

# SAR TEST REPORT

The following samples were submitted and identified on behalf of the client as:

Equipment Under Test	Mini-PCIe wireless LAN(6205ANHMW) 2x2 802.11abgn WLAN
	card installed in an HP HSTNN-W91C convertible platform
Model No.	HSTNN-W91C
Company Name	Intel Corporation
Company Address	100 Center Point Circle Suite 200 Columbia South Carolina 29210 United States
Standards	FCC OET 65 supplement C, IEEE /ANSI C95.1, C95.3, IEEE
	1528, RSS 102, EN62209-2:2010
FCC ID	PD962205ANH
IC Id	1000M-62205ANH
Date of Receipt	Nov. 13, 2012
Date of Test(s)	Dec. 22, 2012 ~ Jan. 08, 2013
Date of Issue	Jan. 11, 2013
In the configuration tested, the	EUT complied with the standards specified above.
Remarks:	

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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Signed on behalf of SGS

Sr. Engineer

Supervisor

John Teh John Yeh

Date: Jan. 11, 2013

台灣檢驗科技股份有限公司

rick Hou Nick Hsu

Date: Jan. 11, 2013

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# Version

Report Number	Revision	Date	Memo
ES/2012/B0010	00	2013/01/11	Initial creation of test report.

This test report contains a reference to the previous version test report that it replaces.

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# 1. General Information

# 1.1 Testing Laboratory

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City, Taiwan						
Tel	+886-2-2299-3279					
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# **1.2 Details of Applicant**

Company Name	Intel Corporation
Company Address	100 Center Point Circle Suite 200 Columbia South Carolina
1 5	29210 United States

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# **1.3 Description of EUT**

EUT Name	Mini-PCIe wireless LAN(6205ANHMW) 2x2 802.11abgn WLAN card installed in an HP HSTNN-W91C convertible platform							
Model No	HSTNN-W91C							
FCC ID	PD962205ANH							
IC ID	1000M-62205ANH							
Mode of Operation	WLAN802.11 a/b/g/n (20M/40M	1) band						
Duty Cycle	WLAN802.11 a/b/g/n (20M/40M)		1					
	WLAN802.11 b/g/n (20M)	2412		2462				
	WLAN802.11 n (40M)	2422		2452				
	WLAN802.11 a 5.2G	5180		5240				
	WLAN802.11 a 5.3G	5260		5320				
	WLAN802.11 a 5.5G	5500		5700				
	WLAN802.11 a 5.8G	5745		5825				
TX Frequency Range	WLAN802.11 n (20M) 5.2G	5180		5240				
(MHz)	WLAN802.11 n (20M) 5.3G	5260		5320				
	WLAN802.11 n (20M) 5.5G	5500		5700				
	WLAN802.11 n (20M) 5.8G	5745		5825				
	WLAN802.11 n (40M) 5.2G	5190		5230				
	WLAN802.11 n (40M) 5.3G	5270		5310				
	WLAN802.11 n (40M) 5.5G	5510		5670				
	WLAN802.11 n (40M) 5.8G	5755		5795				

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	WLAN802.11 b/g/n (20M)	1	 11
	WLAN802.11 n (40M)	3	 9
	WLAN802.11 a 5.2G	36	 48
	WLAN802.11 a 5.3G	52	 64
	WLAN802.11 a 5.5G	100	 140
	WLAN802.11 a 5.8G	149	 165
Channel Number (ARFCN)	WLAN802.11 n (20M) 5.2G	36	 48
	WLAN802.11 n (20M) 5.3G	52	 64
	WLAN802.11 n (20M) 5.5G	100	 140
	WLAN802.11 n (20M) 5.8G	149	 165
	WLAN802.11 n (40M) 5.2G	38	 46
	WLAN802.11 n (40M) 5.3G	54	 62
	WLAN802.11 n (40M) 5.5G	102	 134
	WLAN802.11 n (40M) 5.8G	151	 159

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		WLAN802.11g (2.4G)	0.41	Lap-held Secondary Landscape <u>6</u> Channel		
		WLAN802.11a (5.2G)	1.15	Lap-held Secondary Landscape <u>36</u> Channel		
	Main Antenna	WLAN802.11 (20M) (5.3G)	0.791	Lap-held Secondary Landscape <u>52</u> Channel		
Max. SAR Measured(1 g) (Unit: W/Kg)		WLAN802.11n (20M) (5.5G)	0.786	Lap-held Secondary Landscape <u>100</u> Channel		
		WLAN802.11a (5.8G)	0.852	Lap-held Secondary Landscape <u>165</u> Channel		
	Aux Antenna	WLAN802.11g (2.4G)	0.607	Lap-held Secondary Landscape <u>6</u> Channel		
		WLAN802.11a (5.2G)	1.06	Lap-held Secondary Landscape <u>36</u> Channel		
		WLAN802.11 (20M) (5.3G)	0.831	Lap-held Secondary Landscape <u>64</u> Channel		
		WLAN802.11n (40M) (5.5G)	1.09	Lap-held Secondary Landscape <u>134</u> Channel		
					WLAN802.11n (40M) (5.8G)	0.725

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Max. SAR Measured(1 g) (Unit: W/Kg)	MIMO	WLAN802.11 n(40M) (2.4G)	0.17	Lap-held Secondary Landscape <u>6</u> Channel									
		WLAN802.11 n(20M) (5.2G)	WLAN802.11 n(20M) (5.2G)	0.312	□Lap-held Secondary Landscape <u>36</u> Channel								
		WLAN802.11 n (20M) (5.3G)	0.268	□Lap-held Secondary Landscape <u>64</u> Channel									
			WLAN802.11 n (20M) (5.5G)	0.191	Lap-held Secondary Landscape <u>120</u> Channel								

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# #. WLAN802.11 a/b/g/n (20M/40M) conducted power table:

#### WLAN802.11 b

Main Antenna		Average Power (dBm)				
011		Data Rate (Mbps)				
СП	Frequency (MHZ)	1	2	5.5	11	
1	2412	15.37	15.30	15.29	15.28	
6	2437	15.48	15.42	15.43	15.39	
11	2462	15.42	15.32	15.33	15.35	

Aux Antenna		Average Power (dBm)				
011		Data Rate (Mbps)				
СП	Frequency (MHZ)	1	2	5.5	11	
1	2412	15.41	15.30	15.33	15.34	
6	2437	15.32	15.26	15.24	15.25	
11	2462	15.16	15.09	15.07	15.08	

#### WLAN802.11 g

M	ain Antenna	Average Power (dBm)								
			Data Rate (Mbps)							
CH Frequency (MHZ)	Frequency (IVIHZ)	6	9	12	18	24	36	48	54	
1	2412	13.75	13.52	13.47	13.40	13.33	13.42	13.23	13.19	
6	2437	16.30	16.04	16.07	16.01	15.99	15.94	15.72	15.89	
11	2462	13.78	13.40	13.49	13.56	13.33	13.27	13.42	13.39	

А	ux Antenna			Ave	erage Po	wer (dB	m)		
CU				C	Data Rat	e (Mbps	)		
СП		uency (MHz) 6 9 12 18 24 3					36	48	54
1	2412	13.82	13.53	13.44	13.45	13.45	13.37	13.61	13.54
6	2437	16.29	16.02	15.99	15.89	15.79	15.80	16.02	15.83
11	2462	13.92	13.62	13.60	13.56	13.51	13.52	13.44	13.48

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# WLAN802.11 n (20M)

Mai	n Antenna			Av	erage Po	wer (dB	m)		
CU	Frequency				Data Rat	e (Mbps)	)		
СП	(MHz)	Hz) 6.5 13 19.5 26 39 52 58.5							65
1	2412	12.99	12.62	12.60	12.63	12.52	12.56	12.54	12.53
6	2437	16.03	15.70	15.70	15.63	15.50	15.48	15.70	15.66
11	2462	12.30	12.09	11.94	11.93	11.90	11.91	11.80	11.85

Aux	Antenna			Av	erage Po	wer (dB	m)		
CU	Frequency				Data Rat	e (Mbps)	)		
СП	(MHz)	6.5     13     19.5     26     39     52     58.5						65	
1	2412	12.99	12.78	12.78	12.65	12.61	12.52	12.59	12.76
6	2437	16.42	16.03	16.06	16.04	16.21	15.97	16.01	16.18
11	2462	12.80	12.45	12.58	12.58	12.53	12.31	12.56	12.54

	MIMO			Av	erage Po	wer (dB	m)		
<u>cu</u>	Frequency			I	Data Rat	e (Mbps)	)		
СН	(MHz)	6.5     13     19.5     26     39     52     58.5						65	
1	2412	10.49	10.20	10.14	10.14	10.17	10.06	9.98	10.09
6	2437	13.15	12.79	12.85	12.85	12.63	12.72	12.73	12.62
11	2462	10.10	9.79	9.84	9.84	9.64	9.67	9.77	9.55

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# WLAN802.11 n (40M)

Mai	n Antenna			Av	erage Po	wer (dB	m)		
CU	Frequency				Data Rat	e (Mbps)	)		
СП	(MHz)	13.5 27 40.5 54 81 108 121.5						135	
3	2422	9.15	8.83	8.76	8.76	8.57	8.69	8.70	8.70
6	2437	15.56	15.32	15.35	15.16	15.10	15.06	15.03	15.04
9	2452	9.20	8.85	8.84	8.85	8.65	8.72	8.83	8.64

Aux	Antenna			Av	erage Po	wer (dB	m)		
CU	Frequency				Data Rat	e (Mbps)			
СП	(MHz)	13.5 27 40.5 54 81 108 121.5						135	
3	2422	9.18	8.92	8.86	8.89	8.66	8.62	8.60	8.60
6	2437	15.63	15.38	15.29	15.30	15.09	15.33	15.22	15.17
9	2452	9.79	9.46	9.57	9.57	9.32	9.21	9.28	9.20

	MIMO			Av	erage Po	wer (dB	m)		
CU	Frequency				Data Rat	e (Mbps)	)		
CH	(MHz)	13.5 27 40.5 54 81 108 121.5						135	
3	2422	7.77	13.3     27     40.3     34     81     108     121.3       7.77     7.41     7.46     7.49     7.21     7.36     7.42						
6	2437	13.48	13.24	13.18	13.17	13.02	13.04	13.03	12.99
9	2452	8.28	8.07	8.00	8.01	7.90	7.94	7.76	7.71

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#### WLAN802.11 a

Ма	in Antenna	Average Power (dBm)								
5.2G/5	.3G/5.5G/5.8G						,			
СН	Frequency			[	Data Rat	e (Mbps	)	1		
	(MHz)	6	9	12	18	24	36	48	54	
36	5180	15.80	15.42	15.43	15.42	15.34	15.38	15.25	15.33	
40	5200	15.70	15.37	15.44	15.35	15.39	15.31	15.17	15.17	
44	5220	15.89	15.60	15.56	15.65	15.45	15.55	15.36	15.54	
48	5240	15.79	15.48	15.40	15.45	15.21	15.35	15.26	15.27	
52	5260	15.70	15.41	15.42	15.47	15.39	15.37	15.16	15.19	
56	5280	15.97	15.73	15.63	15.66	15.39	15.44	15.51	15.46	
60	5300	15.91	15.58	15.67	15.71	15.49	15.33	15.58	15.58	
64	5320	15.72	15.47	15.38	15.44	15.40	15.21	15.24	15.39	
100	5500	15.73	15.49	15.48	15.35	15.15	15.40	15.28	15.28	
104	5520	15.98	15.58	15.58	15.59	15.55	15.54	15.54	15.61	
108	5540	15.69	15.42	15.35	15.32	15.14	15.34	15.36	15.32	
112	5560	15.78	15.46	15.56	15.55	15.44	15.34	15.47	15.19	
116	5580	15.81	15.43	15.55	15.52	15.34	15.47	15.34	15.41	
120	5600	15.37	15.16	14.98	15.14	14.98	14.91	14.97	15.06	
124	5620	15.23	15.03	14.88	14.91	14.91	14.92	14.81	14.89	
128	5640	15.94	15.73	15.63	15.68	15.39	15.53	15.64	15.48	
132	5660	15.72	15.48	15.34	15.36	15.13	15.30	15.27	15.15	
136	5680	15.80	15.46	15.47	15.59	15.23	15.39	15.37	15.29	
140	5700	15.93	15.58	15.60	15.58	15.55	15.48	15.46	15.51	
149	5745	15.91	15.58	15.68	15.58	15.37	15.56	15.55	15.45	
153	5765	15.78	15.42	15.41	15.43	15.41	15.27	15.35	15.27	
157	5785	15.70	15.35	15.45	15.31	15.28	15.33	15.23	15.14	
161	5805	15.80	15.54	15.56	15.44	15.44	15.21	15.48	15.37	
165	5825	15.88	15.62	15.65	15.50	15.44	15.30	15.46	15.46	

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#### WLAN802.11 a

Au	x Antenna	Average Power (dBm)							
5.26/5	Frequency			[	Data Rat	e (Mbps	)		
СН	(MHz)	6	9	12	18	24	36	48	54
36	5180	15.98	15.76	15.64	15.68	15.68	15.39	15.56	15.54
40	5200	15.79	15.50	15.58	15.55	15.49	15.24	15.37	15.34
44	5220	15.98	15.64	15.63	15.64	15.61	15.48	15.58	15.49
48	5240	15.97	15.71	15.74	15.66	15.47	15.41	15.52	15.43
52	5260	15.78	15.51	15.40	15.46	15.22	15.24	15.23	15.34
56	5280	15.94	15.60	15.73	15.61	15.49	15.52	15.40	15.48
60	5300	15.71	15.43	15.43	15.34	15.23	15.26	15.33	15.34
64	5320	15.61	15.32	15.39	15.29	15.14	15.03	15.03	15.08
100	5500	15.83	15.56	15.48	15.46	15.53	15.27	15.51	15.51
104	5520	15.95	15.59	15.69	15.69	15.50	15.62	15.35	15.62
108	5540	15.71	15.32	15.38	15.43	15.35	15.26	15.16	15.29
112	5560	15.77	15.39	15.40	15.54	15.20	15.40	15.17	15.23
116	5580	15.76	15.43	15.45	15.53	15.29	15.17	15.18	15.30
120	5600	15.60	15.26	15.29	15.34	15.26	15.08	15.13	15.17
124	5620	15.77	15.49	15.47	15.39	15.33	15.36	15.21	15.44
128	5640	15.90	15.60	15.62	15.58	15.39	15.52	15.46	15.42
132	5660	15.72	15.43	15.44	15.43	15.40	15.24	15.14	15.14
136	5680	15.91	15.59	15.56	15.56	15.47	15.59	15.58	15.34
140	5700	15.80	15.52	15.50	15.52	15.46	15.25	15.21	15.26
149	5745	15.97	15.67	15.72	15.58	15.65	15.51	15.55	15.65
153	5765	15.81	15.58	15.43	15.56	15.47	15.37	15.34	15.30
157	5785	15.80	15.57	15.45	15.44	15.45	15.30	15.40	15.33
161	5805	15.71	15.47	15.45	15.42	15.38	15.38	15.16	15.35
165	5825	15.60	15.37	15.37	15.31	15.02	15.02	15.23	15.03

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#### WLAN802.11 n (20M)

