W/kg

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

Reference Value = 4.724 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.369 W/kg

SAR(1 g) = 0.229 W/kg; SAR(10 g) = 0.138 W/kg

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

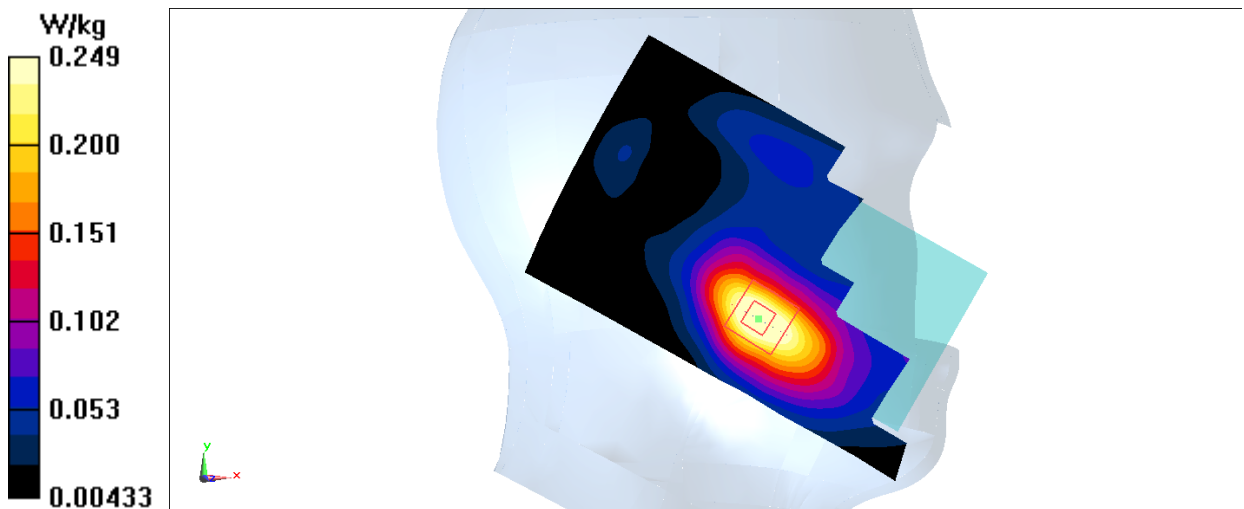


Fig.14 LTE Band2

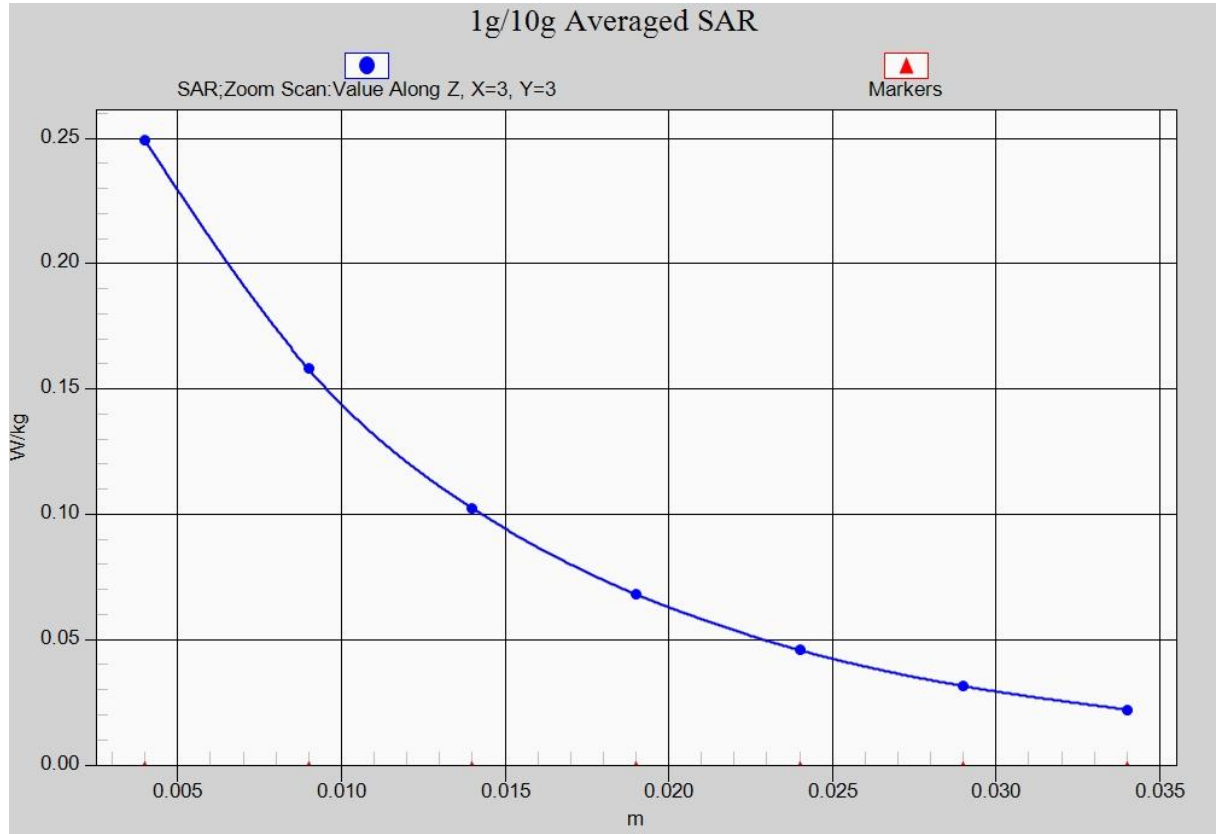


Fig. 14-1 Z-Scan at power reference point (LTE Band2)

### LTE Band2Body BottomHigh with QPSK\_20M\_50RB\_Low

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.507$  mho/m;  $\epsilon_r = 52.71$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Maximum value of SAR (interpolated) = 1.38 W/kg

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

Reference Value = 27.42 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.90 W/kg

