Table 14-9 LTE2500-FDD7 #1 Head

LTE2500-FDD7 #1 Head								
Ambient Temperature:	22.5					Liquid Temperature:		22.3
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			21350	21100	20850	21350	21100	20850
			M	M	M	M	M	M
20MHz QPSK1RB	Tune-up		24.50	24.50	24.50	Scaling factor*		
	Measured Power [dBm]		23.94	23.91	23.92	1.14	1.14	1.14
	Left Cheek	1g SAR	0.263			0.30		
		10g SAR	0.135			0.15		
		Deviation	0.07			0.07		
	Left Tilt	1g SAR	0.125			0.14		
		10g SAR	0.057			0.06		
		Deviation	-0.01			-0.01		
	Right Cheek	1g SAR	0.284			0.32		
		10g SAR	0.149			0.17		
		Deviation	0.07			0.07		
	Right Tilt	1g SAR	0.135			0.15		
		10g SAR	0.064			0.07		
		Deviation	0.07			0.07		
TRUE	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			21350	21100	20850	21350	21100	20850
			M	M	H	M	M	H
20MHz QPSK50% RB	Tune-up		23.50	23.50	23.50	Scaling factor*		
	Measured Power [dBm]		22.91	22.88	22.86	1.15	1.15	1.16
	Left Cheek	1g SAR	0.201			0.23		
		10g SAR	0.103			0.12		
		Deviation	-0.04			-0.04		
	Left Tilt	1g SAR	0.097			0.11		
		10g SAR	0.046			0.05		
		Deviation	0.09			0.09		
	Right Cheek	1g SAR	0.218			0.25		
		10g SAR	0.114			0.13		
		Deviation	0.02			0.02		
	Right Tilt	1g SAR	0.104			0.12		
		10g SAR	0.05			0.06		
		Deviation	0.01			0.01		

Table 14-10 LTE2500-FDD7 #1 Body

LTE2500-FDD7 #1 Body								
Ambient Temperature:	22.5					Liquid Temperature:	22.3	
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			21350	21100	20850	21350	21100	20850
			M	M	M	M	M	M
20MHz QPSK1RB	Tune-up		24.50	24.50	24.50	Scaling factor*		
	Measured Power [dBm]		23.94	23.91	23.92	1.14	1.14	1.14
	Front	1g SAR	0.29			0.33		
		10g SAR	0.148			0.17		
		Deviation	0.04			0.04		
	Rear	1g SAR	0.776	0.76	0.746	0.88	0.87	0.85
		10g SAR	0.366	0.365	0.358	0.42	0.42	0.41
		Deviation	0.09	0.11	0.09	0.09	0.11	0.09
	Left edge	1g SAR	0.056			0.06		
		10g SAR	0.034			0.04		
		Deviation	-0.03			-0.03		
	Right edge	1g SAR	0.061			0.07		
		10g SAR	0.032			0.04		
		Deviation	0.06			0.06		
	Bottom edge	1g SAR	0.729	0.714	0.732	0.83	0.82	0.84
		10g SAR	0.343	0.336	0.342	0.39	0.38	0.39
		Deviation	0.04	0.04	0.06	0.04	0.04	0.06
Mode	Device orientation	SAR measurement	Measured			Reported SAR [W/kg]		
			21350	21100	20850	21350	21100	20850
			M	M	H			
20MHz QPSK50% RB	Tune-up		23.50	23.50	23.50	Scaling factor*		
	Measured Power [dBm]		22.91	22.88	22.86	1.15	1.15	1.16
	Front	1g SAR	0.191			0.22		
		10g SAR	0.096			0.11		
		Deviation	0.03			0.03		
	Rear	1g SAR	0.573			0.66		
		10g SAR	0.273			0.31		
		Deviation	0.09			0.09		
	Left edge	1g SAR	0.031			0.04		
		10g SAR	0.019			0.02		
		Deviation	0.02			0.02		
	Right edge	1g SAR	0.038			0.04		
		10g SAR	0.022			0.03		
		Deviation	0.04			0.04		
	Bottom edge	1g SAR	0.583			0.67		
		10g SAR	0.271			0.31		
		Deviation	0.04			0.04		
Mode	Device orientation	SAR measurement	Measured SAR [W/kg]			Reported SAR [W/kg]		
			21350	21100	20850	21350	21100	20850
20MHz QPSK100% RB	Tune-up		23.50	23.50	23.50	Scaling factor*		
	Measured Power [dBm]		22.81	22.79	22.75	1.17	1.18	1.19
	Rear	1g SAR	0.56			0.66		
		10g SAR	0.266			0.31		
		Deviation	0.04			0.04		
20MHz QPSK100% RB	*Bottom edge*	1g SAR	0.602			0.71		
		10g SAR	0.29			0.34		
		Deviation	0.04			0.04		

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	251	848.8 MHz	33.3	32.46	Left Cheek	0.191	0.253	0.23	0.31	-0.09	Fig A.1
GSM850	251	848.8 MHz	30.5	30.08	Rear	0.174	0.234	0.19	0.26	-0.12	Fig A.2
PCS1900	661	1880 MHz	30.3	30.04	Left Cheek	0.266	0.442	0.28	0.47	-0.09	Fig A.3
PCS1900	512	1850.2 MHz	28	27.57	Rear	0.605	1.06	0.67	1.17	-0.14	Fig A.4
WCDMA1900-BII	9400	1880 MHz	24	23.65	Left Cheek	0.43	0.721	0.47	0.78	0.04	Fig A.5
WCDMA1900-BII	9400	1880 MHz	24	23.65	Rear	0.675	1.2	0.73	1.30	-0.04	Fig A.6
WCDMA850-BV	4182	836.4 MHz	24	23.39	Left Cheek	0.219	0.291	0.25	0.33	0.09	Fig A.7
WCDMA850-BV	4233	846.6 MHz	24	23.32	Rear	0.266	0.357	0.31	0.42	-0.04	Fig A.8
LTE2500-FDD7	21350	2560 MHz	24.5	23.94	Right Cheek	0.149	0.284	0.17	0.32	0.07	Fig A.9
LTE2500-FDD7	21350	2560 MHz	24.5	23.94	Rear	0.366	0.776	0.42	0.88	0.09	Fig A.10

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 14-11 WLAN2450 #1 Head Fast SAR

WLAN2450 #1 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 1Mbps	Tune up		18.5	18.5	18.5	Scaling factor*			
	Slot Average Power [dBm]		17.95	18.21	17.79	1.14	1.07	1.18	
	Left Cheek	1g Fast SAR		0.537			0.57		
		10g SAR		0.311			0.33		
		Deviation		-0.07			-0.07		
	Left Tilt	1g Fast SAR		0.442			0.47		
		10g SAR		0.237			0.25		
		Deviation		0.13			0.13		
	Right Cheek	1g Fast SAR	1.1	1.15	1.04	1.25	1.23	1.22	
		10g SAR	0.577	0.587	0.539	0.65	0.63	0.63	
		Deviation	0.02	-0.01	0.02	0.02	-0.01	0.02	
	Right Tilt	1g Fast SAR		0.739			0.79		
		10g SAR		0.368			0.39		
		Deviation		0.06			0.06		

Table 14-12 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 1Mbps	Tune up		18.5	18.5	18.5	Scaling factor*			
	Slot Average Power [dBm]		17.95	18.21	17.79	1.14	1.07	1.18	
	Right Cheek	1g Full SAR	1.07	1.08	1.02	1.21	1.15	1.20	
		10g SAR	0.56	0.565	0.527	0.64	0.60	0.62	
		Deviation	0.02	-0.01	0.02	0.02	-0.01	0.02	
	Right Tilt	1g Full SAR		0.661			0.71		
		10g SAR		0.336			0.36		
		Deviation		0.06			0.06		

Table 14-13 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	6	1	11	6	1	
			2462 MHz	2437 MHz	2412 MHz				
802.11b 1Mbps	Tune up		18.5	18.5	18.5	Scaling factor*			
	Slot Average Power [dBm]		17.95	18.21	17.79	1.14	1.07	1.18	
	Front	1g Fast SAR		0.292			0.31		
		10g SAR		0.156			0.17		
		Deviation		-0.12			-0.12		
	Rear	1g Fast SAR		0.202			0.22		
		10g SAR		0.107			0.11		
		Deviation		0.05			0.05		
	Top edge	1g Fast SAR		0.0726			0.08		
		10g SAR		0.0369			0.04		
		Deviation		0.07			0.07		
	Left edge	1g Fast SAR		0.0185			0.02		
		10g SAR		0.0103			0.01		
		Deviation		0.13			0.13		

Table 14-14 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	6	1	11	6	1
			2462 MHz	2437 MHz	2412 MHz			
802.11b 1Mbps	Tune up		18.5	18.5	18.5	Scaling factor*		
	Slot Average Power [dBm]		17.95	18.21	17.79	1.14	1.07	1.18
	Front	1g Full SAR		0.297			0.32	
		10g SAR		0.162			0.17	
		Deviation		-0.12			-0.12	

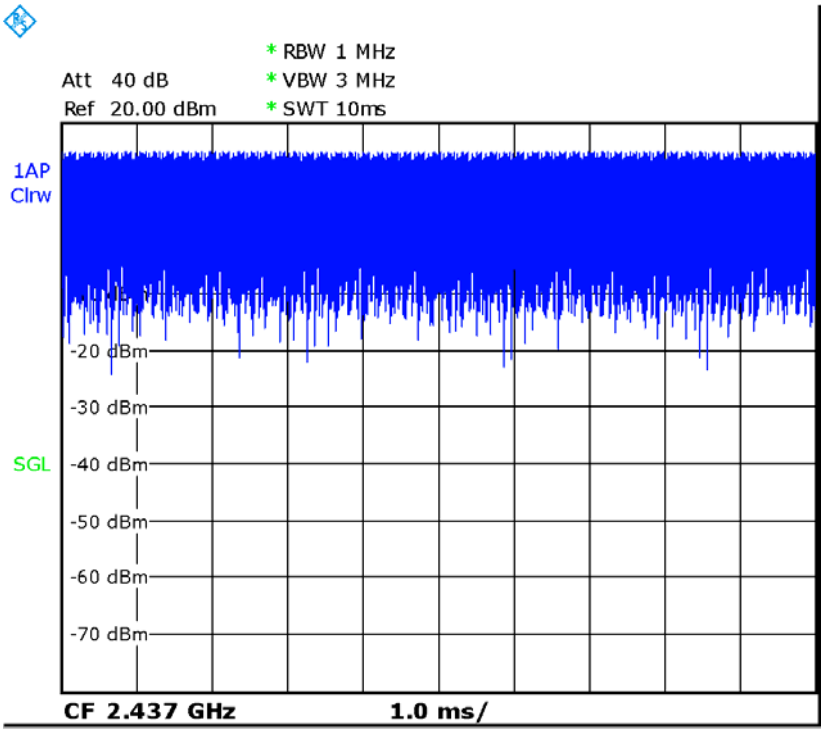
According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below

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	Right Cheek	100.00%	100%	**1.21**	**1.21**	Fig A.11