Ma	in Antenna	Average Power (dBm)							
5.2G/5	.3G/5.5G/5.8G			Av	erage FC	wei (ub	111)		
CU	Frequency			I	Data Rat	e (Mbps	)		
СП	(MHz)	6.5	13	19.5	26	39	52	58.5	65
36	5180	15.46	15.10	15.20	15.18	14.95	15.04	15.08	14.91
48	5240	15.93	15.71	15.63	15.60	15.39	15.47	15.39	15.44
52	5260	15.81	15.49	15.43	15.46	15.45	15.31	15.31	15.26
64	5320	15.61	15.36	15.23	15.25	15.11	15.23	15.25	15.24
100	5500	15.91	15.55	15.70	15.63	15.49	15.42	15.44	15.49
116	5580	15.97	15.75	15.77	15.73	15.51	15.37	15.57	15.63
120	5600	15.21	14.94	14.98	14.98	14.81	14.61	14.72	14.78
140	5700	15.48	15.14	15.10	15.26	15.11	14.92	15.16	15.10
149	5745	15.97	15.60	15.69	15.67	15.61	15.45	15.65	15.54
157	5785	15.80	15.49	15.41	15.44	15.33	15.44	15.41	15.21
165	5825	15.83	15.46	15.48	15.49	15.35	15.30	15.25	15.26

Au	x Antenna	Average Power (dBm)							
5.2G/5	.3G/5.5G/5.8G			Av	erage FC	wei (ub	111)		
CU	Frequency			I	Data Rat	e (Mbps	)		
СП	(MHz)	6.5	13	19.5	26	39	52	58.5	65
36	5180	15.33	15.10	15.09	15.08	14.86	14.77	14.77	15.00
48	5240	15.89	15.59	15.63	15.53	15.39	15.58	15.31	15.34
52	5260	15.86	15.48	15.52	15.49	15.29	15.33	15.47	15.48
64	5320	15.90	15.55	15.54	15.50	15.51	15.51	15.43	15.52
100	5500	15.83	15.59	15.47	15.60	15.51	15.30	15.50	15.47
116	5580	15.70	15.44	15.41	15.34	15.35	15.32	15.34	15.25
120	5600	15.91	15.59	15.64	15.59	15.51	15.48	15.32	15.53
140	5700	15.80	15.46	15.46	15.50	15.34	15.27	15.45	15.42
149	5745	15.87	15.64	15.50	15.57	15.55	15.42	15.46	15.41
157	5785	15.98	15.74	15.71	15.72	15.59	15.47	15.51	15.47
165	5825	15.87	15.56	15.56	15.49	15.30	15.51	15.43	15.40

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台灣檢驗科技股份有限公司

f (886-2) 2298-0488



#### WLAN802.11 n (20M)

	MIMO	Average Power (dBm)							
5.2G/5	.3G/5.5G/5.8G			Av	erage PC		111)		
<u></u>	Frequency			I	Data Rat	e (Mbps	)		
СН	(MHz)	6.5	13	19.5	26	39	52	58.5	65
36	5180	12.98	12.67	12.68	12.66	12.67	12.62	12.66	12.66
48	5240	10.90	10.61	10.66	10.52	10.65	10.56	10.60	10.69
52	5260	10.54	10.22	10.26	10.23	10.19	10.16	10.29	10.23
64	5320	12.84	12.54	12.51	12.59	12.58	12.57	12.52	12.50
100	5500	13.21	12.94	12.88	12.96	12.93	12.91	12.87	12.89
116	5580	10.05	9.70	9.76	9.69	9.70	9.76	9.77	9.70
120	5600	13.48	13.21	13.19	13.13	13.15	13.18	13.22	13.16
140	5700	13.42	13.04	13.13	13.12	13.05	13.04	13.16	13.07
149	5745	10.53	10.24	10.22	10.22	10.20	10.23	10.20	10.25
157	5785	10.39	10.05	10.07	10.07	10.06	10.09	10.16	10.07
165	5825	12.87	12.55	12.63	12.51	12.56	12.60	12.50	12.60

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# WLAN802.11 n (40M)

Main Antenna		Average Dower (dPm)							
5.2G/5	.3G/5.5G/5.8G	Average Power (dBm)							
CU	Frequency		Data Rate (Mbps)						
СП	(MHz)	13.5	27	40.5	54	81	108	121.5	135
38	5190	10.98	10.60	10.75	10.69	10.41	10.40	10.46	10.50
46	5230	15.95	15.73	15.64	15.71	15.37	15.41	15.52	15.40
54	5270	15.81	15.45	15.55	15.49	15.36	15.50	15.33	15.25
62	5310	10.76	10.50	10.46	10.56	10.24	10.22	10.17	10.19
102	5510	13.21	12.94	12.85	12.98	12.64	12.73	12.72	12.66
118	5590	15.81	15.60	15.53	15.47	15.40	15.36	15.41	15.29
134	5670	15.88	15.67	15.58	15.56	15.38	15.58	15.36	15.38
151	5755	15.83	15.47	15.55	15.43	15.25	15.52	15.51	15.48
159	5795	15.92	15.63	15.55	15.60	15.62	15.41	15.36	15.50

Aux Antenna		Average Rower (dRm)							
5.2G/5	.3G/5.5G/5.8G	Average Power (dBm)							
CU	Frequency			I	Data Rat	e (Mbps	)		
СП	(MHz)	13.5	27	40.5	54	81	108	121.5	135
38	5190	10.98	10.77	10.70	10.74	10.62	10.70	10.55	10.59
46	5230	15.51	15.31	15.25	15.18	15.01	15.19	15.22	15.02
54	5270	15.94	15.70	15.57	15.59	15.45	15.45	15.62	15.66
62	5310	10.71	10.41	10.36	10.34	10.36	10.49	10.45	10.27
102	5510	13.10	12.72	12.72	12.78	12.68	12.64	12.84	12.89
118	5590	15.91	15.62	15.67	15.64	15.53	15.59	15.59	15.65
134	5670	15.88	15.48	15.52	15.54	15.61	15.58	15.40	15.41
151	5755	15.90	15.51	15.63	15.70	15.54	15.59	15.45	15.44
159	5795	15.95	15.62	15.75	15.62	15.55	15.65	15.65	15.46

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#### WLAN802.11 n (40M)

MIMO		Average Power (dPm)							
5.2G/5	.3G/5.5G/5.8G	Average Power (dBill)							
CU	Frequency			I	Data Rat	e (Mbps	)		
СП	(MHz)	13.5	27	40.5	54	81	108	121.5	135
38	5190	9.52	9.21	9.16	9.22	9.26	9.30	9.27	9.24
46	5230	12.62	12.26	12.36	12.35	12.33	12.41	12.36	12.32
54	5270	12.78	12.52	12.43	12.50	12.53	12.47	12.51	12.55
62	5310	9.60	9.27	9.30	9.31	9.39	9.30	9.30	9.37
102	5510	12.49	12.13	12.18	12.17	12.12	12.21	12.14	12.24
118	5590	12.87	12.59	12.53	12.56	12.62	12.59	12.65	12.61
134	5670	12.76	12.47	12.47	12.45	12.46	12.49	12.48	12.41
151	5755	12.94	12.73	12.54	12.66	12.72	12.69	12.61	12.65
159	5795	12.86	12.54	12.57	12.56	12.57	12.58	12.56	12.50

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# 1.4 Test Environment

Ambient Temperature: 22±2° C Tissue Simulating Liquid: 22±2° C

# **1.5 Operation Description**

Use chipset specific software to control the EUT, and makes it transmit in maximum power. Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s).

The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.

We will test it with 2 configurations:

# Configuration 1: Lap-held mode.

- Configuration 2: Primary Portrait mode. (Not tested, since distance of WLAN antenna to edge is 50.56 mm, which is larger than 5cm)
- Configuration 3: Secondary Portrait mode. (Not tested, since distance of WLAN antenna to edge is 50.56 mm, which is larger than 5cm)
- Configuration 4: Primary Landscape mode. (Not tested, since distance of WLAN antenna to edge is 200.20 mm, which is larger than 5cm)

# Configuration 5: Secondary Landscape mode.

- Configuration 6: Lap-held mode. (Not tested, since distance of WLAN antenna to edge is 200.20 mm, which is larger than 5cm)
- **#** Due to the maximum average output power of lowest data rate is higher than the other data rates, thus only lowest data rate to do SAR testing.
- #. According to KDB248227-SAR is not required for 802.11 g/HT20/HT40 channels when the maximum average output power is higher than that measured on the corresponding 802.11b channels but increase less than 1/4 dB.

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- #. The highest 1-g SAR for Main antenna is 1.15 W/kg and the highest 1-g SAR for Aux antenna is 0.607 W/kg. The sum of 1-g for simultaneous transmitting Main antenna and Aux antenna pair is 1.15+0.607 = 1.757 W/kg > 1.6 W/kg which higher than the limit 1.6W/kg.
- #. We calculate the peak location separation ratio of simultaneous transmitting antenna pair, the value is (1.15+0.607)<sup>1.5</sup>/156.5=0.01488), which less than 0.04. According to KDB447498, simultaneous SAR evaluation is not required.

nd d	istance of maxima	
	Maxima   associated 1g averages	AN 802 11- CU26 0mm Main 4-40/80000
	Zoom Scan (E: Secondary Landscape_with)	LAN 602.11a_CH30_UMM_Waln.da4:0/BOD1)
	Max. 1 at (-0.30, 7.44, -18.32)	1.15 W/kg
	Zoom Scan (E:\Secondary Landscape_WI	AN 802.1g_CH6_0mm_Aux.da4:0/BODY)
	Max. 2 at (-0.10, -8.20, -18.34)	0.61 W/kg
	Distances and Separation Ratios	
	Max. 1 - Max. 2	Distance [cm]: 15.65 / Separation ratio [W/kg/cm]: 0.11
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# 1.6 The SAR Measurement System

A block diagram of the SAR measurement System is given in Fig. a. This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY 4 professional system). Model ES3DV3 and EX3DV4 field probes are used to determine the internal electric fields. The SAR can be obtained from the equation SAR=  $\sigma$  ( $|Ei|^2$ )/ $\rho$  where  $\sigma$  and  $\rho$  are the conductivity and mass density of the tissue-simulant. The DASY 4 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (Staubli RX family) with controller, teach pendant and software. An arm extension is for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage intissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.



Fig. a The block diagram of SAR system

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- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 2000 or Windows XP.
- DASY 4 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validate the proper functioning of the system.

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# **1.7 System Components**

### ES3DV3/EX3DV4 E-Field Probe

Construction	Symmetrical design with triangular core				
	Built-in shielding against static charges	an teacher and			
PEEK enclosure material (resistant to		/			
	organic solvents, e.g., DGBE)				
Calibration	Basic Broad Band Calibration in air				
	Conversion Factors (CF) for HSL				
	2450/5200/5500/5800 MHz Additional CF				
	for other liquids and frequencies upon				
	request				
Frequency	10 MHz to > 6 GHz, Linearity: $\pm$ 0.6 dB (30	) MHz to 4 GHz)			
Directivity	± 0.3 dB in HSL (rotation around probe axis	s)			
	$\pm$ 0.5 dB in tissue material (rotation norma	I to probe axis)			
Dynamic Range	10 $\mu$ W/g to > 100 mW/g				
	Linearity: $\pm$ 0.2 dB (noise: typically < 1 $\mu$ W	//g)			
Dimensions	Tip diameter: 4 mm (ES3DV3)				
	Tip diameter: 2.5 mm (EX3DV4)				
Application	High precision dosimetric measurements in	any exposure scenario			
	(e.g., very strong gradient fields). Only probe which enables				
	compliance testing for frequencies up to 6	GHz with precision of			
	better 30%.				

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# **SAM PHANTOM V4.0C**

Construction	The shell corresponds to the specifications of the Specific					
	Anthropomorphic Mannequin (SAM) phantom defined in IEEE					
	1528-200X, CENELEC 50361 and IE	EC 62209.				
	It enables the dosimetric evaluation	n of left and right hand phone				
	usage as well as body mounted us	age at the flat phantom region. A				
	cover prevents evaporation of the I	liquid. Reference markings on the				
	phantom allow the complete setup	of all predefined phantom				
	positions and measurement grids b	by manually teaching three points				
	with the robot.					
Shell Thickness	2 ± 0.2 mm					
Filling Volume	Approx. 25 liters	( The second sec				
Dimensions	Height: 810 mm;					
	Length: 1000 mm;	1				
	Width: 500 mm					

### **DEVICE HOLDER**

Construction	The device holder (Supporter) for Notebook is made by POM (polyoxymethylene resin ), which is non-metal and non-conductive. The height can be adjusted to fit varies kind of notebooks.	
		Device Holder

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## **1.8 SAR System Verification**

The microwave circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 5% from the target SAR values. These tests were done at 2450/5200/5500/5800 MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1 (SAR values are normalized to 1W forward power delivered to the dipole). During the tests, the ambient temperature of the laboratory was 21.7°C, the relative humidity was 62% and the liquid depth above the ear reference points was above 15 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



Fig. b The block diagram of system verification

- A. Signal generator
- B. Amplifier
- C. Power meter
- D. Dual directional coupling
- E. Reference dipole antenna



Photograph of the dipole Antenna

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Validation Kit	S/N	Frequency (MHz)	Target SAR (1g) (Pin=250mW) (mW/g)	Measured SAR (1g)(mW/g)	Measured Date
	דכד	2450	10.7	13.3	Jan. 07, 2013
D2450V2	121	2450	12.7	13.2	Jan. 08, 2013
				7.32	Dec. 22, 2012
D5GHzV2	1023	5200	7.22	7.28	Dec. 23, 2012
				7.17	Dec. 25, 2012
				8	Dec. 27, 2012
D5GHzV2	1023	5500	7.81	8.12	Dec. 28, 2012
				8.14	Dec. 29, 2012
				7.27	Dec. 30, 2012
D5GHzV2	1023	5800	7.3	7.21	Jan. 01, 2013
				7.3	Jan. 02, 2013

Table 1. Results of system validation

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# 1.9 Tissue Simulant Fluid for the Frequency Band

The dielectric properties for this body-simulant fluid were measured by using the Agilent Model 85070D Dielectric Probe (rates frequency band 200 MHz to 20 GHz) in conjunction with Network Analyzer (30 KHz-6000 MHz ).

