

Table 14.1-35: SAR Values (LTE band66 - Body)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C							
Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
132322	1745	1RB_Mid	Front	/	23.36	24	0.153	0.18	0.251	0.29	0.09
132322	1745	1RB_Mid	Rear	Fig.35	23.36	24	0.271	0.31	0.460	0.53	0.09
132322	1745	50RB_Low	Front	/	22.11	23	0.116	0.14	0.191	0.23	-0.03
132322	1745	50RB_Low	Rear	/	22.11	23	0.209	0.26	0.355	0.44	0.12

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK_20MHz.

14.2 SAR results for Standard procedure

There is zoom scan measurement to be added for the highest measured SAR in each exposure configuration/band.

Table 14.2-1: SAR Values (GSM 850 MHz Band - Head)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C							
Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
251	848.8	Right	Touch	Fig.1	28.70	29.5	0.254	0.31	0.322	0.39	0.08

Note: the head SAR of GSM850 is tested with GPRS (4Txslots) mode because of VoIP.

Table 14.2-2: SAR Values (GSM 850 MHz Band - Body)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C							
Frequency		Mode (number of timeslots)	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
251	848.8	GPRS (4)	Rear	Fig.2	28.70	29.5	0.367	0.44	0.620	0.75	-0.03

Note: The distance between the EUT and the phantom bottom is 10mm.

Table 14.2-3: SAR Values (GSM 1900 MHz Band - Head)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C							
Frequency		Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
810	1909.8	Left	Touch	Fig.3	27.95	29	0.207	0.26	0.426	0.54	-0.18

Note: the head SAR of GSM1900 is tested with GPRS (3Txslots) mode because of VoIP.

Table 14.2-4: SAR Values (GSM 1900 MHz Band - Body)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C							
Frequency		Mode (number of timeslots)	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
512	1850.2	GPRS (3)	Bottom	Fig.4	27.56	28	0.474	0.52	0.844	0.93	-0.13

Note: The distance between the EUT and the phantom bottom is 10mm.

Table 14.2-5: SAR Values (GSM 1900 MHz Band - Body)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C							
Frequency		Mode (number of timeslots)	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
810	1909.8	GPRS (3)	Rear	Fig.5	27.95	29	0.229	0.29	0.397	0.51	-0.03

Note: The distance between the EUT and the phantom bottom is 15mm.

Table 14.2-6: SAR Values (WCDMA 850 MHz Band - Head)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C							
Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
4182	836.4	Right	Touch	Fig.6	23.56	24	0.206	0.23	0.262	0.29	0.13

Table 14.2-7: SAR Values (WCDMA 850 MHz Band - Body)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C						
Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz									
4233	846.6	Rear	Fig.7	23.68	24	0.259	0.28	0.432	0.47	-0.09

Note: The distance between the EUT and the phantom bottom is 10mm.

Table 14.2-8: SAR Values (WCDMA 1700 MHz Band - Head)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C							
Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
1537	1712.4	Left	Touch	Fig.8	23.55	24	0.088	0.10	0.133	0.15	0.01

Table 14.2-9: SAR Values (WCDMA 1700 MHz Band - Body)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C						
Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz									
1738	1752.6	Rear	Fig.9	21.46	22	0.493	0.56	0.927	1.05	-0.03

Note1: The distance between the EUT and the phantom bottom is 10mm.

Table 14.2-10: SAR Values (WCDMA 1700 MHz Band - Body)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C						
Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz									
1537	1712.4	Rear	Fig.10	23.55	24	0.356	0.39	0.588	0.65	0.03

Note1: The distance between the EUT and the phantom bottom is 15mm.

Table 14.2-11: SAR Values (WCDMA 1900 MHz Band - Head)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C							
Frequency		Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
9938	1907.6	Left	Touch	Fig.11	23.57	24	0.114	0.13	0.180	0.20	0.05

Table 14.2-12: SAR Values (WCDMA 1900 MHz Band - Body)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C						
Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz									
9800	1880	Bottom	Fig.12	21.81	22	0.617	0.64	1.04	1.09	0.03

Note1: The distance between the EUT and the phantom bottom is 10mm.

Table 14.2-13: SAR Values (WCDMA 1900 MHz Band - Body)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C						
Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz									
9800	1880	Rear	Fig.13	23.70	24	0.273	0.29	0.472	0.51	0.01

Note1: The distance between the EUT and the phantom bottom is 15mm.

Table 14.2-14: SAR Values (LTE Band2 - Head)

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C												
Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
18900	1880	1RB_Mid	Left	Touch	Fig.14	23.53	24	0.138	0.15	0.229	0.26	0.02

Note1: The LTE mode is QPSK_20MHz.

Table 14.2-15: SAR Values (LTE Band2 - Body)

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C											
Frequency		Mode	Test Position	Figure No./ Note	Conduct ed Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
19100	1900	50RB_Low	Bottom	Fig.15	21.28	22	0.587	0.69	1.10	1.30	0.04

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_20MHz.

Table 14.2-16: SAR Values (LTE Band2 - Body)

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C											
Frequency		Mode	Test Position	Figure No./ Note	Conduct ed Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
18900	1880	1RB_Mid	Rear	Fig.16	23.53	24	0.281	0.31	0.491	0.55	0.16

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK_20MHz.

Table 14.2-17: SAR Values (LTE Band5 - Head)

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C												
Frequency		Mode	Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
20600	844	1RB_High	Right	Touch	Fig.17	23.16	24	0.167	0.20	0.216	0.26	0.04

Note1: The LTE mode is QPSK_10MHz.

Table 14.2-18: SAR Values (LTE Band5 - Body)

Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Liquid Temperature: 22.5°C		Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz						Ambient Temperature: 22.9 °C	Liquid Temperature: 22.5°C					
20600	844	1RB_High	Rear	Fig.18	23.16	24	0.272	0.33	0.386	0.47	-0.01		

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_10MHz.

Table 14.2-19: SAR Values (LTE Band7 - Head)

Frequency		Mode	Side	Test Position	Figure No./ Note	Conduct ed Power (dBm)	Max. tune-up Power (dBm)	Liquid Temperature: 22.5°C		Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz							Ambient Temperature: 22.9 °C	Liquid Temperature: 22.5°C					
20850	2510	1RB_Low	Left	Touch	Fig.19	23.05	23.9	0.086	0.10	0.169	0.21	-0.09		

Note1: The LTE mode is QPSK_20MHz.

Table 14.2-20: SAR Values (LTE Band7 - Body)

Frequency		Mode	Test Position	Figure No./ Note	Conduc ted Power (dBm)	Max. tune-up Power (dBm)	Liquid Temperature: 22.5°C		Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz						Ambient Temperature: 22.9 °C	Liquid Temperature: 22.5°C					
21350	2560	1RB_Mid	Bottom	Fig.20	19.04	19.9	0.515	0.63	1.08	1.32	0.11		

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_20MHz.

Table 14.2-21: SAR Values (LTE Band7 - Body)

Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Liquid Temperature: 22.5°C		Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz						Ambient Temperature: 22.9 °C	Liquid Temperature: 22.5°C					
20850	2510	1RB_Low	Rear	Fig.21	23.05	23.9	0.240	0.29	0.422	0.51	0.01		

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK_20MHz.

Table 14.2-22: SAR Values (LTE Band12 - Head)

		Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C						
Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	
Ch.	MHz											
23060	704	1RB_High	Right	Touch	Fig.22	23.02	24	0.121	0.15	0.152	0.19	0.00

Note1: The LTE mode is QPSK_10MHz.

Table 14.2-23: SAR Values (LTE Band12 - Body)

		Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C					
Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
23060	704	1RB_High	Rear	Fig.23	23.02	24	0.272	0.34	0.378	0.47	0.00

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_10MHz.

Table 14.2-24: SAR Values (LTE Band13 - Head)

		Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C						
Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
23230	782	1RB_Low	Right	Touch	Fig.24	23.21	24	0.155	0.19	0.197	0.24	0.01

Note1: The LTE mode is QPSK_10MHz.

Table 14.2-25: SAR Values (LTE Band13 - Body)

		Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C					
Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
23230	782	1RB_Low	Rear	Fig.25	23.21	24	0.288	0.35	0.400	0.48	0.04

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_10MHz.

Table 14.2-26: SAR Values (LTE Band14 - Head)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C								
Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
23330	793	1RB_Mid	Right	Touch	Fig.26	23.06	24	0.143	0.18	0.183	0.23	0.07

Note1: The LTE mode is QPSK_10MHz.

Table 14.2-27: SAR Values (LTE Band14 - Body)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C							
Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
23330	793	1RB_Mid	Rear	Fig.27	23.06	24	0.263	0.33	0.370	0.46	0.01

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_10MHz.

Table 14.2-28: SAR Values (LTE Band30 - Head)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C								
Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
27710	2310	1RB_High	Right	Touch	Fig.28	23.14	24	0.046	0.06	0.083	0.10	0.17

Note1: The LTE mode is QPSK_10MHz.

Table 14.2-29: SAR Values (LTE Band30 - Body)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C							
Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
27710	2310	25RB_High	Bottom	Fig.29	21.27	22	0.603	0.71	1.15	1.36	0.01

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_10MHz.

Table 14.2-30: SAR Values (LTE Band30 - Body)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C							
Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
27710	2310	1RB_High	Rear	Fig.30	23.14	24	0.187	0.23	0.325	0.40	0.13

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK_10MHz.

Table 14.2-31: SAR Values (LTE Band41 - Head)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C								
Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
40185	2549.5	1RB_Low	Left	Touch	Fig.31	23.09	24	0.055	0.07	0.113	0.14	0.14

Note1: The LTE mode is QPSK_20MHz.

Table 14.2-32: SAR Values (LTE Band41 - Body)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C							
Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
40620	2593	1RB_Low	Bottom	Fig.32	23.06	24	0.436	0.54	0.929	1.15	0.08

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_20MHz.

Table 14.2-33: SAR Values (LTE band66 - Head)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C								
Frequency		Mode	Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
132322	1745	1RB_Mid	Left	Touch	Fig.33	23.36	24	0.081	0.09	0.133	0.15	0.02

Note1: The LTE mode is QPSK_20MHz.

Table 14.2-34: SAR Values (LTE band66 - Body)

		Ambient Temperature: 22.9 °C			Liquid Temperature: 22.5°C						
Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
132072	1720	50RB_Middle	Rear	Fig.34	21.02	22	0.448	0.56	0.812	1.02	-0.05

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_20MHz.

Table 14.2-35: SAR Values (LTE band66 - Body)

		Ambient Temperature: 22.9 °C			Liquid Temperature: 22.5°C						
Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
132322	1745	1RB_Mid	Rear	Fig.35	23.36	24	0.271	0.31	0.460	0.53	0.09

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK_20MHz.

14.3 WLAN Evaluation for 2.4G

According to the KDB248227 D01, SAR is measured for 2.4GHz 802.11b DSSS using the initial test position procedure.

Head Evaluation

Table 14.3-1: SAR Values (WLAN - Head)– 802.11b (Fast SAR)

		Ambient Temperature: 22.9 °C			Liquid Temperature: 22.5°C						
Frequency		Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.										
2437	6	Left	Touch	/	17.52	18.5	0.212	0.27	0.435	0.55	-0.09
2437	6	Left	Tilt	/	17.52	18.5	0.171	0.21	0.379	0.47	0.17
2437	6	Right	Touch	/	17.52	18.5	0.103	0.13	0.204	0.26	-0.02
2437	6	Right	Tilt	/	17.52	18.5	0.101	0.13	0.205	0.26	0.06

As shown above table, the initial test position for head is “Left Touch”. So the head SAR of WLAN is presented as below:

Table 14.3-2: SAR Values (WLAN - Head)– 802.11b (Full SAR)

		Ambient Temperature: 22.9 °C			Liquid Temperature: 22.5°C						
Frequency		Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.										
2437	6	Left	Touch	Fig.36	17.52	18.5	0.216	0.27	0.464	0.58	-0.09
2437	6	Left	Tilt	/	17.52	18.5	0.179	0.22	0.408	0.51	0.17

Note1: When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest estimated 1-g SAR conditions determined by area scans, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg.

Note2: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

Table 14.3-3: SAR Values (WLAN - Head) – 802.11b (Scaled Reported SAR)

		Ambient Temperature: 22.9 °C			Liquid Temperature: 22.5°C		
Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.						
2437	6	Left	Touch	97.69%	100%	0.58	0.59

SAR is not required for OFDM because the 802.11b adjusted SAR ≤ 1.2 W/kg.

Body Evaluation

Table 14.3-4: SAR Values (WLAN - Body)– 802.11b (Fast SAR)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C						
Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.			(dBm)	(dBm)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(dB)
2437	6	Front	/	18.50	20	0.036	0.05	0.063	0.09	0.04
2437	6	Rear	/	18.50	20	0.040	0.06	0.077	0.11	0.11
2437	6	Right	/	18.50	20	0.058	0.08	0.118	0.17	-0.03
2437	6	Top	/	18.50	20	0.021	0.03	0.041	0.06	0.17

As shown above table, the initial test position for body is “Right”. So the body SAR of WLAN is presented as below:

Table 14.3-5: SAR Values (WLAN - Body)– 802.11b (Full SAR)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C						
Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.			(dBm)	(dBm)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(dB)
2437	6	Right	Fig.37	18.50	20	0.057	0.08	0.121	0.17	-0.03

Note1: When the reported SAR of the initial test position is $> 0.4 \text{ W/kg}$, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest estimated 1-g SAR conditions determined by area scans, on the highest maximum output power channel, until the reported SAR is $\leq 0.8 \text{ W/kg}$.

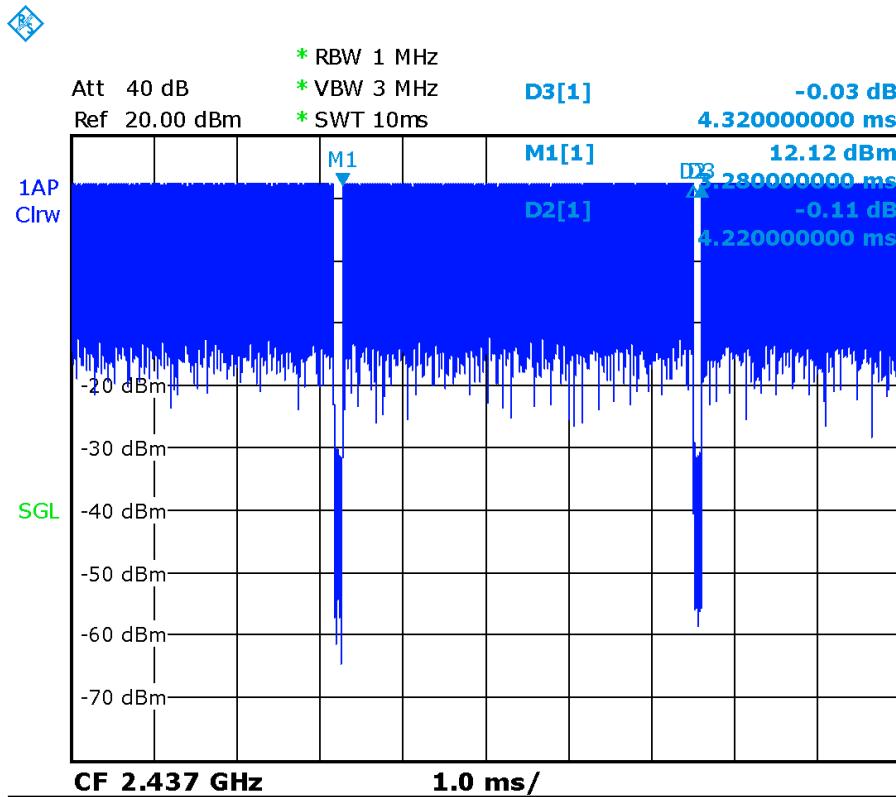
Note2: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is $> 0.8 \text{ W/kg}$, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is $\leq 1.2 \text{ W/kg}$ or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

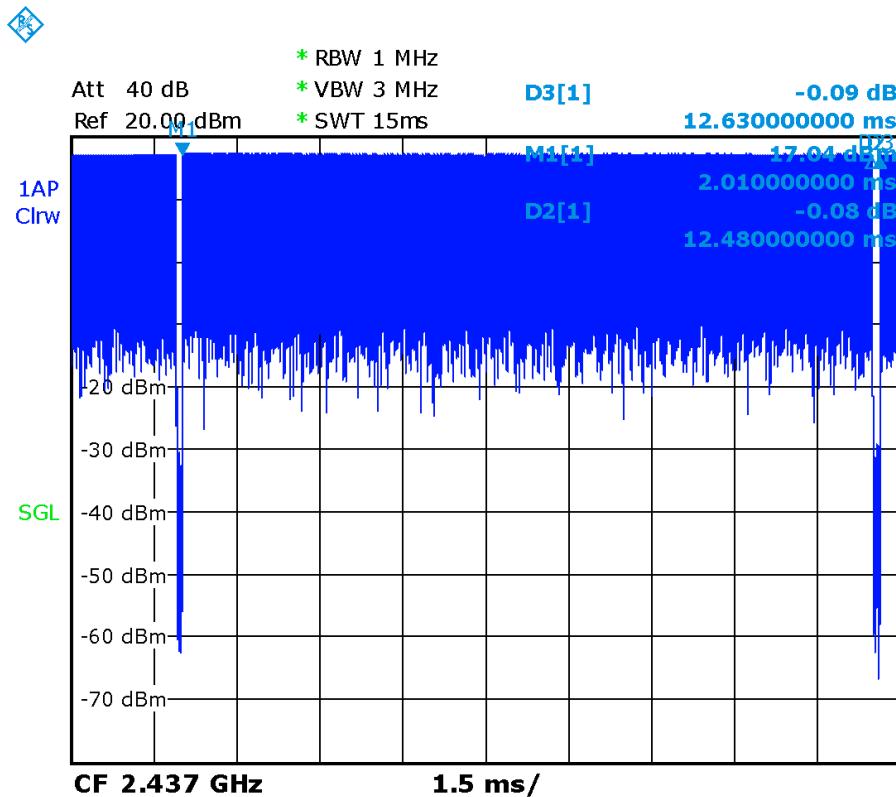
Table 14.3-6: SAR Values (WLAN - Body) – 802.11b (Scaled Reported SAR)

Ambient Temperature: 22.9 °C				Liquid Temperature: 22.5°C			
Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)		Scaled reported SAR (1g)(W/kg)
MHz	Ch.				(1g)(W/kg)	(1g)(W/kg)	(1g)(W/kg)
2437	6	Right	98.81%	100%	0.17		0.17

SAR is not required for OFDM because the 802.11b adjusted SAR $\leq 1.2 \text{ W/kg}$.



Picture 14.1 Duty factor plot for head



Picture 14.2 Duty factor plot for body

14.4 WLAN Evaluation For 5G

Table 14.4-1: OFDM mode specified maximum output power of WLAN antenna

802.11 mode	a	g	n		ac			
Ch. BW(MHz)	20	20	20	40	20	40	80	160
U-NII-1	X		X	X	X	X	X	
U-NII-2A	X		X	X	X	X	X	
U-NII-2C	X		X	X	X	X	X	
U-NII-3	X		X	X	X	X	X	
§ 15.247 (5.8 GHz)								

X: maximum(conducted) output power(mW), including tolerance, specified for production units

Table 14.4-2: Maximum output power specified of WLAN antenna

802.11 mode	a	g	n		ac			
Ch. BW(MHz)	20	20	20	40	20	40	80	160
U-NII-1	71		50	50	25	25	25	
U-NII-2A	63		50	50	25	25	25	
U-NII-2C	63		50	50	25	25	25	
U-NII-3	71		50	50	25	25	25	
§ 15.247 (5.8 GHz)								

- The maximum output power specified for production units is the same for all channels, modulations and data rates in each channel bandwidth configuration of the 802.11a/g/n/ac modes.
- The blue highlighted cells represent highest output configurations in each standalone or aggregated frequency band, with tune-up tolerance included.

Table 14.4-3: Maximum output power measured of WLAN antenna, for the applicable OFDM configurations according to the default power measurement procedures for selection initial test configurations

802.11 mode	a	n		ac		
BW(MHz)	20	20	40	20	40	80
U-NII-1	36/40/44/48 67/66/60/45	36/40/44/48 Lower power	38/46 Lower power	36/40/44/48 Lower power	38/46 Lower power	42 Lower power
U-NII-2A	52/56/60/64 59/62/62/63	52/56/60/64 Lower power	54/62 Lower power	52/56/60/64 Lower power	54/62 Lower power	58 Lower power
U-NII-2C	100/104/108/112 58/54/51/52 116/120/124/128 54/57/59/61 132/136/140/144 62/61/60/59	100/104/108/112 116/132/136/140 Lower power	102/110/134 Lower power	100/104/108 /112 116/132/136/ 140 Lower power	102/110/134 Lower power	106 Lower power
U-NII-3	149/153/157/161/165 63/63/67/67/67	149/153/157/16 1/165 Lower power	151/159 Lower power	149/153/157 /161/165 Lower power	151/159 Lower power	155 Lower power

- Channels with measured maximum power within 0.25dB are considered to have the same measured output.

Channels selected for initial test configuration are highlighted in yellow.