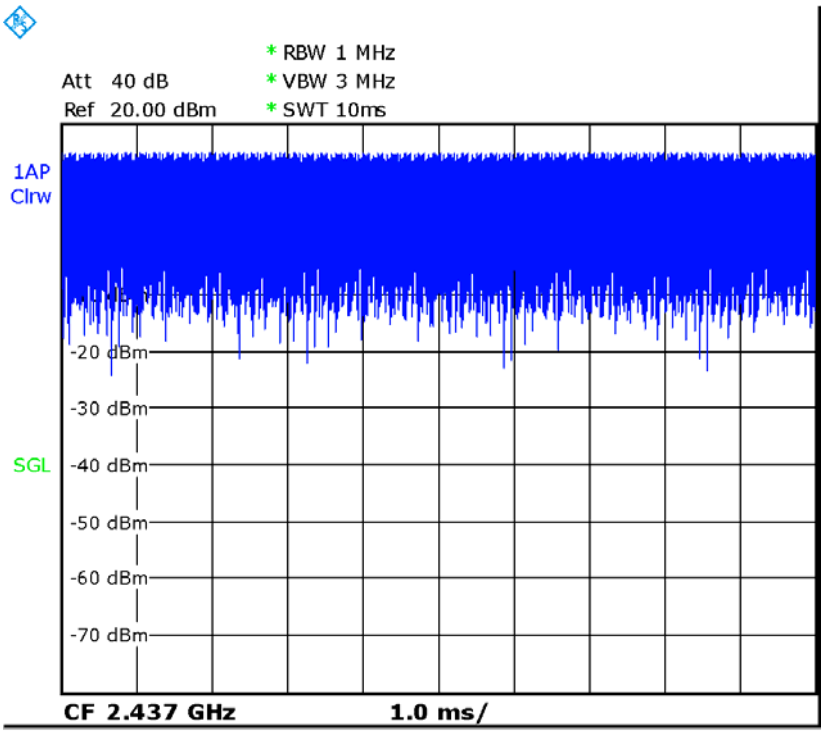
According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below

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	Front	100.00%	100%	**0.32**	**0.32**	Fig A.12

SAR is not required for OFDM because the 802.11b adjusted SAR ≤ 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 ≥ 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	CH512	1850.2 MHz	Rear	1.06	1.04	1.02
WCDMA1900-BII	CH9400	1880 MHz	Rear	1.2	1.18	1.02
WLAN2450	11	2462 MHz	Right Cheek	1.07	1.05	1.02

16 Measurement Uncertainty

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

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	6.0	N	1	1	1	6.0	6.0	∞
2	Isotropy	B	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	N	1	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	$\sqrt{3}$	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	$\sqrt{3}$	1	1	0	0	∞
10	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	√3	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	2.0	R	√3	1	1	1.2	1.2	∞
4	Linearity	B	4.7	R	√3	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	√3	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	√3	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	√3	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	√3	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	√3	1	1	0	0	∞
10	RF ambient conditions-reflection	B	0	R	√3	1	1	0	0	∞
11	Probe positioned mech. restrictions	B	0.8	R	√3	1	1	0.5	0.5	∞
12	Probe positioning with respect to phantom shell	B	6.7	R	√3	1	1	3.9	3.9	∞
13	Post-processing	B	4.0	R	√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	√3	1	1	2.9	2.9	∞
Phantom and set-up										
17	Phantom uncertainty	B	4.0	R	√3	1	1	2.3	2.3	∞
18	Liquid conductivity (target)	B	5.0	R	√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	√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 D835V2	4d069	July 19, 2017	Three years
11	Dipole Validation Kit	SPEAG D1900V2	5d101	July 26, 2017	Three years
12	Dipole Validation Kit	SPEAG D2450V2	853	July 21, 2017	Three years
13	Dipole Validation Kit	SPEAG D2600V2	1012	July 21, 2017	Three years

END OF REPORT BODY

ANNEX A Graph Results

GSM850_CH251 Left Cheek
Date: 6/17/2018
Electronics: DAE4 Sn1525
Medium: head 835 MHz
Medium parameters used: f = 848.8 MHz; σ = 0.919 mho/m; εr = 41.5; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: GSM850 848.8 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) = 0.278 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.059 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.317 W/kg
SAR(1 g) = 0.253 W/kg; SAR(10 g) = 0.191 W/kg
Maximum value of SAR (measured) = 0.277 W/kg

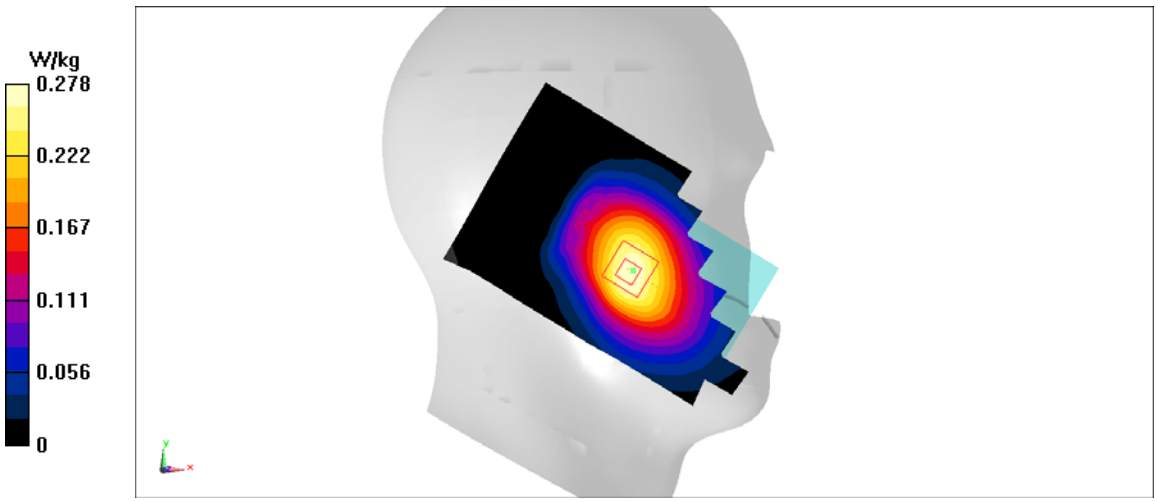


Fig A.1

GSM850_CH251 Rear
Date: 6/17/2018
Electronics: DAE4 Sn1525
Medium: body 835 MHz
Medium parameters used: f = 848.8 MHz; σ = 0.983 mho/m; εr = 55.1; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: GSM850 848.8 MHz Duty Cycle: 1:4
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) = 0.259 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.17 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.301 W/kg
SAR(1 g) = 0.234 W/kg; SAR(10 g) = 0.174 W/kg
Maximum value of SAR (measured) = 0.26 W/kg

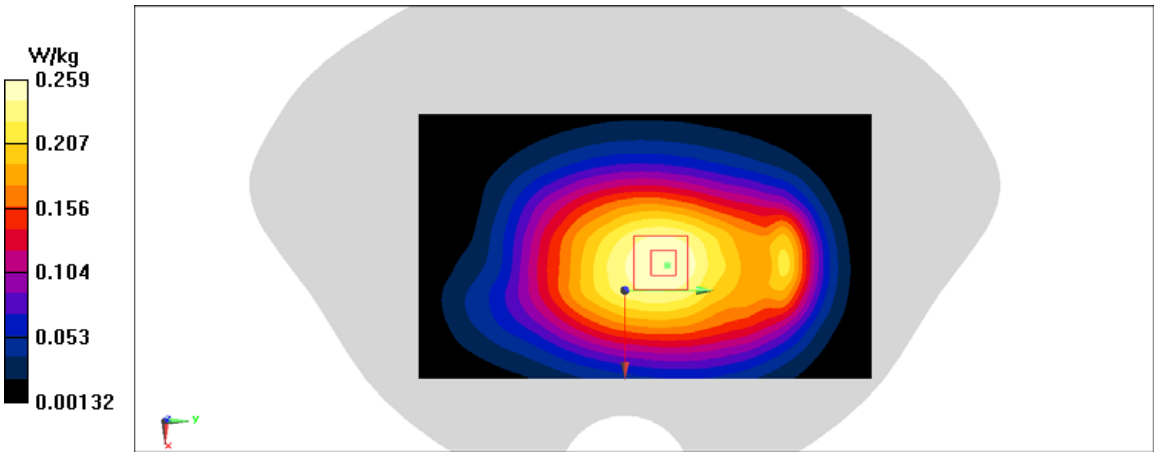


Fig A.2

PCS1900_CH661 Left Cheek
Date: 6/18/2018
Electronics: DAE4 Sn1525
Medium: head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.381 mho/m; εr = 39.39; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: PCS1900 1880 MHz Duty Cycle: 1:8.3
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) = 0.535 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.096 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.703 W/kg
SAR(1 g) = 0.442 W/kg; SAR(10 g) = 0.266 W/kg
Maximum value of SAR (measured) = 0.582 W/kg

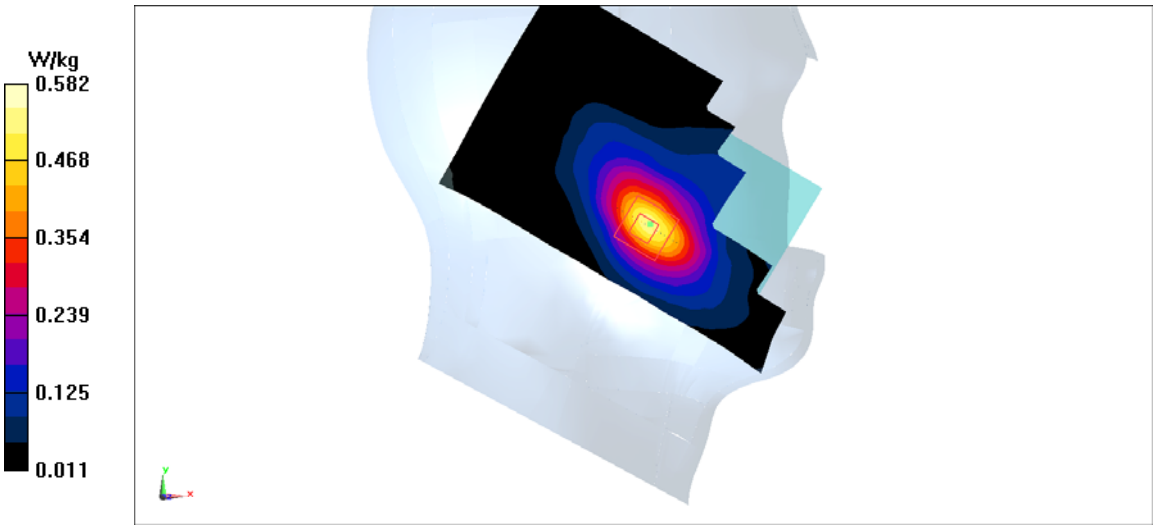


Fig A.3

PCS1900_CH512 Rear
Date: 6/18/2018
Electronics: DAE4 Sn1525
Medium: body 1900 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.465 mho/m; εr = 53.97; 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) = 1.4 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.12 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 1.79 W/kg
SAR(1 g) = 1.06 W/kg; SAR(10 g) = 0.605 W/kg
Maximum value of SAR (measured) = 1.26 W/kg

