Table 14-26 LTE1700-FDD66 #1 Body AP OFF

LTE1700-FDD66 #1 Body									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			132572	132322	132072	132572	132322	132072	
			M	M	M	M	M	M	
LTE1700-FDD66 #1 QPSK1RB	Tune-up		23.50	23.50	23.50	Scaling factor*			
	Measured Power [dBm]		23.19	23.28	23.41	1.07	1.05	1.02	
	Front	1g SAR			0.48			0.49	
		10g SAR			0.274			0.28	
		Deviation			0.08			0.08	
	Rear	1g SAR	0.827	0.789	0.908	0.89	0.83	0.93	
		10g SAR	0.446	0.415	0.54	0.48	0.44	0.55	
		Deviation	0.15	0.02	0.08	0.15	0.02	0.08	
	Left edge	1g SAR							
		10g SAR							
		Deviation							
	Right edge	1g SAR							
		10g SAR							
		Deviation							
	Bottom edge	1g SAR							
		10g SAR							
		Deviation							
	Top edge	1g SAR							
		10g SAR							
		Deviation							
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			132572	132322	132072	132572	132322	132072	
			L	L	H				
LTE1700-FDD66 #1 QPSK50% RB	Tune-up		22.50	22.50	22.50	Scaling factor*			
	Measured Power [dBm]		22.22	22.19	22.39	1.07	1.07	1.03	
	Front	1g SAR			0.287			0.29	
		10g SAR			0.139			0.14	
		Deviation			0.05			0.05	
	Rear	1g SAR			0.712			0.73	
		10g SAR			0.423			0.43	
		Deviation			0.02			0.02	
	Left edge	1g SAR							
		10g SAR							
		Deviation							
	Right edge	1g SAR							
		10g SAR							
		Deviation							
	Bottom edge	1g SAR							
		10g SAR							
		Deviation							
	Top edge	1g SAR							
		10g SAR							
		Deviation							
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			132572	132322	132072	132572	132322	132072	
LTE1700-FDD66 #1 QPSK100% RB	Tune-up		22.50	22.50	22.50	Scaling factor*			
	Measured Power [dBm]		22.04	22.15	22.39	1.11	1.08	1.03	
	Rear	1g SAR			0.885			0.91	
		10g SAR			0.521			0.53	
		Deviation			0.02			0.02	

Table 14-27 LTE1700-FDD66 #2 Body AP ON

LTE1700-FDD66 #2 Body									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			132572	132322	132072	132572	132322	132072	
			M	M	M	M	M	M	
LTE1700-FDD66 #2 QPSK1RB	Tune-up		20.00	20.00	20.00	Scaling factor*			
	Measured Power [dBm]		19.67	19.58	19.62	1.08	1.10	1.09	
	Front	1g SAR	0.397			0.43			
		10g SAR	0.233			0.25			
		Deviation	0.01			0.01			
	Rear	1g SAR	0.792	0.798	0.845	0.85	0.88	0.92	
		10g SAR	0.438	0.433	0.466	0.47	0.48	0.51	
		Deviation	0.07	0.06	0.01	0.07	0.06	0.01	
	Left edge	1g SAR	0.087			0.09			
		10g SAR	0.051			0.06			
		Deviation	0.08			0.08			
	Right edge	1g SAR	0.052			0.06			
		10g SAR	0.035			0.04			
		Deviation	0.11			0.11			
	Bottom edge	1g SAR	0.864	0.733	0.839	0.93	0.81	0.91	
		10g SAR	0.481	0.396	0.463	0.52	0.44	0.50	
		Deviation	-0.12	0.07	0.01	-0.12	0.07	0.01	
	Top edge	1g SAR							
		10g SAR							
		Deviation							
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			132572	132322	132072	132572	132322	132072	
			L	L	H				
LTE1700-FDD66 #2 QPSK50% RB	Tune-up		19.00	19.00	19.00	Scaling factor*			
	Measured Power [dBm]		19.57	19.55	19.60	1.00	1.00	1.00	
	Front	1g SAR			0.331			0.33	
		10g SAR			0.189			0.19	
		Deviation			0.12			0.12	
	Rear	1g SAR			0.72			0.72	
		10g SAR			0.39			0.39	
		Deviation			0.06			0.06	
	Left edge	1g SAR			0.068			0.07	
		10g SAR			0.038			0.04	
		Deviation			-0.08			-0.08	
	Right edge	1g SAR			0.038			0.04	
		10g SAR			0.026			0.03	
		Deviation			0.08			0.08	
	Bottom edge	1g SAR			0.738			0.74	
		10g SAR			0.41			0.41	
		Deviation			0.07			0.07	
	Top edge	1g SAR							
		10g SAR							
		Deviation							
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			132572	132322	132072	132572	132322	132072	
LTE1700-FDD66 #2 QPSK100% RB	Tune-up		19.00	19.00	19.00	Scaling factor*			
	Measured Power [dBm]		19.50	19.49	19.57	1.00	1.00	1.00	
	Rear	1g SAR			0.74			0.74	
		10g SAR			0.408			0.41	
		Deviation			-0.01			-0.01	
LTE1700-FDD66 #2 QPSK100% RB	*Bottom edge*	1g SAR			0.754			0.82	
		10g SAR			0.416			0.45	
		Deviation			0.08			0.08	
LTE1700-FDD66 #2 QPSK1RB	*Bottom edge 0mm*	1g SAR	2.75			2.97			
		10g SAR	1.21			1.31			
		Deviation	-0.09			-0.09			
LTE1700-FDD66 #2 QPSK1RB	*Rear 0mm*	1g SAR	2.52			2.72			
		10g SAR	1.1			1.19			
		Deviation	0.05			0.05			

Table 14-28 LTE700-FDD71 #1 Head

LTE700-FDD71 #1 Head								
Ambient Temperature:	22.5					Liquid Temperature:		22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			133372	133297	133222	133372	133297	133222
			M	M	M	M	M	M
LTE700-FDD71 #1 QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*		
	Measured Power [dBm]		23.44	23.32	23.38	1.14	1.17	1.15
	Left Cheek	1g SAR	0.382			0.43		
		10g SAR	0.276			0.31		
		Deviation	-0.07			-0.07		
	Left Tilt	1g SAR	0.29			0.33		
		10g SAR	0.187			0.21		
		Deviation	0.05			0.05		
	Right Cheek	1g SAR	0.342			0.39		
		10g SAR	0.224			0.25		
		Deviation	0.01			0.01		
	Right Tilt	1g SAR	0.297			0.34		
		10g SAR	0.171			0.19		
		Deviation	-0.03			-0.03		
TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			133372	133297	133222	133372	133297	133222
			M	M	H	M	M	H
LTE700-FDD71 #1 QPSK50% RB	Tune-up		23.00	23.00	23.00	Scaling factor*		
	Measured Power [dBm]		22.29	22.29	22.33	1.18	1.18	1.17
	Left Cheek	1g SAR			0.279			0.33
		10g SAR			0.206			0.24
		Deviation			0.08			0.08
	Left Tilt	1g SAR			0.207			0.24
		10g SAR			0.143			0.17
		Deviation			0.02			0.02
	Right Cheek	1g SAR			0.251			0.29
		10g SAR			0.167			0.19
		Deviation			0.01			0.01
	Right Tilt	1g SAR			0.216			0.25
		10g SAR			0.125			0.15
		Deviation			-0.01			-0.01

Table 14-29 LTE700-FDD71 #1 Body

LTE700-FDD71 #1 Body								
Ambient Temperature:	22.5					Liquid Temperature:		22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			133372	133297	133222	133372	133297	133222
			M	M	M	M	M	M
LTE700-FDD71 #1 QPSK1RB	Tune-up		24.00	24.00	24.00	Scaling factor*		
	Measured Power [dBm]		23.44	23.32	23.38	1.14	1.17	1.15
	Front	1g SAR	0.129			0.15		
		10g SAR	0.104			0.12		
		Deviation	0.04			0.04		
	Rear	1g SAR	0.222			0.25		
		10g SAR	0.178			0.20		
		Deviation	0.01			0.01		
	Left edge	1g SAR	0.088			0.10		
		10g SAR	0.063			0.07		
		Deviation	0.01			0.01		
	Right edge	1g SAR	0.191			0.22		
		10g SAR	0.108			0.12		
		Deviation	-0.05			-0.05		
	Bottom edge	1g SAR						
		10g SAR						
		Deviation						
	Top edge	1g SAR	0.056			0.06		
		10g SAR	0.038			0.04		
		Deviation	0.09			0.09		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			133372	133297	133222	133372	133297	133222
			M	M	H			
LTE700-FDD71 #1 QPSK50% RB	Tune-up		23.00	23.00	23.00	Scaling factor*		
	Measured Power [dBm]		22.29	22.29	22.33	1.18	1.18	1.17
	Front	1g SAR			0.067			0.08
		10g SAR			0.055			0.06
		Deviation			0.02			0.02
	Rear	1g SAR			0.115			0.13
		10g SAR			0.091			0.11
		Deviation			-0.01			-0.01
	Left edge	1g SAR			0.045			0.05
		10g SAR			0.029			0.03
		Deviation			-0.04			-0.04
	Right edge	1g SAR			0.099			0.12
		10g SAR			0.061			0.07
		Deviation			0.03			0.03
	Bottom edge	1g SAR						
		10g SAR						
		Deviation						
	Top edge	1g SAR			0.036			0.04
		10g SAR			0.019			0.02
		Deviation			-0.12			-0.12