Table 14.4-4: Reported SAR of initial test configuration for Head

802.11 mode	a	n		ac		
BW(MHz)	20	20	40	20	40	80
U-NII-1	36/40/44/48 U-NII-2A exclusion applied	36/40/44/48	38/46	36/40/44/48	38/46	42
U-NII-2A	52/56/60/64 1.04 / 1.00	52/56/60/64	54/62	52/56/60/64	54/62	58
U-NII-2C	100/104/108/112/116/120/124 /128/132/136/140/144 0.84 / 0.96	100/104/108/112 116/132/136/140	102/110/118/ 126/134	100/104/108/112 116/132/136/140	102/110 /134	106
U-NII-3	149/153/157/161/165 0.99 / 1.03	149/153/157/161/ 165	151/159	149/153/157/161 /165	151/159	155

U-NII-1 and U-NII-2A bands have the same specified maximum output and tolerance; SAR is measured for U-NII-2A band first. Adjusted SAR of U-NII-2A band is $\leq 1.2\text{ W/kg}$, SAR is not required for U-NII-1 band.

Initial test configuration SAR for U-NII-2A band is $> 0.8 \text{ W/kg}$, SAR is required for next highest output channel in initial test configuration. The next highest output channel SAR is $\leq 1.2 \text{ W/kg}$, SAR is not required for subsequent next highest output channel. Similar circumstances apply to U-NII-2C band and U-NII-3 band.

The green highlighted channels are next highest measured output channel in the initial test configuration. Highest measured output power channel tested initially are in yellow highlight.

Table 14.4-5: Reported SAR of initial test configuration for Body

802.11 mode	a	n		ac		
BW(MHz)	20	20	40	20	40	80
U-NII-1	36/40/44/48 U-NII-2A exclusion applied	36/40/44/48	38/46	36/40/44/48	38/46	42
U-NII-2A	52/56/60/64 0.11	52/56/60/64	54/62	52/56/60/64	54/62	58
U-NII-2C	100/104/108/112/116/120/124 /128/132/136/140/144 0.16	100/104/108/112 116/132/136/140	102/110/118/ 126/134	100/104/108/112 116/132/136/140	102/110 /134	106
U-NII-3	149/153/157/161/165 0.15	149/153/157/161/ 165	151/159	149/153/157/161 /165	151/159	155

U-NII-1 and U-NII-2A bands have the same specified maximum output and tolerance; SAR is measured for U-NII-2A band first. Adjusted SAR of U-NII-2A band is $\leq 1.2\text{ W/kg}$, SAR is not required for U-NII-1 band.

Highest measured output power channel tested initially are in yellow highlight.

Table 14.4-6: SAR Values (WLAN - Head) – 802.11a 18Mbps

Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
64	5320	Left	Touch	/	17.99	18	0.268	0.27	0.885	0.89	0.17
64	5320	Left	Tilt	/	17.99	18	0.230	0.23	0.758	0.76	0.03
64	5320	Right	Touch	/	17.99	18	0.263	0.26	0.803	0.80	0.01
64	5320	Right	Tilt	/	17.99	18	0.244	0.24	0.790	0.79	0.03
60	5300	Left	Touch	Fig.38	17.95	18	0.255	0.26	0.913	0.92	0.07
132	5660	Left	Touch	/	17.89	18	0.287	0.29	0.824	0.85	0.13
132	5660	Left	Tilt	/	17.89	18	0.275	0.28	0.653	0.67	0.08
132	5660	Right	Touch	/	17.89	18	0.250	0.26	0.693	0.71	0.06
132	5660	Right	Tilt	/	17.89	18	0.264	0.27	0.638	0.65	0.05
128	5640	Left	Touch	/	17.87	18	0.254	0.26	0.717	0.74	-0.06
157	5785	Left	Touch	/	18.29	18.5	0.299	0.31	0.826	0.87	-0.02
157	5785	Left	Tilt	/	18.29	18.5	0.268	0.28	0.716	0.75	0.11
157	5785	Right	Touch	/	18.29	18.5	0.252	0.26	0.663	0.70	0.05
157	5785	Right	Tilt	/	18.29	18.5	0.239	0.25	0.654	0.69	-0.12
161	5805	Left	Touch	/	18.27	18.5	0.305	0.32	0.867	0.91	0.18

Table 14.4-7: SAR Values (WLAN - Body) – 802.11a 18Mbps

Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.									
64	5320	Front	/	17.99	18	<0.01	<0.01	<0.01	<0.01	/
64	5320	Rear	/	17.99	18	0.041	0.04	0.100	0.10	0.09
64	5320	Right	/	17.99	18	<0.01	<0.01	<0.01	<0.01	/
64	5320	Top	/	17.99	18	0.028	0.03	0.084	0.08	0.05
132	5660	Front	/	17.89	18	<0.01	<0.01	<0.01	<0.01	/
132	5660	Rear	Fig.39	17.89	18	0.054	0.06	0.133	0.14	0.08
132	5660	Right	/	17.89	18	0.002	0.00	0.012	0.01	0.06
132	5660	Top	/	17.89	18	0.042	0.04	0.118	0.12	0.05
157	5785	Front	/	18.29	18.5	<0.01	<0.01	<0.01	<0.01	/
157	5785	Rear	/	18.29	18.5	0.051	0.05	0.127	0.13	0.06
157	5785	Right	/	18.29	18.5	<0.01	<0.01	<0.01	<0.01	/
157	5785	Top	/	18.29	18.5	0.027	0.03	0.104	0.11	0.09

Note: The distance between the EUT and the phantom bottom is 10mm.

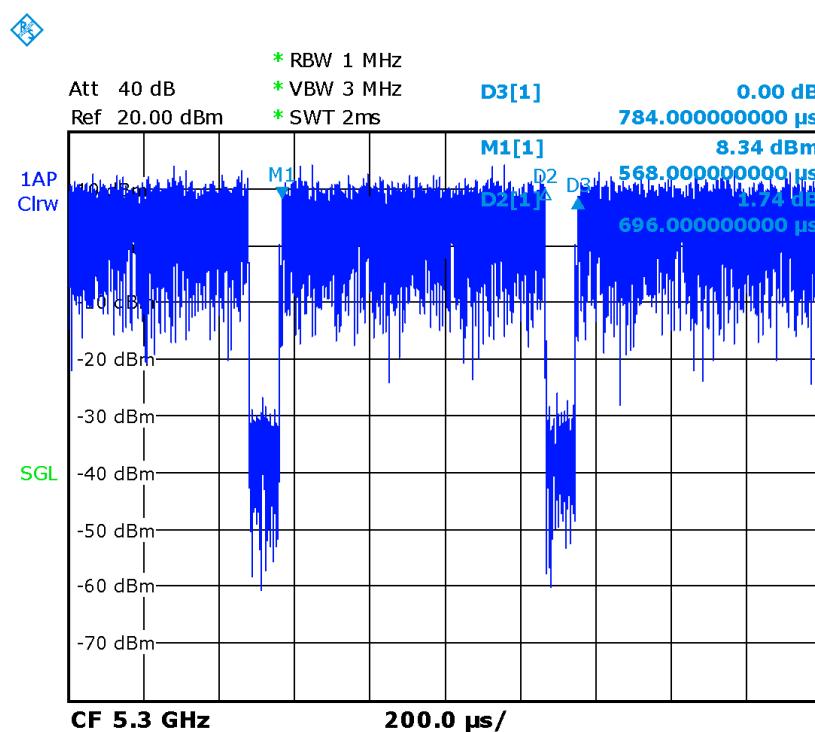
According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

Table 14.4-8: SAR Values (WLAN - Head) – 802.11a 18Mbps (Scaled Reported SAR)

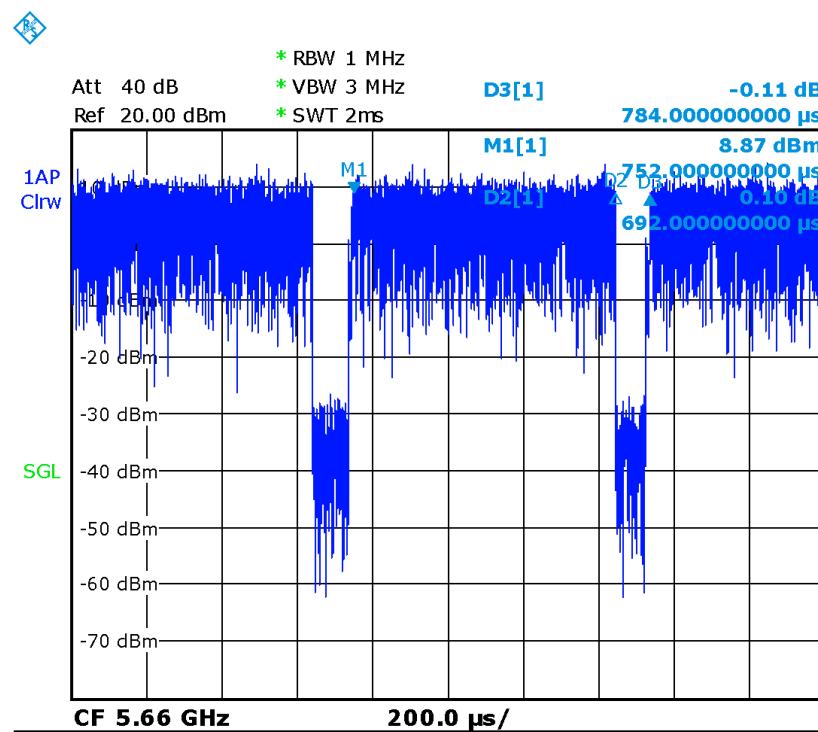
Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
MHz	Ch.						
5320	64	Left	Touch	88.78%	100%	0.89	1.00
5300	60	Left	Touch	88.78%	100%	0.92	1.04
5660	132	Left	Touch	88.27%	100%	0.85	0.96
5640	128	Left	Touch	88.27%	100%	0.74	0.84
5785	157	Left	Touch	88.32%	100%	0.87	0.99
5805	161	Left	Touch	88.32%	100%	0.91	1.03
5320	64	Right	Touch	88.78%	100%	0.80	0.90

Table 14.4-9: SAR Values (WLAN - Body) – 802.11a 18Mbps (Scaled Reported SAR)

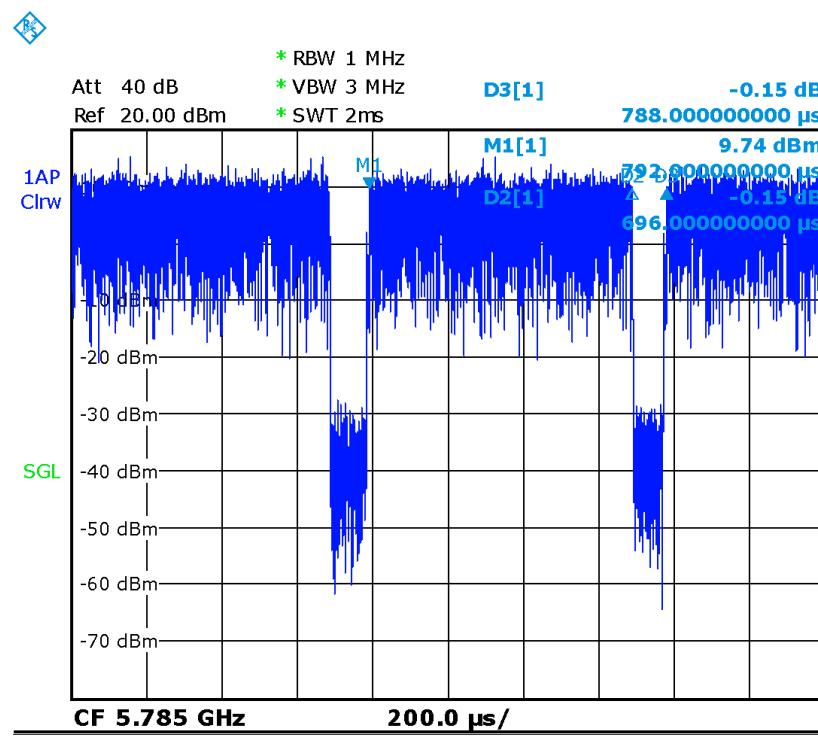
Frequency		Test Position	D (mm)	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
MHz	Ch.						
5320	64	Rear	10	88.78%	100%	0.10	0.11
5660	132	Rear	10	88.27%	100%	0.14	0.16
5785	157	Rear	10	88.32%	100%	0.13	0.15



Picture 14.3 The plot of duty factor for U-NII-2A



Picture 14.4 The plot of duty factor for U-NII-2C



Picture 14.5 The plot of duty factor for U-NII-3

15 SAR Measurement Variability

SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium.

The following procedures are applied to determine if repeated measurements are required.

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45W/kg (~ 10% from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Table 15.1: SAR Measurement Variability for Body PCS1900 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
512	1850.2	Bottom	10	0.844	0.825	1.02	/

Table 15.2: SAR Measurement Variability for Body W1700 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
1738	1752.6	Rear	10	0.927	0.904	1.03	/

Table 15.3: SAR Measurement Variability for Body W1900 (1g)

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
9800	1880	Bottom	10	1.04	1.01	1.03	/

Table 15.4: SAR Measurement Variability for Body LTE B2 (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							
19100	1900	50RB_Low	Bottom	10	1.10	1.05	1.05	/

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 B30 (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							
27710	2310	25RB_High	Bottom	10	1.15	1.11	1.04	/

Table 15.7: 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 15.8: SAR Measurement Variability for Body LTE B66 (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							
132072	1720	50RB_Mid	Rear	10	0.812	0.798	1.02	/

Table 15.9: SAR Measurement Variability for Head WiFi-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
Measurement system										
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	∞
Test sample related										
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	∞
Phantom and set-up										
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
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Measurement system

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	RF ambient 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	∞

Test sample related

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	∞

Phantom and set-up

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
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Measurement system

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	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	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	∞
14	Fast SAR z-Approximation	B	7.0	R	$\sqrt{3}$	1	1	4.0	4.0	∞

Test sample related

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	∞

Phantom and set-up

18	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
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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		$u_c = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						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
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Measurement system

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	RF ambient 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	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
14	Fast SAR z-Approximation	B	14.0	R	$\sqrt{3}$	1	1	8.1	8.1	∞

Test sample related

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	∞
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 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 D2300V2	1018	July 21, 2017	One year
15	Dipole Validation Kit	SPEAG D2450V2	853	July 21, 2017	One year
16	Dipole Validation Kit	SPEAG D2600V2	1012	July 21, 2017	One year
17	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: $f = 848.8 \text{ MHz}$; $\sigma = 0.912 \text{ mho/m}$; $\epsilon_r = 41.72$; $\rho = 1000 \text{ kg/m}^3$

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

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

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

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

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

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

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

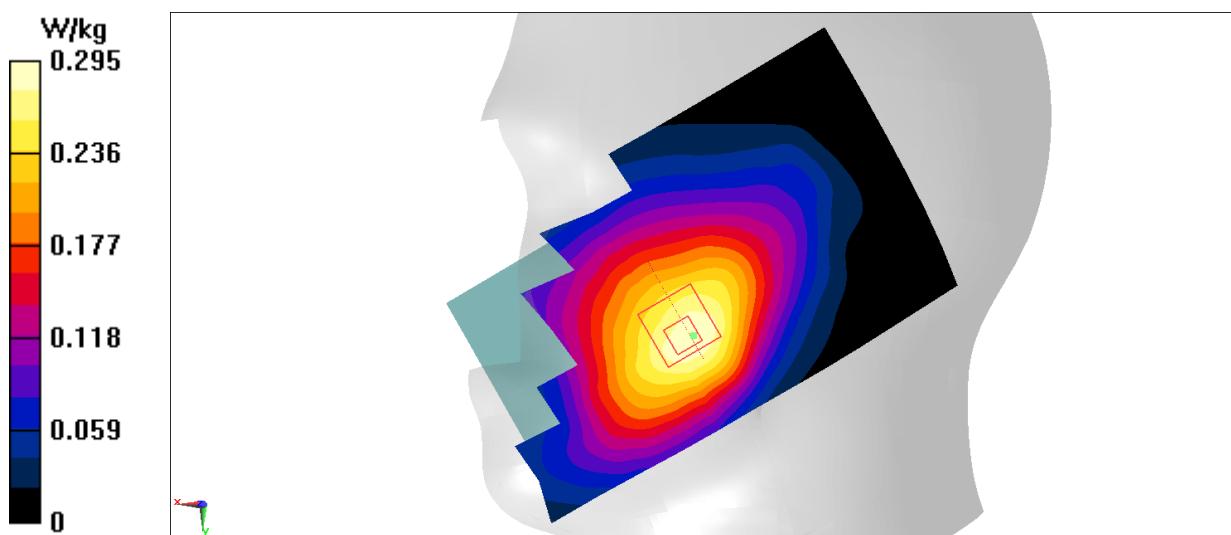


Fig.1 850MHz

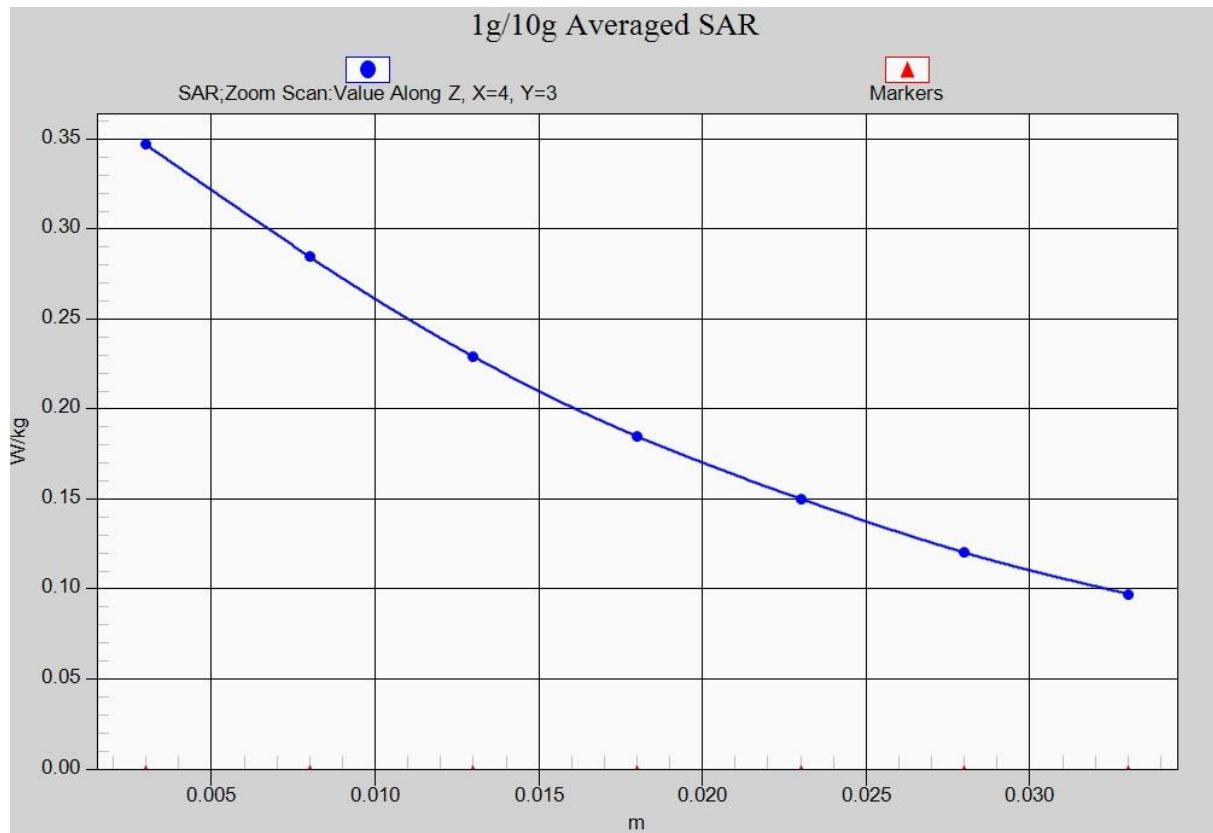


Fig. 1-1 Z-Scan at power reference point (850 MHz)

850 Body Rear High

Date: 2018-5-2

Electronics: DAE4 Sn1525

Medium: Body 850 MHz

Medium parameters used: $f = 848.8 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 55.87$; $\rho = 1000 \text{ kg/m}^3$