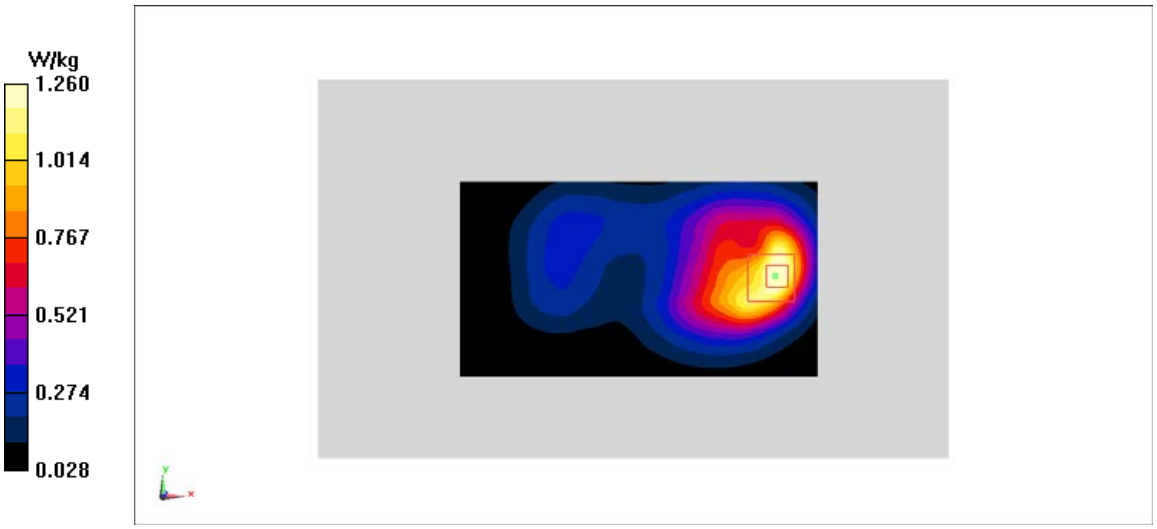


Fig A.4

WCDMA1900-BII_CH9400 Left Cheek
Date: 6/18/2018
Electronics: DAE4 Sn1525
Medium: head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.381 mho/m; εr = 39.39; 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(8.39,8.39,8.39)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.869 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.26 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.721 W/kg; SAR(10 g) = 0.43 W/kg
Maximum value of SAR (measured) = 0.981 W/kg

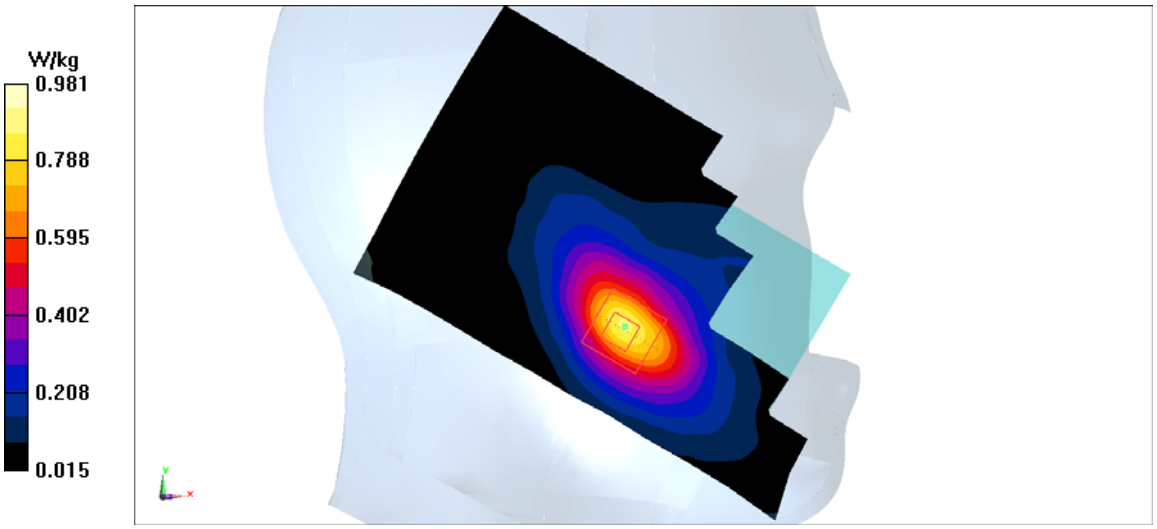


Fig A.5

WCDMA1900-BII_CH9400 Rear
Date: 6/18/2018
Electronics: DAE4 Sn1525
Medium: body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.494 mho/m; εr = 53.93; 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) = 1.55 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.58 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 2.04 W/kg
SAR(1 g) = 1.2 W/kg; SAR(10 g) = 0.675 W/kg
Maximum value of SAR (measured) = 1.47 W/kg

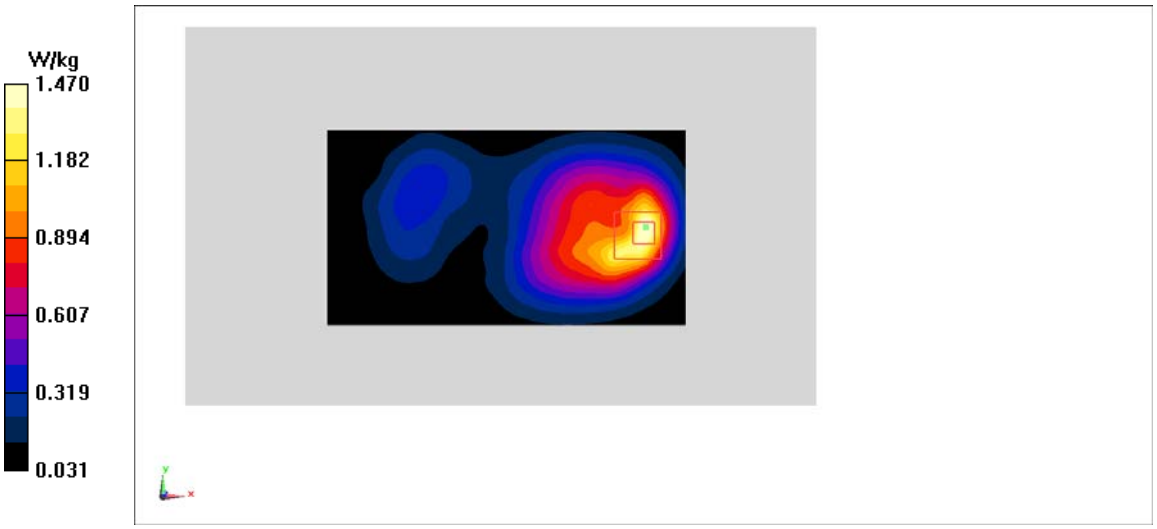


Fig A.6

WCDMA850-BV_CH4182 Left Cheek
Date: 6/17/2018
Electronics: DAE4 Sn1525
Medium: head 835 MHz
Medium parameters used: f = 836.4 MHz; σ = 0.907 mho/m; εr = 41.52; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA850-BV 836.4 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) = 0.323 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.49 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.367 W/kg
SAR(1 g) = 0.291 W/kg; SAR(10 g) = 0.219 W/kg
Maximum value of SAR (measured) = 0.32 W/kg

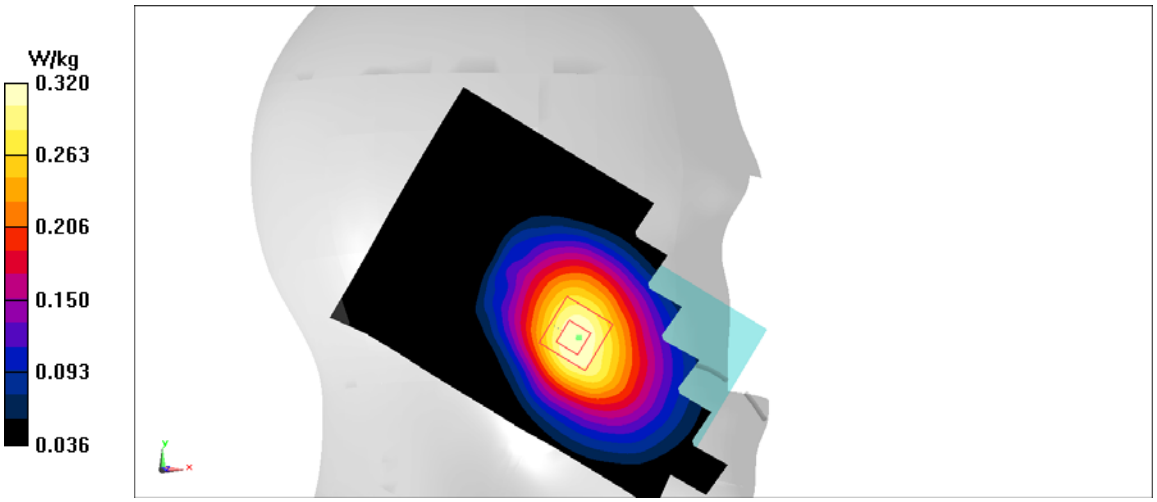


Fig A.7

WCDMA850-BV_CH4233 Rear
Date: 6/17/2018
Electronics: DAE4 Sn1525
Medium: body 835 MHz
Medium parameters used: f = 846.6 MHz; σ = 0.981 mho/m; εr = 55.11; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WCDMA850-BV 846.6 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) = 0.393 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.05 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.457 W/kg
SAR(1 g) = 0.357 W/kg; SAR(10 g) = 0.266 W/kg
Maximum value of SAR (measured) = 0.395 W/kg

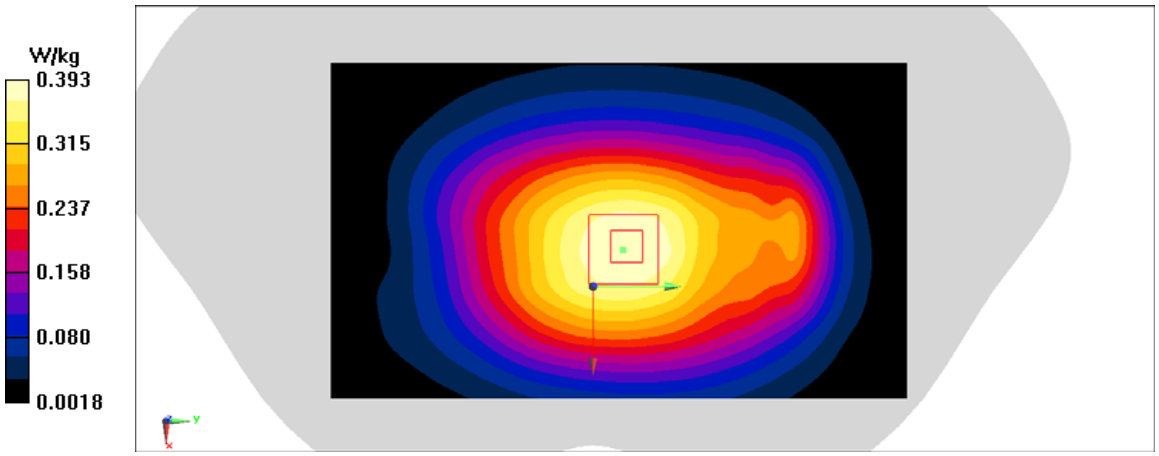


Fig A.8

LTE2500-FDD7_CH21350 Right Cheek
Date: 6/19/2018
Electronics: DAE4 Sn1525
Medium: head 2600 MHz
Medium parameters used: f = 2560 MHz; σ = 1.904 mho/m; εr = 38.68; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE2500-FDD7 2560 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) = 0.104 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.646 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.155 W/kg
SAR(1 g) = 0.284 W/kg; SAR(10 g) = 0.149 W/kg
Maximum value of SAR (measured) = 0.102 W/kg

