



Table 11-9 WLAN2450 #2

WLAN2450 #2						
Band	Mode	Channel	Frequency	Data Rate	Tune-up	Measured
WLAN 2.4G 20M	802.11b	11	2462 MHz	5.5Mbps	18.00	17.60
		6	2437 MHz		18.00	17.83
		1	2412 MHz		18.00	17.06
		11	2462 MHz	2Mbps	/	/
		6	2437 MHz		18.00	17.51
		1	2412 MHz		/	/
		11	2462 MHz	1Mbps	18.00	17.53
		6	2437 MHz		18.00	17.56
		1	2412 MHz		18.00	17.03
		11	2462 MHz	11Mbps	/	/
		6	2437 MHz		18.00	17.72
		1	2412 MHz		/	/
	802.11g	6Mbps	11	2462 MHz	17.50	16.93
			6	2437 MHz	17.50	16.96
			1	2412 MHz	17.50	16.41
		9Mbps	11	2462 MHz	/	/
			6	2437 MHz	17.50	16.59
			1	2412 MHz	/	/
		12Mbps	11	2462 MHz	/	/
			6	2437 MHz	17.50	16.81
			1	2412 MHz	/	/
		18Mbps	11	2462 MHz	17.50	17.01
			6	2437 MHz	17.50	17.11
			1	2412 MHz	17.50	16.57
		24Mbps	11	2462 MHz	/	/
			6	2437 MHz	17.50	16.58
			1	2412 MHz	/	/
		36Mbps	11	2462 MHz	/	/
			6	2437 MHz	17.50	16.44
			1	2412 MHz	/	/
		48Mbps	11	2462 MHz	/	/
			6	2437 MHz	17.50	16.77
			1	2412 MHz	/	/
		54Mbps	11	2462 MHz	/	/
			6	2437 MHz	17.50	16.06
			1	2412 MHz	/	/
	802.11n 20M	MCS0	11	2462 MHz	17.50	16.91
			6	2437 MHz	17.50	16.87
			1	2412 MHz	17.50	16.53
		MCS1	11	2462 MHz	17.50	16.88
			6	2437 MHz	/	/
			1	2412 MHz	/	/
		MCS2	11	2462 MHz	17.50	16.78
			6	2437 MHz	/	/
			1	2412 MHz	/	/
MCS3		11	2462 MHz	17.50	16.09	
		6	2437 MHz	/	/	
		1	2412 MHz	/	/	
MCS4		11	2462 MHz	17.50	16.06	
		6	2437 MHz	/	/	
		1	2412 MHz	/	/	
MCS5		11	2462 MHz	17.50	15.99	
		6	2437 MHz	/	/	
		1	2412 MHz	/	/	
MCS6		11	2462 MHz	17.50	16.00	
		6	2437 MHz	/	/	
		1	2412 MHz	/	/	
MCS7	11	2462 MHz	17.50	15.51		
	6	2437 MHz	/	/		
	1	2412 MHz	/	/		

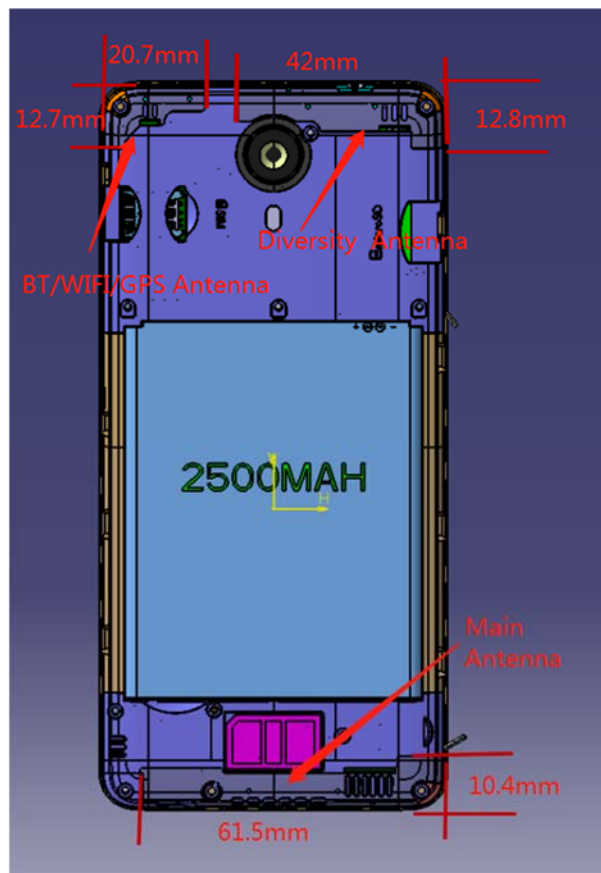
## 12 Simultaneous TX SAR Considerations

### 12.1 Introduction

The following procedures adopted from “FCC SAR Considerations for Cell Phones with Multiple Transmitters” are applicable to handsets with built-in unlicensed transmitters such as 802.11 a/b/g and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

For this device, the BT and Wi-Fi can transmit simultaneous with other transmitters.

### 12.2 Transmit Antenna Separation Distances



Picture 12.1 Antenna Locations

### 12.3 SAR Measurement Positions

According to the KDB941225 D06 Hot Spot SAR v01, the edges with less than 2.5 cm distance to the antennas need to be tested for SAR.

SAR measurement positions						
Mode	Front	Rear	Left edge	Right edge	Top edge	Bottom edge
Main antenna	Yes	Yes	Yes	Yes	No	Yes
WLAN	Yes	Yes	No	Yes	Yes	No

## 12.4 Standalone SAR Test Exclusion Considerations

Standalone 1-g head or body SAR evaluation by measurement or numerical simulation is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied. The 1-g SAR test exclusion threshold for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$  for 1-g SAR, where

- $f(\text{GHz})$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

**Table 12.1: Standalone SAR test exclusion considerations**

Band/Mode	F(GHz)	Position	SAR test exclusion threshold (mW)	RF output power		SAR test exclusion
				dBm	mW	
Bluetooth	2.441	Head	9.6	7.00	5.01	Yes
		Body	19.2	7.00	5.01	Yes
2.4GHz WLAN 802.11 b	2.45	Head	9.58	21.00	125.89	No
		Body	19.17	21.00	125.89	No

### 13 Evaluation of Simultaneous

**Table 13.1: The sum of reported SAR values for main antenna and WiFi**

	Position	Main antenna	WiFi	Sum
Highest reported SAR value for Head	Left hand, Touch cheek (CDMA BC1)	0.46	0.95	<b>1.41</b>
Highest reported SAR value for Body	Rear (LTE Band 25)	1.17	0.2	<b>1.37</b>

**Table 13.2: The sum of reported SAR values for main antenna and BT**

	Position	Main antenna	BT	Sum
Maximum reported SAR value for Head	Left hand, Touch cheek (CDMA BC1)	0.46	0.21	<b>0.67</b>
Maximum reported SAR value for Body 10mm	Rear (CDMA BC1)	1.08	0.10	<b>1.18</b>
Maximum reported SAR value for Body 15mm	Rear (LTE Band 25)	1.17	0.07	<b>1.24</b>

[1] - Estimated SAR for Bluetooth (see the table 13.3)

**Table 13.3: Estimated SAR for Bluetooth**

Mode/Band	F (GHz)	Position	Distance (mm)	Upper limit of power *		Estimated <sub>1g</sub> (W/kg)
				dBm	mW	
Bluetooth	2.441	Head	5	7	5.01	0.21
Bluetooth	2.441	Body	10	7	5.01	0.10
Bluetooth	2.441	Body	15	7	5.01	0.07

\* - Maximum possible output power declared by manufacturer

When standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm) · [√f(GHz)/x] W/kg for test separation distances ≤ 50 mm;

where x = 7.5 for 1-g SAR.

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

**Conclusion:**

According to the above tables, the sum of reported SAR values is < 1.6W/kg. So the simultaneous transmission SAR with volume scans is not required.

## 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  $P_{\text{Target}}$  is the power of manufacturing upper limit;

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

Mode	Duty Cycle
CDMA&LTE&WiFi	1:1

### 14.1 SAR results

Table 14-1 CDMA800-BC0 #1 Head

CDMA800-BC0 #1 Head									
Ambient Temperature:			22.5			Liquid Temperature:			22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH777 848.3 MHz	CH384 836.5 MHz	CH1013 824.7 MHz	CH777 848.3 MHz	CH384 836.5 MHz	CH1013 824.7 MHz	
SO55/RC3	Tune-up		25.50	25.50	25.50	Scaling factor*			
	Slot Average Power [dBm]		23.73	23.66	23.63	1.50	1.53	1.54	
	Left Cheek	1g SAR		0.083			0.13		
		10g SAR		0.673			1.03		
		Deviation		0.05			0.05		
	Left Tilt	1g SAR		0.068			0.10		
		10g SAR		0.538			0.82		
		Deviation		-0.01			-0.01		
	Right Cheek	1g SAR	0.086	0.084	0.082	0.13	0.13	0.13	
		10g SAR	0.67	0.649	0.629	1.01	0.99	0.97	
		Deviation	0.02	0.07	0.04	0.02	0.07	0.04	
	Right Tilt	1g SAR		0.044			0.07		
		10g SAR		0.36			0.55		
		Deviation		-0.02			-0.02		

**Table 14-2 CDMA800-BC0 #1 Body**

CDMA800-BC0 #1 Body									
Ambient Temperature:			22.5			Liquid Temperature:			22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH777 848.3 MHz	CH384 836.5 MHz	CH1013 824.7 MHz	CH777 848.3 MHz	CH384 836.5 MHz	CH1013 824.7 MHz	
SO32/RC3 (FCH only)	Tune-up		25.50	25.50	25.50	Scaling factor*			
	Slot Average Power [dBm]		23.74	23.69	23.67	1.50	1.52	1.52	
	Front	1g SAR		0.2916			0.44		
		10g SAR		0.2151			0.33		
		Deviation		0.03			0.03		
	Rear	1g SAR	0.423	0.37	0.412	0.63	0.56	0.63	
		10g SAR	0.302	0.264	0.294	0.45	0.40	0.45	
		Deviation	0.07	0.09	0.12	0.07	0.09	0.12	
	Left edge	1g SAR		0.22			0.33		
		10g SAR		0.152			0.23		
		Deviation		-0.06			-0.06		
	Right edge	1g SAR		0.225			0.34		
		10g SAR		0.157			0.24		
		Deviation		0.04			0.04		
	Bottom edge	1g SAR		0.156			0.24		
		10g SAR		0.093			0.14		
Deviation			0.08			0.08			