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

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

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) = 0.707 W/kg

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

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

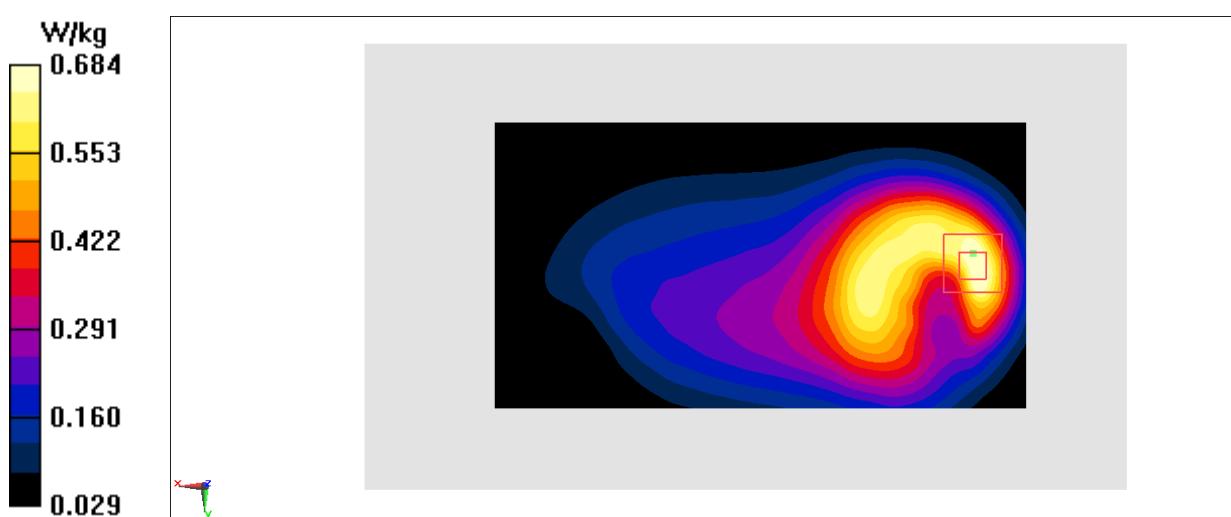


Fig.2 850 MHz

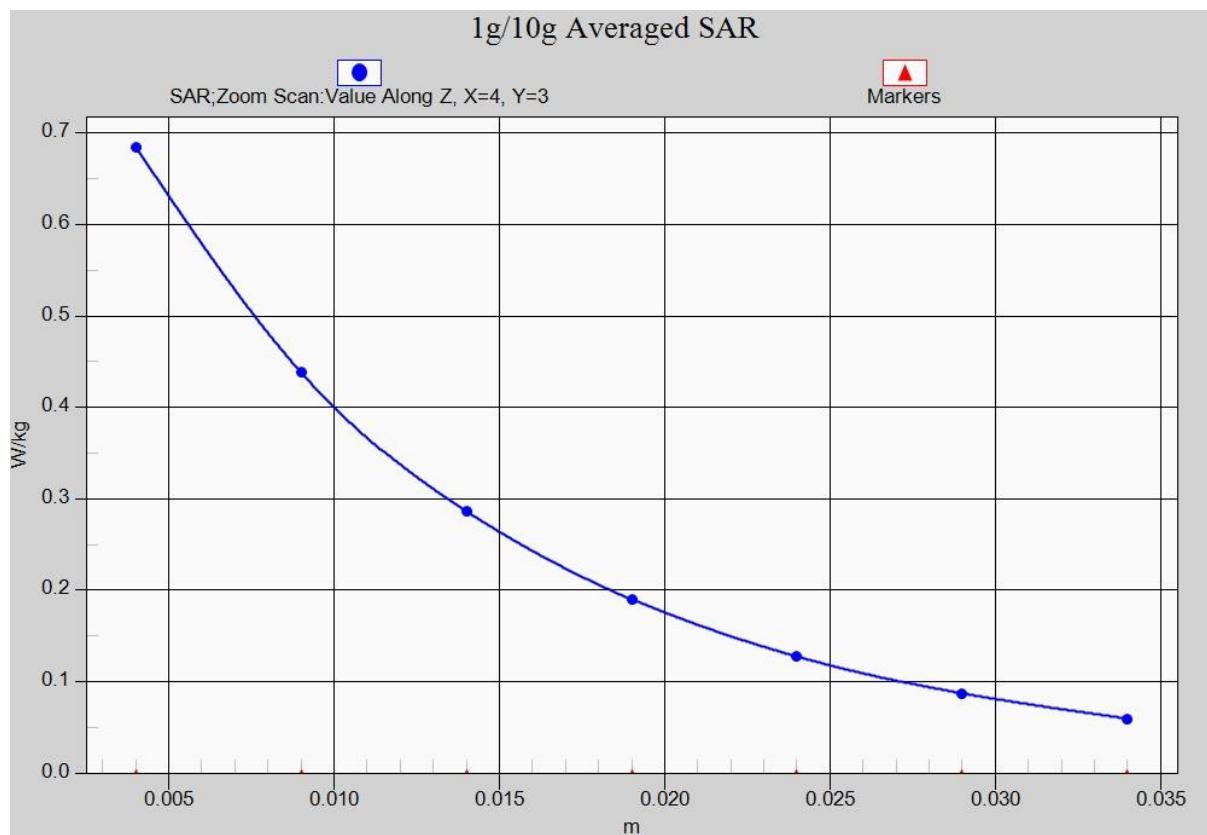


Fig. 2-1 Z-Scan at power reference point (850 MHz)

1900 Left Cheek 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/m³

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

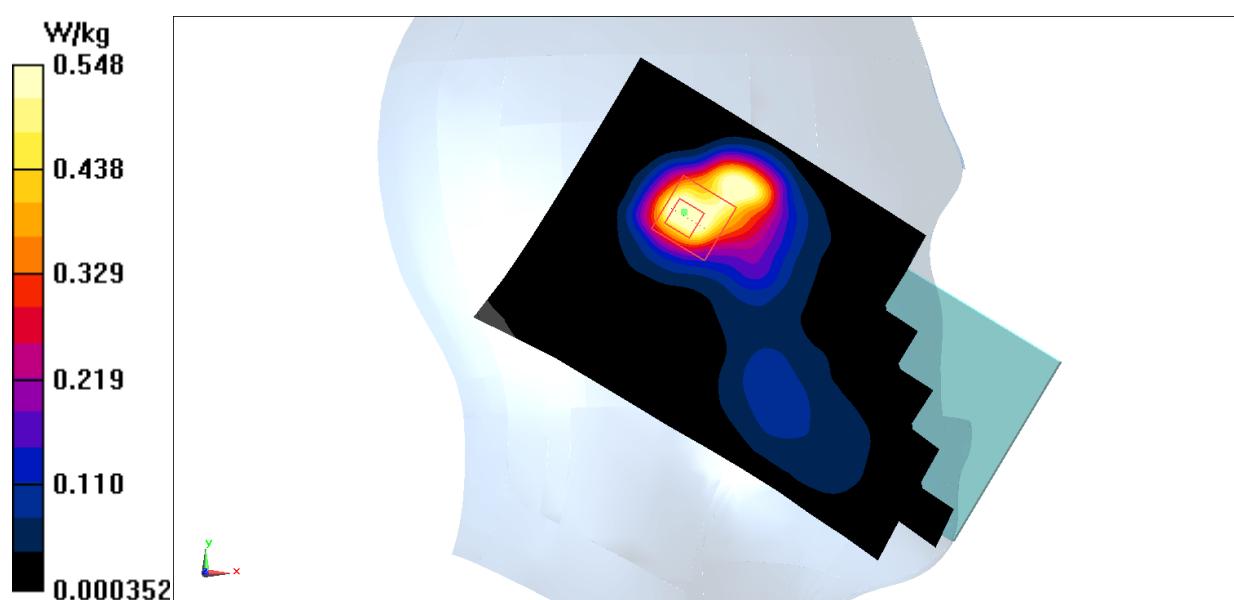
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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**

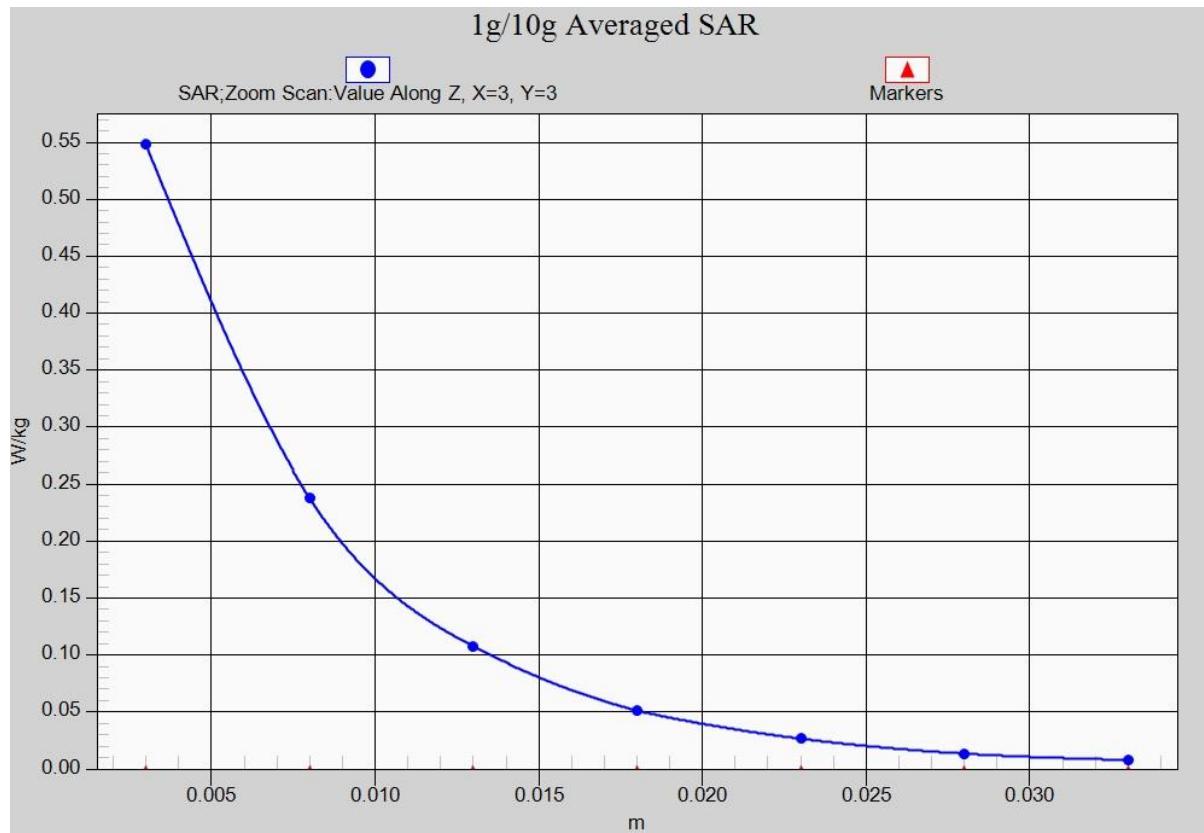


Fig. 3-1 Z-Scan at power reference point (1900 MHz)

1900 Body Bottom Low

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.515 \text{ mho/m}$; $\epsilon_r = 52.83$; $\rho = 1000 \text{ kg/m}^3$

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: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

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

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

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

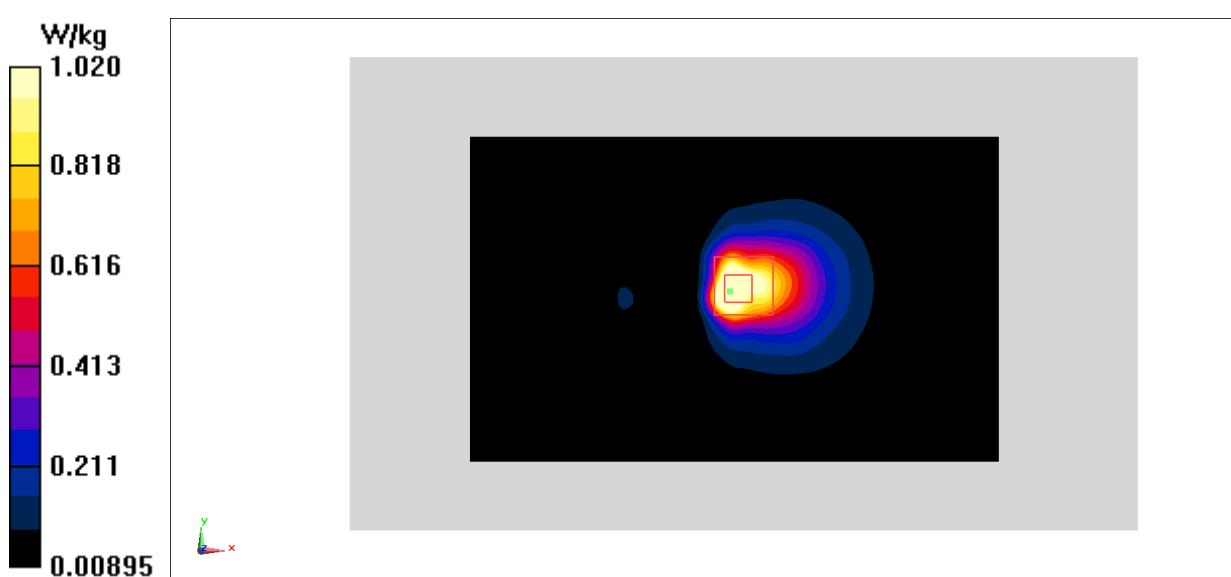


Fig.4 1900 MHz

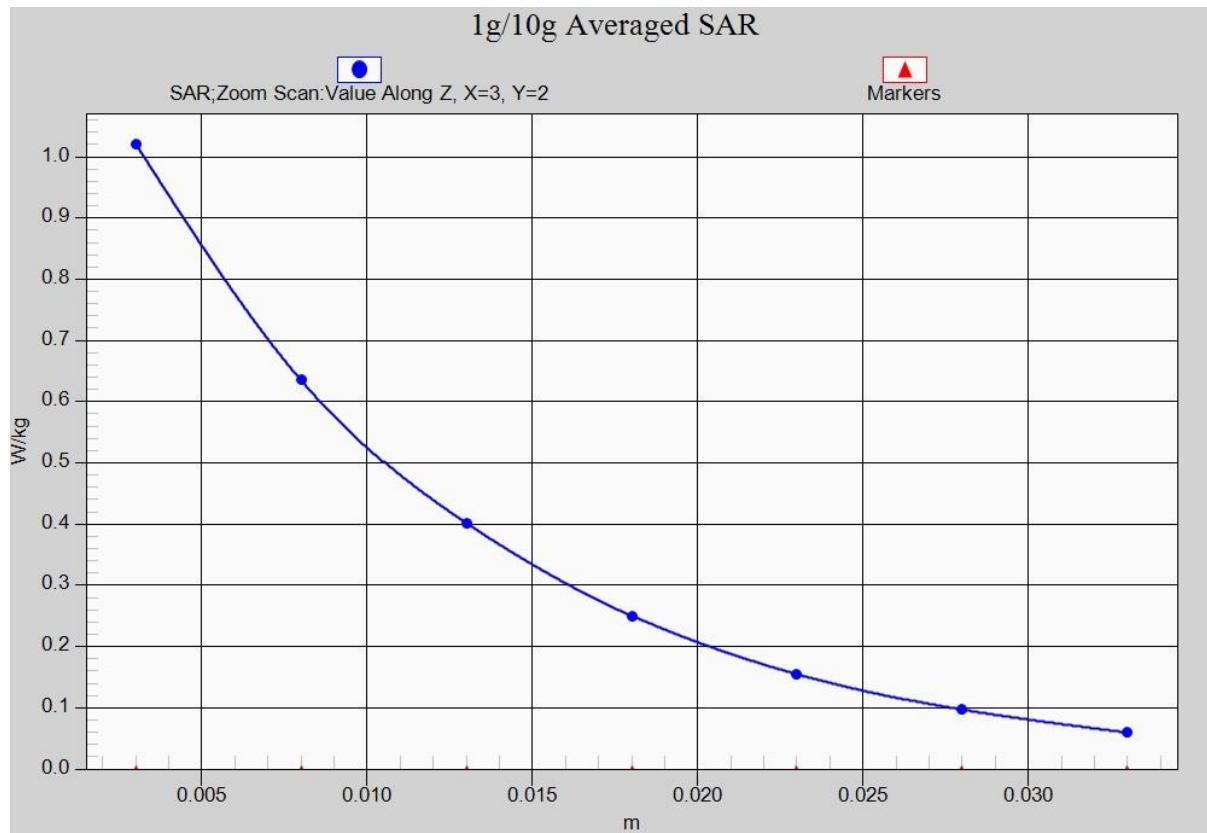


Fig. 4-1 Z-Scan at power reference point (1900 MHz)

1900 Body Rear High

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.575 \text{ mho/m}$; $\epsilon_r = 52.65$; $\rho = 1000 \text{ kg/m}^3$

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

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

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

Area Scan (131x81x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

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

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

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

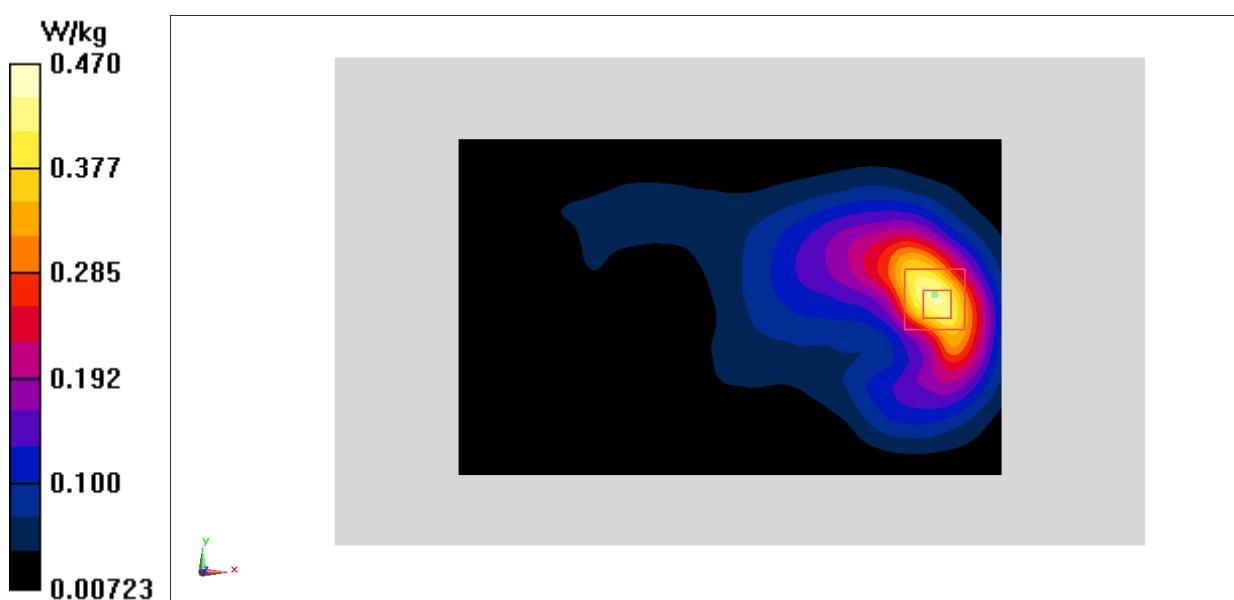


Fig.5 1900 MHz

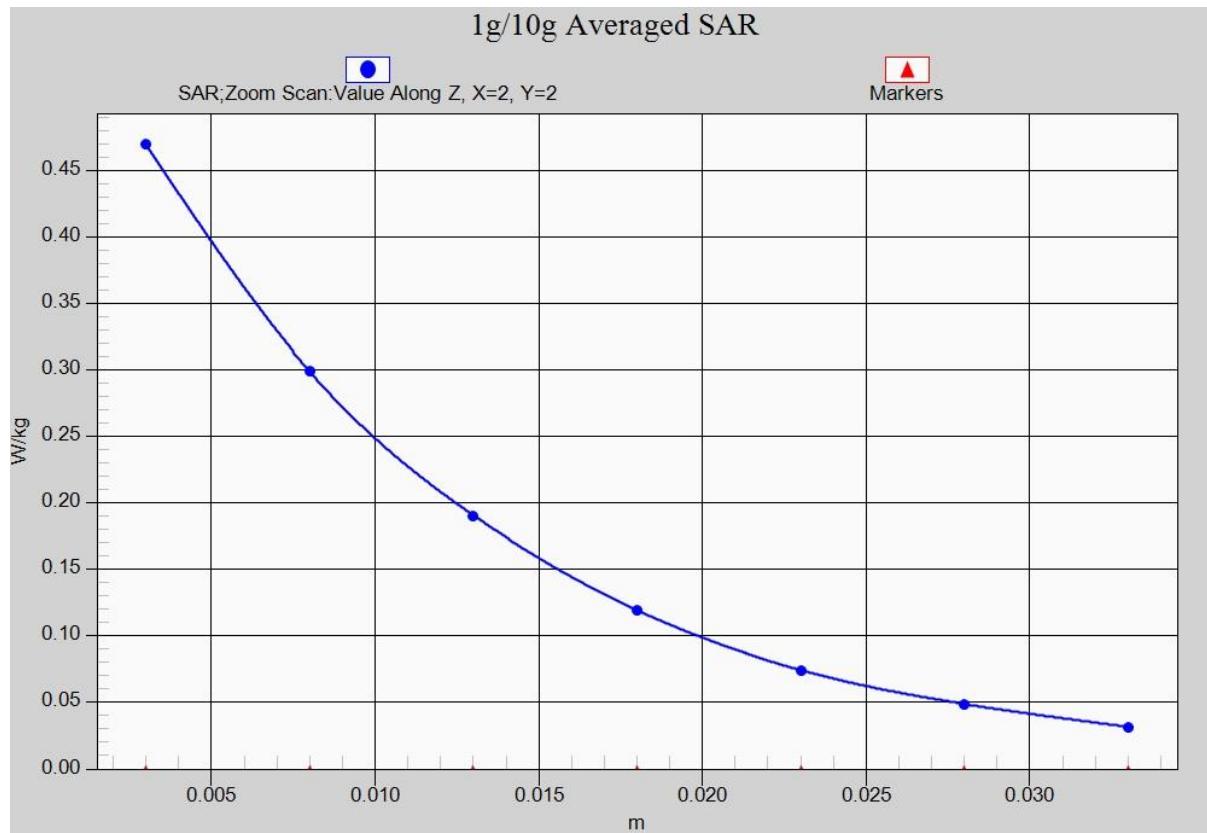


Fig. 5-1 Z-Scan at power reference point (1900 MHz)

