

14 SAR Test Result

It is determined by user manual for the distance between the EUT and the phantom bottom. The distance is 10/15 mm and just applied to the condition of body worn accessory.

It is performed for all SAR measurements with area scan based 1-g SAR estimation (Fast SAR). A zoom scan measurement is added when the estimated 1-g SAR is the highest measured SAR in each exposure configuration, wireless mode and frequency band combination or more than 1.2W/kg.

The calculated SAR is obtained by the following formula:

$$\text{Reported SAR} = \text{Measured SAR} \times 10^{(P_{\text{Target}} - P_{\text{Measured}})/10}$$

Where P_{Target} is the power of manufacturing upper limit;

P_{Measured} is the measured power in chapter 11.

Table 14.1: Duty Cycle

Mode	Duty Cycle
GPRS&EGPRS for GSM 850/1900	1:4
WCDMA<E FDD	1:1
LTE TDD	1:1.58

We'll perform the head measurement in all bands with the primary battery depending on the evaluation of multi-batteries and retest on highest value point with other batteries. Then, repeat the measurement in the Body test.

Table 14.2: The evaluation of multi-batteries for Head Test

Frequency		Mode/Band	Side	Test Position	Battery	SAR(1g) (W/kg)	Power Drift(dB)
MHz	Ch.						
2462	11	WIFI2.4G	Right	Tilt	B1	0.723	0.05
2462	11	WIFI2.4G	Right	Tilt	B2	0.702	-0.11

Note: According to the values in the above table, the **B1** is the primary battery.

We'll perform the head measurement with the **B1** and retest on highest value point with others.

Note:

The **B1** is the battery of CAB2880000C7 by VEKEN

The **B2** is the battery of CAB2880001C1 by BYD

14.1 SAR results for 2G/3G/4G

Table 14.1-1: SAR Values (GSM 850 MHz Band - Head)

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)
Ch.	MHz										
		Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5°C							
251	848.8	Left	Cheek	Fig.1	29.76	31	0.269	0.36	0.351	0.47	-0.06
190	836.6	Left	Cheek	/	29.94	31	0.222	0.28	0.292	0.37	0.17
128	824.2	Left	Cheek	/	29.71	31	0.166	0.22	0.229	0.31	-0.10
190	836.6	Left	Tilt	/	29.94	31	0.136	0.17	0.179	0.23	-0.14
190	836.6	Right	Cheek	/	29.94	31	0.175	0.22	0.234	0.30	-0.04
190	836.6	Right	Tilt	/	29.94	31	0.099	0.13	0.13	0.17	0.03

Note: the head SAR of GSM850 is tested with GPRS (2Txslots) mode because of VoIP.

Table 14.1-2: SAR Values (GSM 850 MHz Band - Body)

Frequency		Mode (number of timeslots)	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										
		Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5°C							
190	836.6	GPRS (2)	Front	/	29.94	31	0.168	0.21	0.231	0.29	0.04
251	848.8	GPRS (2)	Rear	Fig.2	29.76	31	0.259	0.34	0.456	0.61	-0.01
190	836.6	GPRS (2)	Rear	/	29.94	31	0.22	0.28	0.371	0.47	-0.07
128	824.2	GPRS (2)	Rear	/	29.71	31	0.201	0.27	0.345	0.46	0.14
190	836.6	GPRS (2)	Left	/	29.94	31	0.128	0.16	0.189	0.24	-0.05
190	836.6	GPRS (2)	Right	/	29.94	31	0.111	0.14	0.167	0.21	0.13
190	836.6	GPRS (2)	Bottom	/	29.94	31	0.121	0.15	0.207	0.26	0.10
190	836.6	EGPRS (2)	Rear	/	29.91	31	0.31	0.40	0.432	0.56	-0.09

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

Table 14.1-3: SAR Values (GSM 1900 MHz Band - Head)

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)
Ch.	MHz										
		Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5°C							
810	1909.8	Left	Cheek	/	27.43	28	0.08	0.09	0.128	0.15	-0.13
661	1880	Left	Cheek	/	27.63	28	0.113	0.12	0.177	0.19	0.12
512	1850.2	Left	Cheek	Fig.3	27.61	28	0.145	0.16	0.231	0.25	0.18
661	1880	Left	Tilt	/	27.63	28	0.059	0.06	0.093	0.10	0.05
661	1880	Right	Cheek	/	27.63	28	0.106	0.12	0.169	0.18	-0.08
661	1880	Right	Tilt	/	27.63	28	0.058	0.06	0.103	0.11	-0.10

Note: the head SAR of GSM1900 is tested with GPRS (2Txslots) mode because of VoIP.

Table 14.1-4: 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.	Conducte d 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										
661	1880	GPRS (2)	Front	/	27.63	28	0.269	0.29	0.474	0.52	-0.03
810	1909.8	GPRS (2)	Rear	/	27.43	28	0.333	0.38	0.643	0.73	0.10
661	1880	GPRS (2)	Rear	/	27.63	28	0.434	0.47	0.841	0.92	-0.17
512	1850.2	GPRS (2)	Rear	/	27.61	28	0.519	0.57	0.958	1.05	-0.15
661	1880	GPRS (2)	Left	/	27.63	28	0.048	0.05	0.099	0.11	0.09
661	1880	GPRS (2)	Right	/	27.63	28	0.072	0.08	0.139	0.15	0.02
810	1909.8	GPRS (2)	Bottom	/	27.43	28	0.385	0.44	0.716	0.82	0.02
661	1880	GPRS (2)	Bottom	/	27.63	28	0.441	0.48	0.819	0.89	-0.08
512	1850.2	GPRS (2)	Bottom	Fig.4	27.61	28	0.561	0.61	1.03	1.13	0.04
512	1850.2	EGPRS (2)	Bottom	/	27.6	28	0.372	0.41	0.738	0.81	0.13

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

Table 14.1-5: SAR Values (WCDMA 1900 MHz Band - Head)

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C											
Frequency		Side	Test Position	Figur e No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measure d SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measure d SAR(1g) (W/kg)	Reporte d SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
9400	1880	Left	Cheek	/	23.79	24.5	0.128	0.15	0.204	0.24	-0.16
9400	1880	Left	Tilt	/	23.79	24.5	0.069	0.08	0.105	0.12	-0.16
9538	1907.6	Right	Cheek	/	23.71	24.5	0.144	0.17	0.23	0.28	-0.18
9400	1880	Right	Cheek	Fig.5	23.79	24.5	0.157	0.18	0.251	0.30	0.02
9262	1852.4	Right	Cheek	/	23.74	24.5	0.151	0.18	0.241	0.29	-0.05
9400	1880	Right	Tilt	/	23.79	24.5	0.105	0.12	0.169	0.20	0.16

Table 14.1-6: SAR Values (WCDMA 1900 MHz Band – Body Worn)

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C										
Frequency		Test Position	Figure No.	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									
9400	1880	Front	/	23.79	24.5	0.195	0.23	0.336	0.40	0.08
9538	1907.6	Rear	/	23.71	24.5	0.282	0.34	0.495	0.59	0.18
9400	1880	Rear	/	23.79	24.5	0.1	0.12	0.283	0.33	-0.11
9262	1852.4	Rear	Fig.6	23.74	24.5	0.295	0.35	0.517	0.62	-0.08

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

Table 14.1-7: SAR Values (WCDMA 1900 MHz Band – Hotspot)

Ambient Temperature: 22.9 °C					Liquid Temperature: 22.5°C					
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)
Ch.	MHz									
9400	1880	Front	/	21.81	22.5	0.202	0.20	0.366	0.43	-0.07
9538	1907.6	Rear	/	21.77	22.5	0.399	0.41	0.759	0.90	-0.06
9400	1880	Rear	/	21.81	22.5	0.431	0.45	0.813	0.95	0.03
9262	1852.4	Rear	Fig.7	21.78	22.5	0.46	0.48	0.861	1.02	-0.13
9400	1880	Left	/	21.81	22.5	0.087	0.09	0.158	0.19	-0.02
9400	1880	Right	/	21.81	22.5	0.09	0.09	0.158	0.19	0.06
9400	1880	Bottom	/	21.81	22.5	0.321	0.33	0.678	0.79	0.02

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

Table 14.1-8: SAR Values (WCDMA 1700 MHz Band - Head)

Ambient Temperature: 22.9 °C					Liquid Temperature: 22.5°C						
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)
Ch.	MHz										
1412	1732.4	Left	Cheek	/	23.9	24.5	0.145	0.17	0.223	0.26	0.07
1412	1732.4	Left	Tilt	/	23.9	24.5	0.072	0.08	0.102	0.12	-0.08
1513	1752.6	Right	Cheek	/	23.85	24.5	0.171	0.20	0.261	0.30	-0.13
1412	1732.4	Right	Cheek	Fig.8	23.9	24.5	0.18	0.21	0.274	0.31	0.15
1312	1712.4	Right	Cheek	/	23.84	24.5	0.158	0.18	0.241	0.28	0.06
1412	1732.4	Right	Tilt	/	23.9	24.5	0.12	0.14	0.178	0.20	0.14

Table 14.1-9: SAR Values (WCDMA 1700 MHz Band – Body Worn)

Ambient Temperature: 22.9 °C					Liquid Temperature: 22.5°C					
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)
Ch.	MHz									
1412	1732.4	Front	/	23.9	24.5	0.31	0.36	0.478	0.55	-0.15
1513	1752.6	Rear	/	23.85	24.5	0.363	0.42	0.589	0.68	0.06
1412	1732.4	Rear	Fig.9	23.9	24.5	0.371	0.43	0.611	0.70	0.05
1312	1712.4	Rear	/	23.84	24.5	0.268	0.31	0.463	0.54	-0.13

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

Table 14.1-10: SAR Values (WCDMA 1700 MHz Band – Hotspot)

Ambient Temperature: 22.9 °C					Liquid Temperature: 22.5°C					
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)
Ch.	MHz									
1412	1732.4	Front	/	21.89	22.5	0.268	0.31	0.436	0.50	-0.15
1513	1752.6	Rear	Fig.10	21.82	22.5	0.451	0.53	0.796	0.93	0.04
1412	1732.4	Rear	/	21.89	22.5	0.423	0.49	0.776	0.89	0.09
1312	1712.4	Rear	/	21.69	22.5	0.359	0.43	0.654	0.79	0.08
1412	1732.4	Left	/	21.89	22.5	0.071	0.08	0.121	0.14	-0.06
1412	1732.4	Right	/	21.89	22.5	0.097	0.11	0.163	0.19	0.14
1412	1732.4	Bottom	/	21.89	22.5	0.287	0.33	0.527	0.61	-0.13

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

Table 14.1-11: SAR Values (WCDMA 850 MHz Band - Head)

Ambient Temperature: 22.9 °C					Liquid Temperature: 22.5°C						
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)
Ch.	MHz										
4233	846.6	Left	Cheek	/	23.51	24.5	0.274	0.34	0.381	0.48	-0.16
4183	836.6	Left	Cheek	Fig.11	23.56	24.5	0.314	0.39	0.413	0.51	-0.10
4132	826.4	Left	Cheek	/	23.63	24.5	0.27	0.33	0.285	0.35	0.10
4183	836.6	Left	Tilt	/	23.56	24.5	0.18	0.22	0.242	0.30	0.18
4183	836.6	Right	Cheek	/	23.56	24.5	0.236	0.29	0.323	0.40	-0.15
4183	836.6	Right	Tilt	/	23.56	24.5	0.192	0.24	0.264	0.33	0.06

Table 14.1-12: SAR Values (WCDMA 850 MHz Band - Body)

Ambient Temperature: 22.9 °C					Liquid Temperature: 22.5°C					
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)
Ch.	MHz									
4183	836.6	Front	/	23.56	24.5	0.139	0.17	0.181	0.22	-0.03
4233	846.6	Rear	Fig.12	23.51	24.5	0.267	0.34	0.48	0.60	0.03
4183	836.6	Rear	/	23.56	24.5	0.263	0.33	0.471	0.58	0.12
4132	826.4	Rear	/	23.63	24.5	0.25	0.31	0.442	0.54	0.18
4183	836.6	Left	/	23.56	24.5	0.244	0.30	0.339	0.42	-0.18
4183	836.6	Right	/	23.56	24.5	0.138	0.17	0.194	0.24	-0.05
4183	836.6	Bottom	/	23.56	24.5	0.115	0.14	0.204	0.25	0.07

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

Table 14.1-13: SAR Values (LTE Band2 - Head)

Frequency		Ambient Temperature: 22.9 °C					Liquid Temperature: 22.5°C					
Ch.	MHz	Mode	Side	Test Position	Figure No.	Conduct ed Power (dBm)	Max. tune-up Power (dBm)	Measure d SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measure d SAR(1g) (W/kg)	Reporte d SAR(1g) (W/kg)	Power Drift (dB)
18900	1880	1RB_Mid	Left	Cheek	Fig.13	24.03	24.5	0.139	0.15	0.224	0.25	0.10
18900	1880	1RB_Mid	Left	Tilt	/	24.03	24.5	0.064	0.07	0.097	0.11	-0.10
18900	1880	1RB_Mid	Right	Cheek	/	24.03	24.5	0.136	0.15	0.216	0.24	-0.10
18900	1880	1RB_Mid	Right	Tilt	/	24.03	24.5	0.114	0.13	0.179	0.20	0.15
18900	1880	50RB-Low	Left	Cheek	/	23.04	23.5	0.12	0.13	0.195	0.22	0.07
18900	1880	50RB-Low	Left	Tilt	/	23.04	23.5	0.057	0.06	0.089	0.10	-0.11
18900	1880	50RB-Low	Right	Cheek	/	23.04	23.5	0.056	0.06	0.096	0.11	0.09
18900	1880	50RB-Low	Right	Tilt	/	23.04	23.5	0.06	0.07	0.094	0.10	0.11

Note1: The LTE mode is QPSK_20MHz.

Table 14.1-14: SAR Values (LTE Band2 – Body worn)

Frequency		Ambient Temperature: 22.9 °C					Liquid Temperature: 22.5°C				
Ch.	MHz	Mode	Figure No.	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)	
18900	1880	1RB-Mid Front	/	24.03	24.5	0.155	0.17	0.273	0.30	0.02	
18900	1880	1RB-Mid Rear	Fig.14	24.03	24.5	0.342	0.38	0.613	0.68	-0.04	
18900	1880	50RB-Low Front	/	23.04	23.5	0.137	0.15	0.235	0.26	-0.09	
18900	1880	50RB-Low Rear	/	23.04	23.5	0.271	0.30	0.484	0.54	-0.05	

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

Note2: The LTE mode is QPSK_20MHz.

Table 14.1-15: SAR Values (LTE Band2 – Hotspot)

Frequency		Mode	Figure No.	Conduct ed Power (dBm)	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5°C			Power Drift (dB)
Ch.	MHz				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)	
18900	1880	1RB-Mid Front	/	22.08	22.5	0.201	0.22	0.341	0.38	0.04
18900	1880	1RB-Mid Rear	/	22.08	22.5	0.341	0.38	0.612	0.67	-0.17
18900	1880	1RB-Mid Left	/	22.08	22.5	0.055	0.06	0.09	0.10	-0.02
18900	1880	1RB-Mid Right	/	22.08	22.5	0.074	0.08	0.115	0.13	0.16
18900	1880	1RB-Mid Bottom	Fig.15	22.08	22.5	0.342	0.38	0.636	0.70	0.18
18900	1880	50RB-Low Front	/	22.07	22.5	0.191	0.21	0.316	0.35	0.14
18900	1880	50RB-Low Rear	/	22.07	22.5	0.307	0.34	0.552	0.61	-0.06
18900	1880	50RB-Low Left	/	22.07	22.5	0.048	0.05	0.082	0.09	-0.16
18900	1880	50RB-Low Right	/	22.07	22.5	0.063	0.07	0.101	0.11	0.12
18900	1880	50RB-Low Bottom	/	22.07	22.5	0.331	0.37	0.616	0.68	0.05

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

Note2: The LTE mode is QPSK_20MHz.