**Table 14-3 CDMA1900-BC1 #1 Body AP ON**

CDMA1900-BC1 #1 Body									
Ambient Temperature:			22.5			Liquid Temperature:			22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH1175 1908.75	CH600 1880 MHz	CH25 1851.25	CH1175 1908.75	CH600 1880 MHz	CH25 1851.25	
SO32/RC3 (FCH only)	Tune-up		21.00	21.00	21.00	Scaling factor*			
	Slot Average Power [dBm]		19.91	19.94	19.96	1.29	1.28	1.27	
	Front	1g SAR	0.612	0.63	0.615	0.79	0.80	0.78	
		10g SAR	0.313	0.325	0.316	0.40	0.41	0.40	
		Deviation	0.02	0.09	0.01	0.02	0.09	0.01	
	Rear	1g SAR	0.81	0.844	0.814	1.04	1.08	1.03	
		10g SAR	0.415	0.425	0.418	0.53	0.54	0.53	
		Deviation	0.02	0.12	0.07	0.02	0.12	0.07	
	Left edge	1g SAR		0.391			0.50		
		10g SAR		0.192			0.25		
		Deviation		0.14			0.14		
	Right edge	1g SAR		0.545			0.70		
		10g SAR		0.272			0.35		
		Deviation		0.05			0.05		
	Bottom edge	1g SAR		0.409			0.52		
		10g SAR		0.175			0.22		
Deviation			-0.08			-0.08			

**Table 14-4 CDMA1900-BC1 #2 Head**

CDMA1900-BC1 #2 Head									
Ambient Temperature:			22.5			Liquid Temperature:			22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH1175 1908.75	CH600 1880 MHz	CH25 1851.25	CH1175 1908.75	CH600 1880 MHz	CH25 1851.25	
SO55/RC3	Tune-up		25.00	25.00	25.00	Scaling factor*			
	Slot Average Power [dBm]		23.68	23.73	23.79	1.36	1.34	1.32	
	Left Cheek	1g SAR	0.299	0.341	0.295	0.41	0.46	0.39	
		10g SAR	0.209	0.212	0.206	0.28	0.28	0.27	
		Deviation	-0.01	0.07	-0.09	-0.01	0.07	-0.09	
	Left Tilt	1g SAR		0.244			0.33		
		10g SAR		0.149			0.20		
		Deviation		0.04			0.04		
	Right Cheek	1g SAR		0.34			0.46		
		10g SAR		0.201			0.27		
		Deviation		0.06			0.06		
	Right Tilt	1g SAR		0.201			0.27		
		10g SAR		0.122			0.16		
		Deviation		0.03			0.03		

**Table 14-5 CDMA1900-BC1 #2 Body AP OFF**

CDMA1900-BC1 #2 Body									
Ambient Temperature:			22.5			Liquid Temperature:			22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH1175 1908.75	CH600 1880 MHz	CH25 1851.25	CH1175 1908.75	CH600 1880 MHz	CH25 1851.25	
SO32/RC3 (FCH only)	Tune-up		25.00	25.00	25.00	Scaling factor*			
	Slot Average Power [dBm]		23.73	23.78	23.85	1.34	1.32	1.30	
	Front	1g SAR	0.676	0.698	0.658	0.91	0.92	0.86	
		10g SAR	0.378	0.391	0.365	0.51	0.52	0.48	
		Deviation	0.09	-0.17	0.04	0.09	-0.17	0.04	
	Rear	1g SAR		0.599			0.79		
		10g SAR		0.354			0.47		
		Deviation		0.02			0.02		

**Table 14-6 CDMA800-BC10 #1 Head**

CDMA800-BC10 #1 Head									
Ambient Temperature:			22.5			Liquid Temperature:			22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH684 823.1 MHz	CH580 820.5 MHz	CH476 817.9 MHz	CH684 823.1 MHz	CH580 820.5 MHz	CH476 817.9 MHz	
SO55/RC3	Tune-up		25.50	25.50	25.50	Scaling factor*			
	Slot Average Power [dBm]		23.61	23.60	23.62	1.55	1.55	1.54	
	Left Cheek	1g SAR	0.102	0.117	0.106	0.16	0.18	0.16	
		10g SAR	0.078	0.091	0.081	0.12	0.14	0.12	
		Deviation	0.09	0.05	-0.01	0.09	0.05	-0.01	
	Left Tilt	1g SAR		0.081			0.13		
		10g SAR		0.061			0.09		
		Deviation		0.05			0.05		
	Right Cheek	1g SAR		0.1			0.15		
		10g SAR		0.075			0.12		
		Deviation		0.06			0.06		
	Right Tilt	1g SAR		0.065			0.10		
		10g SAR		0.051			0.08		
		Deviation		-0.03			-0.03		



Table 14-7 CDMA800-BC10 #1 Body

CDMA800-BC10 #1 Body									
Ambient Temperature:			22.5			Liquid Temperature:			22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			CH684 823.1 MHz	CH580 820.5 MHz	CH476 817.9 MHz	CH684 823.1 MHz	CH580 820.5 MHz	CH476 817.9 MHz	
SO32/RC3 (FCH only)	Tune-up		25.50	25.50	25.50	Scaling factor*			
	Slot Average Power [dBm]		23.64	23.63	23.65	1.53	1.54	1.53	
	Front	1g SAR		0.353			0.54		
		10g SAR		0.28			0.43		
		Deviation		0.02			0.02		
	Rear	1g SAR	0.418	0.412	0.403	0.64	0.63	0.62	
		10g SAR	0.32	0.316	0.312	0.49	0.49	0.48	
		Deviation	0.04	0.04	0.09	0.04	0.04	0.09	
	Left edge	1g SAR		0.277			0.43		
		10g SAR		0.208			0.32		
		Deviation		-0.17			-0.17		
	Right edge	1g SAR		0.294			0.45		
		10g SAR		0.222			0.34		
		Deviation		0.04			0.04		
	Bottom edge	1g SAR		0.169			0.26		
		10g SAR		0.114			0.18		
		Deviation		0.02			0.02		



Table 14-8 LTE750-FDD13 #1 Head

LTE750-FDD13 #1 Head								
Ambient Temperature: 22.5			Liquid Temperature: 22.3					
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			H	M	23230	H	M	23230
			H	H	M	H	H	M
10MHz QPSK1RB	Tune-up		24.50	24.50	24.50	Scaling factor*		
	Measured Power [dBm]		0.00	0.00	22.77	281.84	281.84	1.49
	Left Cheek	1g SAR			0.18			0.27
		10g SAR			0.14			0.21
		Deviation			-0.09			-0.09
	Left Tilt	1g SAR			0.159			0.24
		10g SAR			0.122			0.18
		Deviation			0.06			0.06
	Right Cheek	1g SAR			0.174			0.26
		10g SAR			0.132			0.20
		Deviation			-0.01			-0.01
	Right Tilt	1g SAR			0.112			0.17
		10g SAR			0.087			0.13
		Deviation			-0.07			-0.07
	TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]	
H				M	23230	H	M	23230
H				H	H	H	H	H
10MHz QPSK50% RB	Tune-up		23.50	23.50	23.50	Scaling factor*		
	Measured Power [dBm]		0.00	0.00	21.74	223.87	223.87	1.50
	Left Cheek	1g SAR			0.137			0.21
		10g SAR			0.108			0.16
		Deviation			0.03			0.03
	Left Tilt	1g SAR			0.122			0.18
		10g SAR			0.092			0.14
		Deviation			0.09			0.09
	Right Cheek	1g SAR			0.134			0.20
		10g SAR			0.101			0.15
		Deviation			0.02			0.02
	Right Tilt	1g SAR			0.085			0.13
		10g SAR			0.066			0.10
		Deviation			-0.01			-0.01

Table 14-9 LTE750-FDD13 #1 Body

LTE750-FDD13 #1 Body								
Ambient Temperature: 22.5				Liquid Temperature: 22.3				
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			H	M	23230	H	M	23230
			H	H	M	H	H	M
10MHz QPSK1RB	Tune-up		24.50	24.50	24.50	Scaling factor*		
	Measured Power [dBm]		0.00	0.00	22.77	281.84	281.84	1.49
	Front	1g SAR			0.252			0.38
		10g SAR			0.195			0.29
		Deviation			0.02			0.02
	Rear	1g SAR			0.335			0.50
		10g SAR			0.26			0.39
		Deviation			-0.04			-0.04
	Left edge	1g SAR			0.253			0.38
		10g SAR			0.177			0.26
		Deviation			0.1			0.10
	Right edge	1g SAR			0.212			0.32
		10g SAR			0.149			0.22
		Deviation			0.05			0.05
	Bottom edge	1g SAR			0.106			0.16
10g SAR				0.056			0.08	
Deviation				0.08			0.08	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			H	M	23230	H	M	23230
			H	H	H			
10MHz QPSK50% RB	Tune-up		23.50	23.50	23.50	Scaling factor*		
	Measured Power [dBm]		0.00	0.00	21.74	223.87	223.87	1.50
	Front	1g SAR			0.192			0.29
		10g SAR			0.148			0.22
		Deviation			0.09			0.09
	Rear	1g SAR			0.255			0.38
		10g SAR			0.197			0.30
		Deviation			0.12			0.12
	Left edge	1g SAR			0.129			0.19
		10g SAR			0.091			0.14
		Deviation			-0.06			-0.06
	Right edge	1g SAR			0.165			0.25
		10g SAR			0.116			0.17
		Deviation			0.04			0.04
	Bottom edge	1g SAR			0.067			0.10
10g SAR				0.042			0.06	
Deviation				0.07			0.07	

**Table 14-10 LTE1900-FDD25 #1 Body AP ON**

LTE1900-FDD25 #1 Body								
Ambient Temperature: 22.5				Liquid Temperature: 22.3				
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			26590 M	26365 M	26140 M	26590 M	26365 M	26140 M
20MHz QPSK1RB	Tune-up		18.50	18.50	18.50	Scaling factor*		
	Measured Power [dBm]		17.74	17.69	17.77	1.19	1.20	1.18
	Front	1g SAR			0.316			0.37
		10g SAR			0.152			0.18
		Deviation			0.18			0.18
	Rear	1g SAR			0.345			0.41
		10g SAR			0.181			0.21
		Deviation			-0.06			-0.06
	Left edge	1g SAR			0.086			0.10
		10g SAR			0.051			0.06
		Deviation			-0.08			-0.08
	Right edge	1g SAR			0.043			0.05
		10g SAR			0.021			0.02
		Deviation			-0.02			-0.02
	Bottom edge	1g SAR			0.536			0.63
10g SAR				0.25			0.30	
Deviation				0.06			0.06	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			26590 L	26365 L	26140 H	26590	26365	26140
20MHz QPSK50% RB	Tune-up		18.50	18.50	18.50	Scaling factor*		
	Measured Power [dBm]		17.61	17.62	17.67	1.23	1.23	1.21
	Front	1g SAR			0.338			0.41
		10g SAR			0.164			0.20
		Deviation			-0.07			-0.07
	Rear	1g SAR			0.433			0.52
		10g SAR			0.211			0.26
		Deviation			0.1			0.10
	Left edge	1g SAR			0.1			0.12
		10g SAR			0.059			0.07
		Deviation			-0.15			-0.15
	Right edge	1g SAR			0.049			0.06
		10g SAR			0.025			0.03
		Deviation			0.06			0.06
	Bottom edge	1g SAR			0.544			0.66
10g SAR				0.261			0.32	
Deviation				0.11			0.11	



