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SAR EVALUATION REPORT

Applicant Name:
Samsung Electronics Co., Ltd.
129, Samsung-ro, Maetan dong,
Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea

Date of Testing:
03/13/19-04/11/19
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
1M1902200029-01.A3L

FCC ID: **A3LSMF907N**

APPLICANT: **SAMSUNG ELECTRONICS CO., LTD.**

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model: SM-F907N

Equipment Class	Band & Mode	Tx Frequency	SAR					
			1g Head (W/kg)	1g Body-Worn (W/kg)	1g Hotspot (W/kg)	10g Phablet (W/kg)	1g UMPC Body (W/kg)	10g UMPC Extremity (W/kg)
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.11	0.17	0.81	N/A	0.78	1.05
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	< 0.1	0.12	0.82	2.89	0.71	3.30
PCE	UMTS 850	826.40 - 846.60 MHz	0.33	0.22	0.53	N/A	0.57	1.68
PCE	UMTS 1750	1712.4 - 1752.6 MHz	0.15	0.58	0.82	2.48	0.90	2.15
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.12	0.35	0.94	3.12	1.02	3.14
PCE	LTE Band 12	699.7 - 715.3 MHz	0.14	0.21	0.44	N/A	0.26	0.87
PCE	LTE Band 13	779.5 - 784.5 MHz	0.27	0.25	0.54	N/A	0.36	1.24
PCE	LTE Band 26 (Cell)	814.7 - 848.3 MHz	0.35	0.23	0.63	N/A	0.70	1.90
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	N/A	N/A	N/A	N/A	N/A	N/A
PCE	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	0.15	0.60	0.75	2.39	1.20	2.80
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	N/A	N/A	N/A	N/A	N/A	N/A
PCE	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	0.11	0.36	0.73	2.92	0.95	3.29
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	N/A	N/A	N/A	N/A	N/A	N/A
PCE	LTE Band 41	2498.5 - 2687.5 MHz	< 0.1	0.14	0.90	2.52	0.95	2.76
DTS	2.4 GHz WLAN	2412 - 2472 MHz	0.11	< 0.1	0.22	N/A	0.33	1.77
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	N/A	N/A	N/A	N/A
NII	U-NII-2A	5260 - 5320 MHz	< 0.1	< 0.1	N/A	0.53	0.14	0.46
NII	U-NII-2C	5500 - 5720 MHz	< 0.1	0.30	N/A	0.67	0.42	0.75
NII	U-NII-3	5745 - 5825 MHz	< 0.1	0.12	0.15	N/A	0.40	0.80
DSS/DTS	Bluetooth	2402 - 2480 MHz	< 0.1	< 0.1	< 0.1	N/A	0.20	1.01
Simultaneous SAR per KDB 690783 D01v01r03:			0.62	1.10	1.52	3.98	1.58	3.99

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.8 of this report; for North American frequency bands only.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. Test results reported herein relate only to the item(s) tested.

Randy Ortanez
President

ACCREDITED
TESTING CERT#2041.01

The SAR Tick is an initiative of the Mobile & Wireless Forum (MWF). While a product may be considered eligible, use of the SAR Tick logo requires an agreement with the MWF. Further details can be obtained by emailing: sartick@mwfai.info.

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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 26 (Cell)	Voice/Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 66 (AWS)	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2472 MHz
U-NII-1	Voice/Data	5180 - 5240 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
ANT+	Data	2402 - 2480 MHz
MST	Data	555 Hz - 8.33 kHz

1.2 Power Reduction for SAR

This device utilizes a power reduction mechanism for some wireless modes and bands for SAR compliance under portable hotspot conditions and under some conditions when the device is being used in close proximity to the user's hand, and when headphones are inserted. All hotspot SAR evaluations for this device were performed at the maximum allowed output power when hotspot is enabled. FCC KDB Publication 616217 D04v01r02 Section 6 and FCC KDB Publication 941225 D07v01r02 were used as a guideline for selecting SAR test distances for this device when being used in phablet and UMPC mini-tablet use conditions. Detailed descriptions of the power reduction mechanism are included in the operational description.

This device uses an independent fixed level power reduction mechanism for WLAN operations during voice or VoIP held to ear scenarios. Per FCC Guidance, the held-to-ear exposure conditions were evaluated at reduced power according to the head SAR positions described in IEEE 1528-2013. Detailed descriptions of the power reduction mechanism are included in the operational description.

1.3 Nominal and Maximum Output Power Specifications

This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v06.

1.3.1 PCE Maximum Output Power

Mode / Band		Voice (dBm)	Burst Average GMSK (dBm)				Burst Average 8-PSK (dBm)			
		1 TX Slot	*1 TX Slots*	*2 TX Slots*	*3 TX Slots*	*4 TX Slots*	*1 TX Slots*	*2 TX Slots*	*3 TX Slots*	*4 TX Slots*
GSM/GPRS/EDGE 850	Maximum	**33.0**	**33.0**	**32.0**	**30.5**	**28.5**	**28.0**	**26.0**	**24.0**	**23.0**
	Nominal	**32.0**	**32.0**	**31.0**	**29.5**	**27.5**	**27.0**	**25.0**	**23.0**	**22.0**
GSM/GPRS/EDGE 1900	Maximum	**30.0**	**30.0**	**29.0**	**27.5**	**25.5**	**27.0**	**25.0**	**23.0**	**22.0**
	Nominal	**29.0**	**29.0**	**28.0**	**26.5**	**24.5**	**26.0**	**24.0**	**22.0**	**21.0**

Mode / Band		Modulated Average (dBm)		
		3GPP WCDMA	*3GPP HSDPA*	*3GPP HSUPA*
UMTS Band 5 (850 MHz)	Maximum	**24.0**	**23.0**	**23.0**
	Nominal	**23.0**	**22.0**	**22.0**
UMTS Band 4 (1750 MHz)	Maximum	**24.0**	**23.0**	**23.0**
	Nominal	**23.0**	**22.0**	**22.0**
UMTS Band 2 (1900 MHz)	Maximum	**24.0**	**23.0**	**23.0**
	Nominal	**23.0**	**22.0**	**22.0**

Mode / Band		Modulated Average (dBm)
LTE Band 12	Maximum	**24.0**
	Nominal	**23.0**
LTE Band 13	Maximum	**24.0**
	Nominal	**23.0**
LTE Band 26 (Cell)	Maximum	**25.5**
	Nominal	**24.5**
LTE Band 5 (Cell)	Maximum	**25.5**
	Nominal	**24.5**
LTE Band 66 (AWS)	Maximum	**24.0**
	Nominal	**23.0**
LTE Band 4 (AWS)	Maximum	**24.0**
	Nominal	**23.0**
LTE Band 25 (PCS)	Maximum	**24.0**
	Nominal	**23.0**
LTE Band 2 (PCS)	Maximum	**24.0**
	Nominal	**23.0**
LTE Band 41	Maximum	**24.0**
	Nominal	**23.0**

1.3.2 PCE Reduced Output Power- Hotspot Mode, Proximity Sensor, and/or Earjack Active

Mode / Band		Voice (dBm)	Burst Average GMSK (dBm)				Burst Average 8-PSK (dBm)			
		1 TX Slot	*1 TX Slots*	*2 TX Slots*	*3 TX Slots*	*4 TX Slots*	*1 TX Slots*	*2 TX Slots*	*3 TX Slots*	*4 TX Slots*
GSM/GPRS/EDGE 1900	Maximum	**28.5**	**28.5**	**27.5**	**25.5**	**23.5**	**27.0**	**25.0**	**23.0**	**22.0**
	Nominal	**27.5**	**27.5**	**26.5**	**24.5**	**22.5**	**26.0**	**24.0**	**22.0**	**21.0**

Mode / Band		Modulated Average (dBm)		
		3GPP WCDMA	*3GPP HSDPA*	*3GPP HSUPA*
UMTS Band 4 (1750 MHz)	Maximum	**20.0**	**19.0**	**19.0**
	Nominal	**19.0**	**18.0**	**18.0**
UMTS Band 2 (1900 MHz)	Maximum	**20.5**	**19.5**	**19.5**
	Nominal	**19.5**	**18.5**	**18.5**

Mode / Band		Modulated Average (dBm)
LTE Band 66 (AWS)	Maximum	**20.0**
	Nominal	**19.0**
LTE Band 4 (AWS)	Maximum	**20.0**
	Nominal	**19.0**
LTE Band 25 (PCS)	Maximum	**20.0**
	Nominal	**19.0**
LTE Band 2 (PCS)	Maximum	**20.0**
	Nominal	**19.0**
LTE Band 41	Maximum	**21.0**
	Nominal	**20.0**

1.3.3 Maximum Bluetooth and WLAN Output Power

Mode / Band		Modulated Average - Single Tx Chain Antenna 1 (dBm)							
	Channel	1	2	3	4 - 9	10	11	12	13
IEEE 802.11b (2.4 GHz)	Maximum	20.0						19.0	15.5
	Nominal	19.0						18.0	14.5
IEEE 802.11g (2.4 GHz)	Maximum	18.0				17.5	15.5	12.0	6.5
	Nominal	17.0				16.5	14.5	11.0	5.5
IEEE 802.11n (2.4 GHz)	Maximum	18.0				17.5	15.5	12.0	6.5
	Nominal	17.0				16.5	14.5	11.0	5.5
IEEE 802.11ax (SU) (2.4 GHz)	Maximum	13.5	14.5	16.0	17.0	15.5	14.5	14.5	10.0
	Nominal	12.5	13.5	15.0	16.0	14.5	13.5	13.5	9.0

Mode / Band		Modulated Average - Single Tx Chain Antenna 2 (dBm)							
	Channel	1	2	3	4 - 9	10	11	12	13
IEEE 802.11b (2.4 GHz)	Maximum	20.0							18.5
	Nominal	19.0							17.5
IEEE 802.11g (2.4 GHz)	Maximum	18.0				17.5	15.5	12.0	6.5
	Nominal	17.0				16.5	14.5	11.0	5.5
IEEE 802.11n (2.4 GHz)	Maximum	18.0				17.5	15.5	12.0	6.5
	Nominal	17.0				16.5	14.5	11.0	5.5
IEEE 802.11ax (SU) (2.4 GHz)	Maximum	17.0						16.0	13.5
	Nominal	16.0						15.0	12.5

Mode / Band		Modulated Average - MIMO (dBm)							
	Channel	1	2	3	4 - 9	10	11	12	13
IEEE 802.11g (2.4 GHz)	Maximum	21.0				20.5	18.5	15.0	9.5
	Nominal	20.0				19.5	17.5	14.0	8.5
IEEE 802.11n (2.4 GHz)	Maximum	21.0				20.5	18.5	15.0	9.5
	Nominal	20.0				19.5	17.5	14.0	8.5
IEEE 802.11ax (SU) (2.4 GHz)	Maximum	17.0						14.0	14.0
	Nominal	16.0						13.0	13.0

Mode / Band		Modulated Average - Single Tx Chain (dBm)																						
		20 MHz Bandwidth									40 MHz Bandwidth								80 MHz Bandwidth					
	Channel	36	40-60	64	100	104-140	144	149	153-161	165	38	46-54	62	102	110-134	142	151	159	42	58	106	122	138	155
IEEE 802.11a (5 GHz)	Maximum	18.0																						
	Nominal	17.0																						
IEEE 802.11n (5 GHz)	Maximum	18.0									15.0	17.0	15.5	15.5	17.0	17.0	17.0	17.0						
	Nominal	17.0									14.0	16.0	14.5	14.5	16.0	16.0	16.0	16.0						
IEEE 802.11ac (5 GHz)	Maximum	18.0									15.0	17.0	15.5	15.5	17.0	17.0	17.0	17.0	13.0	13.0	14.5	16.0	16.0	16.0
	Nominal	17.0									14.0	16.0	14.5	14.5	16.0	16.0	16.0	16.0	12.0	12.0	13.5	15.0	15.0	15.0
IEEE 802.11ax (SU) (5 GHz)	Maximum	16.0									14.0								13.0					
	Nominal	15.0									13.0								12.0					

Mode / Band		Modulated Average - MIMO (dBm)																						
		20 MHz Bandwidth									40 MHz Bandwidth								80 MHz Bandwidth					
	Channel	36	40-60	64	100	104-140	144	149	153-161	165	38	46-54	62	102	110-134	142	151	159	42	58	106	122	138	155
IEEE 802.11a (5 GHz)	Maximum	21.0																						
	Nominal	20.0																						
IEEE 802.11n (5 GHz)	Maximum	21.0									18.0	20.0	18.5	18.5	20.0	20.0	20.0	20.0						
	Nominal	20.0									17.0	19.0	17.5	17.5	19.0	19.0	19.0	19.0						
IEEE 802.11ac (5 GHz)	Maximum	21.0									18.0	20.0	18.5	18.5	20.0	20.0	20.0	20.0	13.0	13.0	17.5	19.0	19.0	19.0
	Nominal	20.0									17.0	19.0	17.5	17.5	19.0	19.0	19.0	19.0	12.0	12.0	16.5	18.0	18.0	18.0
IEEE 802.11ax (SU) (5 GHz)	Maximum	16.0									14.0								13.0					
	Nominal	15.0									13.0								12.0					

Mode/Band		Modulated Average (dBm)
Bluetooth	Maximum	16.5
	Nominal	15.5
Bluetooth EDR	Maximum	10.5
	Nominal	9.5
Bluetooth LE 2Mbps	Maximum	7.0
	Nominal	6.0
Bluetooth LE 1Mbps, 125/500kbps	Maximum	5.5
	Nominal	4.5

Note: Targets for 802.11ax RU operations can be found in Appendix H.

1.3.4 Reduced WLAN Output Power

Mode / Band		Modulated Average - Antenna 1 (dBm)							
	Channel	1	2	3	4 - 9	10	11	12	13
IEEE 802.11b (2.4 GHz)	Maximum	17.0						17.0	15.5
	Nominal	16.0						16.0	14.5
IEEE 802.11g (2.4 GHz)	Maximum	17.0					15.5	12.0	6.5
	Nominal	16.0					14.5	11.0	5.5
IEEE 802.11n (2.4 GHz)	Maximum	17.0					15.5	12.0	6.5
	Nominal	16.0					14.5	11.0	5.5
IEEE 802.11ax (SU) (2.4 GHz)	Maximum	13.5	14.5	16.0	17.0	15.5	14.5	14.5	10.0
	Nominal	12.5	13.5	15.0	16.0	14.5	13.5	13.5	9.0

Mode / Band		Modulated Average - Antenna 2 (dBm)							
	Channel	1	2	3	4 - 9	10	11	12	13
IEEE 802.11b (2.4 GHz)	Maximum	17.0							
	Nominal	16.0							
IEEE 802.11g (2.4 GHz)	Maximum	17.0					15.5	12.0	6.5
	Nominal	16.0					14.5	11.0	5.5
IEEE 802.11n (2.4 GHz)	Maximum	17.0					15.5	12.0	6.5
	Nominal	16.0					14.5	11.0	5.5
IEEE 802.11ax (SU) (2.4 GHz)	Maximum	17.0						16.0	13.5
	Nominal	16.0						15.0	12.5

Mode / Band		Modulated Average - MIMO (dBm)							
	Channel	1	2	3	4 - 9	10	11	12	13
IEEE 802.11g (2.4 GHz)	Maximum	20.0					18.5	15.0	9.5
	Nominal	19.0					17.5	14.0	8.5
IEEE 802.11n (2.4 GHz)	Maximum	20.0					18.5	15.0	9.5
	Nominal	19.0					17.5	14.0	8.5
IEEE 802.11ax (SU) (2.4 GHz)	Maximum	17.0						14.0	14.0
	Nominal	16.0						13.0	13.0

Mode / Band		Modulated Average - Single Tx Chain (dBm)																							
		20 MHz Bandwidth									40 MHz Bandwidth								80 MHz Bandwidth						
	Channel	36	40-60	64	100	104-140	144	149	153-161	165	38	46-54	62	102	110-134	142	151	159	42	58	106	122	138	155
IEEE 802.11a (5 GHz)	Maximum	14.0																						
	Nominal	13.0																						
IEEE 802.11n (5 GHz)	Maximum	14.0									14.0													
	Nominal	13.0									13.0													
IEEE 802.11ac (5 GHz)	Maximum	14.0									14.0								13.0		14.0			
	Nominal	13.0									13.0								12.0		13.0			
IEEE 802.11ax (SU) (5 GHz)	Maximum	14.0									14.0								13.0					
	Nominal	13.0									13.0								12.0					

Mode / Band		Modulated Average - MIMO (dBm)																							
		20 MHz Bandwidth									40 MHz Bandwidth								80 MHz Bandwidth						
	Channel	36	40-60	64	100	104-140	144	149	153-161	165	38	46-54	62	102	110-134	142	151	159	42	58	106	122	138	155
IEEE 802.11a (5 GHz)	Maximum	17.0																						
	Nominal	16.0																						
IEEE 802.11n (5 GHz)	Maximum	17.0									17.0													
	Nominal	16.0									16.0													
IEEE 802.11ac (5 GHz)	Maximum	17.0									17.0								13.0		17.0			
	Nominal	16.0									16.0								12.0		16.0			
IEEE 802.11ax (SU) (5 GHz)	Maximum	16.0									14.0								13.0					
	Nominal	15.0									13.0								12.0					

Note: Targets for 802.11ax RU operations can be found in Appendix H.