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
GSM850	128	824.2 MHz	33	32.74	Right Cheek	0.059	0.074	0.06	0.08	0.07	Fig A.1
GSM850	251	848.8 MHz	30	29.33	Rear	0.183	0.334	0.21	0.39	0.06	Fig A.2
PCS1900	810	1909.8 MHz	30.5	29.72	Right Cheek	0.044	0.072	0.05	0.09	0.07	Fig A.3
PCS1900	512	1850.2 MHz	30	29.64	Rear	0.229	0.381	0.25	0.41	-0.05	Fig A.4
PCS1900	512	1850.2 MHz	25	24.64	Bottom edge	0.611	1.09	0.66	1.18	-0.12	Fig A.5
WCDMA1900-BII	9400	1880 MHz	24	23.88	Left Cheek	0.121	0.191	0.12	0.20	0.11	Fig A.6
WCDMA1900-BII	9262	1852.4 MHz	24	23.95	Rear	0.313	0.518	0.32	0.52	-0.05	Fig A.7
WCDMA1900-BII	9400	1880 MHz	21	20.27	Bottom edge	0.382	0.701	0.45	0.83	-0.03	Fig A.8
WCDMA1700-BIV	1412	1732.4 MHz	24.2	24.05	Right Cheek	0.096	0.149	0.10	0.15	0.16	Fig A.9
WCDMA1700-BIV	1513	1752.6 MHz	24.2	24.04	Rear	0.634	1.06	0.66	1.10	0.07	Fig A.10
WCDMA1700-BIV	1513	1752.6 MHz	21.2	20.02	Bottom edge	0.471	0.852	0.62	1.12	-0.06	Fig A.11
WCDMA850-BV	4132	826.4 MHz	24	23.85	Right Cheek	0.094	0.119	0.10	0.12	0.03	Fig A.12
WCDMA850-BV	4182	835.4 MHz	24	23.89	Rear	0.141	0.258	0.14	0.26	-0.02	Fig A.13
LTE1900-FDD2	18700	1860 MHz	24	23.24	Right Cheek	0.1	0.159	0.12	0.19	0.03	Fig A.14
LTE1900-FDD2	18700	1860 MHz	24	23.24	Rear	0.287	0.474	0.34	0.56	-0.1	Fig A.15
LTE1900-FDD2	18700	1860 MHz	20.5	20.01	Bottom edge	0.436	0.802	0.49	0.90	-0.01	Fig A.16
LTE850-FDD5	20600	844 MHz	23.5	23.03	Left Cheek	0.066	0.084	0.07	0.09	0.03	Fig A.17
LTE850-FDD5	20600	844 MHz	23.5	23.03	Rear	0.143	0.261	0.16	0.29	0.06	Fig A.18
LTE2500-FDD7	21100	2535 MHz	24.5	23.94	Right Cheek	0.025	0.049	0.03	0.06	0.09	Fig A.19
LTE2500-FDD7	21100	2535 MHz	24.5	23.94	Bottom edge	0.219	0.486	0.25	0.55	-0.03	Fig A.20
LTE700-FDD12	23130	711 MHz	24	23.35	Right Cheek	0.334	0.468	0.39	0.54	0.07	Fig A.21
LTE700-FDD12	23130	711 MHz	24	23.35	Rear	0.181	0.226	0.21	0.26	0.05	Fig A.22
LTE750-FDD13	23230	782 MHz	24	23.23	Right Cheek	0.093	0.115	0.11	0.14	0.08	Fig A.23
LTE750-FDD13	23230	782 MHz	24	23.23	Rear	0.149	0.191	0.18	0.23	0.04	Fig A.24
LTE1700-FDD66	132072	782 MHz	23.5	23.41	Right Cheek	0.078	0.121	0.08	0.12	0.03	Fig A.25
LTE1700-FDD66	132072	782 MHz	23.5	23.41	Rear	0.54	0.908	0.55	0.93	0.08	Fig A.26
LTE1700-FDD66	132572	782 MHz	20	19.67	Bottom edge	0.481	0.864	0.52	0.93	-0.12	Fig A.27
LTE700-FDD71	133372	782 MHz	24	23.44	Left Cheek	0.276	0.382	0.31	0.43	-0.07	Fig A.28
LTE700-FDD71	133372	782 MHz	24	23.44	Rear	0.178	0.222	0.20	0.25	0.01	Fig A.29

14.3 2.4G 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 14-30 WLAN2450 #1

WLAN2450 #1									
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		14.5	13.5	13	Scaling factor*			
	Slot Average Power [dBm]		14.39	13.28	12.92	1.03	1.05	1.02	
	Left Cheek	1g Fast SAR	0.408			0.42			
		10g SAR	0.213			0.22			
		Deviation	0.02			0.02			
	Left Tilt	1g Fast SAR	0.338			0.35			
		10g SAR	0.168			0.17			
		Deviation	-0.03			-0.03			
	Right Cheek	1g Fast SAR	0.217			0.22			
		10g SAR	0.113			0.12			
		Deviation	0.04			0.04			
	Right Tilt	1g Fast SAR	0.232			0.24			
		10g SAR	0.112			0.11			
		Deviation	0.02			0.02			

Table 14-31 WLAN2450 #1 Head Full SAR

WLAN2450 #1 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		14.5	13.5	13	Scaling factor*			
	Slot Average Power [dBm]		14.39	13.28	12.92	1.03	1.05	1.02	
	Left Cheek	1g Full SAR	0.403			0.41			
		10g SAR	0.213			0.22			
		Deviation	0.02			0.02			
	Left Tilt	1g Full SAR	0.325			0.33			
		10g SAR	0.166			0.17			
		Deviation	-0.03			-0.03			
	Right Cheek	1g Full SAR							
		10g SAR							
		Deviation							
	Right Tilt	1g Full SAR							
		10g SAR							
		Deviation							

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	11	Left Cheek	100.00%	100%	**0.41**	**0.41**	Fig A.30

Table 14-32 WLAN2450 #2 Body Fast SAR

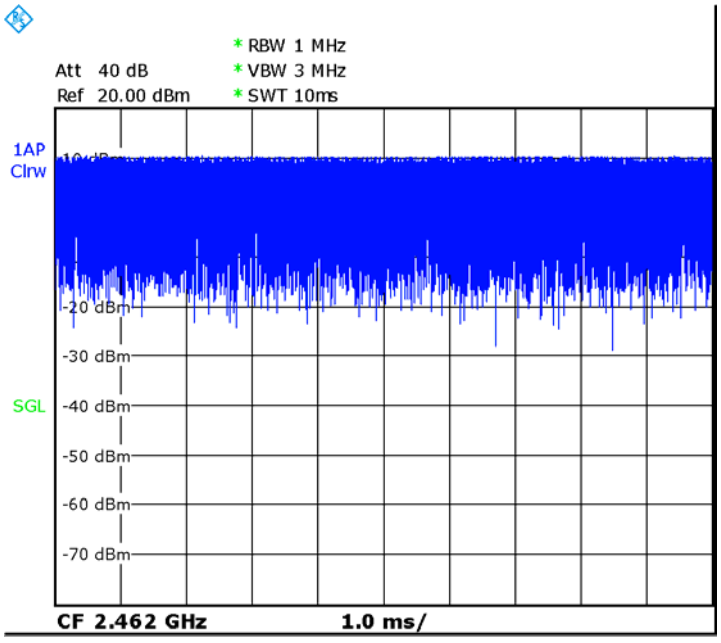
WLAN2450 #2 Body Fast SAR									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Rate	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			11	6	1	11	6	1	
			2462 MHz	2437 MHz	2412 MHz				
	Tune up		20	19	19	Scaling factor*			
	Slot Average Power [dBm]		19.54	18.78	18.59	1.11	1.05	1.10	
802.11b 5.5Mbps	Front	1g Fast SAR	0.392			0.44			
		10g SAR	0.203			0.23			
		Deviation	0.09			0.09			
	Rear	1g Fast SAR	0.445			0.49			
		10g SAR	0.231			0.26			
		Deviation	-0.15			-0.15			
	Top edge	1g Fast SAR	0.387			0.43			
		10g SAR	0.182			0.20			
		Deviation	-0.09			-0.09			
	Rear 15mm	1g Fast SAR	0.22			0.24			
		10g SAR	0.115			0.13			
		Deviation	0.08			0.08			
	Left edge	1g Fast SAR	0.31			0.34			
		10g SAR	0.157			0.17			
		Deviation	-0.16			-0.16			
	Right edge	1g Fast SAR							
		10g SAR							
		Deviation							

Table 14-33 WLAN2450 #2 Body Full SAR

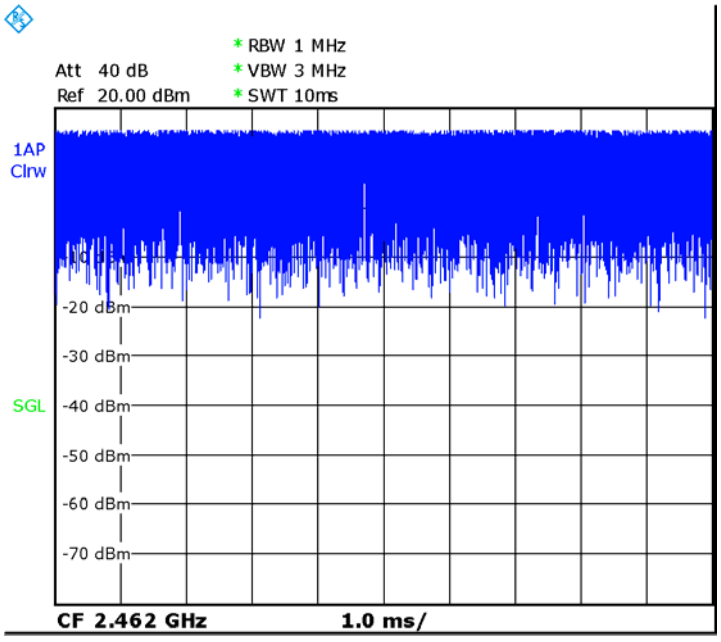
WLAN2450 #2 Body Full SAR									
Ambient Temperature:	22.5					Liquid Temperature:	22.3		
Rate	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]			
			11	6	1	11	6	1	
			2462 MHz	2437 MHz	2412 MHz				
	Tune up		20	19	19	Scaling factor*			
	Slot Average Power [dBm]		19.54	18.78	18.59	1.11	1.05	1.10	
802.11b 5.5Mbps	Front	1g Full SAR	0.413			0.46			
		10g SAR	0.209			0.23			
		Deviation	0.09			0.09			
	Rear	1g Full SAR	0.478			0.53			
		10g SAR	0.241			0.27			
		Deviation	-0.15			-0.15			
	Rear 15mm	1g Full SAR	0.223			0.25			
		10g SAR	0.118			0.13			
		Deviation	0.08			0.08			
	Right edge	1g Full SAR							
		10g SAR							
		Deviation							
	Bottom edge	1g Full SAR							
		10g SAR							
		Deviation							
	Top edge	1g Full SAR							
		10g SAR							
		Deviation							

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	11	Rear	100.00%	100%	**0.53**	0.53	Fig A.31
2462	11	Rear 15mm	100.00%	100%	**0.25**	0.25	/

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



Picture 14.1 Duty factor plot Low Power



Picture 14.2 Duty factor plot Normal Power

14.4 5G WLAN Evaluation

Table 14-34: OFDM mode specified maximum output power of WLAN antenna

802.11 mode	a	g	n		ac			
Ch. BW(MHz)	20	20	20	40	20	40	80	160
U-NII-1	X		X	X	X	X	X	
U-NII-2A	X		X	X	X	X	X	
U-NII-2C	X		X	X	X	X	X	
U-NII-3	X		X	X	X	X	X	
§ 15.247 (5.8 GHz)								
X: maximum(conducted) output power(mW), including tolerance, specified for production units								

Table 14-35: Maximum output power specified of WLAN antenna

802.11 mode	a	g	n		ac			
Ch. BW(MHz)	20	20	20	40	20	40	80	160
U-NII-1	71		76	56	71	56	56	
U-NII-2A	71		76	56	71	56	56	
U-NII-3	56		63	56	56	56	56	
§ 15.247 (5.8 GHz)								

- The maximum output power specified for production units is the same for all channels, modulations and data rates in each channel bandwidth configuration of the 802.11a/g/n/ac modes.
- The blue highlighted cells represent highest output configurations in each standalone or aggregated frequency band, with tune-up tolerance included.
- For SAR test reduction in the 2.4GHz band, the maximum output specified for production units is 63mW for 802.11b and the highest reported SAR for DSSS is 1.39 W/kg for head, 0.29 W/kg for body.