Table 14.1-16: SAR Values (LTE Band7 - Head)

Frequency		Mode	Side	Test Position	Figure No.	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5°C			Power Drift (dB)	
Ch.	MHz					Conduct ed Power (dBm)	Max. tune-up Power (dBm)	Measure d SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measure d SAR(1g) (W/kg)		Reporte d SAR(1g) (W/kg)
20850	2510	1RB_Mid	Left	Cheek	Fig.16	24.34	24.5	0.036	0.04	0.077	0.08	0.08
20850	2510	1RB_Mid	Left	Tilt	/	24.34	24.5	0.016	0.02	0.025	0.03	0.06
20850	2510	1RB_Mid	Right	Cheek	/	24.34	24.5	0.031	0.03	0.072	0.07	0.18
20850	2510	1RB_Mid	Right	Tilt	/	24.34	24.5	<0.01	<0.01	<0.01	<0.01	/
20850	2510	50RB-Low	Left	Cheek	/	23.41	23.5	0.033	0.03	0.063	0.06	-0.09
20850	2510	50RB-Low	Left	Tilt	/	23.41	23.5	0.008	0.01	0.013	0.01	0.13
20850	2510	50RB-Low	Right	Cheek	/	23.41	23.5	0.023	0.02	0.048	0.05	0.16
20850	2510	50RB-Low	Right	Tilt	/	23.41	23.5	<0.01	<0.01	<0.01	<0.01	/

Note1: The LTE mode is QPSK_20MHz.

Table 14.1-17: SAR Values (LTE Band7 – Body worn)

Frequency		Mode	Figure No.	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									
Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5 °C								
20850	2510	1RB-Mid Front	/	21.43	22	0.117	0.13	0.225	0.26	-0.05
20850	2510	1RB-Mid Rear	/	21.43	22	0.25	0.29	0.505	0.58	-0.12
20850	2510	50RB-Low Front	/	21.43	22	0.069	0.08	0.174	0.20	0.15
20850	2510	50RB-Low Rear	Fig.17	21.43	22	0.262	0.30	0.515	0.59	0.03

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

Note2: The LTE mode is QPSK_20MHz.

Table 14.1-18: SAR Values (LTE Band7 - Hotspot)

Frequency		Mode	Figure No.	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									
Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5 °C								
20850	2510	1RB-Mid Front	/	19.36	20	0.12	0.14	0.246	0.29	0.03
20850	2510	1RB-Mid Rear	/	19.36	20	0.285	0.33	0.6	0.70	0.10
20850	2510	1RB-Mid Left	/	19.36	20	0.023	0.03	0.039	0.05	-0.11
20850	2510	1RB-Mid Right	/	19.36	20	<0.01	<0.01	<0.01	<0.01	/
21350	2560	1RB-Mid Bottom	/	19.03	20	0.396	0.50	0.856	1.07	0.03
21100	2535	1RB-Mid Bottom	/	19.24	20	0.407	0.48	0.876	1.04	-0.14
20850	2510	1RB-Mid Bottom	Fig.18	19.36	20	0.429	0.50	0.932	1.08	0.06
20850	2510	100RB Bottom	/	19.31	20	0.411	0.48	0.895	1.05	-0.02
20850	2510	50RB-Low Front	/	19.36	20	0.115	0.13	0.234	0.27	-0.07
20850	2510	50RB-Low Rear	/	19.36	20	0.275	0.32	0.598	0.69	-0.12
20850	2510	50RB-Low Left	/	19.36	20	<0.01	<0.01	<0.01	<0.01	/
20850	2510	50RB-Low Right	/	19.36	20	<0.01	<0.01	<0.01	<0.01	/
21350	2560	50RB-Low Bottom	/	19.31	20	0.403	0.47	0.871	1.02	0.08
21100	2535	50RB-Low Bottom	/	19.27	20	0.38	0.45	0.82	0.97	-0.13
20850	2510	50RB-Low Bottom	/	19.36	20	0.424	0.49	0.909	1.05	0.15

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

Note2: The LTE mode is QPSK_20MHz.

Table 14.1-19: SAR Values (LTE Band12 - Head)

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												
		Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5 °C					
23060	704	1RB_Mid	Left	Cheek	Fig.19	23.64	24.5	0.125	0.15	0.161	0.20	-0.11	
23060	704	1RB_Mid	Left	Tilt	/	23.64	24.5	0.077	0.09	0.097	0.12	0.04	
23060	704	1RB_Mid	Right	Cheek	/	23.64	24.5	0.096	0.12	0.128	0.16	-0.05	
23060	704	1RB_Mid	Right	Tilt	/	23.64	24.5	0.079	0.10	0.108	0.13	0.17	
23130	711	25RB_Low	Left	Cheek	/	22.69	23.5	0.099	0.12	0.127	0.15	0.05	
23130	711	25RB_Low	Left	Tilt	/	22.69	23.5	0.058	0.07	0.072	0.09	-0.13	
23130	711	25RB_Low	Right	Cheek	/	22.69	23.5	0.069	0.08	0.095	0.11	-0.18	
23130	711	25RB_Low	Right	Tilt	/	22.69	23.5	0.048	0.06	0.065	0.08	0.04	

Note: The LTE mode is QPSK_10MHz.

Table 14.1-20: SAR Values (LTE Band12 –Body)

Frequency		Mode	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										
		Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5 °C			
23060	704	1RB-Mid Front	/	23.64	24.5	0.098	0.12	0.125	0.15	-0.05	
23060	704	1RB-Mid Rear	Fig.20	23.64	24.5	0.156	0.19	0.202	0.25	-0.04	
23060	704	1RB-Mid Left	/	23.64	24.5	0.102	0.12	0.139	0.17	-0.01	
23060	704	1RB-Mid Right	/	23.64	24.5	0.062	0.08	0.086	0.10	-0.05	
23060	704	1RB-Mid Bottom	/	23.64	24.5	0.038	0.05	0.068	0.08	0.08	
23130	711	25RB-Low Front	/	22.69	23.5	0.079	0.10	0.1	0.12	-0.15	
23130	711	25RB-Low Rear	/	22.69	23.5	0.123	0.15	0.159	0.19	-0.12	
23130	711	25RB-Low Left	/	22.69	23.5	0.073	0.09	0.102	0.12	0.07	
23130	711	25RB-Low Right	/	22.69	23.5	0.023	0.03	0.032	0.04	0.15	
23130	711	25RB-Low Bottom	/	22.69	23.5	0.028	0.03	0.046	0.06	0.11	

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

Note2: The LTE mode is QPSK_10MHz.

Table 14.1-21: SAR Values (LTE Band13 - Head)

Frequency		Mode	Side	Test Position	Figure No.	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5°C		Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz					Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)			
23230	782	1RB-Mid	Left	Cheek	Fig.21	23.57	24.5	0.214	0.27	0.279	0.35	-0.03
23230	782	1RB-Mid	Left	Tilt	/	23.57	24.5	0.151	0.19	0.191	0.24	-0.08
23230	782	1RB-Mid	Right	Cheek	/	23.57	24.5	0.17	0.21	0.221	0.27	-0.15
23230	782	1RB-Mid	Right	Tilt	/	23.57	24.5	0.113	0.14	0.141	0.17	-0.18
23230	782	25RB-Mid	Left	Cheek	/	22.59	23.5	0.161	0.20	0.207	0.26	-0.12
23230	782	25RB-Mid	Left	Tilt	/	22.59	23.5	0.163	0.20	0.21	0.26	-0.18
23230	782	25RB-Mid	Right	Cheek	/	22.59	23.5	0.128	0.16	0.166	0.20	-0.12
23230	782	25RB-Mid	Right	Tilt	/	22.59	23.5	0.086	0.11	0.107	0.13	-0.07

Note1: The LTE mode is QPSK_20MHz.

Table 14.1-22: SAR Values (LTE Band13 - Body)

Frequency		Mode	Figure No.	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5°C		Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz			Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)			
23230	782	1RB-Mid Front	/	23.57	24.5	0.155	0.19	0.26	0.32	-0.16
23230	782	1RB-Mid Rear	Fig.22	23.57	24.5	0.237	0.29	0.399	0.49	-0.09
23230	782	1RB-Mid Left	/	23.57	24.5	0.203	0.25	0.375	0.46	0.10
23230	782	1RB-Mid Right	/	23.57	24.5	0.119	0.15	0.218	0.27	-0.02
23230	782	1RB-Mid Bottom	/	23.57	24.5	0.077	0.10	0.168	0.21	0.13
23230	782	25RB-Mid Front	/	22.59	23.5	0.118	0.15	0.199	0.25	0.17
23230	782	25RB-Mid Rear	/	22.59	23.5	0.183	0.23	0.315	0.39	0.13
23230	782	25RB-Mid Left	/	22.59	23.5	0.16	0.20	0.29	0.36	-0.04
23230	782	25RB-Mid Right	/	22.59	23.5	0.084	0.10	0.153	0.19	0.04
23230	782	25RB-Mid Bottom	/	22.59	23.5	0.05	0.06	0.11	0.14	0.11

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

Note2: The LTE mode is QPSK_20MHz.

Table 14.1-23: SAR Values (LTE Band66 - Head)

Frequency		Mode	Side	Test Position	Figure No.	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5°C		Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz					Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)			
132572	1770	1RB-Mid	Left	Cheek	Fig.28	24.24	24.5	0.25	0.27	0.403	0.43	-0.01
132572	1770	1RB-Mid	Left	Tilt	/	24.24	24.5	0.159	0.17	0.24	0.25	0.16
132572	1770	1RB-Mid	Right	Cheek	/	24.24	24.5	0.124	0.13	0.201	0.21	0.18
132572	1770	1RB-Mid	Right	Tilt	/	24.24	24.5	0.111	0.12	0.174	0.18	0.14
132572	1770	50RB-High	Left	Cheek	/	23.3	23.5	0.236	0.25	0.383	0.40	-0.10
132572	1770	50RB-High	Left	Tilt	/	23.3	23.5	0.132	0.14	0.201	0.21	0.07
132572	1770	50RB-High	Right	Cheek	/	23.3	23.5	0.172	0.18	0.281	0.29	-0.03
132572	1770	50RB-High	Right	Tilt	/	23.3	23.5	0.092	0.10	0.146	0.15	-0.05

Note1: The LTE mode is QPSK_20MHz.

Table 14.1-24: SAR Values (LTE Band66 – Body worn)

Frequency		Mode	Figure No.	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5°C		Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz			Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)			
132572	1770	1RB-Low Front	/	24.24	24.5	0.218	0.23	0.341	0.36	-0.10
132572	1770	1RB-Low Rear	Fig.29	24.24	24.5	0.223	0.24	0.382	0.41	0.03
132572	1770	50RB-High Front	/	23.3	23.5	0.17	0.18	0.263	0.28	0.10
132572	1770	50RB-High Rear	/	23.3	23.5	0.18	0.19	0.309	0.32	0.06

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

Note2: The LTE mode is QPSK_20MHz.

Table 14.1-30: SAR Values (LTE Band66 - Hotspot)

Frequency		Mode	Figure No.	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5°C		Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz			Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)			
132572	1770	1RB-Mid Front	/	22.2	22.5	0.285	0.31	0.456	0.49	0.06
132322	1745	1RB-Mid Rear	/	22.15	22.5	0.444	0.48	0.799	0.87	-0.10
132072	1720	1RB-Mid Rear	/	22.03	22.5	0.411	0.46	0.732	0.82	0.13
132572	1770	1RB-Mid Rear	Fig.30	22.2	22.5	0.46	0.49	0.84	0.90	-0.05
132572	1770	100RB Rear	/	22.19	22.5	0.447	0.48	0.823	0.88	-0.05
132572	1770	1RB-High Left	/	22.2	22.5	0.077	0.08	0.127	0.14	0.13
132572	1770	1RB-High Right	/	22.2	22.5	0.094	0.10	0.155	0.17	0.07
132572	1770	1RB-High Bottom	/	22.2	22.5	0.316	0.34	0.58	0.62	0.08
132572	1770	50RB-High Front	/	22.24	22.5	0.271	0.29	0.439	0.47	0.18
132322	1745	50RB-High Rear	/	22.14	22.5	0.419	0.46	0.756	0.82	0.06
132072	1720	50RB-High Rear	/	22.08	22.5	0.429	0.47	0.765	0.84	0.15
132572	1770	50RB-High Rear	/	22.24	22.5	0.429	0.46	0.773	0.82	0.03
132572	1770	50RB-High Left	/	22.24	22.5	0.084	0.09	0.142	0.15	0.18
132572	1770	50RB-High Right	/	22.24	22.5	0.101	0.11	0.168	0.18	-0.07
132572	1770	50RB-High Bottom	/	22.24	22.5	0.341	0.36	0.628	0.67	-0.12

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

Note2: The LTE mode is QPSK_20MHz.

14.2 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 14.2-1: SAR Values (WLAN - Head)– 802.11b

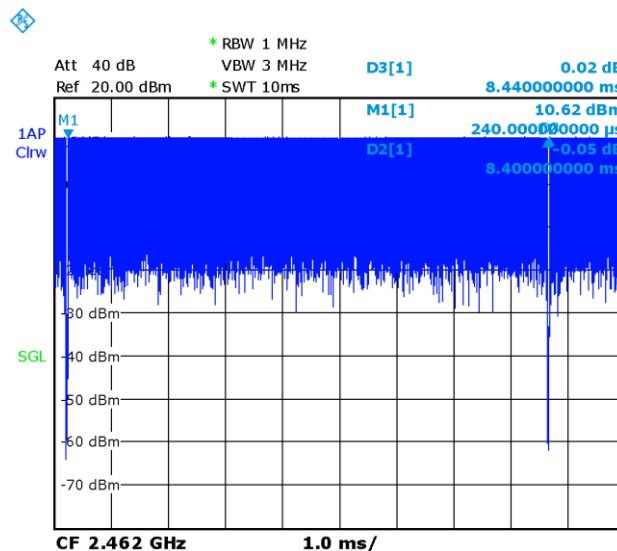
Frequency		Side	Test Position	Figure No./ Note	Ambient Temperature: 22.9°C		Liquid Temperature: 22.5°C		Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
Ch.	MHz				Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g)(W/kg)					
11	2462	Left	Cheek	Note1	16.53	17	0.206	0.23	0.443	0.49	0.09		
11	2462	Left	Tilt	Note1	16.53	17	0.235	0.26	0.51	0.57	0.10		
11	2462	Right	Cheek	Note1	16.53	17	0.259	0.29	0.637	0.71	-0.17		
11	2462	Right	Tilt	Note1/Fig.31	16.53	17	0.294	0.33	0.723	0.81	0.05		
6	2437	Right	Tilt	Note1	16.32	17	0.276	0.32	0.688	0.80	-0.10		
1	2412	Right	Tilt	Note1	16.33	17	0.257	0.30	0.663	0.77	-0.12		
6	2437	Left	Cheek	Note2	14.6	15	0.125	0.14	0.317	0.35	-0.15		
6	2437	Left	Tilt	Note2	14.6	15	0.146	0.16	0.373	0.41	0.07		
6	2437	Right	Cheek	Note2	14.6	15	0.138	0.15	0.423	0.46	0.12		
6	2437	Right	Tilt	Note2	14.6	15	0.172	0.19	0.497	0.54	-0.03		
11	2462	Right	Tilt	Note1/B2	16.53	17	0.276	0.31	0.702	0.78	-0.11		

Note1: The results are used for Wifi transmit standalone.

Note2: The results are used for Wifi transmit with WWAN.

B2: The battery of CAB2880001C1 by BYD

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.



Picture 14.2-1 Duty factor plot

Table 14.2-2: SAR Values (WLAN - Head) – 802.11b (Scaled Reported SAR)

Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
Ch.	MHz						
11	2462	Right	Tilt	99.5%	100%	0.81	0.81

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

Body Evaluation:
Table 14.2-3: SAR Values (WLAN - Body)– 802.11b

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									
6	2437	Front	Note1	19.75	20	0.1	0.11	0.185	0.20	0.16
6	2437	Rear	Note1/ Fig.32	19.75	20	0.258	0.27	0.526	0.56	0.01
6	2437	Front	Note2	14.6	15	0.034	0.04	0.064	0.07	-0.02
6	2437	Rear	Note2	14.6	15	0.094	0.10	0.194	0.21	0.01
6	2437	Front	Note3	13.69	14	0.06	0.06	0.129	0.14	-0.07
6	2437	Rear	Note3	13.69	14	0.172	0.18	0.397	0.43	0.12
6	2437	Left	Note3	13.69	14	<0.01	<0.01	<0.01	<0.01	/
6	2437	Top	Note3	13.69	14	0.155	0.17	0.358	0.38	0.08

Note1: The distance between the EUT and the phantom bottom is 15mm. The results are used for Wifi transmit standalone.