All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The depth of the tissue simulant in the flat section of the phantom was at least 15cm during all tests. (Fig. 2)

Frequency (MHz)	Die	lectric Parameters	Recommended Limits	Measured	Measurement Date
		Verification	40 70 FE 02	50.8	
	ε <sub>r</sub>	Test CH 6_WLAN	49.78-55.02	51	
	σ	Verification	1 00 2 00	2.04	Jan. 07, 2013
	(S/m) Test CH 6_WLAN		1.88-2.08	2.01	
2450	Simula	ted Tissue Temp.(°C)	20-24	21.7	
2450	<u> </u>	Verification	40 70 FE 02	51.2	
	٤ <sub>r</sub>	Test CH 6_WLAN	49.78-55.02	51.4	
	σ	Verification	1 00 2 00	2.05	Jan. 08, 2013
	(S/m)	Test CH 6_WLAN	1.88-2.08	2.03	
	Simula	ted Tissue Temp.(°C)	20-24	21.7	

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Frequency (MHz)	Diel	ectric Parameters	Recommended Limits	Measured	Measurement Date
		Verification		49.4	
		Test CH 36_WLAN		49.4	
	٤ <sub>r</sub>	Test CH 44_WLAN	46.74-51.66	49.3	
		Test CH 56_WLAN		49.1	
		Verification		5.33	Dec. 22, 2012
	σ	Test CH 36_WLAN	F 10 F 70	5.33	
	(S/m)	Test CH 44_WLAN	5.19-5.73	5.35	
		Test CH 56_WLAN		5.47	
	Simulat	ed Tissue Temp.(°C)	20-24	21.7	
		Verification		49.5	
		Test CH 36_WLAN		49.5	Dec. 23, 2012
	٤ <sub>r</sub>	Test CH 48_WLAN	46.74-51.66	49.4	
		Test CH 52_WLAN		49.4	
		Test CH 64_WLAN		49.2	
5200	σ (S/m)	Verification		5.34	
		Test CH 36_WLAN	5.19-5.73	5.32	
		Test CH 48_WLAN		5.39	
		Test CH 52_WLAN		5.47	
		Test CH 64_WLAN		5.5	
	Simulat	ed Tissue Temp.(℃)	20-24	21.7	
		Verification		49.6	
	<b>c</b>	Test CH 38_WLAN	14 71 E1 44	49.6	
	٤ <sub>r</sub>	Test CH 46_WLAN	40.74-51.00	49.5	
		Test CH 54_WLAN		49.4	
		Verification		5.34	Dec. 25, 2012
	σ	Test CH 38_WLAN	E 10 E 72	5.33	
	(S/m)	Test CH 46_WLAN	5.19-5.73	5.39	
		Test CH 54_WLAN		5.43	
	Simulat	ed Tissue Temp.(°C)	20-24	21.7	

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Frequency (MHz)	Dielectric Parameters		Recommended Limits	Measured	Measurement Date
		Verification		48.8	
		Test CH 104_WLAN		48.8	
	_	Test CH 116_WLAN		48.5	
	٤ <sub>r</sub>	Test CH 128_WLAN	40.27-51.14	48.4	
		Test CH 136_WLAN		48.4	
		Test CH 140_WLAN		48.4	
		Verification		5.66	Dec. 27, 2012
		Test CH 104_WLAN		5.74	
	σ	Test CH 116_WLAN	F F7 / 1F	5.81	
	(S/m)	Test CH 128_WLAN	5.57-6.15	5.91	
		Test CH 136_WLAN		5.98	
FEOO		Test CH 140_WLAN		6.02	
5500	Simulat	ed Tissue Temp.(℃)	20-24	21.7	
		Verification		48.7	
		Test CH 100_WLAN		48.7	
	ε <sub>r</sub>	Test CH 116_WLAN	46.27-51.14	48.6	
		Test CH 120_WLAN		48.4	
		Test CH 140_WLAN		48.4	
		Verification		5.68	Dec. 28, 2012
	~	Test CH 100_WLAN		5.68	
	(S/m)	Test CH 116_WLAN	5.57-6.15	5.84	
	(3/11)	Test CH 120_WLAN		5.88	
		Test CH 140_WLAN		6	
	Simulat	ed Tissue Temp.(°C)	20-24	21.7	

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Frequency	Dial	actric Daramatara	Recommended	Moocurod	Measurement
(MHz)	Diei	ectric Parameters	Limits	weasureu	Date
		Verification		48.8	
		Test CH 102_WLAN		48.8	
	ε <sub>r</sub>	Test CH 118_WLAN	46.27-51.14	48.7	Dec. 29, 2012
		Test CH 134_WLAN		48.4	
5500		Verification		5.68	
	σ	Test CH 102_WLAN		5.69	
	(S/m)	Test CH 118_WLAN	5.57-6.15	5.85	
		Test CH 134_WLAN		5.98	
	Simulat	ed Tissue Temp.(°C)	20-24	21.7	

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Frequency (MHz)	Diel	ectric Parameters	Recommended Limits	Measured	Measurement Date	
5800	٤ <sub>r</sub>	Verification		48.5		
		Test CH 149_WLAN		48.6		
		Test CH 153_WLAN	45.79-50.61	48.5		
		Test CH 161_WLAN		48.5	Dec. 30, 2012	
		Test CH 165_WLAN		48.3		
	σ (S/m)	Verification		6.25		
		Test CH 149_WLAN		6.19		
		Test CH 153_WLAN	5.97-6.59	6.2		
		Test CH 161_WLAN		6.25		
		Test CH 165_WLAN		6.3		
	Simulat	ed Tissue Temp.(°C)	20-24	21.7		
	٤ <sub>r</sub>	Verification		48.4		
		Test CH 149_WLAN		48.7		
		Test CH 157_WLAN	45.79-50.61	48.4		
		Test CH 165_WLAN		48.4	Jan. 01, 2013	
		Verification		6.3		
	σ (S/m)	Test CH 149_WLAN	E 07 ( E0	6.21		
		Test CH 157_WLAN	5.97-0.39	6.29		
		Test CH 165_WLAN		6.3		
	Simulat	ed Tissue Temp.(°C)	20-24	21.7		
	٤ <sub>r</sub>	Verification	45.79-50.61	48.3		
		Test CH 151_WLAN		48.4		
		Test CH 159_WLAN		48.3		
	σ (S/m)	Verification		6.3	Jan. 02, 2013	
		Test CH 151_WLAN	5.97-6.59	6.28		
		Test CH 159_WLAN		6.3		
	Simulat	ed Tissue Temp.(°C)	20-24	21.7		

Table 2. Dielectric Parameters of Tissue Simulant Fluid

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# The composition of the brain tissue simulating liquid:

Frequency (MHz)	Mode	Ingredient						Tatal
		DGMBE	Water	Salt	Preventol D-7	Cellulose	Sugar	l otal amount
2450M	Body	301.7ml	698.3ml					1.0L(Kg)

# Simulating Liquids for 5 GHz, Manufactured by SPEAG:

Ingredients	Water	Esters, Emulsifiers, Inhibitors	Sodium and Salt
(% by weight)	60-80	20-40	0-1.5

Table 3. Recipes for Tissue Simulating Liquid

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# **1.10 Evaluation Procedures**

The entire evaluation of the spatial peak values is performed within the Post-processing engine (SEMCAD). The system always gives the maximum values for the 1 g and 10 g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- 1. The extraction of the measured data (grid and values) from the Zoom Scan.
- 2. The calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
- 3. The generation of a high-resolution mesh within the measured volume
- 4. The interpolation of all measured values from the measurement grid to the high-resolution grid
- 5. The extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- 6. The calculation of the averaged SAR within masses of 1g and 10g.

The probe is calibrated at the center of the dipole sensors that is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated. The angle between the probe axis and the surface normal line is less than 30 degree.

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extreme of the SAR distribution. The uncertainty on the locations of the extreme is less than 1/20 of the grid size. Only local maximum within –2 dB of the global maximum are searched and passed for the Cube Scan measurement. In the Cube Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest measurement points to the inner phantom surface (the extrapolation distance). The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5mm.

The maximum search is automatically performed after each area scan measurement. It

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is based on splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even with relatively large grid spacing. After the area scanning measurement, the probe is automatically moved to a position at the interpolated maximum. The following scan can directly use this position for reference, e.g., for a finer resolution grid or the cube evaluations. The 1g and 10g peak evaluations are only available for the predefined cube 7x7x7 scans. The routines are verified and optimized for the grid dimensions used in these cube measurements.

The measured volume of 30x30x30mm contains about 30g of tissue.

The first procedure is an extrapolation (incl. Boundary correction) to get the points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume. In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is the moved around until the highest averaged SAR is found. If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

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# **1.11 Probe Calibration Procedures**

For the calibration of E-field probes in lossy liquids, an electric field with an accurately known field strength must be produced within the measured liquid. For standardization purposes it would be desirable if all measurements which are necessary to assess the correct field strength would be traceable to standardized measurement procedures. In the following two different calibration techniques are summarized:

# 1.11.1 Transfer Calibration with Temperature Probes

In lossy liquids the specific absorption rate (SAR) is related both to the electric field (E) and the temperature gradient ( $\delta T / \delta t$ ) in the liquid.

$$SAR = \frac{\sigma}{\rho} \left| E \right|^2 = C \frac{\delta T}{\delta t}$$

whereby  $\sigma$  is the conductivity,  $\rho$  the density and c the heat capacity of the liquid.

Hence, the electric field in lossy liquid can be measured indirectly by measuring the temperature gradient in the liquid. Non-disturbing temperature probes (optical probes or thermistor probes with resistive lines) with high spatial resolution (<1-2 mm) and fast reaction time (<1 s) are available and can be easily calibrated with high precision [1]. The setup and the exciting source have no influence on the calibration; only the relative positioning uncertainties of the standard temperature probe and the E-field probe to be calibrated must be considered. However, several problems limit the available accuracy of probe calibrations with temperature probes:

• The temperature gradient is not directly measurable but must be evaluated from temperature measurements at different time steps. Special precaution is necessary to avoid measurement errors caused by temperature gradients due to energy equalizing effects or convection currents in the liquid. Such effects cannot be completely avoided, as the measured field itself destroys the thermal equilibrium in the liquid. With a careful setup these errors can be kept small.

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- The measured volume around the temperature probe is not well defined. It is difficult to calculate the energy transfer from a surrounding gradient temperature field into the probe. These effects must be considered, since temperature probes are calibrated in liquid with homogeneous temperatures. There is no traceable standard for temperature rise measurements.
- The calibration depends on the assessment of the specific density, the heat capacity and the conductivity of the medium. While the specific density and heat capacity can be measured accurately with standardized procedures (~ 2% for c; much better for p), there is no standard for the measurement of the conductivity. Depending on the method and liquid, the error can well exceed ±5%.
- Temperature rise measurements are not very sensitive and therefore are often performed at a higher power level than the E-field measurements. The nonlinearities in the system (e.g., power measurements, different components, etc.) must be considered.

Considering these problems, the possible accuracy of the calibration of E-field probes with temperature gradient measurements in a carefully designed setup is about  $\pm 10\%$  (RSS) [2]. Recently, a setup which is a combination of the waveguide techniques and the thermal measurements was presented in [3]. The estimated uncertainty of the setup is  $\pm 5\%$  (RSS) when the same liquid is used for the calibration and for actual measurements and  $\pm 7-9\%$  (RSS) when not, which is in good agreement with the estimates given in [2].

# 1.11.2 Calibration with Analytical Fields

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In this method a technical setup is used in which the field can be calculated analytically from measurements of other physical magnitudes (e.g., input power). This corresponds to the standard field method for probe calibration in air; however, there is no standard defined for fields in lossy liquids.

When using calculated fields in lossy liquids for probe calibration, several points must be considered in the assessment of the uncertainty:

- The setup must enable accurate determination of the incident power.
- The accuracy of the calculated field strength will depend on the assessment of the

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dielectric parameters of the liquid.

• Due to the small wavelength in liquids with high permittivity, even small setups might be above the resonant cutoff frequencies. The field distribution in the setup must be carefully checked for conformity with the theoretical field distribution.

## References

- [1] N. Kuster, Q. Balzano, and J.C. Lin, Eds., *Mobile Communications Safety*, Chapman & Hall, London, 1997.
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- [3] K. Jokela, P. Hyysalo, and L. Puranen, \Calibration of specific absorption rate (SAR) probes in waveguide at 900 MHz", IEEE Transactions on Instrumentation and Measurements, vol. 47, no. 2, pp. 432{438, Apr. 1998.

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### 1.12 Test Standards and Limits

According to FCC 47CFR §2.1093(d) The limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate ("SAR") in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE C95.1-1992, Copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields," NCRP Report No. 86, Section 17.4.5. Copyright NCRP, 1986, Bethesda, Maryland 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards. The criteria to be used are specified in paragraphs (d)(1) and (d)(2) of this section and shall apply for portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in § 1.1310 of this chapter. Measurements and calculations to demonstrate compliance with MPE field strength or power density limits for devices operating above 6 GHz should be made at a minimum distance of 5 cm from the radiating source.

- (1) Limits for Occupational/Controlled exposure: 0.4 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 8 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 20 W/kg, as averaged over an 10 grams of tissue (defined as a tissue volume in the shape of a cube).
- (2) Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety program in a work environment.
- (3) Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are

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the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4 W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). General Population/Uncontrolled limits apply when the general public may be exposed, or when persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or do not exercise control over their exposure. Warning labels placed on consumer devices such as cellular telephones will not be sufficient reason to allow these devices to be evaluated subject to limits for occupational/controlled exposure in paragraph (d)(1) of this section.(Table 4.)

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR (Brain)	1.60 m W/g	8.00 m W/g
Spatial Average SAR (Whole Body)	0.08 m W/g	0.40 m W/g
Spatial Peak SAR (Hands/Feet/Ankle/Wrist)	4.00 m W/g	20.00 m W/g

Notes:

- 1. Uncontrolled environments are defined as locations where there is potential exposure of individuals who have no knowledge or control of their potential exposure.
- 2. Controlled environments are defined as locations where there is potential exposure of individuals who have knowledge of their potential exposure and can exercise control over their exposure.

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# 2. Summary of Results

### WLAN802.11 b

		Antonno		Averaged	g (W/kg)	SAD			
Band	EUT		Test	CH 1	CH 6	CH 11	SAR		
	Position	Antenna	Configuration	2412	2437	2462			
				MHz	MHz	MHz	(007Kg)		
				Avera	Average Power (dBm)				
	Body	Main		15.37	15.48	15.42			
			Lap-held mode	_	0.00666	—	1.6		
WLAN			Secondary Landscape	_	0.299	_	1.6		
802.11 b	Worn			Average Power (dBm)					
		Διιχ		15.41	15.32	15.16			
		Aux	Lap-held mode	_	0.00651		1.6		
			Secondary Landscape	_	0.211		1.6		

Test distance is 0mm.

### WLAN802.11 g

		0		Averaged	g (W/kg)	CAD	
Band	EUT		Test	CH 1	CH 6	CH 11	SAR
Danu	Position	Antenna	Configuration	2412	2437	2462	
				MHz	MHz	MHz	(W/Kg)
				Avera	age Power (	dBm)	
		Main		13.75	16.30	13.78	
		wan	Lap-held mode		0.0091		1.6
WLAN	Body		Secondary Landscape	_	0.41		1.6
802.11 g	Worn			Avera	age Power (	dBm)	
		A. 157		13.82	16.29	13.92	
		AUX	Lap-held mode		0.016		1.6
			Secondary Landscape		0.607		1.6

Test distance is 0mm.

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#### WLAN802.11 n (20M)

		Antonno		Averaged	SAR over 1	g (W/kg)	SVD
Band	EUT		Test	CH 1	CH 6	CH 11	Jimit 1a
F	Position	Antenna	Configuration	2412	2437	2462	
				MHz	MHz	MHz	(00/Kg)
				Avera	nge Power (	dBm)	
		Main		12.99	16.03	12.30	
		Main	Lap-held mode	_	0.014	_	1.6
			Secondary Landscape	—	0.388		1.6
				Average Power (dBm)			
VVLAN	Body			12.99	16.42	12.80	
802.1111 (20M)	Worn	AUX	Lap-held mode	—	0.016		1.6
(20101)			Secondary Landscape	_	0.572	_	1.6
				Avera	nge Power (	dBm)	
				10.49	13.15	10.10	
			Lap-held mode		0.0082		1.6
			Secondary Landscape		0.139		1.6

Test distance is 0mm.

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#### WLAN802.11 n (40M)

		Antonno		Averaged	SAR over 1	g (W/kg)	SVD	
Band	EUT		Test	CH 3	CH 6	CH 9	Jimit 1a	
F	Position	Antenna	Configuration	2422	2437	2452		
				MHz	MHz	MHz	(vv/kg)	
				Avera	age Power (	dBm)		
		Main		9.15	15.56	9.20		
		Main	Lap-held mode		0.013	_	1.6	
			Secondary Landscape		0.3		1.6	
		0		Avera	Average Power (dBm)			
002 11 m	Body			9.18	15.63	9.79		
802.11 II (40M)	Worn	AUX	Lap-held mode		0.012		1.6	
(40101)			Secondary Landscape		0.525	_	1.6	
				Avera	age Power (	dBm)		
				7.77	13.48	8.28		
			Lap-held mode		0.00646		1.6	
			Secondary Landscape	_	0.17		1.6	

Test distance is 0mm.