Table 14-36: Maximum output power measured of WLAN antenna, for the applicable OFDM configurations according to the default power measurement procedures for selection initial test configurations

802.11 mode	a	n		ac		
BW(MHz)	20	20	40	20	40	80
U-NII-1	36/40/44/48 Lower power	36/40/44/48 **59/64/69/67**	38/46 Lower power	36/40/44/48 Lower power	38/46 Lower power	42 Lower power
U-NII-2A	52/56/60/64 Lower power	52/56/60/64 **66/63/63/67**	54/62 Lower power	52/56/60/64 Lower power	54/62 Lower power	58 Lower power
U-NII-3	149/153/157/161/165 Lower power	149/153/157/161/165 **58/57/57/51/47**	151/159 Lower power	149/153/157/161/165 Lower power	151/159 Lower power	155 Lower power
● Channels with measured maximum power within 0.25dB are considered to have the same measured output. Channels selected for initial test configuration are highlighted in yellow.						

Table 14-37: Reported SAR of initial test configuration for head

802.11 mode	a	n		ac		
BW(MHz)	20	20	40	20	40	80
U-NII-1	36/40/44/48	36/40/44/48 U-NII-2A exclusion applied	38/46	36/40/44/48	38/46	42
U-NII-2A	52/56/60/64	52/56/60/64 **0.79**	54/62	52/56/60/64	54/62	58
U-NII-3	149/153/157/161/165	149/153/157/161/165 **1.03**	151/159	149/153/157/161/165	151/159	155
U-NII-1 and U-NII-2A bands have the same specified maximum output and tolerance; SAR is measured for U-NII-2A band first. Adjusted SAR of U-NII-2A band is ≤ 1.2W/kg, SAR is not required for U-NII-1 band.						

Table 14-38: Reported SAR of next highest measured output channel in initial test configuration for head

802.11 mode	a	n		ac		
BW(MHz)	**20**	**20**	**40**	**20**	**40**	**80**
U-NII-1	36/40/44/48	36/40/44/48 U-NII-2A exclusion applied	38/46	36/40/44/48	38/46	42
U-NII-2A	52/56/60/64	52/56/60/64 **0.79**	54/62	52/56/60/64	54/62	58
U-NII-3	149/153/157/161/165	149/153/157/161 /165 **1.03/1.03**	151/159	149/153/157/161 /165	151/159	155

- The green highlighted channels are next highest measured output channel in the initial test configuration. Highest measured output power channel tested initially are in yellow highlight.
- Initial test configuration SAR for U-NII-2C band is > 0.8 W/kg, SAR is required for next highest output channel in initial test configuration. The next highest output channel SAR is ≤ 1.2 W/kg, SAR is not required for subsequent next highest output channel. Similar circumstances apply to U-NII-3 band.
- Adjusted SAR according to the ratio of the specified maximum output power of subsequent test configuration to initial test configuration is ≤ 1.2 W/kg. Therefore, subsequent test configuration SAR is not required.

Table 14-39: Reported SAR of initial test configuration for body

802.11 mode	a	n		ac		
BW(MHz)	**20**	**20**	**40**	**20**	**40**	**80**
U-NII-1	36/40/44/48	36/40/44/48 U-NII-2A exclusion applied	38/46	36/40/44/48	38/46	42
U-NII-2A	52/56/60/64	52/56/60/64 **0.40**	54/62	52/56/60/64	54/62	58
U-NII-3	149/153/157/161/165	149/153/157/161 /165 **0.49**	151/159	149/153/157/161 /165	151/159	155

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

Table 14-40: SAR Values (WLAN - Head) – 802.11n 20M MCS5

Full Power										
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
5320	64	L	Cheek	/	18.25	18.5	0.167	**0.18**	0.443	**0.47**	0.08
5320	64	L	Tilt	/	18.25	18.5	0.163	**0.17**	0.432	**0.46**	-0.02
5320	64	R	Cheek	/	18.25	18.5	0.285	**0.30**	0.749	**0.79**	0.06
5320	64	R	Tilt	/	18.25	18.5	0.265	**0.28**	0.726	**0.77**	0.17
5745	149	L	Cheek	/	17.66	18	0.248	**0.27**	0.632	**0.68**	0.01
5745	149	L	Tilt	/	17.66	18	0.26	**0.28**	0.675	**0.73**	-0.06
5745	149	R	Cheek	Fig.32	17.66	18	0.328	**0.35**	0.953	**1.03**	0.09
5745	149	R	Tilt	/	17.66	18	0.305	**0.33**	0.864	**0.93**	0.03
5785	157	R	Cheek	/	17.59	18	0.344	**0.38**	0.936	**1.03**	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.

Table 14-41: SAR Values (WLAN - Head) –802.11n 20M MCS5 (Scaled Reported SAR)

Full Power							
Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
MHz	Ch.						
5745	149	Right	Touch	100%	100%	**1.03**	**1.03**

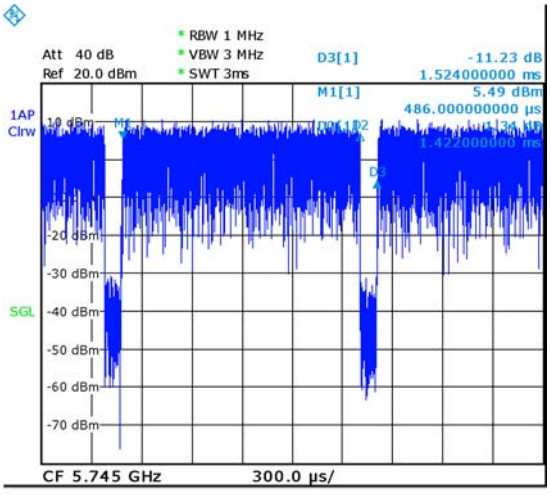
Table 14-42: SAR Values (WLAN - Body) –802.11n 20M MCS5

Full Power											
Frequency		Test Position	D (mm)	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
5320	64	Front	10	/	18.25	18.5	0.079	**0.08**	0.22	**0.23**	0.01
5320	64	Rear	10	/	18.25	18.5	0.053	**0.06**	0.162	**0.17**	0.08
5320	64	Left	10	/	18.25	18.5	0.074	**0.08**	0.195	**0.21**	0.02
5320	64	Top	10	/	18.25	18.5	0.133	**0.14**	0.376	**0.40**	-0.05
5745	149	Front	10	/	17.66	18	0.131	**0.14**	0.352	**0.38**	0.04
5745	149	Rear	10	/	17.66	18	0.066	**0.07**	0.2	**0.22**	-0.01
5745	149	Left	10	Fig.33	17.66	18	0.166	**0.05**	0.45	**0.49**	-0.05
5745	149	Top	10	/	17.66	18	0.11	**0.05**	0.285	**0.31**	0.03

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 14-43: SAR Values (WLAN - Body) – 802.11a 6Mbps (Scaled Reported SAR)

Full Power						
Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
MHz	Ch.					
5745	149	Left 10mm	100%	100%	**0.49**	**0.49**



Picture 14.3 The plot of duty factor for UNII-3

15 SAR Measurement Variability

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

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

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.

2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.

3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 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 ≥ 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 Poisition	Original SAR (W/kg)	First Repeated SAR(W/kg)	The Ratio
PCS1900	512	1850.2 MHz	Bottom edge	1.09	1.07	1.02
WCDMA1700-BIV	1513	1752.6 MHz	Rear	1.06	1.05	1.01
WCDMA1700-BIV	1513	1752.6 MHz	Bottom edge	0.852	0.841	1.01
LTE1700-FDD66	132072	782 MHz	Rear	0.908	0.888	1.02
LTE1700-FDD66	132572	782 MHz	Bottom edge	0.864	0.852	1.01
WLAN 5G	149	5745 MHz	Right Cheek	0.953	0.949	1.00

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	RFambient 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	RF ambient conditions-reflection	B	0	R	$\sqrt{3}$	1	1	0	0	∞
11	Probe positioned mech. restrictions	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
12	Probe positioning with respect to phantom shell	B	6.7	R	$\sqrt{3}$	1	1	3.9	3.9	∞
13	Post-processing	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
Test sample related										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
15	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
16	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
17	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
18	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
19	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
20	Liquid permittivity	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞

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

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

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
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	E5071C	MY46110673	January 24, 2018	One year
02	Power meter	NRVD	102083	November 01, 2017	One year
03	Power sensor	NRV-Z5	100542		
04	Signal Generator	E4438C	MY49071430	January 2,2018	One Year
05	Amplifier	60S1G4	0331848	No Calibration Requested	
06	BTS	E5515C	MY50263375	January 23, 2018	One year
07	BTS	CMW500	149646	October 31, 2017	One year
08	E-field Probe	SPEAG EX3DV4	7464	September 12,2017	One year
09	DAE	SPEAG DAE4	1525	October 2, 2017	One year
10	Dipole Validation Kit	SPEAG D750V3	1017	July 19, 2017	One year
11	Dipole Validation Kit	SPEAG D835V2	4d069	July 19, 2017	One year
12	Dipole Validation Kit	SPEAG D1750V2	1003	July 21, 2017	One year
13	Dipole Validation Kit	SPEAG D1900V2	5d101	July 26, 2017	One year
14	Dipole Validation Kit	SPEAG D2300V2	1018	July 21, 2017	One year
15	Dipole Validation Kit	SPEAG D2450V2	853	July 21, 2017	One year
16	Dipole Validation Kit	SPEAG D2600V2	1012	July 21, 2017	One year
17	Dipole Validation Kit	SPEAG D5GHzV2	1262	September 06,2017	One year