Note2: The distance between the EUT and the phantom bottom is 15mm. The results are used for Wifi transmit with WWAN.

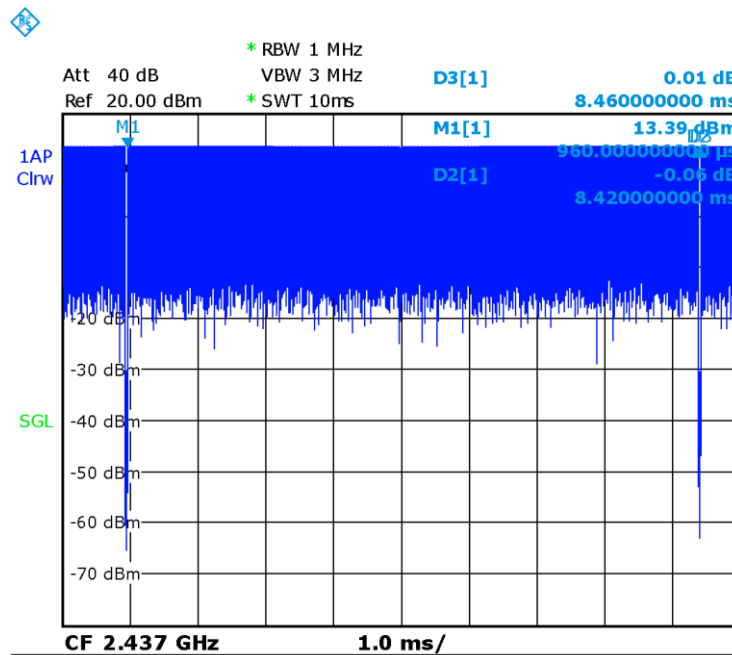
Note3: The distance between the EUT and the phantom bottom is 10mm.

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 14.3-4: SAR Values (WLAN - Body) – 802.11b (Scaled Reported SAR)

Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
Ch.	MHz					
6	2437	Rear 15mm	99.5%	100%	0.56	0.56

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



Picture 14.2-2 Duty factor plot

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 ≥ 1.45 W/kg ($\sim 10\%$ 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 GSM1900 (1g)

Frequency		Mode	Test Position	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
512	512	GPRS(2)	Rear 10mm	0.958	0.933	1.03	/
512	512	GPRS(2)	Rear 10mm	1.03	1	1.03	/

Table 15.2: SAR Measurement Variability for Body WCDMA1900 (1g)

Frequency		Mode	Test Position	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
9262	1852.4	RMC	Rear 10mm	0.861	0.854	1.01	/

Table 15.3: SAR Measurement Variability for Body LTE B7 (1g)

Frequency		Mode	Test Position	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
20850	2510	1RB-Mid	Bottom 10mm	0.932	0.911	1.02	/

Table 15.5: SAR Measurement Variability for Body LTE B66 (1g)

Frequency		Mode	Test Position	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
Ch.	MHz						
132572	1770	1RB-Mid	Rear 10mm	0.84	0.823	1.02	/

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
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	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	∞
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		$u_c = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$						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
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	∞
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
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 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	∞
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	N5239A	MY55491241	May 31, 2021	One year
02	Power meter	NRP2	106276	May 11, 2021	One year
03	Power sensor	NRP6A	101369		
04	Signal Generator	E4438C	MY49071430	February 1, 2021	One Year
05	Amplifier	60S1G4	0331848	No Calibration Requested	
06	BTS	CMW500	166370	June 25, 2021	One year
07	E-field Probe	SPEAG EX3DV4	7548	June 25, 2021	One year
08	DAE	SPEAG DAE4	1331	September 1, 2021	One year
09	Dipole Validation Kit	SPEAG D750V2	1017	July 12,,2021	One year
10	Dipole Validation Kit	SPEAG D835V2	4d069	July 12,,2021	One year
11	Dipole Validation Kit	SPEAG D1800V2	2d145	July 12,,2021	One year
12	Dipole Validation Kit	SPEAG D1900V2	5d101	July 15,2021	One year
13	Dipole Validation Kit	SPEAG D2450V2	853	July 26,2021	One year
14	Dipole Validation Kit	SPEAG D2600V2	1012	July 26,2021	One year

END OF REPORT BODY

ANNEX A Graph Results

GSM850_CH251 Left Cheek

Date: 1/14/2022

Electronics: DAE4 Sn1331

Medium: head 835 MHz

Medium parameters used: $f = 848.8$ MHz; $\sigma = 0.877$ S/m; $\epsilon_r = 44.819$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: GSM850 848.8 MHz Duty Cycle: 1:4

Probe: EX3DV4 – SN7548 ConvF(10.36,10.36,10.36)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.422 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.673 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.462 W/kg

SAR(1 g) = 0.351 W/kg; SAR(10 g) = 0.269 W/kg

Maximum value of SAR (measured) = 0.418 W/kg

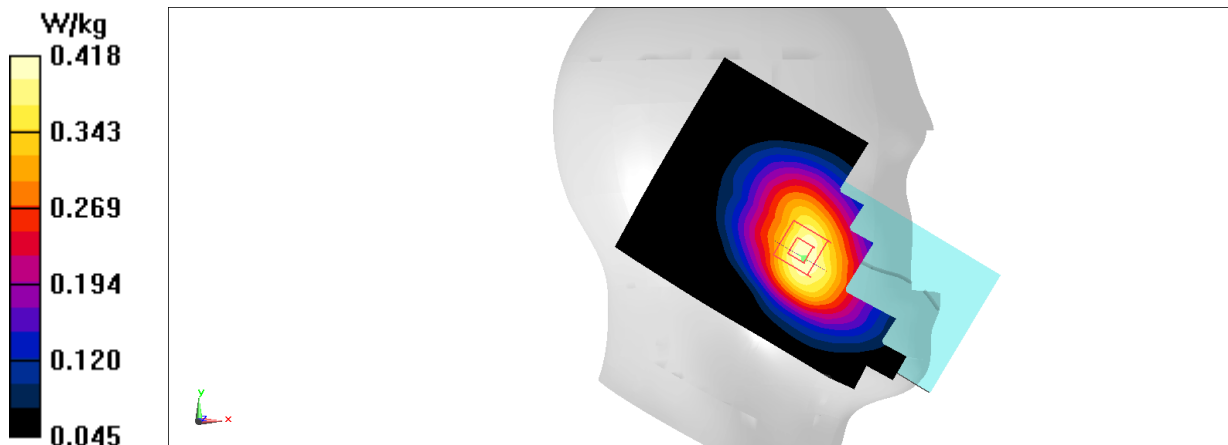


Fig A.1

GSM850_CH251 Rear 10mm

Date: 1/14/2022

Electronics: DAE4 Sn1331

Medium: head 835 MHz

Medium parameters used: $f = 848.8$ MHz; $\sigma = 0.877$ S/m; $\epsilon_r = 44.819$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: GSM850 848.8 MHz Duty Cycle: 1:4

Probe: EX3DV4 – SN7548 ConvF(10.36,10.36,10.36)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.627 W/kg

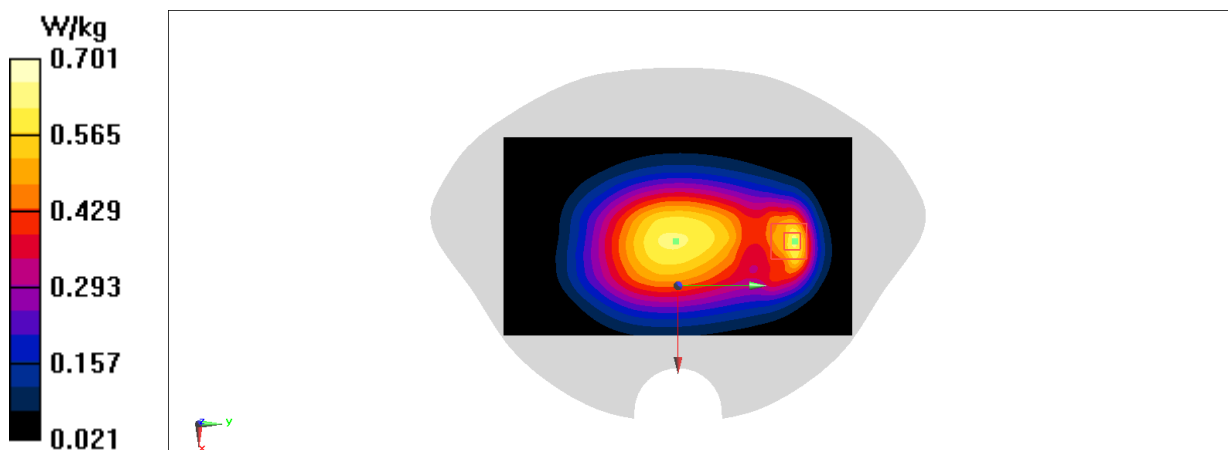
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 27.43 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.882 W/kg

SAR(1 g) = 0.456 W/kg; SAR(10 g) = 0.259 W/kg

Maximum value of SAR (measured) = 0.701 W/kg

**Fig A.2**

PCS1900_CH661 Left Cheek

Date: 1/16/2022

Electronics: DAE4 Sn1331

Medium: head 1900 MHz

Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.443$ S/m; $\epsilon_r = 42.587$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: PCS1900 1850.2 MHz Duty Cycle: 1:4

Probe: EX3DV4 – SN7548 ConvF(7.88,7.88,7.88)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.328 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.403 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 0.358 W/kg

SAR(1 g) = 0.231 W/kg; SAR(10 g) = 0.145 W/kg

Maximum value of SAR (measured) = 0.307 W/kg

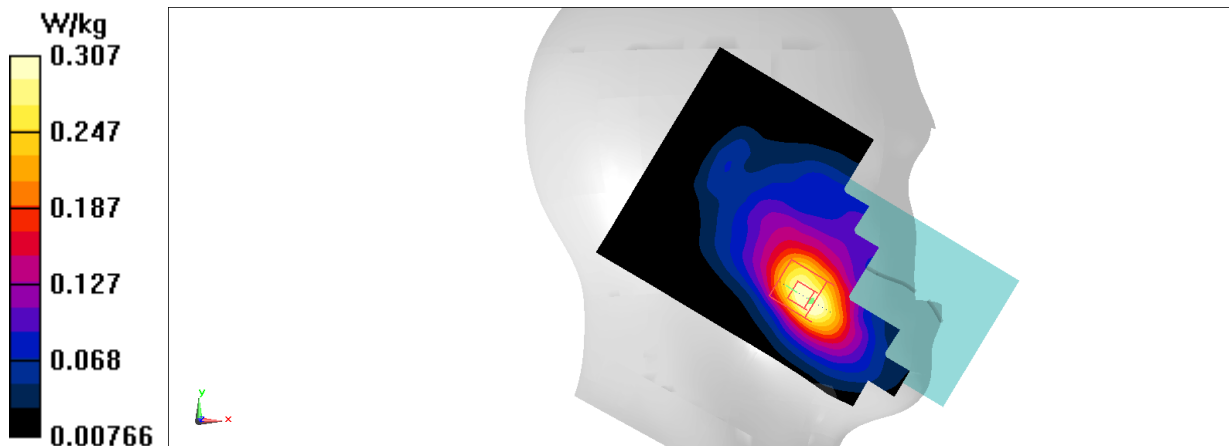


Fig A.3

PCS1900_CH512 Bottom 10mm

Date: 1/16/2022

Electronics: DAE4 Sn1331

Medium: head 1900 MHz

Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.443$ S/m; $\epsilon_r = 42.587$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: PCS1900 1850.2 MHz Duty Cycle: 1:4

Probe: EX3DV4 – SN7548 ConvF(7.88,7.88,7.88)

Area Scan (41x101x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.49 W/kg

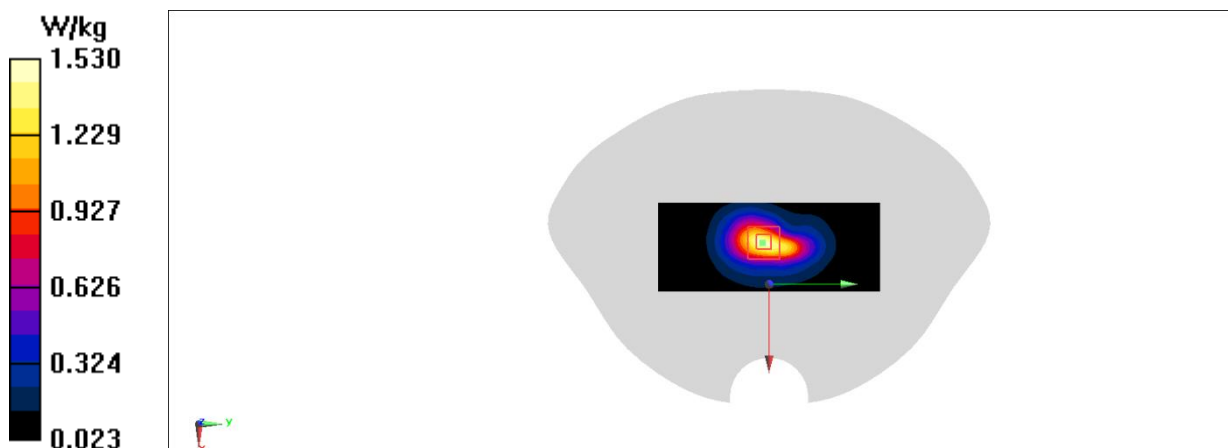
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.55 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.79 W/kg

SAR(1 g) = 1.03 W/kg; SAR(10 g) = 0.561 W/kg

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

**Fig A.4**

WCDMA1900-BII_CH9400 Right Cheek

Date: 1/16/2022

Electronics: DAE4 Sn1331

Medium: head 1900 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.461$ S/m; $\epsilon_r = 42.465$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: WCDMA1900-BII 1880 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(7.88,7.88,7.88)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.353 W/kg

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.661 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.382 W/kg

SAR(1 g) = 0.251 W/kg; SAR(10 g) = 0.157 W/kg

Maximum value of SAR (measured) = 0.331 W/kg

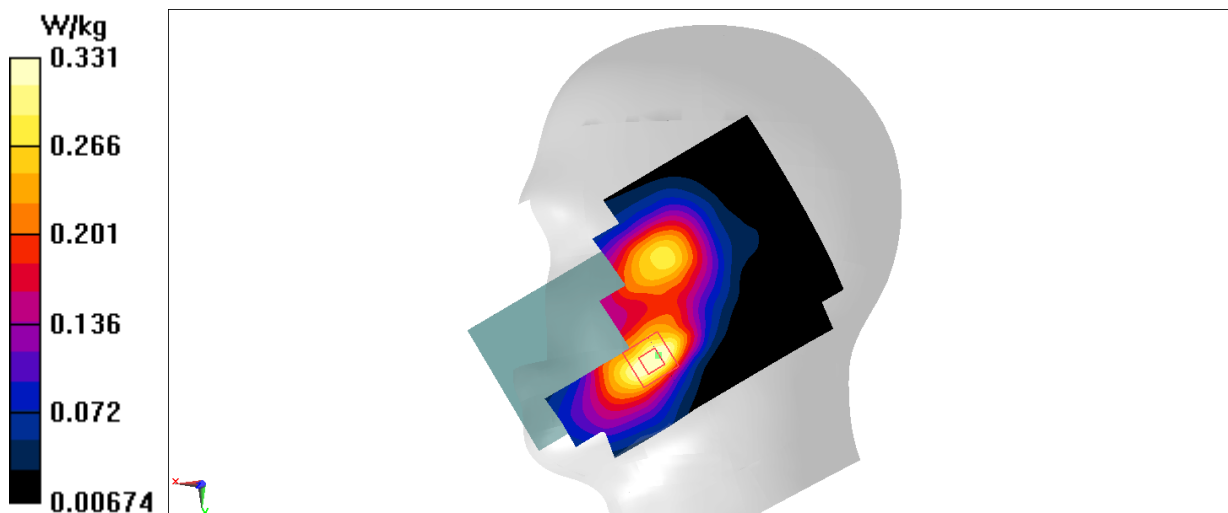


Fig A.5

WCDMA1900-BII_CH9262 Rear 15mm_Body worn

Date: 1/16/2022

Electronics: DAE4 Sn1331

Medium: head 1900 MHz

Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.444$ S/m; $\epsilon_r = 42.578$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: WCDMA1900-BII 1852.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(7.88,7.88,7.88)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.751 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.96 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.895 W/kg