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台灣檢驗科技股份有限公司



#### WLAN802.11 a 5.2G

				Averag	(W/kg)	SAR		
Band	EUT	Antenna	Test	CH 36	CH 40	CH 44	CH 48	Limit
	Position		Configuration	5180	5200	5220	5240	1g
				MHz	MHz	MHz	MHz	(W/kg)
				Av	erage Po	wer (dB	m)	
		Main		15.80	15.70	15.89	15.79	
			Lap-held mode		_	0.026	_	1.6
	Body		Secondary Landscape	1.15		0.977		1.6
5.2G	Worn			Av	erage Po	wer (dB	m)	
		A. 1.2		15.98	15.79	15.98	15.97	
		AUX	Lap-held mode	0.031	_	0.027	_	1.6
			Secondary Landscape	1.06		0.824		1.6

Test distance is 0mm.

### WLAN802.11 a 5.3G

				Averag	ed SAR	over 1g (	(W/kg)	SAR
Band	EUT	Antenna	Test	CH 52	CH 56	CH 60	CH 64	Limit
	Position		Configuration	5260	5280	5300	5320	1g
				MHz	MHz	MHz	MHz	(W/kg)
		Main		Av	erage Po	ower (dB	m)	
				15.70	15.97	15.91	15.72	
			Lap-held mode	_	0.03	_		1.6
WLAN	Body		Secondary Landscape	_	0.784	_		1.6
5.3G	Worn			Av	erage Po	ower (dB	m)	
		Aux		15.78	15.94	15.71	15.61	
			Lap-held mode	—	0.028	—		1.6
			Secondary Landscape	_	0.648	_	_	1.6

Test distance is 0mm.

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#### WLAN802.11 a 5.5G

				Averaged SAR over 1g (W/kg)								CAD			
				СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	СН	SAR
Band	EUT	Antenna	enna	100	104	108	112	116	120	124	128	132	136	140	Limit
Position		Configuration	5500	5520	5540	5560	5580	5600	5620	5640	5660	5680	5700	1g	
				MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	(W/kg)
						A	verage	Power	dBm	)					
		Main		15.73	15.98	15.69	15.78	15.81	15.37	15.23	15.94	15.72	15.80	15.93	
			Lap-held mode	_	0.039	_	_	_	_	_	_	_	_	_	1.6
WLAN	Body		Secondary Landscape	_	0.769	_	_	0.73			0.659		_	0.597	1.6
802.11	Worn					•	A	verage	Power	r (dBm	)				
a 5.56				15.83	15.95	15.71	15.77	15.76	15.60	15.77	15.90	15.72	15.91	15.80	
		Aux	Lap-held mode	_	0.039	_	_	_	_	_	_	_	_	_	1.6
			Secondary Landscape	_	0.845	_	_	0.585	_	_	0.968	_	0.97	_	1.6

Test distance is 0mm.

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#### WLAN802.11 a 5.8G

				Ave	Averaged SAR over 1g (W/kg)					
Band	EUT	Antenna	Test	СН 149	СН 153	СН 157	СН 161	CH 165	Limit	
Dana	Position		Configuration	5745	5765	5785	5805	5825	1g	
				MHz	MHz	MHz	MHz	MHz	(W/kg)	
		Main			Averag	e Powei	r (dBm)			
				15.91	15.78	15.70	15.80	15.88		
			Lap-held mode	0.036	_		_		1.6	
	Body		Secondary Landscape	0.818	0.841		0.753	0.852	1.6	
502.11 a	Worn	n Aux			Averag	e Powei	r (dBm)			
5.8G				15.97	15.81	15.80	15.71	15.60		
			Lap-held mode	0.033		_	_	—	1.6	
			Secondary Landscape	0.617	_	_	_		1.6	

Test distance is 0mm.

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### WLAN802.11 n (20M) 5.2G

				Averaged SAR	over 1g (W/kg)	SAR
Band	EUT	Antenna	Test	CH 36	CH 48	Limit
	Position		Configuration	5180	5240	1g
				MHz	MHz	(W/kg)
				Average Po	ower (dBm)	
		Main		15.46	15.93	
		Main	Lap-held mode		0.031	1.6
			Secondary Landscape	1.03	0.855	1.6
				Average Po		
WLAN	Body			15.33	15.89	
5 2G	Worn	Aux	Lap-held mode		0.03	1.6
5.26			Secondary Landscape		0.634	1.6
				Average Po	ower (dBm)	
				12.98	10.90	
		МІМО	Lap-held mode	0.03		1.6
			Secondary Landscape	0.312		1.6

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### WLAN802.11 n (20M) 5.3G

				Averaged SAR	over 1g (W/kg)	SAR
Band	EUT	Antenna	Test	CH 52	CH 64	Limit
	Position		Configuration	5260	5320	1g
				MHz	MHz	(W/kg)
				Average Po	ower (dBm)	
		Main		15.81	15.61	
		Main	Lap-held mode	0.034		1.6
			Secondary Landscape	0.791		1.6
				Average Po		
VVLAN	Body			15.86	15.90	
5 20	Worn	Aux	Lap-held mode	_	0.032	1.6
5.56			Secondary Landscape	0.638	0.831	1.6
				Average Po	ower (dBm)	
		MIMO		10.54	12.84	
		мімо	Lap-held mode		0.03	1.6
			Secondary Landscape		0.268	1.6

Test distance is 0mm.

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### WLAN802.11 n (20M) 5.5G

	EUT	Antenna		Averaged SAR over 1g (W/kg)				SAD
Dond			Test	CH 100	CH 116	CH 120	CH 140	JAR
Dallu	Position		Configuration	5500	5580	5600	5700	
				MHz	MHz	MHz	MHz	(007Kg)
		Main		Ave	erage Po	ower (dB	lm)	
				15.91	15.97	15.21	15.48	
	Body Worn		Lap-held mode	_	0.043			1.6
			Secondary Landscape	0.786	0.741	0.689	0.532	1.6
		Aux		Average Power (dBm)				
802 11 n (20M)				15.83	15.70	15.91	15.80	
5.5G			Lap-held mode	_		0.011		1.6
0.00			Secondary Landscape	0.926	0.582	0.703	0.707	1.6
		мімо		Average Power (dBm)				
				13.21	10.05	13.48	13.42	
			Lap-held mode			0.039		1.6
			Secondary Landscape	_		0.191		1.6

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### WLAN802.11 n (20M) 5.8G

Band		0		Averaged SAR over 1g (W/kg)			SAD
	EUT		Test	CH 149	CH 157	CH 165	SAR
Бапо	Position	Antenna	Configuration	5745	5785	5825	
				MHz	MHz	MHz	(00/Kg)
				Average Power (dBm)		(dBm)	
		Main		15.97	15.80	15.83	
	Body Worn		Lap-held mode	0.031	—	—	1.6
			Secondary Landscape	0.783	_	_	1.6
		Aux		Average Power (dBm)			
802 11 n (20M)				15.87	15.98	15.87	
5 8G			Lap-held mode	_	0.033	_	1.6
0.00			Secondary Landscape	_	0.708	_	1.6
		мімо		Average Power (dBm)			
				10.53	10.39	12.87	
			Lap-held mode	_	_	0.036	1.6
			Secondary Landscape			0.179	1.6

Test distance is 0mm.

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### WLAN802.11 n (40M) 5.2G

Band	EUT			Averaged SAR	SAR	
		Antenna	Test	CH 38	CH 46	Limit
	Position		Configuration	5190	5230	1g
				MHz	MHz	(W/kg)
				Average Po	Average Power (dBm)	
	Body Worn	Main		10.98	15.95	
			Lap-held mode		0.029	1.6
			Secondary Landscape	0.41	0.891	1.6
		Aux		Average Power (dBm)		
VVLAIN				10.98	15.51	
5 2G			Lap-held mode	_	0.026	1.6
5.26			Secondary Landscape		0.751	1.6
				Average Power (dBm)		
				9.52	12.62	
			Lap-held mode		0.027	1.6
			Secondary Landscape	_	0.275	1.6

Test distance is 0mm.

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### WLAN802.11 n (40M) 5.3G

Band	EUT			Averaged SAR	SAR	
		Antenna	Test	CH 54	CH 62	Limit
	Position		Configuration	5270	5310	1g
				MHz	MHz	(W/kg)
				Average Po	wer (dBm)	
	Body Worn	Main		15.81	10.76	
			Lap-held mode	0.031	_	1.6
			Secondary Landscape	0.718		1.6
		Aux		Average Power (dBm)		
				15.94	10.71	
5 2C			Lap-held mode	0.032		1.6
5.36			Secondary Landscape	0.583		1.6
		мімо		Average Power (dBm)		
				12.78	9.60	
			Lap-held mode	0.028		1.6
			Secondary Landscape	0.182		1.6

Test distance is 0mm.

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### WLAN802.11 n (40M) 5.5G

	EUT	0		Averaged SAR over 1g (W/kg)			SAD
Dond			Test	CH 102	CH 118	CH 134	SAR
Бапо	Position	Antenna	Configuration	5510	5590	5670	
				MHz	MHz	MHz	(00/Kg)
		Main		Average Power (dBm)		(dBm)	
				13.21	15.81	15.88	
	Body Worn		Lap-held mode	—	—	0.037	1.6
			Secondary Landscape	0.402	0.704	0.718	1.6
		Aux		Average Power (dBm)			
802 11 n (40M)				13.10	15.91	15.88	
5 5G			Lap-held mode	_	0.042	—	1.6
0.00			Secondary Landscape	0.536	0.659	1.09	1.6
		мімо		Average Power (dBm)			
				12.49	12.87	12.76	
			Lap-held mode	_	0.035		1.6
			Secondary Landscape		0.162		1.6

Test distance is 0mm.

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### WLAN802.11 n (40M) 5.8G

Band	EUT			Averaged SAR	SAR	
		Antenna	Test	CH 151	CH 159	Limit
	Position		Configuration	5755	5795	1g
				MHz	MHz	(W/kg)
				Average Po	Average Power (dBm)	
	Body Worn	Main		15.83	15.92	
			Lap-held mode		0.034	1.6
			Secondary Landscape	0.806	0.837	1.6
		Aux		Average Power (dBm)		
VVLAN				15.90	15.95	
5 20			Lap-held mode	_	0.041	1.6
5.86			Secondary Landscape	_	0.725	1.6
		мімо		Average Power (dBm)		
				12.94	12.86	
			Lap-held mode	0.033		1.6
			Secondary Landscape	0.171	_	1.6

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# 3. Instruments List

Manufacturer	Device	Туре	Serial number	Date of last calibration	Date of next calibration
Schmid & Partner Engineering AG	Dosimetric E-Field Probe	ES3DV3 EX3DV4	3172 3831	Aug.28,2012 Jan.04,2012	Aug.27,2013 Jan.03,2013
Schmid & Partner Engineering AG	2450/5200/5500/5800 MHz System Validation Dipole	D2450V2 D5GHzV2	727 1023	Apr.25,2012 Jan.19,2012	Apr.24,2013 Jan.18,2013
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	547 1260	Jun.01,2012 Aug.23,2012	May31,2013 Aug.22,2013
Schmid & Partner Engineering AG	Software	DASY 4 V4.7	N/A	Calibration not required	Calibration not required
Schmid & Partner Engineering AG	Phantom	SAM	N/A	Calibration not required	Calibration not required
HP	Network Analyzer	E5071C	MY46107530	Feb.16,2012	Feb.15,2013
Agilent	Dielectric Probe Kit	85070D	US01440168	Calibration not required	Calibration not required
Agilent	Dual-directional coupler	772D	MY46151242	Jul.05,2012	Jul.04,2013
Agilent	RF Signal Generator	8648D	3847M00432	Jun.04,2012	Jun.03,2013
Agilent	USB Power Sensor(Meter)	U2001B	MY48100169	May12,2012	May11,2013

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# 4. Measurements

Date: 2013/1/7

# Lap-held\_WLAN 802.11b\_CH6\_Main antenna

Communication System: WiFi n(40M)\_FCC; Frequency: 2437 MHz;Duty Cycle: 1:1 Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.01 mho/m;  $\epsilon_r$  = 51;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (201x301x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (interpolated) = 0.013 mW/g

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

dz=5mm

Reference Value = 1.20 V/m; Power Drift = 0.156 dB

Peak SAR (extrapolated) = 0.017 W/kg

### SAR(1 g) = 0.00666 mW/g; SAR(10 g) = 0.00471 mW/g

Maximum value of SAR (measured) = 0.010 mW/g



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# Secondary Landscape\_WLAN 802.11b\_CH6\_Main antenna

Communication System: WiFi b\_FCC; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.01 mho/m;  $\epsilon_r$  = 51;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (81x261x1):** Measurement grid: dx=12mm, dy=12mmMaximum value of SAR (interpolated) = 0.489 mW/g

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

dz=5mm

Reference Value = 4.00 V/m; Power Drift = 0.119 dB

Peak SAR (extrapolated) = 0.706 W/kg

### SAR(1 g) = 0.299 mW/g; SAR(10 g) = 0.126 mW/g

Maximum value of SAR (measured) = 0.472 mW/g



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Date: 2013/1/7

### Lap-held\_WLAN 802.11b\_CH6\_Aux antenna

Communication System: WiFi b\_FCC; Frequency: 2437 MHz;Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.01 mho/m;  $\epsilon_r$  = 51;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (201x301x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (interpolated) = 0.016 mW/g

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

dz=5mm

Reference Value = 1.44 V/m; Power Drift = 0.185 dB

Peak SAR (extrapolated) = 0.010 W/kg

SAR(1 g) = 0.00651 mW/g; SAR(10 g) = 0.00504 mW/g

Maximum value of SAR (measured) = 0.010 mW/g



 $0 \, dB = 0.010 \, mW/g$ 

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# Secondary Landscape\_WLAN 802.11b\_CH6\_Aux antenna

Communication System: WiFi b\_FCC; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.01 mho/m;  $\epsilon_r$  = 51;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (81x261x1):** Measurement grid: dx=12mm, dy=12mmMaximum value of SAR (interpolated) = 0.338 mW/g

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

dz=5mm

Reference Value = 2.18 V/m; Power Drift = 0.120 dB

Peak SAR (extrapolated) = 0.527 W/kg

SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.085 mW/g

Maximum value of SAR (measured) = 0.334 mW/g



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Date: 2013/1/7

## Lap-held\_WLAN 802.11g\_CH6\_Main antenna

Communication System: WiFi g\_FCC; Frequency: 2437 MHz;Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.01 mho/m;  $\epsilon_r$  = 51;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (201x301x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (interpolated) = 0.013 mW/g

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

dz=5mm

Reference Value = 1.09 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.014 W/kg

SAR(1 g) = 0.0091 mW/g; SAR(10 g) = 0.00661 mW/g

Maximum value of SAR (measured) = 0.012 mW/g



 $0 \, dB = 0.012 mW/g$ 

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# Secondary Landscape\_WLAN 802.11g\_CH6\_Main antenna

Communication System: WiFi g\_FCC; Frequency: 2437 MHz;Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.01 mho/m;  $\epsilon_r$  = 51;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (81x261x1):** Measurement grid: dx=12mm, dy=12mmMaximum value of SAR (interpolated) = 0.643 mW/g