END OF REPORT BODY

ANNEX A Graph Results

GSM850_CH128 Right Cheek
Date: 4/2/2018
Electronics: DAE4 Sn1525
Medium: Head 835 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.878 mho/m; εr = 40.7; ρ = 1000 kg/m^3
Ambient Temperature: 22.5°C, Liquid Temperature: 22.3°C
Communication System: GSM850 824.2 MHz Duty Cycle: 1:8.3
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) = 0.0803 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.857 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.091 W/kg
SAR(1 g) = 0.074 W/kg; SAR(10 g) = 0.059 W/kg
Maximum value of SAR (measured) = 0.0806 W/kg

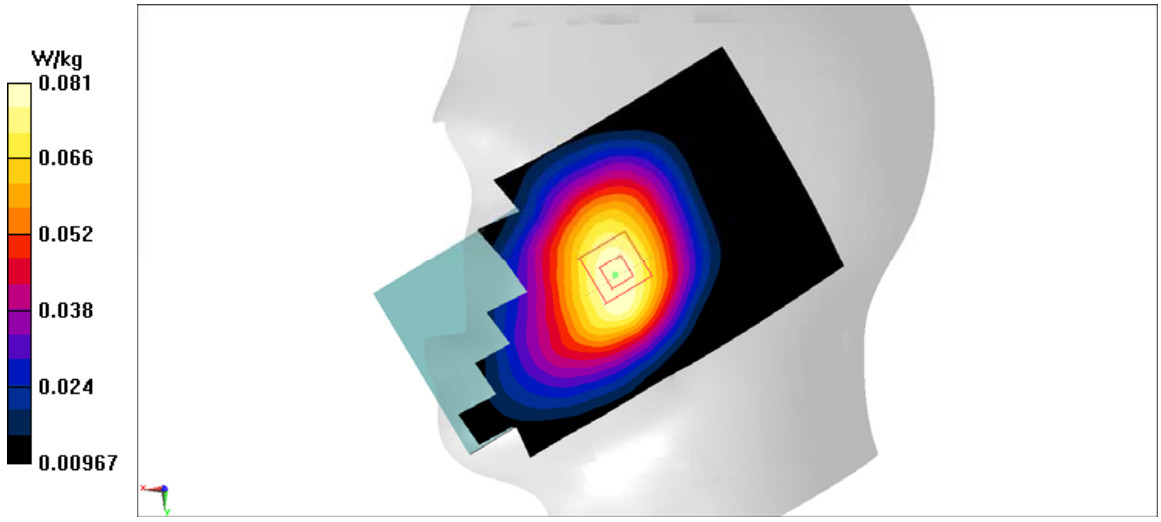


Fig A.1

GSM850_CH251 Rear
Date: 4/2/2018
Electronics: DAE4 Sn1525
Medium: Head 835 MHz
Medium parameters used: f = 848.8 MHz; σ = 0.968 mho/m; εr = 54.41; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: GSM850 848.8 MHz Duty Cycle: 1:2
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) = 0.384 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.31 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.613 W/kg
SAR(1 g) = 0.334 W/kg; SAR(10 g) = 0.183 W/kg
Maximum value of SAR (measured) = 0.422 W/kg

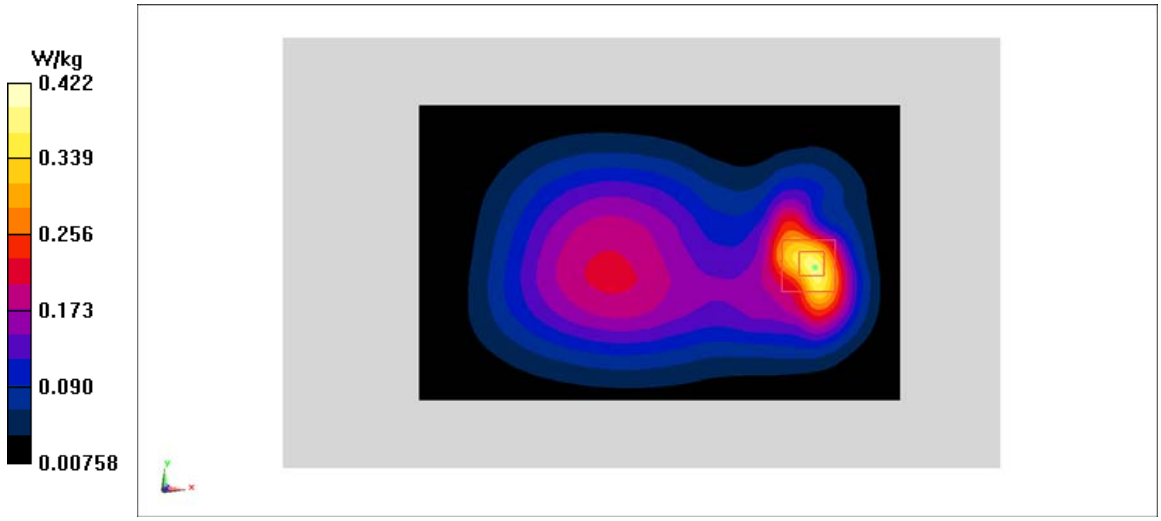


Fig A.2

PCS1900_CH810 Right Cheek
Date: 4/4/2018
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1909.8 MHz; σ = 1.42 mho/m; εr = 39.37; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: PCS1900 1909.8 MHz Duty Cycle: 1:8.3
Probe: EX3DV4 – SN7464 ConvF(9.39,9.39,9.39)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.104 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.702 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.125 W/kg
SAR(1 g) = 0.072 W/kg; SAR(10 g) = 0.044 W/kg
Maximum value of SAR (measured) = 0.0966 W/kg

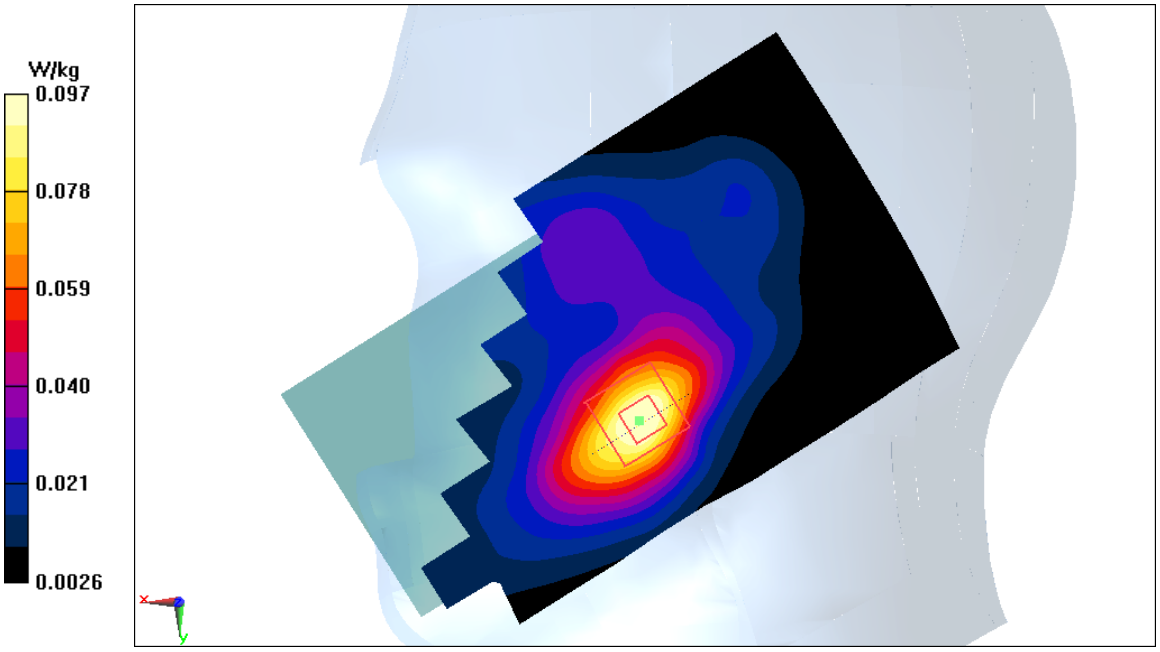


Fig A.3

PCS1900_CH512 Rear
Date: 4/4/2018
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.448 mho/m; εr = 52.91; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: PCS1900 1850.2 MHz Duty Cycle: 1:4
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) = 0.443 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.035 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.589 W/kg
SAR(1 g) = 0.381 W/kg; SAR(10 g) = 0.229 W/kg
Maximum value of SAR (measured) = 0.452 W/kg

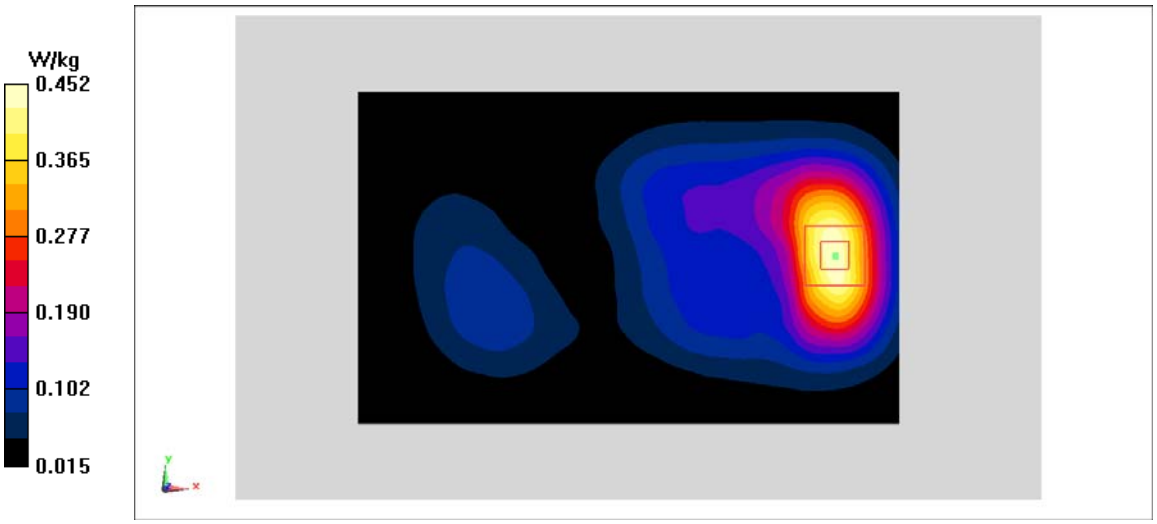


Fig A.4

PCS1900_CH512 Bottom edge
Date: 4/4/2018
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.448 mho/m; εr = 52.91; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: PCS1900 1850.2 MHz Duty Cycle: 1:2
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) = 1.35 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.37 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 1.78 W/kg
SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.611 W/kg
Maximum value of SAR (measured) = 1.32 W/kg