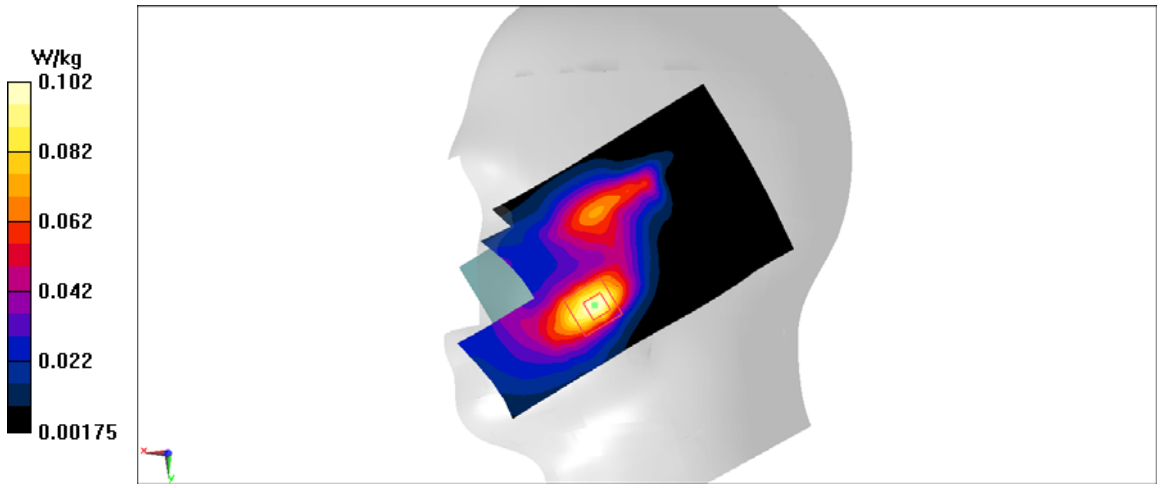


Fig A.9

LTE2500-FDD7_CH21350 Rear
Date: 6/19/2018
Electronics: DAE4 Sn1525
Medium: body 2600 MHz
Medium parameters used: f = 2560 MHz; σ = 2.137 mho/m; εr = 51.69; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: LTE2500-FDD7 2560 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(7.84,7.84,7.84)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.961 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.165 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.776 W/kg; SAR(10 g) = 0.366 W/kg
Maximum value of SAR (measured) = 1.01 W/kg

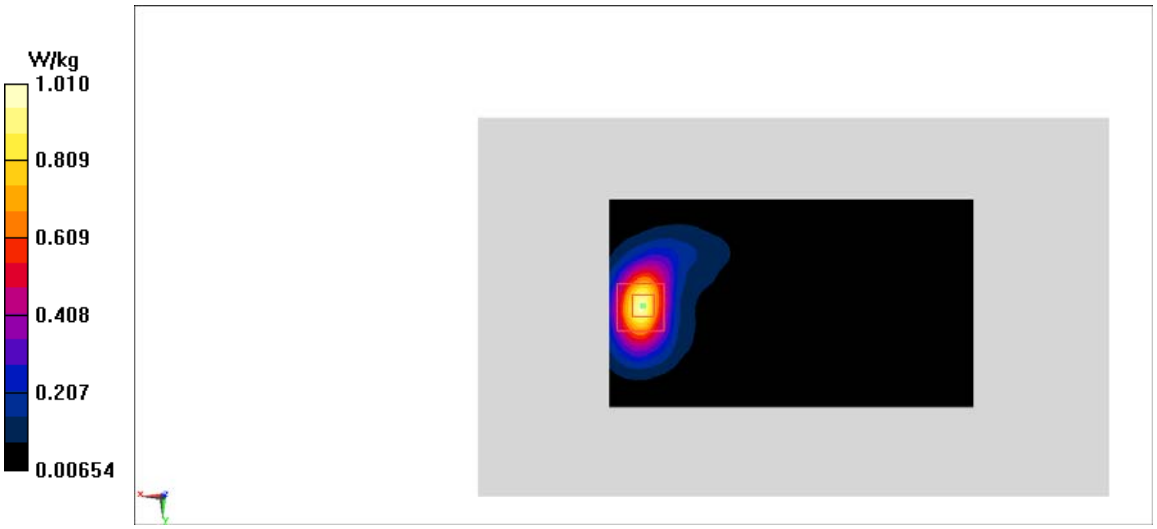


Fig A.10

WLAN2450_CH11 Right Cheek
Date: 6/19/2018
Electronics: DAE4 Sn1525
Medium: head 2450 MHz
Medium parameters used: f = 2462 MHz; σ = 1.808 mho/m; εr = 38.64; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WLAN2450 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(7.89,7.89,7.89)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.5 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.76 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 2.11 W/kg
SAR(1 g) = 1.07 W/kg; SAR(10 g) = 0.56 W/kg
Maximum value of SAR (measured) = 1.34 W/kg

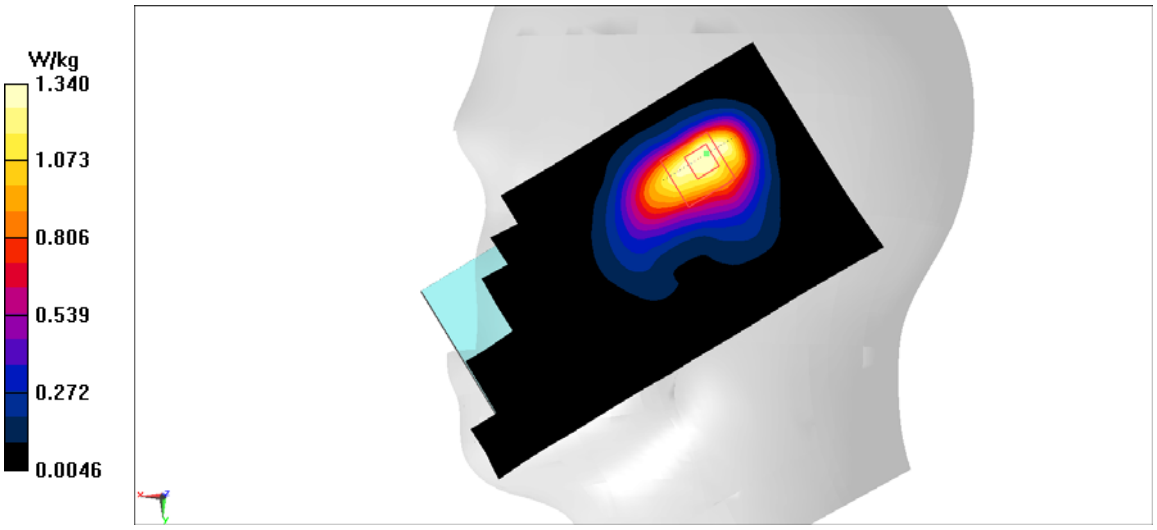


Fig A.11

WLAN2450_CH6 Front
Date: 6/19/2018
Electronics: DAE4 Sn1525
Medium: body 2450 MHz
Medium parameters used: f = 2437 MHz; σ = 1.927 mho/m; εr = 53.15; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC, Liquid Temperature: 22.3ºC
Communication System: WLAN2450 2437 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(8.09,8.09,8.09)

Area Scan (71x121x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.378 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.569 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.517 W/kg
SAR(1 g) = 0.297 W/kg; SAR(10 g) = 0.162 W/kg
Maximum value of SAR (measured) = 0.369 W/kg

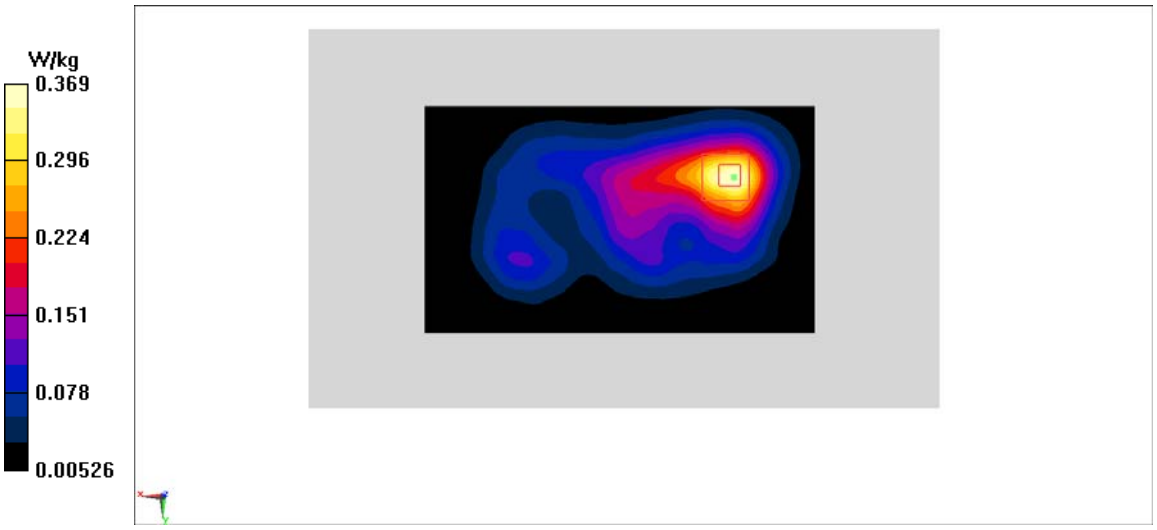


Fig A.12

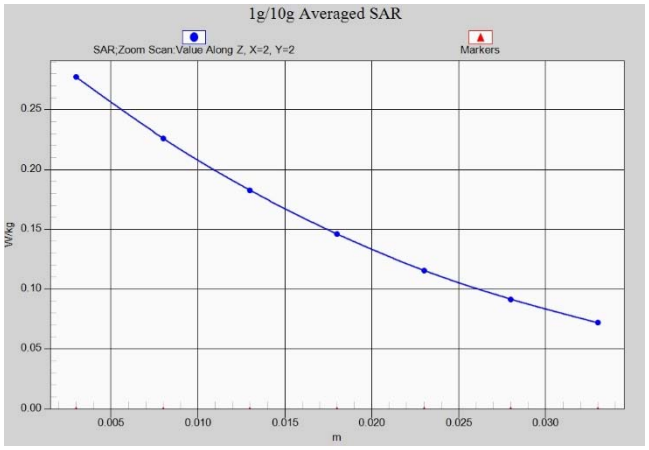


Fig.A.1- 1 Z-Scan at power reference point (GSM850)

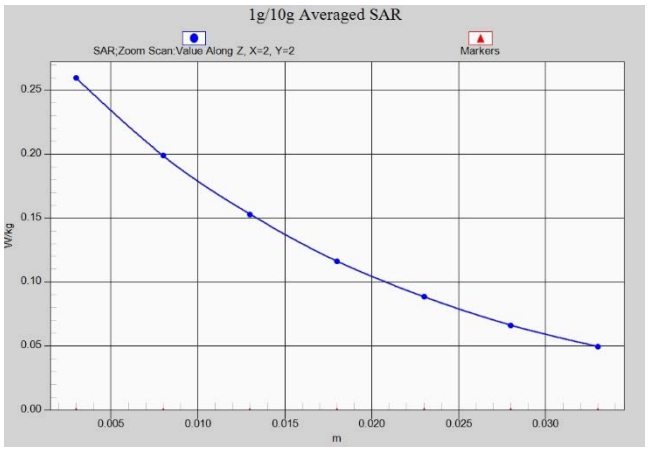


Fig.A.1- 2 Z-Scan at power reference point (GSM850)