Table 14-11 LTE1900-FDD25 #2 Head

LTE1900-FDD25 #2 Head								
Ambient Temperature: 22.5				Liquid Temperature: 22.3				
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			26590	26365	26140	26590	26365	26140
			M	M	M	M	M	M
20MHz QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*		
	Measured Power [dBm]		23.18	23.17	23.16	1.21	1.21	1.21
	Left Cheek	1g SAR	0.269			0.32		
		10g SAR	0.162			0.20		
		Deviation	0.05			0.05		
	Left Tilt	1g SAR	0.124			0.15		
		10g SAR	0.08			0.10		
		Deviation	0.07			0.07		
	Right Cheek	1g SAR	0.135			0.16		
		10g SAR	0.087			0.11		
		Deviation	-0.01			-0.01		
	Right Tilt	1g SAR	0.096			0.12		
		10g SAR	0.06			0.07		
		Deviation	0.05			0.05		
	TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]	
26590				26365	26140	26590	26365	26140
M				L	M	M	L	M
20MHz QPSK50% RB	Tune-up		23.00	23.00	23.00	Scaling factor*		
	Measured Power [dBm]		22.01	22.04	22.03	1.26	1.25	1.25
	Left Cheek	1g SAR		0.134			0.17	
		10g SAR		0.068			0.08	
		Deviation		0.13			0.13	
	Left Tilt	1g SAR		0.096			0.12	
		10g SAR		0.063			0.08	
		Deviation		-0.04			-0.04	
	Right Cheek	1g SAR		0.112			0.14	
		10g SAR		0.074			0.09	
		Deviation		-0.02			-0.02	
	Right Tilt	1g SAR		0.118			0.15	
		10g SAR		0.072			0.09	
		Deviation		0.07			0.07	

Table 14-12 LTE1900-FDD25 #2 Body AP OFF

LTE1900-FDD25 #2 Body								
Ambient Temperature: 22.5					Liquid Temperature: 22.3			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			26590	26365	26140	26590	26365	26140
			M	M	M	M	M	M
20MHz QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*		
	Measured Power [dBm]		23.18	23.17	23.16	1.21	1.21	1.21
	Front	1g SAR	0.608			0.73		
		10g SAR	0.324			0.39		
		Deviation	-0.04			-0.04		
	Rear	1g SAR	0.967	0.902	0.728	1.17	1.09	0.88
		10g SAR	0.524	0.493	0.399	0.63	0.60	0.48
Deviation		0	0.05	0.07	0.00	0.05	0.07	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			26590	26365	26140	26590	26365	26140
			M	L	M			
20MHz QPSK50% RB	Tune-up		23.00	23.00	23.00	Scaling factor*		
	Measured Power [dBm]		22.01	22.04	22.03	1.26	1.25	1.25
	Front	1g SAR		0.427			0.53	
		10g SAR		0.234			0.29	
		Deviation		0.09			0.09	
	Rear	1g SAR		0.632			0.79	
		10g SAR		0.345			0.43	
Deviation			-0.08			-0.08		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			26590	26365	26140	26590	26365	26140
20MHz QPSK100% RB	Tune-up		23.00	23.00	23.00	Scaling factor*		
	Measured Power [dBm]		21.87	21.97	22.03	1.30	1.27	1.25
	Rear	1g SAR			0.527			0.66
		10g SAR			0.29			0.36
							-0.16	



Table 14-13 LTE850-FDD26 #1 Head

LTE850-FDD26 #1 Head								
Ambient Temperature: 22.5			Liquid Temperature: 22.3					
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			26965	26865	26775	26965	26865	26775
			M	M	M	M	M	M
15MHz QPSK1RB	Tune-up		24.50	24.50	24.50	Scaling factor*		
	Measured Power [dBm]		22.90	22.81	22.85	1.45	1.48	1.46
	Left Cheek	1g SAR	0.217			0.31		
		10g SAR	0.178			0.26		
		Deviation	0.15			0.15		
	Left Tilt	1g SAR	0.188			0.27		
		10g SAR	0.151			0.22		
		Deviation	0.04			0.04		
	Right Cheek	1g SAR	0.243			0.35		
		10g SAR	0.189			0.27		
		Deviation	-0.15			-0.15		
	Right Tilt	1g SAR	0.121			0.17		
		10g SAR	0.1			0.14		
		Deviation	0.01			0.01		
	TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]	
26965				26865	26775	26965	26865	26775
M				M	L	M	M	L
15MHz QPSK50% RB	Tune-up		23.50	23.50	23.50	Scaling factor*		
	Measured Power [dBm]		21.92	21.96	21.97	1.44	1.42	1.42
	Left Cheek	1g SAR			0.175			0.25
		10g SAR			0.14			0.20
		Deviation			0.11			0.11
	Left Tilt	1g SAR			0.14			0.20
		10g SAR			0.114			0.16
		Deviation			0.09			0.09
	Right Cheek	1g SAR			0.179			0.25
		10g SAR			0.14			0.20
		Deviation			0.15			0.15
	Right Tilt	1g SAR			0.106			0.15
		10g SAR			0.086			0.12
		Deviation			0.07			0.07

Table 14-14 LTE850-FDD26 #1 Body

LTE850-FDD26 #1 Body								
Ambient Temperature: 22.5				Liquid Temperature: 22.3				
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			26965	26865	26775	26965	26865	26775
			M	M	M	M	M	M
15MHz QPSK1RB	Tune-up		24.50	24.50	24.50	Scaling factor*		
	Measured Power [dBm]		22.90	22.81	22.85	1.45	1.48	1.46
	Front	1g SAR	0.273			0.39		
		10g SAR	0.201			0.29		
		Deviation	0.01			0.01		
	Rear	1g SAR	0.359			0.52		
		10g SAR	0.256			0.37		
		Deviation	0.01			0.01		
	Left edge	1g SAR	0.202			0.29		
		10g SAR	0.143			0.21		
		Deviation	0.18			0.18		
	Right edge	1g SAR	0.217			0.31		
		10g SAR	0.153			0.22		
		Deviation	0.16			0.16		
	Bottom edge	1g SAR	0.213			0.31		
10g SAR		0.113			0.16			
Deviation		0.03			0.03			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			26965	26865	26775	26965	26865	26775
			M	M	L			
15MHz QPSK50% RB	Tune-up		23.50	23.50	23.50	Scaling factor*		
	Measured Power [dBm]		21.92	21.96	21.97	1.44	1.42	1.42
	Front	1g SAR			0.206			0.29
		10g SAR			0.159			0.23
		Deviation			0.13			0.13
	Rear	1g SAR			0.276			0.39
		10g SAR			0.198			0.28
		Deviation			0.07			0.07
	Left edge	1g SAR			0.174			0.25
		10g SAR			0.122			0.17
		Deviation			0.17			0.17
	Right edge	1g SAR			0.101			0.14
		10g SAR			0.071			0.10
		Deviation			0.06			0.06
	Bottom edge	1g SAR			0.126			0.18
10g SAR				0.068			0.10	
Deviation				0.12			0.12	

Table 14-15 LTE2500-FDD41 #1 Body AP ON

LTE2500-TDD41 #1 Body									
Ambient Temperature: 22.5			Liquid Temperature:						
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			41490	41055	40620	41490	41055	40620	
			2680	2636.5	2593	2680	2636.5	2593	
			M	M	M	M	M	M	
20MHz QPSK1RB	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		22.19	22.26	22.21	1.21	1.19	1.20	
	Front	1g SAR		0.177			0.21		
		10g SAR		0.09			0.11		
		Deviation		0.15			0.15		
	Rear	1g SAR		0.27			0.32		
		10g SAR		0.136			0.16		
		Deviation		0.13			0.13		
	Left edge	1g SAR		0.055			0.07		
		10g SAR		0.03			0.04		
		Deviation		0.13			0.13		
	Right edge	1g SAR		0.047			0.06		
		10g SAR		0.027			0.03		
		Deviation		0.16			0.16		
	Bottom edge	1g SAR		0.351			0.42		
10g SAR			0.171			0.20			
Deviation			-0.02			-0.02			
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			41490	41055	40620	41490	41055	40620	
			2680	2636.5	2593	2680	2636.5	2593	
			M	M	M	M	M	M	
20MHz QPSK50% RB	Tune-up		23.00	23.00	23.00	Scaling factor*			
	Measured Power [dBm]		21.93	22.11	22.04	1.28	1.23	1.25	
	Front	1g SAR			0.172			0.21	
		10g SAR			0.087			0.11	
		Deviation			0.09			0.09	
	Rear	1g SAR			0.307			0.38	
		10g SAR			0.152			0.19	
		Deviation			0.04			0.04	
	Left edge	1g SAR			0.058			0.07	
		10g SAR			0.032			0.04	
		Deviation			0.15			0.15	
	Right edge	1g SAR			0.032			0.04	
		10g SAR			0.017			0.02	
		Deviation			0.14			0.14	
	Bottom edge	1g SAR			0.32			0.40	
10g SAR				0.169			0.21		
Deviation				0.02			0.02		





Table 14-16 LTE2500-FDD41 #2 Head

LTE2500-TDD41 #2 Head									
Ambient Temperature: 22.5			Liquid Temperature:						
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			41490	41055	40620	41490	41055	40620	
			2680	2636.5	2593	2680	2636.5	2593	
			M	M	M	M	M	M	
20MHz QPSK1RB	Tune-up		27.00	27.00	27.00	Scaling factor*			
	Measured Power [dBm]		26.30	26.46	26.38	1.18	1.13	1.15	
	Left Cheek	1g SAR		0.23			0.26		
		10g SAR		0.119			0.13		
		Deviation		0.07			0.07		
	Left Tilt	1g SAR		0.133			0.15		
		10g SAR		0.073			0.08		
		Deviation		0.18			0.18		
	Right Cheek	1g SAR		0.121			0.14		
		10g SAR		0.06			0.07		
		Deviation		0.04			0.04		
	Right Tilt	1g SAR		0.083			0.09		
		10g SAR		0.044			0.05		
		Deviation		0.13			0.13		
	TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
41490				41055	40620	41490	41055	40620	
2680				2636.5	2593	2680	2636.5	2593	
			M	H	M	M	H	M	
20MHz QPSK50% RB	Tune-up		26.00	26.00	26.00	Scaling factor*			
	Measured Power [dBm]		25.04	25.14	25.35	1.25	1.22	1.16	
	Left Cheek	1g SAR			0.156			0.18	
		10g SAR			0.082			0.10	
		Deviation			0.06			0.06	
	Left Tilt	1g SAR			0.084			0.10	
		10g SAR			0.044			0.05	
		Deviation			0.04			0.04	
	Right Cheek	1g SAR			0.139			0.16	
		10g SAR			0.07			0.08	
		Deviation			0.15			0.15	
	Right Tilt	1g SAR			0.075			0.09	
		10g SAR			0.041			0.05	
		Deviation			0.01			0.01	