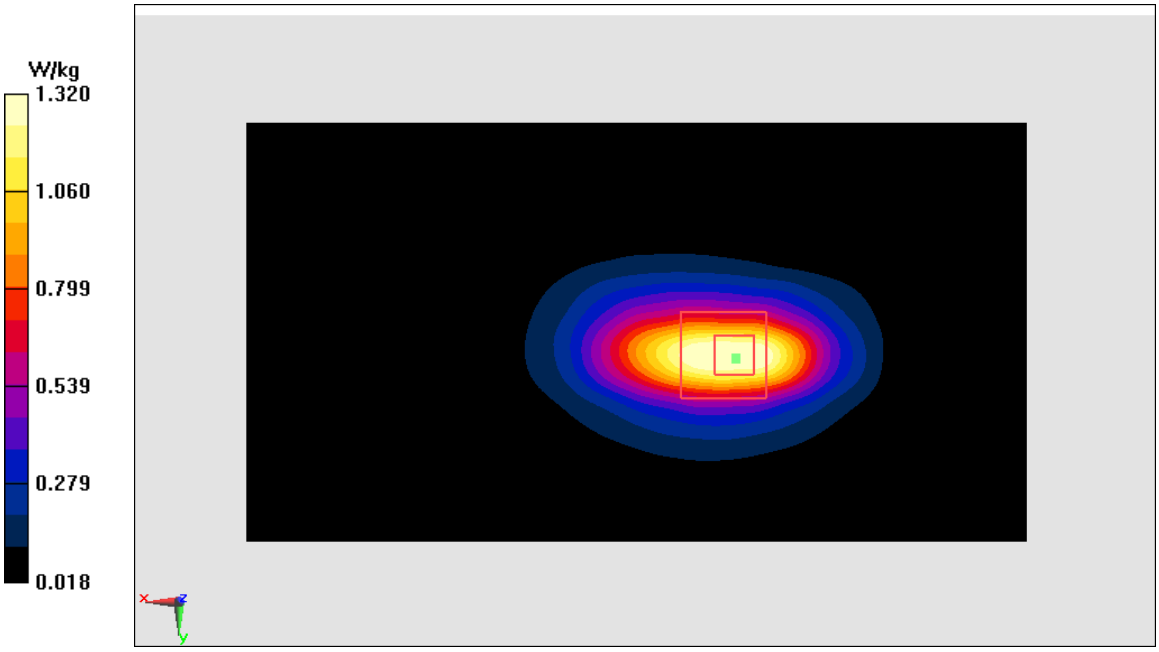


Fig A.5

WCDMA1900-BII_CH9400 Left Cheek
Date: 4/4/2018
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.392 mho/m; εr = 39.4; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA1900-BII 1880 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(9.39,9.39,9.39)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.235 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.977 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.29 W/kg
SAR(1 g) = 0.191 W/kg; SAR(10 g) = 0.121 W/kg
Maximum value of SAR (measured) = 0.22 W/kg

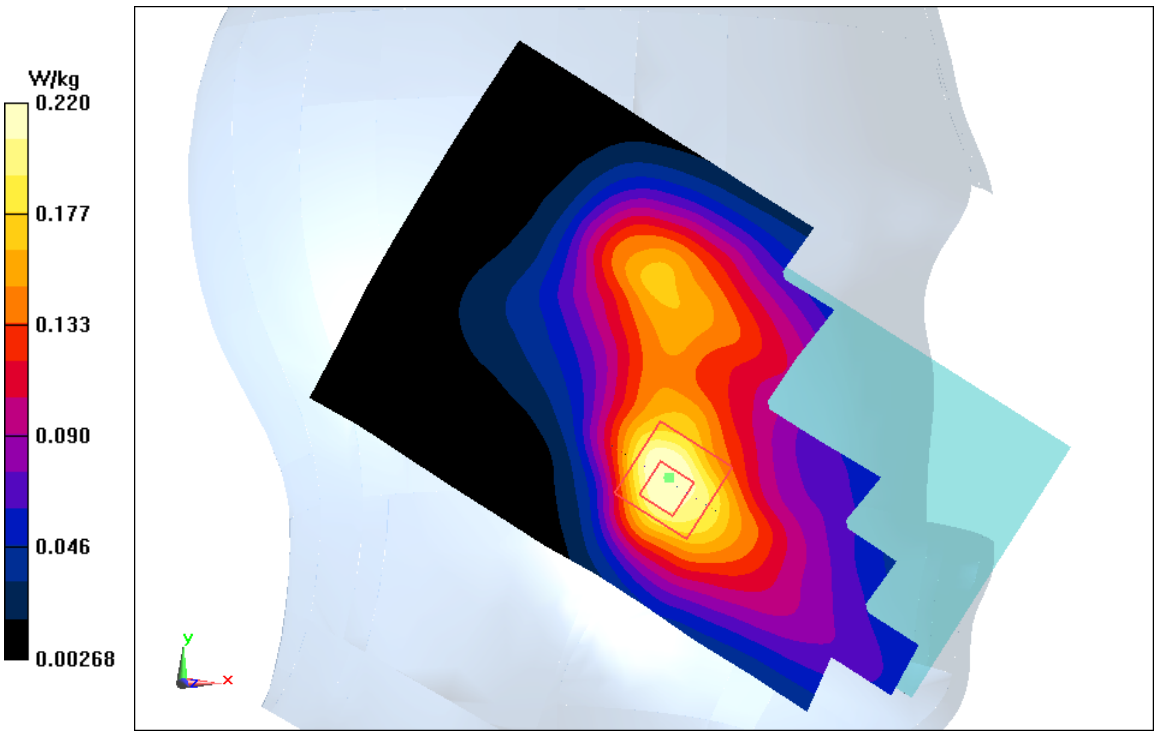


Fig A.6

WCDMA1900-BII_CH9262 Rear
Date: 4/4/2018
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1852.4 MHz; σ = 1.45 mho/m; εr = 52.91; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA1900-BII 1852.4 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) = 0.667 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.161 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.834 W/kg
SAR(1 g) = 0.518 W/kg; SAR(10 g) = 0.313 W/kg
Maximum value of SAR (measured) = 0.611 W/kg

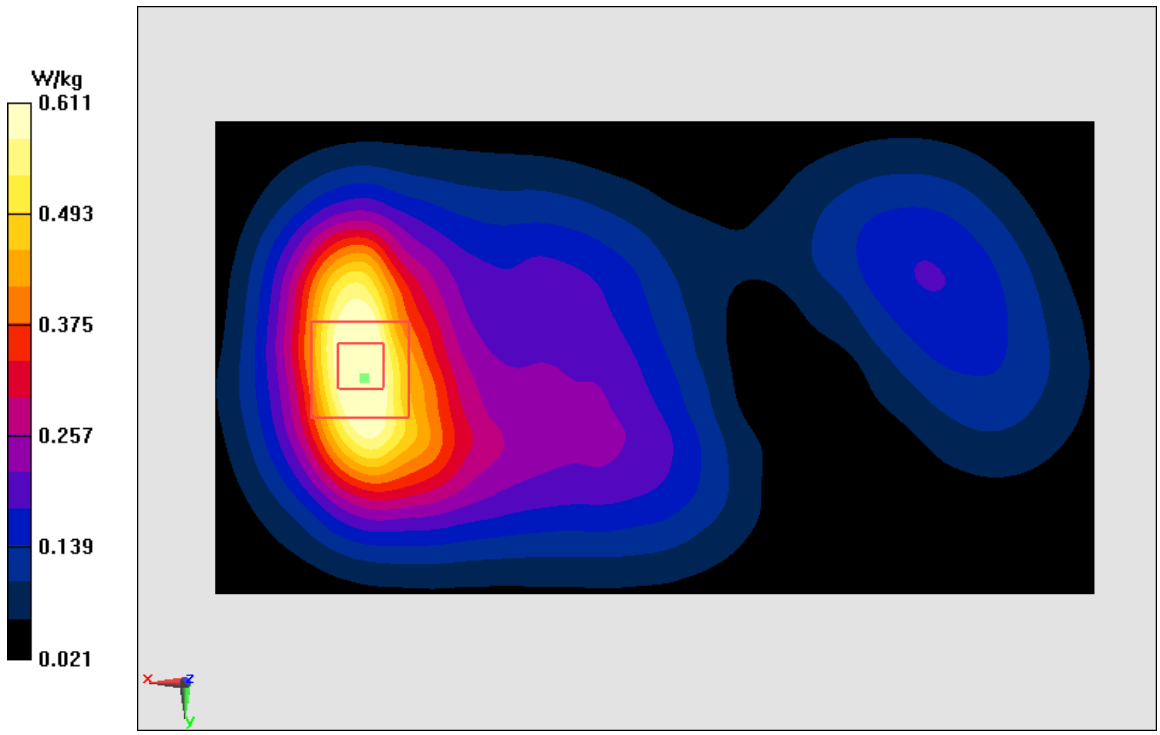


Fig A.7

WCDMA1900-BII_CH9400 Bottom edge
Date: 4/4/2018
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.477 mho/m; εr = 52.87; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA1900-BII 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) = 0.851 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.49 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.701 W/kg; SAR(10 g) = 0.382 W/kg
Maximum value of SAR (measured) = 0.853 W/kg