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

dz=5mm

Reference Value = 4.90 V/m; Power Drift = -0.116 dB

Peak SAR (extrapolated) = 0.960 W/kg

### SAR(1 g) = 0.410 mW/g; SAR(10 g) = 0.170 mW/g

Maximum value of SAR (measured) = 0.630 mW/g



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Date: 2013/1/7

### Lap-held\_WLAN 802.11g\_CH6\_Aux antenna

Communication System: WiFi g\_FCC; Frequency: 2437 MHz;Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.01 mho/m;  $\epsilon_r$  = 51;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (201x301x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (interpolated) = 0.022 mW/g

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

dz=5mm

Reference Value = 1.32 V/m; Power Drift = 0.107 dB

Peak SAR (extrapolated) = 0.030 W/kg

SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.011 mW/g

Maximum value of SAR (measured) = 0.023 mW/g



 $0 \, dB = 0.023 \, mW/g$ 

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# Secondary Landscape\_WLAN 802.11g\_CH6\_Aux antenna

Communication System: WiFi g\_FCC; Frequency: 2437 MHz;Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.01 mho/m;  $\epsilon_r$  = 51;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (81x261x1):** Measurement grid: dx=12mm, dy=12mmMaximum value of SAR (interpolated) = 0.984 mW/g

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

dz=5mm

Reference Value = 3.91 V/m; Power Drift = 0.156 dB

Peak SAR (extrapolated) = 1.54 W/kg

SAR(1 g) = 0.607 mW/g; SAR(10 g) = 0.238 mW/g

Maximum value of SAR (measured) = 0.985 mW/g



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Date: 2013/1/8

# Lap-held\_WLAN 802.11n(20M)\_CH6\_Main antenna

Communication System: WiFi n(20M)\_FCC; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.03 mho/m;  $\epsilon_r$  = 51.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (201x301x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (interpolated) = 0.018 mW/g

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

dz=5mm

Reference Value = 1.76 V/m; Power Drift = -0.183 dB

Peak SAR (extrapolated) = 0.026 W/kg

SAR(1 g) = 0.014 mW/g; SAR(10 g) = 0.00918 mW/g

Maximum value of SAR (measured) = 0.020 mW/g



 $0 \, dB = 0.020 \, mW/g$ 

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## Secondary Landscape\_WLAN 802.11n(20M)\_CH6\_Main antenna

Communication System: WiFi n(20M)\_FCC; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.03 mho/m;  $\epsilon_r$  = 51.4;  $\rho$  = 1000 kg/m<sup>3</sup>

p = 1000 kg/m Dhantan aastian Ela

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (81x261x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (interpolated) = 0.621 mW/g

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

dz=5mm

Reference Value = 4.51 V/m; Power Drift = 0.194 dB

Peak SAR (extrapolated) = 0.993 W/kg

### SAR(1 g) = 0.388 mW/g; SAR(10 g) = 0.161 mW/g

Maximum value of SAR (measured) = 0.623 mW/g



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# Lap-held\_WLAN 802.11n(20M)\_CH6\_Aux antenna

Communication System: WiFi n(20M)\_FCC; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.03 mho/m;  $\epsilon_r$  = 51.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (201x301x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (interpolated) = 0.026 mW/g

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

dz=5mm

Reference Value = 1.71 V/m; Power Drift = -0.197 dB

Peak SAR (extrapolated) = 0.031 W/kg

SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.011 mW/g

Maximum value of SAR (measured) = 0.024 mW/g



 $0 \, dB = 0.024 \, mW/g$ 

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## Secondary Landscape\_WLAN 802.11n(20M)\_CH6\_Aux antenna

Communication System: WiFi n(20M)\_FCC; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.03 mho/m;  $\epsilon_r$  = 51.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (81x261x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (interpolated) = 0.982 mW/g

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

dz=5mm

Reference Value = 3.91 V/m; Power Drift = 0.169 dB

Peak SAR (extrapolated) = 1.39 W/kg

SAR(1 g) = 0.572 mW/g; SAR(10 g) = 0.242 mW/g

Maximum value of SAR (measured) = 0.956 mW/g



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### Lap-held\_WLAN 802.11n(20M)\_CH6\_MIMO

Communication System: WiFi n(20M)\_FCC; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.03 mho/m;  $\epsilon_r$  = 51.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (201x271x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (interpolated) = 0.013 mW/g

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

dz=5mm

Reference Value = 1.46 V/m; Power Drift = 0.102 dB

Peak SAR (extrapolated) = 0.014 W/kg

SAR(1 g) = 0.0082 mW/g; SAR(10 g) = 0.00669 mW/g

Maximum value of SAR (measured) = 0.011 mW/g



 $0 \, dB = 0.011 \, mW/g$ 

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Date: 2013/1/8

## Secondary Landscape\_WLAN 802.11n(20M)\_CH6\_MIMO

Communication System: WiFi n(20M)\_FCC; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.03 mho/m;  $\epsilon_r$  = 51.4;  $\sigma$  = 1000 kg/m<sup>3</sup>

 $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (81x261x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (interpolated) = 0.231 mW/g

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

dz=5mm

Reference Value = 2.75 V/m; Power Drift = 0.123 dB

Peak SAR (extrapolated) = 0.351 W/kg

SAR(1 g) = 0.139 mW/g; SAR(10 g) = 0.056 mW/g

Maximum value of SAR (measured) = 0.219 mW/g



 $0 \, dB = 0.219 \, mW/g$ 

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Date: 2013/1/8

# Lap-held\_WLAN 802.11n(40M)\_CH6\_Main antenna

Communication System: WiFi n(40M)\_FCC; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.03 mho/m;  $\epsilon_r$  = 51.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (211x301x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (interpolated) = 0.018 mW/g

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

dz=5mm

Reference Value = 1.61 V/m; Power Drift = 0.152 dB

Peak SAR (extrapolated) = 0.023 W/kg

SAR(1 g) = 0.013 mW/g; SAR(10 g) = 0.00895 mW/g

Maximum value of SAR (measured) = 0.017 mW/g



 $0 \, dB = 0.017 \, mW/g$ 

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## Secondary Landscape\_WLAN 802.11n(40M)\_CH6\_Main antenna

Communication System: WiFi n(40M)\_FCC; Frequency: 2437 MHz;Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.03 mho/m;  $\epsilon_r$  = 51.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (81x261x1):** Measurement grid: dx=12mm, dy=12mmMaximum value of SAR (interpolated) = 0.512 mW/g

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

dz=5mm

Reference Value = 3.98 V/m; Power Drift = 0.189 dB

Peak SAR (extrapolated) = 0.710 W/kg

### SAR(1 g) = 0.300 mW/g; SAR(10 g) = 0.129 mW/g

Maximum value of SAR (measured) = 0.477 mW/g



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# Lap-held\_WLAN 802.11n(40M)\_CH6\_Aux antenna

Communication System: WiFi n(40M)\_FCC; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma = 2.03$  mho/m;  $\epsilon_r = 51.4$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

**DASY4** Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28 •
- Sensor-Surface: 3.4mm (Mechanical Surface Detection) •
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (211x301x1): Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (interpolated) = 0.019 mW/g

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

dz=5mm

Reference Value = 1.56 V/m; Power Drift = 0.149 dB

Peak SAR (extrapolated) = 0.021 W/kg

SAR(1 g) = 0.012 mW/g; SAR(10 g) = 0.00801 mW/g

Maximum value of SAR (measured) = 0.016 mW/g



 $0 \, dB = 0.016 \, mW/q$ 

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# Secondary Landscape\_WLAN 802.11n(40M)\_CH6\_Aux antenna

Communication System: WiFi n(40M)\_FCC; Frequency: 2437 MHz;Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma$  = 2.03 mho/m;  $\epsilon_r$  = 51.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (81x261x1):** Measurement grid: dx=12mm, dy=12mmMaximum value of SAR (interpolated) = 0.850 mW/g

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

dz=5mm

Reference Value = 3.42 V/m; Power Drift = 0.189 dB

Peak SAR (extrapolated) = 1.33 W/kg

SAR(1 g) = 0.525 mW/g; SAR(10 g) = 0.212 mW/g

Maximum value of SAR (measured) = 0.829 mW/g



 $0 \, dB = 0.829 \, mW/g$ 

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### Lap-held\_WLAN 802.11n(40M)\_CH6\_MIMO

Communication System: WiFi n(40M)\_FCC; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma = 2.03$  mho/m;  $\epsilon_r = 51.4$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

**DASY4** Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28 •
- Sensor-Surface: 3.4mm (Mechanical Surface Detection) •
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (221x301x1): Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (interpolated) = 0.016 mW/g

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

dz=5mm

Reference Value = 1.49 V/m; Power Drift = 0.116 dB

Peak SAR (extrapolated) = 0.010 W/kg

SAR(1 g) = 0.00646 mW/g; SAR(10 g) = 0.00532 mW/g

Maximum value of SAR (measured) = 0.010 mW/g



 $0 \, dB = 0.010 \, mW/g$ 

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Date: 2013/1/8

# Secondary Landscape\_WLAN 802.11n(40M)\_CH6\_MIMO

Communication System: WiFi n(40M)\_FCC; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2437 MHz;  $\sigma = 2.03$  mho/m;  $\epsilon_r = 51.4$ ;  $\sigma = 1000$  kg/m<sup>3</sup>

 $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (81x261x1):** Measurement grid: dx=12mm, dy=12mm Maximum value of SAR (interpolated) = 0.279 mW/g

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

dz=5mm

Reference Value = 2.89 V/m; Power Drift = 0.101 dB

Peak SAR (extrapolated) = 0.446 W/kg

SAR(1 g) = 0.170 mW/g; SAR(10 g) = 0.068 mW/g

Maximum value of SAR (measured) = 0.308 mW/g



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Date: 2012/12/22

## Lap-held\_WLAN 802.11a\_CH44\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5220 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5220 MHz;  $\sigma = 5.35$  mho/m;  $\epsilon_r = 49.3$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

**DASY4** Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4 •
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (261x331x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.110 mW/g

# BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.441 V/m; Power Drift = 0.182 dB

Peak SAR (extrapolated) = 0.068 W/kg

SAR(1 g) = 0.026 mW/g; SAR(10 g) = 0.020 mW/g

Maximum value of SAR (measured) = 0.053 mW/g



 $0 \, dB = 0.053 \, mW/q$ 

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# Secondary Landscape\_WLAN 802.11a\_CH36\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5180 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5180 MHz;  $\sigma$  = 5.33 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 2.08 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 2.10 V/m; Power Drift = -0.184 dB

Peak SAR (extrapolated) = 5.65 W/kg

#### SAR(1 g) = 1.15 mW/g; SAR(10 g) = 0.307 mW/g

Maximum value of SAR (measured) = 2.42 mW/g



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# Secondary Landscape\_WLAN 802.11a\_CH44\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5220 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5220 MHz;  $\sigma$  = 5.35 mho/m;  $\epsilon_r$  = 49.3;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.86 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 2.00 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 4.51 W/kg

SAR(1 g) = 0.977 mW/g; SAR(10 g) = 0.253 mW/g

Maximum value of SAR (measured) = 2.10 mW/g



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Date: 2012/12/22

### Lap-held\_WLAN 802.11a\_CH36\_Aux antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5180 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5180 MHz;  $\sigma$  = 5.33 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (261x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.080 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.646 V/m; Power Drift = 0.198 dB

Peak SAR (extrapolated) = 0.086 W/kg

SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.025 mW/g

Maximum value of SAR (measured) = 0.061 mW/g



 $0 \, dB = 0.061 \, mW/g$ 

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Date: 2012/12/22

### Lap-held\_WLAN 802.11a\_CH44\_Aux antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5220 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5220 MHz;  $\sigma$  = 5.35 mho/m;  $\epsilon_r$  = 49.3;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (261x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.059 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.967 V/m; Power Drift = -0.103 dB

Peak SAR (extrapolated) = 0.103 W/kg

SAR(1 g) = 0.027 mW/g; SAR(10 g) = 0.021 mW/g

Maximum value of SAR (measured) = 0.062 mW/g



 $0 \, dB = 0.062 \, mW/g$ 

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# Secondary Landscape\_WLAN 802.11a\_CH36\_Aux antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5180 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5180 MHz;  $\sigma$  = 5.33 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.98 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.45 V/m; Power Drift = 0.163 dB

Peak SAR (extrapolated) = 5.64 W/kg

SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.262 mW/g

Maximum value of SAR (measured) = 2.40 mW/g



<sup>0</sup> dB = 2.40 mW/g

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# Secondary Landscape\_WLAN 802.11a\_CH44\_Aux antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5220 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5220 MHz;  $\sigma$  = 5.35 mho/m;  $\epsilon_r$  = 49.3;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.54 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.527 V/m; Power Drift = 0.137 dB

Peak SAR (extrapolated) = 4.07 W/kg

SAR(1 g) = 0.824 mW/g; SAR(10 g) = 0.205 mW/g

Maximum value of SAR (measured) = 1.75 mW/g



 $0 \, dB = 1.75 \, mW/g$ 

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# Lap-held\_WLAN 802.11a\_CH56\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5280 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5280 MHz;  $\sigma$  = 5.47 mho/m;  $\epsilon_r$  = 49.1;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (261x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.058 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.147 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.069 W/kg

SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.021 mW/g

Maximum value of SAR (measured) = 0.059 mW/g



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# Secondary Landscape\_WLAN 802.11a\_CH56\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5280 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5280 MHz;  $\sigma$  = 5.47 mho/m;  $\epsilon_r$  = 49.1;  $\rho$  = 1000 kg/m<sup>3</sup>

p = 1000 kg/m Dhantom costion: Elect

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.51 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.46 V/m; Power Drift = -0.163 dB

Peak SAR (extrapolated) = 4.31 W/kg

SAR(1 g) = 0.784 mW/g; SAR(10 g) = 0.201 mW/g

Maximum value of SAR (measured) = 1.70 mW/g



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Date: 2012/12/22

### Lap-held\_WLAN 802.11a\_CH56\_Aux antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5280 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5280 MHz;  $\sigma = 5.47$  mho/m;  $\epsilon_r = 49.1$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

**DASY4** Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4 •
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (261x331x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.070 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.12 V/m; Power Drift = -0.199 dB

Peak SAR (extrapolated) = 0.056 W/kg

#### SAR(1 g) = 0.028 mW/g; SAR(10 g) = 0.024 mW/g

Maximum value of SAR (measured) = 0.056 mW/g



 $0 \, dB = 0.056 \, mW/g$ 

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# Secondary Landscape\_WLAN 802.11a\_CH56\_Aux antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5280 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5280 MHz;  $\sigma$  = 5.47 mho/m;  $\epsilon_r$  = 49.1;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.25 mW/g

# BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.25 V/m; Power Drift = 0.164 dB

Peak SAR (extrapolated) = 3.17 W/kg

SAR(1 g) = 0.648 mW/g; SAR(10 g) = 0.159 mW/g

Maximum value of SAR (measured) = 1.44 mW/g



 $0 \, dB = 1.44 \, mW/g$ 

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Report No. : ES/2012/B0010 Page : 86 of 230

Date: 2012/12/27

# Lap-held\_WLAN 802.11a\_CH104\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5520 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5520 MHz;  $\sigma$  = 5.74 mho/m;  $\epsilon_r$  = 48.8;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.087 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.00 V/m; Power Drift = 0.169 dB

Peak SAR (extrapolated) = 0.078 W/kg

#### SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.032 mW/g

Maximum value of SAR (measured) = 0.075 mW/g



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# Secondary Landscape\_WLAN 802.11a\_CH104\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5520 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5520 MHz;  $\sigma$  = 5.74 mho/m;  $\epsilon_r$  = 48.8;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.74 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.516 V/m; Power Drift = 0.191 dB