SAR(1 g) = 0.517 W/kg; SAR(10 g) = 0.295 W/kg

Maximum value of SAR (measured) = 0.755 W/kg

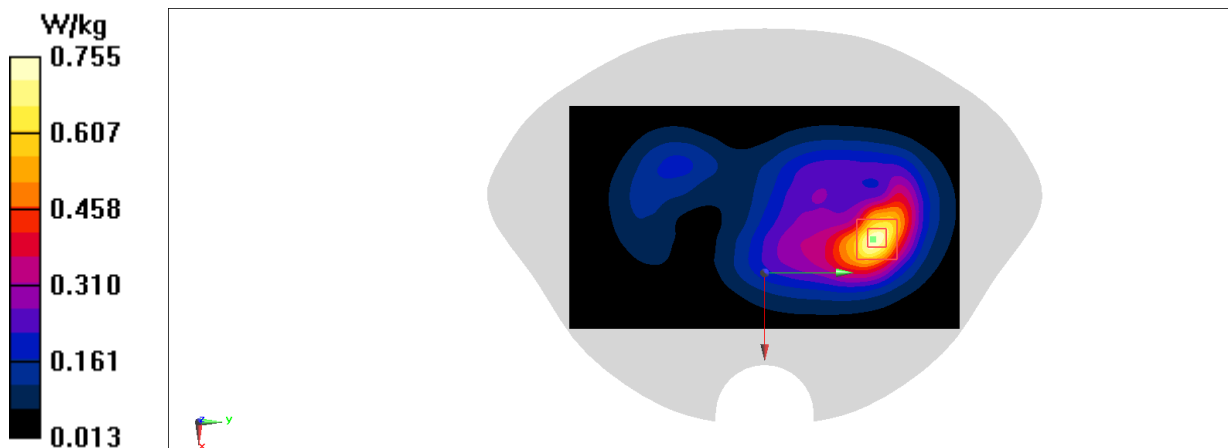


Fig A.6

WCDMA1900-BII_CH9262 Rear 10mm_Hotspot

Date: 1/16/2022

Electronics: DAE4 Sn1331

Medium: head 1900 MHz

Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.444$ S/m; $\epsilon_r = 42.578$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: WCDMA1900-BII 1852.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(7.88,7.88,7.88)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.26 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.57 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 1.59 W/kg

SAR(1 g) = 0.861 W/kg; SAR(10 g) = 0.460 W/kg

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

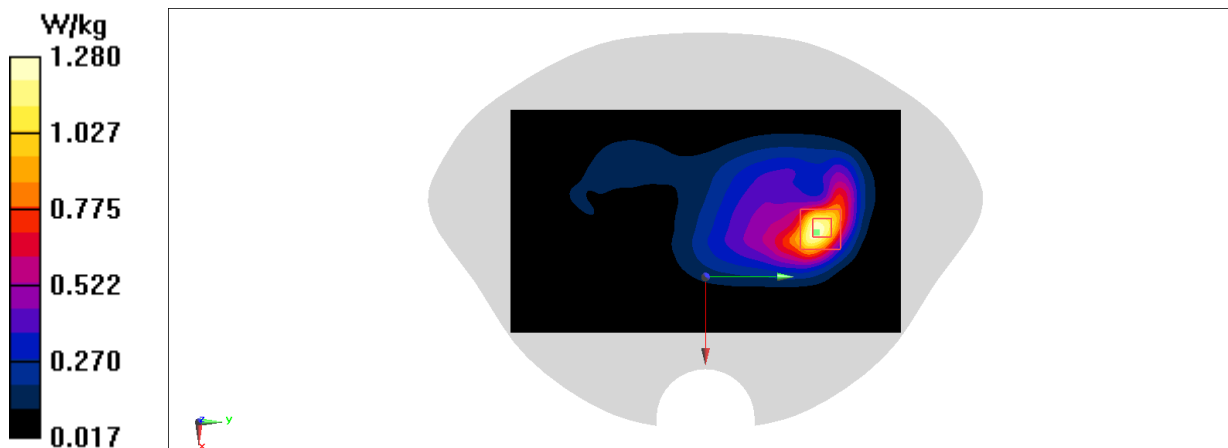


Fig A.7

WCDMA1700-BIV_CH1412 Right Cheek

Date: 1/15/2022

Electronics: DAE4 Sn1331

Medium: head 1800 MHz

Medium parameters used: $f = 1732.4$ MHz; $\sigma = 1.362$ S/m; $\epsilon_r = 43.107$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: WCDMA1700-BIV 1732.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(8.14,8.14,8.14)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.357 W/kg

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.200 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.397 W/kg

SAR(1 g) = 0.274 W/kg; SAR(10 g) = 0.180 W/kg

Maximum value of SAR (measured) = 0.351 W/kg

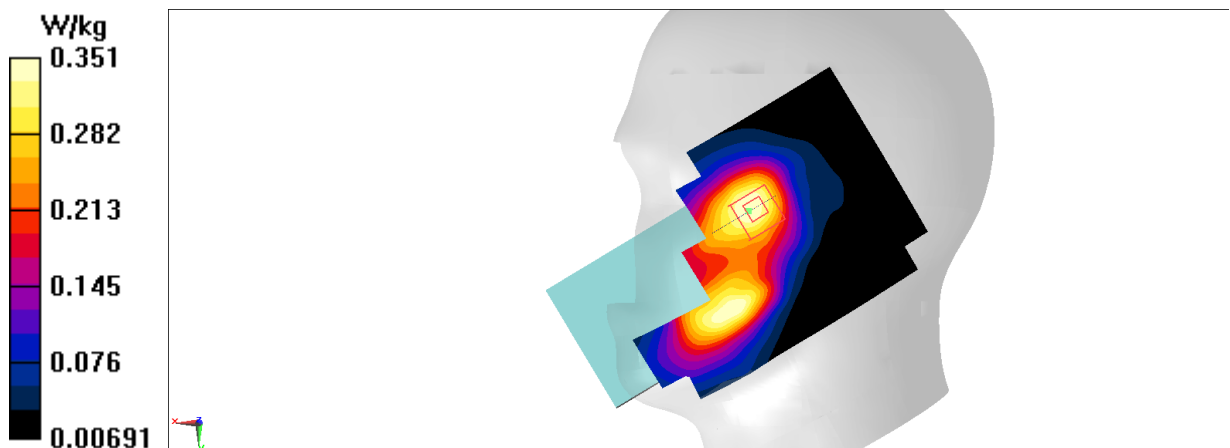


Fig A.8

WCDMA1700-BIV_CH1412 Rear 15mm_Body worn

Date: 1/15/2022

Electronics: DAE4 Sn1331

Medium: head 1800 MHz

Medium parameters used: $f = 1732.4$ MHz; $\sigma = 1.409$ S/m; $\epsilon_r = 43.101$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: WCDMA1700-BIV 1732.4 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(8.14,8.14,8.14)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.390 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = 0.611 W/kg; SAR(10 g) = 0.371 W/kg

Maximum value of SAR (measured) = 0.856 W/kg

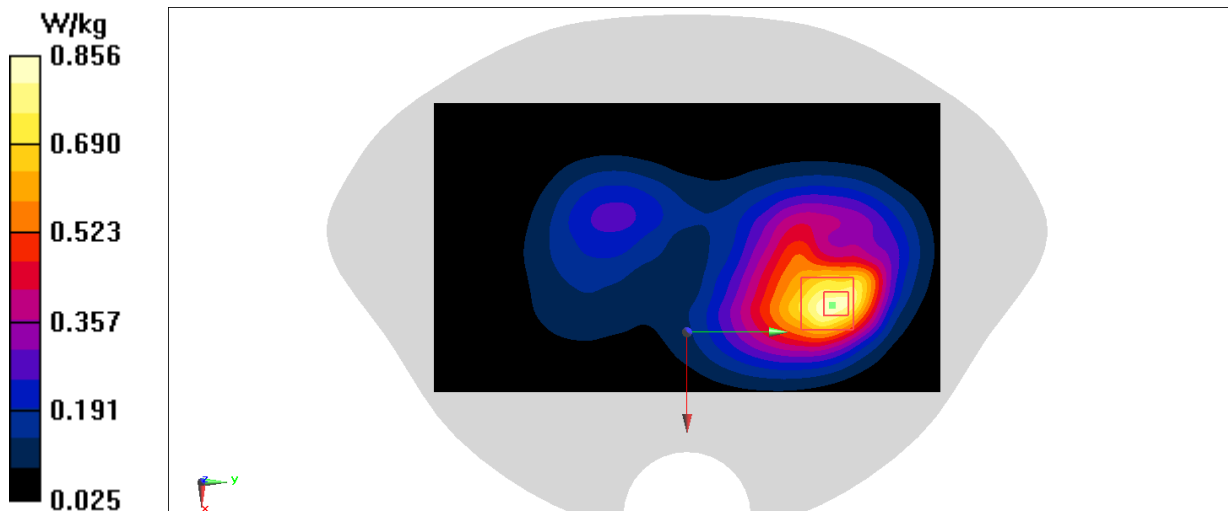


Fig A.9

WCDMA1700-BIV_CH1513 Rear 10mm_Hotspot

Date: 1/15/2022

Electronics: DAE4 Sn1331

Medium: head 1800 MHz

Medium parameters used: $f = 1752.6$ MHz; $\sigma = 1.319$ S/m; $\epsilon_r = 41.957$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: WCDMA1700-BIV 1752.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(8.14,8.14,8.14)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.56 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.42 W/kg

SAR(1 g) = 0.796 W/kg; SAR(10 g) = 0.451 W/kg

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

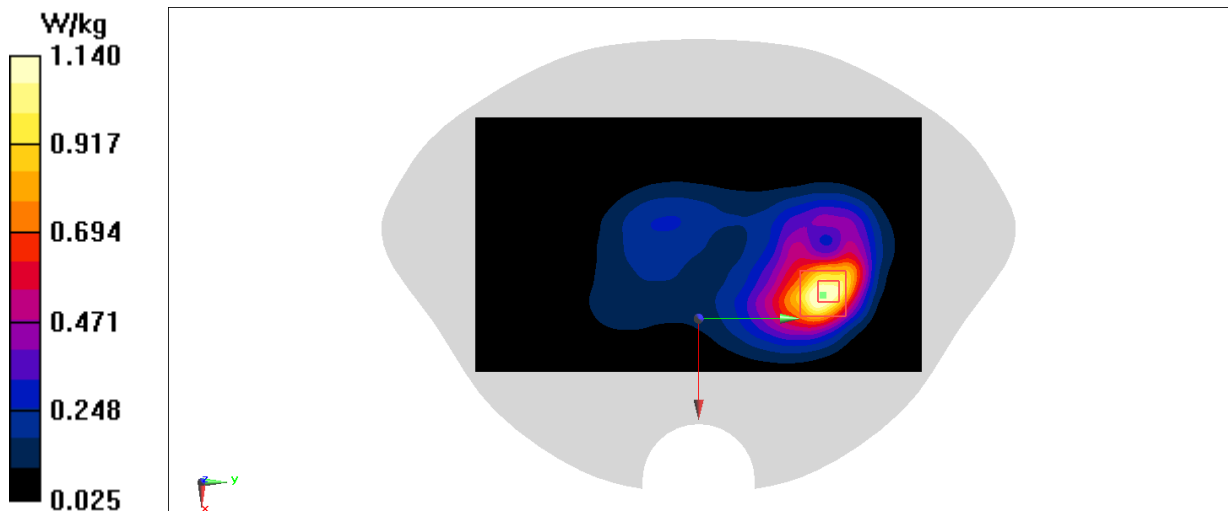


Fig A.10

WCDMA850-BV_CH4183 Left Cheek

Date: 1/14/2022

Electronics: DAE4 Sn1331

Medium: head 835 MHz

Medium parameters used: $f = 836.6$ MHz; $\sigma = 0.871$ S/m; $\epsilon_r = 44.835$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: WCDMA850-BV 836.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(10.36,10.36,10.36)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.504 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.678 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.553 W/kg

SAR(1 g) = 0.413 W/kg; SAR(10 g) = 0.314 W/kg

Maximum value of SAR (measured) = 0.499 W/kg

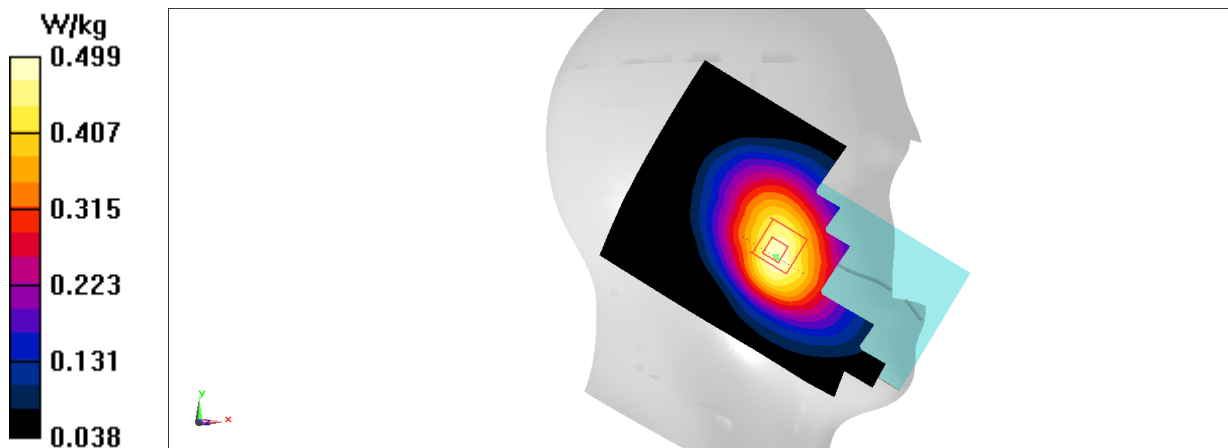


Fig A.11

WCDMA850-BV_CH4233 Rear 10mm

Date: 1/14/2022

Electronics: DAE4 Sn1331

Medium: head 835 MHz

Medium parameters used: $f = 846.6$ MHz; $\sigma = 0.876$ S/m; $\epsilon_r = 44.822$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: WCDMA850-BV 846.6 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(10.36,10.36,10.36)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.709 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.12 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.912 W/kg