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/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 (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

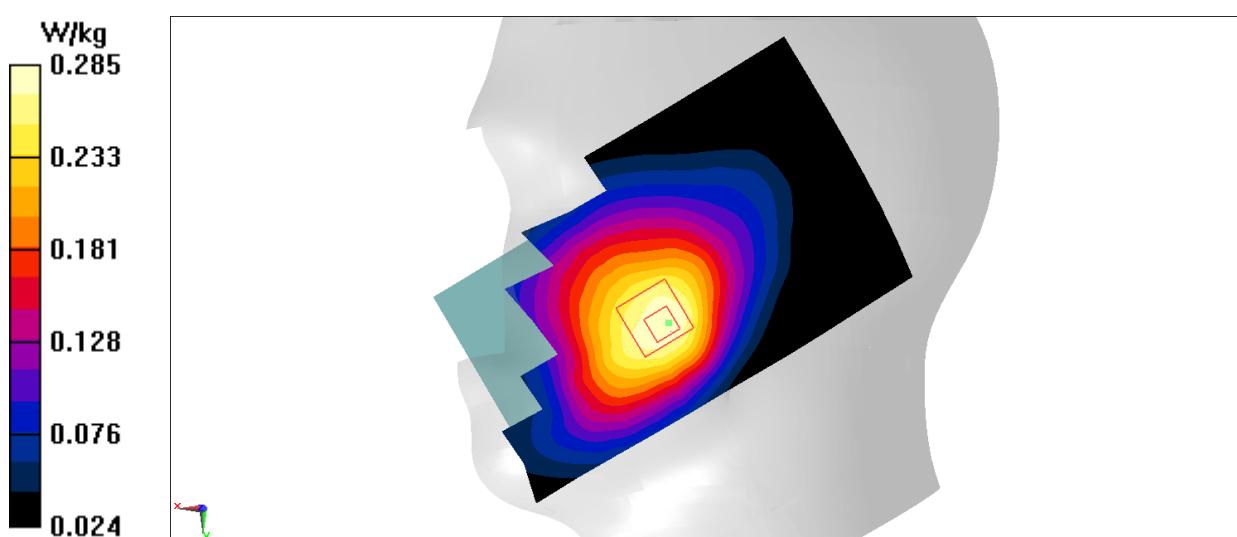


Fig.6 WCDMA 850

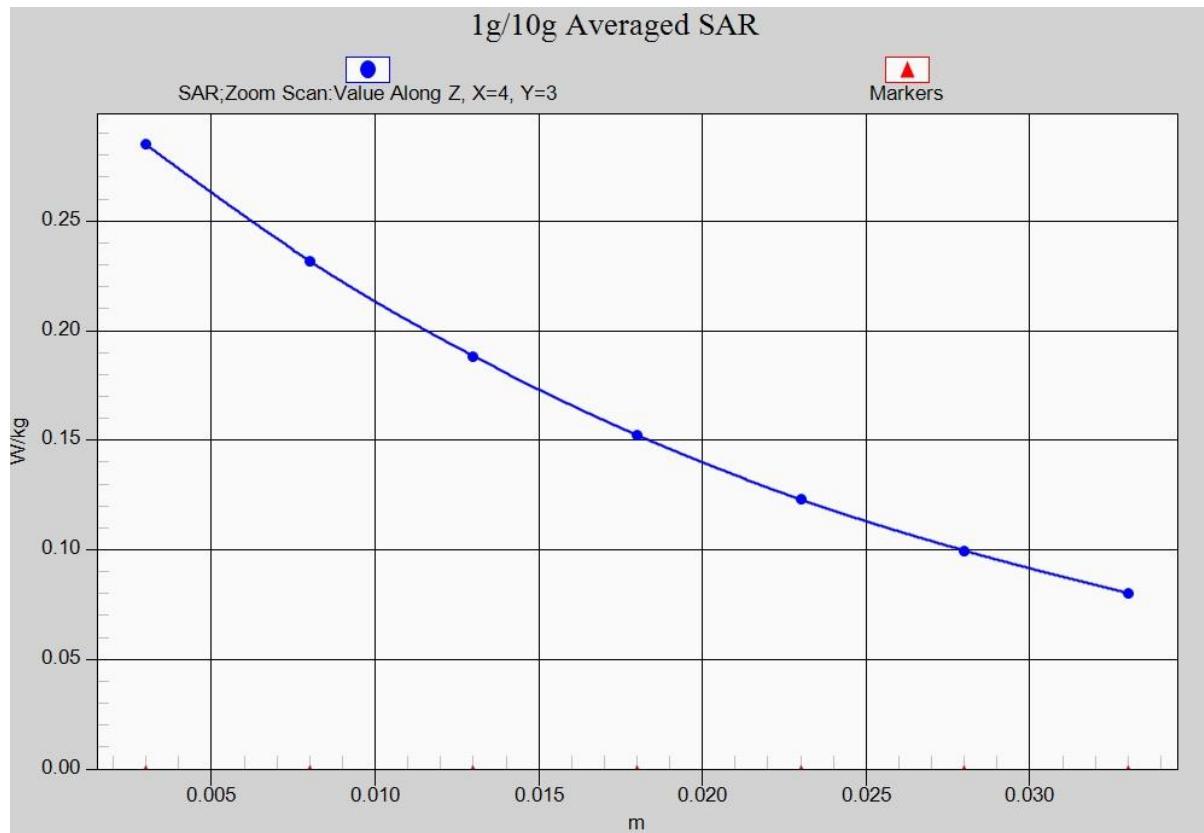


Fig. 6-1 Z-Scan at power reference point (850 MHz)

WCDMA 850 Body Rear High

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/m³

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

Communication System: WCDMA; Frequency: 846.6 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) = 0.498 W/kg

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

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

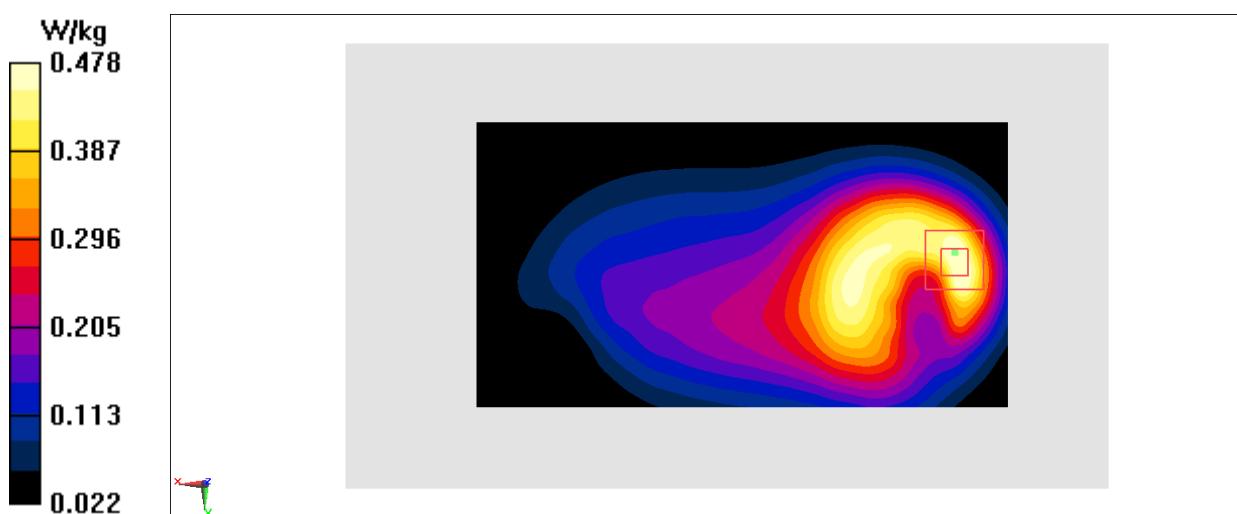


Fig.7 WCDMA 850

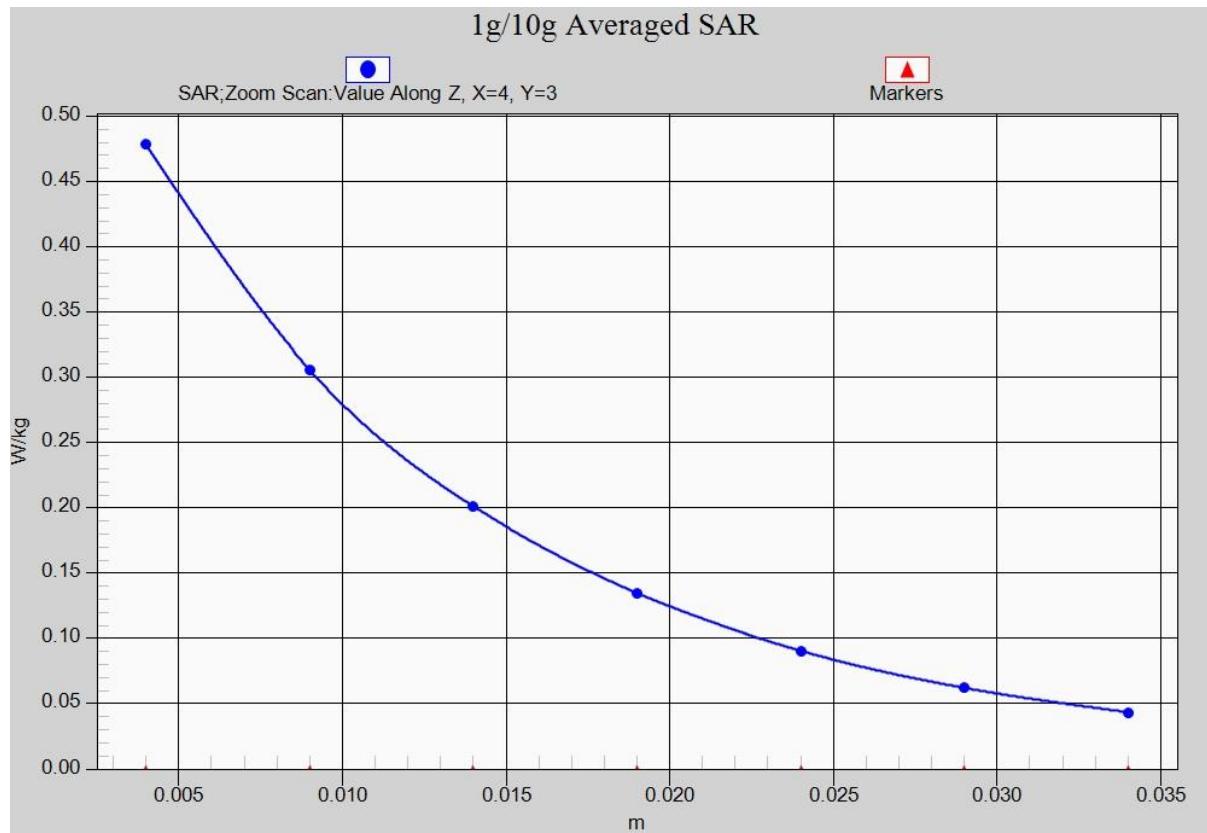


Fig. 7-1 Z-Scan at power reference point (WCDMA850)

WCDMA 1700 Left 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/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 (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=5mm, dy=5mm, dz=5mm

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

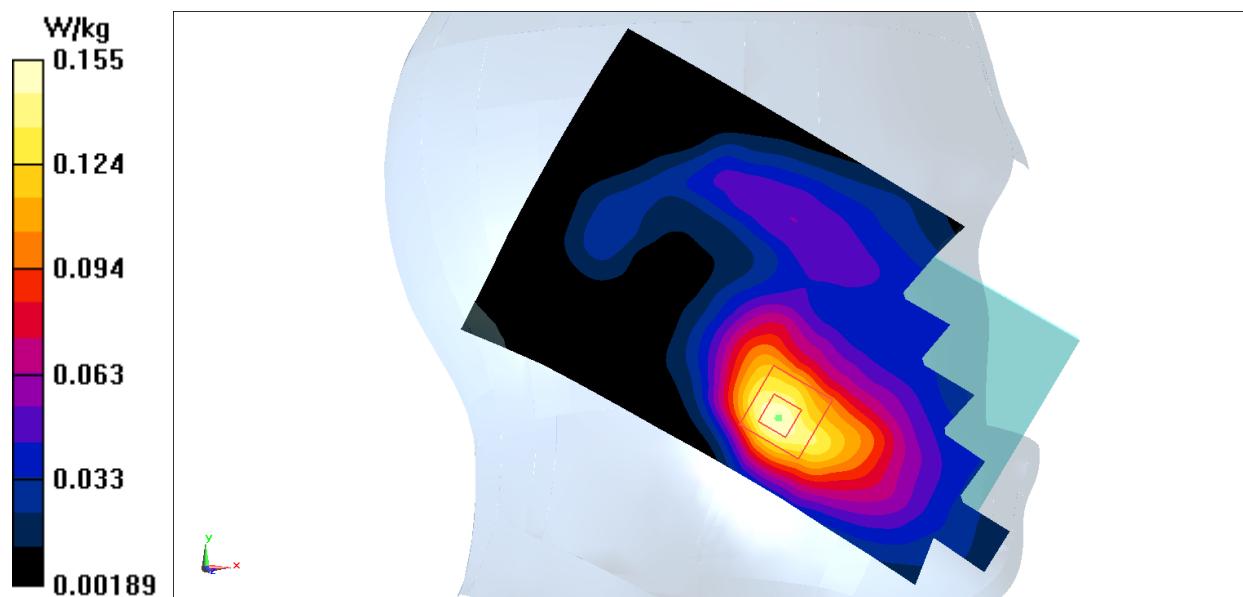


Fig.8 WCDMA1700

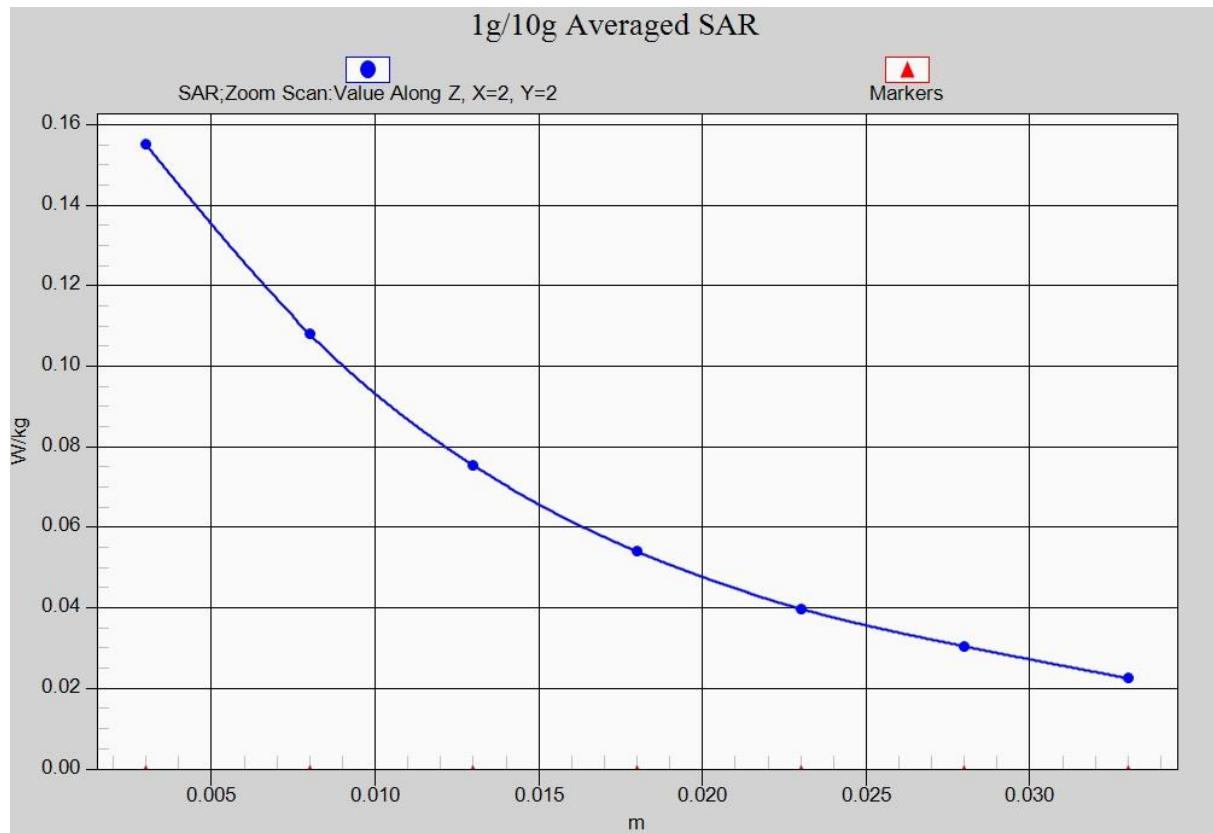


Fig. 8-1 Z-Scan at power reference point (WCDMA1700)

WCDMA 1700 Body Rear High

Date: 2018-5-3

Electronics: DAE4 Sn1525

Medium: Body 1750 MHz

Medium parameters used (interpolated): $f = 1752.6 \text{ MHz}$; $\sigma = 1.509 \text{ mho/m}$; $\epsilon_r = 53.718$; $\rho = 1000 \text{ kg/m}^3$

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: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

Maximum value of SAR (interpolated) = 1.04 W/kg

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

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

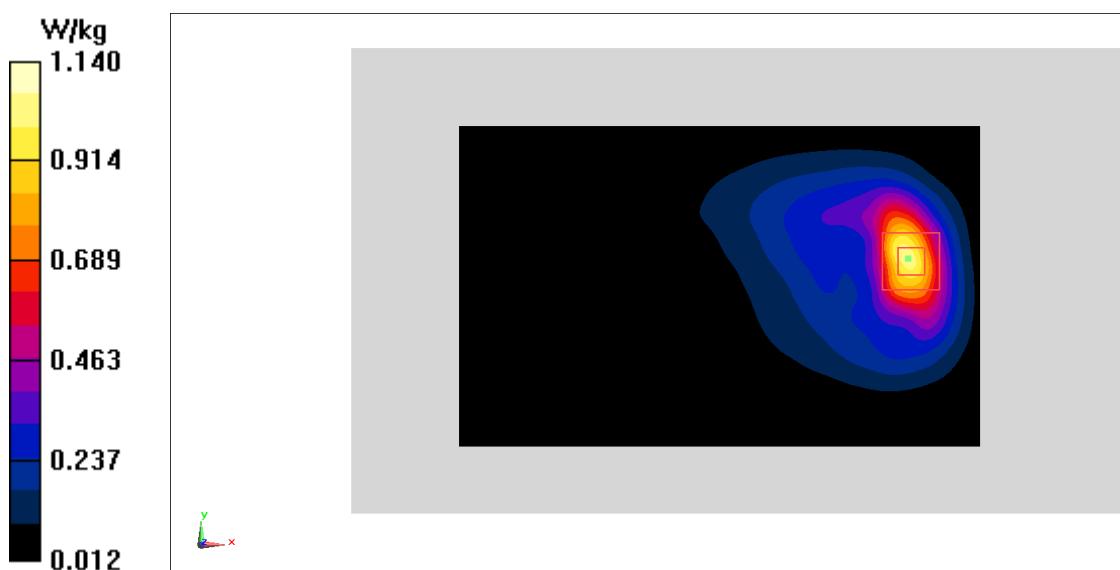


Fig.9 WCDMA1700

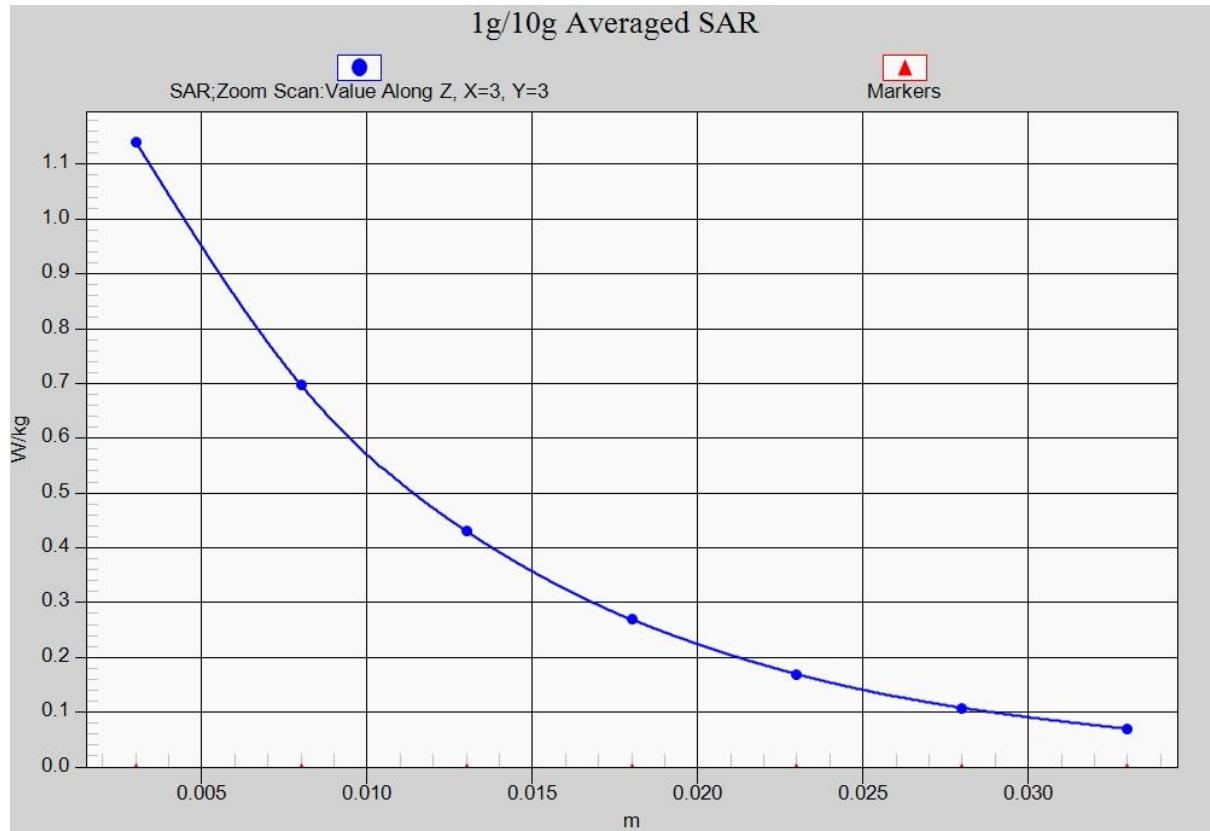


Fig. 9-1 Z-Scan at power reference point (WCDMA1700)