**Table 14-17 LTE2500-FDD41 #2 Body AP OFF**

LTE2500-TDD41 #2 Body								
Ambient Temperature: 22.5				Liquid Temperature:				
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			41490	41055	40620	41490	41055	40620
			2680	2636.5	2593	2680	2636.5	2593
			M	M	M	M	M	M
20MHz QPSK1RB	Tune-up		27.00	27.00	27.00	Scaling factor*		
	Measured Power [dBm]		26.30	26.46	26.38	1.18	1.13	1.15
	Front	1g SAR		0.15			0.17	
		10g SAR		0.08			0.09	
		Deviation		0.06			0.06	
	Rear	1g SAR		0.249			0.28	
		10g SAR		0.13			0.15	
Deviation			-0.09			-0.09		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			41490	41055	40620	41490	41055	40620
			2680	2636.5	2593	2680	2636.5	2593
			M	H	M	M	H	M
20MHz QPSK50% RB	Tune-up		26.00	26.00	26.00	Scaling factor*		
	Measured Power [dBm]		25.04	25.14	25.35	1.25	1.22	1.16
	Front	1g SAR			0.172			0.20
		10g SAR			0.089			0.10
		Deviation			0.15			0.15
	Rear	1g SAR			0.235			0.27
		10g SAR			0.128			0.15
Deviation				0.19			0.19	



## 14.2 Full SAR

Test Band	Channel	Frequency	Tune-Up	Measured Power	Test Position	Measured 10g SAR	Measured 1g SAR	Reported 10g SAR	Reported 1g SAR	Power Drift	Figure
CDMA800-BC0	777	848.3 MHz	24	23.73	Right Cheek	0.67	0.086	0.71	0.09	0.02	<a href="#">Fig A.1</a>
CDMA800-BC0	777	848.3 MHz	24	23.74	Rear	0.302	0.423	0.32	0.45	0.07	<a href="#">Fig A.2</a>
CDMA1900-BC1	600	1880 MHz	21	19.94	Rear	0.425	0.844	0.54	1.08	0.12	<a href="#">Fig A.3</a>
CDMA1900-BC1	600	1880 MHz	24	23.73	Left Cheek	0.212	0.341	0.23	0.36	0.07	<a href="#">Fig A.4</a>
CDMA1900-BC1	600	1880 MHz	24	23.78	Front	0.391	0.698	0.41	0.73	-0.17	<a href="#">Fig A.5</a>
CDMA800-BC10	580	820.5 MHz	24	23.60	Left Cheek	0.091	0.117	0.10	0.13	0.05	<a href="#">Fig A.6</a>
CDMA800-BC10	684	823.1 MHz	24	23.64	Rear	0.32	0.418	0.35	0.45	0.04	<a href="#">Fig A.7</a>
LTE750-FDD13	23230	782 MHz	24.5	22.77	Left Cheek	0.14	0.18	0.21	0.27	-0.09	<a href="#">Fig A.8</a>
LTE750-FDD13	23230	782 MHz	24.5	22.77	Rear	0.26	0.335	0.39	0.50	-0.04	<a href="#">Fig A.9</a>
LTE1900-FDD25	26140	1860 MHz	18	17.67	Bottom	0.261	0.544	0.28	0.59	0.11	<a href="#">Fig A.10</a>
LTE1900-FDD25	26590	1905 MHz	24	23.18	Left Cheek	0.162	0.269	0.20	0.32	0.05	<a href="#">Fig A.11</a>
LTE1900-FDD25	26590	1905 MHz	24	23.18	Rear	0.524	0.967	0.63	1.17	0	<a href="#">Fig A.12</a>
LTE850-FDD26	26965	841.5 MHz	24.5	22.90	Right Cheek	0.189	0.243	0.27	0.35	-0.15	<a href="#">Fig A.13</a>
LTE850-FDD26	26965	841.5 MHz	24.5	22.90	Rear	0.256	0.359	0.37	0.52	0.01	<a href="#">Fig A.14</a>
LTE2500-TDD41	40620	2593 MHz	23	22.04	Bottom	0.169	0.32	0.21	0.40	0.02	<a href="#">Fig A.15</a>
LTE2500-TDD41	41055	2636.5 MHz	27	26.46	Left Cheek	0.119	0.23	0.13	0.26	0.07	<a href="#">Fig A.16</a>
LTE2500-TDD41	41055	2636.5 MHz	27	26.46	Rear	0.13	0.249	0.15	0.28	-0.09	<a href="#">Fig A.17</a>

### 14.3 WLAN Evaluation

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

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.

Note3: 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.

**Table 14-18 WLAN2450 #1 Body Fast SAR**

WLAN2450 #1 Body Fast SAR								
Ambient Temperature: 22.5				Liquid Temperature: 22.3				
Rate	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			11 2462 MHz	6 2437 MHz	1 2412 MHz	11	6	1
802.11b 5.5Mbps	Tune up		21	21	21	Scaling factor*		
	Slot Average Power [dBm]		19.94	20.25	19.55	1.28	1.19	1.40
	Front	1g Fast SAR		0.148			0.18	
		10g SAR		0.0835			0.10	
		Deviation		-0.08			-0.08	
	Rear	1g Fast SAR		0.232			0.28	
		10g SAR		0.119			0.14	
		Deviation		-0.04			-0.04	
	Top edge	1g Fast SAR		0.143			0.17	
		10g SAR		0.0766			0.09	
		Deviation		0.09			0.09	
	Right edge	1g Fast SAR		0.061			0.07	
		10g SAR		0.034			0.04	
		Deviation		-0.15			-0.15	

**Table 14-19 WLAN2450 #1 Body Full SAR**

WLAN2450 #1 Body Full SAR								
Ambient Temperature: 22.5				Liquid Temperature: 22.3				
Rate	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			11 2462 MHz	6 2437 MHz	1 2412 MHz	11	6	1
802.11b 5.5Mbps	Tune up		21	21	21	Scaling factor*		
	Slot Average Power [dBm]		19.94	20.25	19.55	1.28	1.19	1.40
	Rear	1g Full SAR		0.165			0.20	
		10g SAR		0.085			0.10	
		Deviation		-0.04			-0.04	



**Table 14-20 WLAN2450 #2 Head Fast SAR**

WLAN2450 #2 Head Fast SAR								
Ambient Temperature: 22.5				Liquid Temperature: 22.3				
Rate	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			11	6	1	11	6	1
			2462 MHz	2437 MHz	2412 MHz			
802.11b 5.5Mbps	Tune up		18	18	18	Scaling factor*		
	Slot Average Power [dBm]		17.60	17.83	17.06	1.10	1.04	1.24
	Left Cheek	1g Fast SAR		0.745			0.77	
		10g SAR		0.37			0.38	
		Deviation		0.1			0.10	
	Left Tilt	1g Fast SAR		0.532			0.55	
		10g SAR		0.259			0.27	
		Deviation		0.08			0.08	
	Right Cheek	1g Fast SAR		0.311			0.32	
		10g SAR		0.168			0.17	
		Deviation		-0.16			-0.16	
	Right Tilt	1g Fast SAR		0.256			0.27	
		10g SAR		0.137			0.14	
		Deviation		0.04			0.04	

**Table 14-21 WLAN2450 #2 Head Full SAR**

WLAN2450 #2 Head Full SAR								
Ambient Temperature: 22.5				Liquid Temperature: 22.3				
Rate	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			11	6	1	11	6	1
			2462 MHz	2437 MHz	2412 MHz			
802.11b 5.5Mbps	Tune up		18	18	18	Scaling factor*		
	Slot Average Power [dBm]		17.60	17.83	17.06	1.10	1.04	1.24
	Left Cheek	1g Full SAR	0.862	0.721		0.95	0.75	
		10g SAR	0.438	0.369		0.48	0.38	
		Deviation	0.02	0.1		0.02	0.10	
	Left Tilt	1g Full SAR		0.465			0.48	
		10g SAR		0.244			0.25	
		Deviation		0.08			0.08	

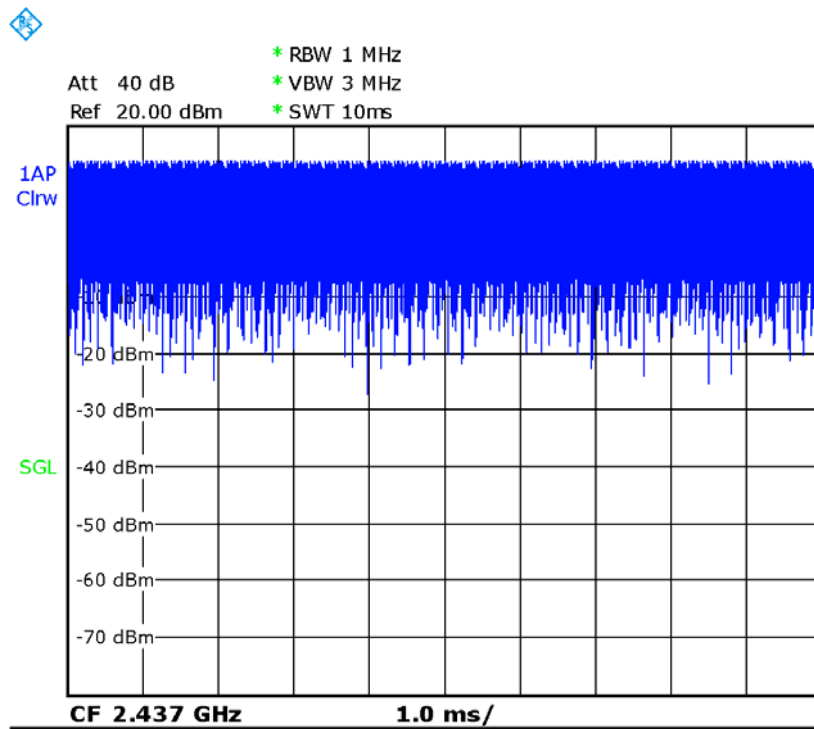
According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below

Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR(1g)(W/kg)	Scaled reported SAR(1g)(W/kg)	Figure
MHz	Ch.						
2437 MHz	6	Rear	100.00%	100%	0.20	0.20	Fig A.18