Peak SAR (extrapolated) = 3.44 W/kg

SAR(1 g) = 0.769 mW/g; SAR(10 g) = 0.203 mW/g

Maximum value of SAR (measured) = 1.70 mW/g



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# Secondary Landscape\_WLAN 802.11a\_CH116\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5580 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5580 MHz;  $\sigma$  = 5.81 mho/m;  $\epsilon_r$  = 48.5;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.61 mW/g

# BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.463 V/m; Power Drift = 0.162 dB

Peak SAR (extrapolated) = 3.76 W/kg

SAR(1 g) = 0.730 mW/g; SAR(10 g) = 0.192 mW/g

Maximum value of SAR (measured) = 1.62 mW/g



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# Secondary Landscape\_WLAN 802.11a\_CH128\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5640 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5640 MHz;  $\sigma$  = 5.91 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.45 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.778 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 3.05 W/kg

#### SAR(1 g) = 0.659 mW/g; SAR(10 g) = 0.168 mW/g

Maximum value of SAR (measured) = 1.57 mW/g



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# Secondary Landscape\_WLAN 802.11a\_CH140\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5700 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5700 MHz;  $\sigma$  = 6.02 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASV4 Configuration

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.30 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.819 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 3.02 W/kg

#### SAR(1 g) = 0.597 mW/g; SAR(10 g) = 0.154 mW/g

Maximum value of SAR (measured) = 1.34 mW/g



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Date: 2012/12/27

# Lap-held\_WLAN 802.11a\_CH104\_Aux antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5520 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5520 MHz;  $\sigma$  = 5.74 mho/m;  $\epsilon_r$  = 48.8;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.078 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.30 V/m; Power Drift = -0.194 dB

Peak SAR (extrapolated) = 0.088 W/kg

#### SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.032 mW/g

Maximum value of SAR (measured) = 0.080 mW/g



0 dB = 0.080 mW/g

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# Secondary Landscape\_WLAN 802.11a\_CH104\_Aux antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5520 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5520 MHz;  $\sigma$  = 5.74 mho/m;  $\epsilon_r$  = 48.8;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.48 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.844 V/m; Power Drift = -0.114 dB

Peak SAR (extrapolated) = 4.01 W/kg

SAR(1 g) = 0.845 mW/g; SAR(10 g) = 0.213 mW/g

Maximum value of SAR (measured) = 1.84 mW/g



 $0 \, dB = 1.84 \, mW/g$ 

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# Secondary Landscape\_WLAN 802.11a\_CH116\_Aux antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5580 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5580 MHz;  $\sigma$  = 5.81 mho/m;  $\epsilon_r$  = 48.5;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.06 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.853 V/m; Power Drift = -0.183 dB

Peak SAR (extrapolated) = 2.99 W/kg

SAR(1 g) = 0.585 mW/g; SAR(10 g) = 0.151 mW/g

Maximum value of SAR (measured) = 1.33 mW/g



 $0 \, dB = 1.33 \, mW/g$ 

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# Secondary Landscape\_WLAN 802.11a\_CH128\_Aux antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5640 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5640 MHz;  $\sigma$  = 5.91 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.57 mW/g

# BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.36 V/m; Power Drift = 0.171 dB

Peak SAR (extrapolated) = 4.72 W/kg

SAR(1 g) = 0.968 mW/g; SAR(10 g) = 0.247 mW/g

Maximum value of SAR (measured) = 2.16 mW/g



0 dB = 2.16 mW/g

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# Secondary Landscape\_WLAN 802.11a\_CH136\_Aux antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5680 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5680 MHz;  $\sigma$  = 5.98 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.53 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.18 V/m; Power Drift = -0.102 dB

Peak SAR (extrapolated) = 5.33 W/kg

SAR(1 g) = 0.970 mW/g; SAR(10 g) = 0.245 mW/g

Maximum value of SAR (measured) = 1.94 mW/g



 $0 \, dB = 1.94 \, mW/g$ 

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# Lap-held\_WLAN 802.11a\_CH149\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5745 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5745 MHz;  $\sigma$  = 6.19 mho/m;  $\epsilon_r$  = 48.6;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.079 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.968 V/m; Power Drift = 0.011dB

Peak SAR (extrapolated) = 0.065 W/kg

#### SAR(1 g) = 0.036 mW/g; SAR(10 g) = 0.030 mW/g

Maximum value of SAR (measured) = 0.065 mW/g



 $0 \, dB = 0.065 \, mW/g$ 

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# Secondary Landscape\_WLAN 802.11a\_CH149\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5745 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5745 MHz;  $\sigma$  = 6.19 mho/m;  $\epsilon_r$  = 48.6;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.82 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.874 V/m; Power Drift = -0.161 dB

Peak SAR (extrapolated) = 3.96 W/kg

SAR(1 g) = 0.818 mW/g; SAR(10 g) = 0.217 mW/g

Maximum value of SAR (measured) = 1.79 mW/g



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# Secondary Landscape\_WLAN 802.11a\_CH153\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5765 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5765 MHz;  $\sigma$  = 6.2 mho/m;  $\epsilon_r$  = 48.5;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.86 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.689 V/m; Power Drift = 0.172 dB

Peak SAR (extrapolated) = 5.12 W/kg

SAR(1 g) = 0.841 mW/g; SAR(10 g) = 0.224 mW/g

Maximum value of SAR (measured) = 1.95 mW/g



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# Secondary Landscape\_WLAN 802.11a\_CH161\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5805 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5805 MHz;  $\sigma$  = 6.25 mho/m;  $\epsilon_r$  = 48.5;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.64 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.04 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 3.65 W/kg

SAR(1 g) = 0.753 mW/g; SAR(10 g) = 0.198 mW/g

Maximum value of SAR (measured) = 1.71 mW/g



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# Secondary Landscape\_WLAN 802.11a\_CH165\_Main antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5825 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5825 MHz;  $\sigma$  = 6.3 mho/m;  $\epsilon_r$  = 48.3;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.77 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.49 V/m; Power Drift = -0.156 dB

Peak SAR (extrapolated) = 4.15 W/kg

SAR(1 g) = 0.852 mW/g; SAR(10 g) = 0.232 mW/g

Maximum value of SAR (measured) = 1.80 mW/g



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# Lap-held\_WLAN 802.11a\_CH149\_Aux antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5745 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5745 MHz;  $\sigma = 6.19$  mho/m;  $\epsilon_r = 48.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.072 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.372 V/m; Power Drift = 0.122 dB

Peak SAR (extrapolated) = 0.070 W/kg

SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.026 mW/g

Maximum value of SAR (measured) = 0.058 mW/g



 $0 \, dB = 0.058 \, mW/g$ 

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# Secondary Landscape\_WLAN 802.11a\_CH149\_Aux antenna

Communication System: WiFi a\_5G\_FCC; Frequency: 5745 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5745 MHz;  $\sigma$  = 6.19 mho/m;  $\epsilon_r$  = 48.6;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.02 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.612 V/m; Power Drift = 0.113 dB

Peak SAR (extrapolated) = 3.66 W/kg

#### SAR(1 g) = 0.617 mW/g; SAR(10 g) = 0.150 mW/g

Maximum value of SAR (measured) = 1.43 mW/g



 $<sup>0 \</sup>text{ dB} = 1.43 \text{mW/g}$ 

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# Lap-held\_WLAN 802.11n(20M)\_CH48\_Main antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5240 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5240 MHz;  $\sigma$  = 5.39 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.055 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.621 V/m; Power Drift = 0.137 dB

Peak SAR (extrapolated) = 0.070 W/kg

SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.027 mW/g

Maximum value of SAR (measured) = 0.052 mW/g



 $<sup>0 \,</sup> dB = 0.052 mW/g$ 

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## Secondary Landscape\_WLAN 802.11n(20M)\_CH36\_Main antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5180 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5180 MHz;  $\sigma$  = 5.32 mho/m;  $\epsilon_r$  = 49.5;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.83 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.79 V/m; Power Drift = -0.178 dB

Peak SAR (extrapolated) = 4.73 W/kg

#### SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.269 mW/g

Maximum value of SAR (measured) = 2.24 mW/g



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## Secondary Landscape\_WLAN 802.11n(20M)\_CH48\_Main antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5240 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5240 MHz;  $\sigma$  = 5.39 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.49 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.52 V/m; Power Drift = 0.146 dB

Peak SAR (extrapolated) = 4.15 W/kg

SAR(1 g) = 0.855 mW/g; SAR(10 g) = 0.219 mW/g

Maximum value of SAR (measured) = 1.92 mW/g



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Date: 2012/12/23

# Lap-held\_WLAN 802.11n(20M)\_CH48\_Aux antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5240 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5240 MHz;  $\sigma$  = 5.39 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (261x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.062 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.999 V/m; Power Drift = 0.112 dB

Peak SAR (extrapolated) = 0.054 W/kg

SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.023 mW/g

Maximum value of SAR (measured) = 0.053 mW/g



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# Secondary Landscape\_WLAN 802.11n(20M)\_CH48\_Aux antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5240 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5240 MHz;  $\sigma$  = 5.39 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.30 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.03 V/m; Power Drift = -0.142 dB

Peak SAR (extrapolated) = 2.59 W/kg

SAR(1 g) = 0.634 mW/g; SAR(10 g) = 0.161 mW/g

Maximum value of SAR (measured) = 1.39 mW/g



 $0 \, dB = 1.39 \, mW/g$ 

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# Lap-held\_WLAN 802.11n(20M)\_CH36\_MIMO

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5180 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5180 MHz;  $\sigma$  = 5.32 mho/m;  $\epsilon_r$  = 49.5;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x351x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.049 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.535 V/m; Power Drift = 0.126 dB

Peak SAR (extrapolated) = 0.051 W/kg

SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.024 mW/g

Maximum value of SAR (measured) = 0.051 mW/g



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## Secondary Landscape\_WLAN 802.11n(20M)\_CH36\_MIMO

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5180 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5180 MHz;  $\sigma$  = 5.32 mho/m;  $\epsilon_r$  = 49.5;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.715 mW/g

**BODY/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

Reference Value = 0.995 V/m; Power Drift = 0.163 dB

Peak SAR (extrapolated) = 1.67 W/kg

SAR(1 g) = 0.312 mW/g; SAR(10 g) = 0.080 mW/g

Maximum value of SAR (measured) = 0.678 mW/g

**BODY/Zoom Scan (7x7x12)/Cube 1:** Measurement grid: dx=4mm, dy=4mm, dz=2mm

dz=2mm

Reference Value = 0.995 V/m; Power Drift = 0.163 dB

Peak SAR (extrapolated) = 1.25 W/kg

SAR(1 g) = 0.261 mW/g; SAR(10 g) = 0.061 mW/g

Maximum value of SAR (measured) = 0.584 mW/g



 $0 \, dB = 0.584 \, mW/g$ 

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Report No. : ES/2012/B0010 Page : 110 of 230

Date: 2012/12/23

## Lap-held\_WLAN 802.11n(20M)\_CH52\_Main antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5260 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5260 MHz;  $\sigma$  = 5.47 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.055 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.361 V/m; Power Drift = 0.181 dB

Peak SAR (extrapolated) = 0.128 W/kg

SAR(1 g) = 0.034 mW/g; SAR(10 g) = 0.025 mW/g

Maximum value of SAR (measured) = 0.073 mW/g



 $0 \, dB = 0.073 mW/g$ 

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## Secondary Landscape\_WLAN 802.11n(20M)\_CH52\_Main antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5260 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5260 MHz;  $\sigma$  = 5.47 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.45 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.39 V/m; Power Drift = -0.102 dB

Peak SAR (extrapolated) = 3.80 W/kg

SAR(1 g) = 0.791 mW/g; SAR(10 g) = 0.197 mW/g

Maximum value of SAR (measured) = 1.74 mW/g



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Date: 2012/12/23

## Lap-held\_WLAN 802.11n(20M)\_CH64\_Aux antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5320 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5320 MHz;  $\sigma$  = 5.5 mho/m;  $\epsilon_r$  = 49.2;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.053 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.809 V/m; Power Drift = -0.133 dB

Peak SAR (extrapolated) = 0.059 W/kg

#### SAR(1 g) = 0.032 mW/g; SAR(10 g) = 0.025 mW/g

Maximum value of SAR (measured) = 0.050 mW/g



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## Secondary Landscape\_WLAN 802.11n(20M)\_CH52\_Aux antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5260 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5260 MHz;  $\sigma$  = 5.47 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.15 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.18 V/m; Power Drift = -0.135 dB

Peak SAR (extrapolated) = 3.40 W/kg

SAR(1 g) = 0.638 mW/g; SAR(10 g) = 0.157 mW/g

Maximum value of SAR (measured) = 1.45 mW/g



 $0 \, dB = 1.45 \, mW/g$ 

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# Secondary Landscape\_WLAN 802.11n(20M)\_CH64\_Aux antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5320 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5320 MHz;  $\sigma$  = 5.5 mho/m;  $\epsilon_r$  = 49.2;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.59 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.911 V/m; Power Drift = 0.184 dB

Peak SAR (extrapolated) = 4.61 W/kg

SAR(1 g) = 0.831 mW/g; SAR(10 g) = 0.206 mW/g

Maximum value of SAR (measured) = 1.83 mW/g



 $0 \, dB = 1.83 \, mW/g$ 

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## Lap-held\_WLAN 802.11n(20M)\_CH64\_MIMO

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5320 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5320 MHz;  $\sigma$  = 5.5 mho/m;  $\epsilon_r$  = 49.2;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x351x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.058 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.732 V/m; Power Drift = 0.187 dB

Peak SAR (extrapolated) = 0.097 W/kg

SAR(1 g) = 0.030 mW/g; SAR(10 g) = 0.024 mW/g

Maximum value of SAR (measured) = 0.052 mW/g



 $0 \, dB = 0.052 mW/g$ 

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Date: 2012/12/23

## Secondary Landscape\_WLAN 802.11n(20M)\_CH64\_MIMO

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5320 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5320 MHz;  $\sigma$  = 5.5 mho/m;  $\epsilon_r$  = 49.2;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.590 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.21 V/m; Power Drift = -0.165 dB

Peak SAR (extrapolated) = 1.89 W/kg

#### SAR(1 g) = 0.268 mW/g; SAR(10 g) = 0.066 mW/g

Maximum value of SAR (measured) = 0.621 mW/g



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Date: 2012/12/27

## Lap-held\_WLAN 802.11n(20M)\_CH116\_Main antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5580 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5580 MHz;  $\sigma$  = 5.84 mho/m;  $\epsilon_r$  = 48.6;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.061 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.542 V/m; Power Drift = -0.198 dB

Peak SAR (extrapolated) = 0.067 W/kg

#### SAR(1 g) = 0.043 mW/g; SAR(10 g) = 0.035 mW/g

Maximum value of SAR (measured) = 0.067 mW/g



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## Secondary Landscape\_WLAN 802.11n(20M)\_CH100\_Main antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5500 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5500 MHz;  $\sigma$  = 5.68 mho/m;  $\epsilon_r$  = 48.7;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.66 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.594 V/m; Power Drift = 0.147 dB

Peak SAR (extrapolated) = 3.71 W/kg

#### SAR(1 g) = 0.786 mW/g; SAR(10 g) = 0.206 mW/g

Maximum value of SAR (measured) = 1.74 mW/g



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## Secondary Landscape\_WLAN 802.11n(20M)\_CH116\_Main antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5580 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5580 MHz;  $\sigma$  = 5.84 mho/m;  $\epsilon_r$  = 48.6;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.67 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 2.18 V/m; Power Drift = -0.159 dB