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/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 (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=5mm, dy=5mm, dz=5mm

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

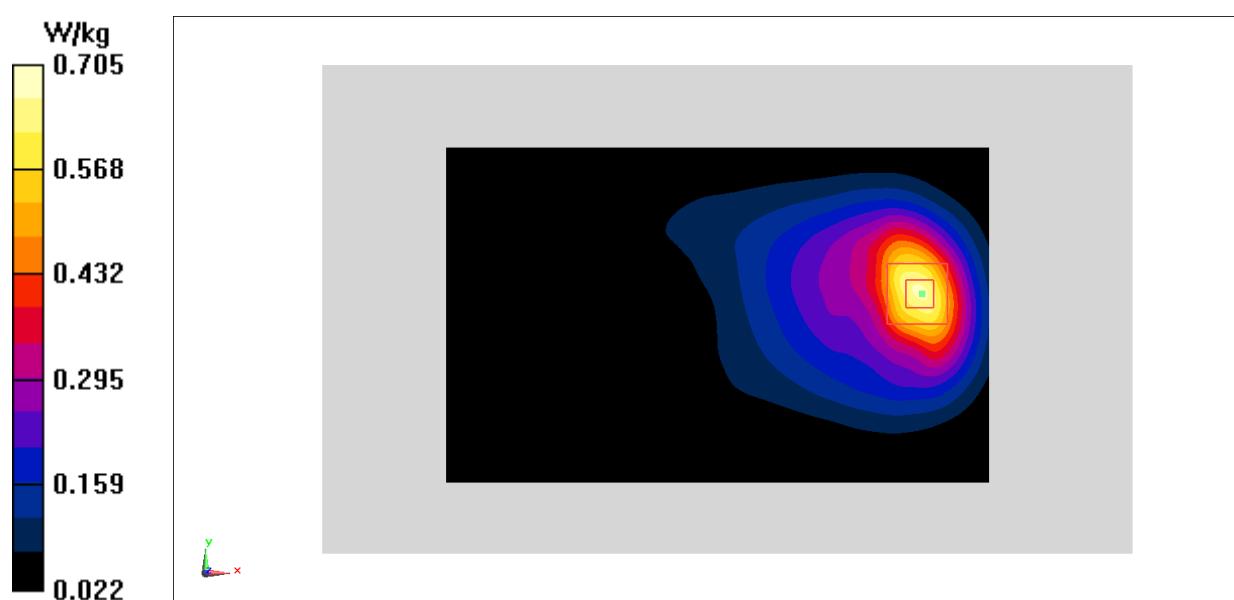


Fig.10 WCDMA1700

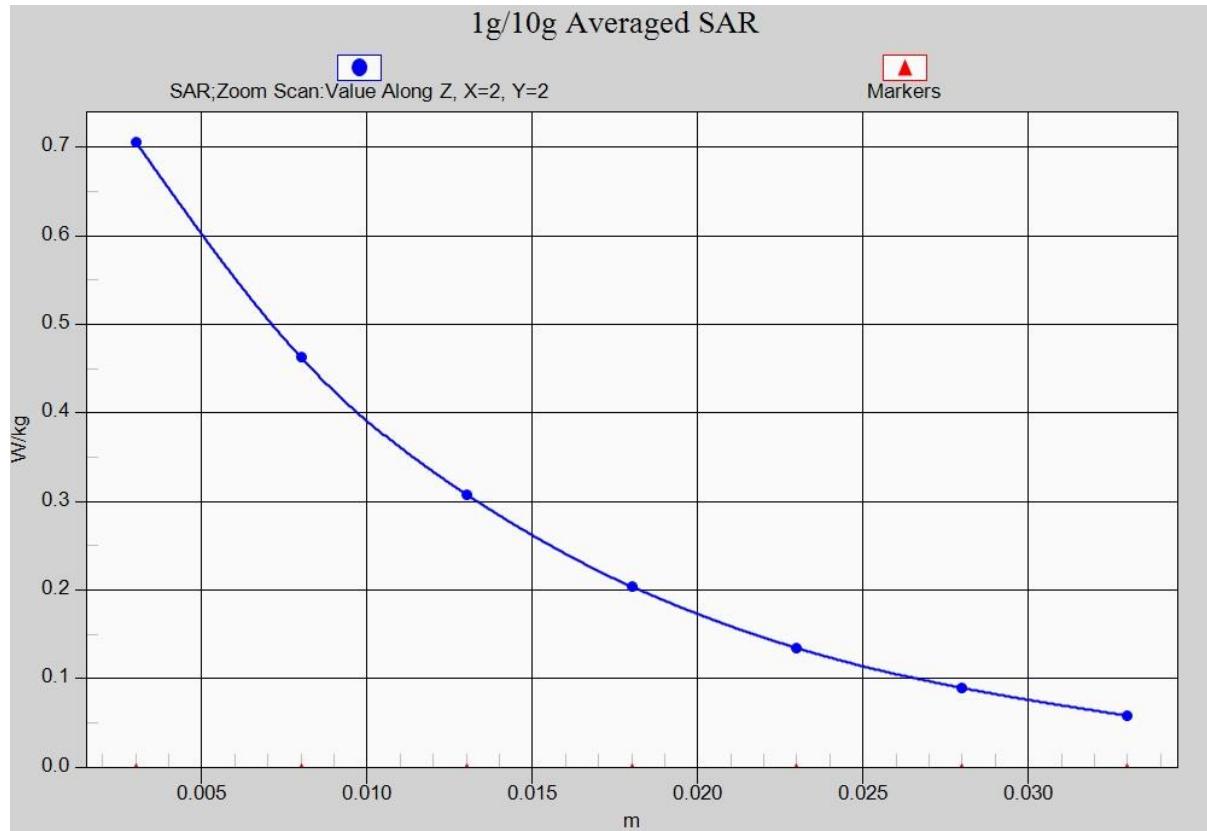


Fig. 10-1 Z-Scan at power reference point (WCDMA1700)

WCDMA 1900 Left Cheek High

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Head 1900 MHz

Medium parameters used (interpolated): $f = 1907.6 \text{ MHz}$; $\sigma = 1.465 \text{ mho/m}$; $\epsilon_r = 40.806$; $\rho = 1000 \text{ kg/m}^3$

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: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

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

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

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

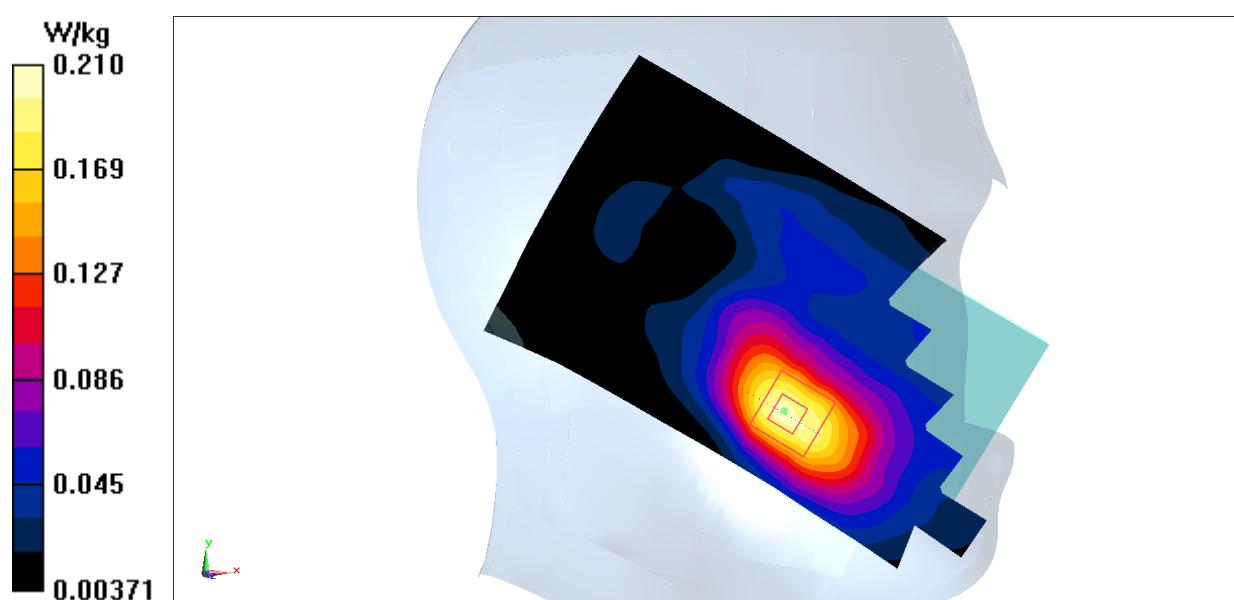


Fig.11 WCDMA1900

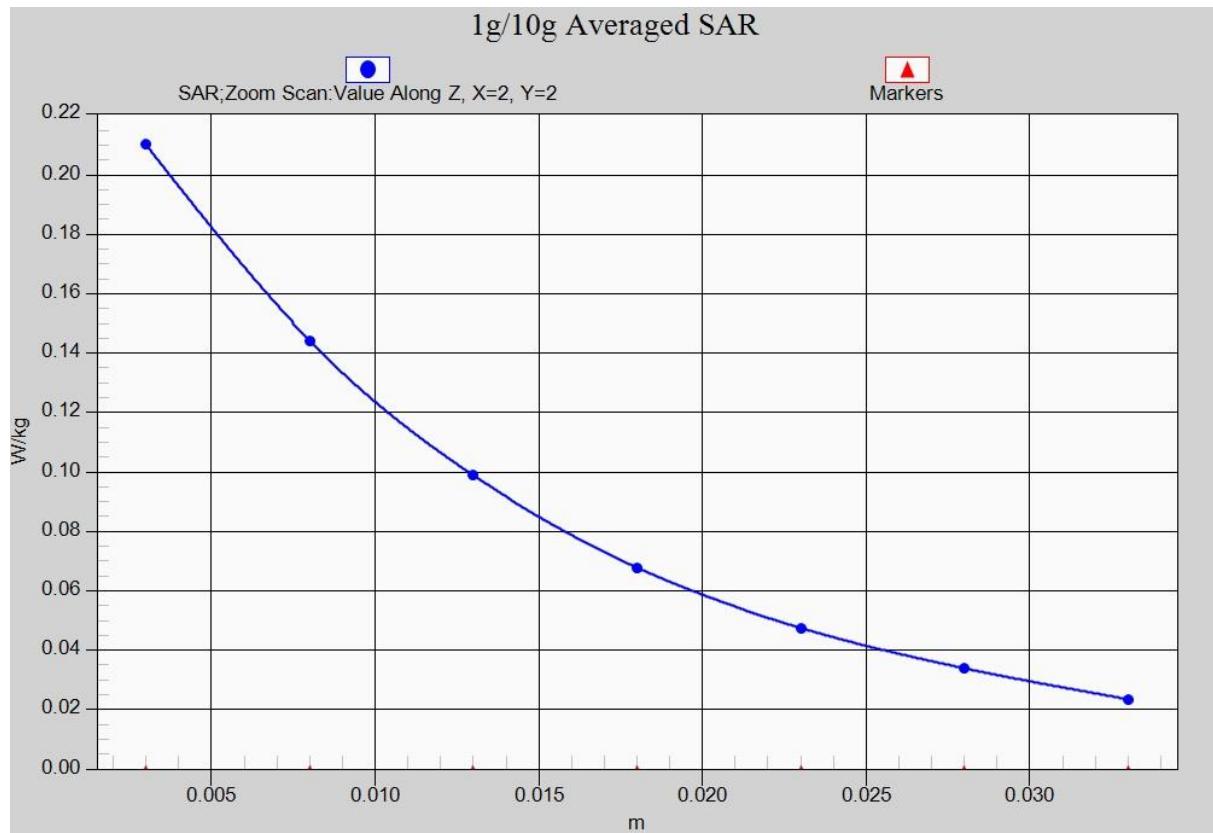


Fig. 11-1 Z-Scan at power reference point (WCDMA1900)

WCDMA 1900 Body Bottom Middle

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.561 \text{ mho/m}$; $\epsilon_r = 53$; $\rho = 1000 \text{ kg/m}^3$

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(8.32, 8.32, 8.32)

Area Scan (131x81x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

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

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

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

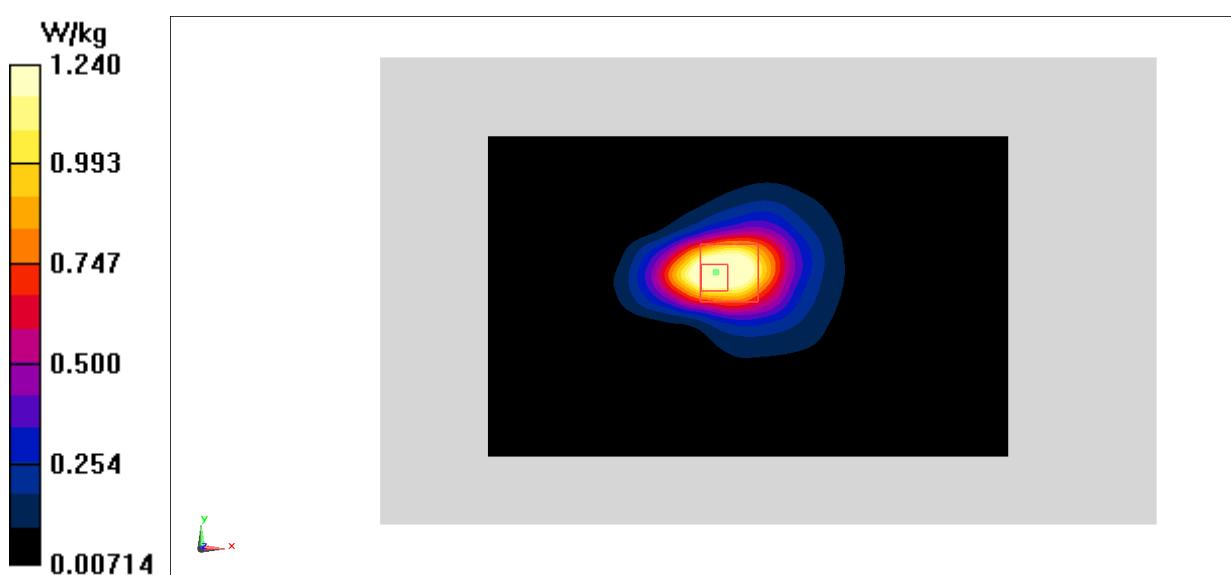


Fig.12 WCDMA1900

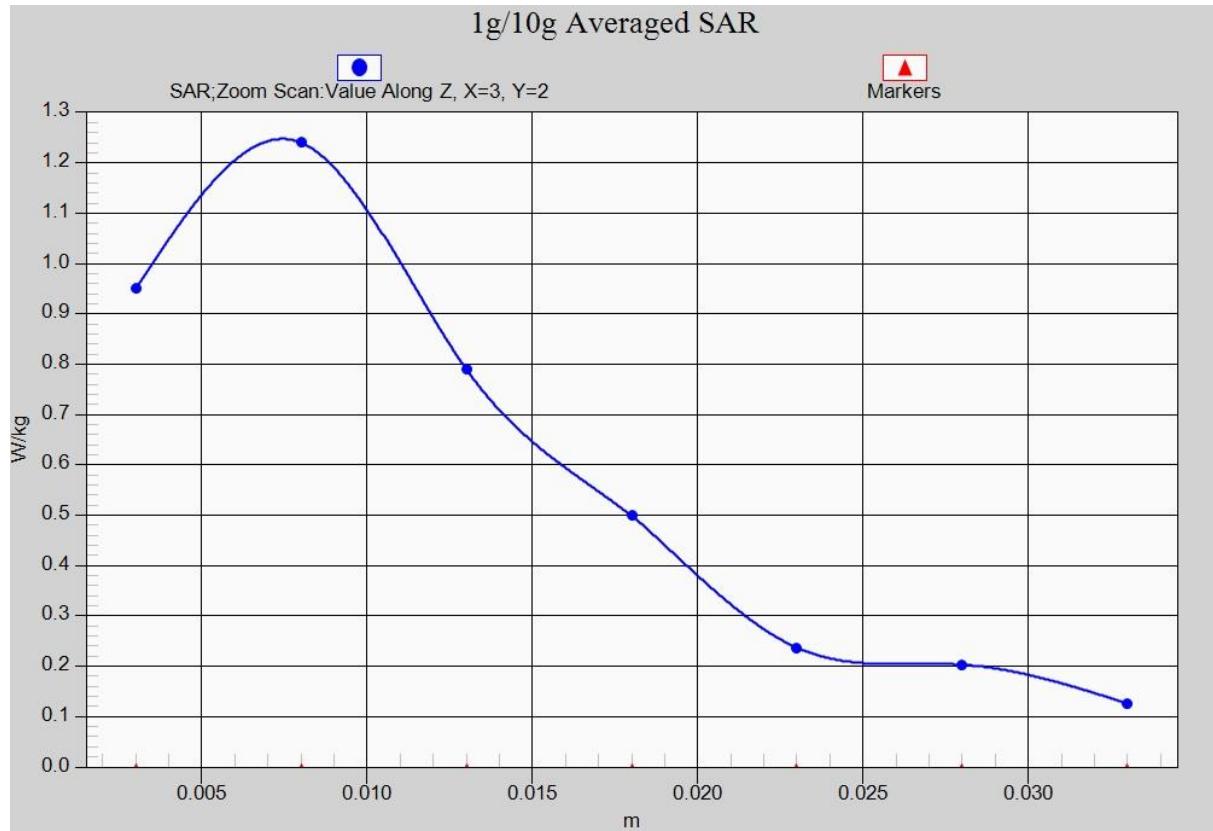


Fig. 12-1 Z-Scan at power reference point (WCDMA1900)

WCDMA 1900 Body Rear Middle

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.561 \text{ mho/m}$; $\epsilon_r = 53$; $\rho = 1000 \text{ kg/m}^3$

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(8.32, 8.32, 8.32)