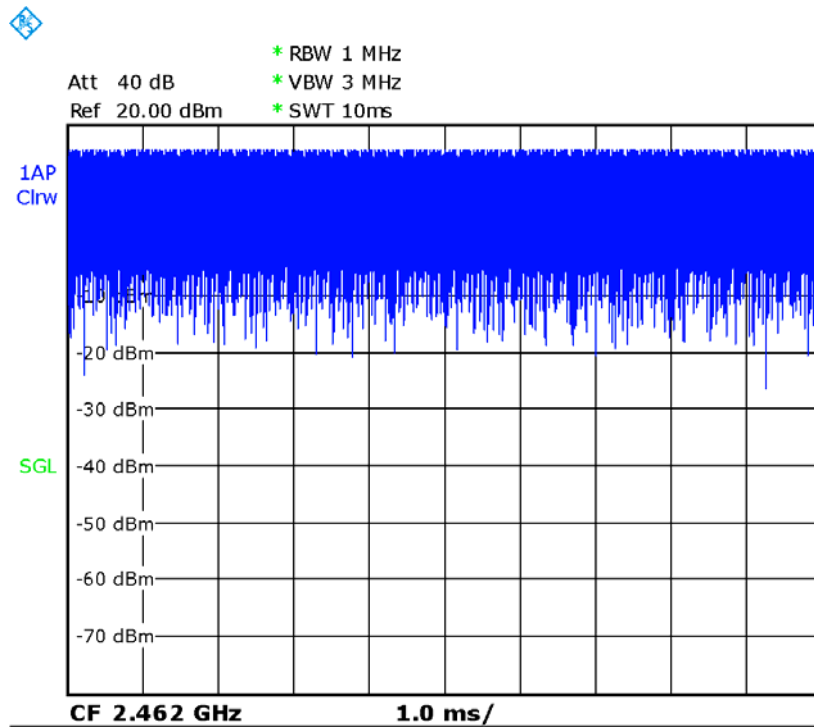
According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below

Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR(1g)(W/kg)	Scaled reported SAR(1g)(W/kg)	Figure
MHz	Ch.						
2462 MHz	11	Left Cheek	100.00%	100%	0.95	0.95	Fig A.19

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



Picture 14.1 Duty factor plot CH6



Picture 14.2 Duty factor plot CH11

## 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  $\geq 0.80$  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  $\geq 1.45$  W/kg (~ 10% from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

Mode	CH	Freq	Test Poision	Original SAR (W/kg)	First Repeated SAR(W/kg)	The Ratio
CDMA1900-BC1	600	1880 MHz	Rear	0.844	0.835	1.01
LTE1900-FDD25	26590	1905 MHz	Rear	0.967	0.959	1.01
WLAN2450	11	2462 MHz	Left Cheek	0.862	0.852	1.01

## 16 Measurement Uncertainty

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

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



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

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

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

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

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

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
<b>Measurement system</b>										
1	Probe calibration	B	6.0	N	1	1	1	6.0	6.0	∞
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	∞
<b>Test sample related</b>										
15	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
16	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
17	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
<b>Phantom and set-up</b>										
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	$\infty$
20	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
21	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	$\infty$
22	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						10.4	10.3	257
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$						20.8	20.6	

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

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

16	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
17	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	$\infty$
<b>Phantom and set-up</b>										
18	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	$\infty$
19	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	$\infty$
20	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
21	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	$\infty$
22	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c' = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						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 D1900V2	5d101	July 26, 2017	One year
13	Dipole Validation Kit	SPEAG D2450V2	853	July 21, 2017	One year
14	Dipole Validation Kit	SPEAG D2600V2	1012	July 21, 2017	One year

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

## ANNEX A Graph Results

### CDMA800-BC0\_CH777 Right Cheek

Date: 6/21/2018

Electronics: DAE4 Sn1525

Medium: head 835 MHz

Medium parameters used:  $f = 848.3$  MHz;  $\sigma = 0.911$  mho/m;  $\epsilon_r = 41.28$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: CDMA800-BC0 848.3 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) = 0.0971 W/kg

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

Reference Value = 4.574 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.105 W/kg

**SAR(1 g) = 0.086 W/kg; SAR(10 g) = 0.67 W/kg**

Maximum value of SAR (measured) = 0.0939 W/kg

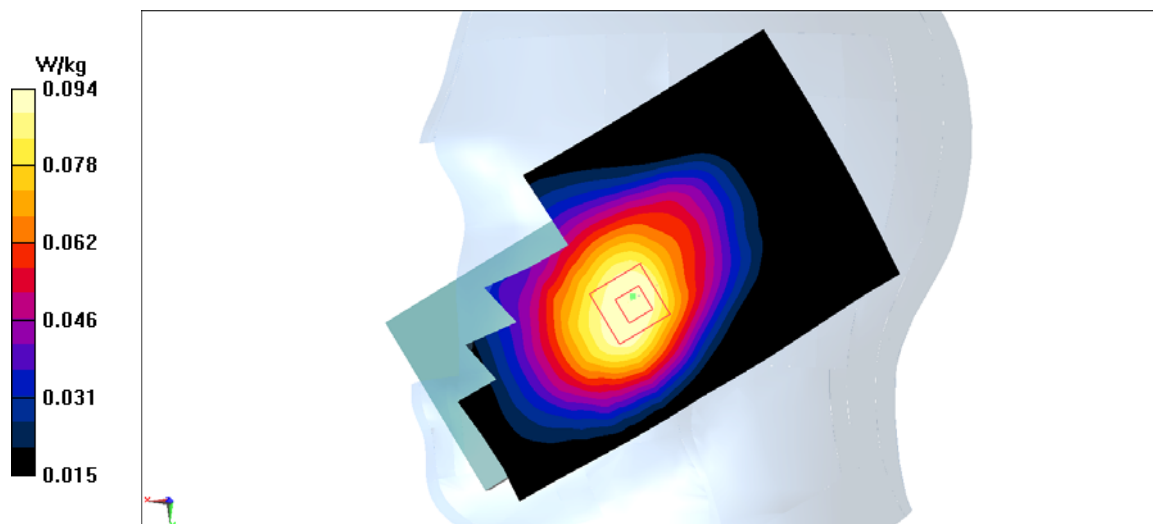


Fig A.1

**CDMA800-BC0\_CH777 Rear**

Date: 6/21/2018

Electronics: DAE4 Sn1525

Medium: body 835 MHz

Medium parameters used:  $f = 848.3$  MHz;  $\sigma = 0.964$  mho/m;  $\epsilon_r = 54.38$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: CDMA800-BC0 848.3 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) = 0.495 W/kg

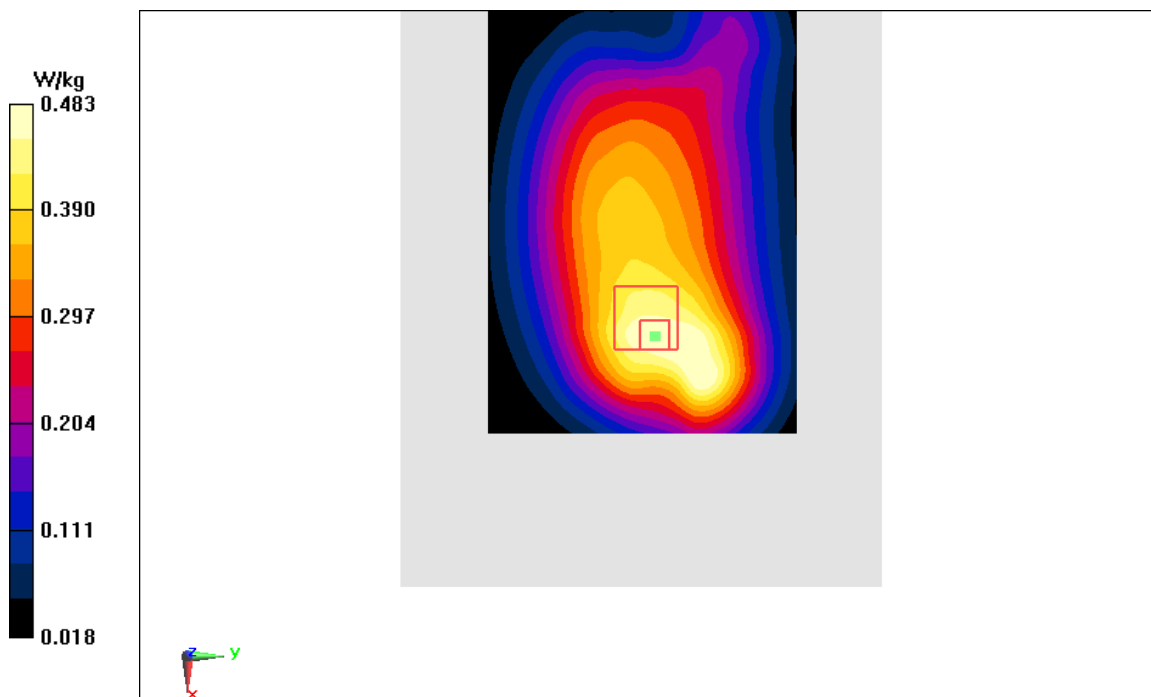
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.08 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.662 W/kg

**SAR(1 g) = 0.423 W/kg; SAR(10 g) = 0.302 W/kg**

Maximum value of SAR (measured) = 0.483 W/kg



**Fig A.2**

**CDMA1900-BC1\_CH600 Rear**

Date: 6/22/2018

Electronics: DAE4 Sn1525

Medium: body 1900 MHz

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.483$  mho/m;  $\epsilon_r = 54.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: CDMA1900-BC1 1880 MHz Duty Cycle: 1:1

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

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

Maximum value of SAR (interpolated) = 0.949 W/kg

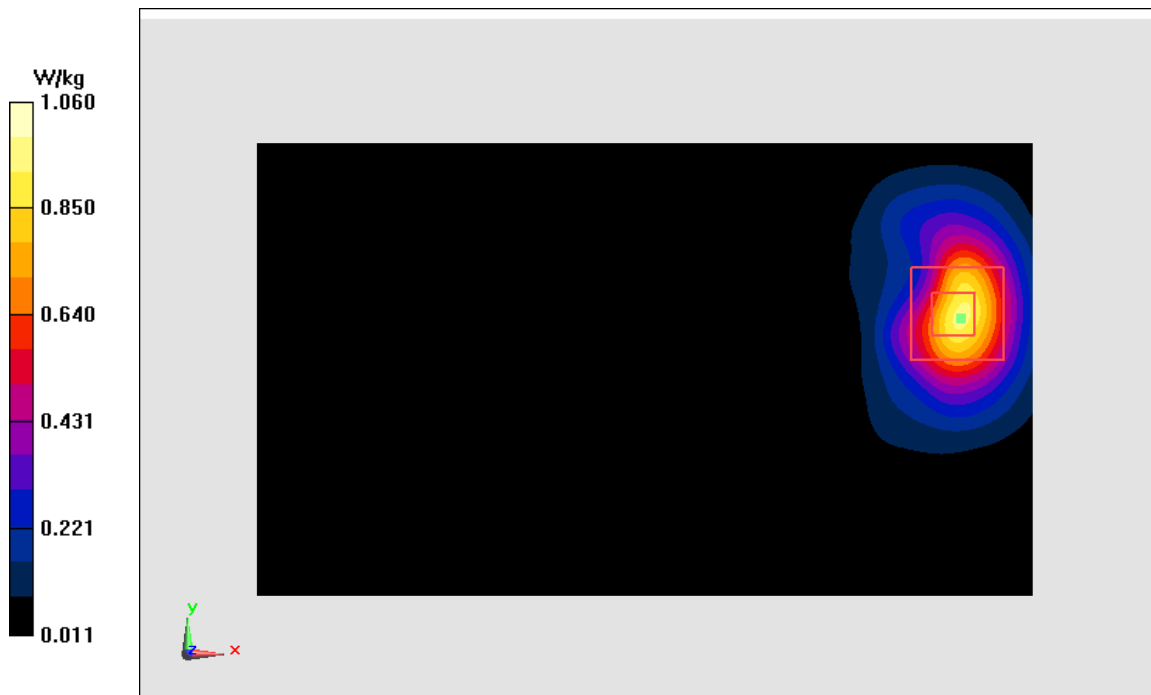
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.486 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.48 W/kg