SAR(1 g) = 0.480 W/kg; SAR(10 g) = 0.267 W/kg

Maximum value of SAR (measured) = 0.734 W/kg

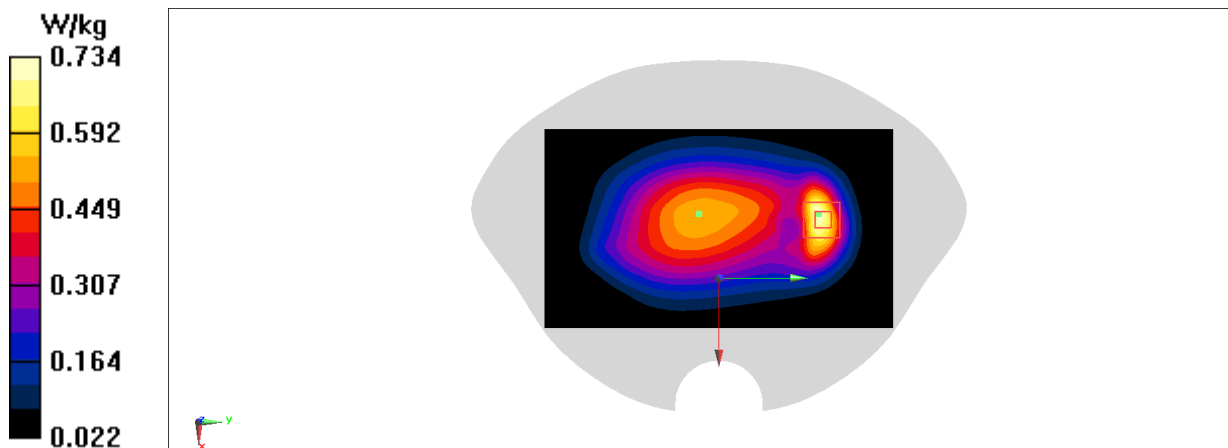


Fig A.12

LTE1900-FDD2_CH18900 Left Cheek

Date: 1/16/2022

Electronics: DAE4 Sn1331

Medium: head 1900 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.461$ S/m; $\epsilon_r = 42.465$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: LTE1900-FDD2 1880 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(7.88,7.88,7.88)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.328 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 4.436 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.356 W/kg

SAR(1 g) = 0.224 W/kg; SAR(10 g) = 0.139 W/kg

Maximum value of SAR (measured) = 0.306 W/kg

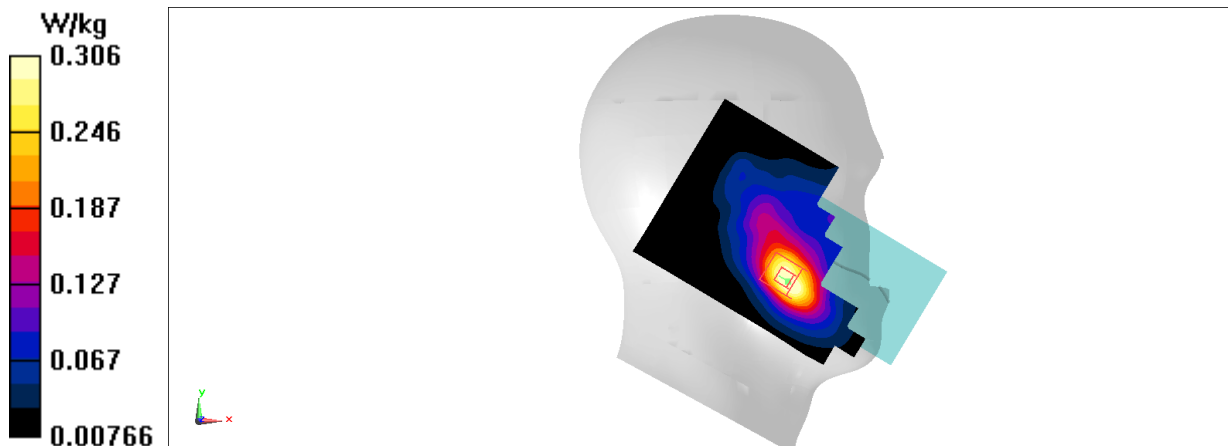


Fig A.13

LTE1900-FDD2_CH18900 Rear 15mm_Body worn

Date: 1/16/2022

Electronics: DAE4 Sn1331

Medium: head 1900 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.461$ S/m; $\epsilon_r = 42.465$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: LTE1900-FDD2 1880 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(7.88,7.88,7.88)

Area Scan (81x141x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.884 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 9.698 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.07 W/kg

SAR(1 g) = 0.613 W/kg; SAR(10 g) = 0.342 W/kg

Maximum value of SAR (measured) = 0.889 W/kg

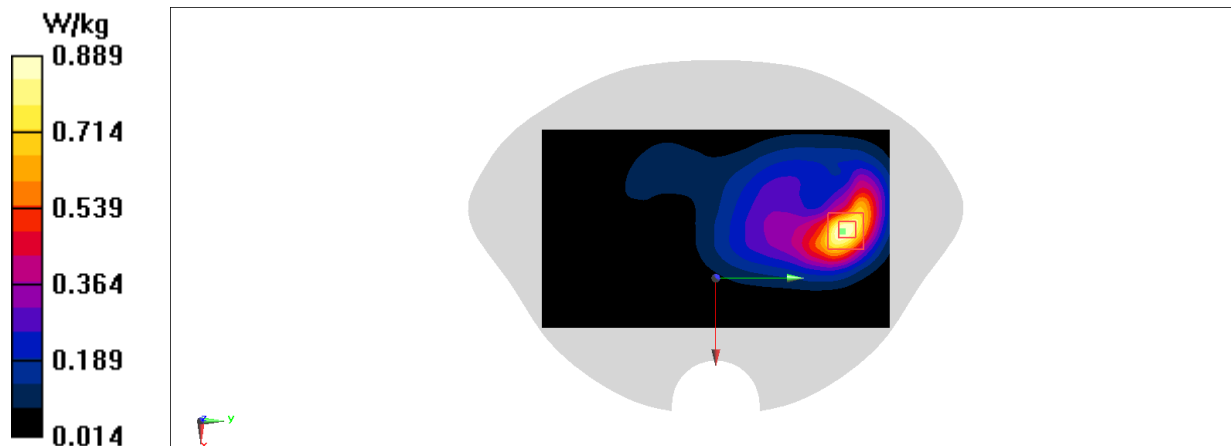


Fig A.14

LTE1900-FDD2_CH18900 Bottom 10mm_Hotspot

Date: 1/16/2022

Electronics: DAE4 Sn1331

Medium: head 1900 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.461$ S/m; $\epsilon_r = 42.465$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: LTE1900-FDD2 1880 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7538 ConvF(7.88,7.88,7.88)

Area Scan (71x141x1): Interpolated grid: $dx=1.500$ mm, $dy=1.500$ mm

Maximum value of SAR (interpolated) = 0.983 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 11.26 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.636 W/kg; SAR(10 g) = 0.342 W/kg

Maximum value of SAR (measured) = 0.960 W/kg

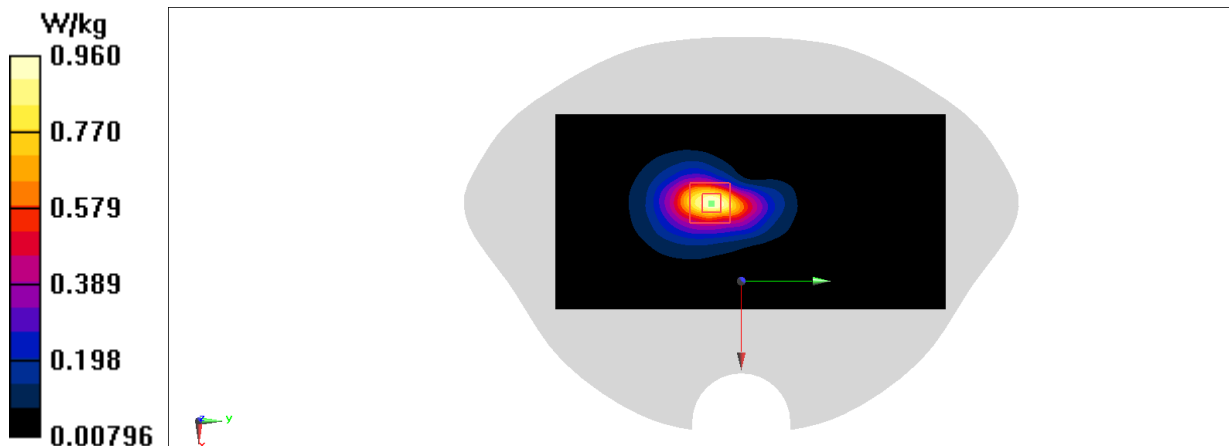


Fig A.15

LTE2500-FDD7_CH20850 Left Cheek

Date: 1/18/2022

Electronics: DAE4 Sn1331

Medium: head 2600 MHz

Medium parameters used: $f = 2510$ MHz; $\sigma = 1.946$ S/m; $\epsilon_r = 40.897$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: LTE2500-FDD7 2510 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(7.35, 7.35, 7.35)

Area Scan (101x171x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.119 W/kg

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

Reference Value = 2.313 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.159 W/kg

SAR(1 g) = 0.077 W/kg; SAR(10 g) = 0.035 W/kg

Maximum value of SAR (measured) = 0.126 W/kg

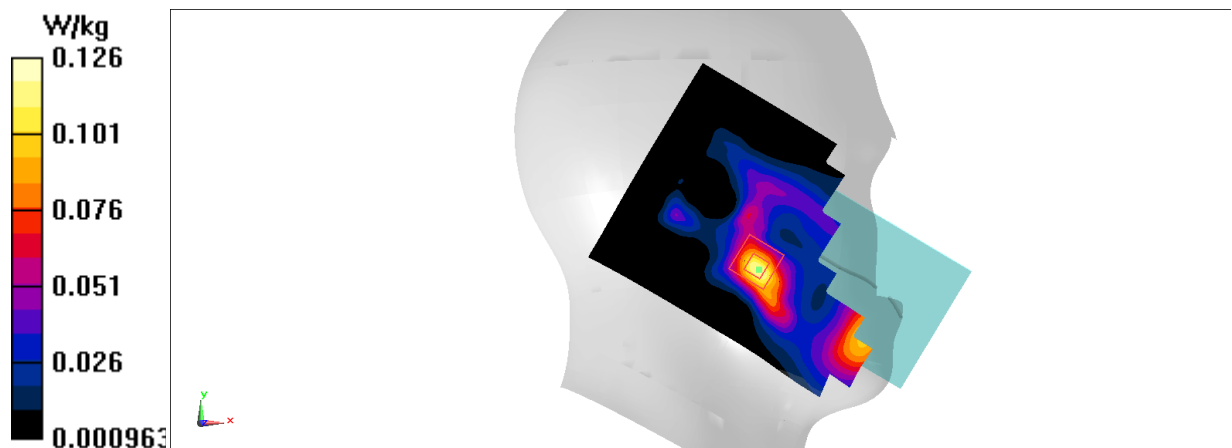


Fig A.16

LTE2500-FDD7_CH20850 Rear 15mm_Body worn

Date: 1/18/2022

Electronics: DAE4 Sn1331

Medium: head 2600 MHz

Medium parameters used: $f = 2510$ MHz; $\sigma = 1.904$ S/m; $\epsilon_r = 40.543$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: LTE2500-FDD7 2510 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(7.35, 7.35, 7.35)

Area Scan (101x171x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.814 W/kg

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

Reference Value = 1.984 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.989 W/kg

SAR(1 g) = 0.515 W/kg; SAR(10 g) = 0.262 W/kg

Maximum value of SAR (measured) = 0.811 W/kg

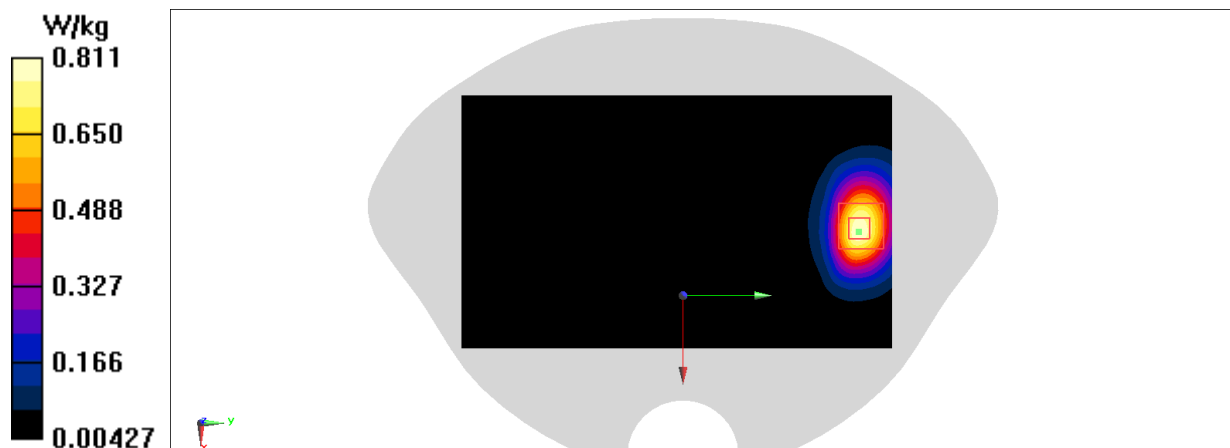


Fig A.17

LTE2500-FDD7_CH20850 Bottom 10mm_Hotspot

Date: 1/18/2022

Electronics: DAE4 Sn1331

Medium: head 2600 MHz

Medium parameters used: $f = 2510$ MHz; $\sigma = 1.904$ S/m; $\epsilon_r = 40.543$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: LTE2500-FDD7 2510 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(7.35, 7.35, 7.35)

Area Scan (101x171x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.67 W/kg

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

Reference Value = 10.44 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.99 W/kg

SAR(1 g) = 0.932 W/kg; SAR(10 g) = 0.429 W/kg

Maximum value of SAR (measured) = 1.58 W/kg

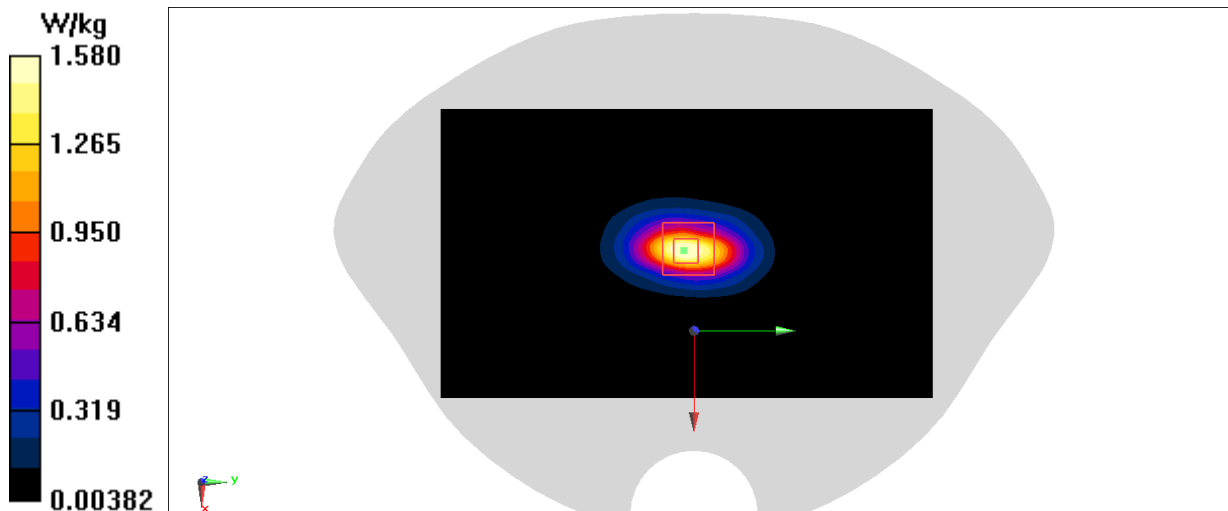


Fig A.18

LTE700-FDD12_CH23060 Left Cheek

Date: 1/13/2022

Electronics: DAE4 Sn1331

Medium: head 750 MHz

Medium parameters used: $f = 704$ MHz; $\sigma = 0.815$ S/m; $\epsilon_r = 45.2$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: LTE700-FDD12 704 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(10.36,10.36,10.36)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