Area Scan (131x81x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

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

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

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

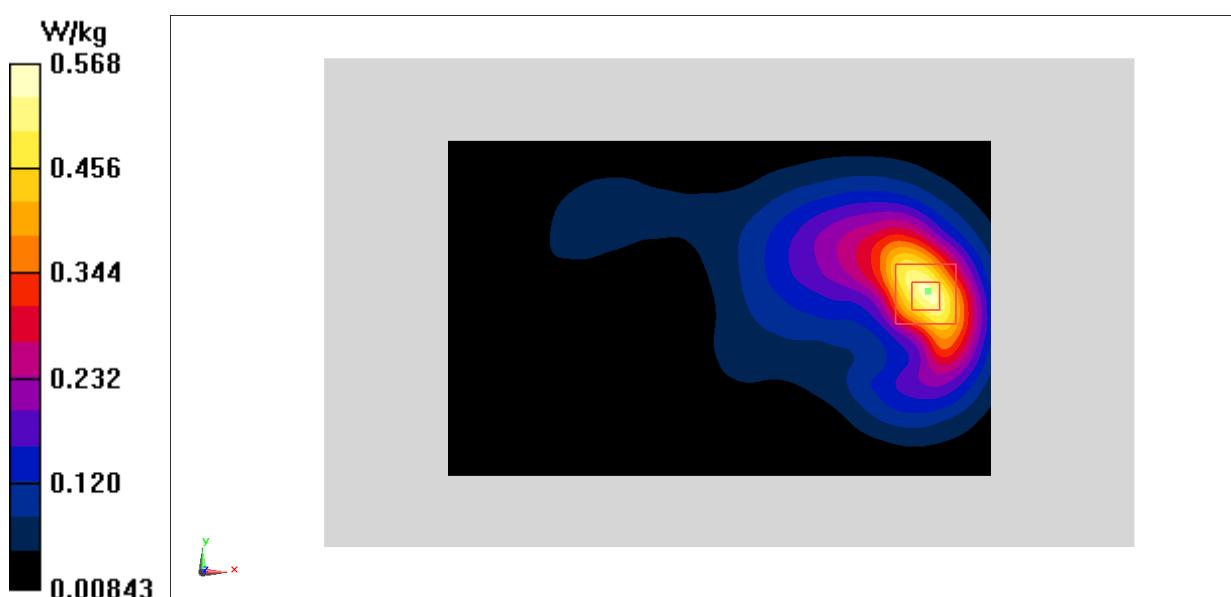


Fig.13 WCDMA1900

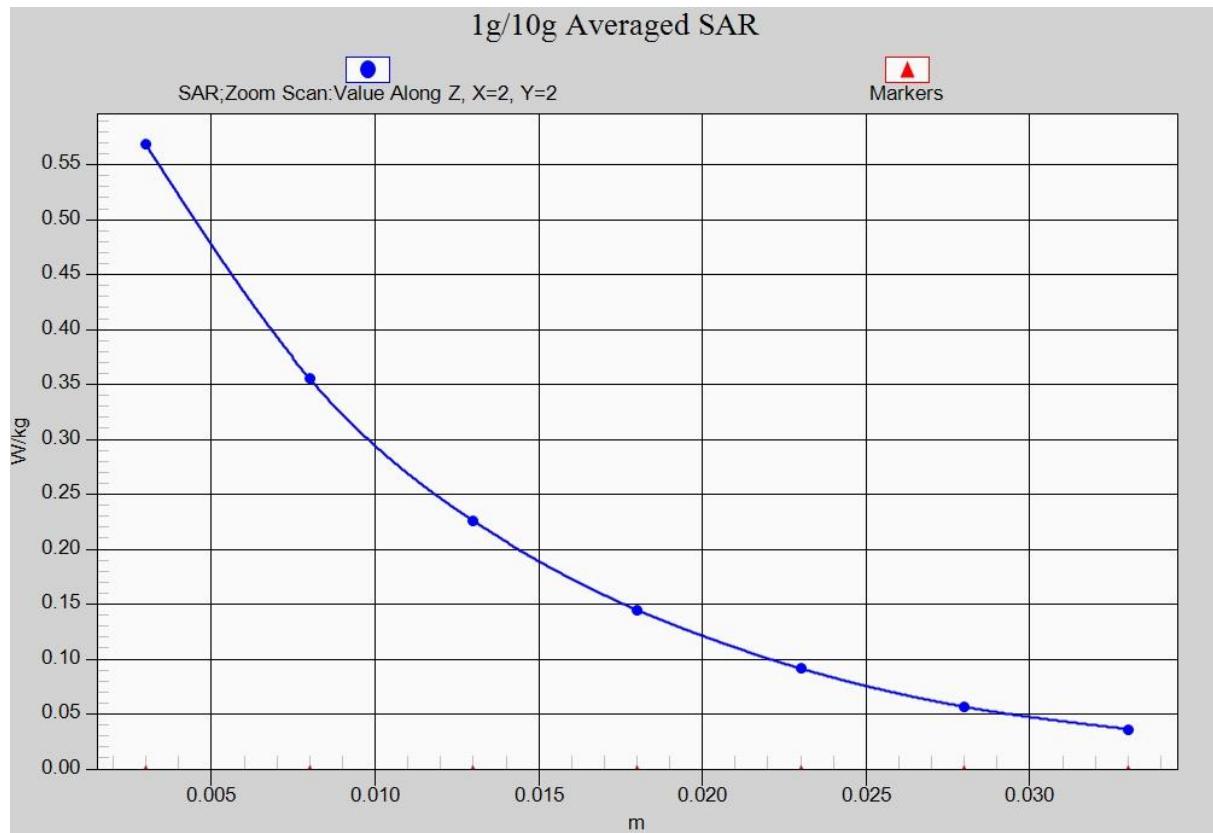


Fig. 13-1 Z-Scan at power reference point (WCDMA1900)

LTE Band2 Left 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/m³

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(8.39, 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

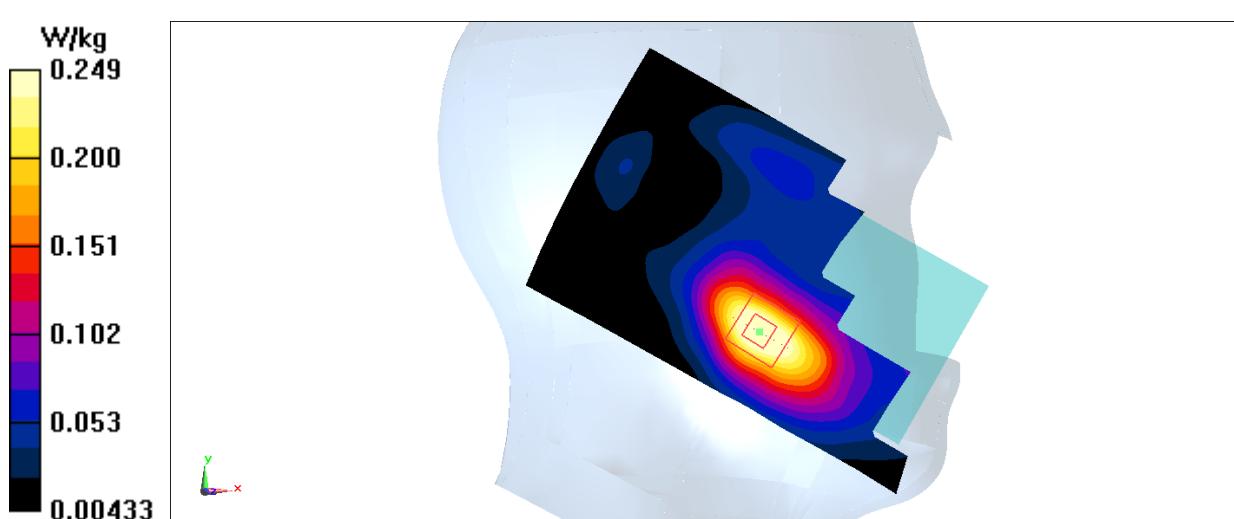
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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**

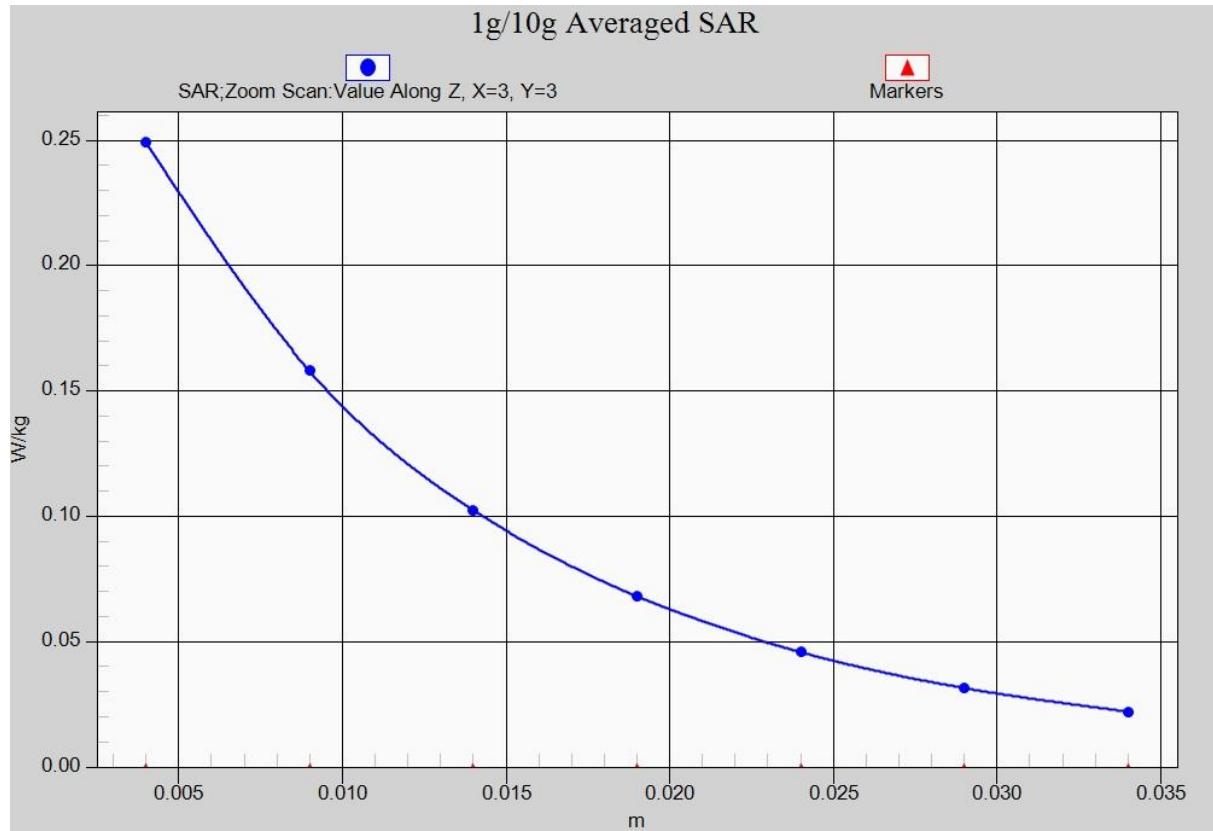


Fig. 14-1 Z-Scan at power reference point (LTE Band2)

LTE Band2 Body Bottom High with QPSK_20M_50RB_Low

Date: 2018-5-4

Electronics: DAE4 Sn1525

Medium: Body 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.507 \text{ mho/m}$; $\epsilon_r = 52.71$; $\rho = 1000 \text{ kg/m}^3$ 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 (121x71x1): Interpolated grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$

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

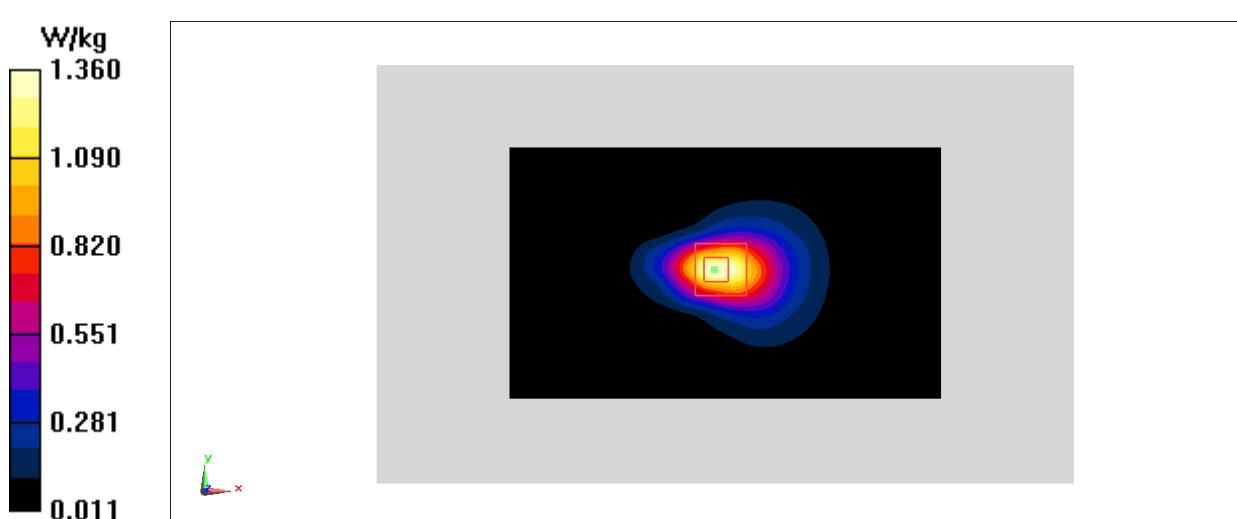
Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

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**

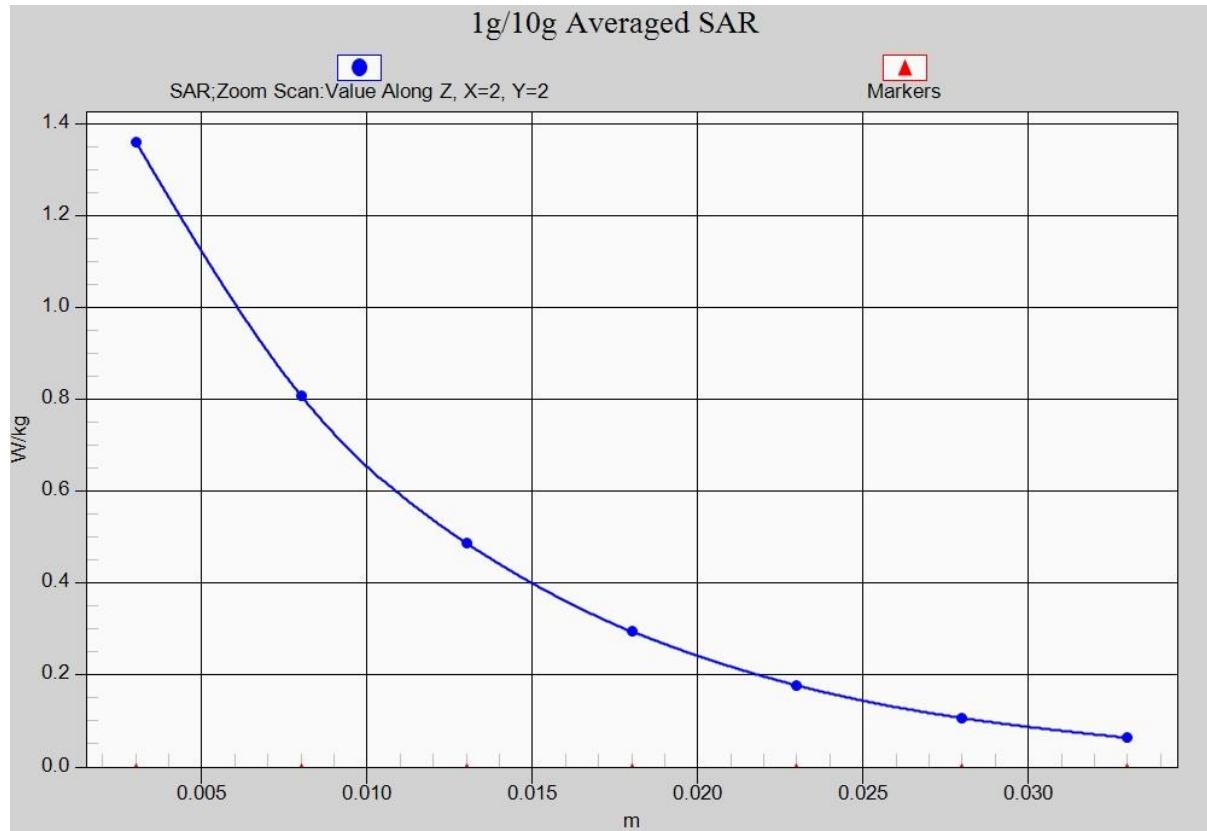


Fig. 15-1 Z-Scan at power reference point (LTE Band2)

LTE Band2 Body Rear Middle 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 3

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

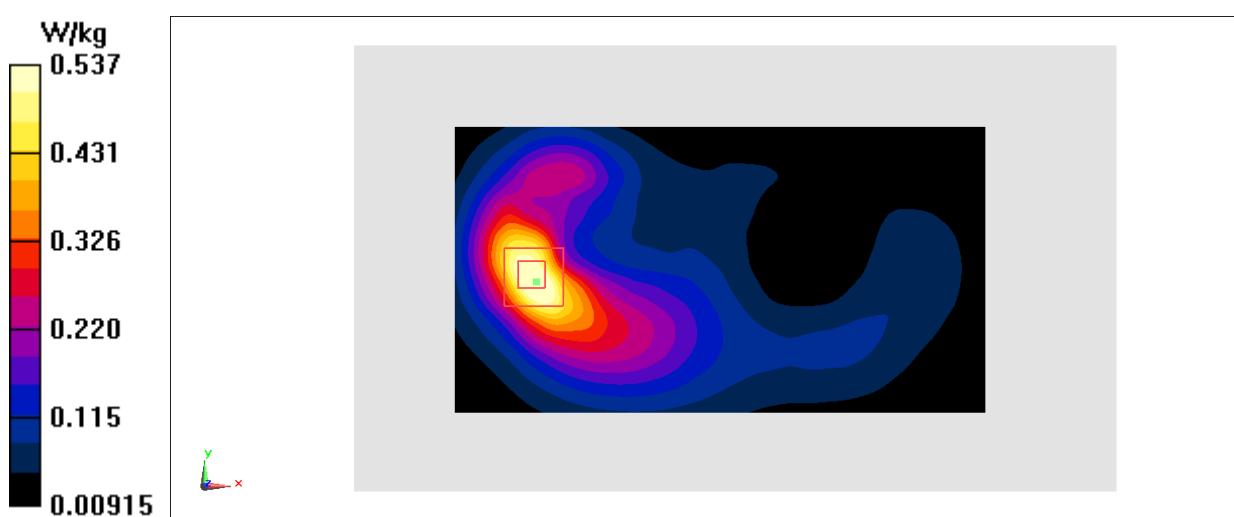
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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**

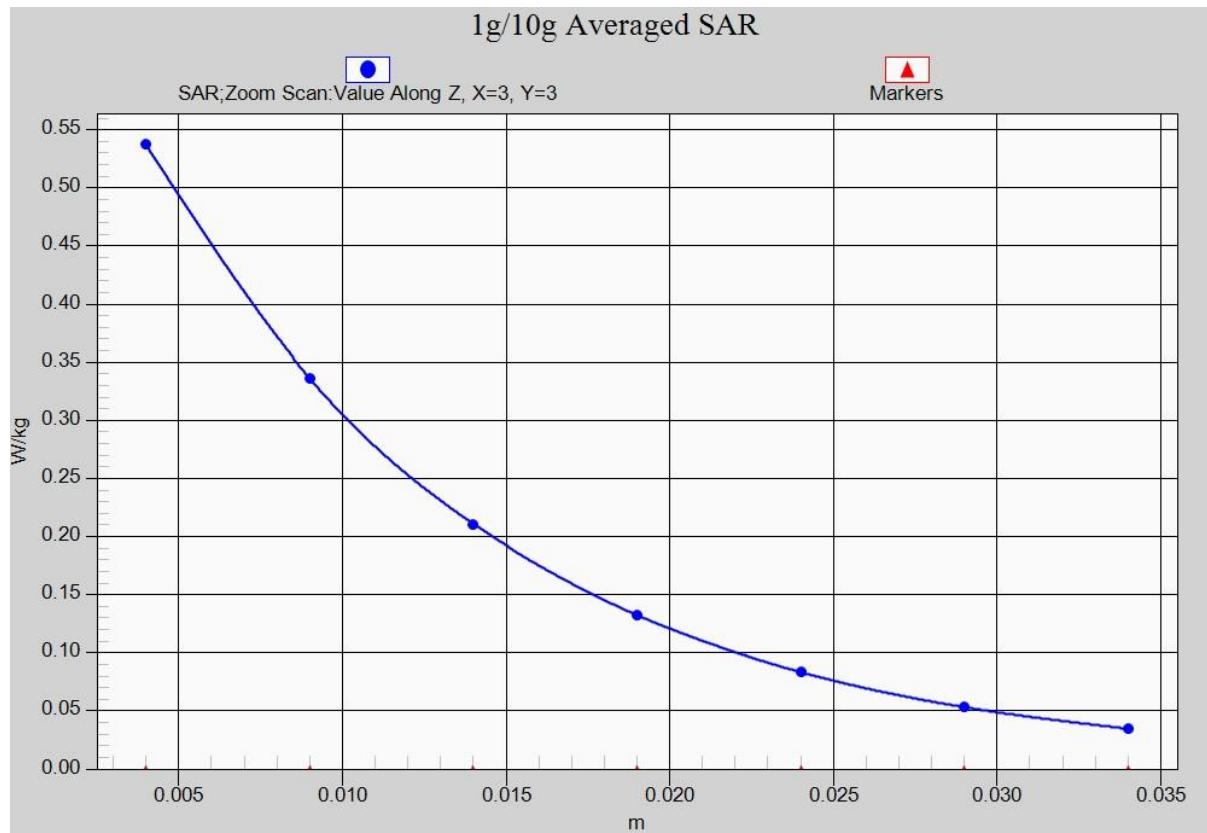


Fig. 16-1 Z-Scan at power reference point (LTE Band2)

LTE Band5 Right Cheek High with QPSK_10M_1RB_High

Date: 2018-5-2

Electronics: DAE4 Sn1525

Medium: Head 850 MHz

Medium parameters used (interpolated): $f = 844$ MHz; $\sigma = 0.918$ mho/m; $\epsilon_r = 41.631$; $\rho = 1000$ kg/m³

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

Communication System: LTE Band5 Frequency: 844 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) = 0.237 W/kg