SAR(1 g) = 1.1 W/kg; SAR(10 g) = 0.587 W/kg

Maximum value of SAR (measured) = 1.36 W/kg

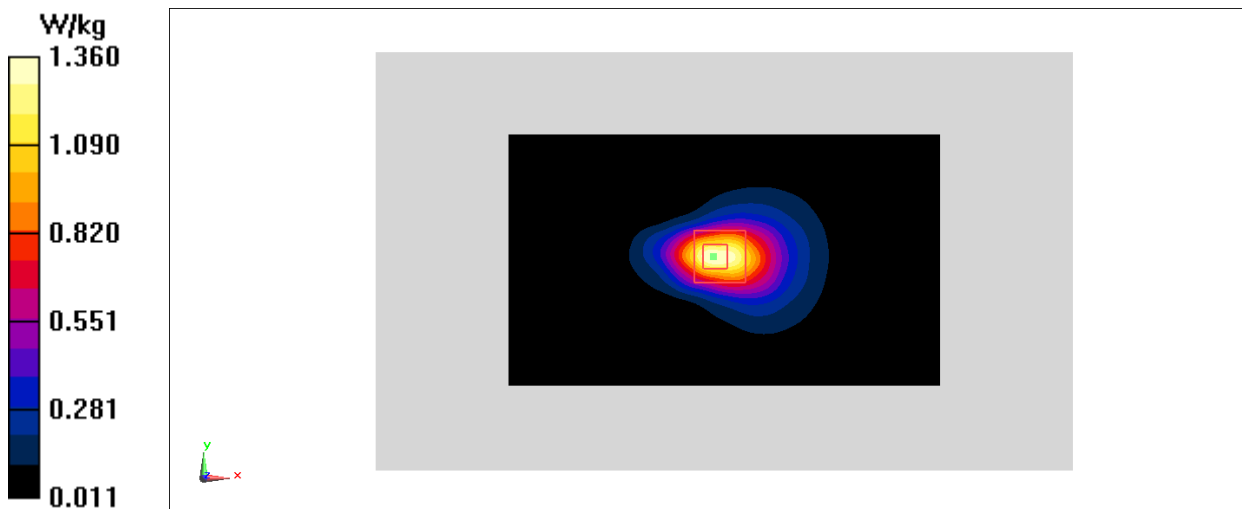


Fig.15 LTE Band2

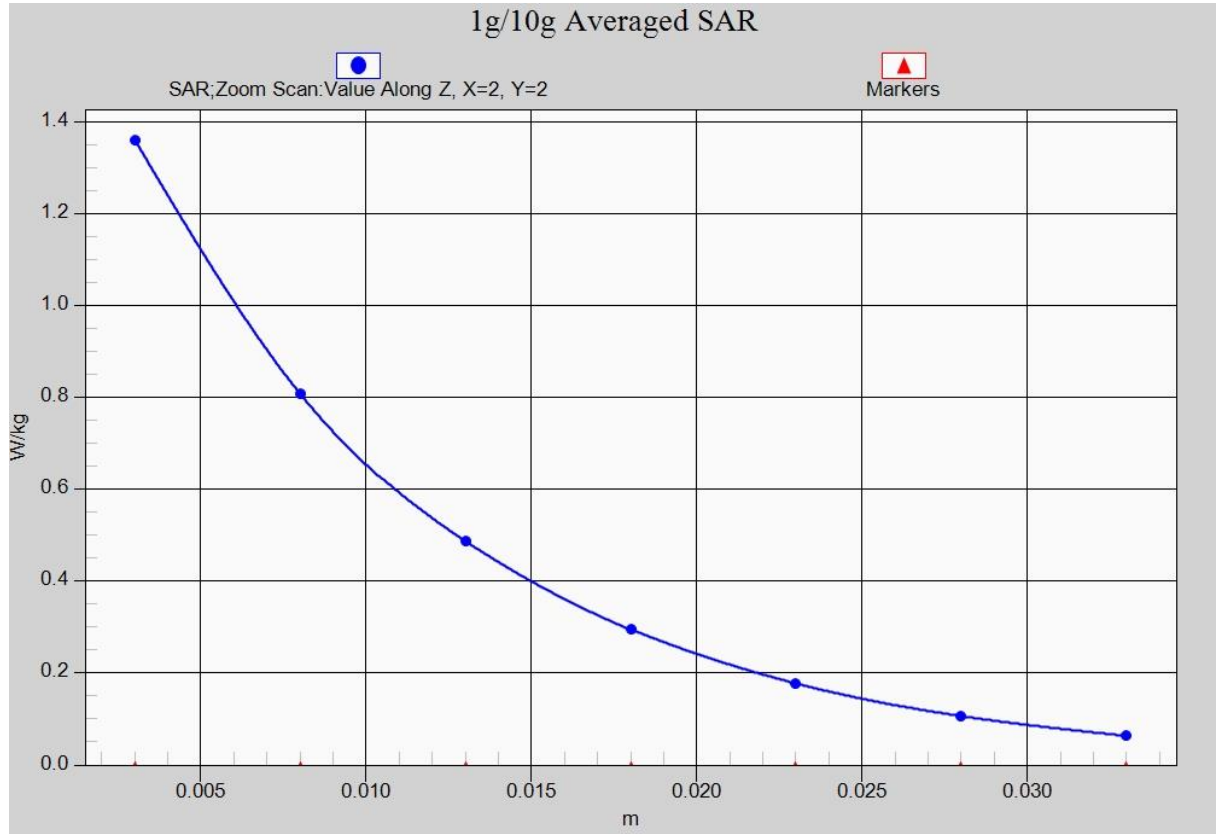


Fig. 15-1 Z-Scan at power reference point (LTE Band2)

**LTE Band2 Body RearMiddle with QPSK\_20M\_1RB\_Middle**

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.488$  mho/m;  $\epsilon_r = 52.77$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE Band2 Frequency: 1880 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) = 0.577 W/kg

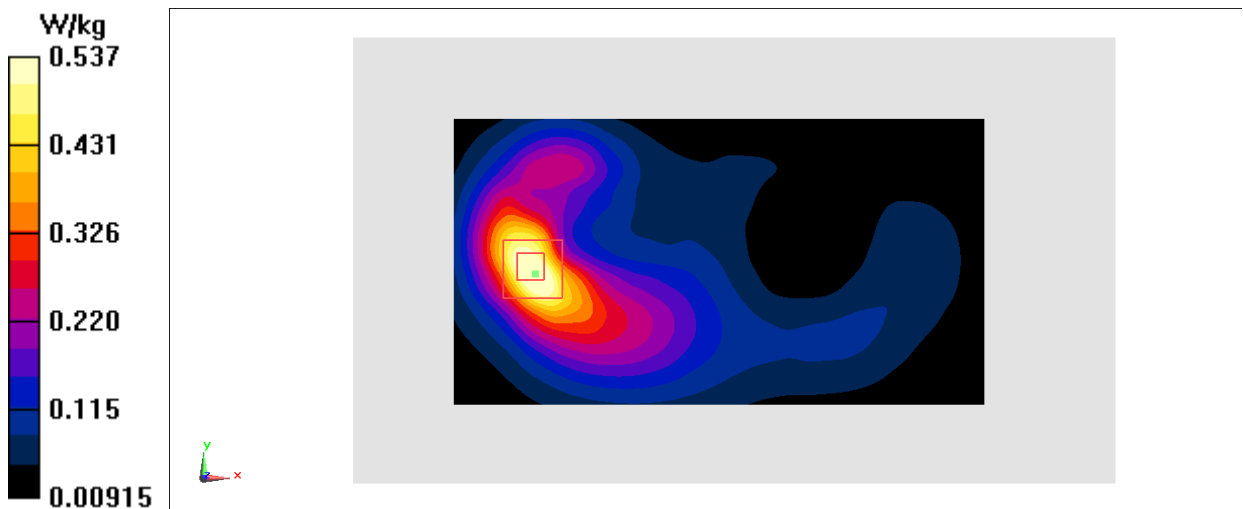
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.458 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.794 W/kg

SAR(1 g) = 0.491 W/kg; SAR(10 g) = 0.281 W/kg

Maximum value of SAR (measured) = 0.537 W/kg



**Fig.16 LTE Band2**

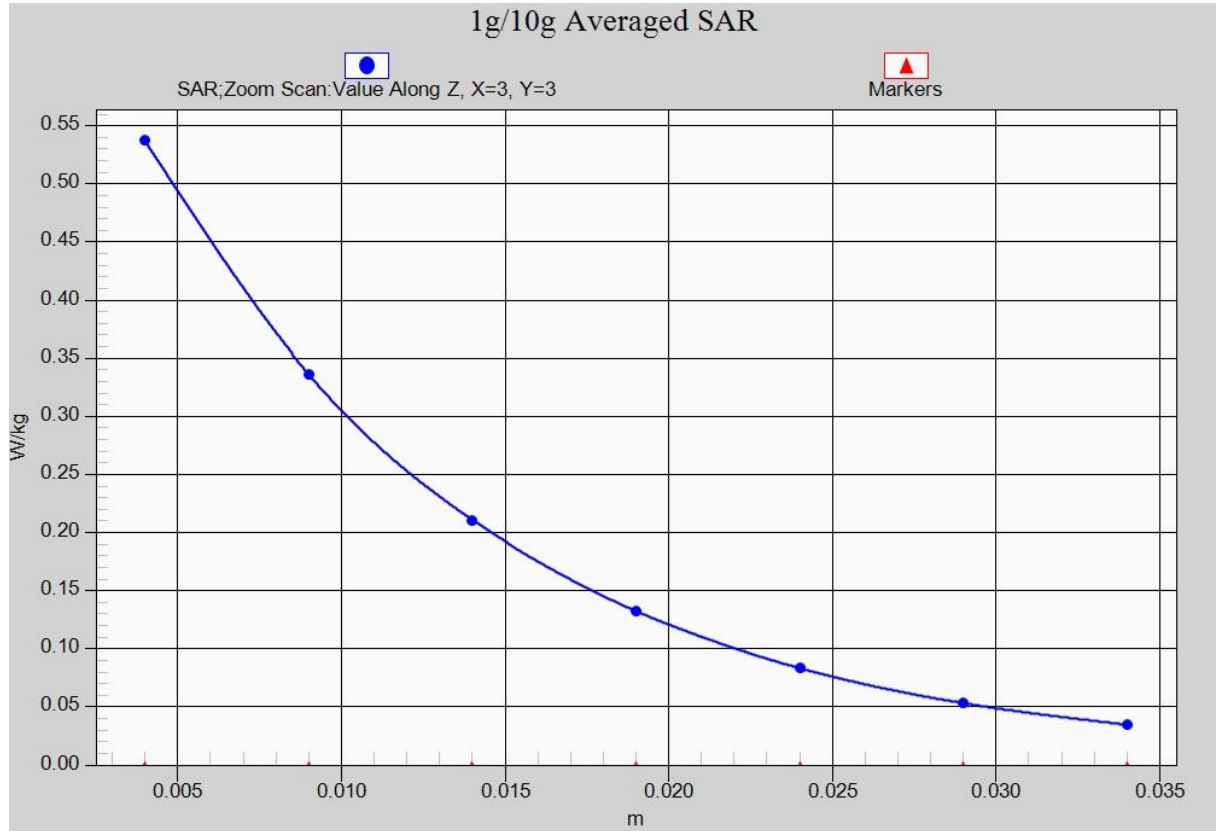


Fig. 16-1 Z-Scan at power reference point (LTE Band2)