1.3.5 Maximum Output Power During Conditions with Simultaneous 2.4 GHz WLAN and 5 GHz WLAN

Mode / Band		Modulated Average - Antenna 1 (dBm)								Modulated Average - Antenna 2 (dBm)								Modulated Average - MIMO (dBm)							
	Channel	1	2	3	4 - 9	10	11	12	13	1	2	3	4 - 9	10	11	12	13	1	2	3	4 - 9	10	11	12	13
IEEE 802.11b (2.4 GHz)	Maximum	**17.0**						**17.0**	**15.5**	**17.0**								**N/A**							
	Nominal	**16.0**						**16.0**	**14.5**	**16.0**								**N/A**							
IEEE 802.11g (2.4 GHz)	Maximum	**17.0**					**15.5**	**12.0**	**6.5**	**17.0**					**15.5**	**12.0**	**6.5**	**20.0**					**18.5**	**15.0**	**9.5**
	Nominal	**16.0**					**14.5**	**11.0**	**5.5**	**16.0**					**14.5**	**11.0**	**5.5**	**19.0**					**17.5**	**14.0**	**8.5**
IEEE 802.11n (2.4 GHz)	Maximum	**17.0**					**15.5**	**12.0**	**6.5**	**17.0**					**15.5**	**12.0**	**6.5**	**20.0**					**18.5**	**15.0**	**9.5**
	Nominal	**16.0**					**14.5**	**11.0**	**5.5**	**16.0**					**14.5**	**11.0**	**5.5**	**19.0**					**17.5**	**14.0**	**8.5**
IEEE 802.11ax (SU) (2.4 GHz)	Maximum	**13.5**	**14.5**	**16.0**	**17.0**	**15.5**	**14.5**	**14.5**	**10.0**	**17.0**						**16.0**	**13.5**	**17.0**						**14.0**	**14.0**
	Nominal	**12.5**	**13.5**	**15.0**	**16.0**	**14.5**	**13.5**	**13.5**	**9.0**	**16.0**						**15.0**	**12.5**	**16.0**						**13.0**	**13.0**

Mode / Band		Modulated Average - Antenna 1 (dBm)	Modulated Average - Antenna 2 (dBm)	Modulated Average - MIMO (dBm)			
		20 MHz Bandwidth	20 MHz Bandwidth	20 MHz Bandwidth			
	Channel	36 -165	36 -165	36	40-60	64	100 -165
IEEE 802.11a (5 GHz)	Maximum	**14.0**	**14.0**	**17.0**			
	Nominal	**13.0**	**13.0**	**16.0**			
IEEE 802.11n (5 GHz)	Maximum	**14.0**	**14.0**	**17.0**			
	Nominal	**13.0**	**13.0**	**16.0**			
IEEE 802.11ac (5 GHz)	Maximum	**14.0**	**14.0**	**17.0**			
	Nominal	**13.0**	**13.0**	**16.0**			
IEEE 802.11ax(SU) (5 GHz)	Maximum	**14.0**	**14.0**	**16.0**			
	Nominal	**13.0**	**13.0**	**15.0**			

Mode / Band		Modulated Average - Antenna 1 (dBm)					Modulated Average - Antenna 2 (dBm)					Modulated Average - MIMO (dBm)				
		40 MHz Bandwidth					40 MHz Bandwidth					40 MHz Bandwidth				
	Channel	38	46-54	62	102	110-159	38	46-54	62	102	110-159	38	46-54	62	102	110-159
IEEE 802.11n (5 GHz)	Maximum	**14.0**					**14.0**					**17.0**				
	Nominal	**13.0**					**13.0**					**16.0**				
IEEE 802.11ac (5 GHz)	Maximum	**14.0**					**14.0**					**17.0**				
	Nominal	**13.0**					**13.0**					**16.0**				
IEEE 802.11ax(SU) (5 GHz)	Maximum	**14.0**					**14.0**					**14.0**				
	Nominal	**13.0**					**13.0**					**13.0**				

Mode / Band		Modulated Average - Antenna 1 (dBm)				Modulated Average - Antenna 2 (dBm)				Modulated Average - MIMO (dBm)			
		80 MHz Bandwidth				80 MHz Bandwidth				80 MHz Bandwidth			
	Channel	42	58	106	122 - 155	42	58	106	122 - 155	42	58	106	122 - 155
IEEE 802.11ac (5 GHz)	Maximum	**13.0**	**13.0**	**14.0**		**13.0**	**13.0**	**14.0**		**13.0**	**13.0**	**17.0**	
	Nominal	**12.0**	**12.0**	**13.0**		**12.0**	**12.0**	**13.0**		**12.0**	**12.0**	**16.0**	
IEEE 802.11ax(SU) (5 GHz)	Maximum	**13.0**				**13.0**				**13.0**			
	Nominal	**12.0**				**12.0**				**12.0**			

Note: Targets for 802.11ax RU operations can be found in Appendix H.

1.3.6 Reduced Output Power During Conditions with Simultaneous 2.4 GHz WLAN and 5 GHz WLAN

Mode / Band		Modulated Average - Antenna 1 (dBm)								Modulated Average - Antenna 2 (dBm)								Modulated Average - MIMO (dBm)							
	Channel	1	2	3	4 - 9	10	11	12	13	1	2	3	4 - 9	10	11	12	13	1	2	3	4 - 9	10	11	12	13
IEEE 802.11b (2.4 GHz)	Maximum	**14.0**								**14.0**								**N/A**							
	Nominal	**13.0**								**13.0**								**N/A**							
IEEE 802.11g (2.4 GHz)	Maximum	**14.0**						**12.0**	**6.5**	**14.0**						**12.0**	**6.5**	**17.0**						**15.0**	**9.5**
	Nominal	**13.0**						**11.0**	**5.5**	**13.0**						**11.0**	**5.5**	**16.0**						**14.0**	**8.5**
IEEE 802.11n (2.4 GHz)	Maximum	**17.0**						**12.0**	**6.5**	**14.0**						**12.0**	**6.5**	**17.0**						**15.0**	**9.5**
	Nominal	**13.0**						**11.0**	**5.5**	**13.0**						**11.0**	**5.5**	**16.0**						**14.0**	**8.5**
IEEE 802.11ax (SU) (2.4 GHz)	Maximum	**13.5**	**14.0**					**14.0**	**10.0**	**14.0**						**14.0**	**13.5**	**16.0**	**17.0**				**17.0**	**14.0**	**14.0**
	Nominal	**12.5**	**13.0**					**13.0**	**9.0**	**13.0**						**13.0**	**12.5**	**15.0**	**16.0**				**16.0**	**13.0**	**13.0**

Mode / Band		Modulated Average - Antenna 1 (dBm)	Modulated Average - Antenna 2 (dBm)	Modulated Average - MIMO (dBm)			
		20 MHz Bandwidth	20 MHz Bandwidth	20 MHz Bandwidth			
	Channel	36 -165	36 -165	36	40-60	64	100 -165
IEEE 802.11a (5 GHz)	Maximum	**14.0**	**14.0**	**17.0**			
	Nominal	**13.0**	**13.0**	**16.0**			
IEEE 802.11n (5 GHz)	Maximum	**14.0**	**14.0**	**17.0**			
	Nominal	**13.0**	**13.0**	**16.0**			
IEEE 802.11ac (5 GHz)	Maximum	**14.0**	**14.0**	**17.0**			
	Nominal	**13.0**	**13.0**	**16.0**			
IEEE 802.11ax(SU) (5 GHz)	Maximum	**14.0**	**14.0**	**16.0**			
	Nominal	**13.0**	**13.0**	**15.0**			

Mode / Band		Modulated Average - Antenna 1 (dBm)					Modulated Average - Antenna 2 (dBm)					Modulated Average - MIMO (dBm)				
		40 MHz Bandwidth					40 MHz Bandwidth					40 MHz Bandwidth				
	Channel	38	46-54	62	102	110-159	38	46-54	62	102	110-159	38	46-54	62	102	110-159
IEEE 802.11n (5 GHz)	Maximum	**14.0**					**14.0**					**17.0**				
	Nominal	**13.0**					**13.0**					**16.0**				
IEEE 802.11ac (5 GHz)	Maximum	**14.0**					**14.0**					**17.0**				
	Nominal	**13.0**					**13.0**					**16.0**				
IEEE 802.11ax(SU) (5 GHz)	Maximum	**14.0**					**14.0**					**14.0**				
	Nominal	**13.0**					**13.0**					**13.0**				

Mode / Band		Modulated Average - Antenna 1 (dBm)				Modulated Average - Antenna 2 (dBm)				Modulated Average - MIMO (dBm)			
		80 MHz Bandwidth				80 MHz Bandwidth				80 MHz Bandwidth			
	Channel	42	58	106	122 - 155	42	58	106	122 - 155	42	58	106	122 - 155
IEEE 802.11ac (5 GHz)	Maximum	**13.0**	**13.0**	**14.0**		**13.0**	**13.0**	**14.0**		**13.0**	**13.0**	**17.0**	
	Nominal	**12.0**	**12.0**	**13.0**		**12.0**	**12.0**	**13.0**		**12.0**	**12.0**	**16.0**	
IEEE 802.11ax(SU) (5 GHz)	Maximum	**13.0**				**13.0**				**13.0**			
	Nominal	**12.0**				**12.0**				**12.0**			

Note: Targets for 802.11ax RU operations can be found in Appendix H.

1.4 DUT Antenna Locations

The overall dimensions of this device are > 9 x 5 cm. A diagram showing the location of the device antennas can be found in Appendix F. This device is considered a "phablet" when it is in closed configuration and a "UMPC mini-tablet" when it is in open configuration. Exact antenna dimensions and separation distances are shown in the Technical Descriptions in the FCC filing.

Table 1-1
Device Edges/Sides for Closed Configuration SAR Testing

Mode	Back	Front	Top	Bottom	Right	Left
GPRS 850	Yes	Yes	No	Yes	Yes	No
GPRS 1900	Yes	Yes	No	Yes	Yes	Yes
UMTS 850	Yes	Yes	No	Yes	Yes	No
UMTS 1750	Yes	Yes	No	Yes	Yes	Yes
UMTS 1900	Yes	Yes	No	Yes	Yes	Yes
LTE Band 12	Yes	Yes	No	Yes	Yes	No
LTE Band 13	Yes	Yes	No	Yes	Yes	No
LTE Band 26 (Cell)	Yes	Yes	No	Yes	Yes	No
LTE Band 66 (AWS)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 25 (PCS)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 41	Yes	Yes	No	Yes	Yes	Yes
2.4 GHz WLAN Ant 1	Yes	Yes	Yes	No	Yes	No
2.4 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 1	Yes	Yes	Yes	No	Yes	No
5 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
Bluetooth	Yes	Yes	Yes	No	Yes	No

Table 1-2
Device Edges/Sides for Open Configuration SAR Testing

Mode	Back	Front	Top	Bottom	Right	Left
GPRS 850	Yes	Yes	No	Yes	Yes	No
GPRS 1900	Yes	Yes	No	Yes	Yes	No
UMTS 850	Yes	Yes	No	Yes	Yes	No
UMTS 1750	Yes	Yes	No	Yes	Yes	No
UMTS 1900	Yes	Yes	No	Yes	Yes	No
LTE Band 12	Yes	Yes	No	Yes	Yes	No
LTE Band 13	Yes	Yes	No	Yes	Yes	No
LTE Band 26 (Cell)	Yes	Yes	No	Yes	Yes	No
LTE Band 66 (AWS)	Yes	Yes	No	Yes	Yes	No
LTE Band 25 (PCS)	Yes	Yes	No	Yes	Yes	No
LTE Band 41	Yes	Yes	No	Yes	Yes	No
2.4 GHz WLAN Ant 1	Yes	Yes	Yes	No	Yes	No
2.4 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	No
2.4 GHz WLAN MIMO	Yes	Yes	Yes	No	Yes	No
5 GHz WLAN Ant 1	Yes	Yes	Yes	No	Yes	No
5 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	No
5 GHz WLAN MIMO	Yes	Yes	Yes	No	Yes	No
Bluetooth	Yes	Yes	Yes	No	Yes	No

Note: Particular DUT edges were not required to be evaluated for wireless router SAR, phablet SAR or UMPC mini-tablet SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v02r01 Section III, FCC KDB Publication 941225 D07v01r02 and FCC KDB Publication 648474 D04v01r03. The distances between the transmit antennas and the edges of the device are included in the filing. When wireless router mode is enabled, U-NII-1, U-NII-2A, U-NII-2C operations are disabled.

1.5 Near Field Communications (NFC) Antenna

This DUT has NFC operations. The NFC antenna is integrated into the device for this model. Therefore, all SAR tests were performed with the device which already incorporates the NFC antenna. A diagram showing the location of the NFC antenna can be found in Appendix F.

1.6 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D01v06, transmitters are considered to be operating simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds.

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D01v06 4.3.2 procedures.

Table 1-3
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Phablet	Mini Tablet	Notes
1	GSM voice + 2.4 GHz WI-FI	Yes	Yes	N/A	Yes	Yes	
2	GSM voice + 5 GHz WI-FI	Yes	Yes	N/A	Yes	Yes	
3	GSM voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	Yes	Yes	^ Bluetooth Tethering is considered
4	GSM voice + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	N/A	Yes	Yes	^ Bluetooth Tethering is considered
5	GSM voice + 2.4 GHz WI-FI MIMO	Yes	Yes	N/A	Yes	Yes	
6	GSM voice + 5 GHz WI-FI MIMO	Yes	Yes	N/A	Yes	Yes	
7	GSM voice + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes	Yes	N/A	Yes	Yes	
8	GSM voice + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	N/A	Yes	Yes	
9	GSM voice + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes^	Yes	N/A	Yes	Yes	^ Bluetooth Tethering is considered
10	UMTS + 2.4 GHz WI-FI	Yes	Yes	Yes	Yes	Yes	
11	UMTS + 5 GHz WI-FI	Yes	Yes	Yes	Yes	Yes	
12	UMTS + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	Yes	Yes	^ Bluetooth Tethering is considered
13	UMTS + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	Yes^	Yes	Yes	^ Bluetooth Tethering is considered
14	UMTS + 2.4 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	Yes	
15	UMTS + 5 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	Yes	
16	UMTS + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes	Yes	Yes	Yes	Yes	
17	UMTS + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	Yes	
18	UMTS + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes^	Yes	Yes^	Yes	Yes	^ Bluetooth Tethering is considered
19	LTE + 2.4 GHz WI-FI	Yes	Yes	Yes	Yes	Yes	
20	LTE + 5 GHz WI-FI	Yes	Yes	Yes	Yes	Yes	
21	LTE + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	Yes	Yes	^ Bluetooth Tethering is considered
22	LTE + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	Yes^	Yes	Yes	^ Bluetooth Tethering is considered
23	LTE + 2.4 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	Yes	
24	LTE + 5 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	Yes	
25	LTE + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes	Yes	Yes	Yes	Yes	
26	LTE + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	Yes	
27	LTE + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes^	Yes	Yes^	Yes	Yes	^ Bluetooth Tethering is considered
28	GPRS/EDGE + 2.4 GHz WI-FI	N/A	N/A	Yes	Yes	Yes	
29	GPRS/EDGE + 5 GHz WI-FI	N/A	N/A	Yes	Yes	Yes	
30	GPRS/EDGE + 2.4 GHz Bluetooth	N/A	N/A	Yes^	Yes	Yes	^ Bluetooth Tethering is considered
31	GPRS/EDGE + 2.4 GHz Bluetooth + 5 GHz WI-FI	N/A	N/A	Yes^	Yes	Yes	^ Bluetooth Tethering is considered
32	GPRS/EDGE + 2.4 GHz WI-FI MIMO	N/A	N/A	Yes	Yes	Yes	
33	GPRS/EDGE + 5 GHz WI-FI MIMO	N/A	N/A	Yes	Yes	Yes	
34	GPRS/EDGE + 2.4 GHz WI-FI + 5 GHz WI-FI	N/A	N/A	Yes	Yes	Yes	
35	GPRS/EDGE + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	N/A	N/A	Yes	Yes	Yes	
36	GPRS/EDGE + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	N/A	N/A	Yes^	Yes	Yes	^ Bluetooth Tethering is considered

1. 2.4 GHz WLAN and 2.4 GHz Bluetooth share the same antenna path and cannot transmit simultaneously.
2. All licensed modes share the same antenna path and cannot transmit simultaneously.
3. When the user utilizes multiple services in UMTS 3G mode it uses multi-Radio Access Bearer or multi-RAB. The power control is based on a physical control channel (Dedicated Physical Control Channel [DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the UMTS+WLAN scenario also represents the UMTS Voice/DATA + WLAN Hotspot scenario.
4. Per the manufacturer, WIFI Direct is not expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Therefore, there are no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table.
5. 5 GHz Wireless Router is only supported for the U-NII-3 by S/W, therefore U-NII-1, U-NII2A, and U-NII2C were not evaluated for wireless router conditions.
6. This device supports 2x2 MIMO Tx for WLAN 802.11a/g/n/ac/ax. 802.11a/g/n/ac/ax supports CDD and STBC and 802.11n/ac/ax additionally supports SDM. Each WLAN antenna can transmit independently or together when operating with MIMO.
7. This device supports VOLTE.

8. This device supports VoWIFI.
9. This device supports Bluetooth Tethering.

1.7 Miscellaneous SAR Test Considerations

(A) WIFI/BT

Since U-NII-1 and U-NII-2A bands have the same maximum output power and the highest reported SAR for U-NII-2A is less than 1.2 W/kg, SAR is not required for U-NII-1 band according to FCC KDB Publication 248227 D01v02r02.

Since Wireless Router operations are not allowed by the chipset firmware using U-NII-1, U-NII-2A & U-NII-2C WIFI, only 2.4 GHz and U-NII-3 WIFI Hotspot SAR tests and combinations are considered for SAR with respect to Wireless Router configurations according to FCC KDB 941225 D06v02r01.

This device supports IEEE 802.11ax with the following features:

a) Up to 80 MHz Bandwidth only for 5GHz
b) Up to 20MHz Bandwidth only for 2.4 GHz
c) No aggregate channel configurations
d) 2 Tx antenna output
e) Up to 1024 QAM is supported
f) TDWR and Band gap channels are supported for 5 GHz
g) MU – MIMO UL Operations are not supported

Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" when it is in a closed configuration since the diagonal dimension is greater than 160mm and less than 200mm. Phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Because wireless router operations are not supported for U-NII-1, U-NII-2A & U-NII-2C WLAN, phablet SAR tests were performed. Phablet SAR was not evaluated for 2.4 GHz WLAN, 2.4 GHz Bluetooth, and U-NII-3 WLAN operations since wireless router 1g SAR was < 1.2 W/kg.

Per FCC Guidance, SAR testing was not required for 802.11ax when applying the initial test configuration procedures of KDB 248227, with 802.11ax considered a higher order 802.11 mode.

This device supports 2x2 MIMO Tx for WLAN 802.11a/g/n/ac/ax. 802.11a/g/n/ac/ax supports CDD and STBC and 802.11n/ac/ax additionally supports SDM.

This device supports channel 1-13 for 2.4 GHz WLAN. However, due to the reduced output power for channels 12 and 13, channels 1, 6, and 11 were considered for SAR testing per KDB 248227 D01v02r02.

(B) Licensed Transmitter(s)

GSM/GPRS/EDGE DTM is not supported for US bands. Therefore, the GSM Voice modes in this report do not transmit simultaneously with GPRS/EDGE Data.

This device is only capable of QPSK HSUPA in the uplink. Therefore, no additional SAR tests are required beyond that described for devices with HSUPA in KDB 941225 D01v03r01.

LTE SAR for the higher modulations and lower bandwidths were not tested since the maximum average output power of all required channels and configurations was not more than 0.5 dB higher than the highest bandwidth; and the reported LTE SAR for the highest bandwidth was less than 1.45 W/kg for all configurations according to FCC KDB 941225 D05v02r04.

Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" when it is closed configuration since the diagonal dimension is greater than 160mm and less than 200mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6 (See Section 6.9 for more information)

This device supports LTE capabilities with overlapping transmission frequency ranges. When the supported frequency range of an LTE Band falls completely within an LTE band with a larger transmission frequency range, both LTE bands have the same target power (or the band with the larger transmission frequency range has a higher target power), and both LTE bands share the same transmission path and signal characteristics, SAR was only assessed for the band with the larger transmission frequency range.

This device supports 64QAM on the uplink and 256QAM on the downlink for LTE Operations. Conducted powers for 64QAM uplink configurations were measured per Section 5.1 of FCC KDB Publication 941225 D05v02r05. SAR was not required for 64QAM since the highest maximum output power for 64QAM is ≤ ½ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is ≤ 1.45W/kg, per Section 5.2.4 of FCC KDB Publication 941225 D05v02r05.

1.8 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r04, D05Av01r02, D06v02r01 (2G/3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D04v01r03 (Phablet Procedures)
- FCC KDB Publication 616217 D04v01r02 (Proximity Sensor)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- May 2017 TCB Workshop Notes
- FCC KDB Publication 941225 D07v01r02 (UMPC Mini-Tablet Devices)

1.9 Device Serial Numbers

Several samples with identical hardware were used to support SAR testing. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units. The serial numbers used for each test are indicated alongside the results in Section 11.

2 LTE INFORMATION

LTE Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 13 (779.5 - 784.5 MHz)				
	LTE Band 26 (Cell) (814.7 - 848.3 MHz)				
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)				
	LTE Band 66 (AWS) (1710.7 - 1779.3 MHz)				
	LTE Band 4 (AWS) (1710.7 - 1754.3 MHz)				
	LTE Band 25 (PCS) (1850.7 - 1914.3 MHz)				
	LTE Band 2 (PCS) (1850.7 - 1909.3 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
Channel Bandwidths	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 13: 5 MHz, 10 MHz				
	LTE Band 26 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz				
	LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 66 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 25 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 2 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)		707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)		707.5 (23095)	711 (23130)	
LTE Band 13: 5 MHz	779.5 (23205)		782 (23230)	784.5 (23255)	
LTE Band 13: 10 MHz	N/A		782 (23230)	N/A	
LTE Band 26 (Cell): 1.4 MHz	814.7 (26697)		831.5 (26865)	848.3 (27033)	
LTE Band 26 (Cell): 3 MHz	815.5 (26705)		831.5 (26865)	847.5 (27025)	
LTE Band 26 (Cell): 5 MHz	816.5 (26715)		831.5 (26865)	846.5 (27015)	
LTE Band 26 (Cell): 10 MHz	819 (26740)		831.5 (26865)	844 (26990)	
LTE Band 26 (Cell): 15 MHz	821.5 (26765)		831.5 (26865)	841.5 (26965)	
LTE Band 5 (Cell): 1.4 MHz	824.7 (20407)		836.5 (20525)	848.3 (20643)	
LTE Band 5 (Cell): 3 MHz	825.5 (20415)		836.5 (20525)	847.5 (20635)	
LTE Band 5 (Cell): 5 MHz	826.5 (20425)		836.5 (20525)	846.5 (20625)	
LTE Band 5 (Cell): 10 MHz	829 (20450)		836.5 (20525)	844 (20600)	
LTE Band 66 (AWS): 1.4 MHz	1710.7 (131979)		1745 (132322)	1779.3 (132665)	
LTE Band 66 (AWS): 3 MHz	1711.5 (131987)		1745 (132322)	1778.5 (132657)	
LTE Band 66 (AWS): 5 MHz	1712.5 (131997)		1745 (132322)	1777.5 (132647)	
LTE Band 66 (AWS): 10 MHz	1715 (132022)		1745 (132322)	1775 (132622)	
LTE Band 66 (AWS): 15 MHz	1717.5 (132047)		1745 (132322)	1772.5 (132597)	
LTE Band 66 (AWS): 20 MHz	1720 (132072)		1745 (132322)	1770 (132572)	
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)		1732.5 (20175)	1754.3 (20393)	
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)		1732.5 (20175)	1753.5 (20385)	
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)		1732.5 (20175)	1752.5 (20375)	
LTE Band 4 (AWS): 10 MHz	1715 (20000)		1732.5 (20175)	1750 (20350)	
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)		1732.5 (20175)	1747.5 (20325)	
LTE Band 4 (AWS): 20 MHz	1720 (20050)		1732.5 (20175)	1745 (20300)	
LTE Band 25 (PCS): 1.4 MHz	1850.7 (26047)		1882.5 (26365)	1914.3 (26683)	
LTE Band 25 (PCS): 3 MHz	1851.5 (26055)		1882.5 (26365)	1913.5 (26675)	
LTE Band 25 (PCS): 5 MHz	1852.5 (26065)		1882.5 (26365)	1912.5 (26665)	
LTE Band 25 (PCS): 10 MHz	1855 (26090)		1882.5 (26365)	1910 (26640)	
LTE Band 25 (PCS): 15 MHz	1857.5 (26115)		1882.5 (26365)	1907.5 (26615)	
LTE Band 25 (PCS): 20 MHz	1860 (26140)		1882.5 (26365)	1905 (26590)	
LTE Band 2 (PCS): 1.4 MHz	1850.7 (18607)		1880 (18900)	1909.3 (19193)	
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)		1880 (18900)	1908.5 (19185)	
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)		1880 (18900)	1907.5 (19175)	
LTE Band 2 (PCS): 10 MHz	1855 (18650)		1880 (18900)	1905 (19150)	
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)		1880 (18900)	1902.5 (19125)	
LTE Band 2 (PCS): 20 MHz	1860 (18700)		1880 (18900)	1900 (19100)	
LTE Band 41: 5 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
UE Category	DL UE Cat 16 (QPSK, 16QAM, 64QAM, 256QAM), UL UE Cat 5 (QPSK, 16QAM, 64QAM)				
Modulations Supported in UL	QPSK, 16QAM, 64QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5? (manufacturer attestation to be provided)	YES				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
LTE Additional Information	This device does not support full CA features on 3GPP Release 15. All uplink communications are identical to the Release 8 Specifications. The following LTE Release 15 Features are not supported: LTE CA, Relay, HetNet, Enhanced MIMO, eICIC, WIFI Offloading, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

3 INTRODUCTION

The FCC and Innovation, Science, and Economic Development Canada have adopted the guidelines for evaluating the environmental effects of radio frequency (RF) radiation in ET Docket 93-62 on Aug. 6, 1996 and Health Canada Safety Code 6 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices. [1]

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz [3] and Health Canada RF Exposure Guidelines Safety Code 6 [22]. The measurement procedure described in IEEE/ANSI C95.3-2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave [4] is used for guidance in measuring the Specific Absorption Rate (SAR) due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the International Committee for Non-Ionizing Radiation Protection (ICNIRP) in Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," Report No. Vol 74. 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.

3.1 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dU) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body (see Equation 3-1).

Equation 3-1
SAR Mathematical Equation

$$\boxed{SAR = \frac{d}{dt}\left(\frac{dU}{dm}\right) = \frac{d}{dt}\left(\frac{dU}{\rho dv}\right)}$$

SAR is expressed in units of Watts per Kilogram (W/kg).

$$SAR = \frac{\sigma \cdot E^2}{\rho}$$

where:

σ = conductivity of the tissue-simulating material (S/m)
ρ = mass density of the tissue-simulating material (kg/m^3)
E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relation to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.[6]

4 DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013:

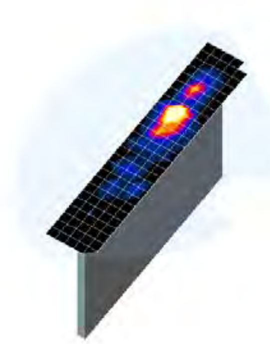


Figure 4-1
Sample SAR Area Scan

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):
    a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 4-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
    b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
    c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

Table 4-1
Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01r04*

Frequency	Maximum Area Scan Resolution (mm) (Δx_{area}, Δy_{area})	Maximum Zoom Scan Resolution (mm) (Δx_{zoom}, Δy_{zoom})	Maximum Zoom Scan Spatial Resolution (mm)			Minimum Zoom Scan Volume (mm) (x,y,z)
			Uniform Grid	Graded Grid		
			$\Delta z_{zoom}(n)$	$\Delta z_{zoom}(1)$*	$\Delta z_{zoom}(n>1)$*	
≤ 2 GHz	≤ 15	≤ 8	≤ 5	≤ 4	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 30
2-3 GHz	≤ 12	≤ 5	≤ 5	≤ 4	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 30
3-4 GHz	≤ 12	≤ 5	≤ 4	≤ 3	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 28
4-5 GHz	≤ 10	≤ 4	≤ 3	≤ 2.5	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 25
5-6 GHz	≤ 10	≤ 4	≤ 2	≤ 2	≤ 1.5*$\Delta z_{zoom}(n-1)$	≥ 22

*Also compliant to IEEE 1528-2013 Table 6

5 DEFINITION OF REFERENCE POINTS

5.1 EAR REFERENCE POINT

Figure 5-2 shows the front, back and side views of the SAM Twin Phantom. The point "M" is the reference point for the center of the mouth, "LE" is the left ear reference point (ERP), and "RE" is the right ERP. The ERP is 15mm posterior to the entrance to the ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 5-1. The plane passing through the two ear canals and M is defined as the Reference Plane. The line N-F (Neck-Front), also called the Reference Pivoting Line, is not perpendicular to the reference plane (see Figure 5-1). Line B-M is perpendicular to the N-F line. Both N-F and B-M lines are marked on the external phantom shell to facilitate handset positioning [5].

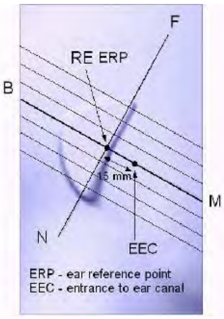


Figure 5-1
Close-Up Side view of ERP

5.2 HANDSET REFERENCE POINTS

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The test device was placed in a normal operating position with the acoustic output located along the "vertical centerline" on the front of the device aligned to the "ear reference point" (See Figure 5-3). The acoustic output was than located at the same level as the center of the ear reference point. The test device was positioned so that the "vertical centerline" was bisecting the front surface of the handset at its top and bottom edges, positioning the "ear reference point" on the outer surface of the both the left and right head phantoms on the ear reference point.

Figure 5-2
Front, back and side view of SAM Twin Phantom

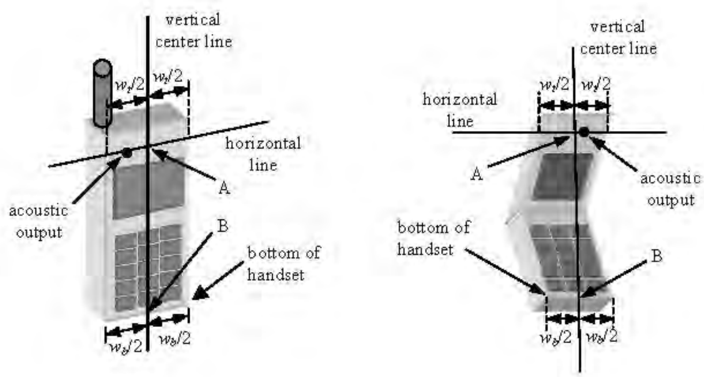


Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

6 TEST CONFIGURATION POSITIONS

6.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity ε = 3 and loss tangent δ = 0.02.

6.2 Positioning for Cheek

1. The test device was positioned with the device close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 6-1), such that the plane defined by the vertical center line and the horizontal line of the phone is approximately parallel to the sagittal plane of the phantom.

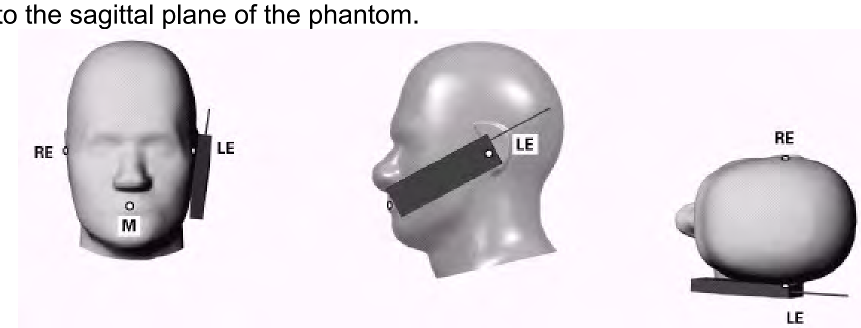


Figure 6-1 Front, Side and Top View of Cheek Position

2. The handset was translated towards the phantom along the line passing through RE & LE until the handset touches the pinna.
3. While maintaining the handset in this plane, the handset was rotated around the LE-RE line until the vertical centerline was in the reference plane.
4. The phone was then rotated around the vertical centerline until the phone (horizontal line) was symmetrical was respect to the line NF.
5. While maintaining the vertical centerline in the reference plane, keeping point A on the line passing through RE and LE, and maintaining the device contact with the ear, the device was rotated about the NF line until any point on the handset made contact with a phantom point below the ear (cheek) (See Figure 6-2).

6.3 Positioning for Ear / 15º Tilt

With the test device aligned in the “Cheek Position”:

1. While maintaining the orientation of the phone, the phone was retracted parallel to the reference plane far enough to enable a rotation of the phone by 15degrees.
2. The phone was then rotated around the horizontal line by 15 degrees.
3. While maintaining the orientation of the phone, the phone was moved parallel to the reference plane until any part of the handset touched the head. (In this position, point A was located on the line RE-LE). The tilted position is obtained when the contact is on the pinna. If the contact was at any location other than the pinna, the angle of the phone would then be reduced. In this situation, the tilted position was obtained when any part of the phone was in contact of the ear as well as a second part of the phone was in contact with the head (see Figure 6-2).

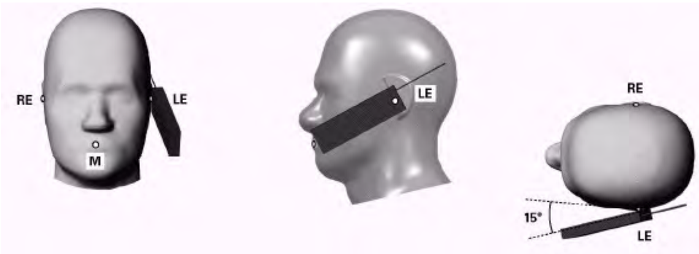


Figure 6-2 Front, Side and Top View of Ear/15º Tilt Position

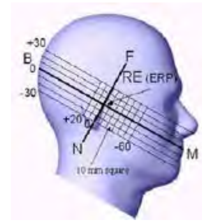


Figure 6-3
Side view w/ relevant markings

6.4 SAR Evaluations near the Mouth/Jaw Regions of the SAM Phantom

Antennas located near the bottom of a phone may require SAR measurements around the mouth and jaw regions of the SAM head phantom. This typically applies to clam-shell style phones that are generally longer in the unfolded normal use positions or to certain older style long rectangular phones. Per IEEE 1528-2013, a rotated SAM phantom is necessary to allow probe access to such regions. Both SAM heads of the TwinSAM-Chin20 are rotated 20 degrees around the NF line. Each head can be removed from the table for emptying and cleaning.

Under these circumstances, the following procedures apply, adopted from the FCC guidance on SAR handsets document FCC KDB Publication 648474 D04v01r03. The SAR required in these regions of SAM should be measured using a flat phantom. The phone should be positioned with a separation distance of 4 mm between the ear reference point (ERP) and the outer surface of the flat phantom shell. While maintaining this distance at the ERP location, the low (bottom) edge of the phone should be lowered from the phantom to establish the same separation distance between the peak SAR location identified by the truncated partial SAR distribution measured with the SAM phantom. The distance from the peak SAR location to the phone is determined by the straight line passing perpendicularly through the phantom surface. When it is not feasible to maintain 4 mm separation at the ERP while also establishing the required separation at the peak SAR location, the top edge of the phone will be allowed to touch the phantom with a separation < 4 mm at the ERP. The phone should not be tilted to the left or right while placed in this inclined position to the flat phantom.

6.5 Body-Worn Accessory Configurations

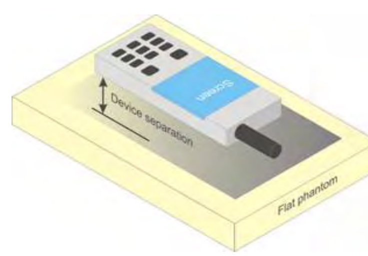


Figure 6-4
Sample Body-Worn Diagram

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6-4). Per FCC KDB Publication 648474 D04v01r03, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented.
Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

6.6 Extremity Exposure Configurations

Devices that are designed or intended for use on extremities or mainly operated in extremity only exposure conditions; i.e., hands, wrists, feet and ankles, may require extremity SAR evaluation. When the device also operates in close proximity to the user's body, SAR compliance for the body is also required. The 1g body and 10g extremity SAR Exclusion Thresholds found in KDB Publication 447498 D01v06 should be applied to determine SAR test requirements.

Per KDB Publication 447498 D01v06, Cell phones (handsets) are not normally designed to be used on extremities or operated in extremity only exposure conditions. The maximum output power levels of handsets generally do not require extremity SAR testing to show compliance. Therefore, extremity SAR was not evaluated for this device.

6.7 Wireless Router Configurations

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06v02r01 where SAR test considerations for handsets (L x W ≥ 9 cm x 5 cm) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

6.8 Phablet Configurations

For smart phones with a display diagonal dimension > 150 mm or an overall diagonal dimension > 160 mm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the phablets procedures outlined in KDB Publication 648474 D04v01r03 should be applied to evaluate SAR compliance. A device marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance. In addition to the normally required head and body-worn accessory SAR test procedures required for handsets, the UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna <=25 mm from that surface or edge, in direct contact with the phantom, for 10g SAR. The UMPC mini-tablet 1g SAR at 5 mm is not required. When hotspot mode applies, 10g SAR is required only for the surfaces and edges with hotspot mode 1g SAR > 1.2 W/kg.

6.9 Proximity Sensor Considerations

This device uses a power reduction mechanism to reduce output powers in certain use conditions when the device is used close to the user's body.