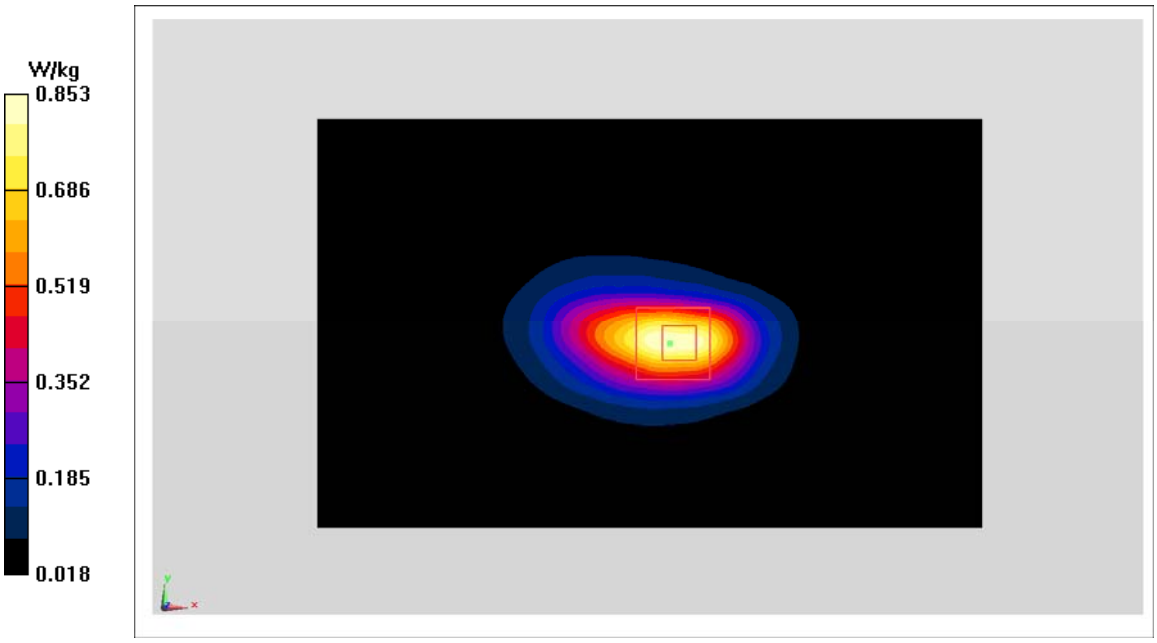


Fig A.8

WCDMA1700-BIV_CH1412 Right Cheek
Date: 4/3/2018
Electronics: DAE4 Sn1525
Medium: Head 1750 MHz
Medium parameters used: f = 1732.4 MHz; σ = 1.337 mho/m; εr = 40.22; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA1700-BIV 1732.4 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(8.70,8.70,8.70)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.181 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.115 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.219 W/kg
SAR(1 g) = 0.149 W/kg; SAR(10 g) = 0.096 W/kg
Maximum value of SAR (measured) = 0.17 W/kg

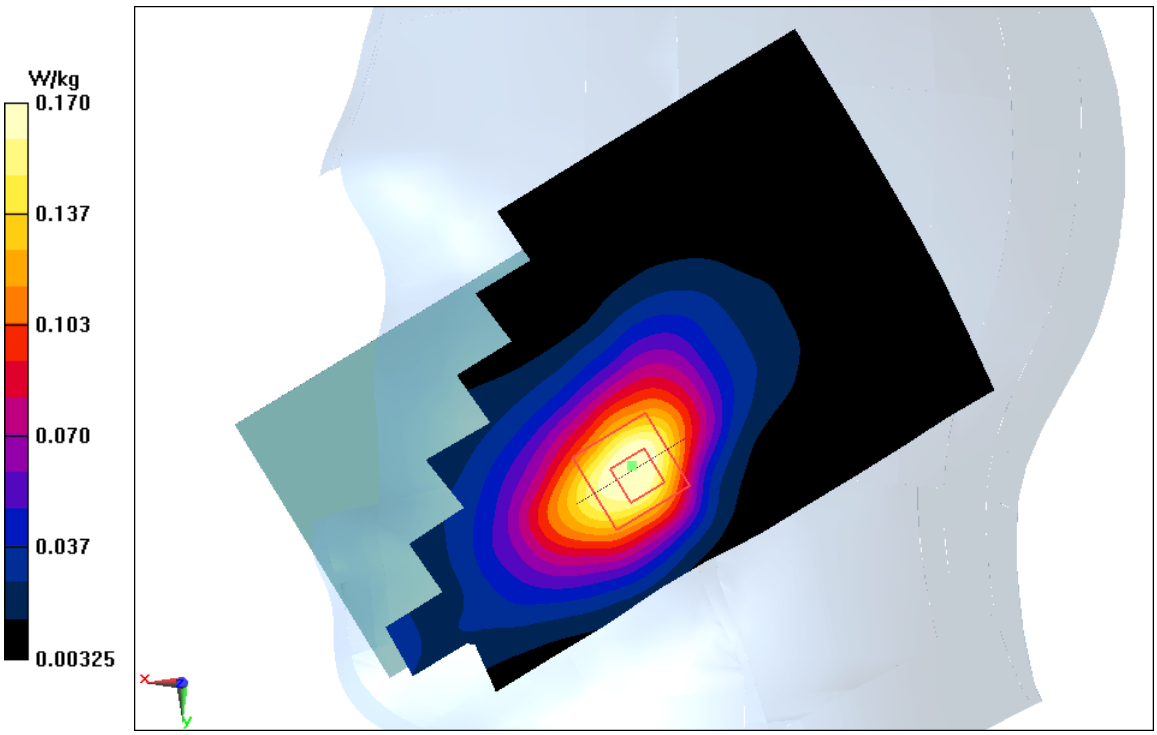


Fig A.9

WCDMA1700-BIV_CH1513 Rear
Date: 4/3/2018
Electronics: DAE4 Sn1525
Medium: Head 1750 MHz
Medium parameters used: f = 1752.6 MHz; σ = 1.485 mho/m; εr = 53.07; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA1700-BIV 1752.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(8.60,8.60,8.60)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.667 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.161 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.834 W/kg
SAR(1 g) = 1.06 W/kg; SAR(10 g) = 0.634 W/kg
Maximum value of SAR (measured) = 0.611 W/kg

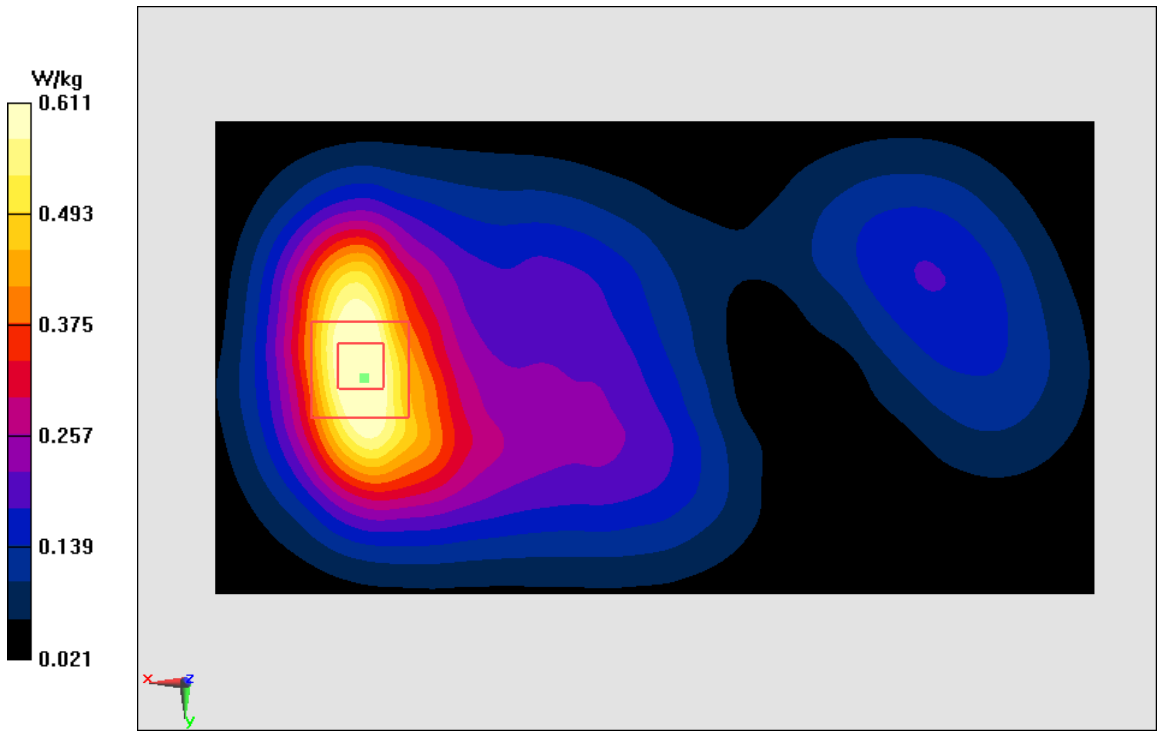


Fig A.10

WCDMA1700-BIV_CH1513 Bottom edge
Date: 4/3/2018
Electronics: DAE4 Sn1525
Medium: Head 1750 MHz
Medium parameters used: f = 1752.6 MHz; σ = 1.485 mho/m; εr = 53.07; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA1700-BIV 1752.6 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(8.60,8.60,8.60)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.11 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.68 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.42 W/kg
SAR(1 g) = 0.852 W/kg; SAR(10 g) = 0.471 W/kg
Maximum value of SAR (measured) = 1.03 W/kg

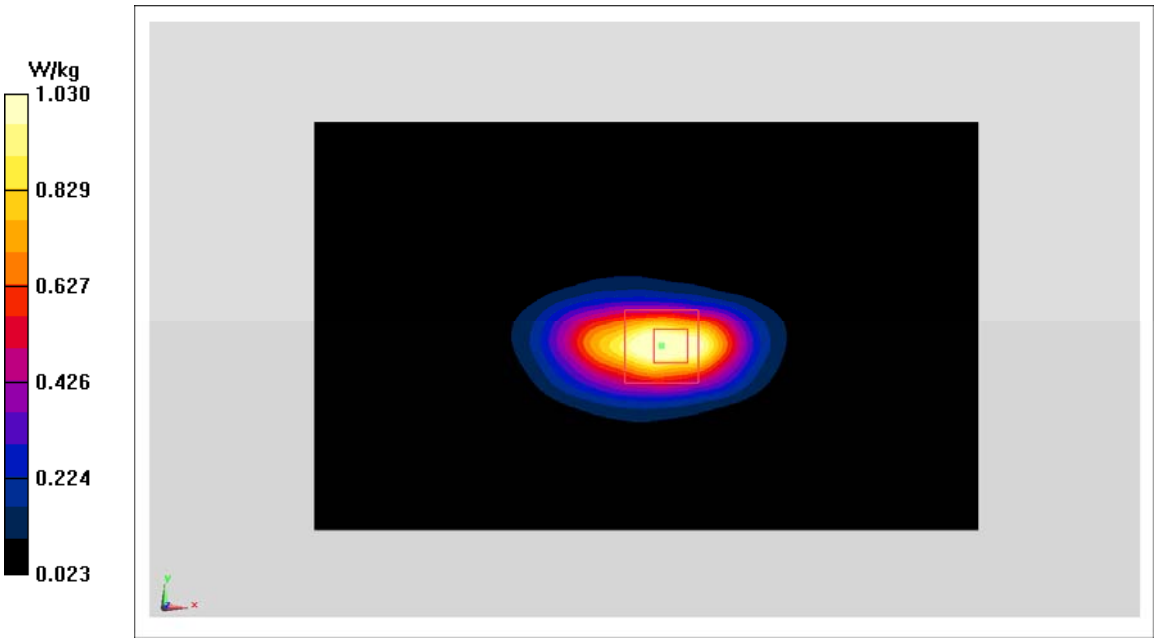


Fig A.11

WCDMA850-BV_CH4132 Right Cheek
Date: 4/2/2018
Electronics: DAE4 Sn1525
Medium: Head 835 MHz
Medium parameters used: f = 826.4 MHz; σ = 0.879 mho/m; εr = 40.7; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA850-BV 826.4 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) = 0.138 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.136 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.145 W/kg
SAR(1 g) = 0.119 W/kg; SAR(10 g) = 0.094 W/kg
Maximum value of SAR (measured) = 0.128 W/kg