### LTE Band7Left Cheek Low with QPSK\_20M\_1RB\_Low

Date: 2018-5-5

Electronics: DAE4 Sn1525

Medium: Head2600 MHz

Medium parameters used:  $f = 2510$  MHz;  $\sigma = 1.925$  mho/m;  $\epsilon_r = 38.52$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE Band7Frequency: 2510 MHz Duty Cycle: 1:1

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

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

Maximum value of SAR (interpolated) = 0.211 W/kg

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

Reference Value = 2.859 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.335 W/kg

SAR(1 g) = 0.169 W/kg; SAR(10 g) = 0.086 W/kg

Maximum value of SAR (measured) = 0.189 W/kg

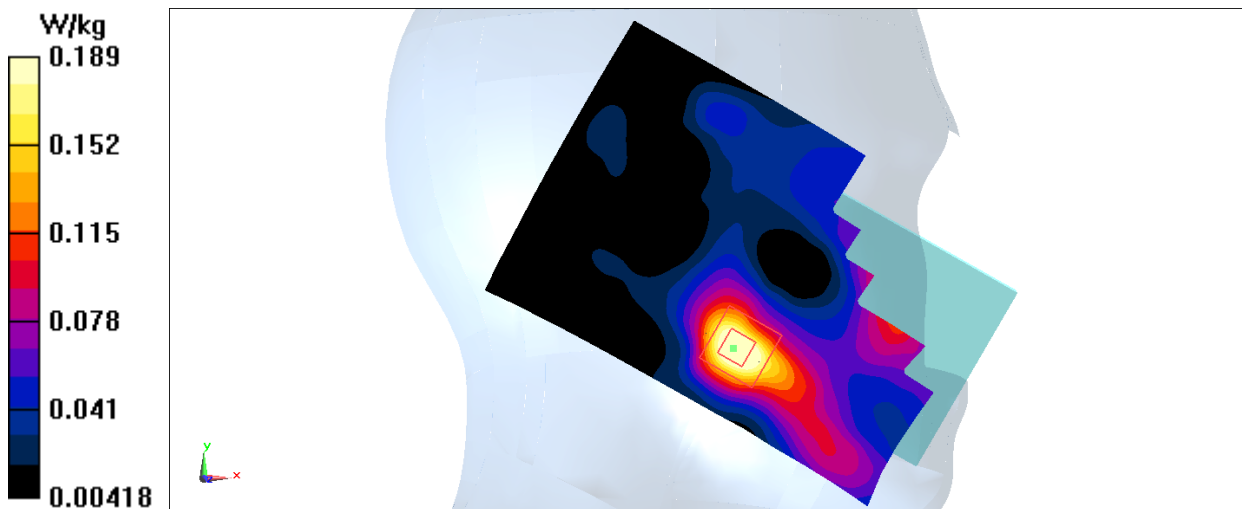


Fig.17 LTE Band7

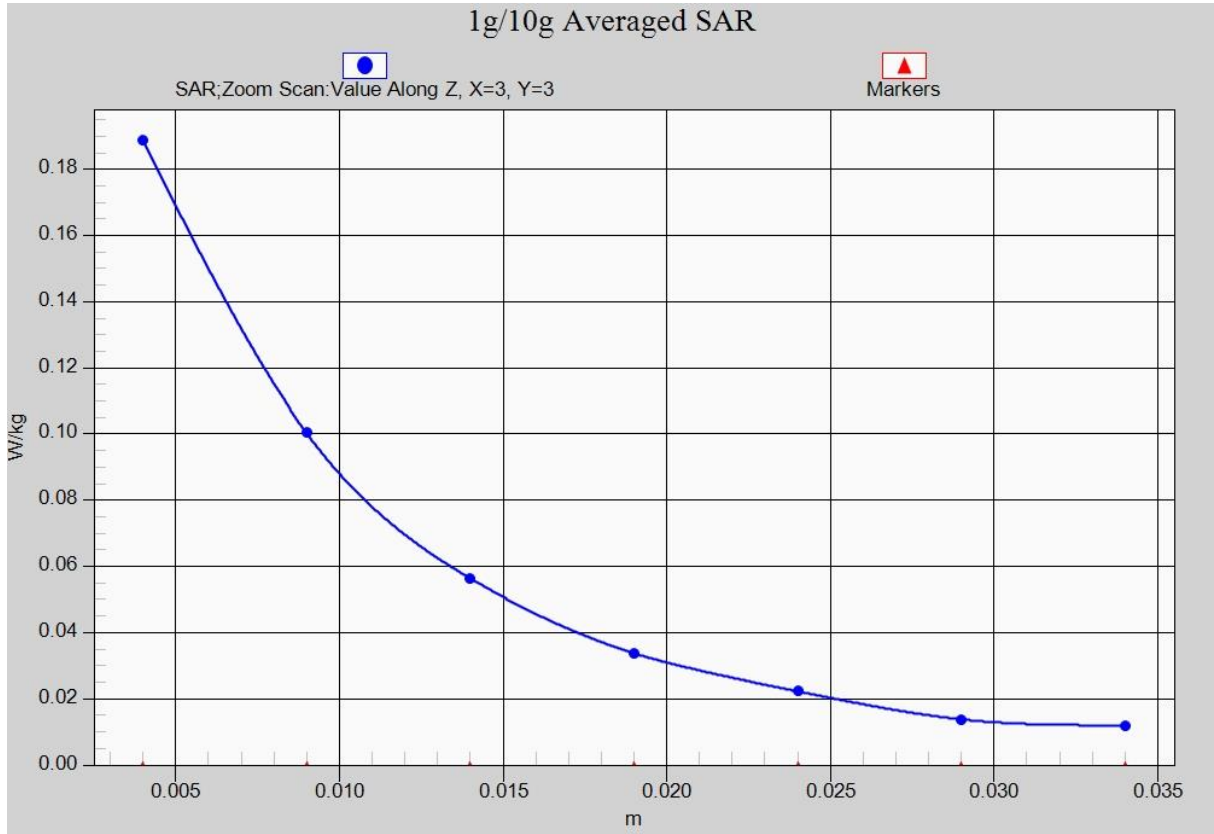


Fig. 17-1 Z-Scan at power reference point (LTE Band7)



### LTE Band7Body BottomHigh with QPSK\_20M\_1RB\_Middle

Date: 2018-5-5

Electronics: DAE4 Sn1525

Medium: Body2600 MHz

Medium parameters used:  $f = 2560$  MHz;  $\sigma = 2.143$  mho/m;  $\epsilon_r = 51.68$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

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

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

**Area Scan (31x71x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm

Maximum value of SAR (interpolated) = 1.35 W/kg

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

Reference Value = 22.32 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 2.06 W/kg