When the device's antenna is within a certain distance of the user, the sensor activates and reduces the maximum allowed output power. However, the sensor is not active when the device is moved beyond the sensor triggering distance and the maximum output power is no longer limited. Therefore, additional evaluation is needed in the vicinity of the triggering distance to ensure SAR is compliant when the device is allowed to operate at a non-reduced output power level. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional test positions. Sensor triggering distance summary data is included in Appendix G.

The sensor is designed to support sufficient detection range and sensitivity to cover regions of the sensors in all applicable directions since the sensor entirely covers the antennas.

6.10 UMPC Mini-Tablet Configurations

Small hand-held tablets (and devices of similar form factors that are designed primarily for interactive hand-held use next to or near the body of users) require body SAR and extremity SAR evaluation. These types of mini-tablets are normally optimized for mobile web access and multimedia use. UMPC test procedures are applicable for devices with displays and overall diagonal dimension ≤ 20 cm. Devices are to be set up according to KDB publication 941225 D07v01r02 requirements and are configured with maximum output power during SAR assessment for a worst case SAR evaluation.

Per KDB Publication 941225 D07v01r02, UMPC mini-tablet devices must be tested for all surfaces and edges ≤ 25 mm from a transmitting antenna. A test separation distance of 10 mm may be considered for 1g SAR, with the addition of 10g SAR measurement at 0 mm test separation distance for all measured 1g SAR (at 10 mm) configurations to address hand exposure.

7 RF EXPOSURE LIMITS

7.1 Uncontrolled Environment

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

7.2 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Table 7-1
SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT *General Population* (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT *Occupational* (W/kg) or (mW/g)
Peak Spatial Average SAR Head	1.6	8.0
Whole Body SAR	0.08	0.4
Peak Spatial Average SAR Hands, Feet, Ankle, Wrists, etc.	4.0	20

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

8 FCC MEASUREMENT PROCEDURES

Power measurements for licensed transmitters are performed using a base station simulator under digital average power.

8.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, when SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as *reported* SAR. The highest *reported* SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

8.2 3G SAR Test Reduction Procedure

In FCC KDB Publication 941225 D01v03r01, certain transmission modes within a frequency band and wireless mode evaluated for SAR are defined as primary modes. The equivalent modes considered for SAR test reduction are denoted as secondary modes. When the maximum output power including tune-up tolerance specified for production units in a secondary mode is ≤ 0.25 dB higher than the primary mode or when the highest reported SAR of the primary mode, scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode, is ≤ 1.2 W/kg, SAR measurements are not required for the secondary mode. These criteria are referred to as the 3G SAR test reduction procedure. When the 3G SAR test reduction procedure is not satisfied, SAR measurements are additionally required for the secondary mode.

8.3 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01v03r01 “3G SAR Measurement Procedures.”

The device is placed into a simulated call using a base station simulator in a RF shielded chamber. Establishing connections in this manner ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. Devices under test are evaluated prior to testing, with a fully charged battery and were configured to operate at maximum output power. In order to verify that the device is tested throughout the SAR test at maximum output power, the SAR measurement system measures a “point SAR” at an arbitrary reference point at the start and end of the 1 gram SAR evaluation, to assess for any power drifts during the evaluation. If the power drift deviates by more than 5%, the SAR test and drift measurements are repeated.

8.4 SAR Measurement Conditions for UMTS

8.4.1 Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in section 5.2 of 3GPP TS 34.121, using the appropriate RMC with TPC (transmit power control) set to all “1s” or applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HS-DPCCH etc) are tabulated in this test report. All configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations are identified.

8.4.2 Head SAR Measurements

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest reported SAR configuration in 12.2 kbps RMC for head exposure.

8.4.3 Body SAR Measurements

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all "1s". The 3G SAR test reduction procedure is applied to other spreading codes and multiple $DPDCH_n$ configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreading code or $DPDCH_n$, for the highest reported SAR configuration in 12.2 kbps RMC.

8.4.4 SAR Measurements with Rel 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, for the highest reported SAR configuration in 12.2 kbps RMC without HSDPA. Handsets with both HSDPA and HSUPA are tested according to Release 6 HSPA test procedures.

8.4.5 SAR Measurements with Rel 6 HSUPA

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA.

When VOIP applies to head exposure, the 3G SAR test reduction procedure is applied with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body SAR measurements are applied to head exposure testing.

8.5 SAR Measurement Conditions for LTE

LTE modes are tested according to FCC KDB 941225 D05v02r04 publication. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 or Anritsu MT8820C simulators are used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

8.5.1 Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

8.5.2 MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

8.5.3 A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

8.5.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
    i. The required channel and offset combination with the highest maximum output power is required for SAR.
    ii. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
    iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.

b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.

c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.

d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to ½ dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is <1.45 W/kg.

8.6 SAR Testing with 802.11 Transmitters

The normal network operating configurations of 802.11 transmitters are not suitable for SAR measurements. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01v02r02 for more details.

8.6.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters.

A periodic duty factor is required for current generation SAR systems to measure SAR. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 - 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR is scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

8.6.2 U-NII-1 and U-NII-2A

For devices that operate in both U-NII-1 and U-NII-2A bands, when the same maximum output power is specified for both bands, SAR measurement using OFDM SAR test procedures is not required for U-NII-1 unless the highest reported SAR for U-NII-2A is > 1.2 W/kg. When different maximum output powers are specified for the bands, SAR measurement for the U-NII band with the lower maximum output power is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is > 1.2 W/kg. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.6.3 U-NII-2C and U-NII-3

The frequency range covered by U-NII-2C and U-NII-3 is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. When Terminal Doppler Weather Radar (TDWR) restriction applies, the channels at 5.60 – 5.65 GHz in U-NII-2C band must be disabled with acceptable mechanisms and documented in the equipment certification. Unless band gap channels are permanently disabled, SAR must be considered for these channels. Each band is tested independently according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

8.6.4 Initial Test Position Procedure

For exposure conditions with multiple test positions, such as handset operating next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all positions in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg, no additional testing for the remaining test positions is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.6.5 2.4 GHz SAR Test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.

2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

2.4 GHz 802.11 g/n/ax OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.6.6 OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. Per FCC

Guidance, 802.11ax was considered a higher order 802.11 mode when compared to a/b/g/n/ac to apply KDB Publication 248227 Guidance. When the maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

8.6.7 Initial Test Configuration Procedure

For OFDM, an initial test configuration is determined for each frequency band and aggregated band, according to the transmission mode with the highest maximum output power specified for SAR measurements. When the same maximum output power is specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration(s) with the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order IEEE 802.11 mode. The channel of the transmission mode with the highest average RF output conducted power will be the initial test configuration.

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is ≤ 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements (See Section 8.6.6). When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.6.8 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg, no additional SAR tests for the subsequent test configurations are required. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.6.9 MIMO SAR considerations

Per KDB Publication 248227 D01v02r02, the simultaneous SAR provisions in KDB Publication 447498 D01v06 should be applied to determine simultaneous transmission SAR test exclusion for WIFI MIMO. If the sum of 1g single transmission chain SAR measurements is <1.6 W/kg, no additional SAR measurements for MIMO are required. Alternatively, SAR for MIMO can be measured with all antennas transmitting simultaneously at the specified maximum output power of MIMO operation. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

9 RF CONDUCTED POWERS

9.1 GSM Conducted Powers

Table 9-1
Maximum Conducted Power

Maximum Burst-Averaged Output Power										
		Voice	*GPRS/EDGE Data (GMSK)*				*EDGE Data (8-PSK)*			
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**GPRS [dBm] 3 Tx Slot**	**GPRS [dBm] 4 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**	**EDGE [dBm] 3 Tx Slot**	**EDGE [dBm] 4 Tx Slot**
GSM 850	128	32.79	32.79	31.68	**29.55**	27.52	26.84	25.21	23.41	22.19
	190	32.75	32.78	31.66	**29.57**	27.72	26.72	25.19	23.17	22.28
	251	33.00	33.00	31.81	**29.74**	27.77	26.91	25.50	23.36	22.38
GSM 1900	512	29.89	29.90	28.97	**26.87**	24.96	26.10	24.25	22.33	21.16
	661	29.84	30.00	28.91	**27.00**	24.98	25.64	24.36	22.36	21.35
	810	30.00	29.95	28.66	**26.98**	25.00	26.25	24.36	22.40	21.44
Calculated Maximum Frame-Averaged Output Power										
		Voice	*GPRS/EDGE Data (GMSK)*				*EDGE Data (8-PSK)*			
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**GPRS [dBm] 3 Tx Slot**	**GPRS [dBm] 4 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**	**EDGE [dBm] 3 Tx Slot**	**EDGE [dBm] 4 Tx Slot**
GSM 850	128	23.76	23.76	25.66	**25.29**	24.51	17.81	19.19	19.15	19.18
	190	23.72	23.75	25.64	**25.31**	24.71	17.69	19.17	18.91	19.27
	251	23.97	23.97	25.79	**25.48**	24.76	17.88	19.48	19.10	19.37
GSM 1900	512	20.86	20.87	22.95	**22.61**	21.95	17.07	18.23	18.07	18.15
	661	20.81	20.97	22.89	**22.74**	21.97	16.61	18.34	18.10	18.34
	810	20.97	20.92	22.64	**22.72**	21.99	17.22	18.34	18.14	18.43

GSM 850	**Frame Avg.Targets:**	22.97	22.97	24.98	**25.24**	24.49	17.97	18.98	18.74	18.99
GSM 1900		19.97	19.97	21.98	**22.24**	21.49	16.97	17.98	17.74	17.99

Table 9-2
Reduced Conducted Power

Maximum Burst-Averaged Output Power										
		Voice	*GPRS/EDGE Data (GMSK)*				*EDGE Data (8-PSK)*			
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**GPRS [dBm] 3 Tx Slot**	**GPRS [dBm] 4 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**	**EDGE [dBm] 3 Tx Slot**	**EDGE [dBm] 4 Tx Slot**
GSM 1900	512	27.52	27.57	26.41	**24.37**	22.28	26.10	24.25	22.33	21.16
	661	27.34	27.40	26.48	**24.47**	22.36	25.64	24.36	22.36	21.35
	810	27.39	27.45	26.45	**24.36**	22.36	26.25	24.36	22.40	21.44
Calculated Maximum Frame-Averaged Output Power										
		Voice	*GPRS/EDGE Data (GMSK)*				*EDGE Data (8-PSK)*			
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**GPRS [dBm] 3 Tx Slot**	**GPRS [dBm] 4 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**	**EDGE [dBm] 3 Tx Slot**	**EDGE [dBm] 4 Tx Slot**
GSM 1900	512	18.49	18.54	20.39	**20.11**	19.27	17.07	18.23	18.07	18.15
	661	18.31	18.37	20.46	**20.21**	19.35	16.61	18.34	18.10	18.34
	810	18.36	18.42	20.43	**20.10**	19.35	17.22	18.34	18.14	18.43
GSM 1900	**Frame Avg.Targets:**	18.47	18.47	20.48	**20.24**	19.49	16.97	17.98	17.74	17.99

Note:

1. Both burst-averaged and calculated frame-averaged powers are included. Frame-averaged power was calculated from the measured burst-averaged power by converting the slot powers into linear units and calculating the energy over 8 timeslots.
2. GPRS/EDGE (GMSK) output powers were measured with coding scheme setting of 1 (CS1) on the base station simulator. CS1 was configured to measure GPRS output power measurements and SAR to ensure GMSK modulation in the signal. Our Investigation has shown that CS1 - CS4 settings do not have any impact on the output levels or modulation in the GPRS modes.
3. EDGE (8-PSK) output powers were measured with MCS7 on the base station simulator. MCS7 coding scheme was used to measure the output powers for EDGE since investigation has shown that choosing MCS7 coding scheme will ensure 8-PSK modulation. It has been shown that MCS levels that produce 8PSK modulation do not have an impact on output power.

GSM Class: B
GPRS Multislot class: 33 (Max 4 Tx uplink slots)
EDGE Multislot class: 33 (Max 4 Tx uplink slots)
DTM Multislot Class: N/A

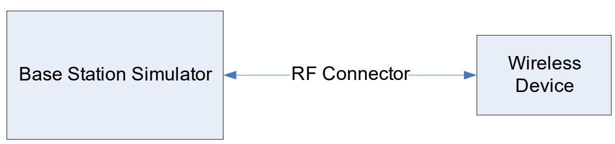


Figure 9-1
Power Measurement Setup

9.2 UMTS Conducted Powers

Table 9-3
Maximum Conducted Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	23.13	23.18	23.35	23.26	23.33	23.66	23.14	22.94	23.05	-
99		12.2 kbps AMR	23.10	23.05	23.32	23.38	23.46	23.73	23.07	23.00	23.04	-
6	HSDPA	Subtest 1	22.13	22.22	22.41	23.00	22.99	23.00	22.62	22.62	22.97	0
6		Subtest 2	22.04	22.08	22.33	22.98	22.95	22.95	22.97	22.97	22.99	0
6		Subtest 3	21.58	21.66	21.84	22.65	22.70	22.93	22.38	22.27	22.45	0.5
6		Subtest 4	21.64	21.64	21.88	22.65	22.70	22.94	22.38	22.28	22.45	0.5
6	HSUPA	Subtest 1	22.09	22.18	22.38	22.95	22.90	22.55	22.86	22.76	22.95	0
6		Subtest 2	20.07	20.15	20.33	21.06	21.21	21.52	20.91	20.76	20.91	2
6		Subtest 3	21.08	21.17	21.38	22.14	22.22	22.54	21.86	21.73	21.89	1
6		Subtest 4	19.27	19.32	19.53	21.12	21.18	21.54	20.87	20.75	20.89	2
6		Subtest 5	22.10	22.22	22.40	23.00	22.98	22.95	22.93	22.78	22.98	0

Table 9-4
Reduced Conducted Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	19.29	19.30	19.66	20.04	20.07	19.96	-
99		12.2 kbps AMR	19.37	19.40	19.70	20.07	19.94	20.01	-
6	HSDPA	Subtest 1	18.55	18.61	18.95	19.39	19.24	19.36	0
6		Subtest 2	18.56	18.55	18.99	19.40	19.27	19.32	0
6		Subtest 3	18.06	18.12	18.36	18.81	18.70	18.87	0.5
6		Subtest 4	18.14	18.03	18.46	18.88	18.68	18.79	0.5
6	HSUPA	Subtest 1	18.57	18.65	18.99	19.35	19.24	19.37	0
6		Subtest 2	16.58	16.63	16.97	17.35	17.23	17.36	2
6		Subtest 3	17.55	17.66	17.95	18.35	18.21	18.32	1
6		Subtest 4	16.53	16.61	16.95	17.35	17.20	17.32	2
6		Subtest 5	18.56	18.62	18.64	19.38	19.24	19.40	0

It is expected by the manufacturer that MPR for some HSPA subtests may be up to 2 dB more than specified by 3GPP, but also as low as 0 dB according to the chipset implementation in this model.

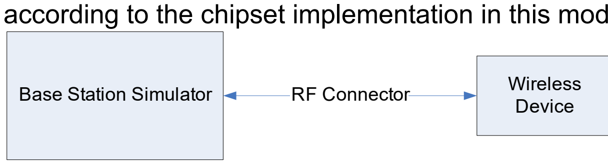


Figure 9-2
Power Measurement Setup

9.3 LTE Conducted Powers

9.3.1 LTE Band 12

Table 9-5
LTE Band 12 Conducted Powers - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23095 (707.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**23.21**	0	0
	1	25	22.99		0
	1	49	22.89		0
	25	0	**22.23**	0-1	1
	25	12	22.21		1
	25	25	22.11		1
	50	0	22.19		1
16QAM	1	0	22.60	0-1	1
	1	25	22.31		1
	1	49	22.25		1
	25	0	21.26	0-2	2
	25	12	21.24		2
	25	25	21.16		2
	50	0	21.22		2
64QAM	1	0	21.58	0-2	2
	1	25	21.26		2
	1	49	21.25		2
	25	0	20.25	0-3	3
	25	12	20.23		3
	25	25	20.17		3
	50	0	20.21		3

Note: LTE Band 12 at 10 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 9-6
LTE Band 12 Conducted Powers - 5 MHz Bandwidth

LTE Band 12 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23035 (701.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23155 (713.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.69	23.44	23.26	0	0
	1	12	23.56	23.35	23.22		0
	1	24	23.45	23.35	23.13		0
	12	0	22.76	22.48	22.38	0-1	1
	12	6	22.79	22.37	22.42		1
	12	13	22.59	22.37	22.33		1
	25	0	22.65	22.30	22.33		1
16QAM	1	0	22.98	22.70	22.57	0-1	1
	1	12	22.78	22.64	22.58		1
	1	24	22.68	22.48	22.40		1
	12	0	21.75	21.58	21.37	0-2	2
	12	6	21.84	21.49	21.41		2
	12	13	21.59	21.37	21.32		2
	25	0	21.65	21.43	21.32		2
64QAM	1	0	22.00	21.68	21.49	0-2	2
	1	12	21.85	21.58	21.50		2
	1	24	21.64	21.53	21.38		2
	12	0	20.78	20.34	20.37	0-3	3
	12	6	20.82	20.44	20.40		3
	12	13	20.63	20.48	20.33		3
	25	0	20.68	20.30	20.38		3

Table 9-7
LTE Band 12 Conducted Powers - 3 MHz Bandwidth

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23025 (700.5 MHz)	23095 (707.5 MHz)	23165 (714.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.66	23.42	23.20	0	0
	1	7	23.68	23.36	23.16		0
	1	14	23.54	23.24	23.15		0
	8	0	22.76	22.48	22.33	0-1	1
	8	4	22.81	22.50	22.34		1
	8	7	22.68	22.39	22.28		1
	15	0	22.78	22.45	22.30		1
16QAM	1	0	22.99	22.67	22.54	0-1	1
	1	7	23.00	22.66	22.53		1
	1	14	22.76	22.60	22.52		1
	8	0	21.82	21.52	21.35	0-2	2
	8	4	21.86	21.58	21.42		2
	8	7	21.74	21.44	21.33		2
	15	0	21.78	21.49	21.31		2
64QAM	1	0	21.95	21.70	21.46	0-2	2
	1	7	22.00	21.65	21.50		2
	1	14	21.85	21.48	21.44		2
	8	0	20.88	20.52	20.37	0-3	3
	8	4	20.87	20.57	20.37		3
	8	7	20.75	20.46	20.36		3
	15	0	20.84	20.51	20.33		3