**SAR(1 g) = 0.844 W/kg; SAR(10 g) = 0.425 W/kg**

Maximum value of SAR (measured) = 1.06 W/kg



**Fig A.3**



### CDMA1900-BC1\_CH600 Left Cheek

Date: 6/22/2018

Electronics: DAE4 Sn1525

Medium: head 1900 MHz

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.399$  mho/m;  $\epsilon_r = 39.97$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: CDMA1900-BC1 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) = 0.406 W/kg

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

Reference Value = 3.546 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.512 W/kg

**SAR(1 g) = 0.341 W/kg; SAR(10 g) = 0.212 W/kg**

Maximum value of SAR (measured) = 0.403 W/kg

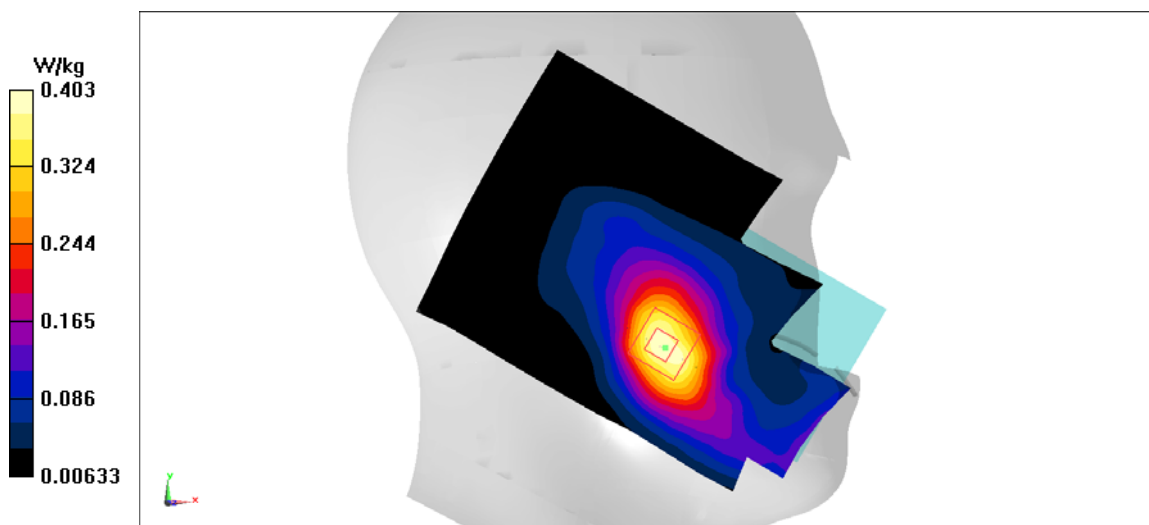


Fig A.4

### CDMA1900-BC1\_CH600 Front

Date: 6/22/2018

Electronics: DAE4 Sn1525

Medium: body 1900 MHz

Medium parameters used:  $f = 1880$  MHz;  $\sigma = 1.483$  mho/m;  $\epsilon_r = 54.1$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: CDMA1900-BC1 1880 MHz Duty Cycle: 1:1

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

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

Maximum value of SAR (interpolated) = 0.877 W/kg

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

Reference Value = 5.650 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 1.15 W/kg

**SAR(1 g) = 0.698 W/kg; SAR(10 g) = 0.391 W/kg**

Maximum value of SAR (measured) = 0.842 W/kg

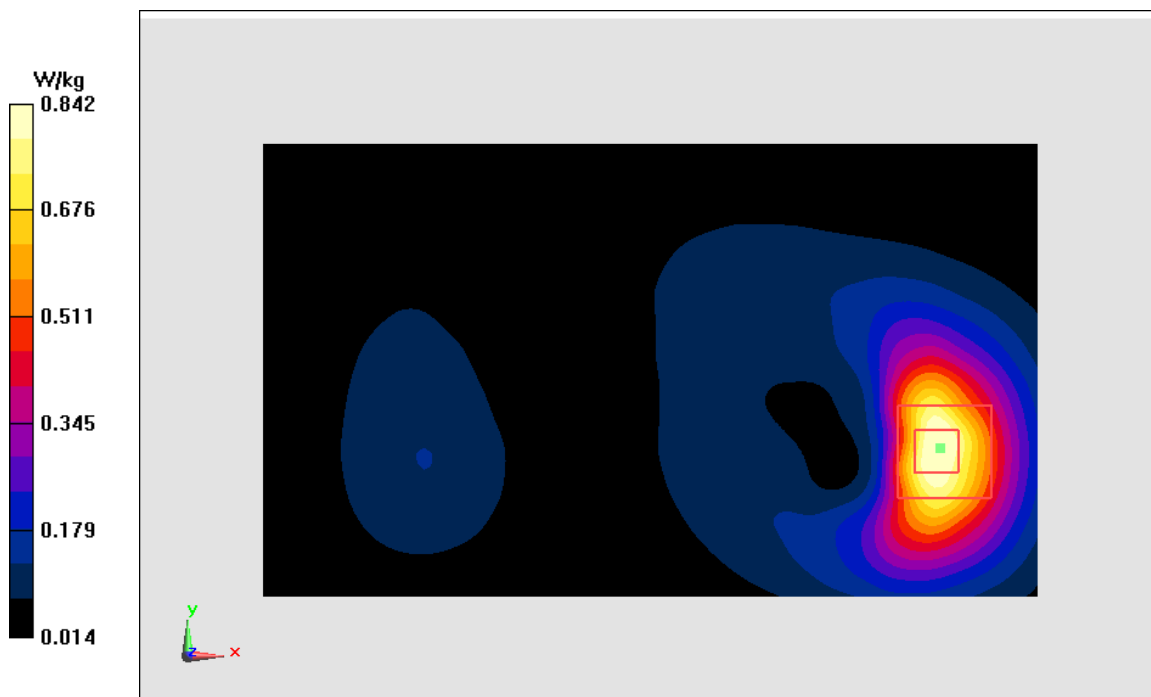


Fig A.5

### CDMA800-BC10\_CH580 Left Cheek

Date: 6/21/2018

Electronics: DAE4 Sn1525

Medium: head 835 MHz

Medium parameters used:  $f = 820.5$  MHz;  $\sigma = 0.885$  mho/m;  $\epsilon_r = 41.32$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: CDMA800-BC10 820.5 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) = 0.133 W/kg

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

Reference Value = 5.180 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.146 W/kg

**SAR(1 g) = 0.117 W/kg; SAR(10 g) = 0.091 W/kg**

Maximum value of SAR (measured) = 0.127 W/kg

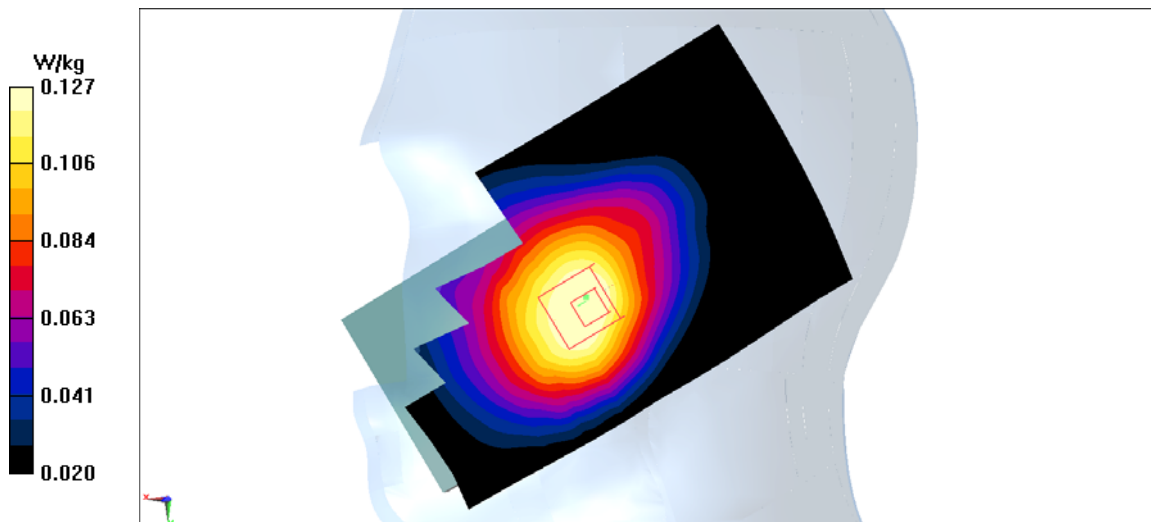


Fig A.6

**CDMA800-BC10\_CH684 Rear**

Date: 6/21/2018

Electronics: DAE4 Sn1525

Medium: body 835 MHz

Medium parameters used:  $f = 823.1$  MHz;  $\sigma = 0.941$  mho/m;  $\epsilon_r = 54.41$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: CDMA800-BC10 823.1 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) = 0.460 W/kg