SAR(1 g) = 1.08 W/kg; SAR(10 g) = 0.515 W/kg

Maximum value of SAR (measured) = 1.24 W/kg

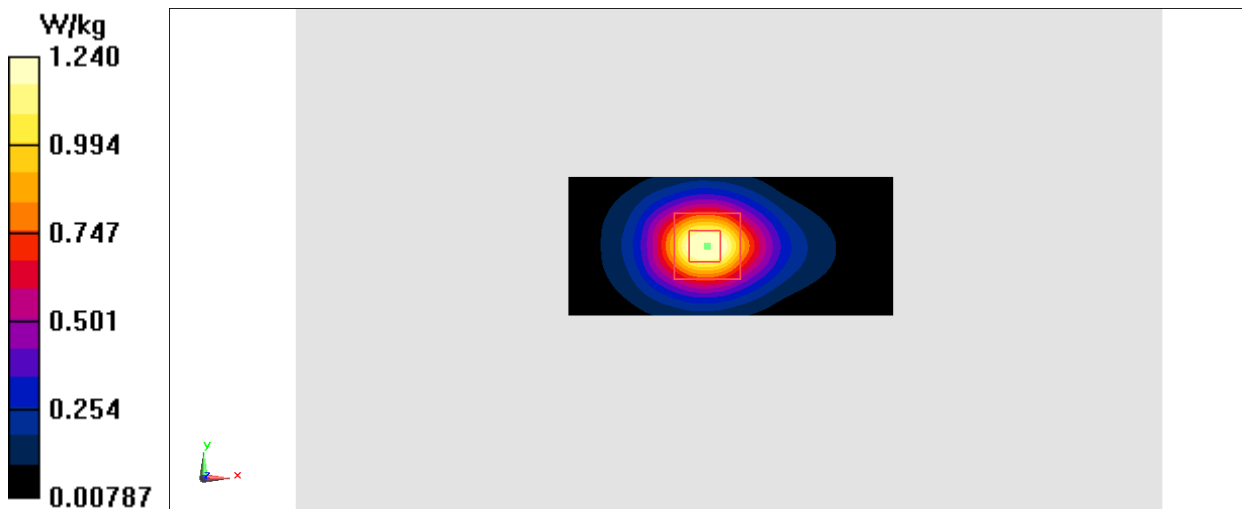


Fig.18 LTE Band7

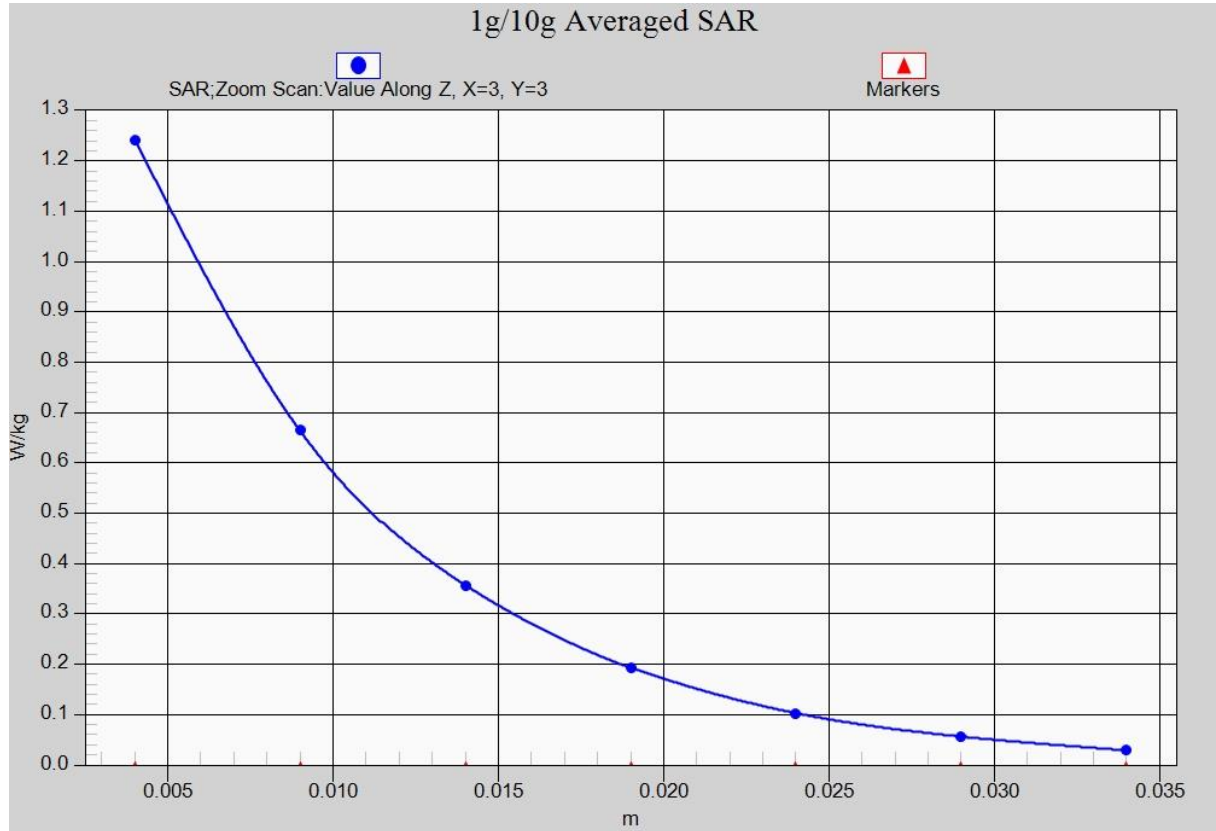


Fig. 18-1 Z-Scan at power reference point (LTE Band7)

### LTE Band7Body RearLow with QPSK\_20M\_1RB\_Low

Date: 2018-5-5

Electronics: DAE4 Sn1525

Medium: Body2600 MHz

Medium parameters used:  $f = 2510$  MHz;  $\sigma = 2.095$  mho/m;  $\epsilon_r = 51.85$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE Band7 Frequency: 2510 MHz Duty Cycle: 1:1

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

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

Maximum value of SAR (interpolated) = 0.511 W/kg

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

Reference Value = 4.737 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.717 W/kg