Table 9-8
LTE Band 12 Conducted Powers -1.4 MHz Bandwidth

LTE Band 12 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23017 (699.7 MHz)	23095 (707.5 MHz)	23173 (715.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.37	23.34	23.12	0	0
	1	2	23.64	23.36	23.17		0
	1	5	23.50	23.20	23.07		0
	3	0	23.60	23.25	23.11		0
	3	2	23.65	23.30	23.16		0
	3	3	23.54	23.23	23.13		0
	6	0	22.77	22.40	22.27	0-1	1
16QAM	1	0	23.00	22.66	22.45	0-1	1
	1	2	22.98	22.63	22.47		1
	1	5	22.79	22.53	22.42		1
	3	0	22.80	22.50	22.30		1
	3	2	22.85	22.55	22.29		1
	3	3	22.79	22.35	22.29		1
	6	0	21.82	21.44	21.29	0-2	2
64QAM	1	0	21.96	21.59	21.35	0-2	2
	1	2	22.00	21.57	21.48		2
	1	5	21.85	21.53	21.35		2
	3	0	21.89	21.53	21.36		2
	3	2	21.87	21.59	21.40		2
	3	3	21.79	21.44	21.34		2
	6	0	20.74	20.38	20.21	0-3	3

9.3.2 LTE Band 13

Table 9-9
LTE Band 13 Conducted Powers - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	22.94	0	0
	1	25	22.97		0
	1	49	**22.99**		0
	25	0	22.11	0-1	1
	25	12	22.14		1
	25	25	**22.16**		1
	50	0	22.10		1
16QAM	1	0	22.15	0-1	1
	1	25	22.13		1
	1	49	22.06		1
	25	0	21.05	0-2	2
	25	12	21.10		2
	25	25	21.09		2
	50	0	21.04		2
64QAM	1	0	21.16	0-2	2
	1	25	21.17		2
	1	49	21.32		2
	25	0	20.08	0-3	3
	25	12	20.07		3
	25	25	20.18		3
	50	0	20.09		3

Table 9-10
LTE Band 13 Conducted Powers - 5 MHz Bandwidth

LTE Band 13 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	23.27	0	0
	1	12	23.33		0
	1	24	23.45		0
	12	0	22.44	0-1	1
	12	6	22.55		1
	12	13	22.52		1
	25	0	22.53		1
16QAM	1	0	22.59	0-1	1
	1	12	22.56		1
	1	24	22.66		1
	12	0	21.47	0-2	2
	12	6	21.51		2
	12	13	21.54		2
	25	0	21.50		2
64QAM	1	0	21.48	0-2	2
	1	12	21.58		2
	1	24	21.64		2
	12	0	20.53	0-3	3
	12	6	20.54		3
	12	13	20.56		3
	25	0	20.54		3

Note: LTE Band 13 at 5 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

9.3.3 LTE Band 26 (Cell)

Table 9-11
LTE Band 26 (Cell) Conducted Powers - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 26865 (831.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**24.86**	0	0
	1	36	24.60		0
	1	74	24.52		0
	36	0	**23.75**	0-1	1
	36	18	23.72		1
	36	37	23.71		1
	75	0	23.68		1
16QAM	1	0	23.66	0-1	1
	1	36	23.82		1
	1	74	23.71		1
	36	0	22.73	0-2	2
	36	18	22.68		2
	36	37	22.65		2
	75	0	22.70		2
64QAM	1	0	22.81	0-2	2
	1	36	22.76		2
	1	74	22.61		2
	36	0	21.74	0-3	3
	36	18	21.78		3
	36	37	21.77		3
	75	0	21.61		3

Note: LTE Band 26 (Cell) at 15 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

Table 9-12
LTE Band 26 (Cell) Conducted Powers - 10 MHz Bandwidth

LTE Band 26 (Cell) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26740 (819.0 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 26990 (844.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.71	24.84	24.77	0	0
	1	25	24.75	24.81	24.71		0
	1	49	24.71	24.76	24.65		0
	25	0	23.89	23.95	23.88	0-1	1
	25	12	23.89	23.95	23.88		1
	25	25	23.88	23.95	23.85		1
	50	0	23.86	23.94	23.86		1
16QAM	1	0	24.01	24.16	23.97	0-1	1
	1	25	24.05	24.03	24.06		1
	1	49	23.99	24.07	23.83		1
	25	0	22.89	22.93	22.87	0-2	2
	25	12	22.89	22.94	22.86		2
	25	25	22.88	22.89	22.82		2
	50	0	22.84	22.96	22.84		2
64QAM	1	0	23.10	22.95	23.05	0-2	2
	1	25	22.98	23.04	22.97		2
	1	49	23.09	22.94	22.96		2
	25	0	21.91	21.97	21.89	0-3	3
	25	12	21.90	21.96	21.87		3
	25	25	21.86	21.91	21.88		3
	50	0	21.86	21.93	21.87		3

Table 9-13
LTE Band 26 (Cell) Conducted Powers - 5 MHz Bandwidth

LTE Band 26 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26715 (816.5 MHz)	26865 (831.5 MHz)	27015 (846.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.63	24.68	24.54	0	0
	1	12	24.76	24.74	24.58		0
	1	24	24.73	24.75	24.54		0
	12	0	23.75	23.82	23.68	0-1	1
	12	6	23.81	23.83	23.76		1
	12	13	23.78	23.85	23.67		1
	25	0	23.77	23.78	23.62		1
16QAM	1	0	23.92	23.96	23.75	0-1	1
	1	12	24.01	24.01	23.90		1
	1	24	23.99	24.00	23.82		1
	12	0	22.79	22.85	22.71	0-2	2
	12	6	22.89	22.86	22.78		2
	12	13	22.83	22.89	22.71		2
	25	0	22.80	22.80	22.64		2
64QAM	1	0	22.93	22.89	22.80	0-2	2
	1	12	23.00	23.04	22.87		2
	1	24	23.00	23.01	22.88		2
	12	0	21.77	21.86	21.71	0-3	3
	12	6	21.86	21.90	21.75		3
	12	13	21.81	21.87	21.73		3
	25	0	21.78	21.84	21.66		3

Table 9-14
LTE Band 26 (Cell) Conducted Powers - 3 MHz Bandwidth

LTE Band 26 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26705 (815.5 MHz)	26865 (831.5 MHz)	27025 (847.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.56	24.67	24.45	0	0
	1	7	24.66	24.78	24.50		0
	1	14	24.62	24.68	24.42		0
	8	0	23.67	23.86	23.57	0-1	1
	8	4	23.77	23.87	23.62		1
	8	7	23.76	23.84	23.56		1
	15	0	23.79	23.78	23.54		1
16QAM	1	0	23.81	23.87	23.71	0-1	1
	1	7	23.95	24.05	23.94		1
	1	14	23.96	24.00	23.69		1
	8	0	22.74	22.91	22.69	0-2	2
	8	4	22.80	22.87	22.67		2
	8	7	22.72	22.91	22.62		2
	15	0	22.71	22.84	22.57		2
64QAM	1	0	22.81	22.88	22.76	0-2	2
	1	7	22.88	22.98	22.67		2
	1	14	22.85	23.02	22.76		2
	8	0	21.74	21.91	21.60	0-3	3
	8	4	21.81	21.91	21.67		3
	8	7	21.76	21.90	21.64		3
	15	0	21.78	21.84	21.62		3

Table 9-15
LTE Band 26 (Cell) Conducted Powers -1.4 MHz Bandwidth

LTE Band 26 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26697 (814.7 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27033 (848.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.57	24.52	24.37	0	0
	1	2	24.63	24.69	24.52		0
	1	5	24.57	24.55	24.38		0
	3	0	24.56	24.52	24.42		0
	3	2	24.71	24.63	24.47		0
	3	3	24.58	24.61	24.46		0
	6	0	23.73	23.67	23.52	0-1	1
16QAM	1	0	23.83	23.83	23.75	0-1	1
	1	2	23.90	23.92	23.73		1
	1	5	23.84	23.79	23.67		1
	3	0	23.72	23.71	23.60		1
	3	2	23.79	23.82	23.67		1
	3	3	23.75	23.74	23.50		1
	6	0	22.70	22.70	22.61	0-2	2
64QAM	1	0	22.73	22.77	22.60	0-2	2
	1	2	22.96	22.89	22.81		2
	1	5	22.67	22.86	22.60		2
	3	0	22.74	22.80	22.63		2
	3	2	22.83	22.86	22.70		2
	3	3	22.81	22.80	22.58		2
	6	0	21.72	21.68	21.54	0-3	3

9.3.4 LTE Band 66 (AWS)

Table 9-16
LTE Band 66 (AWS) Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132072 (1720.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132572 (1770.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	**22.94**	22.90	22.72	0	0
	1	50	22.88	22.90	22.52		0
	1	99	22.93	22.93	22.51		0
	50	0	**22.10**	22.08	21.78	0-1	1
	50	25	22.09	22.03	21.78		1
	50	50	22.04	21.94	21.70		1
	100	0	22.09	22.01	21.72		1
16QAM	1	0	22.15	22.19	22.01	0-1	1
	1	50	22.15	22.09	21.79		1
	1	99	22.17	22.07	21.82		1
	50	0	21.09	21.08	20.83	0-2	2
	50	25	21.08	21.03	20.79		2
	50	50	21.07	21.02	20.69		2
	100	0	21.06	21.04	20.75		2
64QAM	1	0	21.16	21.19	20.97	0-2	2
	1	50	21.15	21.09	20.85		2
	1	99	21.00	21.11	20.75		2
	50	0	20.07	20.07	19.81	0-3	3
	50	25	20.09	20.07	19.74		3
	50	50	20.11	20.00	19.74		3
	100	0	20.03	19.99	19.78		3

Table 9-17
LTE Band 66 (AWS) Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132047 (1717.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132597 (1772.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.14	23.13	23.02	0	0
	1	36	23.13	23.09	22.94		0
	1	74	23.16	23.10	22.76		0
	36	0	22.20	22.25	22.03	0-1	1
	36	18	22.23	22.20	22.00		1
	36	37	22.17	22.17	21.95		1
	75	0	22.24	22.31	22.04		1
16QAM	1	0	22.50	22.40	22.40	0-1	1
	1	36	22.39	22.38	22.30		1
	1	74	22.38	22.40	22.20		1
	36	0	21.33	21.33	21.10	0-2	2
	36	18	21.31	21.27	21.08		2
	36	37	21.25	21.25	21.02		2
	75	0	21.31	21.33	21.07		2
64QAM	1	0	21.52	21.47	21.29	0-2	2
	1	36	21.49	21.41	21.31		2
	1	74	21.47	21.44	21.04		2
	36	0	20.32	20.37	20.15	0-3	3
	36	18	20.35	20.32	20.13		3
	36	37	20.28	20.28	20.05		3
	75	0	20.28	20.31	20.12		3

Table 9-18
LTE Band 66 (AWS) Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132022 (1715.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132622 (1775.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.04	23.08	22.74	0	0
	1	25	23.03	23.06	22.79		0
	1	49	23.01	23.04	22.74		0
	25	0	22.14	22.16	21.90	0-1	1
	25	12	22.14	22.17	21.91		1
	25	25	22.09	22.12	21.85		1
	50	0	22.18	22.18	21.92		1
16QAM	1	0	22.31	22.26	22.05	0-1	1
	1	25	22.36	22.36	22.09		1
	1	49	22.38	22.29	22.12		1
	25	0	21.19	21.20	20.95	0-2	2
	25	12	21.19	21.19	20.94		2
	25	25	21.17	21.19	20.89		2
	50	0	21.21	21.19	20.92		2
64QAM	1	0	21.26	21.17	21.02	0-2	2
	1	25	21.29	21.32	21.07		2
	1	49	21.25	21.33	20.97		2
	25	0	20.15	20.17	19.94	0-3	3
	25	12	20.16	20.17	19.90		3
	25	25	20.09	20.14	19.87		3
	50	0	20.23	20.24	19.96		3

Table 9-19
LTE Band 66 (AWS) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131997 (1712.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132647 (1777.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.02	23.03	22.77	0	0
	1	12	23.08	23.07	22.82		0
	1	24	23.14	23.10	22.78		0
	12	0	22.16	22.11	21.90	0-1	1
	12	6	22.22	22.25	21.94		1
	12	13	22.23	22.17	21.91		1
	25	0	22.22	22.19	21.90		1
16QAM	1	0	22.35	22.33	22.05	0-1	1
	1	12	22.40	22.39	22.17		1
	1	24	22.40	22.44	22.02		1
	12	0	21.28	21.21	20.99	0-2	2
	12	6	21.24	21.19	20.95		2
	12	13	21.25	21.23	20.99		2
	25	0	21.21	21.18	20.98		2
64QAM	1	0	21.34	21.37	21.16	0-2	2
	1	12	21.41	21.39	21.10		2
	1	24	21.44	21.42	21.10		2
	12	0	20.34	20.22	19.99	0-3	3
	12	6	20.29	20.22	19.99		3
	12	13	20.29	20.21	19.99		3
	25	0	20.27	20.21	19.98		3

Table 9-20
LTE Band 66 (AWS) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131987 (1711.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132657 (1778.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.07	23.06	22.80	0	0
	1	7	23.10	23.09	22.79		0
	1	14	23.15	23.08	22.77		0
	8	0	22.22	22.15	21.90	0-1	1
	8	4	22.25	22.29	21.96		1
	8	7	22.22	22.18	21.92		1
	15	0	22.28	22.20	21.95		1
16QAM	1	0	22.34	22.29	22.12	0-1	1
	1	7	22.46	22.41	22.11		1
	1	14	22.49	22.39	22.08		1
	8	0	21.36	21.28	20.99	0-2	2
	8	4	21.36	21.36	21.03		2
	8	7	21.32	21.21	20.99		2
	15	0	21.26	21.16	20.91		2
64QAM	1	0	21.35	21.37	21.07	0-2	2
	1	7	21.49	21.41	21.08		2
	1	14	21.43	21.40	21.07		2
	8	0	20.35	20.25	20.00	0-3	3
	8	4	20.29	20.36	20.03		3
	8	7	20.35	20.22	19.98		3
	15	0	20.29	20.20	19.97		3

Table 9-21
LTE Band 66 (AWS) Maximum Conducted Powers -1.4 MHz Bandwidth

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131979 (1710.7 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132665 (1779.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.94	23.00	22.64	0	0
	1	2	23.02	23.08	22.74		0
	1	5	22.97	22.99	22.66		0
	3	0	23.01	23.04	22.68		0
	3	2	23.06	23.08	22.74		0
	3	3	23.02	23.05	22.72		0
	6	0	22.15	22.14	21.81	0-1	1
16QAM	1	0	22.33	22.35	21.95	0-1	1
	1	2	22.43	22.38	22.04		1
	1	5	22.36	22.30	21.92		1
	3	0	22.22	22.20	21.88		1
	3	2	22.31	22.27	21.99		1
	3	3	22.26	22.24	21.92		1
	6	0	21.26	21.25	20.91	0-2	2
64QAM	1	0	21.30	21.29	20.97	0-2	2
	1	2	21.41	21.36	21.04		2
	1	5	21.37	21.35	20.99		2
	3	0	21.27	21.26	20.94		2
	3	2	21.34	21.30	21.01		2
	3	3	21.31	21.28	20.91		2
	6	0	20.14	20.14	19.81	0-3	3

Table 9-22
LTE Band 66 (AWS) Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	19.26	19.27	19.12	0	0
	1	50	19.22	**19.40**	18.95		0
	1	99	19.33	19.39	18.92		0
	50	0	19.43	**19.46**	19.20	0-1	0
	50	25	19.45	19.45	19.20		0
	50	50	19.41	19.39	19.13		0
	100	0	19.39	19.37	19.19		0
16QAM	1	0	19.54	19.53	19.39	0-1	0
	1	50	19.51	19.53	19.20		0
	1	99	19.61	19.50	19.20		0
	50	0	19.47	19.47	19.24	0-2	0
	50	25	19.46	19.47	19.22		0
	50	50	19.39	19.41	19.16		0
	100	0	19.44	19.43	19.20		0
64QAM	1	0	19.50	19.60	19.41	0-2	0
	1	50	19.52	19.45	19.18		0
	1	99	19.61	19.57	19.18		0
	50	0	19.46	19.50	19.23	0-3	0
	50	25	19.46	19.49	19.23		0
	50	50	19.55	19.43	19.17		0
	100	0	19.44	19.43	19.22		0

Table 9-23
LTE Band 66 (AWS) Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132047 (1717.5 MHz)	132322 (1745.0 MHz)	132597 (1772.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	19.30	19.26	19.10	0	0
	1	36	19.23	19.21	19.01		0
	1	74	19.29	19.23	18.90		0
	36	0	19.40	19.42	19.14	0-1	0
	36	18	19.43	19.40	19.12		0
	36	37	19.38	19.37	19.08		0
	75	0	19.42	19.43	19.12		0
16QAM	1	0	19.59	19.65	19.36	0-1	0
	1	36	19.54	19.55	19.30		0
	1	74	19.60	19.60	19.20		0
	36	0	19.44	19.46	19.21	0-2	0
	36	18	19.42	19.45	19.16		0
	36	37	19.41	19.38	19.12		0
	75	0	19.43	19.41	19.17		0
64QAM	1	0	19.60	19.55	19.37	0-2	0
	1	36	19.56	19.50	19.32		0
	1	74	19.62	19.52	19.15		0
	36	0	19.45	19.51	19.21	0-3	0
	36	18	19.48	19.50	19.19		0
	36	37	19.44	19.44	19.15		0
	75	0	19.41	19.46	19.15		0

Table 9-24
LTE Band 66 (AWS) Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132022 (1715.0 MHz)	132322 (1745.0 MHz)	132622 (1775.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	19.10	19.15	18.85	0	0
	1	25	19.12	19.19	18.85		0
	1	49	19.13	19.21	18.89		0
	25	0	19.29	19.30	18.99	0-1	0
	25	12	19.28	19.29	18.99		0
	25	25	19.25	19.26	18.91		0
	50	0	19.26	19.29	18.95		0
16QAM	1	0	19.45	19.45	19.11	0-1	0
	1	25	19.40	19.41	19.11		0
	1	49	19.50	19.48	19.11		0
	25	0	19.31	19.33	19.03	0-2	0
	25	12	19.32	19.32	19.00		0
	25	25	19.29	19.25	18.97		0
	50	0	19.30	19.31	19.00		0
64QAM	1	0	19.40	19.45	19.10	0-2	0
	1	25	19.40	19.39	19.14		0
	1	49	19.50	19.43	19.10		0
	25	0	19.30	19.31	19.04	0-3	0
	25	12	19.37	19.34	19.04		0
	25	25	19.27	19.30	18.97		0
	50	0	19.32	19.34	19.02		0