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

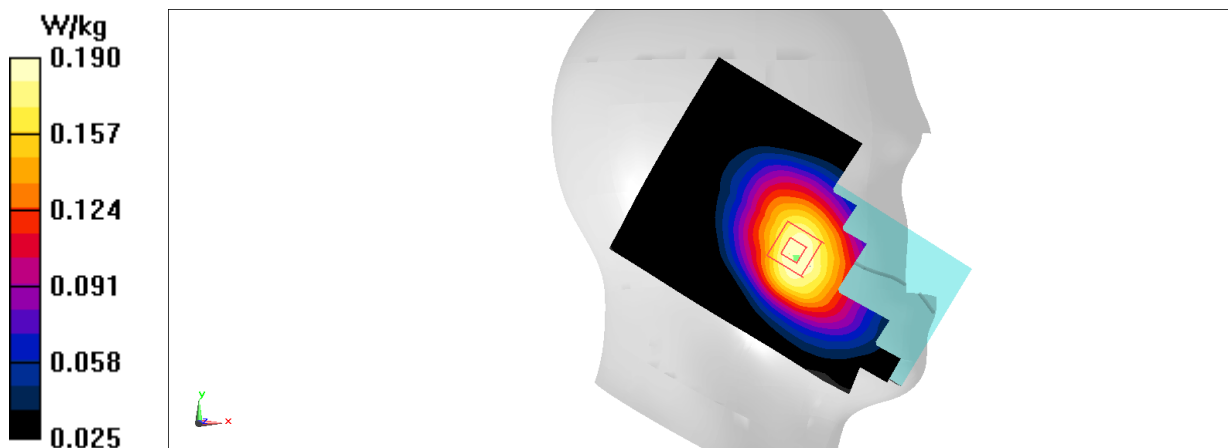
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 5.243 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.211 W/kg

SAR(1 g) = 0.161 W/kg; SAR(10 g) = 0.125 W/kg

Maximum value of SAR (measured) = 0.190 W/kg

**Fig A.19**

LTE700-FDD12_CH23060 Rear 10mm

Date: 1/13/2022

Electronics: DAE4 Sn1331

Medium: head 750 MHz

Medium parameters used: $f = 704 \text{ MHz}$; $\sigma = 0.815 \text{ S/m}$; $\epsilon_r = 45.2$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.5°C , Liquid Temperature: 22.3°C

Communication System: LTE700-FDD12 704 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(10.36,10.36,10.36)

Area Scan (71x141x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Maximum value of SAR (interpolated) = 0.272 W/kg

Zoom Scan (6x11x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.56 V/m ; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.388 W/kg

SAR(1 g) = 0.202 W/kg ; SAR(10 g) = 0.156 W/kg

Maximum value of SAR (measured) = 0.305 W/kg

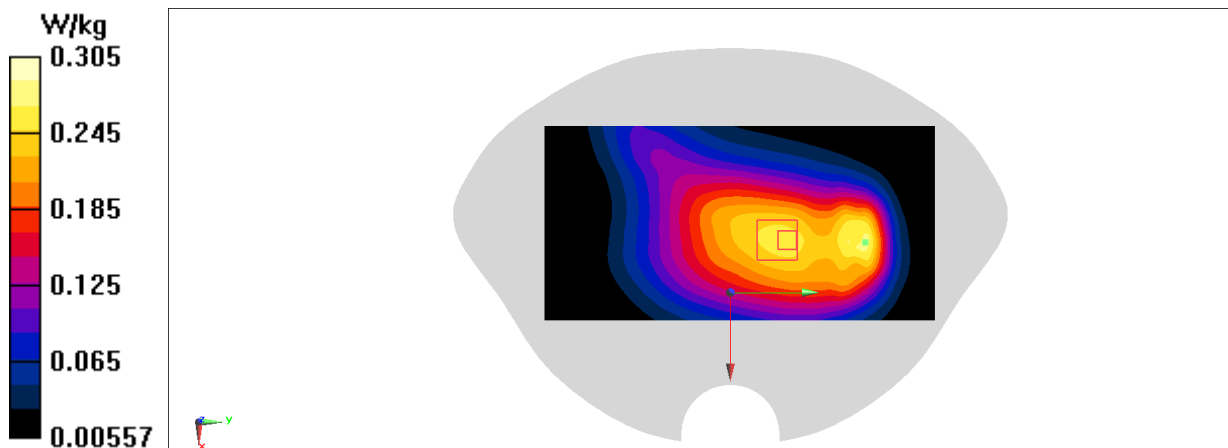


Fig A.20

LTE750-FDD13_CH23230 Left Cheek

Date:1/13/2022

Electronics: DAE4 Sn1331

Medium: head 750 MHz

Medium parameters used: $f = 782$ MHz; $\sigma = 0.835$ S/m; $\epsilon_r = 44.957$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: LTE750-FDD13 782 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(10.36,10.36,10.36)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.345 W/kg

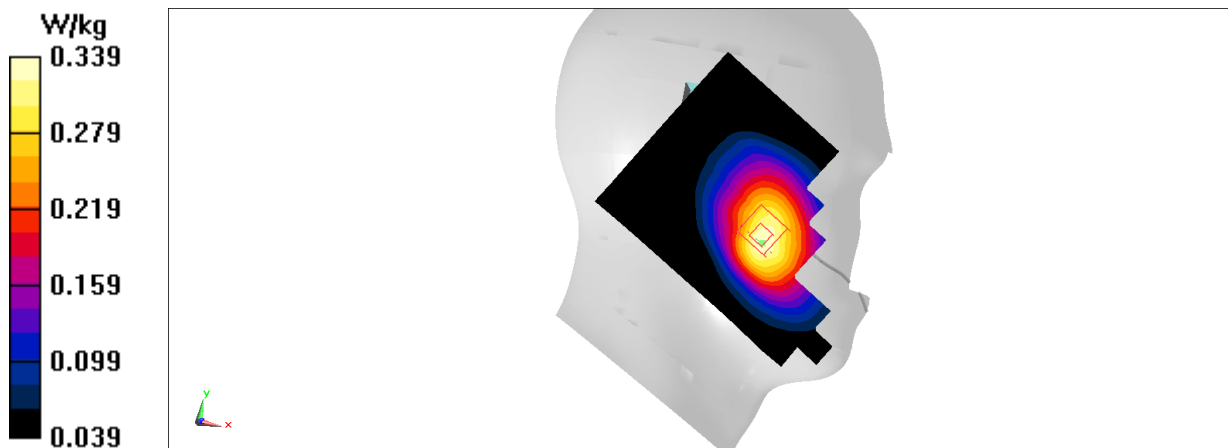
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.918 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.374 W/kg

SAR(1 g) = 0.279 W/kg; SAR(10 g) = 0.214 W/kg

Maximum value of SAR (measured) = 0.339 W/kg

**Fig A.21**

LTE750-FDD13_CH23230 Rear 10mm

Date:1/13/2022

Electronics: DAE4 Sn1331

Medium: head 750 MHz

Medium parameters used: $f = 782$ MHz; $\sigma = 0.835$ S/m; $\epsilon_r = 44.957$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: LTE750-FDD13 782 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(10.36,10.36,10.36)

Area Scan (71x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.525 W/kg

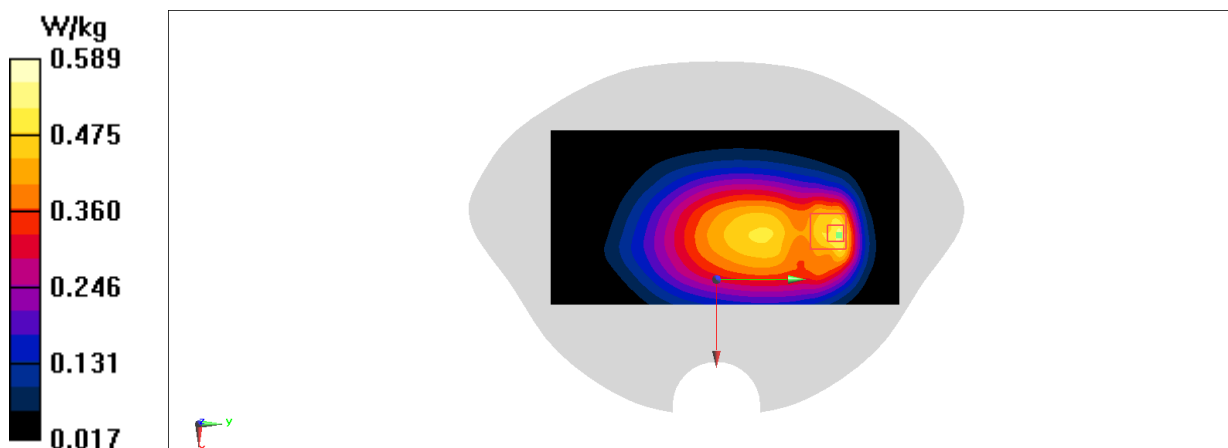
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.32 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.757 W/kg

SAR(1 g) = 0.399 W/kg; SAR(10 g) = 0.237 W/kg

Maximum value of SAR (measured) = 0.589 W/kg

**Fig A.22**

LTE1700-FDD66_CH132572 Left Cheek

Date: 1/15/2021

Electronics: DAE4 Sn1331

Medium: head 1800 MHz

Medium parameters used: $f = 1770$ MHz; $\sigma = 1.354$ S/m; $\epsilon_r = 43.164$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: LTE1700-FDD66 1770 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(8.14,8.14,8.14)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.553 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.539 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.624 W/kg

SAR(1 g) = 0.403 W/kg; SAR(10 g) = 0.250 W/kg

Maximum value of SAR (measured) = 0.547 W/kg

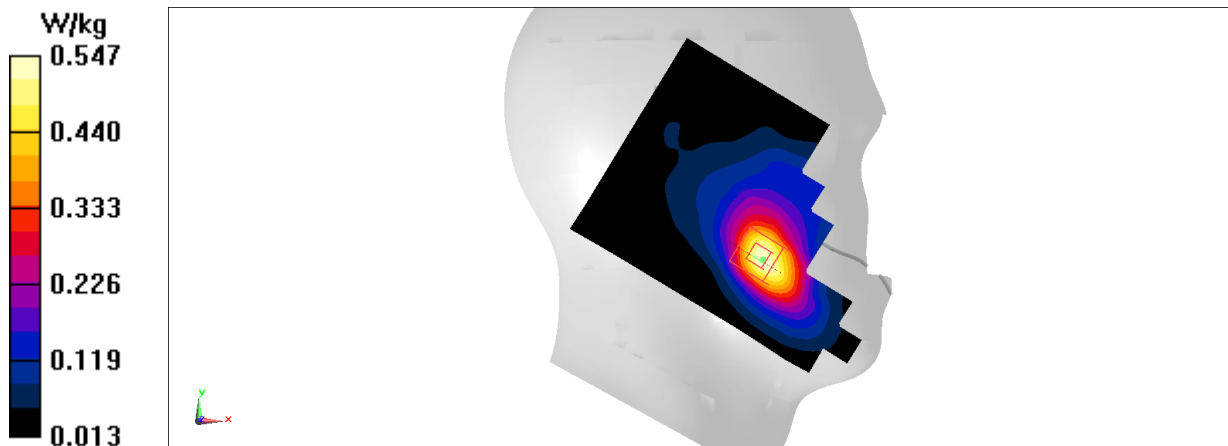


Fig A.28

LTE1700-FDD66_CH132572 Rear 15mm

Date: 1/15/2021

Electronics: DAE4 Sn1331

Medium: head 1800 MHz

Medium parameters used: $f = 1770$ MHz; $\sigma = 1.354$ S/m; $\epsilon_r = 43.164$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: LTE1700-FDD66 1770 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(8.14,8.14,8.14)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 0.556 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.880 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.660 W/kg

SAR(1 g) = 0.382 W/kg; SAR(10 g) = 0.223 W/kg

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

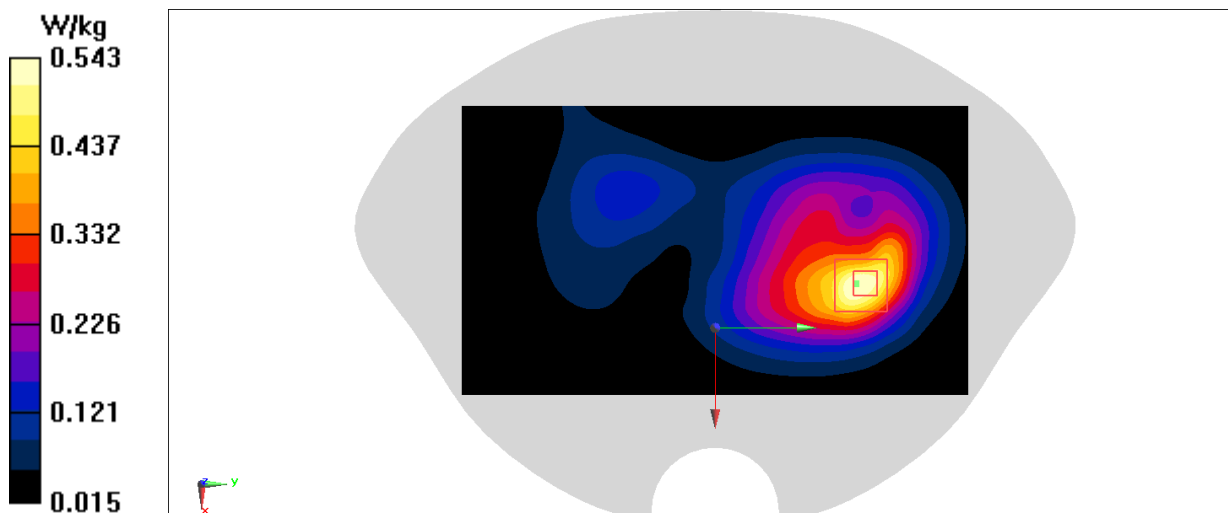


Fig A.29

LTE1700-FDD66_CH132572 Rear 10mm

Date: 1/15/2021

Electronics: DAE4 Sn1331

Medium: head 1800 MHz

Medium parameters used: $f = 1770$ MHz; $\sigma = 1.354$ S/m; $\epsilon_r = 43.164$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: LTE1700-FDD66 1770 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(8.14,8.14,8.14)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Maximum value of SAR (interpolated) = 1.26 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 10.50 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.54 W/kg

SAR(1 g) = 0.840 W/kg; SAR(10 g) = 0.460 W/kg

Maximum value of SAR (measured) = 1.20 W/kg

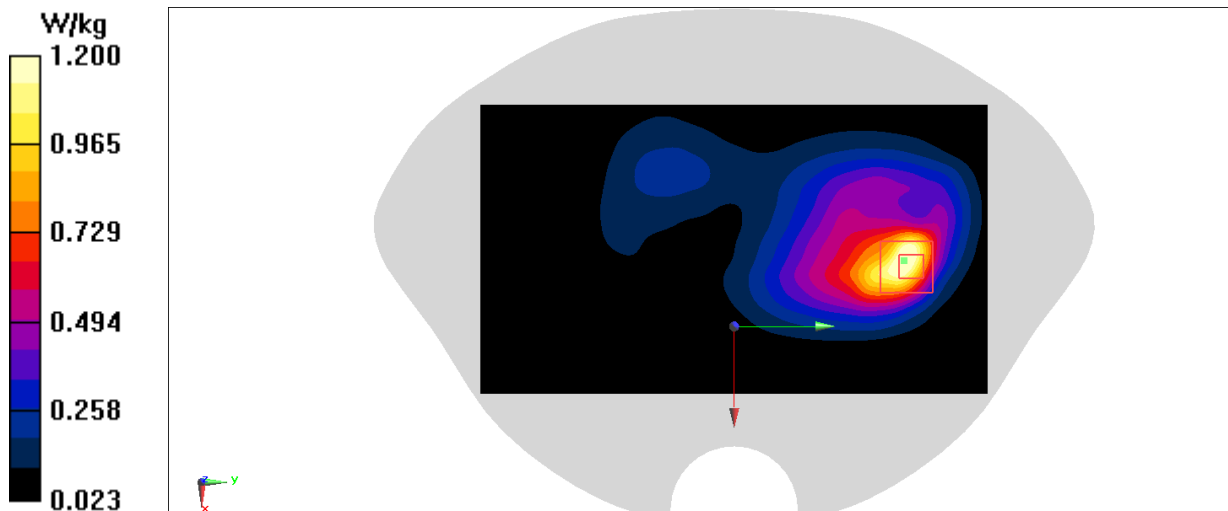


Fig A.30

WLAN2450_CH11 Right Tilt

Date: 1/17/2022

Electronics: DAE4 Sn1331

Medium: head 2450 MHz

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.946$ S/m; $\epsilon_r = 40.961$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: WLAN2450 2462 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(7.35,7.35,7.35)