SAR(1 g) = 0.422 W/kg; SAR(10 g) = 0.240 W/kg

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

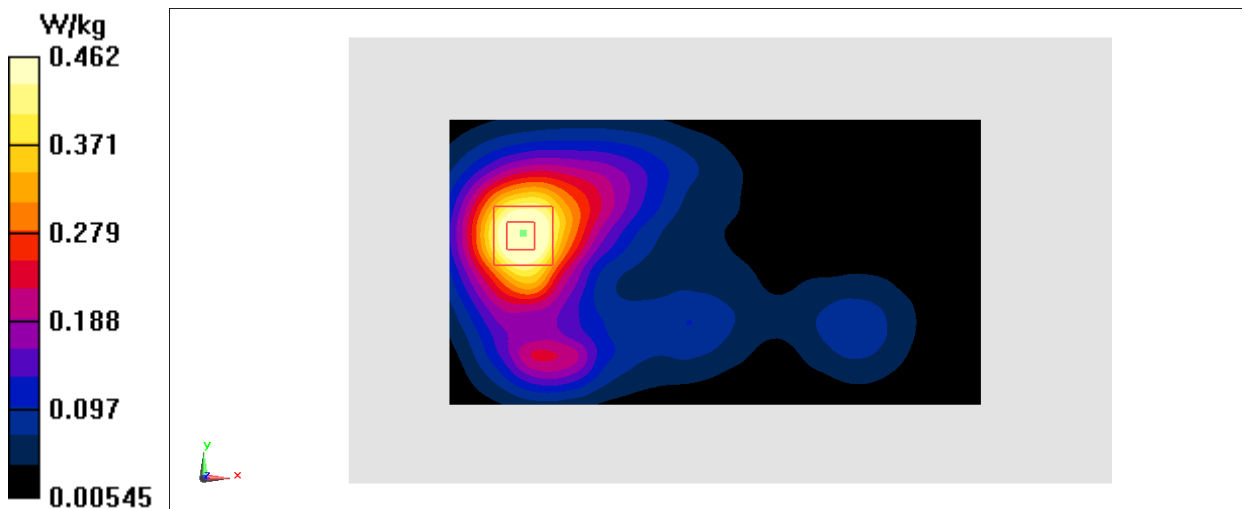


Fig.19 LTE Band7

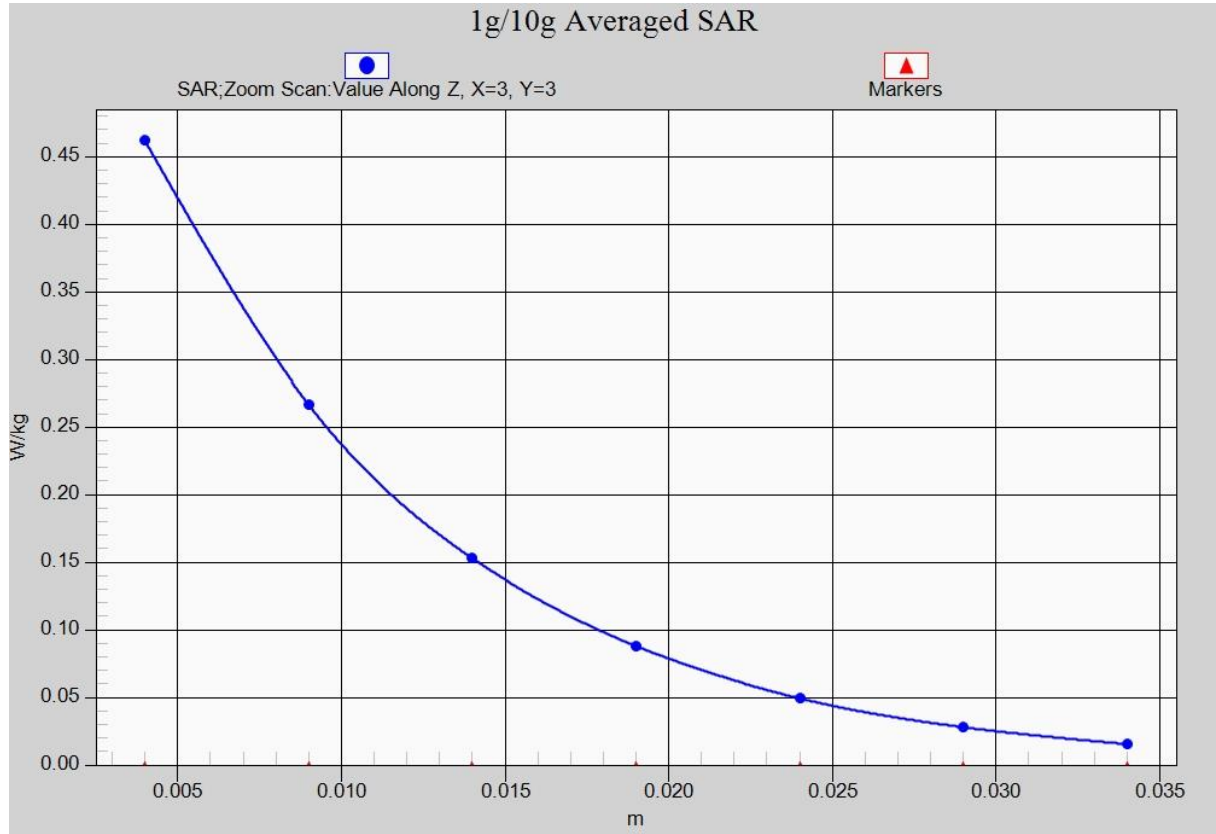


Fig. 19-1 Z-Scan at power reference point (LTE Band7)

### LTE Band12Right Cheek Low with QPSK\_10M\_1RB\_High

Date: 2018-5-1

Electronics: DAE4 Sn1525

Medium: Head750 MHz

Medium parameters used (interpolated):  $f = 704$  MHz;  $\sigma = 0.856$  mho/m;  $\epsilon_r = 42.34$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE Band12Frequency: 704 MHz Duty Cycle: 1:1

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

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

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

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

Reference Value = 5.422 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.181 W/kg

SAR(1 g) = 0.152 W/kg; SAR(10 g) = 0.121 W/kg

Maximum value of SAR (measured) = 0.158 W/kg

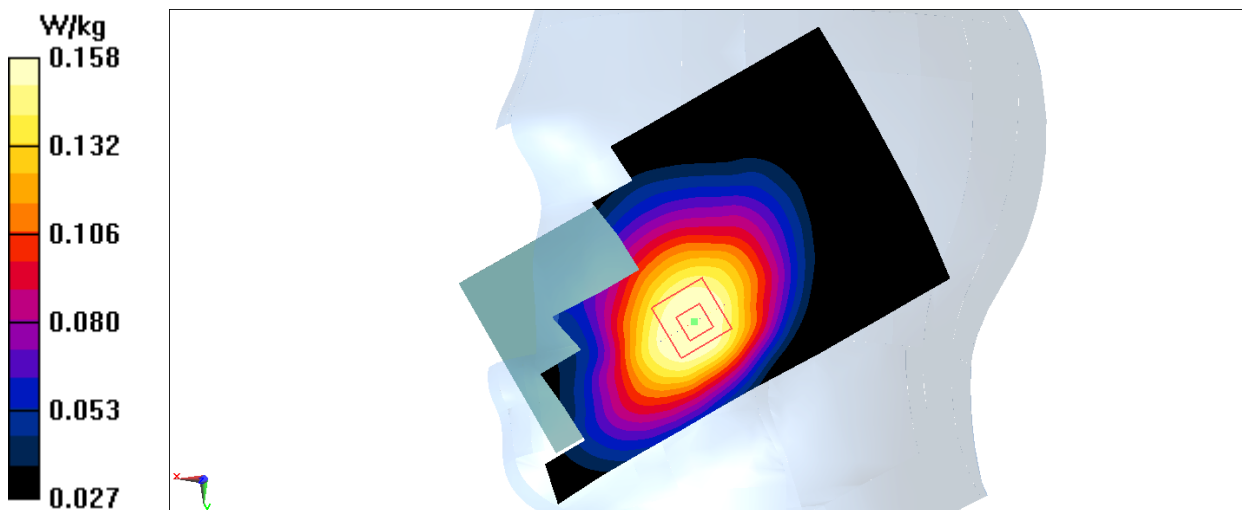


Fig.20 LTE Band12

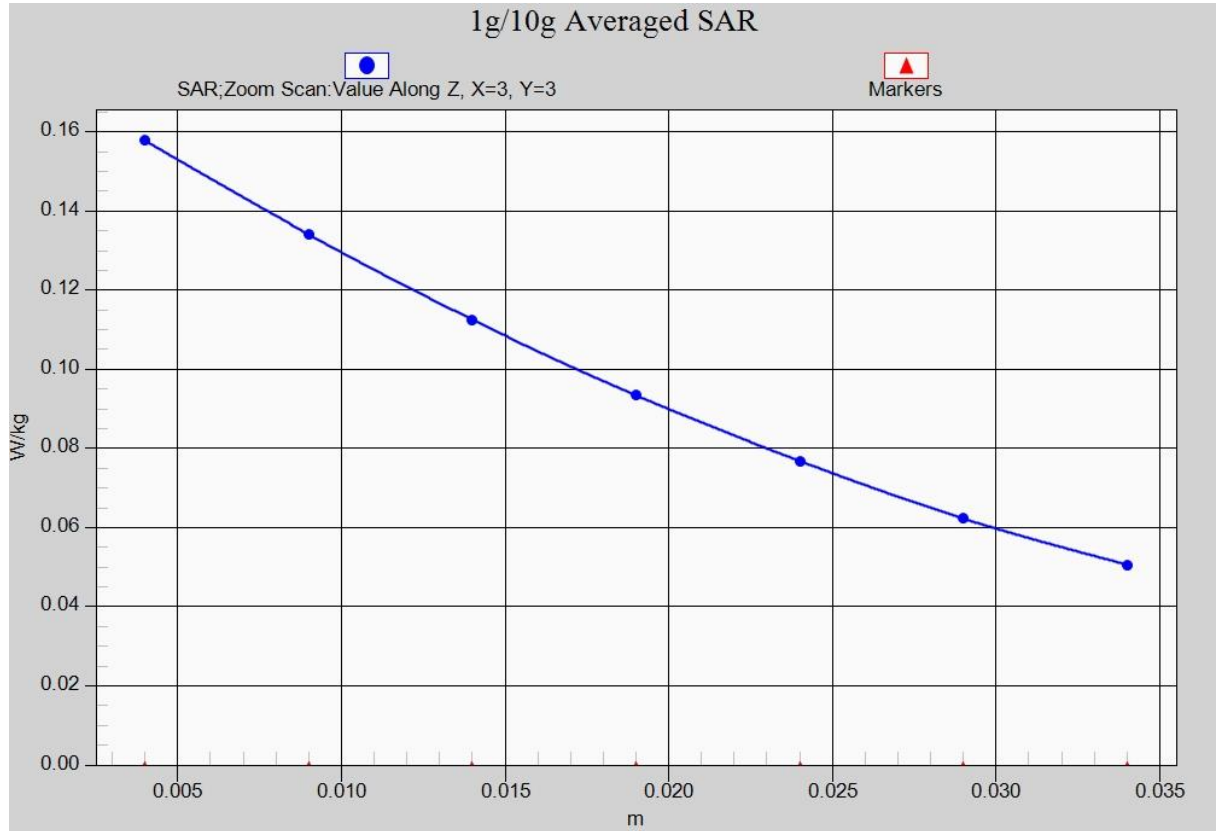


Fig. 20-1 Z-Scan at power reference point (LTE Band12)