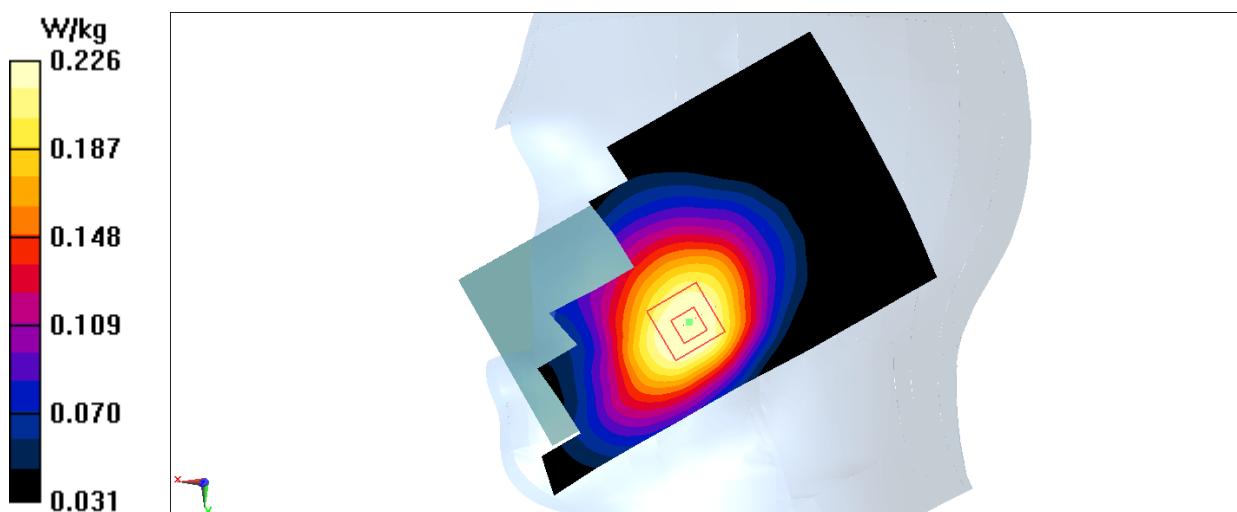
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.418 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.266 W/kg

SAR(1 g) = 0.216 W/kg; SAR(10 g) = 0.167 W/kg

Maximum value of SAR (measured) = 0.226 W/kg

**Fig.17 LTE Band5**

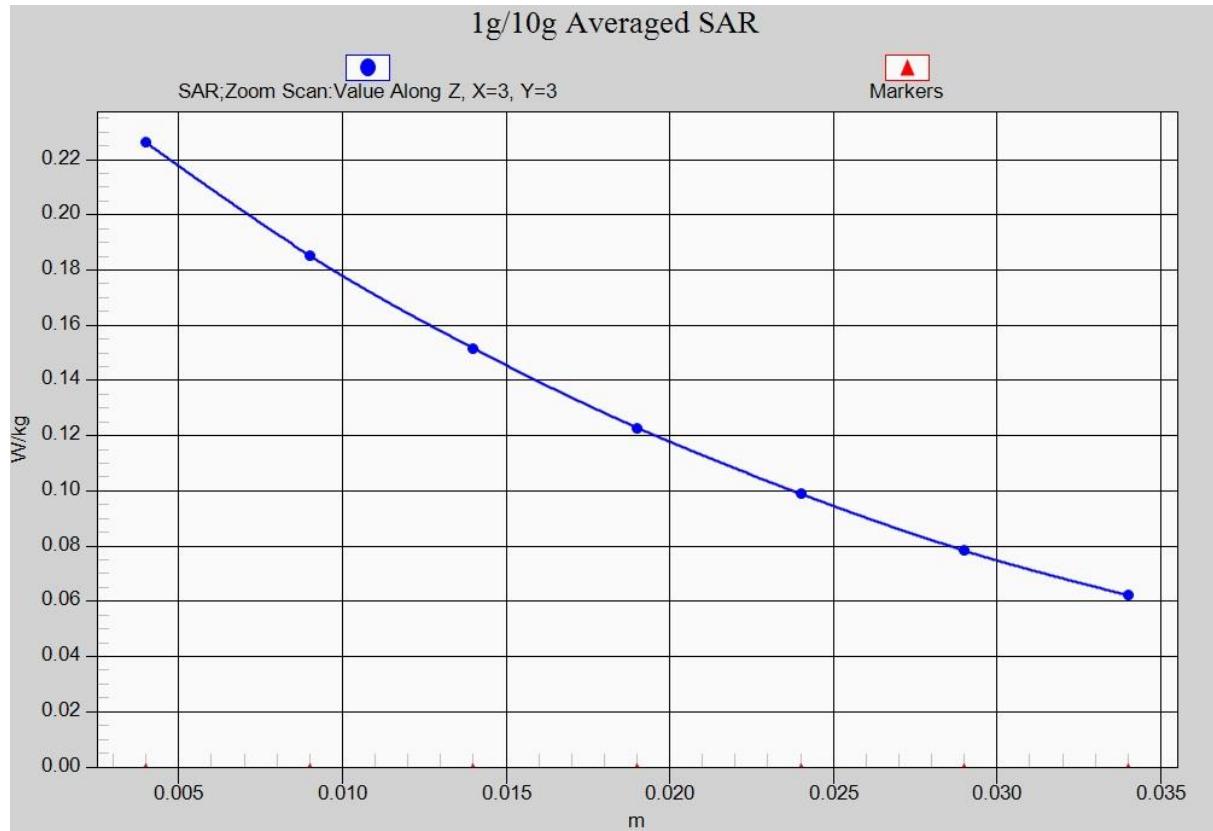


Fig. 17-1 Z-Scan at power reference point (LTE Band5)

LTE Band5 Body Rear High with QPSK_10M_1RB_High

Date: 2018-5-2

Electronics: DAE4 Sn1525

Medium: Body 850 MHz

Medium parameters used (interpolated): $f = 844$ MHz; $\sigma = 1.016$ mho/m; $\epsilon_r = 55.534$; $\rho = 1000$ kg/m³

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

Communication System: LTE Band5 Frequency: 844 MHz Duty Cycle: 1:1

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

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

Maximum value of SAR (interpolated) = 0.435 W/kg

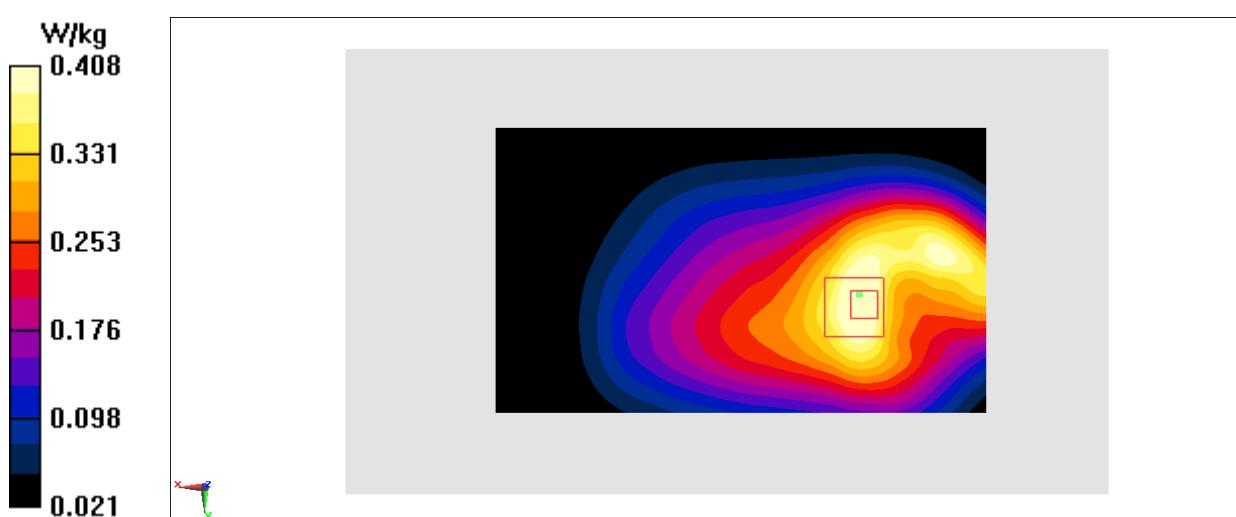
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.27 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.531 W/kg

SAR(1 g) = 0.386 W/kg; SAR(10 g) = 0.272 W/kg

Maximum value of SAR (measured) = 0.408 W/kg

**Fig.18 LTE Band5**

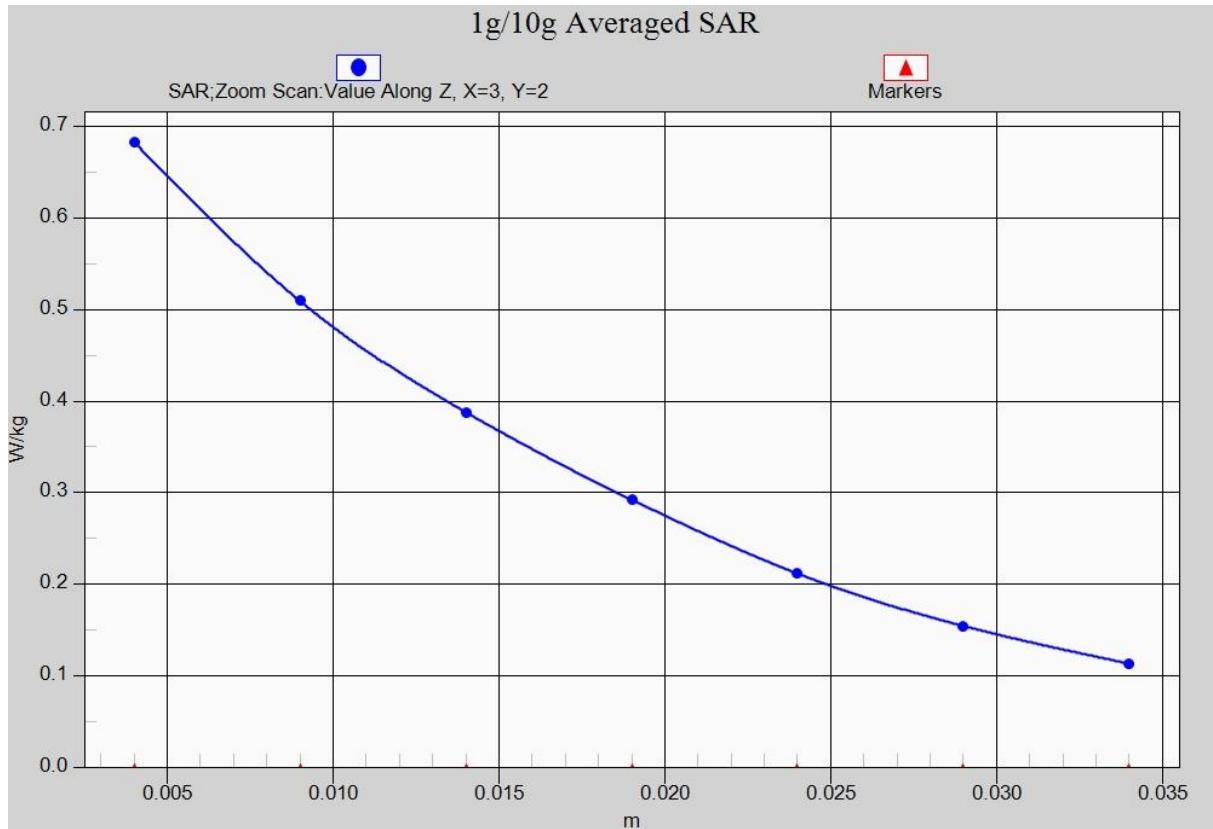


Fig. 18-1 Z-Scan at power reference point (LTE Band5)

LTE Band7 Left Cheek Low with QPSK_20M_1RB_Low

Date: 2018-5-5

Electronics: DAE4 Sn1525

Medium: Head 2600 MHz

Medium parameters used: $f = 2510$ MHz; $\sigma = 1.925$ mho/m; $\epsilon_r = 38.52$; $\rho = 1000$ kg/m³

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(7.76, 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

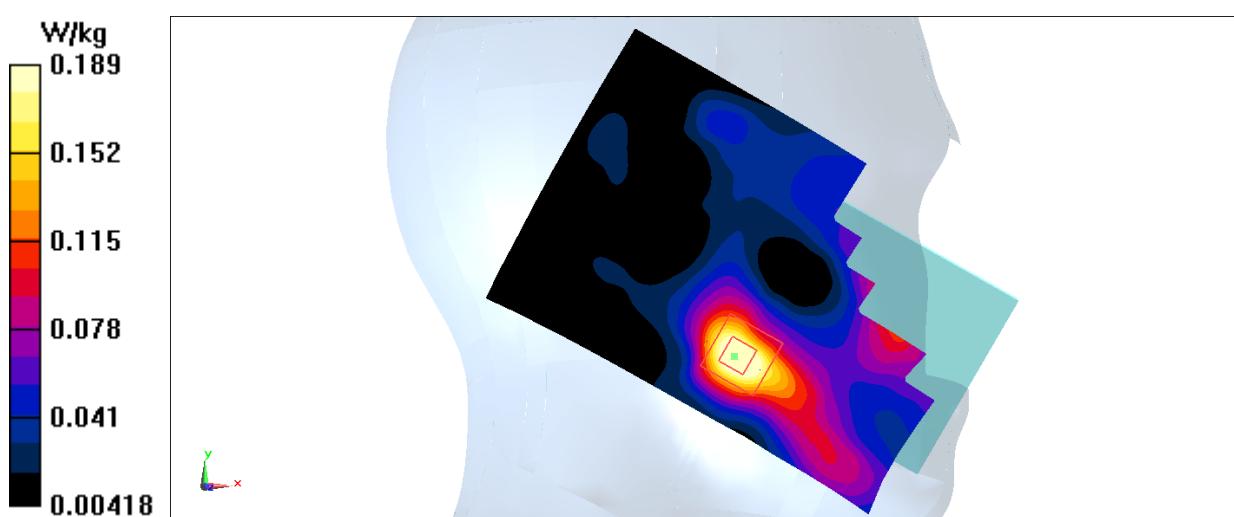
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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.19 LTE Band7**

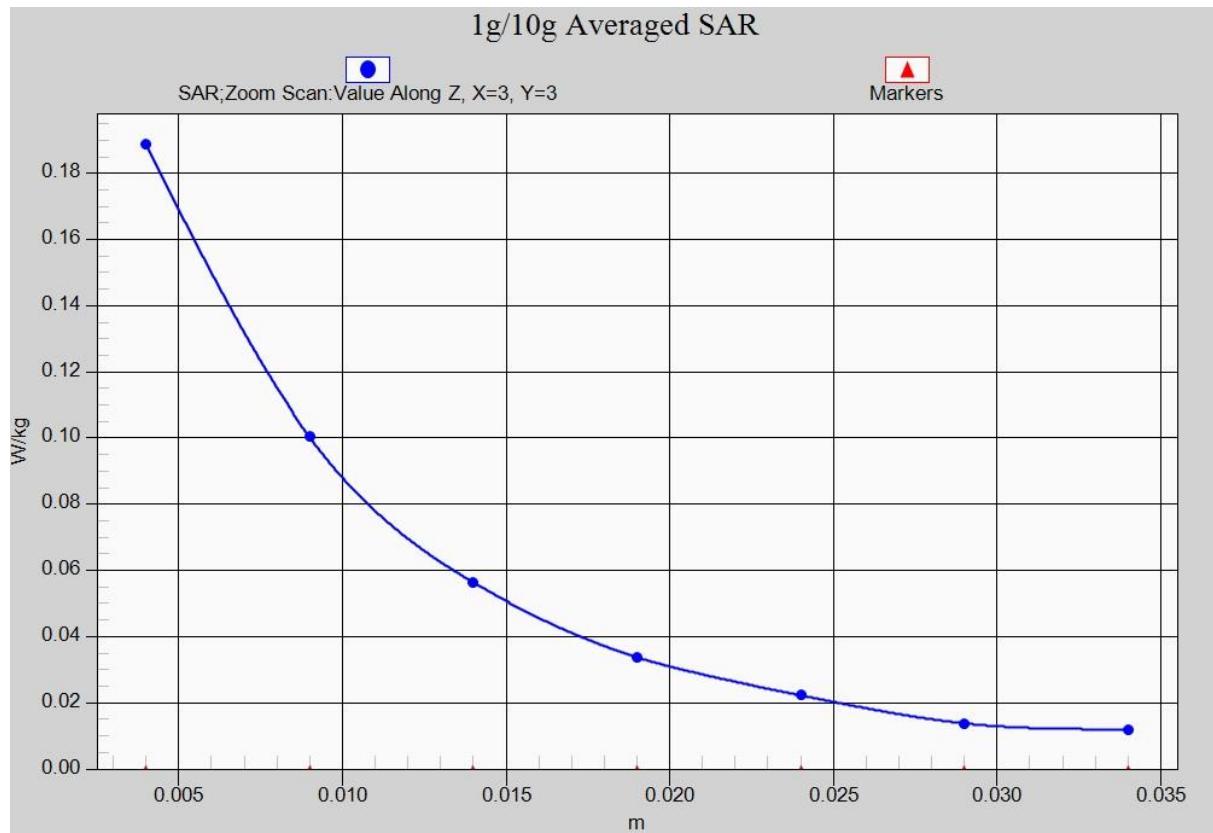


Fig. 19-1 Z-Scan at power reference point (LTE Band7)

LTE Band7 Body Bottom High with QPSK_20M_1RB_Middle

Date: 2018-5-5

Electronics: DAE4 Sn1525

Medium: Body 2600 MHz

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

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

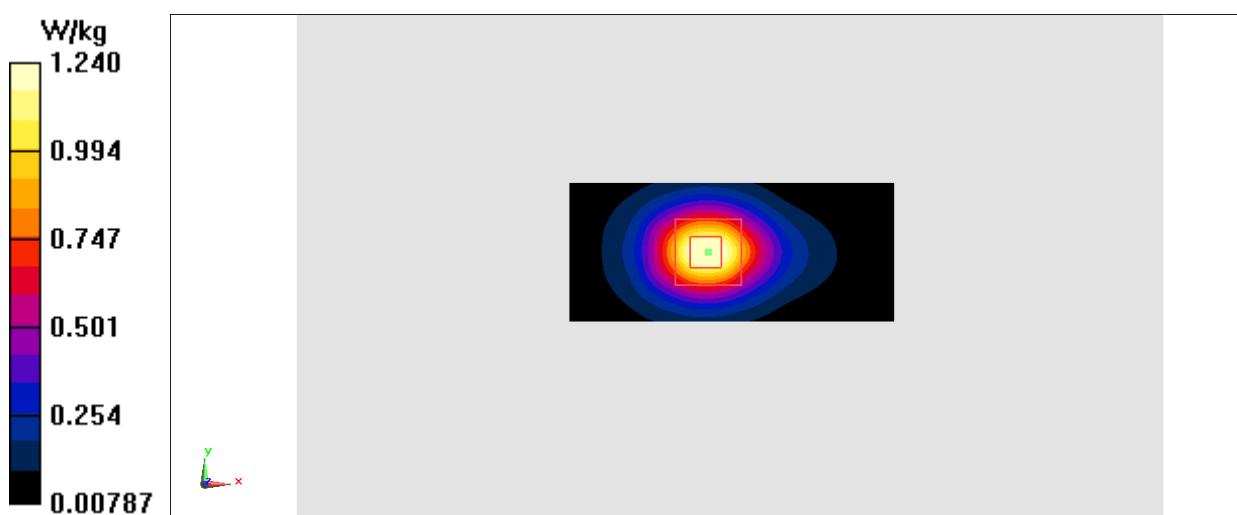
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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.20 LTE Band7**