Peak SAR (extrapolated) = 3.36 W/kg

SAR(1 g) = 0.741 mW/g; SAR(10 g) = 0.193 mW/g

Maximum value of SAR (measured) = 1.63 mW/g



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## Secondary Landscape\_WLAN 802.11n(20M)\_CH120\_Main antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5600 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5600 MHz;  $\sigma$  = 5.88 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.56 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.215 V/m; Power Drift = 0.127 dB

Peak SAR (extrapolated) = 3.28 W/kg

SAR(1 g) = 0.689 mW/g; SAR(10 g) = 0.177 mW/g

Maximum value of SAR (measured) = 1.52 mW/g



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## Secondary Landscape\_WLAN 802.11n(20M)\_CH140\_Main antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5700 MHz;Duty Cycle: 1:1 Medium: Muscle5800 Medium parameters used: f = 5700 MHz;  $\sigma$  = 6 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.15 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.491 V/m; Power Drift = 0.131 dB

Peak SAR (extrapolated) = 3.04 W/kg

#### SAR(1 g) = 0.532 mW/g; SAR(10 g) = 0.136 mW/g

Maximum value of SAR (measured) = 1.21 mW/g



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Date: 2012/12/28

## Lap-held\_WLAN 802.11n(20M)\_CH120\_Aux antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5600 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5600 MHz;  $\sigma$  = 5.88 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186
- **BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.123 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm,

dy=4mm, dz=2mm Reference Value = 0.959 V/m; Power Drift = 0.11 dB Peak SAR (extrapolated) = 0.077 W/kg SAR(1 g) = 0.011 mW/g; SAR(10 g) = 0.00499 mW/g Maximum value of SAR (measured) = 0.076 mW/g



 $0 \, dB = 0.076 \, mW/g$ 

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## Secondary Landscape\_WLAN 802.11n(20M)\_CH100\_Aux antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5500 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5500 MHz;  $\sigma$  = 5.68 mho/m;  $\epsilon_r$  = 48.7;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.71 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.18 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 3.93 W/kg

SAR(1 g) = 0.926 mW/g; SAR(10 g) = 0.240 mW/g

Maximum value of SAR (measured) = 2.15 mW/g



 $0 \, dB = 2.15 \, mW/g$ 

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## Secondary Landscape\_WLAN 802.11n(20M)\_CH116\_Aux antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5580 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5580 MHz;  $\sigma$  = 5.84 mho/m;  $\epsilon_r$  = 48.6;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.977 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.09 V/m; Power Drift = -0.102 dB

Peak SAR (extrapolated) = 2.53 W/kg

#### SAR(1 g) = 0.582 mW/g; SAR(10 g) = 0.148 mW/g

Maximum value of SAR (measured) = 1.34 mW/g



 $0 \, dB = 1.34 \, mW/g$ 

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## Secondary Landscape\_WLAN 802.11n(20M)\_CH120\_Aux antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5600 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5600 MHz;  $\sigma$  = 5.88 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.22 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.763 V/m; Power Drift = 0.123 dB

Peak SAR (extrapolated) = 3.30 W/kg

SAR(1 g) = 0.703 mW/g; SAR(10 g) = 0.175 mW/g

Maximum value of SAR (measured) = 1.58 mW/g



 $0 \, dB = 1.58 \, mW/g$ 

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## Secondary Landscape\_WLAN 802.11n(20M)\_CH140\_Aux antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5700 MHz;Duty Cycle: 1:1 Medium: Muscle5800 Medium parameters used: f = 5700 MHz;  $\sigma$  = 6 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.22 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.503 V/m; Power Drift = 0.179 dB

Peak SAR (extrapolated) = 4.33 W/kg

#### SAR(1 g) = 0.707 mW/g; SAR(10 g) = 0.177 mW/g

Maximum value of SAR (measured) = 1.61 mW/g



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Report No. : ES/2012/B0010 Page : 127 of 230

Date: 2012/12/28

## Lap-held\_WLAN 802.11n(20M)\_CH120\_MIMO

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5600 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5600 MHz;  $\sigma$  = 5.88 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x351x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.059 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.05 V/m; Power Drift = -0.120 dB

Peak SAR (extrapolated) = 0.064 W/kg

SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.033 mW/g

Maximum value of SAR (measured) = 0.061 mW/g



 $0 \, dB = 0.061 \, mW/g$ 

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Report No. : ES/2012/B0010 Page : 128 of 230

Date: 2012/12/28

## Secondary Landscape\_WLAN 802.11n(20M)\_CH120\_MIMO

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5600 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5600 MHz;  $\sigma$  = 5.88 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.499 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.656 V/m; Power Drift = -0.1 dB

Peak SAR (extrapolated) = 0.791 W/kg

#### SAR(1 g) = 0.191 mW/g; SAR(10 g) = 0.049 mW/g

Maximum value of SAR (measured) = 0.475 mW/g



 $0 \, dB = 0.475 \, mW/g$ 

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Report No. : ES/2012/B0010 Page : 129 of 230

Date: 2012/12/30

## Lap-held\_WLAN 802.11n(20M)\_CH149\_Main antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5745 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5745 MHz;  $\sigma$  = 6.21 mho/m;  $\epsilon_r$  = 48.7;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.089 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.875 V/m; Power Drift = 0.194 dB

Peak SAR (extrapolated) = 0.073 W/kg

#### SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.024 mW/g

Maximum value of SAR (measured) = 0.075 mW/g



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Date: 2013/1/1

## Secondary Landscape\_WLAN 802.11n(20M)\_CH149\_Main antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5745 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5745 MHz;  $\sigma$  = 6.21 mho/m;  $\epsilon_r$  = 48.7;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.74 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.720 V/m; Power Drift = -0.151 dB

Peak SAR (extrapolated) = 3.54 W/kg

#### SAR(1 g) = 0.783 mW/g; SAR(10 g) = 0.208 mW/g

Maximum value of SAR (measured) = 1.85 mW/g



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Date: 2013/1/1

## Lap-held\_WLAN 802.11n(20M)\_CH157\_Aux antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5785 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5785 MHz;  $\sigma$  = 6.29 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.067 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.353 V/m; Power Drift = 0.114 dB

Peak SAR (extrapolated) = 0.069 W/kg

SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.027 mW/g

Maximum value of SAR (measured) = 0.055 mW/g



 $0 \, dB = 0.055 \, mW/g$ 

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Date: 2013/1/1

## Secondary Landscape\_WLAN 802.11n(20M)\_CH157\_Aux antenna

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5785 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5785 MHz;  $\sigma$  = 6.29 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.26 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.00 V/m; Power Drift = -0.187 dB

Peak SAR (extrapolated) = 3.63 W/kg

SAR(1 g) = 0.708 mW/g; SAR(10 g) = 0.178 mW/g

Maximum value of SAR (measured) = 1.59 mW/g



 $0 \, dB = 1.59 \, mW/g$ 

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Date: 2013/1/1

## Lap-held\_WLAN 802.11n(20M)\_CH165\_MIMO

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5825 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5825 MHz;  $\sigma$  = 6.3 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x351x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.080 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.327 V/m; Power Drift = 0.102 dB

Peak SAR (extrapolated) = 0.066 W/kg

#### SAR(1 g) = 0.036 mW/g; SAR(10 g) = 0.031 mW/g

Maximum value of SAR (measured) = 0.066 mW/g



 $0 \, dB = 0.066 \, mW/g$ 

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Date: 2013/1/1

# Secondary Landscape\_WLAN 802.11n(20M)\_CH165\_MIMO

Communication System: WiFi n(20M)\_5G\_FCC; Frequency: 5825 MHz; Duty Cycle: 1:1 Medium: Muscle5800 Medium parameters used: f = 5825 MHz;  $\sigma = 6.3$  mho/m;  $\epsilon_r = 48.4$ ;  $\rho$ 

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= 1000 \text{ kg/m}^3
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Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.413 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.484 V/m; Power Drift = 0.168 dB

Peak SAR (extrapolated) = 0.866 W/kg

#### SAR(1 g) = 0.179 mW/g; SAR(10 g) = 0.045 mW/g

Maximum value of SAR (measured) = 0.425 mW/g



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Date: 2012/12/25

## Lap-held\_WLAN 802.11n(40M)\_CH46\_Main antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5230 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5230 MHz;  $\sigma$  = 5.39 mho/m;  $\epsilon_r$  = 49.5;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.051 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.216 V/m; Power Drift = 0.146 dB

Peak SAR (extrapolated) = 0.052 W/kg

#### SAR(1 g) = 0.029 mW/g; SAR(10 g) = 0.025 mW/g

Maximum value of SAR (measured) = 0.052 mW/g



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## Secondary Landscape\_WLAN 802.11n(40M)\_CH38\_Main antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5190 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5190 MHz;  $\sigma$  = 5.33 mho/m;  $\epsilon_r$  = 49.6;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.774 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.30 V/m; Power Drift = -0.159 dB

Peak SAR (extrapolated) = 2.00 W/kg

#### SAR(1 g) = 0.410 mW/g; SAR(10 g) = 0.104 mW/g

Maximum value of SAR (measured) = 0.946 mW/g



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## Secondary Landscape\_WLAN 802.11n(40M)\_CH46\_Main antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5230 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5230 MHz;  $\sigma$  = 5.39 mho/m;  $\epsilon_r$  = 49.5;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.63 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.55 V/m; Power Drift = -0.106 dB

Peak SAR (extrapolated) = 4.31 W/kg

#### SAR(1 g) = 0.891 mW/g; SAR(10 g) = 0.230 mW/g

Maximum value of SAR (measured) = 2.00 mW/g



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## Lap-held\_WLAN 802.11n(40M)\_CH46\_Aux antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5230 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5230 MHz;  $\sigma = 5.39$  mho/m;  $\epsilon_r = 49.5$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

**DASY4** Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4 •
- Sensor-Surface: 2mm (Mechanical Surface Detection) •
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (281x331x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.161 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mmReference Value = 0.906 V/m; Power Drift = -0.067 dBPeak SAR (extrapolated) = 0.063 W/kg SAR(1 g) = 0.026 mW/g; SAR(10 g) = 0.023 mW/gMaximum value of SAR (measured) = 0.051 mW/g



 $<sup>0 \,</sup> dB = 0.051 \, mW/g$ 

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## Secondary Landscape\_WLAN 802.11n(40M)\_CH46\_Aux antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5230 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5230 MHz;  $\sigma$  = 5.39 mho/m;  $\epsilon_r$  = 49.5;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.27 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.800 V/m; Power Drift = 0.159 dB

Peak SAR (extrapolated) = 3.75 W/kg

#### SAR(1 g) = 0.751 mW/g; SAR(10 g) = 0.188 mW/g

Maximum value of SAR (measured) = 1.64 mW/g



 $0 \, dB = 1.64 \, mW/g$ 

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## Lap-held\_WLAN 802.11n(40M)\_CH46\_MIMO

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5230 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5230 MHz;  $\sigma$  = 5.39 mho/m;  $\epsilon_r$  = 49.5;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x351x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.060 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.727 V/m; Power Drift = 0.121 dB

Peak SAR (extrapolated) = 0.049 W/kg

SAR(1 g) = 0.027 mW/g; SAR(10 g) = 0.022 mW/g

Maximum value of SAR (measured) = 0.049 mW/g



 $0 \, dB = 0.049 \, mW/g$ 

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Date: 2012/12/25

## Secondary Landscape\_WLAN 802.11n(40M)\_CH46\_MIMO

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5230 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5230 MHz;  $\sigma$  = 5.39 mho/m;  $\epsilon_r$  = 49.5;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.599 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.690 V/m; Power Drift = -0.101 dB

Peak SAR (extrapolated) = 1.64 W/kg

#### SAR(1 g) = 0.275 mW/g; SAR(10 g) = 0.069 mW/g

Maximum value of SAR (measured) = 0.629 mW/g



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Date: 2012/12/25

## Lap-held\_WLAN 802.11n(40M)\_CH54\_Main antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5270 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5270 MHz;  $\sigma$  = 5.43 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.056 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.600 V/m; Power Drift = 0.191 dB

Peak SAR (extrapolated) = 0.053 W/kg

SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.026 mW/g

Maximum value of SAR (measured) = 0.053 mW/g



 $0 \, dB = 0.053 mW/g$ 

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## Secondary Landscape\_WLAN 802.11n(40M)\_CH54\_Main antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5270 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5270 MHz;  $\sigma$  = 5.43 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.31 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.45 V/m; Power Drift = -0.144 dB

Peak SAR (extrapolated) = 4.17 W/kg

#### SAR(1 g) = 0.718 mW/g; SAR(10 g) = 0.180 mW/g

Maximum value of SAR (measured) = 1.67 mW/g



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## Lap-held\_WLAN 802.11n(40M)\_CH54\_Aux antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5270 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5270 MHz;  $\sigma$  = 5.43 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.049 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.14 V/m; Power Drift = -0.183 dB

Peak SAR (extrapolated) = 0.053 W/kg

SAR(1 g) = 0.032 mW/g; SAR(10 g) = 0.026 mW/g

Maximum value of SAR (measured) = 0.049 mW/g



 $0 \, dB = 0.049 \, mW/g$ 

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# Secondary Landscape\_WLAN 802.11n(40M)\_CH54\_Aux antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5270 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5270 MHz;  $\sigma$  = 5.43 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.13 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.619 V/m; Power Drift = -0.104 dB

Peak SAR (extrapolated) = 2.91 W/kg

#### SAR(1 g) = 0.583 mW/g; SAR(10 g) = 0.146 mW/g

Maximum value of SAR (measured) = 1.31 mW/g



 $0 \, dB = 1.31 \, mW/g$ 

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# Lap-held\_WLAN 802.11n(40M)\_CH54\_MIMO

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5270 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5270 MHz;  $\sigma$  = 5.43 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x351x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.071 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.389 V/m; Power Drift = 0.125 dB

Peak SAR (extrapolated) = 0.054 W/kg

#### SAR(1 g) = 0.028 mW/g; SAR(10 g) = 0.023 mW/g

Maximum value of SAR (measured) = 0.054 mW/g



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Date: 2012/12/25

# Secondary Landscape\_WLAN 802.11n(40M)\_CH54\_MIMO

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5270 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5270 MHz;  $\sigma$  = 5.43 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.92, 3.92, 3.92); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.554 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.529 V/m; Power Drift = 0.120 dB

Peak SAR (extrapolated) = 0.772 W/kg

#### SAR(1 g) = 0.182 mW/g; SAR(10 g) = 0.045 mW/g

Maximum value of SAR (measured) = 0.419 mW/g



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Date: 2012/12/29

# Lap-held\_WLAN 802.11n(40M)\_CH134\_Main antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5670 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5670 MHz;  $\sigma$  = 5.98 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.073 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.701 V/m; Power Drift = 0.105 dB

Peak SAR (extrapolated) = 0.122 W/kg

SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.031 mW/g

Maximum value of SAR (measured) = 0.085 mW/g



 $0 \, dB = 0.085 \, mW/g$ 

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# Secondary Landscape\_WLAN 802.11n(40M)\_CH102\_Main antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5510 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5510 MHz;  $\sigma$  = 5.69 mho/m;  $\epsilon_r$  = 48.8;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.920 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.549 V/m; Power Drift = 0.176 dB

Peak SAR (extrapolated) = 1.82 W/kg

#### SAR(1 g) = 0.402 mW/g; SAR(10 g) = 0.103 mW/g

Maximum value of SAR (measured) = 0.914 mW/g



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# Secondary Landscape\_WLAN 802.11n(40M)\_CH118\_Main antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5590 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5590 MHz;  $\sigma$  = 5.85 mho/m;  $\epsilon_r$  = 48.7;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.65 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.824 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 3.05 W/kg