### LTE Band12Body Rear Low with QPSK\_10M\_1RB\_High

Date: 2018-5-1

Electronics: DAE4 Sn1525

Medium: Body750 MHz

Medium parameters used (interpolated):  $f = 704$  MHz;  $\sigma = 0.931$  mho/m;  $\epsilon_r = 56.51$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE Band12Frequency: 704 MHz Duty Cycle: 1:1

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

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

Maximum value of SAR (interpolated) = 0.417 W/kg

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

Reference Value = 16.63 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.522 W/kg

SAR(1 g) = 0.378 W/kg; SAR(10 g) = 0.272 W/kg

Maximum value of SAR (measured) = 0.399 W/kg

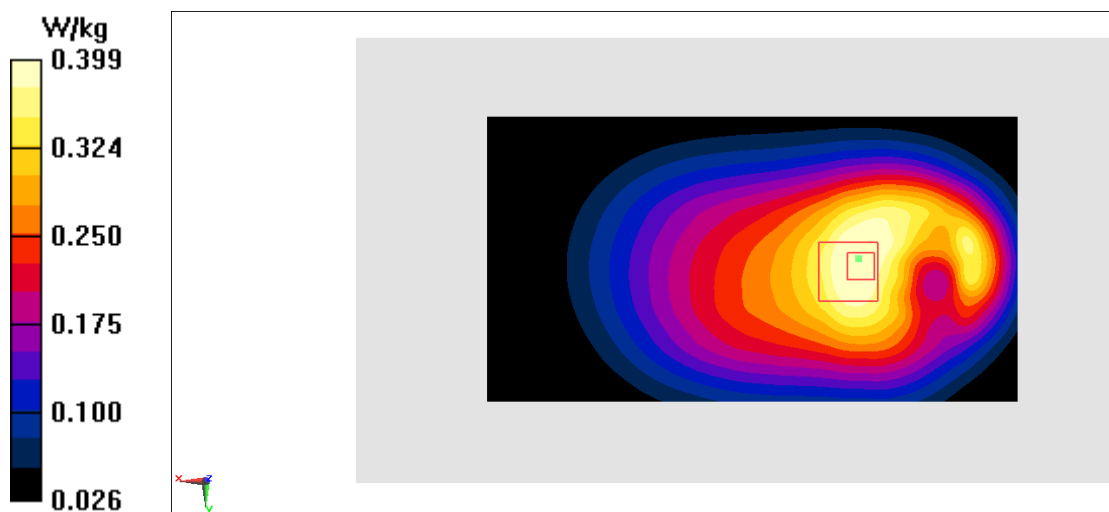


Fig.21 LTE Band12

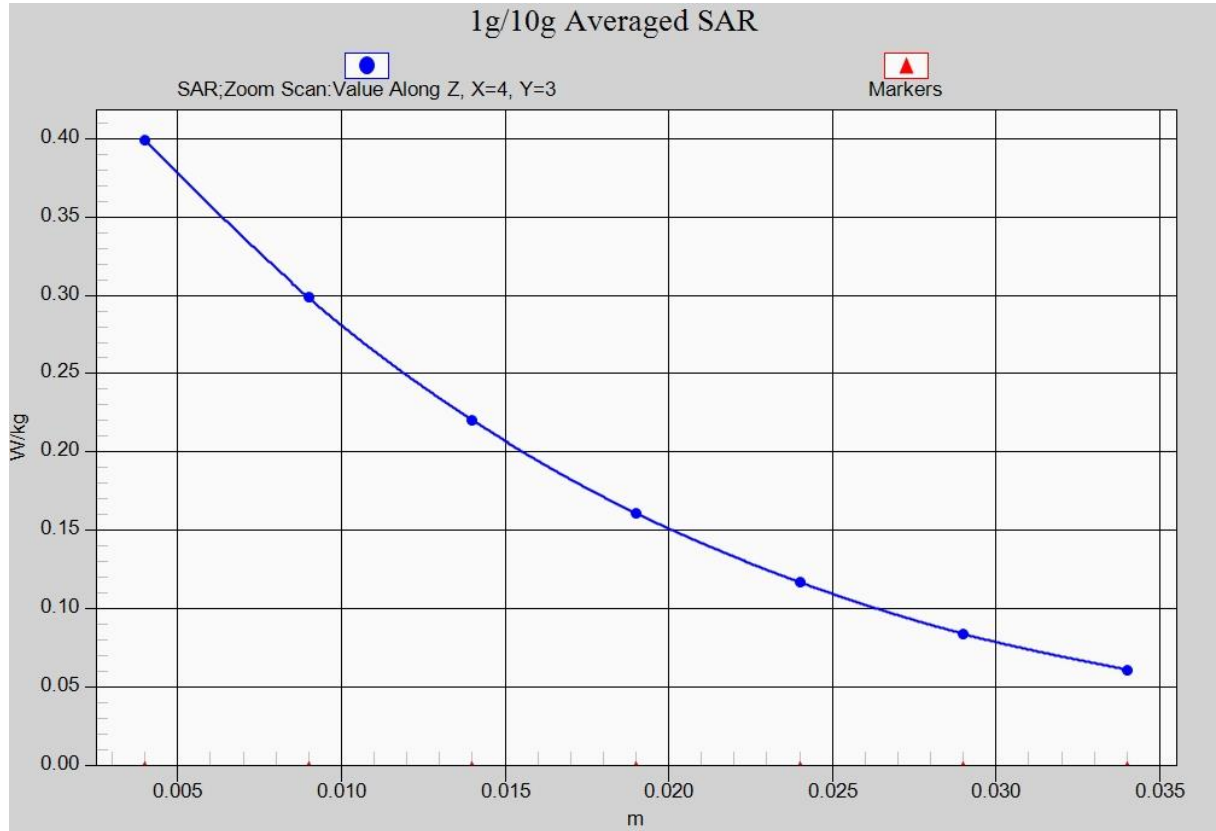


Fig. 21-1 Z-Scan at power reference point (LTE Band12)



### LTE Band13Right Cheek with QPSK\_10M\_1RB\_Low

Date: 2018-5-1

Electronics: DAE4 Sn1525

Medium: Head750 MHz

Medium parameters used (interpolated):  $f = 782$  MHz;  $\sigma = 0.899$  mho/m;  $\epsilon_r = 42.28$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE Band13Frequency: 782 MHz Duty Cycle: 1:1

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

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

Maximum value of SAR (interpolated) = 0.213 W/kg

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

Reference Value = 5.482 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.242 W/kg