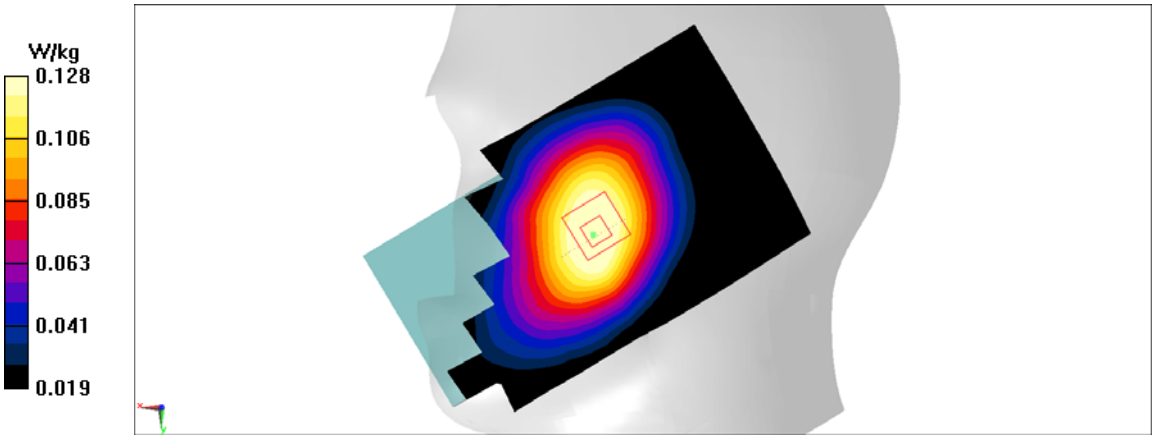


Fig A.12

WCDMA850-BV_CH4182 Rear
Date: 4/2/2018
Electronics: DAE4 Sn1525
Medium: Head 835 MHz
Medium parameters used: f = 835.4 MHz; σ = 0.955 mho/m; εr = 54.43; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA850-BV 835.4 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) = 0.294 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.98 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.471 W/kg
SAR(1 g) = 0.258 W/kg; SAR(10 g) = 0.141 W/kg
Maximum value of SAR (measured) = 0.326 W/kg

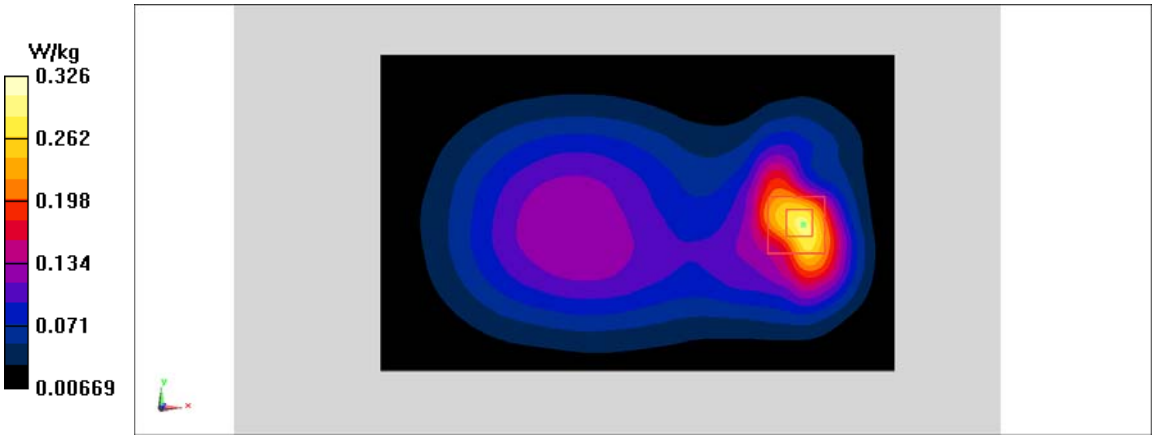


Fig A.13

LTE1900-FDD2_CH18700 Right Cheek
Date: 4/4/2018
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1860 MHz; σ = 1.373 mho/m; εr = 39.43; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE1900-FDD2 1860 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(9.39,9.39,9.39)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.194 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.89 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.242 W/kg
SAR(1 g) = 0.159 W/kg; SAR(10 g) = 0.1 W/kg
Maximum value of SAR (measured) = 0.185 W/kg

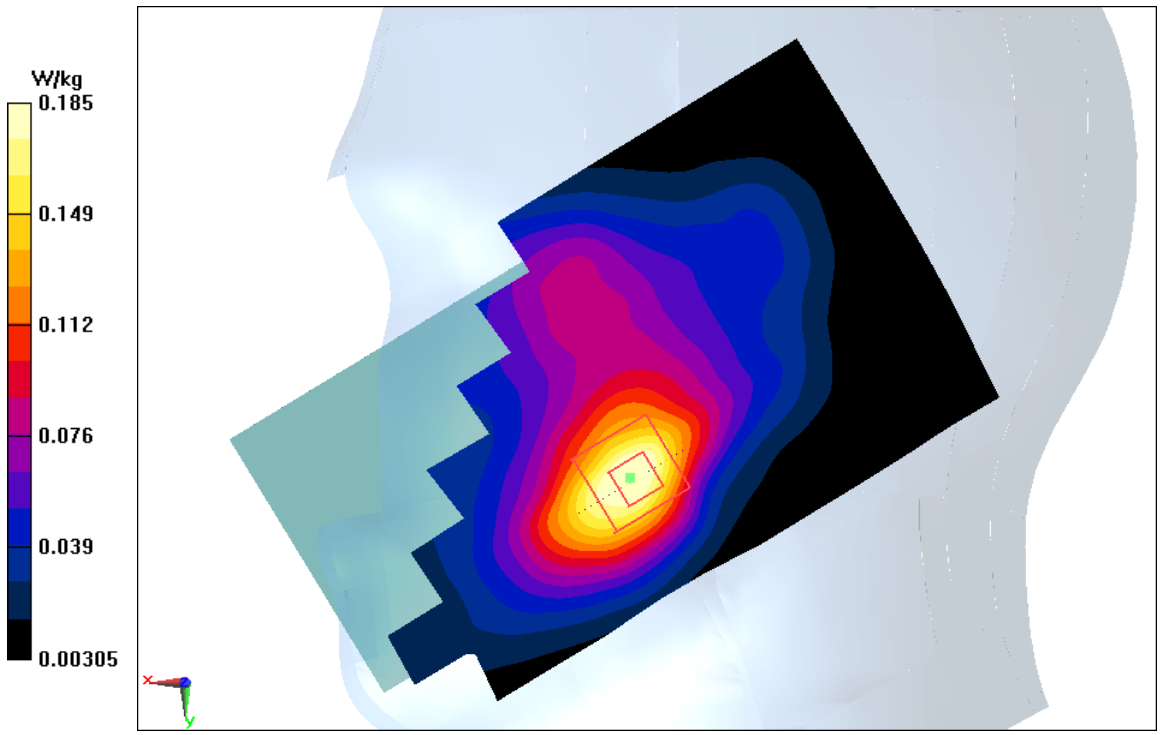


Fig A.14

LTE1900-FDD2_CH18700 Rear
Date: 4/4/2018
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1860 MHz; σ = 1.458 mho/m; εr = 52.9; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE1900-FDD2 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) = 0.553 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.66 V/m; Power Drift = -0.1 dB
Peak SAR (extrapolated) = 0.763 W/kg
SAR(1 g) = 0.474 W/kg; SAR(10 g) = 0.287 W/kg
Maximum value of SAR (measured) = 0.572 W/kg

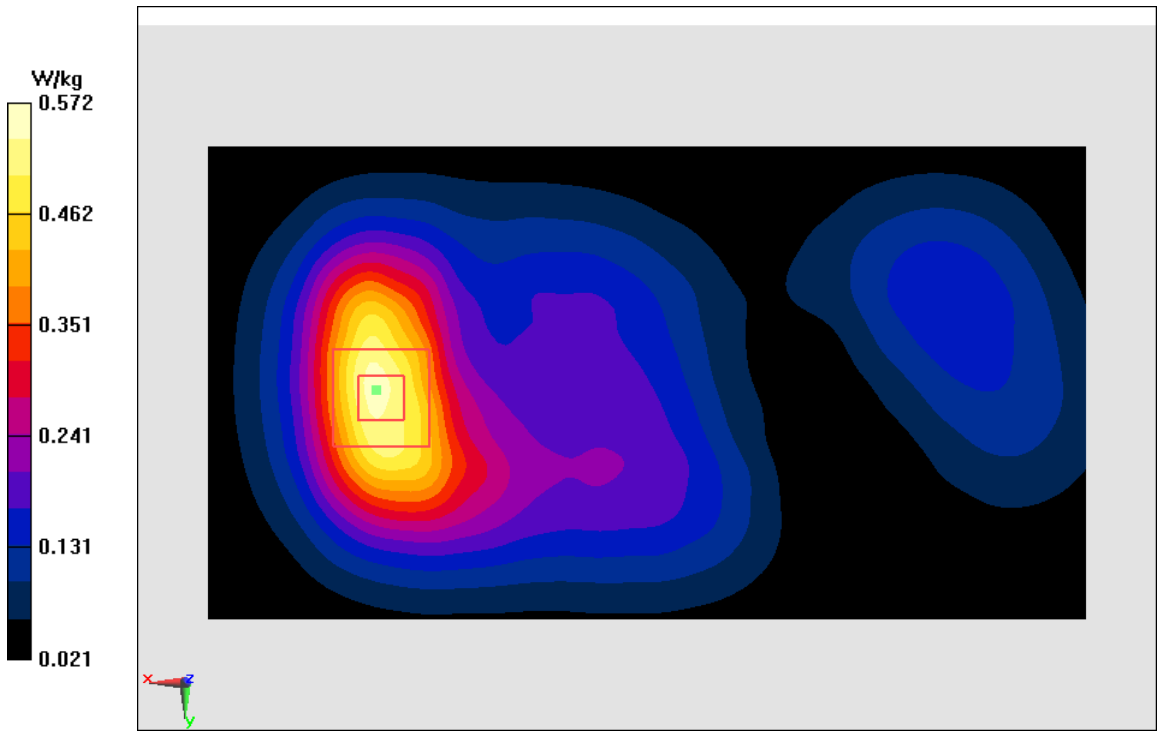


Fig A.15

LTE1900-FDD2_CH18700 Bottom edge
Date: 4/4/2018
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1860 MHz; σ = 1.458 mho/m; εr = 52.9; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE1900-FDD2 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) = 0.985 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.79 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.36 W/kg
SAR(1 g) = 0.802 W/kg; SAR(10 g) = 0.436 W/kg
Maximum value of SAR (measured) = 0.978 W/kg