Table 9-25
LTE Band 66 (AWS) Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131997 (1712.5 MHz)	132322 (1745.0 MHz)	132647 (1777.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	18.95	18.98	18.75	0	0
	1	12	19.04	19.06	18.78		0
	1	24	19.10	19.05	18.75		0
	12	0	19.16	19.15	18.93	0-1	0
	12	6	19.20	19.26	18.94		0
	12	13	19.20	19.20	18.92		0
	25	0	19.20	19.14	18.89		0
16QAM	1	0	19.25	19.27	19.05	0-1	0
	1	12	19.33	19.42	19.13		0
	1	24	19.41	19.37	19.03		0
	12	0	19.19	19.23	18.98	0-2	0
	12	6	19.23	19.30	18.99		0
	12	13	19.24	19.22	18.98		0
	25	0	19.22	19.21	18.94		0
64QAM	1	0	19.25	19.31	19.07	0-2	0
	1	12	19.31	19.40	19.05		0
	1	24	19.37	19.35	18.97		0
	12	0	19.21	19.23	18.99	0-3	0
	12	6	19.28	19.35	19.00		0
	12	13	19.27	19.25	18.99		0
	25	0	19.22	19.20	18.96		0

Table 9-26
LTE Band 66 (AWS) Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131987 (1711.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132657 (1778.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	18.96	18.48	18.19	0	0
	1	7	19.03	18.50	18.19		0
	1	14	19.04	18.50	18.12		0
	8	0	18.61	18.55	18.30	0-1	0
	8	4	18.62	18.69	18.34		0
	8	7	18.63	18.60	18.30		0
	15	0	18.63	18.58	18.30		0
16QAM	1	0	18.70	18.70	18.55	0-1	0
	1	7	18.80	18.70	18.51		0
	1	14	18.89	18.74	18.46		0
	8	0	18.74	18.62	18.41	0-2	0
	8	4	18.74	18.75	18.45		0
	8	7	18.74	18.64	18.43		0
	15	0	18.67	18.60	18.34		0
64QAM	1	0	18.48	18.68	18.38	0-2	0
	1	7	18.62	18.69	18.37		0
	1	14	18.73	18.69	18.33		0
	8	0	18.64	18.60	18.31	0-3	0
	8	4	18.67	18.69	18.38		0
	8	7	18.66	18.62	18.34		0
	15	0	18.61	18.57	18.30		0

Table 9-27
LTE Band 66 (AWS) Reduced Conducted Powers -1.4 MHz Bandwidth

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131979 (1710.7 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132665 (1779.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	18.33	18.44	18.43	0	0
	1	2	18.40	18.53	18.53		0
	1	5	18.35	18.48	18.47		0
	3	0	18.32	18.45	18.44		0
	3	2	18.36	18.51	18.51		0
	3	3	18.34	18.48	18.48		0
	6	0	18.47	18.57	18.55	0-1	0
16QAM	1	0	18.66	18.72	18.70	0-1	0
	1	2	18.70	18.80	18.81		0
	1	5	18.66	18.77	18.77		0
	3	0	18.53	18.57	18.58		0
	3	2	18.61	18.64	18.65		0
	3	3	18.54	18.61	18.59		0
	6	0	18.59	18.62	18.63	0-2	0
64QAM	1	0	18.70	18.73	18.73	0-2	0
	1	2	18.74	18.77	18.80		0
	1	5	18.65	18.70	18.71		0
	3	0	18.63	18.58	18.59		0
	3	2	18.61	18.67	18.68		0
	3	3	18.60	18.64	18.64		0
	6	0	18.56	18.60	18.57	0-3	0

9.3.5 LTE Band 25 (PCS)

Table 9-28
LTE Band 25 (PCS) Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.55	22.78	22.63	0	0
	1	50	22.49	**22.83**	22.51		0
	1	99	22.67	22.77	22.65		0
	50	0	21.66	21.90	21.66	0-1	1
	50	25	21.67	**21.98**	21.76		1
	50	50	21.75	21.95	21.73		1
	100	0	21.65	21.94	21.69		1
16QAM	1	0	21.77	22.05	21.78	0-1	1
	1	50	21.73	22.07	21.79		1
	1	99	22.03	22.06	21.76		1
	50	0	20.63	20.87	20.60	0-2	2
	50	25	20.64	20.98	20.71		2
	50	50	20.67	20.97	20.68		2
	100	0	20.66	21.04	20.68		2
64QAM	1	0	20.90	20.85	20.78	0-2	2
	1	50	20.94	20.99	20.66		2
	1	99	20.82	21.03	20.80		2
	50	0	19.64	19.89	19.71	0-3	3
	50	25	19.58	19.99	19.67		3
	50	50	19.77	19.83	19.62		3
	100	0	19.67	19.95	19.70		3

Table 9-29
LTE Band 25 (PCS) Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26115 (1857.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26615 (1907.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.68	22.86	22.72	0	0
	1	36	22.65	22.90	22.69		0
	1	74	22.82	22.96	22.74		0
	36	0	21.82	22.04	21.87	0-1	1
	36	18	21.87	22.05	21.91		1
	36	37	21.90	22.09	21.90		1
	75	0	21.90	22.06	21.92		1
16QAM	1	0	22.03	22.20	22.25	0-1	1
	1	36	22.04	22.23	22.10		1
	1	74	22.16	22.25	21.98		1
	36	0	20.85	21.06	20.89	0-2	2
	36	18	20.91	21.14	20.91		2
	36	37	20.93	21.14	20.94		2
	75	0	20.94	21.09	20.95		2
64QAM	1	0	21.03	21.28	21.07	0-2	2
	1	36	21.09	21.27	21.02		2
	1	74	21.07	21.25	21.06		2
	36	0	19.91	20.07	19.92	0-3	3
	36	18	19.95	20.16	19.95		3
	36	37	19.99	20.20	19.99		3
	75	0	19.91	20.11	19.95		3

Table 9-30
LTE Band 25 (PCS) Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26090 (1855.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26640 (1910.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.69	22.88	22.82	0	0
	1	25	22.76	22.91	22.63		0
	1	49	22.71	22.93	22.62		0
	25	0	21.83	22.01	21.82	0-1	1
	25	12	21.86	22.03	21.83		1
	25	25	21.78	22.00	21.81		1
	50	0	21.87	22.03	21.82		1
16QAM	1	0	21.90	22.14	22.05	0-1	1
	1	25	22.05	22.28	21.92		1
	1	49	22.01	22.26	21.91		1
	25	0	20.88	21.04	20.83	0-2	2
	25	12	20.85	21.09	20.85		2
	25	25	20.85	21.02	20.79		2
	50	0	20.87	21.02	20.85		2
64QAM	1	0	21.01	21.12	21.07	0-2	2
	1	25	21.05	21.19	20.88		2
	1	49	20.99	21.19	20.86		2
	25	0	19.89	20.03	19.84	0-3	3
	25	12	19.94	20.11	19.89		3
	25	25	19.86	20.07	19.83		3
	50	0	19.86	20.05	19.84		3

Table 9-31
LTE Band 25 (PCS) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26065 (1852.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26665 (1912.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.72	22.82	22.69	0	0
	1	12	22.79	22.95	22.68		0
	1	24	22.77	22.94	22.73		0
	12	0	21.81	21.94	21.80	0-1	1
	12	6	21.89	22.01	21.84		1
	12	13	21.90	22.09	21.84		1
	25	0	21.92	22.02	21.82		1
16QAM	1	0	21.99	22.18	21.91	0-1	1
	1	12	22.15	22.21	21.94		1
	1	24	22.06	22.22	21.91		1
	12	0	20.90	21.02	20.83	0-2	2
	12	6	20.95	21.12	20.91		2
	12	13	20.91	21.13	20.88		2
	25	0	20.89	21.00	20.86		2
64QAM	1	0	20.98	21.17	20.92	0-2	2
	1	12	21.17	21.29	20.91		2
	1	24	21.13	21.23	20.91		2
	12	0	19.87	19.96	19.82	0-3	3
	12	6	19.86	19.97	19.81		3
	12	13	19.89	19.99	19.81		3
	25	0	19.90	20.04	19.83		3

Table 9-32
LTE Band 25 (PCS) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26055 (1851.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26675 (1913.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.73	22.81	22.65	0	0
	1	7	22.75	22.95	22.69		0
	1	14	22.82	22.93	22.72		0
	8	0	21.79	21.97	21.73	0-1	1
	8	4	21.85	21.99	21.83		1
	8	7	21.85	22.06	21.81		1
	15	0	21.92	22.01	21.84		1
16QAM	1	0	22.04	22.08	21.90	0-1	1
	1	7	21.99	22.19	21.95		1
	1	14	22.08	22.21	21.96		1
	8	0	20.91	21.03	20.84	0-2	2
	8	4	20.99	21.05	20.91		2
	8	7	20.91	21.11	20.85		2
	15	0	20.88	20.99	20.84		2
64QAM	1	0	20.91	21.07	20.85	0-2	2
	1	7	20.96	21.19	20.87		2
	1	14	21.02	21.23	20.89		2
	8	0	19.86	19.95	19.83	0-3	3
	8	4	19.87	19.98	19.82		3
	8	7	19.84	20.00	19.80		3
	15	0	19.88	20.02	19.84		3

Table 9-33
LTE Band 25 (PCS) Maximum Conducted Powers -1.4 MHz Bandwidth

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26047 (1850.7 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26683 (1914.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.59	22.75	22.54	0	0
	1	2	22.70	22.87	22.60		0
	1	5	22.62	22.87	22.55		0
	3	0	22.65	22.81	22.58		0
	3	2	22.69	22.92	22.63		0
	3	3	22.62	22.91	22.62		0
	6	0	21.78	21.96	21.70	0-1	1
16QAM	1	0	21.85	22.08	21.86	0-1	1
	1	2	22.05	22.29	21.92		1
	1	5	21.86	22.23	21.88		1
	3	0	21.80	22.04	21.71		1
	3	2	21.95	22.17	21.81		1
	3	3	21.86	22.14	21.73		1
	6	0	20.88	21.07	20.80	0-2	2
64QAM	1	0	20.82	21.08	20.78	0-2	2
	1	2	20.89	21.26	20.90		2
	1	5	20.85	21.16	20.81		2
	3	0	20.86	21.07	20.82		2
	3	2	20.85	21.07	20.85		2
	3	3	20.84	21.06	20.85		2
	6	0	19.78	19.98	19.68	0-3	3

Table 9-34
LTE Band 25 (PCS) Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	19.65	19.70	19.56	0	0
	1	50	19.53	**19.87**	19.46		0
	1	99	19.63	19.73	19.36		0
	50	0	19.62	19.87	19.61	0-1	0
	50	25	19.69	**19.92**	19.65		0
	50	50	19.69	19.80	19.67		0
	100	0	19.71	19.86	19.65		0
16QAM	1	0	19.78	19.92	19.77	0-1	0
	1	50	19.78	20.00	19.71		0
	1	99	19.84	19.99	19.74		0
	50	0	19.59	19.83	19.59	0-2	0
	50	25	19.60	19.86	19.70		0
	50	50	19.57	19.94	19.69		0
	100	0	19.66	19.95	19.66		0
64QAM	1	0	19.76	19.95	19.78	0-2	0
	1	50	19.73	19.98	19.69		0
	1	99	19.86	20.00	19.67		0
	50	0	19.56	19.93	19.66	0-3	0
	50	25	19.61	19.99	19.72		0
	50	50	19.45	19.91	19.69		0
	100	0	19.78	19.94	19.73		0

Table 9-35
LTE Band 25 (PCS) Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26115 (1857.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26615 (1907.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	19.25	19.57	19.36	0	0
	1	36	19.29	19.57	19.25		0
	1	74	19.30	19.54	19.31		0
	36	0	19.40	19.67	19.41	0-1	0
	36	18	19.44	19.72	19.48		0
	36	37	19.46	19.73	19.48		0
	75	0	19.45	19.71	19.41		0
16QAM	1	0	19.60	19.87	19.60	0-1	0
	1	36	19.70	19.91	19.57		0
	1	74	19.65	19.87	19.67		0
	36	0	19.42	19.69	19.42	0-2	0
	36	18	19.50	19.74	19.47		0
	36	37	19.42	19.74	19.47		0
	75	0	19.47	19.70	19.43		0
64QAM	1	0	19.58	19.82	19.58	0-2	0
	1	36	19.64	19.87	19.47		0
	1	74	19.60	19.84	19.54		0
	36	0	19.48	19.72	19.52	0-3	0
	36	18	19.54	19.78	19.51		0
	36	37	19.52	19.79	19.52		0
	75	0	19.50	19.75	19.46		0

Table 9-36
LTE Band 25 (PCS) Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26090 (1855.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26640 (1910.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	19.30	19.50	19.15	0	0
	1	25	19.26	19.47	19.20		0
	1	49	19.25	19.43	19.20		0
	25	0	19.40	19.57	19.29	0-1	0
	25	12	19.37	19.59	19.31		0
	25	25	19.40	19.56	19.31		0
	50	0	19.37	19.60	19.32		0
16QAM	1	0	19.60	19.81	19.42	0-1	0
	1	25	19.60	19.75	19.40		0
	1	49	19.50	19.75	19.47		0
	25	0	19.40	19.58	19.30	0-2	0
	25	12	19.43	19.60	19.31		0
	25	25	19.40	19.60	19.34		0
	50	0	19.39	19.59	19.34		0
64QAM	1	0	19.57	19.81	19.46	0-2	0
	1	25	19.55	19.71	19.41		0
	1	49	19.44	19.70	19.45		0
	25	0	19.40	19.59	19.23	0-3	0
	25	12	19.42	19.61	19.34		0
	25	25	19.41	19.62	19.32		0
	50	0	19.42	19.63	19.35		0

Table 9-37
LTE Band 25 (PCS) Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26065 (1852.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26665 (1912.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	19.24	19.38	19.13	0	0
	1	12	19.31	19.50	19.20		0
	1	24	19.30	19.50	19.14		0
	12	0	19.34	19.55	19.25	0-1	0
	12	6	19.43	19.55	19.33		0
	12	13	19.40	19.53	19.34		0
	25	0	19.41	19.53	19.30		0
16QAM	1	0	19.48	19.66	19.44	0-1	0
	1	12	19.58	19.75	19.44		0
	1	24	19.66	19.75	19.42		0
	12	0	19.44	19.57	19.33	0-2	0
	12	6	19.50	19.63	19.40		0
	12	13	19.50	19.54	19.39		0
	25	0	19.40	19.53	19.32		0
64QAM	1	0	19.50	19.67	19.35	0-2	0
	1	12	19.55	19.80	19.40		0
	1	24	19.62	19.74	19.35		0
	12	0	19.40	19.58	19.31	0-3	0
	12	6	19.48	19.62	19.33		0
	12	13	19.45	19.63	19.34		0
	25	0	19.42	19.55	19.28		0

Table 9-38
LTE Band 25 (PCS) Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26055 (1851.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26675 (1913.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	19.18	19.33	19.07	0	0
	1	7	19.22	19.48	19.16		0
	1	14	19.28	19.40	19.15		0
	8	0	19.34	19.49	19.25	0-1	0
	8	4	19.42	19.56	19.33		0
	8	7	19.38	19.50	19.30		0
	15	0	19.36	19.52	19.28		0
16QAM	1	0	19.44	19.60	19.35	0-1	0
	1	7	19.59	19.71	19.43		0
	1	14	19.55	19.71	19.33		0
	8	0	19.45	19.59	19.30	0-2	0
	8	4	19.52	19.68	19.43		0
	8	7	19.48	19.65	19.37		0
	15	0	19.39	19.54	19.32		0
64QAM	1	0	19.44	19.62	19.29	0-2	0
	1	7	19.51	19.73	19.40		0
	1	14	19.55	19.70	19.37		0
	8	0	19.41	19.56	19.20	0-3	0
	8	4	19.49	19.64	19.37		0
	8	7	19.46	19.61	19.32		0
	15	0	19.41	19.58	19.32		0

Table 9-39
LTE Band 25 (PCS) Reduced Conducted Powers -1.4 MHz Bandwidth

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26047 (1850.7 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26683 (1914.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	19.19	19.31	19.06	0	0
	1	2	19.28	19.47	19.17		0
	1	5	19.22	19.43	19.12		0
	3	0	19.26	19.38	19.09		0
	3	2	19.28	19.44	19.16		0
	3	3	19.22	19.40	19.14		0
	6	0	19.32	19.45	19.20	0-1	0
16QAM	1	0	19.44	19.60	19.40	0-1	0
	1	2	19.56	19.75	19.45		0
	1	5	19.50	19.70	19.41		0
	3	0	19.38	19.50	19.24		0
	3	2	19.39	19.59	19.28		0
	3	3	19.38	19.60	19.26		0
	6	0	19.37	19.52	19.24	0-2	0
64QAM	1	0	19.42	19.63	19.34	0-2	0
	1	2	19.52	19.73	19.39		0
	1	5	19.48	19.68	19.33		0
	3	0	19.41	19.53	19.24		0
	3	2	19.42	19.62	19.32		0
	3	3	19.42	19.66	19.30		0
	6	0	19.35	19.48	19.21	0-3	0

9.3.6 LTE Band 41

Table 9-40
LTE Band 41 Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	23.30	23.20	**23.38**	23.11	22.91	0	0
	1	50	23.19	23.14	23.26	22.95	22.95		0
	1	99	23.21	23.12	23.10	22.72	23.02		0
	50	0	22.41	22.31	**22.51**	22.21	22.10	0-1	1
	50	25	22.45	22.30	22.50	22.13	22.13		1
	50	50	22.41	22.23	22.42	22.02	22.12		1
	100	0	22.42	22.27	22.49	22.11	22.14		1
16QAM	1	0	22.31	22.32	22.43	22.17	22.08	0-1	1
	1	50	22.25	22.18	22.32	21.96	22.02		1
	1	99	22.21	22.24	22.10	21.78	22.08		1
	50	0	21.43	21.35	21.54	21.17	21.10	0-2	2
	50	25	21.43	21.32	21.47	21.09	21.13		2
	50	50	21.41	21.25	21.39	21.00	21.13		2
	100	0	21.44	21.30	21.47	21.06	21.12		2
64QAM	1	0	21.04	21.03	21.14	20.83	20.71	0-2	2
	1	50	20.97	20.92	21.00	20.66	20.70		2
	1	99	20.94	20.94	20.83	20.44	20.75		2
	50	0	20.45	20.35	20.53	20.21	20.09	0-3	3
	50	25	20.46	20.34	20.48	20.11	20.12		3
	50	50	20.44	20.27	20.40	20.02	20.14		3
	100	0	20.41	20.27	20.41	20.06	20.08		3