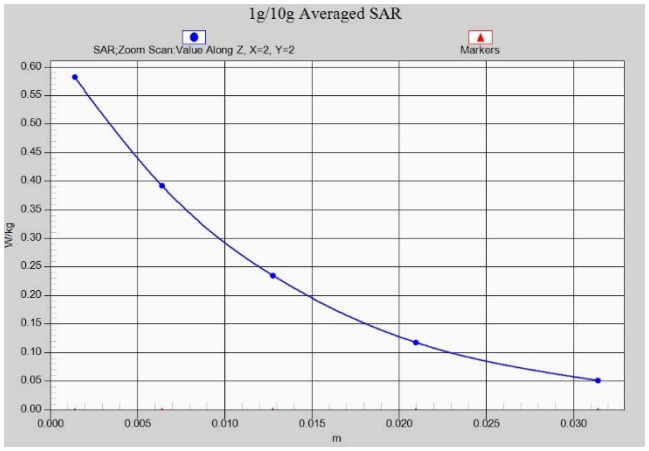


Fig.A.1- 3 Z-Scan at power reference point (PCS1900)

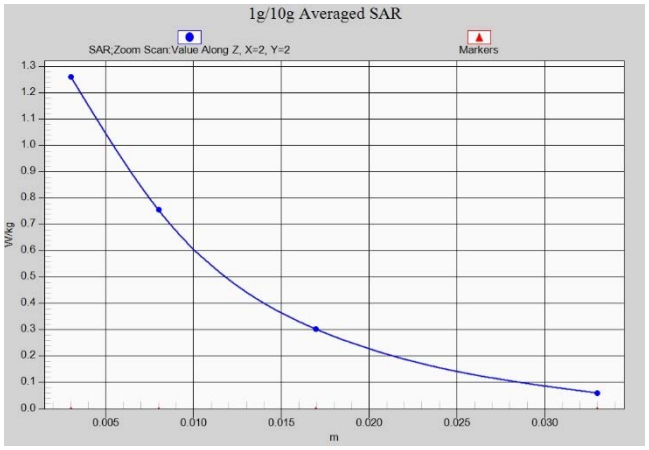


Fig.A.1- 4 Z-Scan at power reference point (PCS1900)

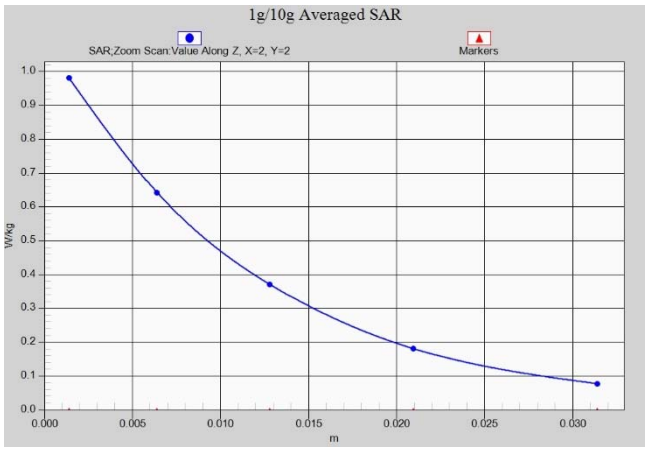


Fig.A.1- 5 Z-Scan at power reference point (W1900)

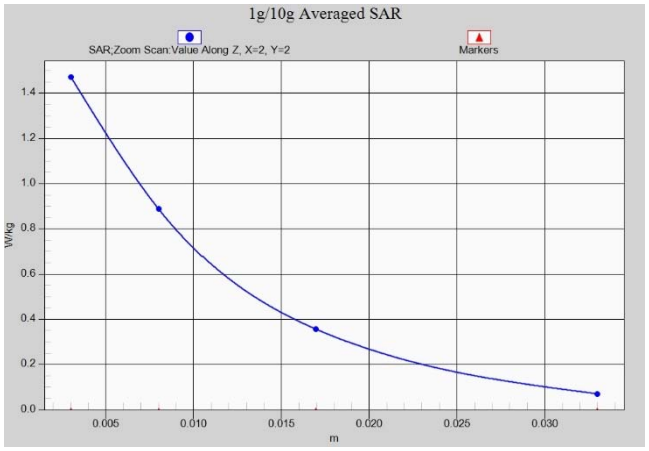


Fig.A.1- 6 Z-Scan at power reference point (W1900)

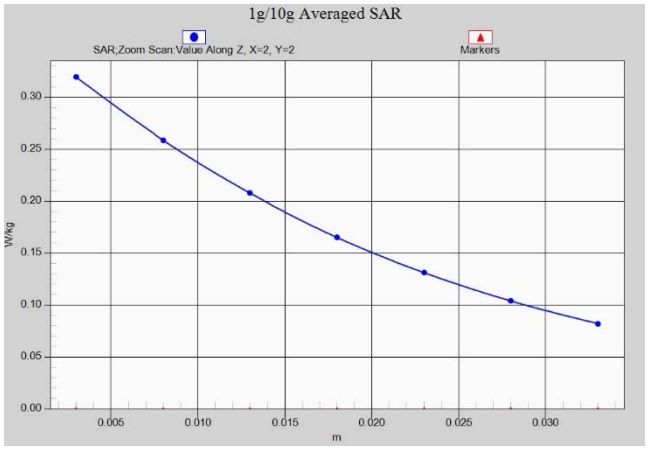


Fig.A.1- 7 Z-Scan at power reference point (W850)

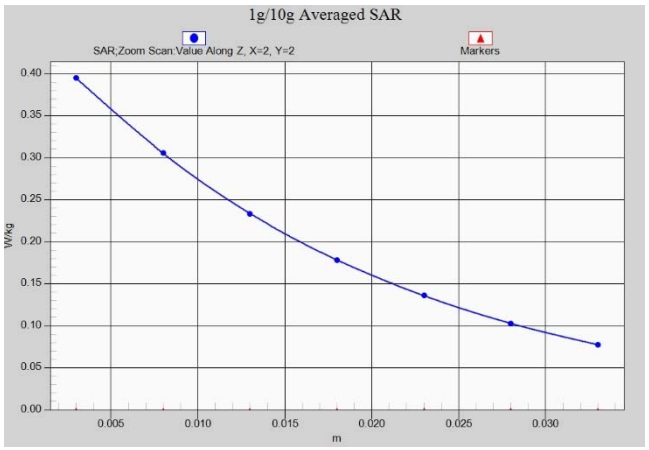


Fig.A.1- 8 Z-Scan at power reference point (W850)

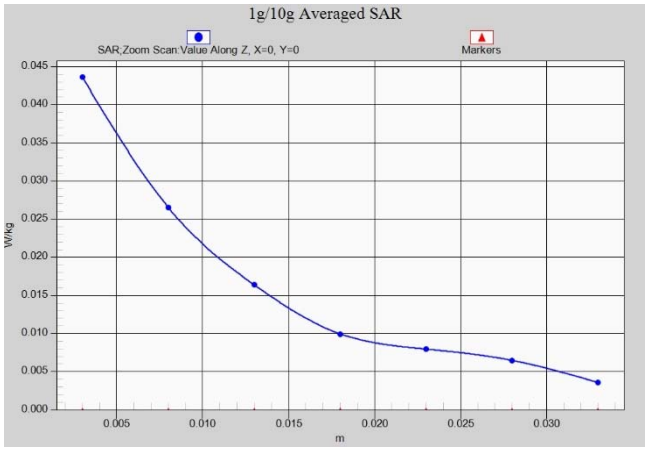


Fig.A.1- 9 Z-Scan at power reference point (LTE band7)

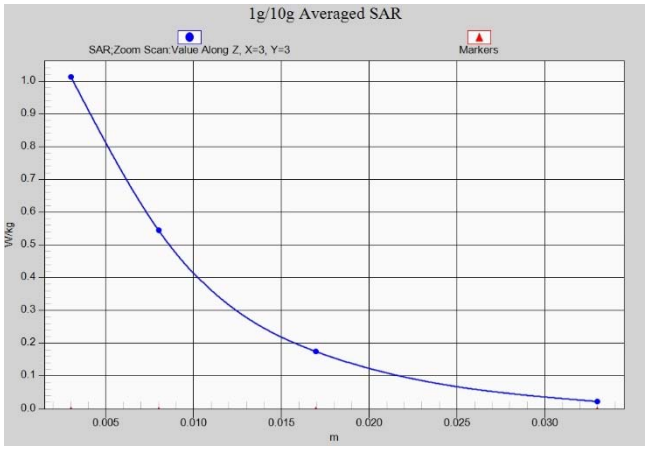


Fig.A.1- 10 Z-Scan at power reference point (LTE band7)

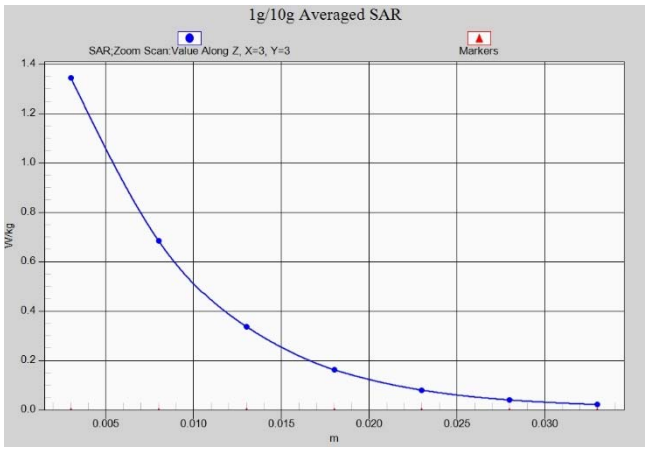


Fig.A.1- 11 Z-Scan at power reference point (Wifi2450)