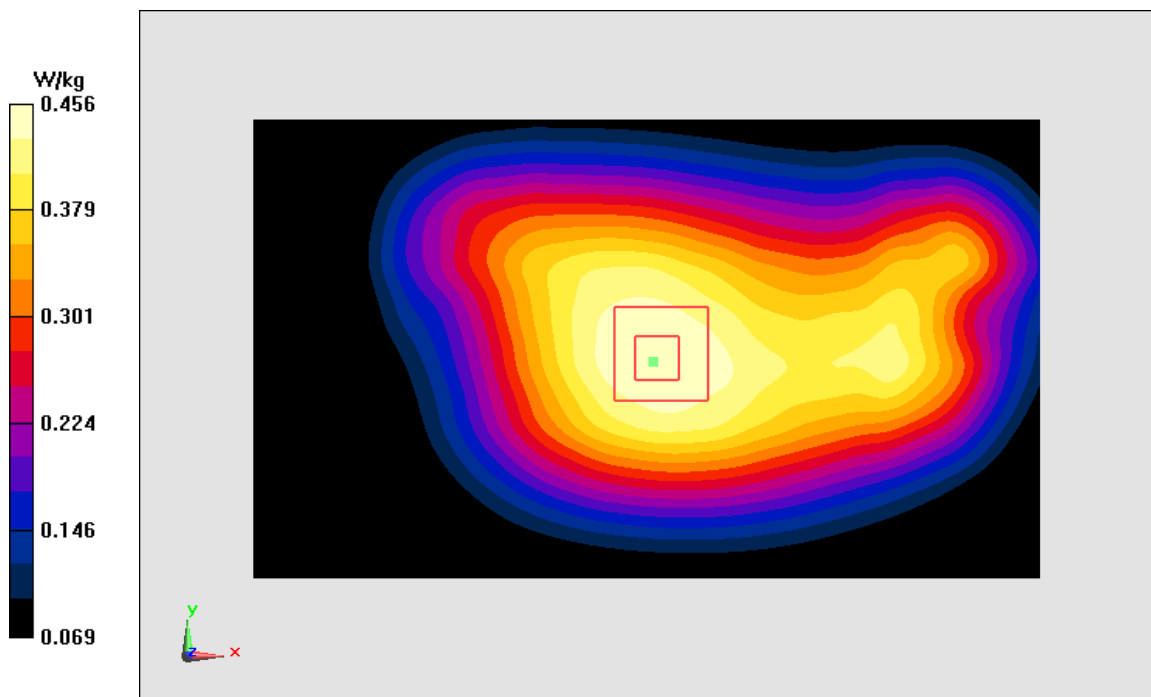
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.83 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.522 W/kg

**SAR(1 g) = 0.418 W/kg; SAR(10 g) = 0.32 W/kg**

Maximum value of SAR (measured) = 0.456 W/kg



**Fig A.7**

**LTE750-FDD13\_CH23230 Left Cheek**

Date: 6/20/2018

Electronics: DAE4 Sn1525

Medium: head 750 MHz

Medium parameters used:  $f = 782$  MHz;  $\sigma = 0.932$  mho/m;  $\epsilon_r = 42.08$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE750-FDD13 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) = 0.197 W/kg

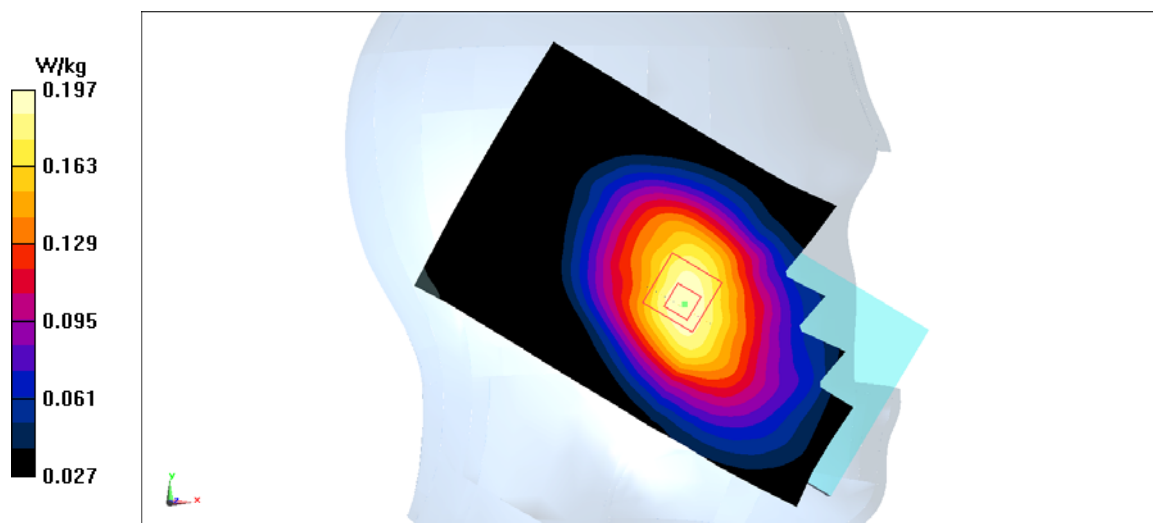
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.460 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.225 W/kg

**SAR(1 g) = 0.18 W/kg; SAR(10 g) = 0.14 W/kg**

Maximum value of SAR (measured) = 0.197 W/kg



**Fig A.8**

**LTE750-FDD13\_CH23230 Rear**

Date: 6/20/2018

Electronics: DAE4 Sn1525

Medium: body 750 MHz

Medium parameters used:  $f = 782$  MHz;  $\sigma = 0.992$  mho/m;  $\epsilon_r = 54.77$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

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

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

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

Maximum value of SAR (interpolated) = 0.368 W/kg

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

Reference Value = 19.24 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.415 W/kg

**SAR(1 g) = 0.335 W/kg; SAR(10 g) = 0.26 W/kg**

Maximum value of SAR (measured) = 0.365 W/kg

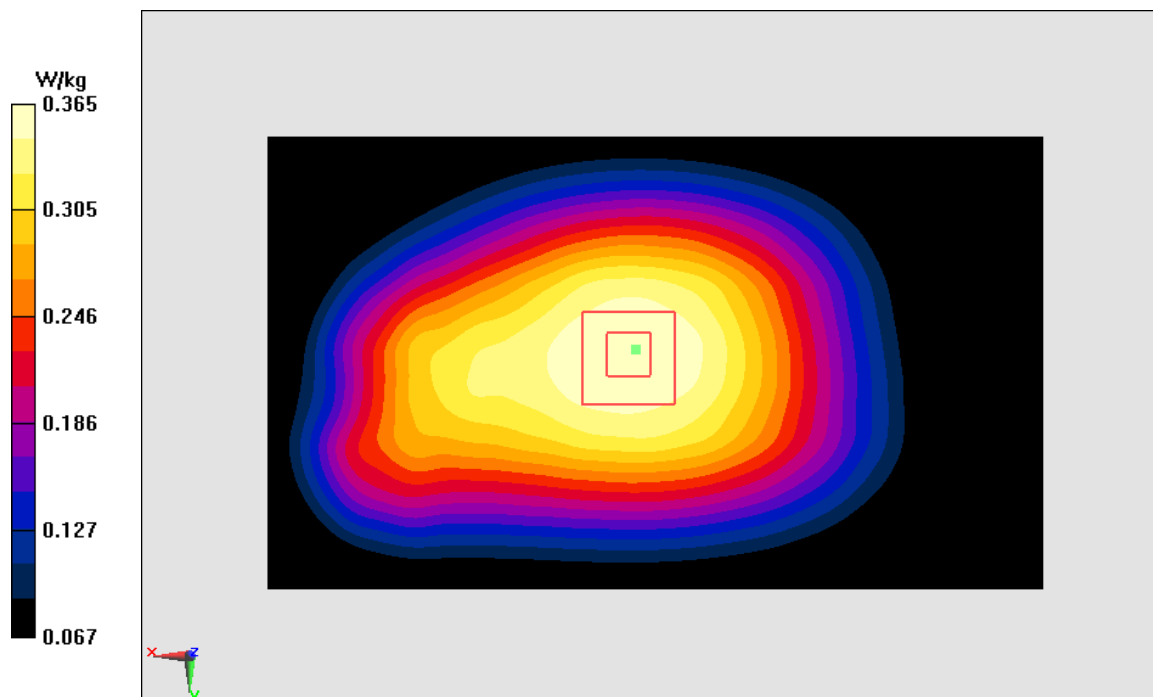


Fig A.9

**LTE1900-FDD25\_CH26140 Bottom**

Date: 6/22/2018

Electronics: DAE4 Sn1525

Medium: body 1900 MHz

Medium parameters used:  $f = 1860$  MHz;  $\sigma = 1.464$  mho/m;  $\epsilon_r = 54.13$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE1900-FDD25 1860 MHz Duty Cycle: 1:1

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

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

Maximum value of SAR (interpolated) = 0.737 W/kg

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

Reference Value = 13.60 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.984 W/kg

**SAR(1 g) = 0.544 W/kg; SAR(10 g) = 0.261 W/kg**

Maximum value of SAR (measured) = 0.261 W/kg

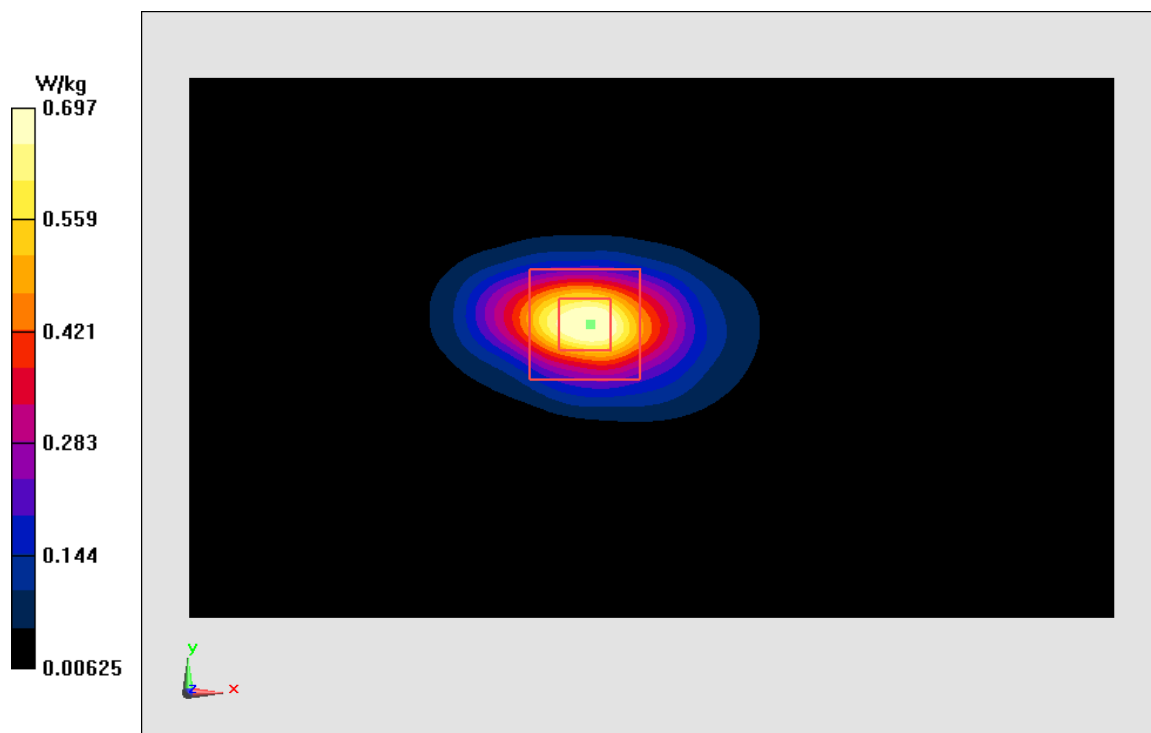


Fig A.10

**LTE1900-FDD25\_CH26590 Left Cheek**

Date: 6/22/2018

Electronics: DAE4 Sn1525

Medium: head 1900 MHz

Medium parameters used:  $f = 1905$  MHz;  $\sigma = 1.423$  mho/m;  $\epsilon_r = 39.94$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE1900-FDD25 1905 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) = 0.316 W/kg