Table 9-41
LTE Band 41 Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	23.55	23.22	23.44	23.00	23.09	0	0
	1	36	23.54	23.33	23.37	22.81	23.10		0
	1	74	23.49	23.16	23.24	22.77	23.17		0
	36	0	22.63	22.33	22.59	22.12	22.19	0-1	1
	36	18	22.63	22.38	22.59	22.08	22.21		1
	36	37	22.62	22.30	22.53	22.01	22.19		1
	75	0	22.63	22.33	22.68	22.11	22.20		1
16QAM	1	0	22.61	22.41	22.61	22.19	22.12	0-1	1
	1	36	22.40	22.32	22.50	22.06	22.20		1
	1	74	22.52	22.38	22.43	21.99	22.26		1
	36	0	21.57	21.33	21.57	21.06	21.18	0-2	2
	36	18	21.62	21.41	21.61	21.06	21.20		2
	36	37	21.59	21.34	21.50	20.92	21.25		2
	75	0	21.59	21.37	21.55	21.09	21.26		2
64QAM	1	0	21.22	21.04	21.22	20.76	20.82	0-2	2
	1	36	21.12	21.17	21.13	20.85	20.82		2
	1	74	21.12	20.99	21.07	20.57	20.96		2
	36	0	20.57	20.20	20.55	20.08	20.18	0-3	3
	36	18	20.57	20.38	20.50	20.04	20.21		3
	36	37	20.54	20.33	20.52	19.97	20.21		3
	75	0	20.62	20.41	20.44	20.09	20.25		3

Table 9-42
LTE Band 41 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	23.41	23.10	23.21	22.81	22.92	0	0
	1	25	23.33	23.07	23.14	22.71	22.96		0
	1	49	23.24	23.04	23.09	22.72	22.90		0
	25	0	22.44	22.16	22.35	21.97	22.18	0-1	1
	25	12	22.49	22.26	22.35	21.90	22.12		1
	25	25	22.39	22.19	22.25	21.81	22.06		1
	50	0	22.49	22.26	22.34	21.97	22.15		1
16QAM	1	0	22.46	22.31	22.37	21.97	22.08	0-1	1
	1	25	22.36	22.24	22.26	21.91	22.13		1
	1	49	22.42	22.23	22.22	21.93	22.00		1
	25	0	21.41	21.07	21.23	20.89	21.05	0-2	2
	25	12	21.42	21.20	21.27	20.89	21.09		2
	25	25	21.36	21.13	21.19	20.79	21.03		2
	50	0	21.50	21.20	21.30	20.99	21.11		2
64QAM	1	0	21.22	20.91	20.98	20.58	20.76	0-2	2
	1	25	21.04	20.75	20.88	20.56	20.74		2
	1	49	21.02	20.87	20.82	20.58	20.63		2
	25	0	20.46	20.27	20.40	20.01	20.03	0-3	3
	25	12	20.45	20.28	20.35	19.99	20.18		3
	25	25	20.45	20.23	20.29	19.93	20.16		3
	50	0	20.52	20.24	20.34	19.98	20.19		3

Table 9-43
LTE Band 41 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	23.36	23.10	23.17	22.83	23.02	0	0
	1	12	23.43	23.13	23.19	22.87	23.07		0
	1	24	23.36	23.13	23.16	22.83	23.05		0
	12	0	22.48	22.19	22.22	21.88	22.11	0-1	1
	12	6	22.54	22.24	22.34	21.87	22.15		1
	12	13	22.52	22.21	22.26	21.97	22.13		1
	25	0	22.48	22.22	22.32	21.93	22.15		1
16QAM	1	0	22.51	22.16	22.27	21.93	22.14	0-1	1
	1	12	22.47	22.23	22.27	21.98	22.18		1
	1	24	22.49	22.24	22.23	21.97	22.18		1
	12	0	21.47	21.22	21.32	20.91	21.21	0-2	2
	12	6	21.50	21.25	21.38	20.93	21.17		2
	12	13	21.49	21.18	21.31	20.96	21.22		2
	25	0	21.42	21.16	21.32	20.89	21.01		2
64QAM	1	0	21.08	20.83	20.96	20.65	20.81	0-2	2
	1	12	21.16	20.91	20.99	20.61	20.80		2
	1	24	21.07	20.92	20.95	20.61	20.76		2
	12	0	20.44	20.28	20.26	19.88	20.13	0-3	3
	12	6	20.49	20.28	20.36	19.90	20.19		3
	12	13	20.49	20.24	20.36	20.04	20.22		3
	25	0	20.49	20.26	20.37	20.00	20.13		3

Table 9-44
LTE Band 41 Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	20.05	**20.43**	20.09	20.36	19.91	0	0
	1	50	20.02	20.08	20.15	20.22	19.83		0
	1	99	20.06	19.95	20.11	19.93	20.05		0
	50	0	20.22	**20.45**	20.40	20.42	20.06	0-1	0
	50	25	20.37	20.34	20.41	20.41	20.12		0
	50	50	20.28	20.30	20.39	20.28	20.12		0
	100	0	20.23	20.36	20.37	20.40	20.12		0
16QAM	1	0	20.08	20.46	20.25	20.50	20.03	0-1	0
	1	50	20.10	20.20	20.23	20.30	20.04		0
	1	99	20.15	20.16	20.20	20.21	20.09		0
	50	0	20.18	20.50	20.41	20.40	20.06	0-2	0
	50	25	20.28	20.42	20.38	20.41	20.07		0
	50	50	20.29	20.35	20.42	20.33	20.13		0
	100	0	20.31	20.38	20.41	20.38	20.10		0
64QAM	1	0	19.82	20.23	20.00	20.18	19.75	0-2	0
	1	50	19.78	19.88	19.92	20.08	19.76		0
	1	99	19.86	19.81	19.95	19.77	19.86		0
	50	0	20.24	20.51	20.40	20.50	20.07	0-3	0
	50	25	20.31	20.46	20.00	20.47	20.16		0
	50	50	20.35	20.31	20.46	20.42	20.21		0
	100	0	20.25	20.44	20.37	20.46	20.13		0

Table 9-45
LTE Band 41 Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	20.29	20.06	20.16	19.90	19.98	0	0
	1	36	20.21	20.02	20.17	19.70	20.00		0
	1	74	20.26	19.91	20.11	19.68	20.12		0
	36	0	20.40	20.14	20.34	20.16	20.13	0-1	0
	36	18	20.44	20.17	20.37	20.12	20.21		0
	36	37	20.43	20.12	20.35	20.03	20.23		0
	75	0	20.43	20.13	20.38	20.17	20.23		0
16QAM	1	0	20.30	20.20	20.27	20.15	20.14	0-1	0
	1	36	20.23	20.09	20.21	20.04	20.15		0
	1	74	20.29	20.05	20.16	19.93	20.23		0
	36	0	20.30	20.06	20.25	20.08	20.09	0-2	0
	36	18	20.34	20.08	20.31	20.06	20.16		0
	36	37	20.33	20.02	20.28	19.98	20.16		0
	75	0	20.39	20.15	20.36	20.11	20.23		0
64QAM	1	0	20.03	19.93	20.00	20.21	19.82	0-2	0
	1	36	20.00	19.89	19.97	20.10	19.85		0
	1	74	19.99	19.80	19.98	19.97	19.98		0
	36	0	20.37	20.13	20.34	20.06	20.10	0-3	0
	36	18	20.41	20.15	20.37	20.05	20.23		0
	36	37	20.40	20.11	20.32	19.98	20.25		0
	75	0	20.43	20.17	20.39	20.11	20.27		0

Table 9-46
LTE Band 41 Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	20.17	19.94	20.10	19.88	19.97	0	0
	1	25	20.15	20.00	20.11	19.87	19.98		0
	1	49	20.08	19.89	20.01	19.77	19.86		0
	25	0	20.34	20.09	20.29	20.11	20.15	0-1	0
	25	12	20.34	20.12	20.28	20.09	20.14		0
	25	25	20.30	20.07	20.21	20.05	20.09		0
	50	0	20.34	20.11	20.29	20.07	20.13		0
16QAM	1	0	20.16	20.01	20.21	20.07	20.13	0-1	0
	1	25	20.16	20.04	20.16	19.98	20.13		0
	1	49	20.12	20.01	20.15	19.98	19.99		0
	25	0	20.34	20.12	20.30	20.03	20.18	0-2	0
	25	12	20.33	20.15	20.30	20.09	20.17		0
	25	25	20.30	20.09	20.25	20.05	20.14		0
	50	0	20.34	20.15	20.27	20.08	20.17		0
64QAM	1	0	19.97	19.87	19.90	19.72	19.89	0-2	0
	1	25	19.92	19.74	19.93	19.73	19.82		0
	1	49	19.92	19.77	19.80	19.66	19.82		0
	25	0	20.32	20.07	20.27	20.06	20.06	0-3	0
	25	12	20.30	20.12	20.26	20.03	20.15		0
	25	25	20.28	20.07	20.22	20.01	20.11		0
	50	0	20.39	20.18	20.37	20.14	20.23		0

Table 9-47
LTE Band 41 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	20.26	20.30	20.20	19.94	20.02	0	0
	1	12	20.28	20.29	20.25	20.01	20.08		0
	1	24	20.29	20.29	20.19	19.89	20.03		0
	12	0	20.37	20.38	20.26	20.02	20.08	0-1	0
	12	6	20.42	20.34	20.33	20.05	20.12		0
	12	13	20.38	20.38	20.31	20.10	20.16		0
	25	0	20.38	20.39	20.34	20.11	20.13		0
16QAM	1	0	20.23	20.26	20.26	20.04	20.15	0-1	0
	1	12	20.31	20.31	20.26	20.06	20.12		0
	1	24	20.34	20.32	20.26	20.08	20.16		0
	12	0	20.32	20.27	20.17	19.95	19.99	0-2	0
	12	6	20.33	20.32	20.30	19.98	20.07		0
	12	13	20.29	20.30	20.25	20.01	20.08		0
	25	0	20.41	20.40	20.39	20.13	20.15		0
64QAM	1	0	20.04	20.05	19.97	19.76	19.88	0-2	0
	1	12	20.04	20.04	20.01	19.82	19.95		0
	1	24	20.05	20.06	20.00	19.78	19.93		0
	12	0	20.31	20.31	20.22	19.98	20.05	0-3	0
	12	6	20.32	20.31	20.30	20.04	20.10		0
	12	13	20.33	20.32	20.29	20.04	20.12		0
	25	0	20.35	20.37	20.34	20.09	20.14		0

9.4 WLAN Conducted Powers

Table 9-48
2.4 GHz WLAN Maximum Average RF Power – Ant 1

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax(SU)
		Average	Average	Average	Average
2412	1	**19.97**	17.91	17.70	13.18
2437	6	19.92	17.91	17.85	16.67
2452	9	N/A	17.47	17.96	16.63
2462	11	19.72	15.10	15.48	14.48

Table 9-49
2.4 GHz WLAN Maximum Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax(SU)
		Average	Average	Average	Average
2412	1	**19.98**	17.97	17.95	16.54
2437	6	19.95	17.66	17.89	16.60
2452	9	N/A	17.38	17.85	16.98
2462	11	19.75	15.10	15.45	16.91

Table 9-50
2.4 GHz WLAN Maximum Average RF Power – MIMO

2.4GHz 802.11n Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
2412	1	17.70	17.95	20.84
2437	6	17.85	17.89	20.88
2452	9	**17.96**	**17.85**	20.92
2462	11	15.48	15.45	18.48

Table 9-51
5 GHz WLAN Maximum Average RF Power – Ant 1

5GHz (20MHz) Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11a	802.11n	802.11ac	802.11ax(SU)
		Average	Average	Average	Average
5180	36	17.98	17.94	17.96	15.68
5200	40	17.99	17.98	17.69	15.76
5220	44	17.58	17.99	17.64	15.72
5240	48	17.68	17.68	17.67	15.75
5260	52	17.75	17.76	17.71	15.61
5280	56	17.80	17.90	17.79	15.73
5300	60	17.87	17.89	17.91	15.70
5320	64	**17.91**	17.77	17.76	15.72
5500	100	**17.94**	17.94	17.98	15.64
5600	120	17.74	17.66	17.75	15.82
5620	124	17.68	17.72	17.81	15.79
5720	144	17.83	17.82	17.82	15.72
5745	149	17.94	17.89	17.96	15.97
5785	157	**17.97**	17.91	17.99	15.99
5825	165	17.95	17.93	17.56	15.79

Table 9-52
5 GHz WLAN Maximum Average RF Power – Ant 2

5GHz (20MHz) Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11a	802.11n	802.11ac	802.11ax(SU)
		Average	Average	Average	Average
5180	36	17.79	17.76	17.73	15.62
5200	40	17.85	17.88	17.94	15.67
5220	44	17.92	17.95	17.97	15.77
5240	48	17.98	17.98	17.99	15.96
5260	52	17.87	17.91	17.89	15.74
5280	56	**17.99**	17.99	17.98	15.83
5300	60	17.68	17.69	17.66	15.98
5320	64	17.65	17.62	17.97	15.94
5500	100	17.84	17.86	17.82	15.71
5600	120	17.68	17.74	17.73	15.89
5620	124	17.76	17.71	17.69	15.92
5720	144	**17.98**	17.96	17.98	15.84
5745	149	17.73	17.66	17.81	15.97
5785	157	**17.86**	17.84	17.78	15.64
5825	165	17.76	17.77	17.76	15.98

Table 9-53
5 GHz WLAN Maximum Average RF Power – MIMO

5GHz (20MHz) 802.11n Conducted Power [dBm]				
Freq [MHz]	**Channel**	**ANT1**	**ANT2**	**MIMO**
5180	36	17.94	17.76	20.86
5200	40	17.98	17.88	20.94
5220	44	17.99	17.95	20.98
5240	48	17.68	17.98	20.84
5260	52	17.76	17.91	20.85
5280	56	**17.90**	**17.99**	20.96
5300	60	17.89	17.69	20.80
5320	64	17.77	17.62	20.71
5500	100	**17.94**	**17.86**	20.91
5600	120	17.66	17.74	20.71
5620	124	17.72	17.71	20.73
5720	144	17.82	17.96	20.90
5745	149	17.89	17.66	20.79
5785	157	**17.91**	**17.84**	20.89
5825	165	17.93	17.77	20.86

Table 9-54
Maximum Output Powers During Conditions with 2.4 GHz and 5 GHz WLAN

2.4GHz 802.11n Conducted Power [dBm]			
Freq [MHz]	**Channel**	**ANT1**	**ANT2**
2412	1	16.43	16.55
2437	6	16.60	16.75
2457	10	**16.76**	**16.62**
2462	11	15.48	15.45
5GHz (40MHz) 802.11n Conducted Power [dBm]			
Freq [MHz]	**Channel**	**ANT1**	**ANT2**
5190	38	13.63	13.65
5230	46	13.68	13.74
5270	54	13.76	13.92
5310	62	**13.87**	**13.94**
5GHz (80MHz) 802.11ac Conducted Power [dBm]			
Freq [MHz]	**Channel**	**ANT1**	**ANT2**
5530	106	**12.86**	**12.80**
5610	122	12.78	12.86
5690	138	12.82	12.36
5775	155	**12.58**	**12.85**

Table 9-55
2.4 GHz WLAN Reduced Average RF Power – Ant 1

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax(SU)
		Average	Average	Average	Average
2412	1	16.79	16.22	16.43	13.18
2437	6	16.68	16.46	16.60	16.72
2462	11	**16.85**	15.10	15.48	14.48

Table 9-56
2.4 GHz WLAN Reduced Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax(SU)
		Average	Average	Average	Average
2412	1	16.68	16.61	16.55	16.81
2437	6	16.55	16.84	16.75	16.93
2462	11	**16.82**	15.10	15.45	16.75

Table 9-57
5 GHz WLAN Reduced Average RF Power – Ant 1

5GHz (40MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11n	802.11ac	802.11ax(SU)
		Average	Average	Average
5190	38	13.63	13.63	13.97
5230	46	13.68	13.65	13.60
5270	54	13.76	13.64	13.75
5310	62	**13.87**	13.84	13.71

5GHz (80MHz) Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode
		802.11ac
		Average
5530	106	**12.86**
5610	122	12.78
5690	138	12.82
5775	155	**12.58**

Table 9-58
5 GHz WLAN Reduced Average RF Power – Ant 2

5GHz (40MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11n	802.11ac	802.11ax(SU)
		Average	Average	Average
5190	38	13.65	13.60	13.95
5230	46	13.74	13.76	13.64
5270	54	13.92	13.55	13.76
5310	62	**13.94**	13.95	13.61

5GHz (80MHz) Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode
		802.11ac
		Average
5530	106	12.80
5610	122	**12.86**
5690	138	12.36
5775	155	**12.85**

Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02:

- Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.
- For transmission modes with the same maximum output power specification, powers were measured for the largest channel bandwidth, lowest order modulation and lowest data rate.
- For transmission modes with identical maximum specified output power, channel bandwidth, modulation and data rates, power measurements were required for all identical configurations.
- For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-band channel(s) when there were at least 3 channels supported. For configurations with multiple mid-band channels, due to an even number of channels, both channels were measured.
- The bolded data rate and channel above were tested for SAR.

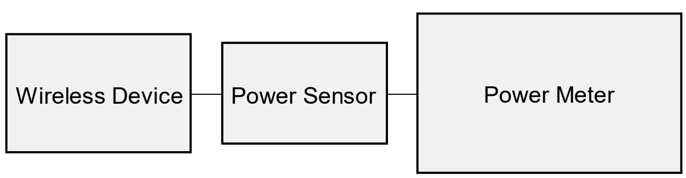


Figure 9-3
Power Measurement Setup

9.5 Bluetooth Conducted Powers

Table 9-59
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Mod.	Channel No.	Avg Conducted Power	
				[dBm]	[mW]
2402	1.0	GFSK	0	**16.18**	41.479
2441	1.0	GFSK	39	16.13	40.997
2480	1.0	GFSK	78	14.88	30.781
2402	2.0	π/4-DQPSK	0	9.42	8.742
2441	2.0	π/4-DQPSK	39	9.30	8.509
2480	2.0	π/4-DQPSK	78	8.43	6.964
2402	3.0	8DPSK	0	9.49	8.883
2441	3.0	8DPSK	39	9.39	8.688
2480	3.0	8DPSK	78	8.53	7.136

Note: The bolded data rates and channel above were tested for SAR.