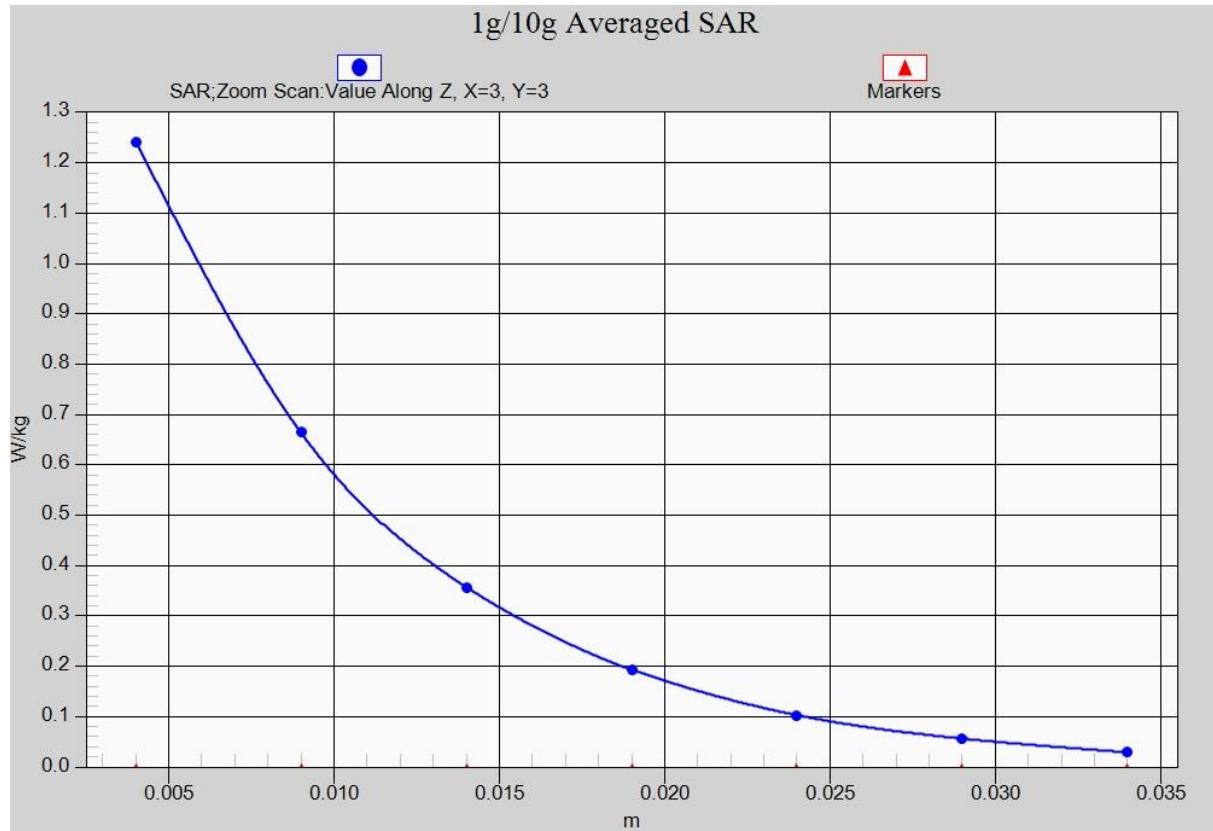


Fig. 20-1 Z-Scan at power reference point (LTE Band7)

LTE Band7 Body Rear Low with QPSK_20M_1RB_Low

Date: 2018-5-5

Electronics: DAE4 Sn1525

Medium: Body 2600 MHz

Medium parameters used: $f = 2510$ MHz; $\sigma = 2.095$ mho/m; $\epsilon_r = 51.85$; $\rho = 1000$ kg/m³

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

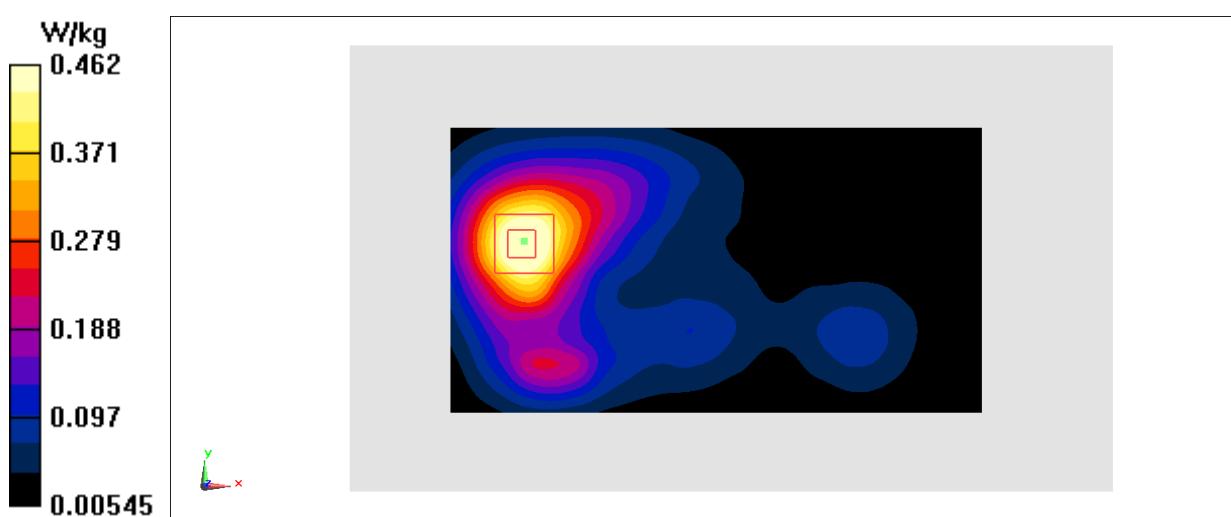
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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.21 LTE Band7**

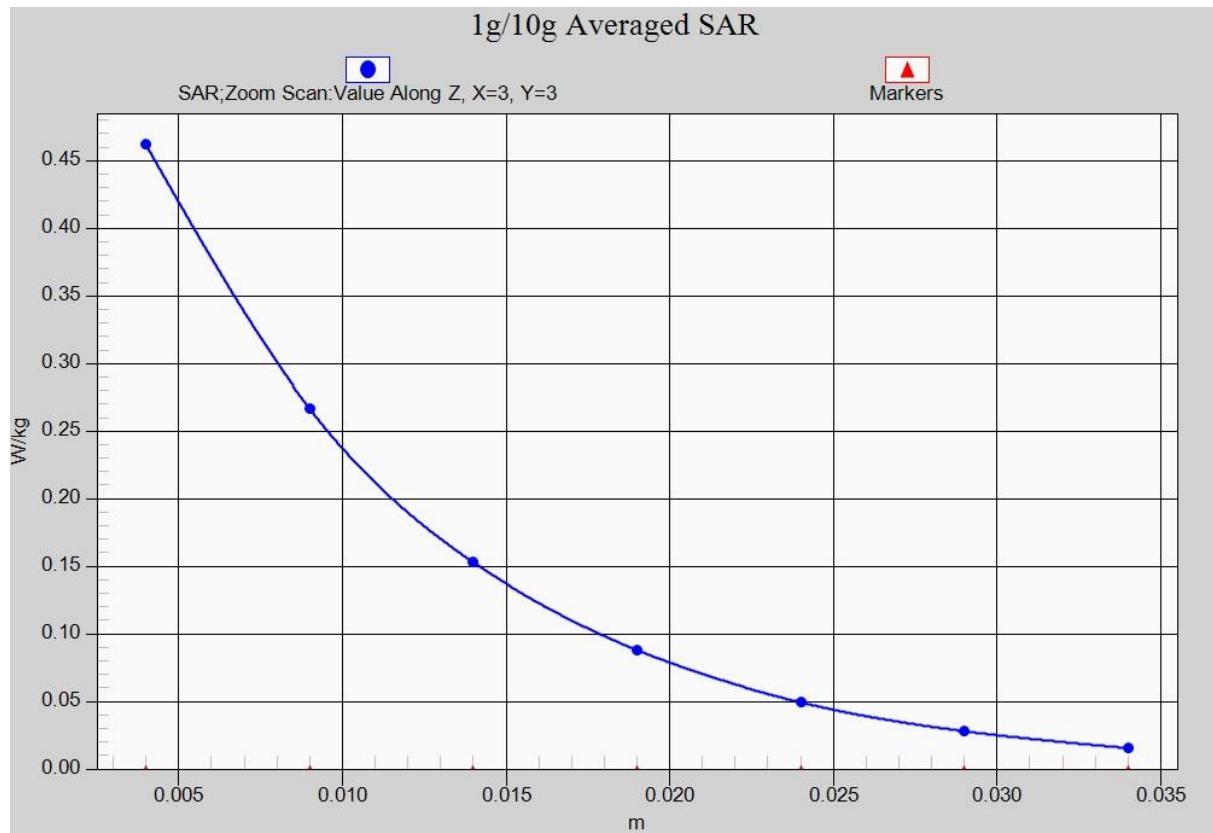


Fig. 21-1 Z-Scan at power reference point (LTE Band7)

LTE Band12 Right Cheek Low with QPSK_10M_1RB_High

Date: 2018-5-1

Electronics: DAE4 Sn1525

Medium: Head 750 MHz

Medium parameters used (interpolated): $f = 704$ MHz; $\sigma = 0.856$ mho/m; $\epsilon_r = 42.34$; $\rho = 1000$ kg/m³

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

Communication System: LTE Band12 Frequency: 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

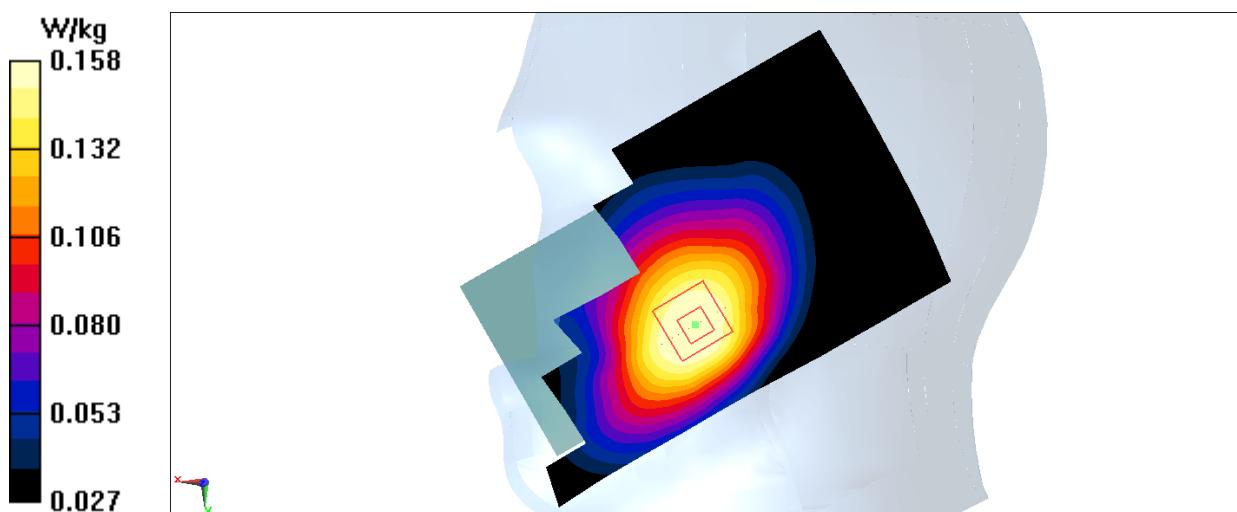
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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.22 LTE Band12**

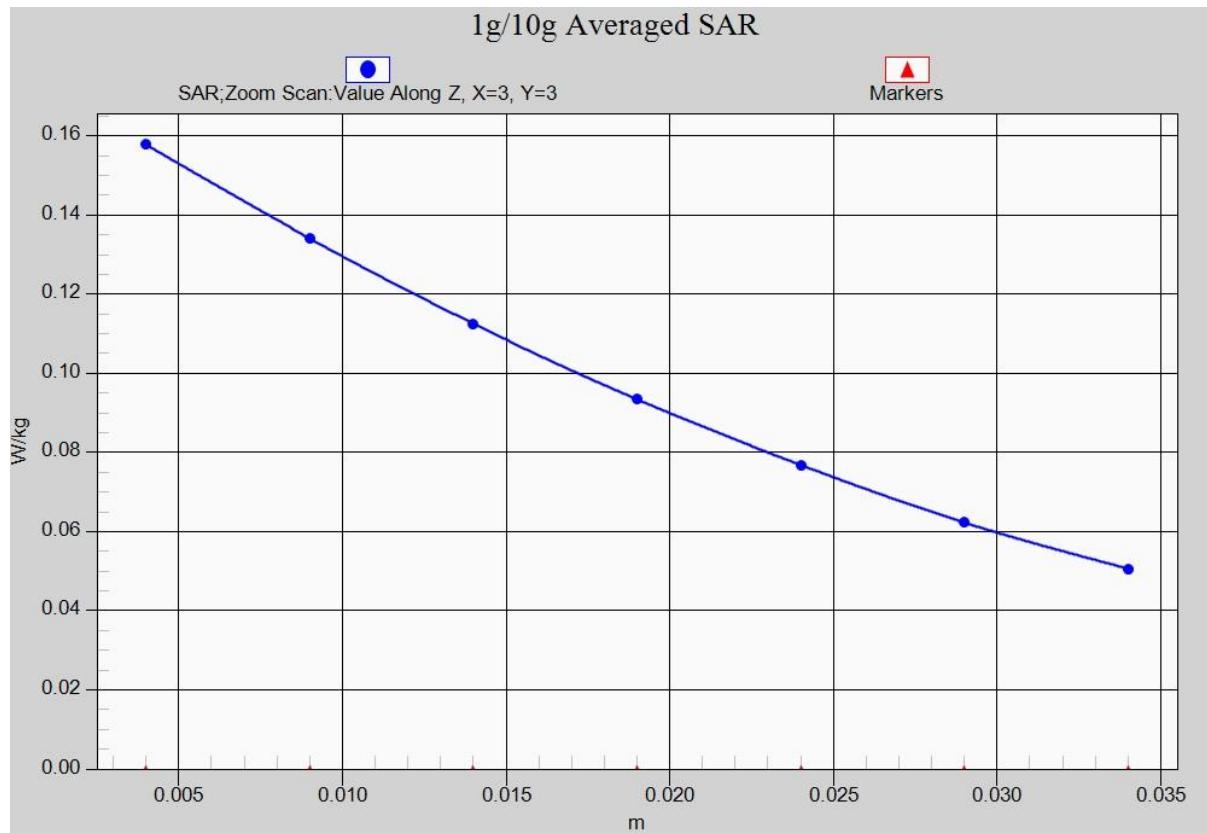


Fig. 22-1 Z-Scan at power reference point (LTE Band12)

LTE Band12 Body 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/m³

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

Communication System: LTE Band12 Frequency: 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

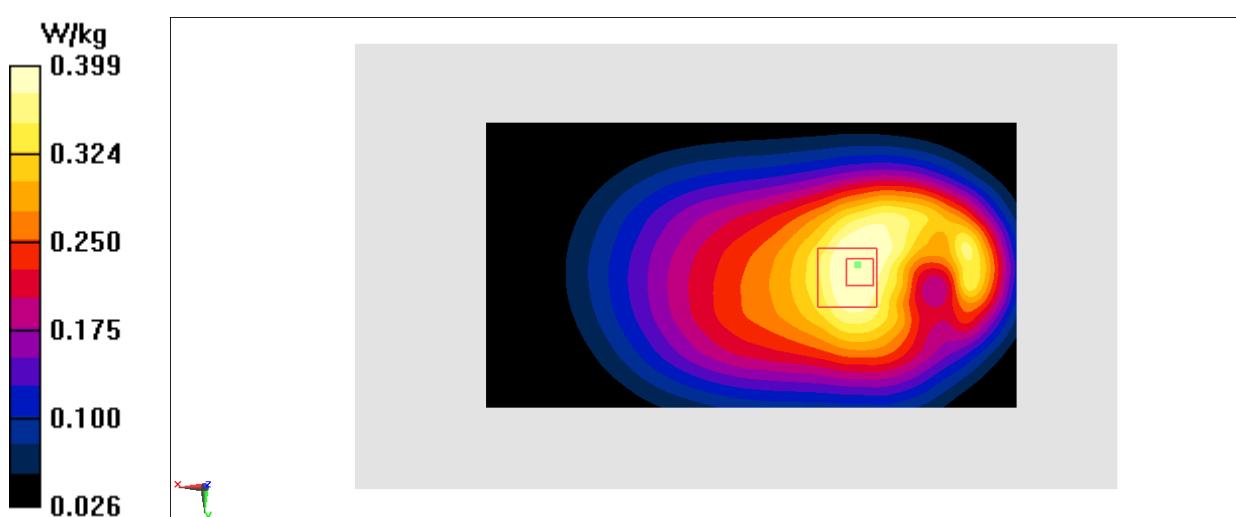
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

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.23 LTE Band12**

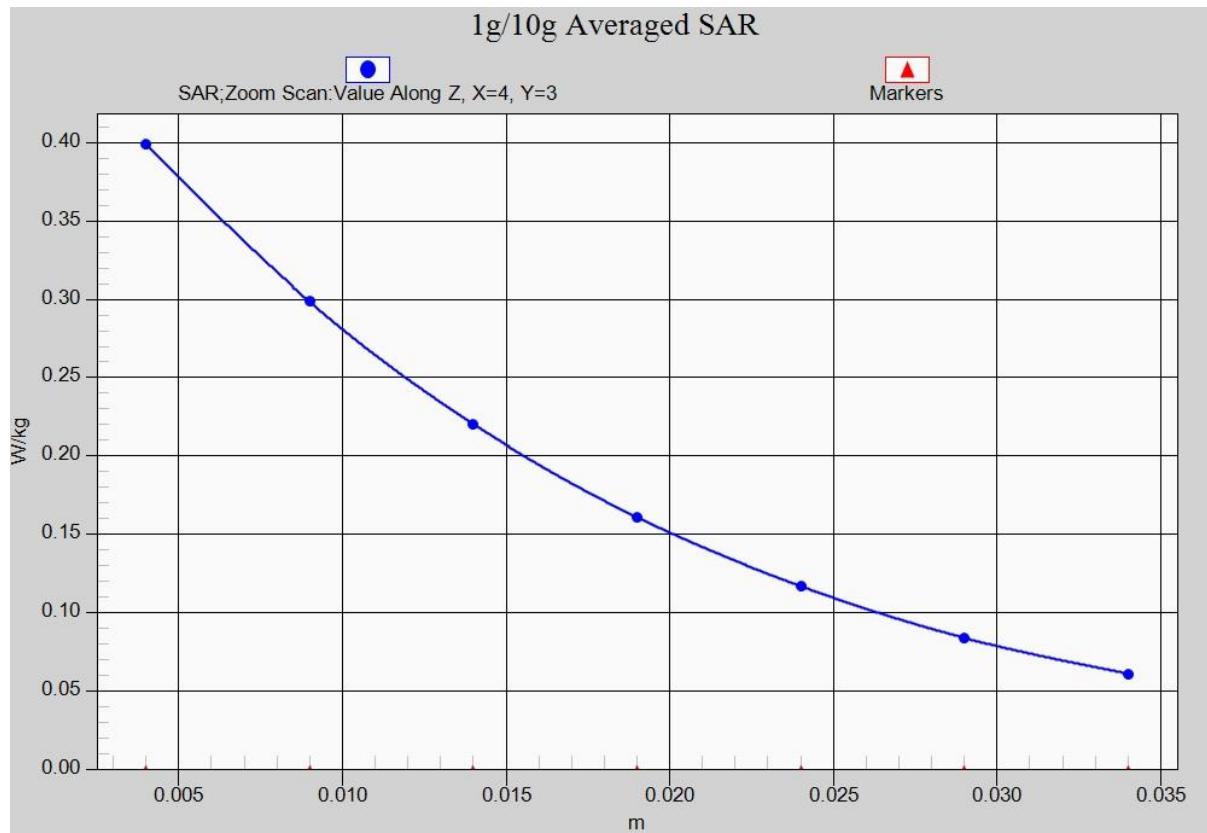


Fig. 23-1 Z-Scan at power reference point (LTE Band12)

LTE Band13 Right Cheek with QPSK_10M_1RB_Low

Date: 2018-5-1

Electronics: DAE4 Sn1525

Medium: Head 750 MHz

Medium parameters used (interpolated): $f = 782$ MHz; $\sigma = 0.899$ mho/m; $\epsilon_r = 42.28$; $\rho = 1000$ kg/m³

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

Communication System: LTE Band13 Frequency: 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

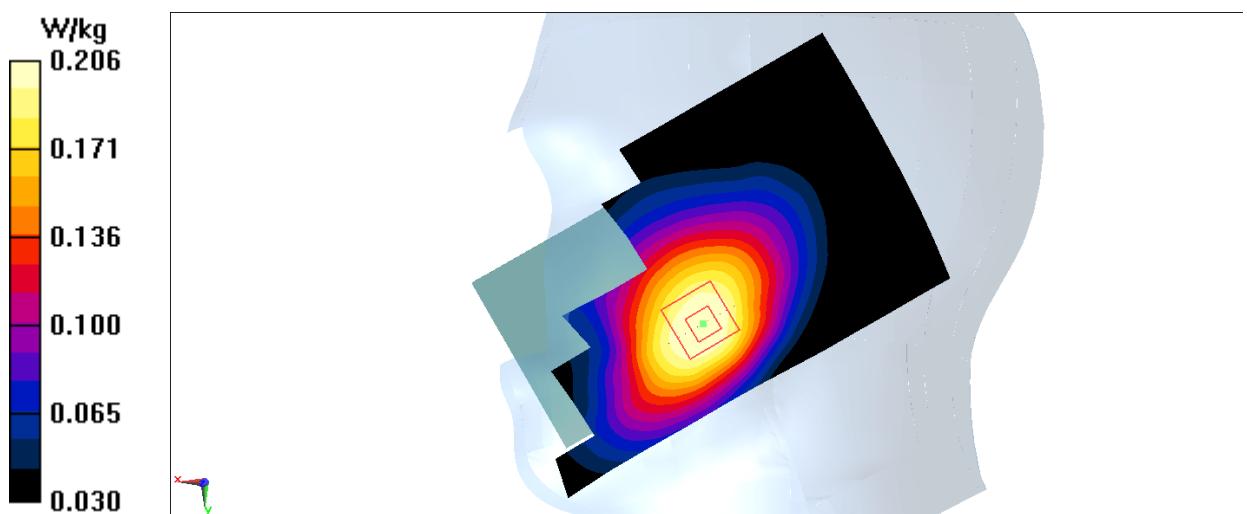


Fig.24 LTE Band13