#### SAR(1 g) = 0.704 mW/g; SAR(10 g) = 0.183 mW/g

Maximum value of SAR (measured) = 1.57 mW/g



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# Secondary Landscape\_WLAN 802.11n(40M)\_CH134\_Main antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5670 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5670 MHz;  $\sigma$  = 5.98 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.68 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.04 V/m; Power Drift = -0.104 dB

Peak SAR (extrapolated) = 3.46 W/kg

#### SAR(1 g) = 0.718 mW/g; SAR(10 g) = 0.183 mW/g

Maximum value of SAR (measured) = 1.73 mW/g



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Date: 2012/12/29

# Lap-held\_WLAN 802.11n(40M)\_CH118\_Aux antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5590 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5590 MHz;  $\sigma$  = 5.85 mho/m;  $\epsilon_r$  = 48.7;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x331x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.211 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.084 V/m; Power Drift = 0.118 dB

Peak SAR (extrapolated) = 0.116 W/kg

#### SAR(1 g) = 0.042 mW/g; SAR(10 g) = 0.030 mW/g

Maximum value of SAR (measured) = 0.081 mW/g



 $0 \, dB = 0.081 \, mW/g$ 

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# Secondary Landscape\_WLAN 802.11n(40M)\_CH102\_Aux antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5510 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5510 MHz;  $\sigma$  = 5.69 mho/m;  $\epsilon_r$  = 48.8;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.935 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.574 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 2.45 W/kg

SAR(1 g) = 0.536 mW/g; SAR(10 g) = 0.138 mW/g

Maximum value of SAR (measured) = 1.17 mW/g



 $0 \, dB = 1.17 \, mW/g$ 

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# Secondary Landscape\_WLAN 802.11n(40M)\_CH118\_Aux antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5590 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5590 MHz;  $\sigma$  = 5.85 mho/m;  $\epsilon_r$  = 48.7;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.12 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.250 V/m; Power Drift = 0.103 dB

Peak SAR (extrapolated) = 3.09 W/kg

SAR(1 g) = 0.659 mW/g; SAR(10 g) = 0.165 mW/g

Maximum value of SAR (measured) = 1.48 mW/g



 $0 \, dB = 1.48 \, mW/g$ 

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# Secondary Landscape\_WLAN 802.11n(40M)\_CH134\_Aux antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5670 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5670 MHz;  $\sigma$  = 5.98 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.82 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.697 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 5.40 W/kg

SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.275 mW/g

Maximum value of SAR (measured) = 2.34 mW/g



 $0 \, dB = 2.34 \, mW/g$ 

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Date: 2012/12/29

# Lap-held\_WLAN 802.11n(40M)\_CH118\_MIMO

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5590 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5590 MHz;  $\sigma$  = 5.85 mho/m;  $\epsilon_r$  = 48.7;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x351x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.092 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.06 V/m; Power Drift = 0.122 dB

Peak SAR (extrapolated) = 0.087 W/kg

#### SAR(1 g) = 0.035 mW/g; SAR(10 g) = 0.030 mW/g

Maximum value of SAR (measured) = 0.059 mW/g



 $0 \, dB = 0.059 \, mW/g$ 

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Date: 2012/12/29

# Secondary Landscape\_WLAN 802.11n(40M)\_CH118\_MIMO

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5590 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5590 MHz;  $\sigma$  = 5.85 mho/m;  $\epsilon_r$  = 48.7;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.451 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.425 V/m; Power Drift = 0.125 dB

Peak SAR (extrapolated) = 0.675 W/kg

#### SAR(1 g) = 0.162 mW/g; SAR(10 g) = 0.040 mW/g

Maximum value of SAR (measured) = 0.390 mW/g



 $0 \, dB = 0.390 \, mW/g$ 

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Date: 2013/1/2

# Lap-held\_WLAN 802.11n(40M)\_CH159\_Main antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5795 MHz;Duty Cycle: 1:1 Medium: Muscle5800 Medium parameters used: f = 5795 MHz;  $\sigma = 6.3$  mho/m;  $\epsilon_r = 48.3$ ;  $\rho$ 

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= 1000 \text{ kg/m}^3
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Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x351x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.061 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 1.20 V/m; Power Drift = 0.107 dB

Peak SAR (extrapolated) = 0.085 W/kg

#### SAR(1 g) = 0.034 mW/g; SAR(10 g) = 0.029 mW/g

Maximum value of SAR (measured) = 0.067 mW/g



 $0 \, dB = 0.067 mW/g$ 

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Date: 2013/1/2

# Secondary Landscape\_WLAN 802.11n(40M)\_CH151\_Main antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5755 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5755 MHz;  $\sigma = 6.28$  mho/m;  $\epsilon_r = 48.4$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

**DASY4** Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4 •
- Sensor-Surface: 2mm (Mechanical Surface Detection) •
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

BODY/Area Scan (101x311x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.75 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.562 V/m; Power Drift = 0.069 dB

Peak SAR (extrapolated) = 4.30 W/kg

SAR(1 g) = 0.806 mW/g; SAR(10 g) = 0.209 mW/g

Maximum value of SAR (measured) = 1.78 mW/g



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Date: 2013/1/2

# Secondary Landscape\_WLAN 802.11n(40M)\_CH159\_Main antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5795 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5795 MHz;  $\sigma$  = 6.3 mho/m;  $\epsilon_r$  = 48.3;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.77 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.989 V/m; Power Drift = -0.123 dB

Peak SAR (extrapolated) = 3.96 W/kg

SAR(1 g) = 0.837 mW/g; SAR(10 g) = 0.223 mW/g

Maximum value of SAR (measured) = 1.76 mW/g



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Date: 2013/1/2

# Lap-held\_WLAN 802.11n(40M)\_CH159\_Aux antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5795 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5795 MHz;  $\sigma$  = 6.3 mho/m;  $\epsilon_r$  = 48.3;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186
- BODY/Area Scan (281x351x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.069 mW/g

#### BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm,

dy=4mm, dz=2mm Reference Value = 0.668 V/m; Power Drift = 0.123 dB Peak SAR (extrapolated) = 0.061 W/kg SAR(1 g) = 0.041 mW/g; SAR(10 g) = 0.035 mW/g Maximum value of SAR (measured) = 0.061 mW/g



 $0 \, dB = 0.061 \, mW/g$ 

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Date: 2013/1/2

# Secondary Landscape\_WLAN 802.11n(40M)\_CH159\_Aux antenna

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5795 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5795 MHz;  $\sigma$  = 6.3 mho/m;  $\epsilon_r$  = 48.3;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 1.29 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.592 V/m; Power Drift = -0.116 dB

Peak SAR (extrapolated) = 3.87 W/kg

#### SAR(1 g) = 0.725 mW/g; SAR(10 g) = 0.184 mW/g

Maximum value of SAR (measured) = 1.62 mW/g



 $0 \, dB = 1.62 \, mW/g$ 

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Date: 2013/1/2

# Lap-held\_WLAN 802.11n(40M)\_CH151\_MIMO

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5755 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5755 MHz;  $\sigma$  = 6.28 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (281x351x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.101 mW/g

## BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.765 V/m; Power Drift = 0.179 dB

Peak SAR (extrapolated) = 0.054 W/kg

SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.028 mW/g

Maximum value of SAR (measured) = 0.054 mW/g



 $0 \, dB = 0.054 \, mW/g$ 

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Date: 2013/1/2

# Secondary Landscape\_WLAN 802.11n(40M)\_CH151\_MIMO

Communication System: WiFi n(40M)\_5G\_FCC; Frequency: 5755 MHz;Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5755 MHz;  $\sigma$  = 6.28 mho/m;  $\epsilon_r$  = 48.4;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body; ;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**BODY/Area Scan (101x311x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 0.390 mW/g

# BODY/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm, dy=4mm,

dz=2mm

Reference Value = 0.471 V/m; Power Drift = 0.126 dB

Peak SAR (extrapolated) = 1.27 W/kg

#### SAR(1 g) = 0.171 mW/g; SAR(10 g) = 0.041 mW/g

Maximum value of SAR (measured) = 0.406 mW/g



 $0 \, dB = 0.406 \, mW/g$ 

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# 5. SAR System Performance Verification

Date: 2013/1/7

## DUT: Dipole 2450 MHz;

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2450 MHz;  $\sigma$  = 2.04 mho/m;  $\epsilon_r$  = 50.8;  $\rho$  = 1000 kg/m<sup>3</sup>

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Pin=250mW/Area Scan (51x61x1):** Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (interpolated) = 18.2 mW/g

## Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm,

dy=5mm, dz=5mm

Reference Value = 89.5 V/m; Power Drift = -0.037 dB

Peak SAR (extrapolated) = 28.8 W/kg

SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.06 mW/g

Maximum value of SAR (measured) = 16.4 mW/g



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Date: 2013/1/8

#### DUT: Dipole 2450 MHz;

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: Muscle 2450 Medium parameters used: f = 2450 MHz;  $\sigma$  = 2.05 mho/m;  $\epsilon_r$  = 51.2;  $\rho$  = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 SN3172; ConvF(3.88, 3.88, 3.88); Calibrated: 2012/8/28
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn547; Calibrated: 2012/6/1
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Pin=250mW/Area Scan (51x61x1):** Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (interpolated) = 18.0 mW/g

## Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm,

dy=5mm, dz=5mm

Reference Value = 90.1 V/m; Power Drift = 0.036 dB

Peak SAR (extrapolated) = 28.5 W/kg

SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.1 mW/g

Maximum value of SAR (measured) = 16.3 mW/g



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Date: 2012/12/22

#### DUT: Dipole 5200 MHz;

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5200 MHz;  $\sigma$  = 5.33 mho/m;  $\epsilon_r$  = 49.4;  $\rho$  = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Pin=100mW/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 15.4 mW/g

## Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm,

dy=4mm, dz=2mm

Reference Value = 58.6 V/m; Power Drift = 0.093 dB

Peak SAR (extrapolated) = 29.0 W/kg

SAR(1 g) = 7.32 mW/g; SAR(10 g) = 2.07 mW/g

Maximum value of SAR (measured) = 15.1 mW/g



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Date: 2012/12/23

#### DUT: Dipole 5200 MHz;

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5200 MHz;  $\sigma$  = 5.34 mho/m;  $\epsilon_r$  = 49.5;  $\rho$  = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Pin=100mW/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 15.3 mW/g

## Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm,

dy=4mm, dz=2mm

Reference Value = 58.8 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 28.5 W/kg

SAR(1 g) = 7.28 mW/g; SAR(10 g) = 2.06 mW/g

Maximum value of SAR (measured) = 15.2 mW/g



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Date: 2012/12/25

#### DUT: Dipole 5200 MHz;

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5200 MHz;  $\sigma = 5.34 \text{ mho/m}$ ;  $\epsilon_r = 49.6$ ;  $\rho = 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

**DASY4** Configuration:

- Probe: EX3DV4 SN3831; ConvF(4.12, 4.12, 4.12); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection) •
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=100mW/Area Scan (91x91x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 15.2 mW/g

## Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm,

dy=4mm, dz=2mm

Reference Value = 57.2 V/m; Power Drift = 0.038 dB

Peak SAR (extrapolated) = 28.4 W/kg

SAR(1 q) = 7.17 mW/q; SAR(10 q) = 2.02 mW/q

Maximum value of SAR (measured) = 14.9 mW/g



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Date: 2012/12/27

#### DUT: Dipole 5500 MHz;

Communication System: CW; Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5500 MHz;  $\sigma$  = 5.66 mho/m;  $\epsilon_r$  = 48.8;  $\rho$  = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Pin=100mW/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 16.0 mW/g

## Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm,

dy=4mm, dz=2mm

Reference Value = 60.3 V/m; Power Drift = 0.021 dB

Peak SAR (extrapolated) = 35.1 W/kg

SAR(1 g) = 8 mW/g; SAR(10 g) = 2.16 mW/g

Maximum value of SAR (measured) = 16.5 mW/g



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Date: 2012/12/28

#### DUT: Dipole 5500 MHz;

Communication System: CW; Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5500 MHz;  $\sigma$  = 5.68 mho/m;  $\epsilon_r$  = 48.7;  $\rho$  = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Pin=100mW/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 17.0 mW/g

## Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm,

dy=4mm, dz=2mm

Reference Value = 60.3 V/m; Power Drift = -0.001 dB

Peak SAR (extrapolated) = 35.5 W/kg

SAR(1 g) = 8.12 mW/g; SAR(10 g) = 2.2 mW/g

Maximum value of SAR (measured) = 16.6 mW/g



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Date: 2012/12/29

#### DUT: Dipole 5500 MHz;

Communication System: CW; Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5500 MHz;  $\sigma$  = 5.68 mho/m;  $\epsilon_r$  = 48.8;  $\rho$  = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.3, 3.3, 3.3); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Pin=100mW/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 16.2 mW/g

## Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm,

dy=4mm, dz=2mm

Reference Value = 60.3 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 35.5 W/kg

SAR(1 g) = 8.14 mW/g; SAR(10 g) = 2.2 mW/g

Maximum value of SAR (measured) = 16.7 mW/g



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Date: 2012/12/30

#### DUT: Dipole 5800 MHz;

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5800 MHz;  $\sigma$  = 6.25 mho/m;  $\epsilon_r$  = 48.5;  $\rho$  = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Pin=100mW/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 15.5 mW/g

## Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm,

dy=4mm, dz=2mm

Reference Value = 56.4 V/m; Power Drift = -0.022 dB

Peak SAR (extrapolated) = 32.0 W/kg

SAR(1 g) = 7.27 mW/g; SAR(10 g) = 2.01 mW/g

Maximum value of SAR (measured) = 16.0 mW/g



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Date: 2013/1/1

#### DUT: Dipole 5800 MHz;

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5800 MHz;  $\sigma = 6.3 \text{ mho/m}$ ;  $\epsilon_r = 48.4$ ;  $\rho$  $= 1000 \text{ kg/m}^3$ 

Phantom section: Flat Section

**DASY4** Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection) •
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Pin=100mW/Area Scan (91x91x1): Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 15.8 mW/g

## Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm,

dy=4mm, dz=2mm

Reference Value = 56.5 V/m; Power Drift = -0.036 dB

Peak SAR (extrapolated) = 30.0 W/kg

SAR(1 q) = 7.21 mW/q; SAR(10 q) = 2.01 mW/q

Maximum value of SAR (measured) = 15.2 mW/g



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Date: 2013/1/2

#### DUT: Dipole 5800 MHz;

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: Muscle5800 Medium parameters used: f = 5800 MHz;  $\sigma$  = 6.3 mho/m;  $\epsilon_r$  = 48.3;  $\rho$  = 1000 kg/m^3

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV4 SN3831; ConvF(3.77, 3.77, 3.77); Calibrated: 2012/1/4
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1260; Calibrated: 2012/8/23
- Phantom: Body;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

**Pin=100mW/Area Scan (91x91x1):** Measurement grid: dx=10mm, dy=10mm Maximum value of SAR (interpolated) = 15.4 mW/g

## Pin=100mW/Zoom Scan (7x7x12)/Cube 0: Measurement grid: dx=4mm,

dy=4mm, dz=2mm

Reference Value = 56.2 V/m; Power Drift = -0.006 dB

Peak SAR (extrapolated) = 31.8 W/kg

SAR(1 g) = 7.3 mW/g; SAR(10 g) = 2.02 mW/g

Maximum value of SAR (measured) = 15.9 mW/g



- End of 1<sup>st</sup> part of report -

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