Area Scan (101x171x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 1.18 W/kg

Zoom Scan (9x8x5)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.87 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.74 W/kg

SAR(1 g) = 0.723 W/kg; SAR(10 g) = 0.294 W/kg

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

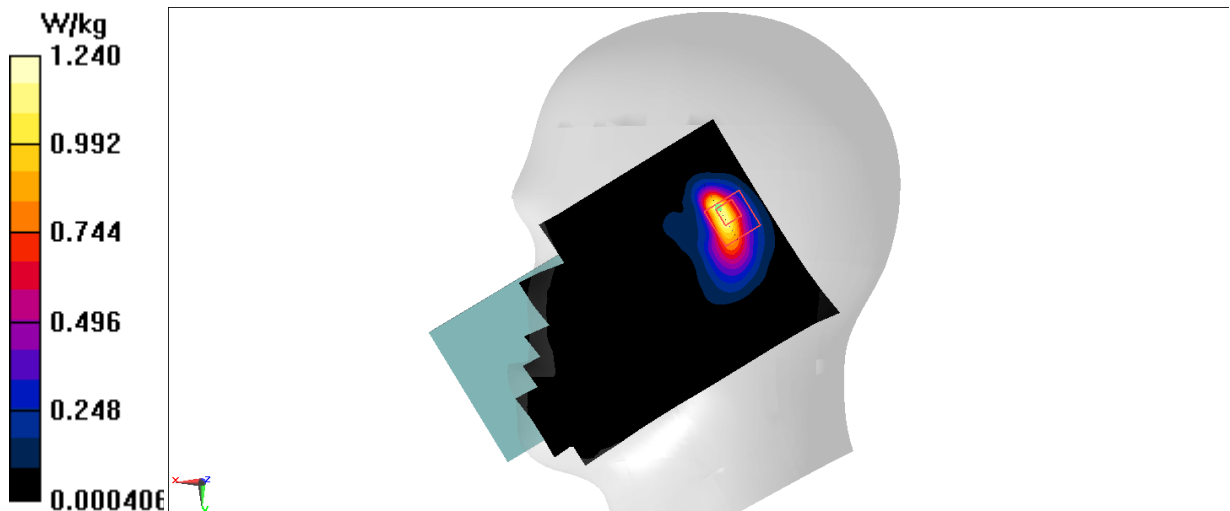


Fig A.31

WLAN2450_CH6 Rear 15mm

Date: 1/17/2022

Electronics: DAE4 Sn1331

Medium: head 2450 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.921$ S/m; $\epsilon_r = 41.031$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C

Communication System: WLAN2450 2462 MHz Duty Cycle: 1:1

Probe: EX3DV4 – SN7548 ConvF(7.35,7.35,7.35)

Area Scan (101x171x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm

Maximum value of SAR (interpolated) = 0.883 W/kg

Zoom Scan (7x7x5)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.643 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.526 W/kg; SAR(10 g) = 0.258 W/kg

Maximum value of SAR (measured) = 0.845 W/kg

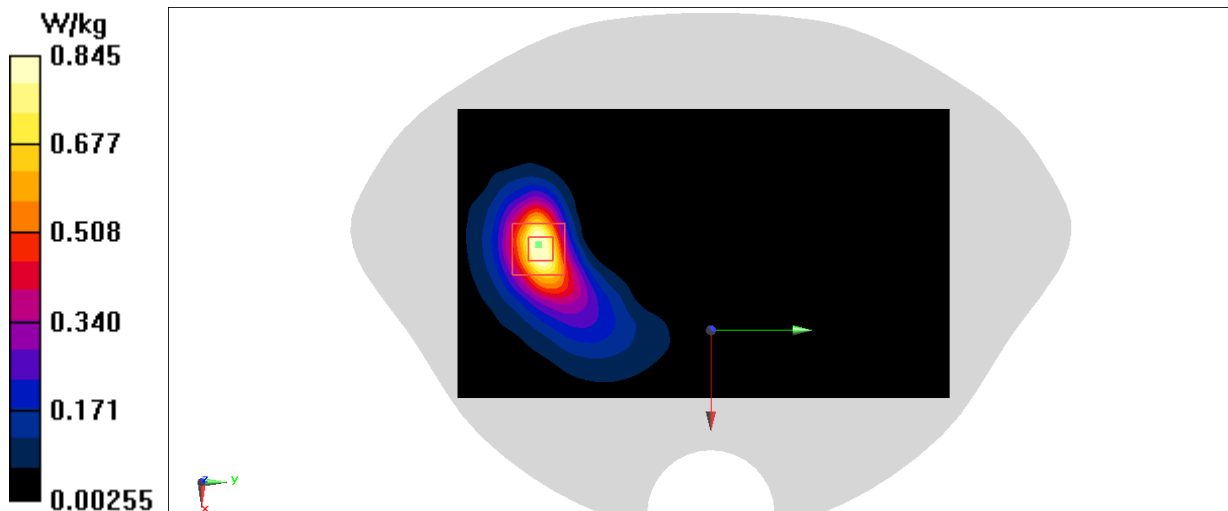
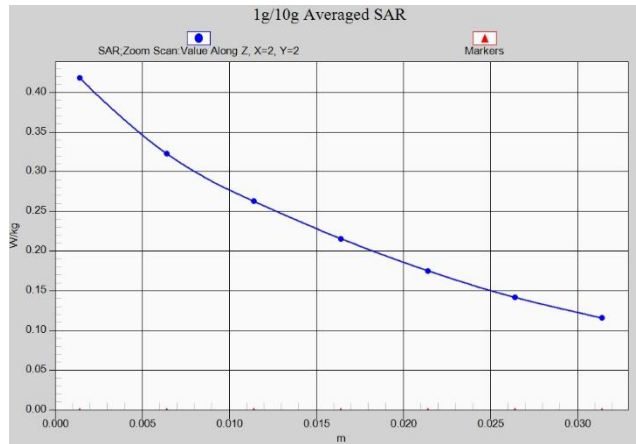
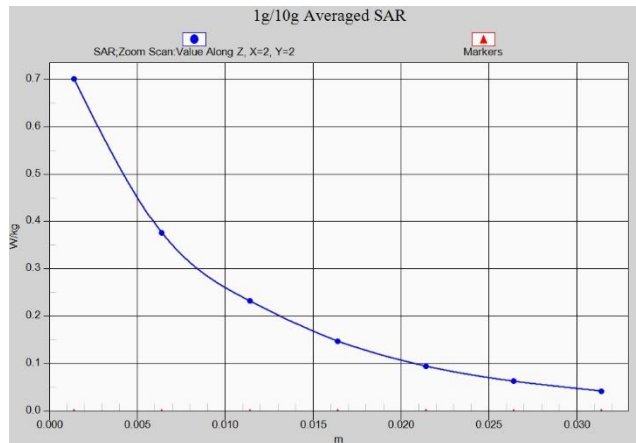


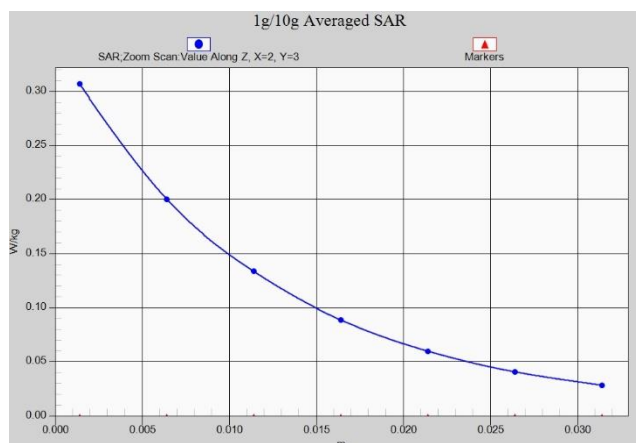
Fig A.32



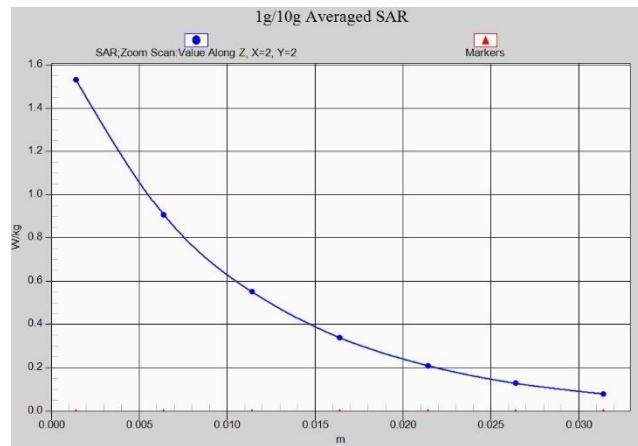
Z-Scan at power reference point (850 MHz)



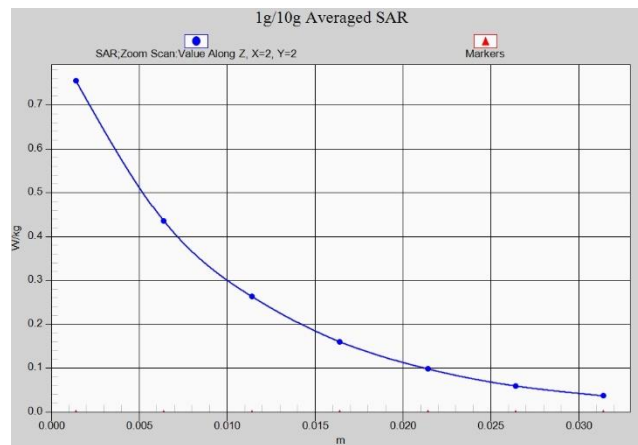
Z-Scan at power reference point (850 MHz)



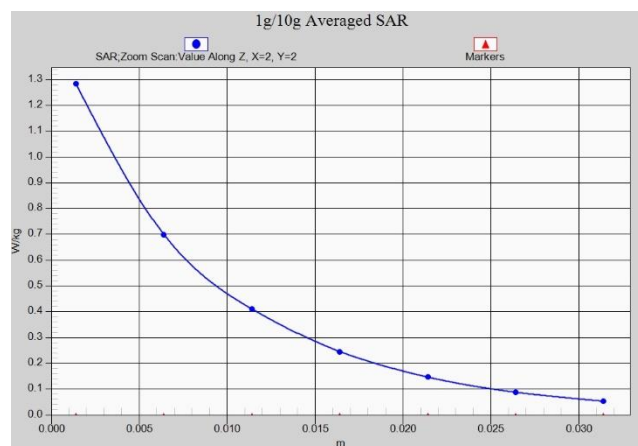
Z-Scan at power reference point (1900 MHz)



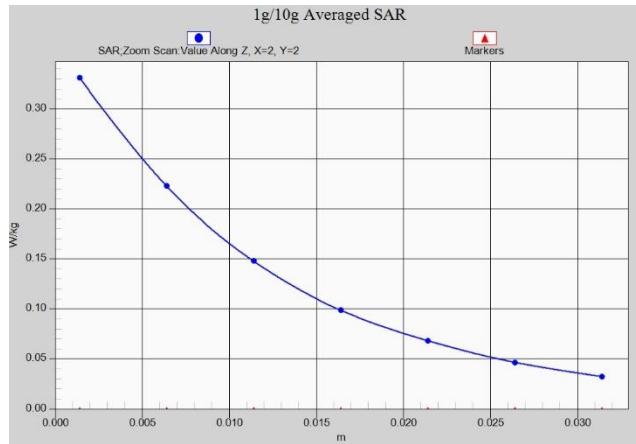
Z-Scan at power reference point (GSM1900)



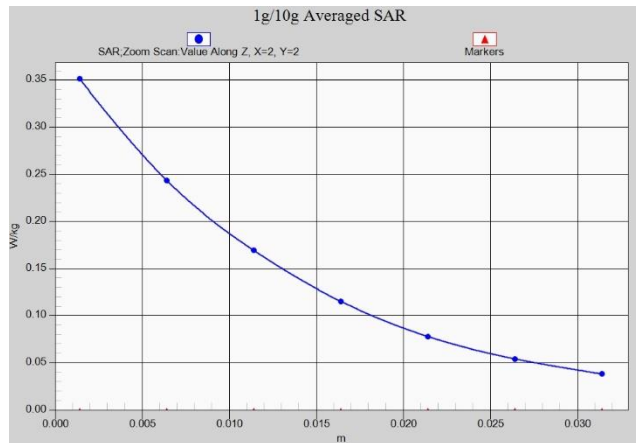
Z-Scan at power reference point (WCDMA1900)



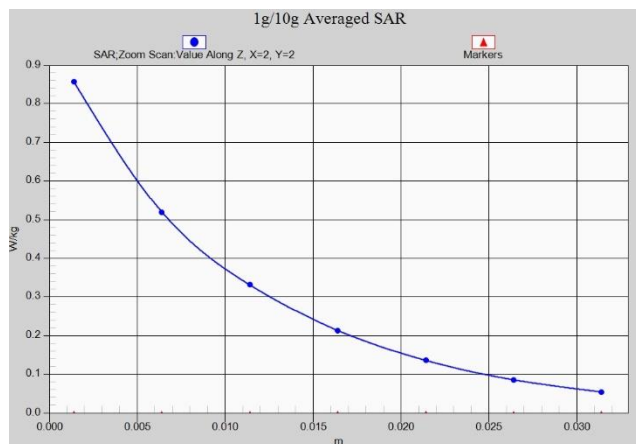
Z-Scan at power reference point (WCDMA1900)



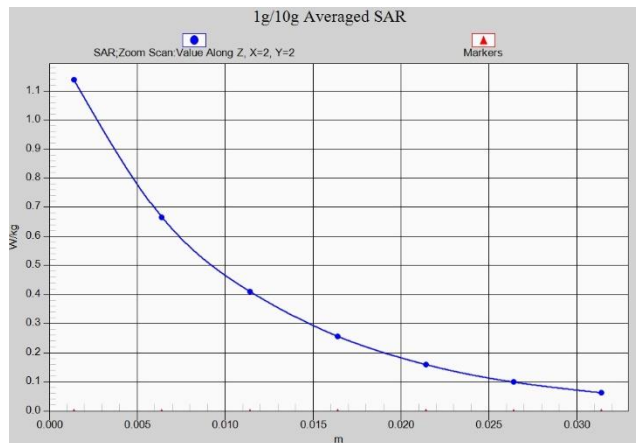
Z-Scan at power reference point (WCDMA1900)



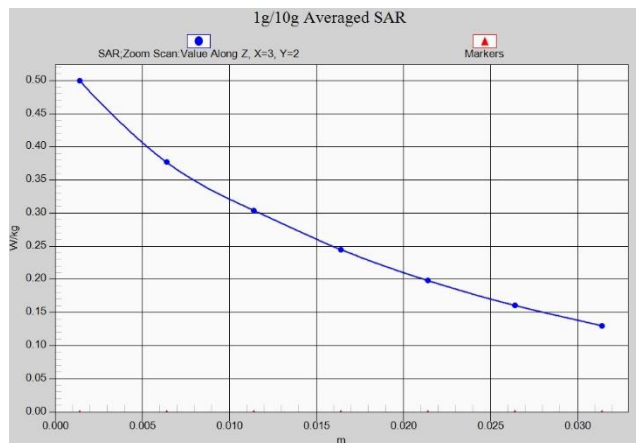
Z-Scan at power reference point (WCDMA1700)