SAR(1 g) = 0.197 W/kg; SAR(10 g) = 0.155 W/kg

Maximum value of SAR (measured) = 0.206 W/kg

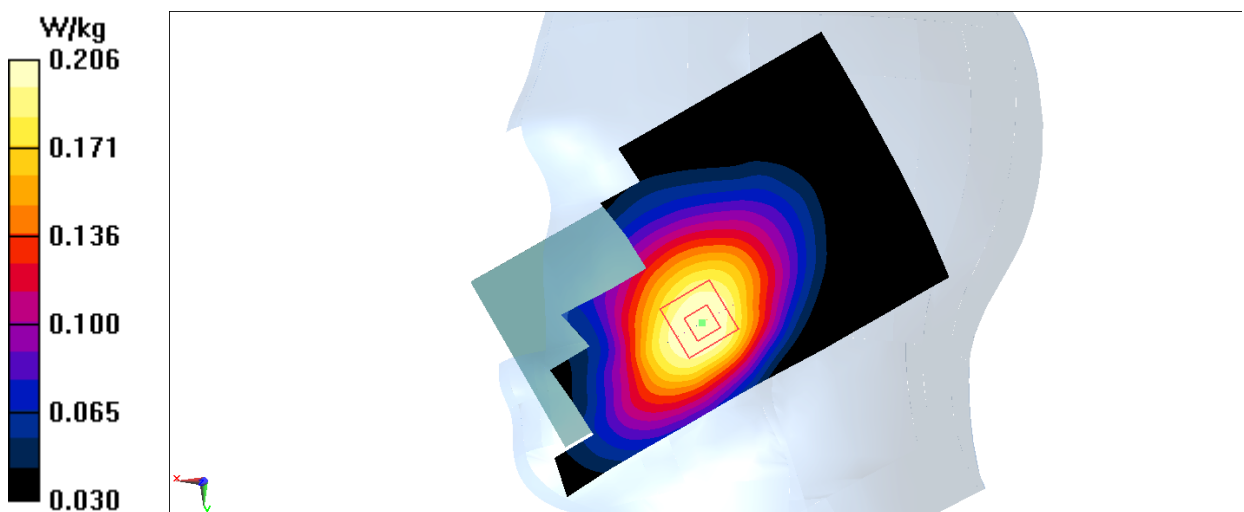


Fig.22 LTE Band13

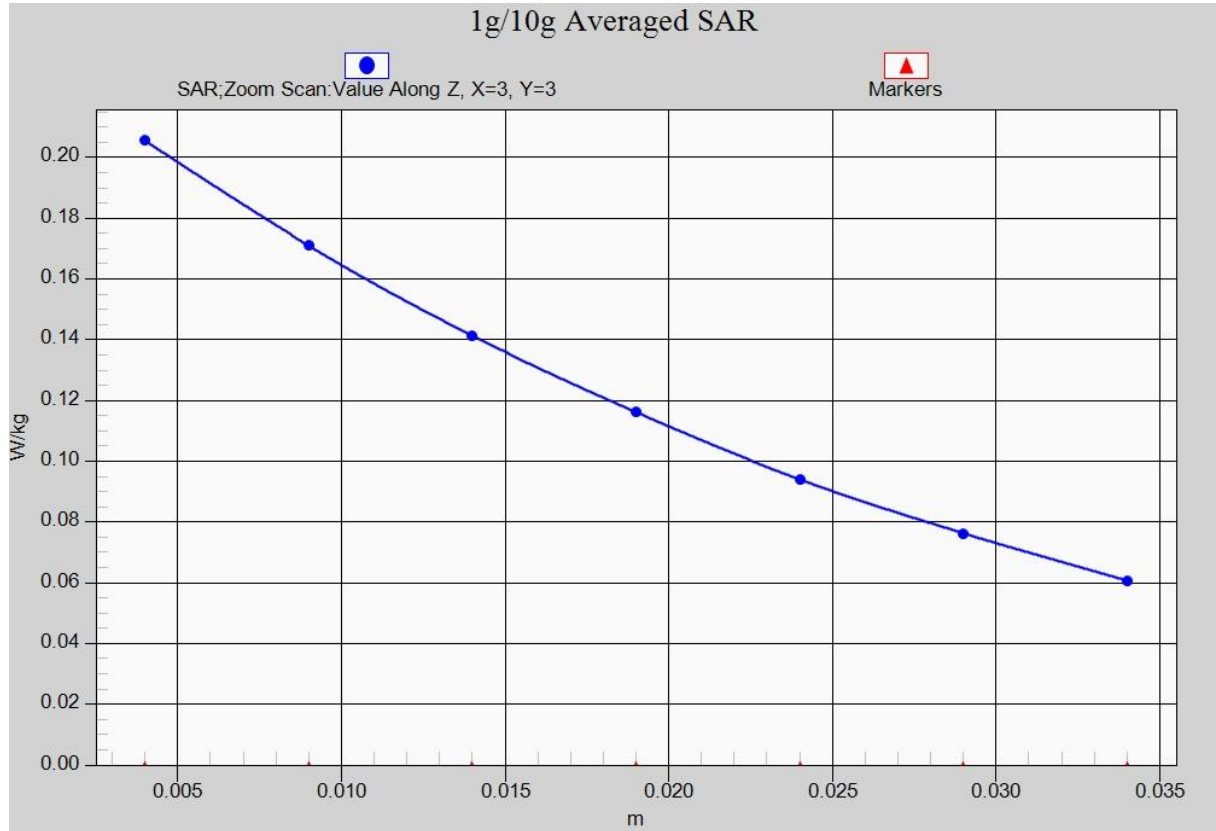


Fig. 22-1 Z-Scan at power reference point (LTE Band13)

### LTE Band13Body Rearwith QPSK\_10M\_1RB\_Low

Date: 2018-5-1

Electronics: DAE4 Sn1525

Medium: Body750 MHz

Medium parameters used (interpolated):  $f = 782$  MHz;  $\sigma = 0.96$  mho/m;  $\epsilon_r = 56.36$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE Band13Frequency: 782 MHz Duty Cycle: 1:1

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

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

Maximum value of SAR (interpolated) = 0.440 W/kg

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

Reference Value = 16.64 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.541 W/kg