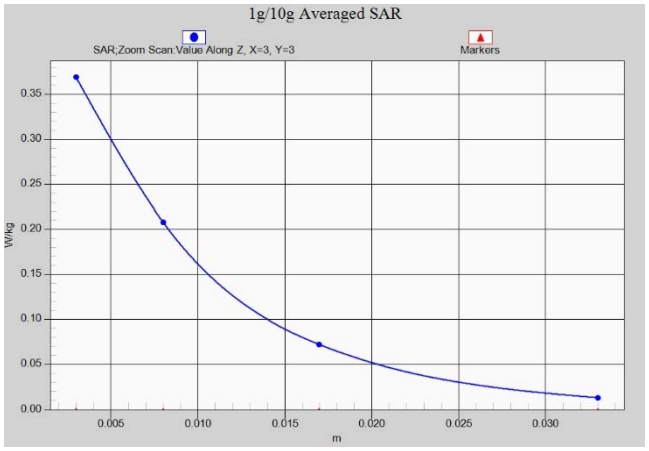


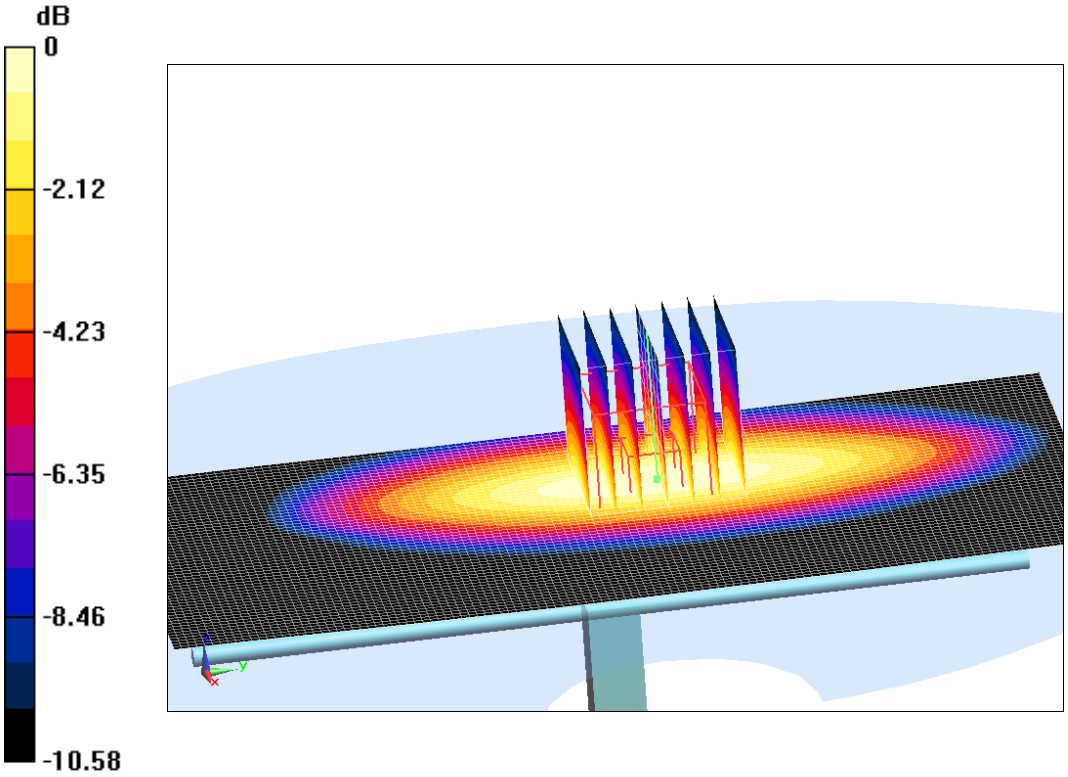
Fig.A.1- 12 Z-Scan at power reference point (Wifi2450)

ANNEX B System Verification Results

835 MHz

Date: 6/17/2018
Electronics: DAE4 Sn1525
Medium: Head 835 MHz
Medium parameters used: f = 835 MHz; σ =0.906 mho/m; ε_r = 41.52; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.3ºC
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(10.28,10.28,10.28)
System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 64.02 V/m; Power Drift = -0.05
Fast SAR: SAR(1 g) = 2.3 W/kg; SAR(10 g) = 1.51 W/kg
Maximum value of SAR (interpolated) = 3.8 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =64.02 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 4.04 W/kg
SAR(1 g) = 2.31 W/kg; SAR(10 g) = 1.5 W/kg
Maximum value of SAR (measured) = 3.6 W/kg



0 dB = 3.6 W/kg = 5.56 dB W/kg

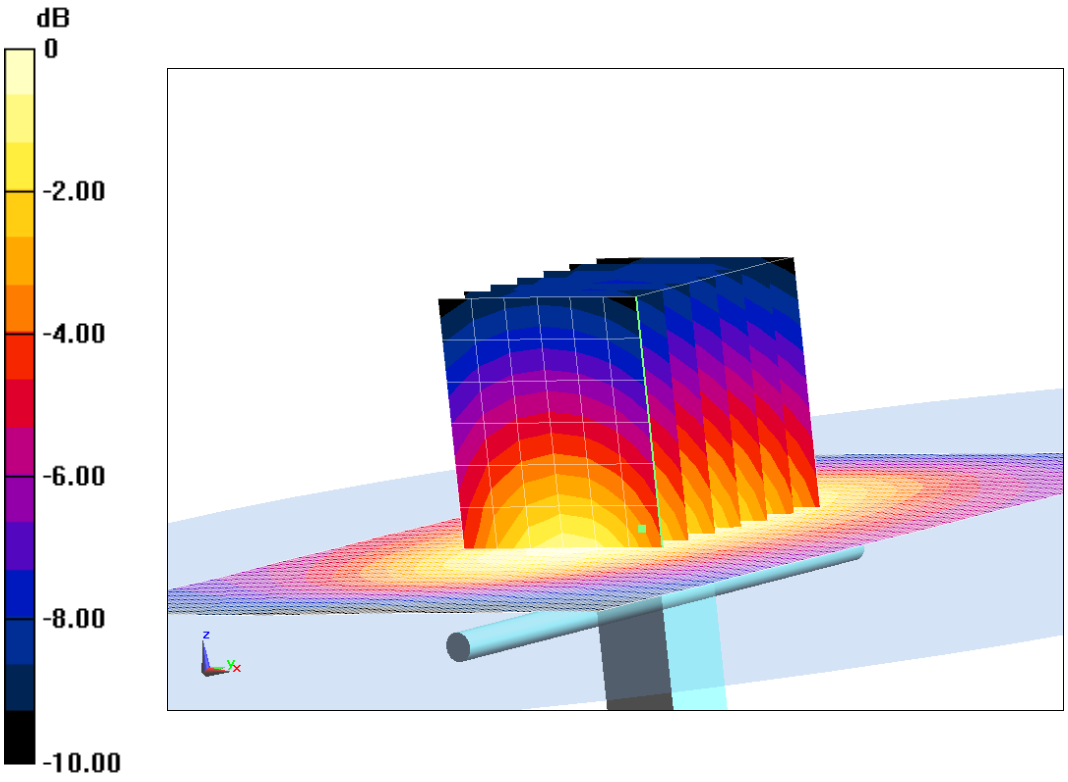
Fig.B.1 validation 835 MHz 250mW

835 MHz

Date: 6/17/2018
Electronics: DAE4 Sn1525
Medium: Body 835 MHz
Medium parameters used: f = 835 MHz; σ =0.97 mho/m; ε_r = 55.12; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.3ºC
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(10.21,10.21,10.21)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 59.12 V/m; Power Drift = -0.09
Fast SAR: SAR(1 g) = 2.34 W/kg; SAR(10 g) = 1.53 W/kg
Maximum value of SAR (interpolated) = 3.56 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =59.12 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 3.74 W/kg
SAR(1 g) = 2.35 W/kg; SAR(10 g) = 1.54 W/kg
Maximum value of SAR (measured) = 3.18 W/kg



0 dB = 3.18 W/kg = 5.02 dB W/kg

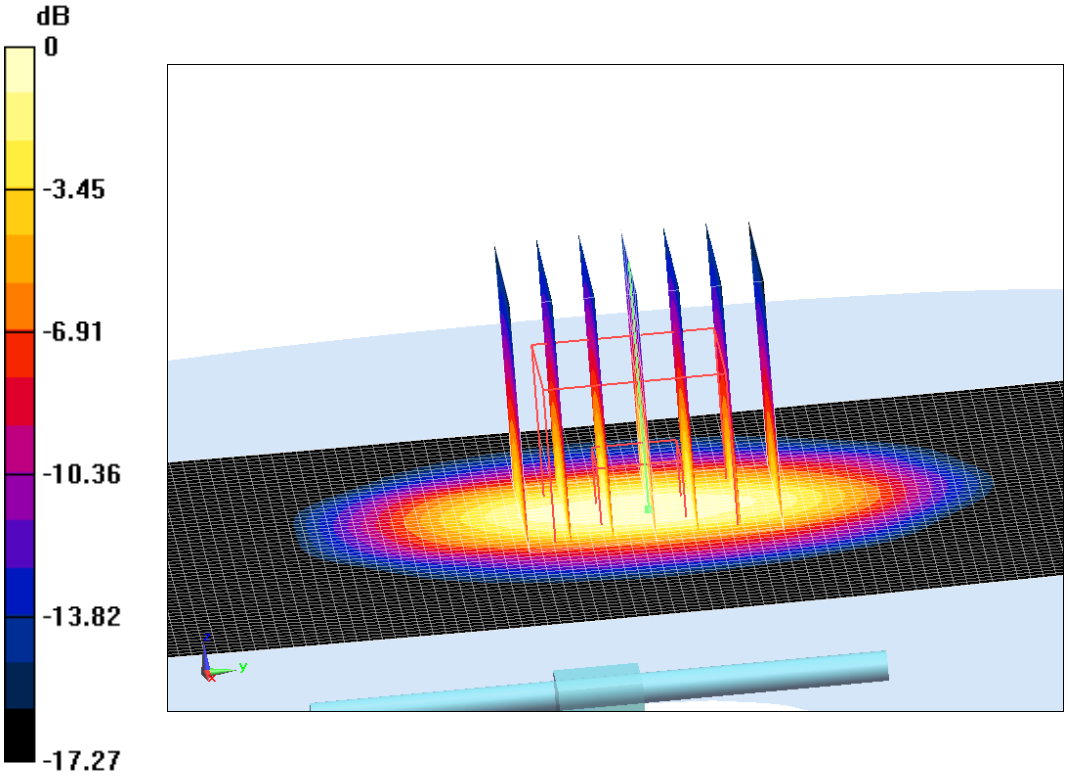
Fig.B.2 validation 835 MHz 250mW

1900 MHz

Date: 6/18/2018
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1900 MHz; σ =1.4 mho/m; ε_r = 39.37; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.3ºC
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(8.39,8.39,8.39)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 106.13 V/m; Power Drift = 0.02
Fast SAR: SAR(1 g) = 9.83 W/kg; SAR(10 g) = 5.21 W/kg
Maximum value of SAR (interpolated) = 14.63 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =106.13 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 18.05 W/kg
SAR(1 g) = 9.8 W/kg; SAR(10 g) = 5.28 W/kg
Maximum value of SAR (measured) = 15.1 W/kg



0 dB = 15.1 W/kg = 11.79 dB W/kg

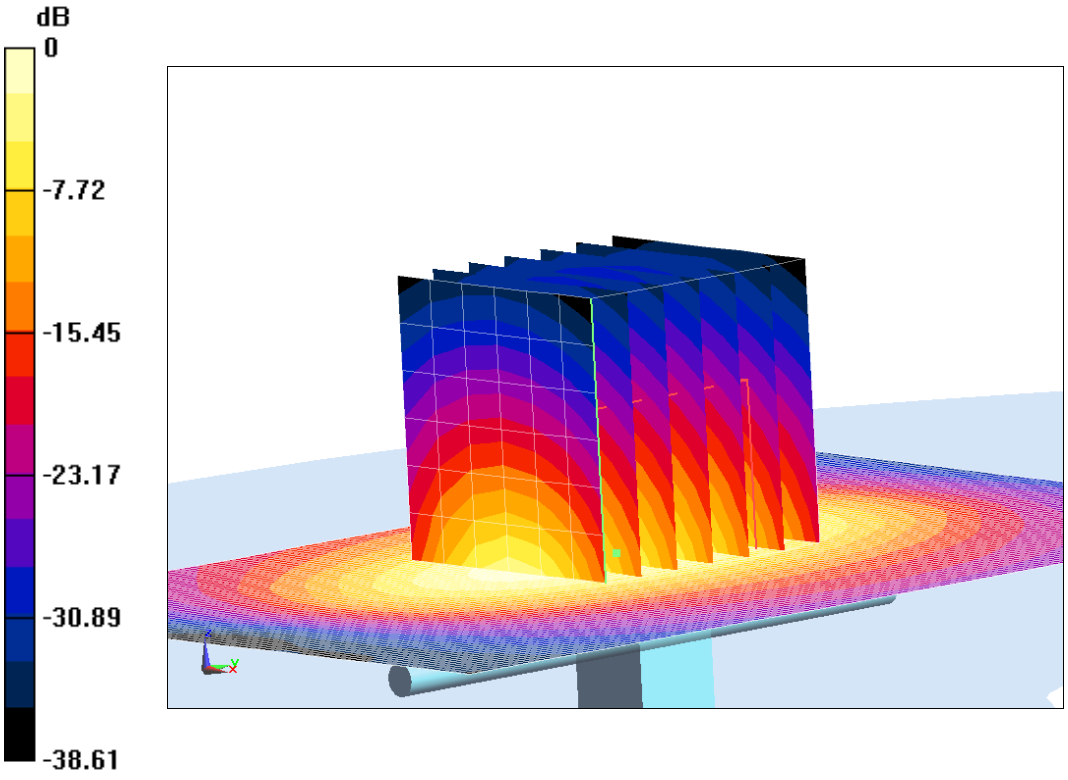
Fig.B.3 validation 1900 MHz 250mW

1900 MHz

Date: 6/18/2018
Electronics: DAE4 Sn1525
Medium: Body 1900 MHz
Medium parameters used: f = 1900 MHz; σ =1.513 mho/m; ε_r = 53.91; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.3ºC
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(8.32,8.32,8.32)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 102.83 V/m; Power Drift = 0.07
Fast SAR: SAR(1 g) = 9.97 W/kg; SAR(10 g) = 5.3 W/kg
Maximum value of SAR (interpolated) = 17.67 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =102.83 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 17.4 W/kg
SAR(1 g) = 10.14 W/kg; SAR(10 g) = 5.38 W/kg
Maximum value of SAR (measured) = 14.16 W/kg