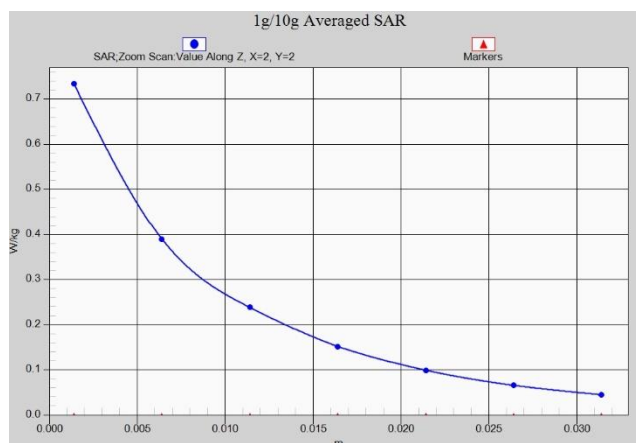
Z-Scan at power reference point (WCDMA1700)



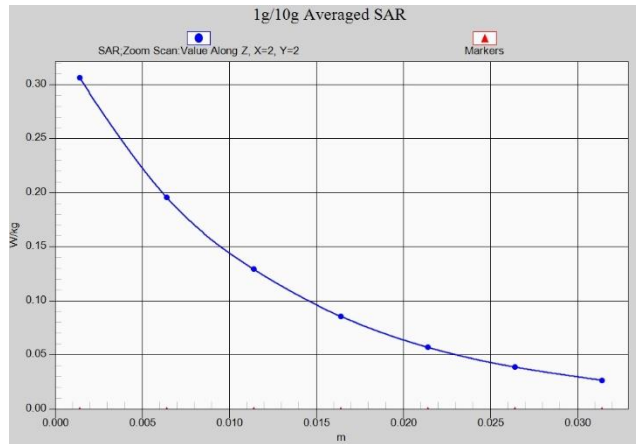
Z-Scan at power reference point (WCDMA1700)



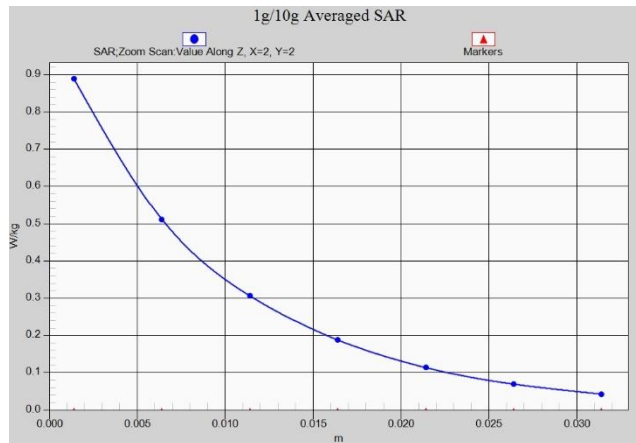
Z-Scan at power reference point (WCDMA850)



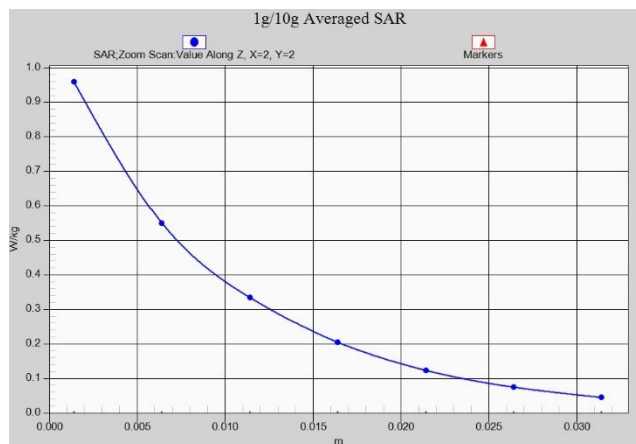
Z-Scan at power reference point (WCDMA850)



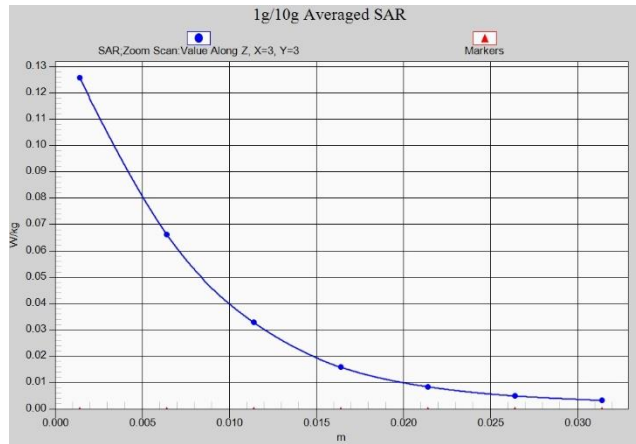
Z-Scan at power reference point (LTEB2)



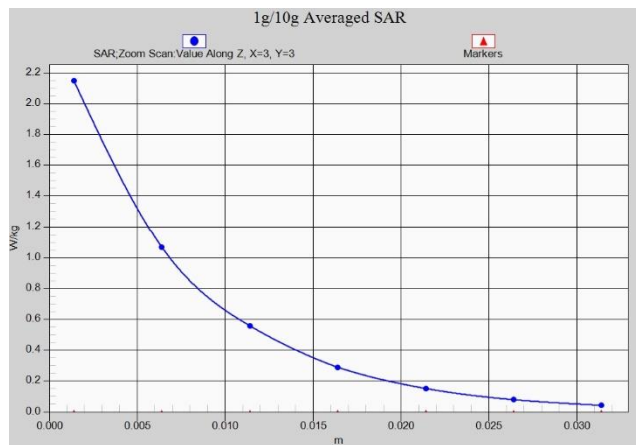
Z-Scan at power reference point (LTEB2)



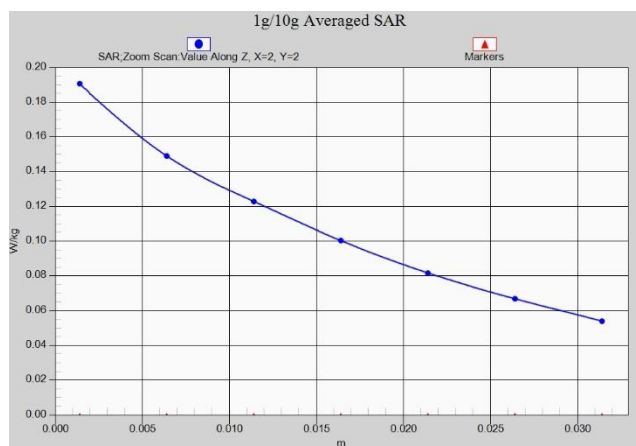
Z-Scan at power reference point (LTEB2)



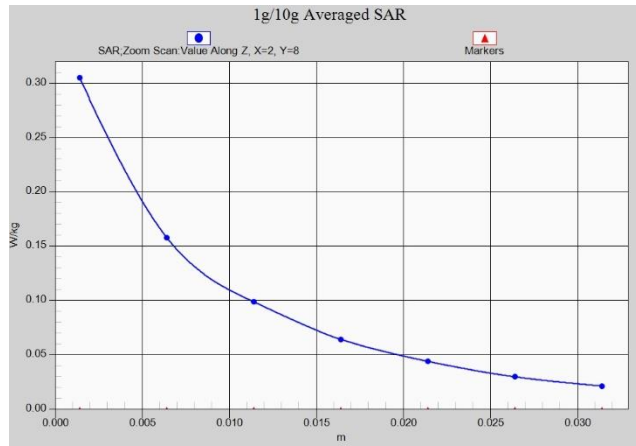
Z-Scan at power reference point (LTEB7)



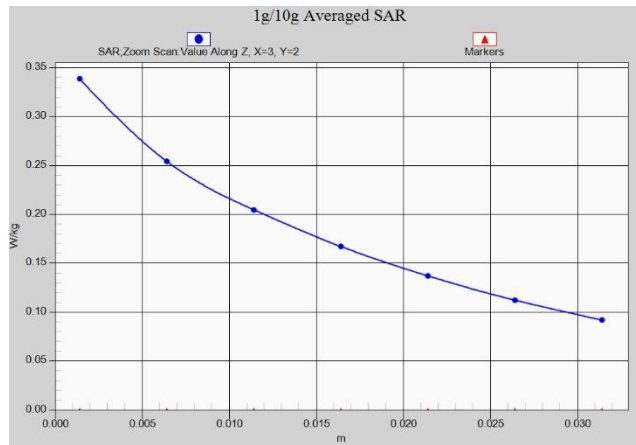
Z-Scan at power reference point (LTEB7)



Z-Scan at power reference point (LTEB12)



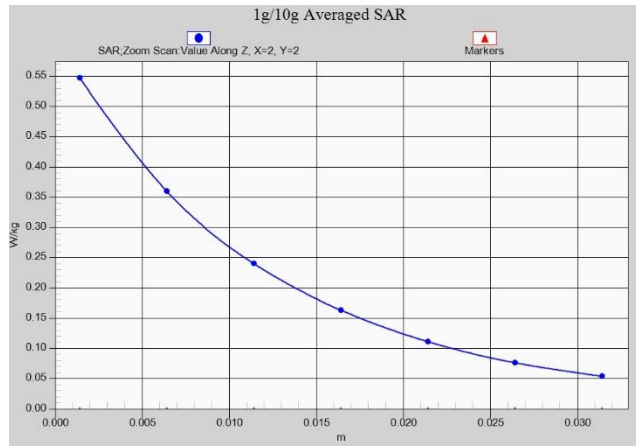
Z-Scan at power reference point (LTEB12)



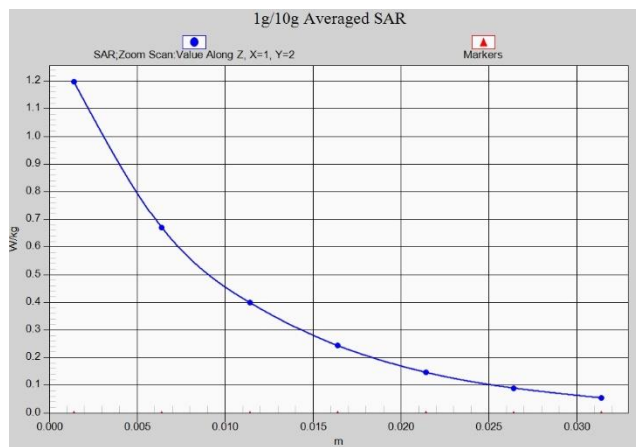
Z-Scan at power reference point (LTEB13)



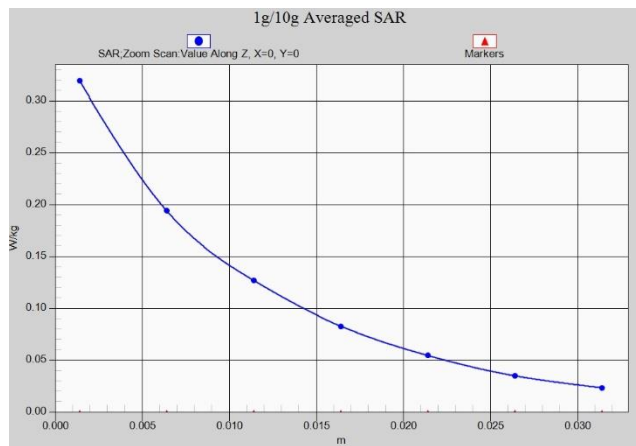
Z-Scan at power reference point (LTEB13)



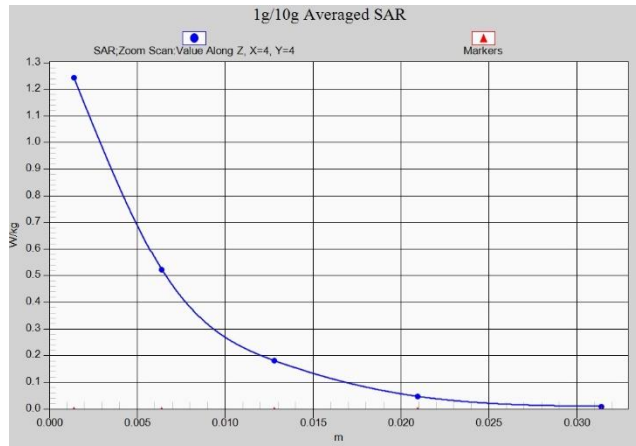
Z-Scan at power reference point (LTEB66)



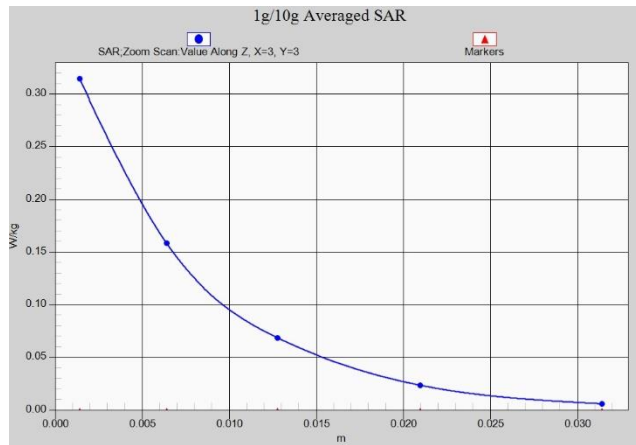
Z-Scan at power reference point (LTEB66)



Z-Scan at power reference point (LTEB66)



Z-Scan at power reference point (WIFI2.4G)



Z-Scan at power reference point (WIFI2.4G)

ANNEX B System Verification Results

750MHz

Date: 2022-1-13

Electronics: DAE4 Sn1331

Medium: Head 750MHz

Medium parameters used: $f = 750\text{MHz}$; $\sigma = 0.8348 \text{ mho/m}$; $\epsilon_r = 45.06$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.2°C Liquid Temperature: 22°C

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

Probe: EX3DV4 – SN7548 ConvF(10.36,10.36,10.36)

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

Reference Value = 60.48 V/m ; Power Drift = 0.13

Fast SAR: SAR(1 g) = 2.14 W/kg ; SAR(10 g) = 1.38 W/kg

Maximum value of SAR (interpolated) = 2.8 W/kg

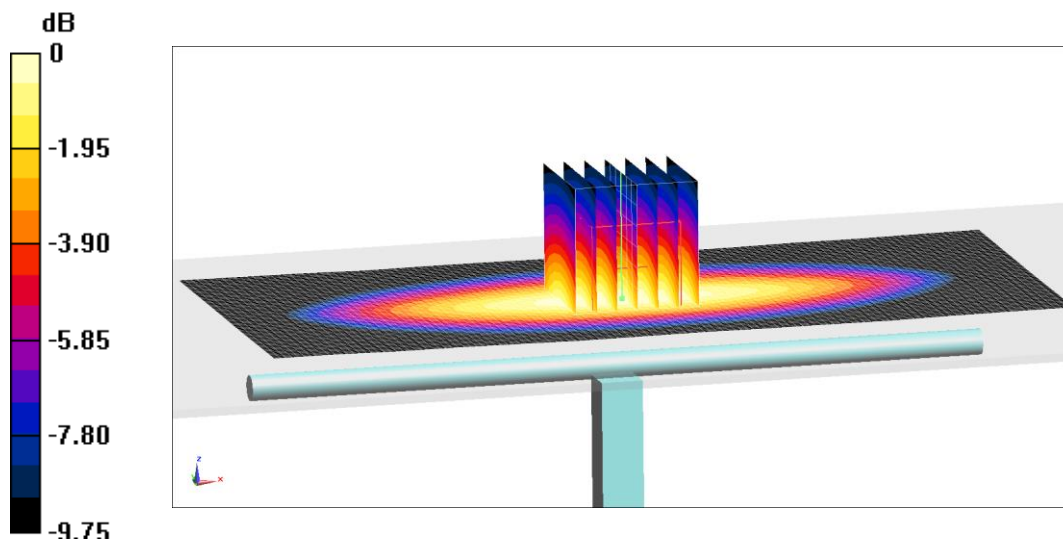
System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 60.48 V/m ; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 3.37 W/kg

SAR(1 g) = 2.11 W/kg ; SAR(10 g) = 1.42 W/kg

Maximum value of SAR (measured) = 3.12 W/kg



$0 \text{ dB} = 3.12 \text{ W/kg} = 4.94 \text{ dB W/kg}$

Fig.B.1 validation 750MHz 250mW