SAR(1 g) = 0.400 W/kg; SAR(10 g) = 0.288 W/kg

Maximum value of SAR (measured) = 0.424 W/kg

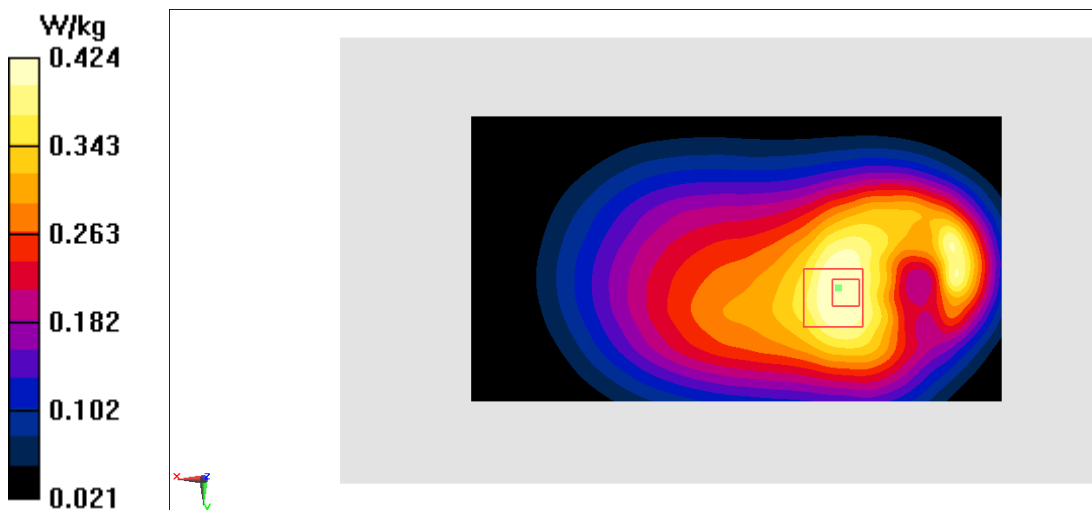


Fig.23 LTE Band13

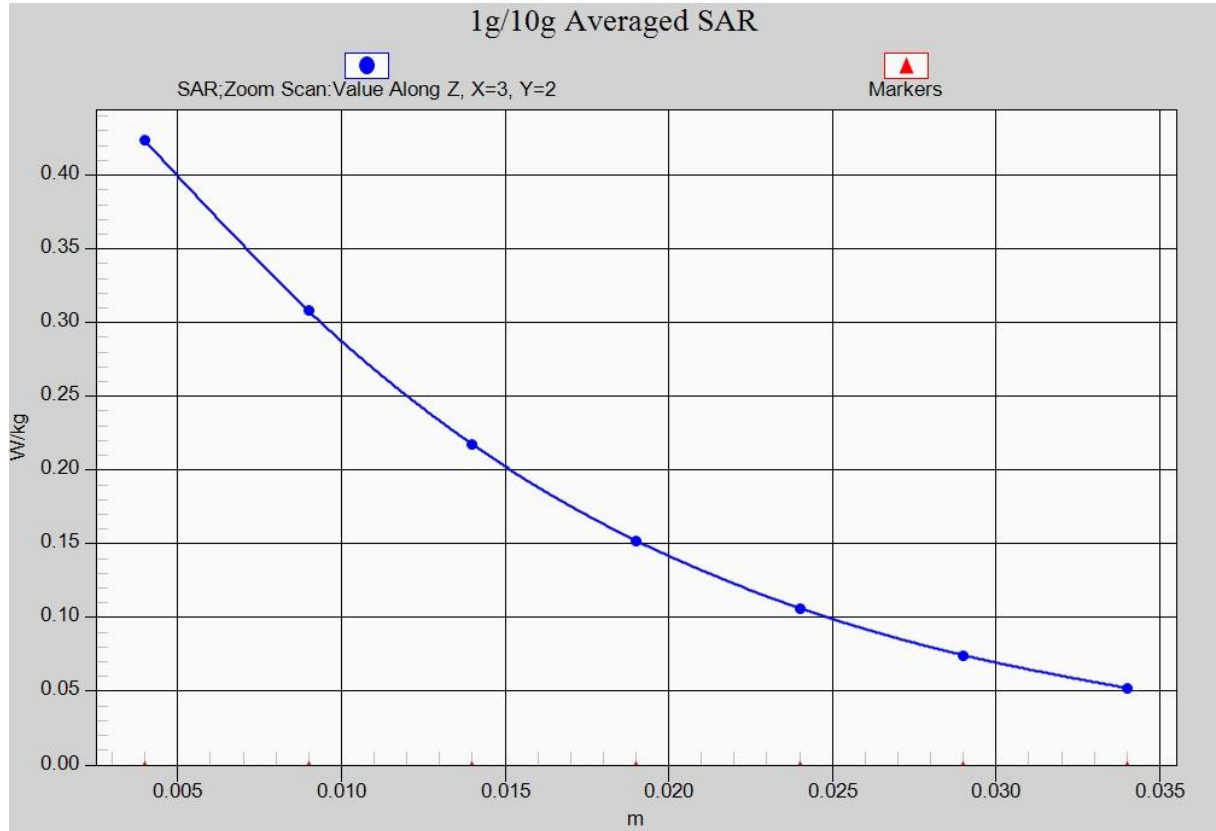


Fig. 23-1 Z-Scan at power reference point (LTE Band13)

### LTE Band 41Left Cheek with QPSK\_20M\_1RB\_Low

Date: 2018-5-5

Electronics: DAE4 Sn1525

Medium: Head2600 MHz

Medium parameters used:  $f = 2549.5$  MHz;  $\sigma = 1.889$  mho/m;  $\epsilon_r = 38.74$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE Band41Frequency: 2549.5 MHz Duty Cycle: 1:1.58

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

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

Maximum value of SAR (interpolated) = 0.151 W/kg

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

Reference Value = 2.561 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.237 W/kg

SAR(1 g) = 0.113 W/kg; SAR(10 g) = 0.055 W/kg

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

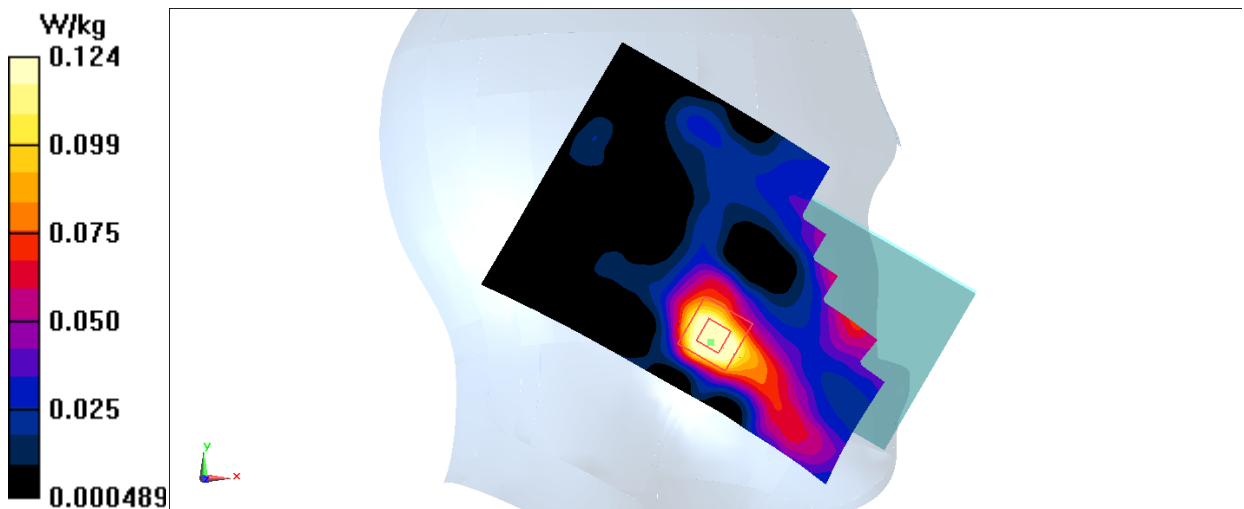


Fig.24 LTE Band 41

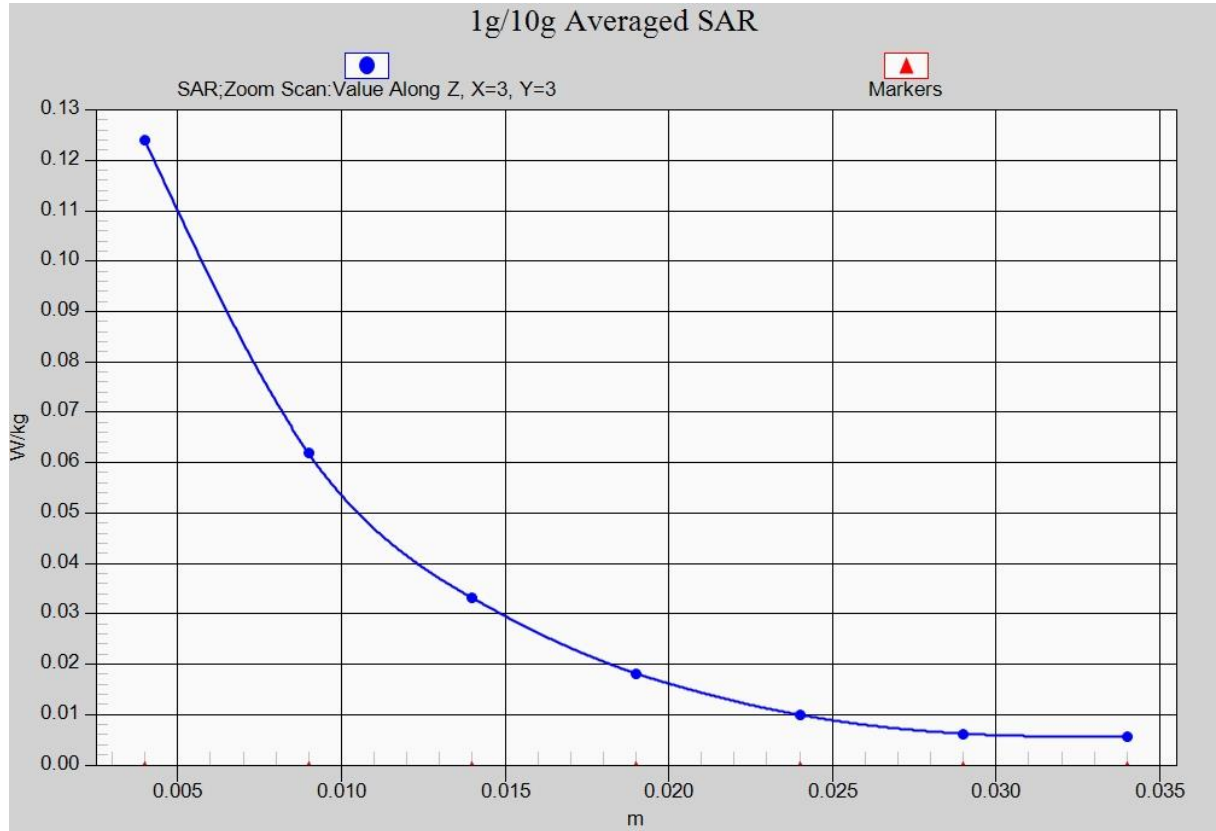


Fig. 24-1 Z-Scan at power reference point (LTE Band 41)