0 dB = 14.16 W/kg = 11.51 dB W/kg

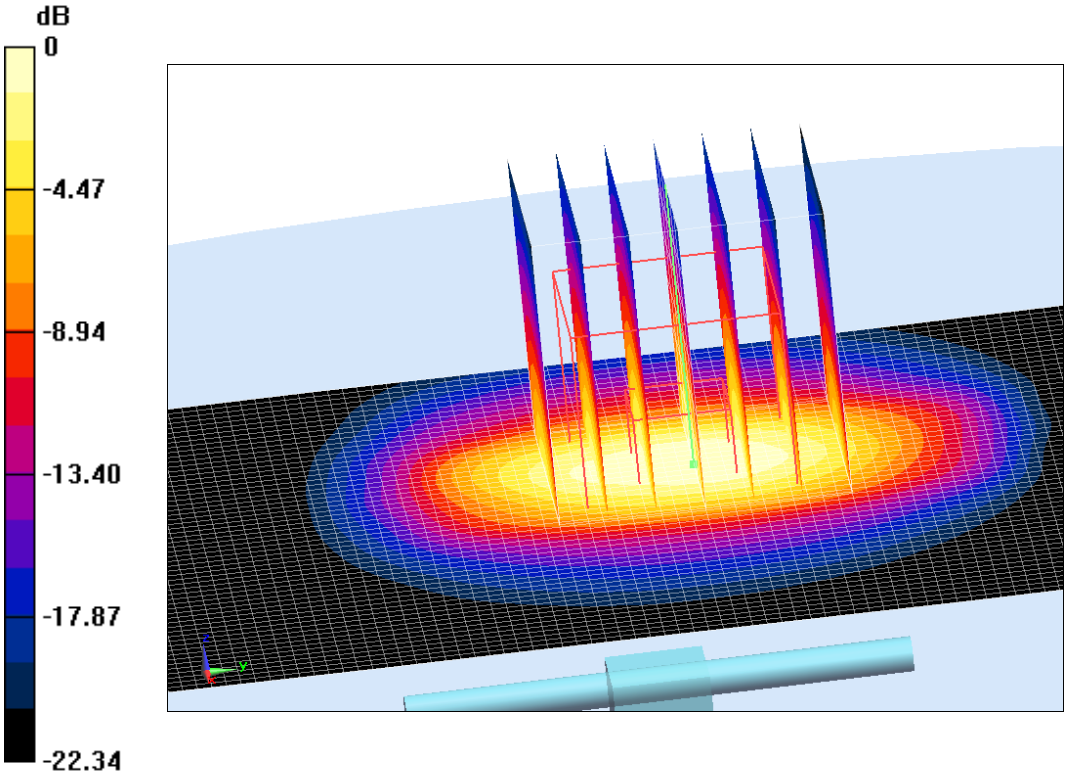
Fig.B.4 validation 1900 MHz 250mW

2450 MHz

Date: 6/19/2018
Electronics: DAE4 Sn1525
Medium: Head 2450 MHz
Medium parameters used: f = 2450 MHz; σ =1.797 mho/m; ε_r = 38.65; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.3ºC
Communication System: CW Frequency: 2450 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(7.89,7.89,7.89)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 114.63 V/m; Power Drift = -0.08
Fast SAR: SAR(1 g) = 13.05 W/kg; SAR(10 g) = 6.13 W/kg
Maximum value of SAR (interpolated) = 21.64 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =114.63 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 26.89 W/kg
SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.28 W/kg
Maximum value of SAR (measured) = 21.45 W/kg



0 dB = 21.45 W/kg = 13.31 dB W/kg

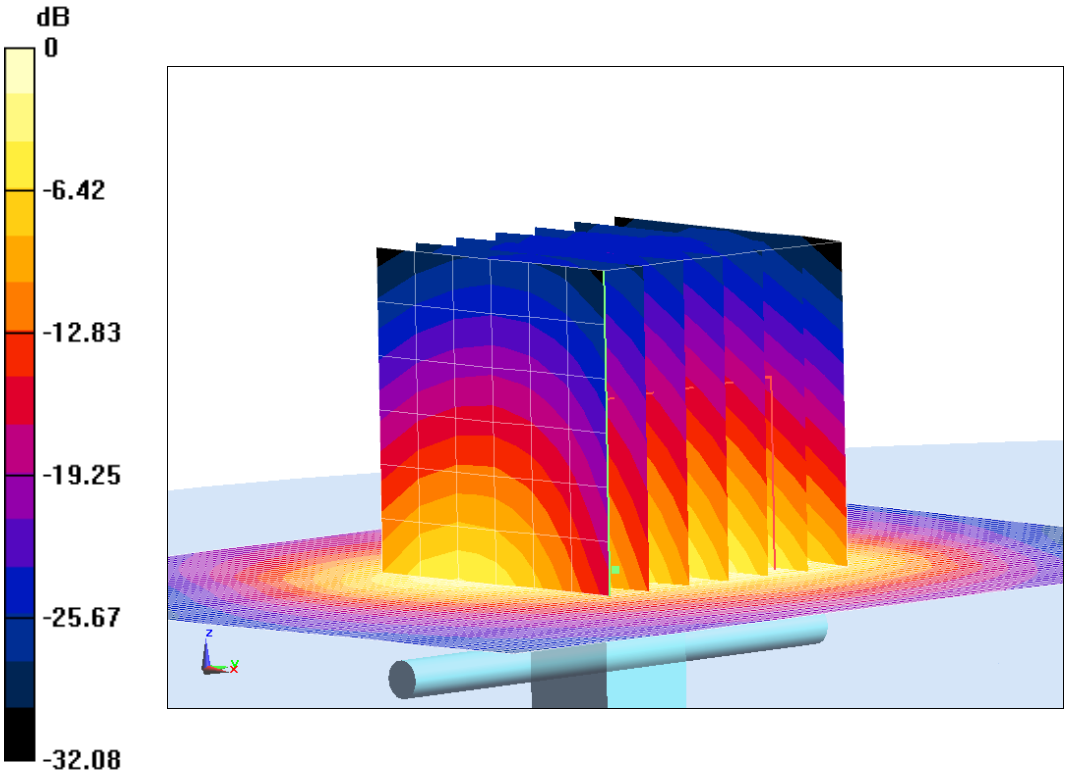
Fig.B.5 validation 2450 MHz 250mW

2450 MHz

Date: 6/19/2018
Electronics: DAE4 Sn1525
Medium: Body 2450 MHz
Medium parameters used: f = 2450 MHz; σ =1.939 mho/m; ε_r = 53.13; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.3ºC
Communication System: CW Frequency: 2450 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(8.09,8.09,8.09)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 104.23 V/m; Power Drift = 0.05
Fast SAR: SAR(1 g) = 12.45 W/kg; SAR(10 g) = 5.85 W/kg
Maximum value of SAR (interpolated) = 25.73 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =104.23 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 25.46 W/kg
SAR(1 g) = 12.43 W/kg; SAR(10 g) = 5.85 W/kg
Maximum value of SAR (measured) = 19.82 W/kg



0 dB = 19.82 W/kg = 12.97 dB W/kg

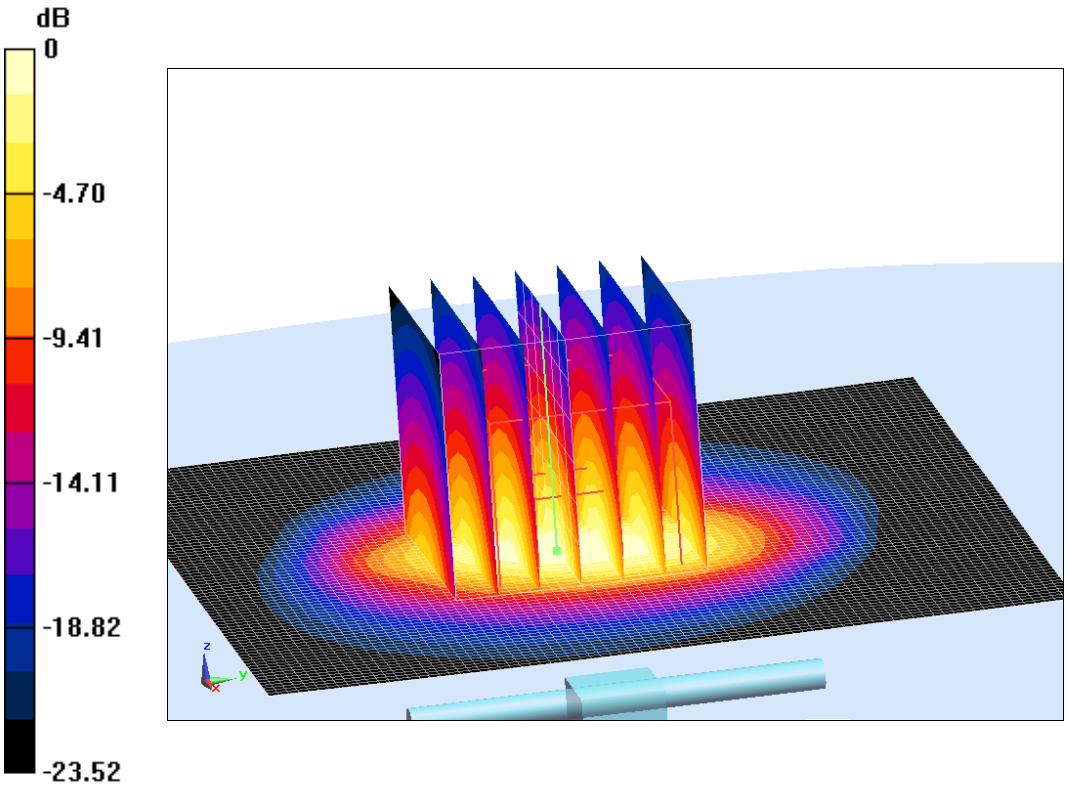
Fig.B.6 validation 2450 MHz 250mW

2600 MHz

Date: 6/19/2018
Electronics: DAE4 Sn1525
Medium: Head 2600 MHz
Medium parameters used: f = 2600 MHz; σ =1.942 mho/m; ε_r = 38.63; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.3ºC
Communication System: CW Frequency: 2600 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(7.76,7.76,7.76)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 111.47 V/m; Power Drift = 0.06
Fast SAR: SAR(1 g) = 14.33 W/kg; SAR(10 g) = 6.33 W/kg
Maximum value of SAR (interpolated) = 24.84 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =111.47 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 31.96 W/kg
SAR(1 g) = 14.3 W/kg; SAR(10 g) = 6.47 W/kg
Maximum value of SAR (measured) = 25.43 W/kg