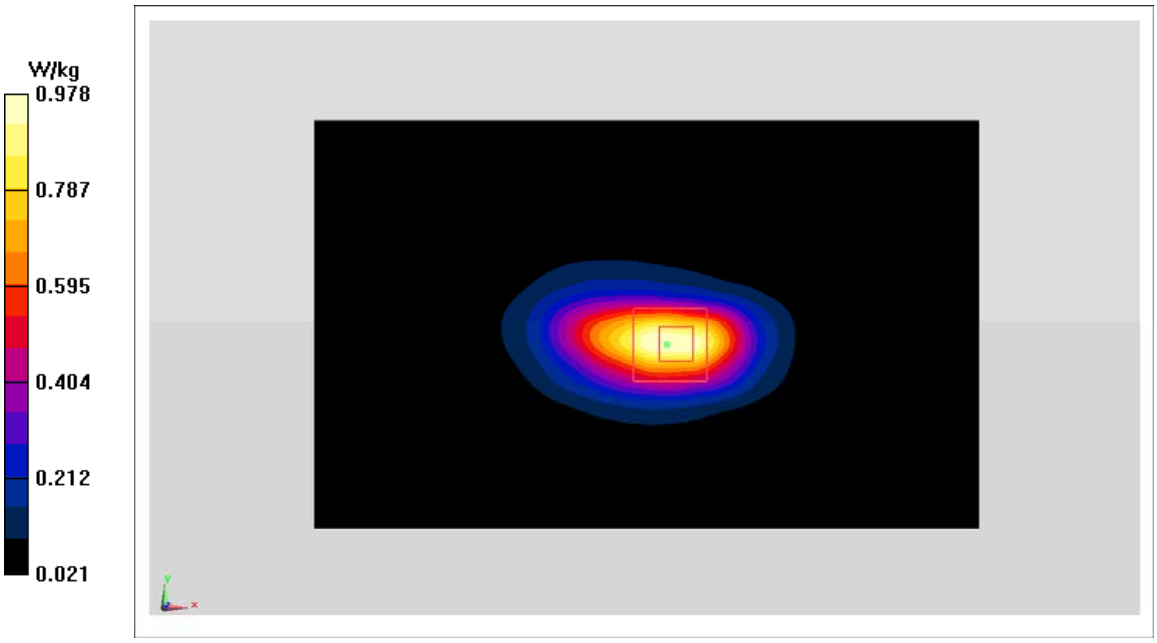


Fig A.16

LTE850-FDD5_CH20600 Left Cheek
Date: 4/2/2018
Electronics: DAE4 Sn1525
Medium: Head 835 MHz
Medium parameters used: f = 844 MHz; σ = 0.897 mho/m; εr = 40.68; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE850-FDD5 844 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(10.28,10.28,10.28)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0906 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.523 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.103 W/kg
SAR(1 g) = 0.084 W/kg; SAR(10 g) = 0.066 W/kg
Maximum value of SAR (measured) = 0.0913 W/kg

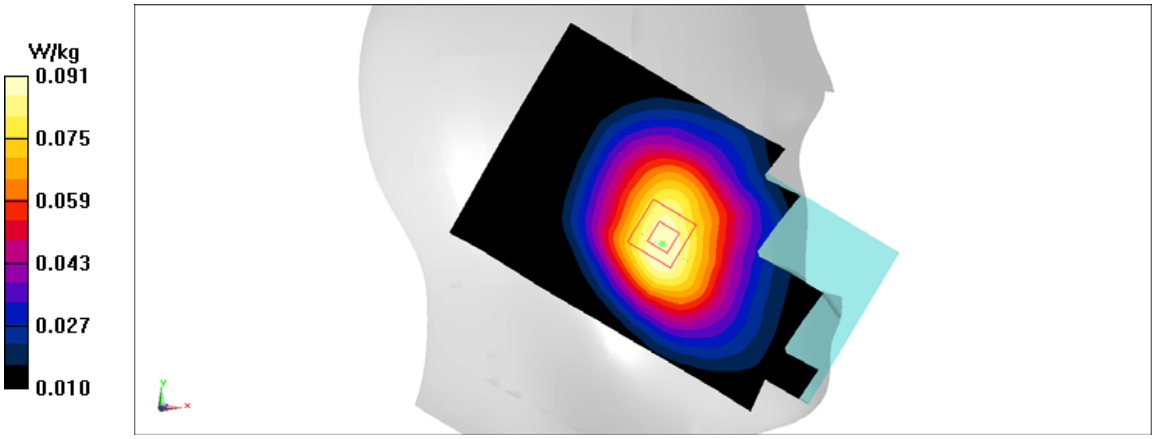


Fig A.17

LTE850-FDD5_CH20600 Rear
Date: 4/2/2018
Electronics: DAE4 Sn1525
Medium: Head 835 MHz
Medium parameters used: f = 844 MHz; σ = 0.964 mho/m; εr = 54.42; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE850-FDD5 844 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(10.21,10.21,10.21)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.309 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.69 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.477 W/kg
SAR(1 g) = 0.261 W/kg; SAR(10 g) = 0.143 W/kg
Maximum value of SAR (measured) = 0.33 W/kg

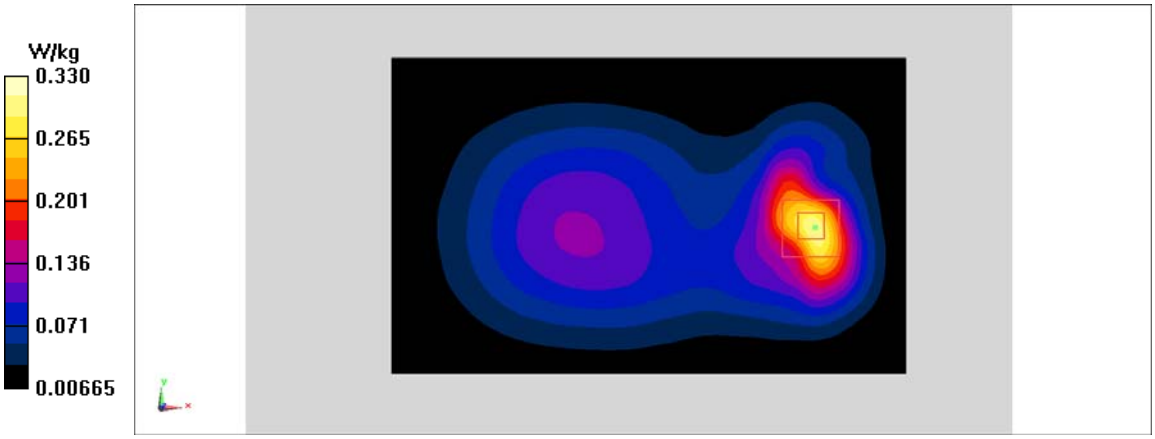


Fig A.18

LTE2500-FDD7_CH21100 Right Cheek
Date: 4/6/2018
Electronics: DAE4 Sn1525
Medium: Head 2600 MHz
Medium parameters used: f = 2535 MHz; σ = 1.894 mho/m; εr = 39.09; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE2500-FDD7 2535 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(7.76,7.76,7.76)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0657 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.091 W/kg
SAR(1 g) = 0.049 W/kg; SAR(10 g) = 0.025 W/kg
Maximum value of SAR (measured) = 0.0606 W/kg

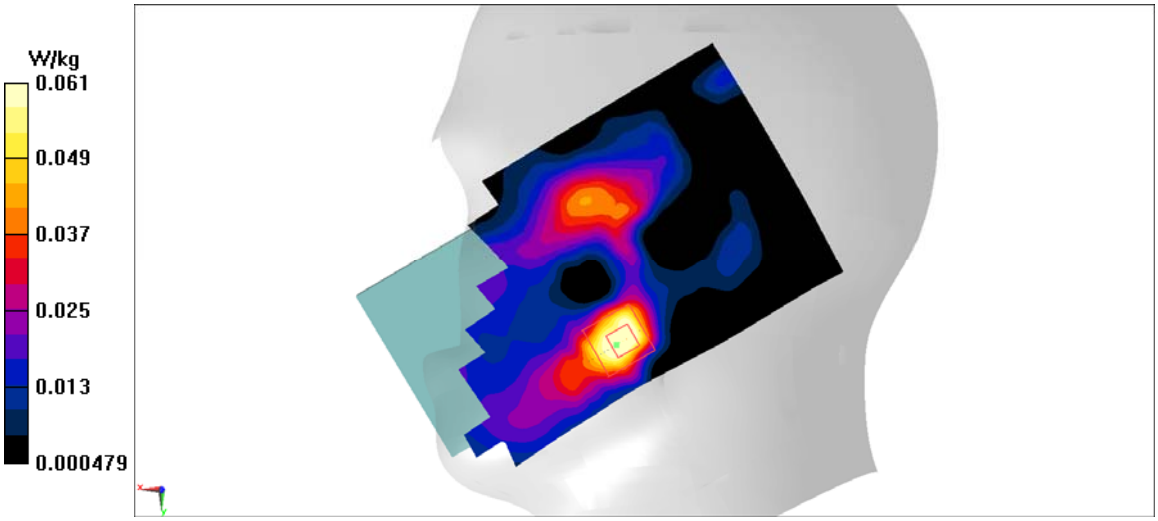


Fig A.19