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

Reference Value = 3.458 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.417 W/kg

**SAR(1 g) = 0.269 W/kg; SAR(10 g) = 0.162 W/kg**

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

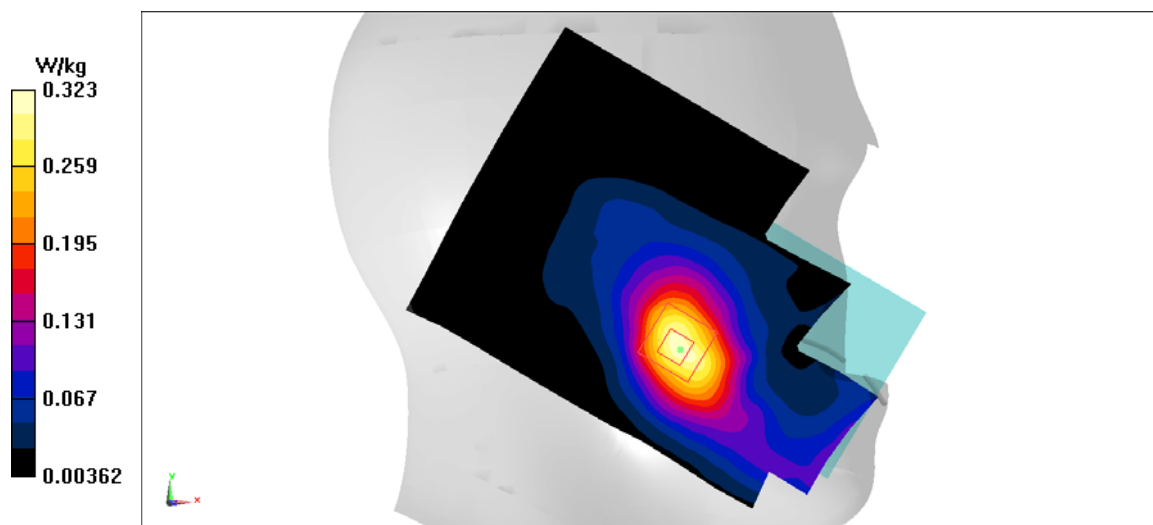


Fig A.11



**LTE1900-FDD25\_CH26590 Rear**

Date: 6/22/2018

Electronics: DAE4 Sn1525

Medium: body 1900 MHz

Medium parameters used:  $f = 1905$  MHz;  $\sigma = 1.507$  mho/m;  $\epsilon_r = 54.07$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE1900-FDD25 1905 MHz Duty Cycle: 1:1

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

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

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

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

Reference Value = 7.667 V/m; Power Drift = 0 dB

Peak SAR (extrapolated) = 1.61 W/kg

**SAR(1 g) = 0.967 W/kg; SAR(10 g) = 0.524 W/kg**

Maximum value of SAR (measured) = 1.19 W/kg

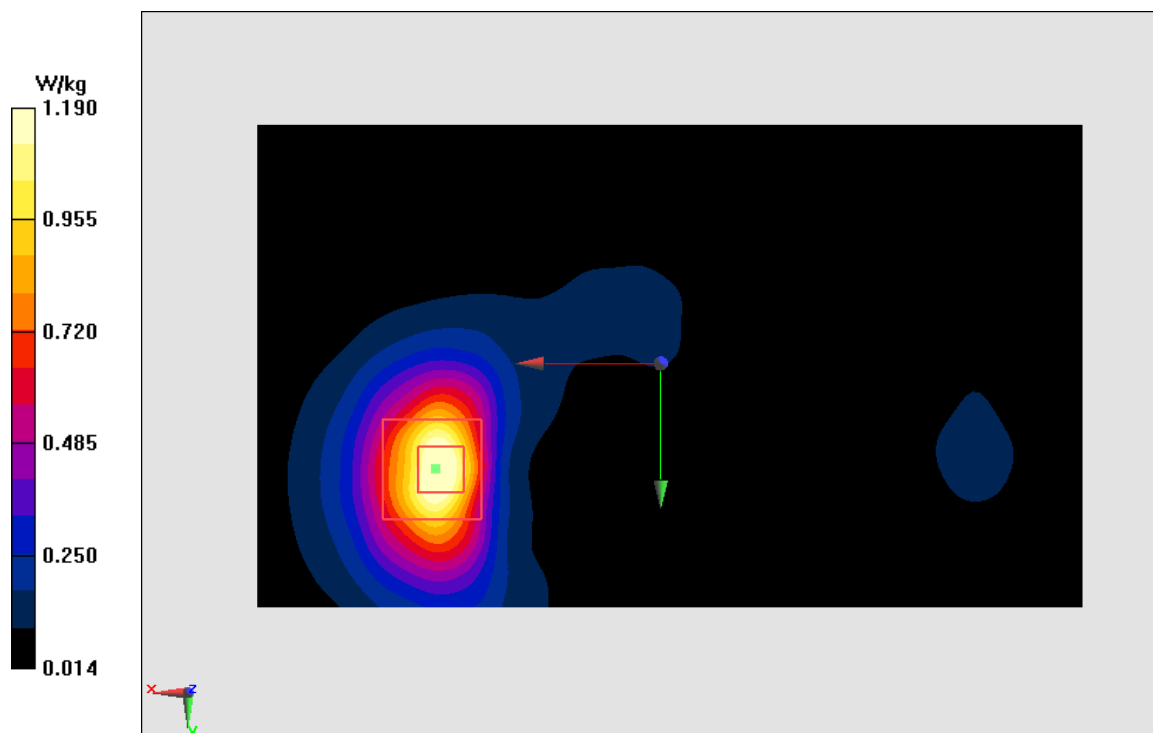


Fig A.12

### LTE850-FDD26\_CH26965 Right Cheek

Date: 6/21/2018

Electronics: DAE4 Sn1525

Medium: head 835 MHz

Medium parameters used:  $f = 841.5$  MHz;  $\sigma = 0.906$  mho/m;  $\epsilon_r = 41.29$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE850-FDD26 841.5 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) = 0.263 W/kg

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

Reference Value = 8.179 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 0.302 W/kg

**SAR(1 g) = 0.243 W/kg; SAR(10 g) = 0.189 W/kg**

Maximum value of SAR (measured) = 0.265 W/kg

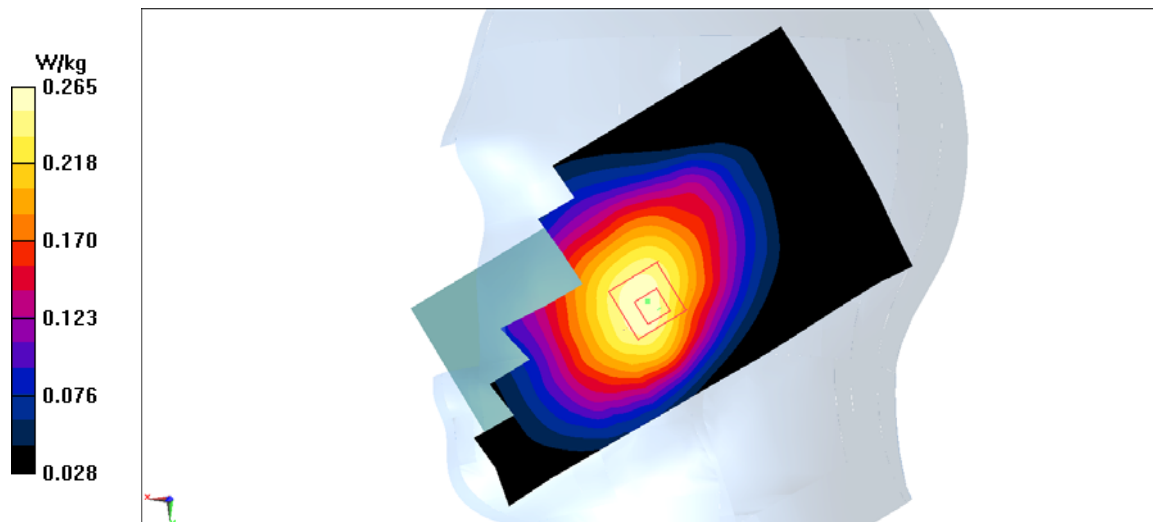


Fig A.13

**LTE850-FDD26\_CH26965 Rear**

Date: 6/21/2018

Electronics: DAE4 Sn1525

Medium: body 835 MHz

Medium parameters used:  $f = 841.5$  MHz;  $\sigma = 0.959$  mho/m;  $\epsilon_r = 54.39$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

Communication System: LTE850-FDD26 841.5 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) = 0.401 W/kg

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

Reference Value = 17.46 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.519 W/kg

**SAR(1 g) = 0.359 W/kg; SAR(10 g) = 0.256 W/kg**

Maximum value of SAR (measured) = 0.407 W/kg

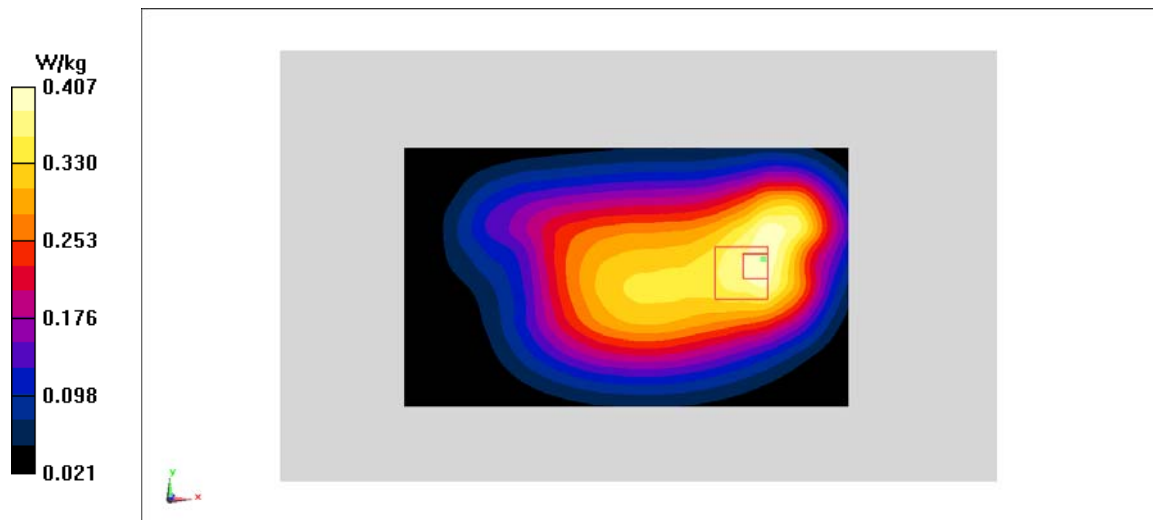


Fig A.14