0 dB = 25.43 W/kg = 14.05 dB W/kg

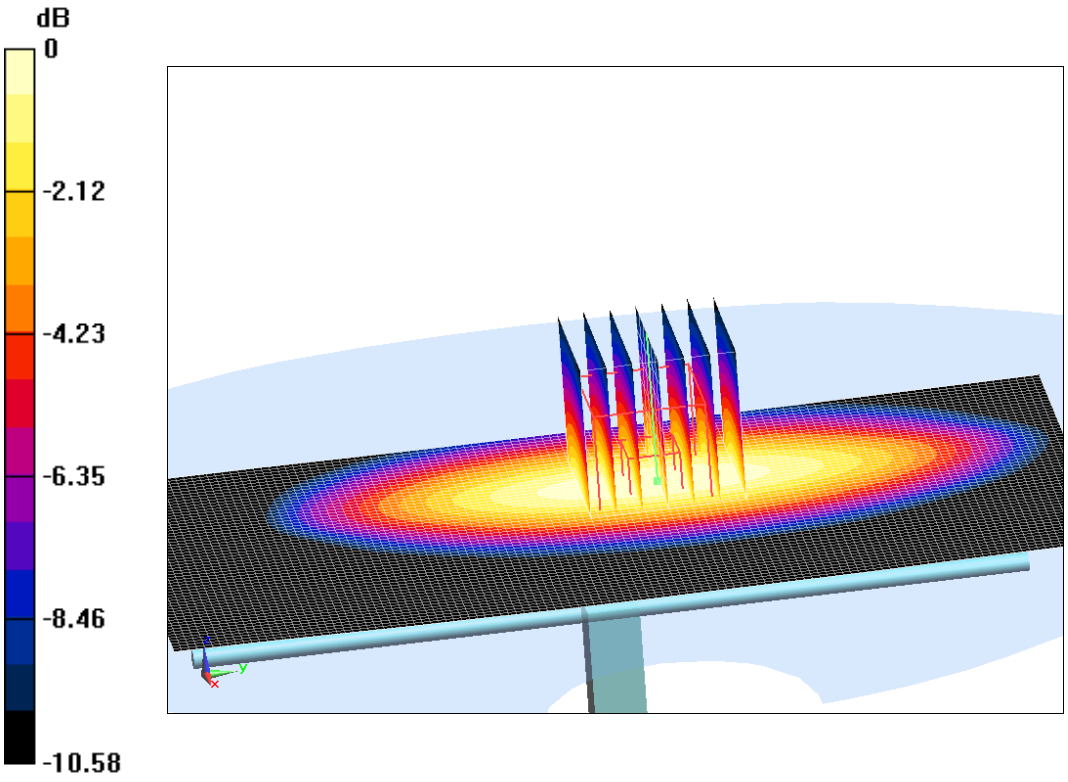
Fig.B.7 validation 2600 MHz 250mW

835 MHz

Date: 8/1/2018
Electronics: DAE4 Sn1525
Medium: Head 835 MHz
Medium parameters used: f = 835 MHz; σ =0.908 mho/m; ε_r = 41.26; ρ = 1000 kg/m^3
Ambient Temperature: 22.4ºC Liquid Temperature: 22.2ºC
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(10.28,10.28,10.28)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 65.55 V/m; Power Drift = 0.03
Fast SAR: SAR(1 g) = 2.3 W/kg; SAR(10 g) = 1.54 W/kg
Maximum value of SAR (interpolated) = 3.73 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =65.55 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 4.02 W/kg
SAR(1 g) = 2.34 W/kg; SAR(10 g) = 1.5 W/kg
Maximum value of SAR (measured) = 3.58 W/kg



0 dB = 3.58 W/kg = 5.54 dB W/kg

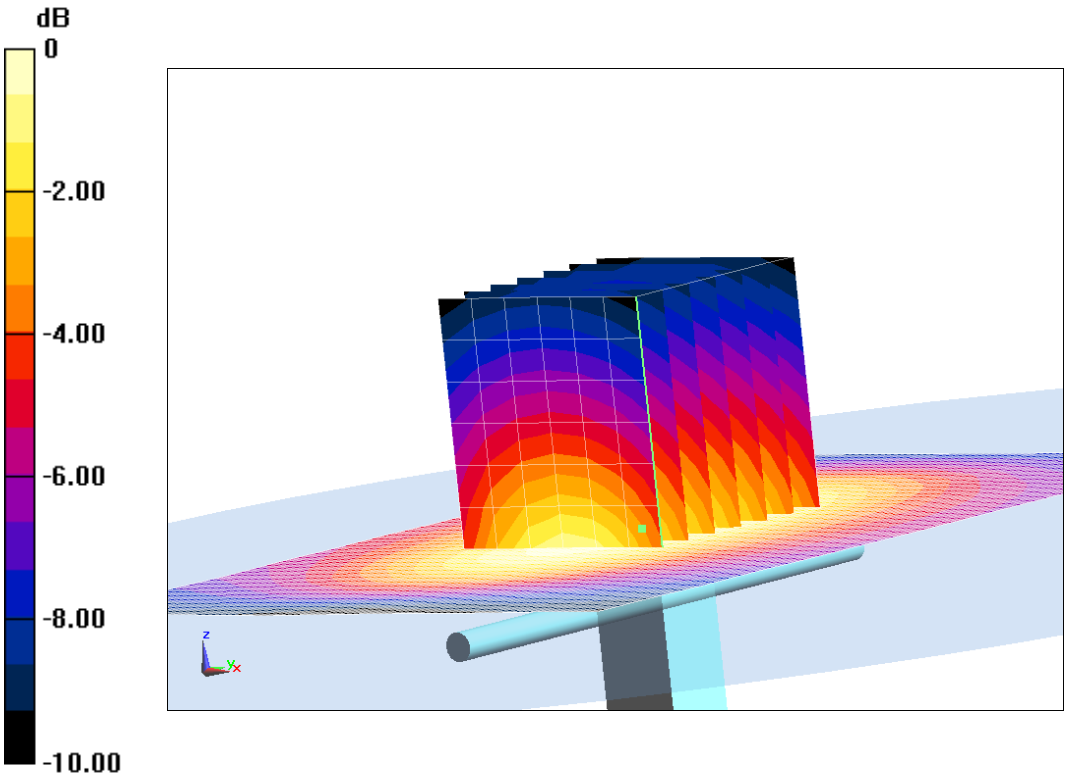
Fig.B.9 validation 835 MHz 250mW

835 MHz

Date: 8/1/2018
Electronics: DAE4 Sn1525
Medium: Body 835 MHz
Medium parameters used: f = 835 MHz; σ =0.961 mho/m; ε_r = 55.05; ρ = 1000 kg/m^3
Ambient Temperature: 22.4ºC Liquid Temperature: 22.2ºC
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(10.21,10.21,10.21)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 58.45 V/m; Power Drift = -0.03
Fast SAR: SAR(1 g) = 2.35 W/kg; SAR(10 g) = 1.53 W/kg
Maximum value of SAR (interpolated) = 3.49 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =58.45 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.62 W/kg
SAR(1 g) = 2.4 W/kg; SAR(10 g) = 1.52 W/kg
Maximum value of SAR (measured) = 3.19 W/kg



0 dB = 3.19 W/kg = 5.04 dB W/kg

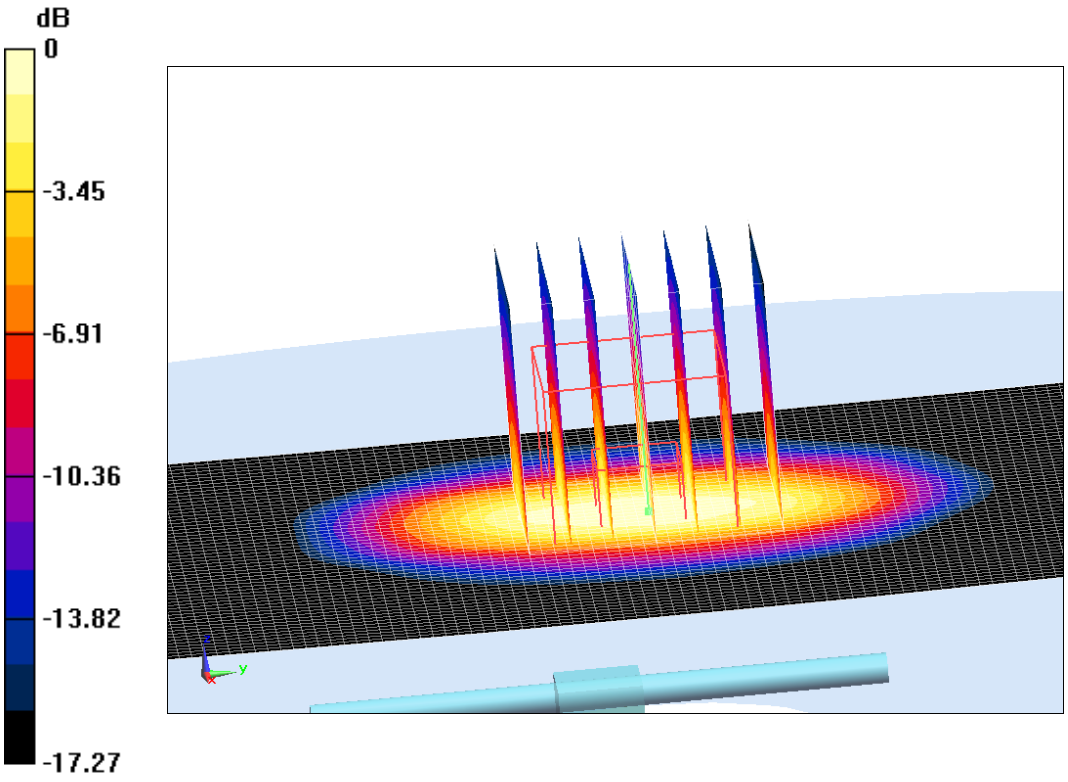
Fig.B.10 validation 835 MHz 250mW

1900 MHz

Date: 8/2/2018
Electronics: DAE4 Sn1525
Medium: Head 1900 MHz
Medium parameters used: f = 1900 MHz; σ =1.401 mho/m; ε_r = 40.09; ρ = 1000 kg/m^3
Ambient Temperature: 22.4ºC Liquid Temperature: 22.2ºC
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7464 ConvF(8.39,8.39,8.39)

System Validation /Area Scan (81x191x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 106.97 V/m; Power Drift = 0.04
Fast SAR: SAR(1 g) = 10 W/kg; SAR(10 g) = 5.19 W/kg
Maximum value of SAR (interpolated) = 15.09 W/kg

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value =106.97 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 18.59 W/kg
SAR(1 g) = 10.11 W/kg; SAR(10 g) = 5.25 W/kg
Maximum value of SAR (measured) = 15.08 W/kg



0 dB = 15.08 W/kg = 11.78 dB W/kg

Fig.B.11 validation 1900 MHz 250mW