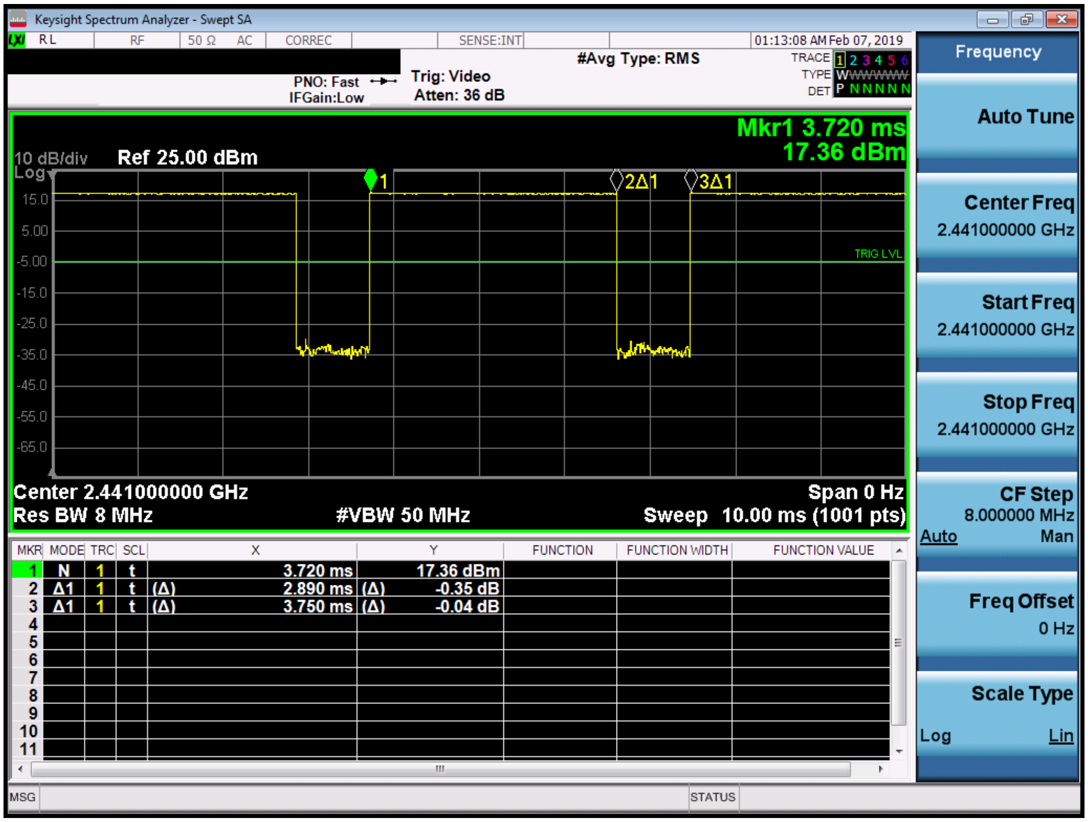


Figure 9-4
Bluetooth Transmission Plot

Equation 9-1
Bluetooth Duty Cycle Calculation

$$\boldsymbol{Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.89ms}{3.75ms} * 100\% = 77.10\%}$$

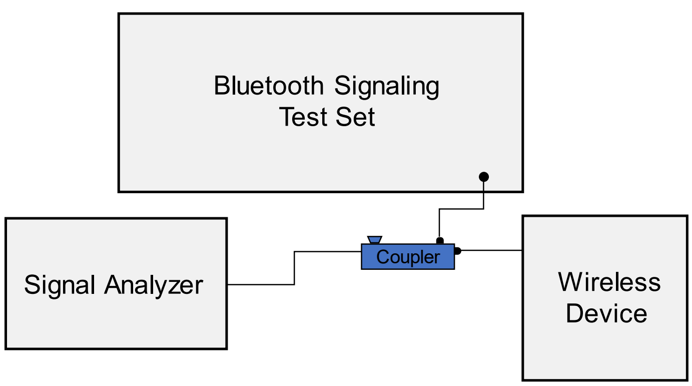


Figure 9-5
Power Measurement Setup

10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
Measured Tissue Properties - Head

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (˚C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
3/28/2019	750H	22.1	700	0.851	41.094	0.889	42.201	-4.27%	-2.62%
			710	0.854	41.066	0.890	42.149	-4.04%	-2.57%
			740	0.863	40.977	0.893	41.994	-3.36%	-2.42%
			755	0.868	40.931	0.894	41.916	-2.91%	-2.35%
			770	0.874	40.893	0.895	41.838	-2.35%	-2.26%
			785	0.879	40.860	0.896	41.760	-1.90%	-2.16%
3/27/2019	835H	21.5	820	0.906	43.229	0.899	41.578	0.78%	3.97%
			835	0.922	43.058	0.900	41.500	2.44%	3.75%
			850	0.937	42.886	0.916	41.500	2.29%	3.34%
3/24/2019	1750H	20.4	1710	1.332	38.501	1.348	40.142	-1.19%	-4.09%
			1750	1.356	38.434	1.371	40.079	-1.09%	-4.10%
			1790	1.379	38.357	1.394	40.016	-1.08%	-4.15%
4/1/2019	1900H	21.0	1850	1.393	41.423	1.400	40.000	-0.50%	3.56%
			1880	1.411	41.386	1.400	40.000	0.79%	3.47%
			1910	1.430	41.356	1.400	40.000	2.14%	3.39%
3/21/2019	2450-2600H	21.3	2400	1.789	38.279	1.756	39.289	1.88%	-2.57%
			2450	1.825	38.176	1.800	39.200	1.39%	-2.61%
			2500	1.867	38.123	1.855	39.136	0.65%	-2.59%
			2550	1.904	38.026	1.909	39.073	-0.26%	-2.68%
			2600	1.948	37.934	1.964	39.009	-0.81%	-2.76%
			2650	1.985	37.862	2.018	38.945	-1.64%	-2.78%
			2700	2.027	37.749	2.073	38.882	-2.22%	-2.91%
03/25/2019	5200H-5800H	21.0	5180	4.463	34.788	4.635	36.009	-3.71%	-3.39%
			5200	4.484	34.746	4.655	35.986	-3.67%	-3.45%
			5220	4.505	34.706	4.676	35.963	-3.66%	-3.50%
			5240	4.525	34.672	4.696	35.940	-3.64%	-3.53%
			5260	4.547	34.620	4.717	35.917	-3.60%	-3.61%
			5280	4.570	34.586	4.737	35.894	-3.53%	-3.64%
			5300	4.592	34.555	4.758	35.871	-3.49%	-3.67%
			5320	4.613	34.535	4.778	35.849	-3.45%	-3.67%
			5500	4.810	34.220	4.963	35.643	-3.08%	-3.99%
			5520	4.835	34.184	4.983	35.620	-2.97%	-4.03%
			5540	4.861	34.147	5.004	35.597	-2.86%	-4.07%
			5560	4.883	34.112	5.024	35.574	-2.81%	-4.11%
			5580	4.902	34.077	5.045	35.551	-2.83%	-4.15%
			5600	4.924	34.044	5.065	35.529	-2.78%	-4.18%
			5620	4.951	34.001	5.086	35.506	-2.65%	-4.24%
			5640	4.978	33.971	5.106	35.483	-2.51%	-4.26%
			5660	4.998	33.933	5.127	35.460	-2.52%	-4.31%
			5680	5.021	33.919	5.147	35.437	-2.45%	-4.28%
			5700	5.040	33.887	5.168	35.414	-2.48%	-4.31%
			5745	5.096	33.790	5.214	35.363	-2.26%	-4.45%
			5765	5.118	33.761	5.234	35.340	-2.22%	-4.47%
			5785	5.139	33.733	5.255	35.317	-2.21%	-4.49%
			5800	5.153	33.710	5.270	35.300	-2.22%	-4.50%
			5805	5.158	33.701	5.275	35.294	-2.22%	-4.51%
			5825	5.180	33.661	5.296	35.271	-2.19%	-4.56%

Table 10-2
Measured Tissue Properties - Body

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (˚C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
3/14/2019	750B	20.7	700	0.935	54.174	0.959	55.726	-2.50%	-2.79%
			710	0.939	54.154	0.960	55.687	-2.19%	-2.75%
			740	0.951	54.074	0.963	55.570	-1.25%	-2.69%
			755	0.957	54.025	0.964	55.512	-0.73%	-2.68%
			770	0.962	53.984	0.965	55.453	-0.31%	-2.65%
			785	0.968	53.957	0.966	55.395	0.21%	-2.60%
4/1/2019	750B	19.7	700	0.936	54.200	0.959	55.726	-2.40%	-2.74%
			710	0.940	54.178	0.960	55.687	-2.08%	-2.71%
			740	0.951	54.063	0.963	55.570	-1.25%	-2.71%
			755	0.955	54.005	0.964	55.512	-0.93%	-2.71%
			770	0.960	53.943	0.965	55.453	-0.52%	-2.72%
			785	0.965	53.870	0.966	55.395	-0.10%	-2.75%
3/13/2019	835B	21.5	820	0.982	55.141	0.969	55.258	1.34%	-0.21%
			835	0.998	54.990	0.970	55.200	2.89%	-0.38%
			850	1.012	54.832	0.988	55.154	2.43%	-0.58%
3/18/2019	835B	20.2	820	0.953	53.385	0.969	55.258	-1.65%	-3.39%
			835	0.968	53.245	0.970	55.200	-0.21%	-3.54%
			850	0.983	53.096	0.988	55.154	-0.51%	-3.73%
3/20/2019	835B	21.2	820	0.961	53.731	0.969	55.258	-0.83%	-2.76%
			835	0.976	53.581	0.970	55.200	0.62%	-2.93%
			850	0.991	53.434	0.988	55.154	0.30%	-3.12%
3/18/2019	1750B	20.0	1710	1.491	51.490	1.463	53.537	1.91%	-3.82%
			1750	1.536	51.333	1.488	53.432	3.23%	-3.93%
			1790	1.584	51.178	1.514	53.326	4.62%	-4.03%
3/25/2019	1750B	20.4	1710	1.497	51.570	1.463	53.537	2.32%	-3.67%
			1750	1.543	51.396	1.488	53.432	3.70%	-3.81%
			1790	1.587	51.222	1.514	53.326	4.82%	-3.95%
3/29/2019	1750B	21.1	1710	1.484	51.782	1.463	53.537	1.44%	-3.28%
			1750	1.530	51.631	1.488	53.432	2.82%	-3.37%
			1790	1.573	51.470	1.514	53.326	3.90%	-3.48%
4/1/2019	1750B	20.3	1710	1.496	51.798	1.463	53.537	2.26%	-3.25%
			1750	1.540	51.617	1.488	53.432	3.49%	-3.40%
			1790	1.582	51.447	1.514	53.326	4.49%	-3.52%
3/14/2019	1900B	22.5	1850	1.482	52.486	1.520	53.300	-2.50%	-1.53%
			1880	1.513	52.398	1.520	53.300	-0.46%	-1.69%
			1910	1.545	52.305	1.520	53.300	1.64%	-1.87%
3/20/2019	1900B	22.3	1850	1.501	52.492	1.520	53.300	-1.25%	-1.52%
			1880	1.537	52.383	1.520	53.300	1.12%	-1.72%
			1910	1.570	52.262	1.520	53.300	3.29%	-1.95%
3/25/2019	1900B	22.9	1850	1.516	52.881	1.520	53.300	-0.26%	-0.79%
			1880	1.549	52.779	1.520	53.300	1.91%	-0.98%
			1910	1.584	52.688	1.520	53.300	4.21%	-1.15%
3/27/2019	1900B	22.9	1850	1.517	52.153	1.520	53.300	-0.20%	-2.15%
			1880	1.551	52.047	1.520	53.300	2.04%	-2.35%
			1910	1.585	51.946	1.520	53.300	4.28%	-2.54%
4/1/2019	1900B	20.8	1850	1.518	51.671	1.520	53.300	-0.13%	-3.06%
			1880	1.550	51.572	1.520	53.300	1.97%	-3.24%
			1910	1.584	51.481	1.520	53.300	4.21%	-3.41%

Table 10-3
Measured Tissue Properties - Body

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
3/18/2019	2450-2600B	22.7	2400	1.972	50.965	1.902	52.767	3.68%	-3.42%
			2450	2.033	50.813	1.950	52.700	4.26%	-3.58%
			2500	2.091	50.666	2.021	52.636	3.46%	-3.74%
			2550	2.150	50.507	2.092	52.573	2.77%	-3.93%
			2600	2.211	50.368	2.163	52.509	2.22%	-4.08%
			2650	2.270	50.210	2.234	52.445	1.61%	-4.26%
			2700	2.332	50.062	2.305	52.382	1.17%	-4.43%
3/25/2019	2450B	23.4	2400	1.958	50.815	1.902	52.767	2.94%	-3.70%
			2450	2.017	50.682	1.950	52.700	3.44%	-3.83%
			2500	2.075	50.542	2.021	52.636	2.67%	-3.98%
3/30/2019	2450-2600B	23.7	2400	1.971	50.805	1.902	52.767	3.63%	-3.72%
			2450	2.029	50.645	1.950	52.700	4.05%	-3.90%
			2500	2.089	50.487	2.021	52.636	3.36%	-4.08%
			2550	2.147	50.322	2.092	52.573	2.63%	-4.28%
			2600	2.207	50.159	2.163	52.509	2.03%	-4.48%
			2650	2.265	50.000	2.234	52.445	1.39%	-4.66%
			2700	2.324	49.834	2.305	52.382	0.82%	-4.86%
4/3/2019	2450-2600B	23.7	2400	1.986	50.713	1.902	52.767	4.42%	-3.89%
			2450	2.043	50.575	1.950	52.700	4.77%	-4.03%
			2500	2.098	50.422	2.021	52.636	3.81%	-4.21%
			2550	2.159	50.267	2.092	52.573	3.20%	-4.39%
			2600	2.216	50.136	2.163	52.509	2.45%	-4.52%
			2650	2.276	49.974	2.234	52.445	1.88%	-4.71%
			2700	2.337	49.835	2.305	52.382	1.39%	-4.86%
4/11/2019	2450B	22.1	2400	1.975	52.168	1.902	52.767	3.84%	-1.14%
			2450	2.033	52.027	1.950	52.700	4.26%	-1.28%
			2500	2.089	51.881	2.021	52.636	3.36%	-1.43%
03/18/2019	5200B-5800B	19.9	5180	5.330	49.092	5.276	49.041	1.02%	0.10%
			5200	5.365	49.034	5.299	49.014	1.25%	0.04%
			5220	5.392	48.979	5.323	48.987	1.30%	-0.02%
			5240	5.422	48.966	5.346	48.960	1.42%	0.01%
			5260	5.450	48.913	5.369	48.933	1.51%	-0.04%
			5280	5.476	48.878	5.393	48.906	1.54%	-0.06%
			5300	5.501	48.847	5.416	48.879	1.57%	-0.07%
			5320	5.533	48.804	5.439	48.851	1.73%	-0.10%
			5500	5.789	48.472	5.650	48.607	2.46%	-0.28%
			5520	5.827	48.417	5.673	48.580	2.71%	-0.34%
			5540	5.867	48.371	5.696	48.553	3.00%	-0.37%
			5560	5.903	48.348	5.720	48.526	3.20%	-0.37%
			5580	5.931	48.327	5.743	48.499	3.27%	-0.35%
			5600	5.951	48.289	5.766	48.471	3.21%	-0.38%
			5620	5.977	48.223	5.790	48.444	3.23%	-0.46%
			5640	6.011	48.160	5.813	48.417	3.41%	-0.53%
			5660	6.051	48.127	5.837	48.390	3.67%	-0.54%
			5680	6.086	48.117	5.860	48.363	3.86%	-0.51%
			5700	6.112	48.104	5.883	48.336	3.89%	-0.48%
			5745	6.179	47.980	5.936	48.275	4.09%	-0.61%
			5765	6.211	47.931	5.959	48.248	4.23%	-0.66%
			5785	6.246	47.904	5.982	48.220	4.41%	-0.66%
			5800	6.268	47.897	6.000	48.200	4.47%	-0.63%
			5805	6.274	47.895	6.006	48.193	4.46%	-0.62%
			5825	6.294	47.879	6.029	48.166	4.40%	-0.60%
03/25/2019	5200B-5800B	20.3	5180	5.327	48.912	5.276	49.041	0.97%	-0.26%
			5200	5.357	48.877	5.299	49.014	1.09%	-0.28%
			5220	5.386	48.832	5.323	48.987	1.18%	-0.32%
			5240	5.418	48.772	5.346	48.960	1.35%	-0.38%
			5260	5.447	48.732	5.369	48.933	1.45%	-0.41%
			5280	5.474	48.727	5.393	48.906	1.50%	-0.37%
			5300	5.502	48.688	5.416	48.879	1.59%	-0.39%
			5320	5.527	48.656	5.439	48.851	1.62%	-0.40%
			5500	5.793	48.321	5.650	48.607	2.53%	-0.59%
			5520	5.822	48.291	5.673	48.580	2.63%	-0.59%
			5540	5.861	48.238	5.696	48.553	2.90%	-0.65%
			5560	5.891	48.194	5.720	48.526	2.99%	-0.68%
			5580	5.925	48.146	5.743	48.499	3.17%	-0.73%
			5600	5.947	48.114	5.766	48.471	3.14%	-0.74%
			5620	5.973	48.078	5.790	48.444	3.16%	-0.76%
			5640	6.008	48.033	5.813	48.417	3.35%	-0.79%
			5660	6.039	48.005	5.837	48.390	3.46%	-0.80%
			5680	6.075	47.948	5.860	48.363	3.67%	-0.86%
			5700	6.104	47.932	5.883	48.336	3.76%	-0.84%
			5745	6.170	47.857	5.936	48.275	3.94%	-0.87%
			5765	6.202	47.802	5.959	48.248	4.08%	-0.92%
			5785	6.233	47.755	5.982	48.220	4.20%	-0.96%
			5800	6.257	47.732	6.000	48.200	4.28%	-0.97%
			5805	6.266	47.726	6.006	48.193	4.33%	-0.97%
			5825	6.298	47.713	6.029	48.166	4.46%	-0.94%

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB Publication 865664 D01v01r04 and IEEE 1528-2013 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

10.2 Test System Verification

Prior to SAR assessment, the system is verified to ±10% of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in Appendix E.

Table 10-4
System Verification Results – 1g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	$Deviation_{1g}$ (%)
E	750	HEAD	03/28/2019	23.1	21.1	0.200	1161	3589	1.510	8.030	7.550	-5.98%
D	835	HEAD	03/27/2019	22.0	21.5	0.200	4d133	7357	1.920	9.430	9.600	1.80%
E	1750	HEAD	03/24/2019	21.9	20.3	0.100	1150	3589	3.630	36.500	36.300	-0.55%
H	1900	HEAD	04/01/2019	21.5	21.0	0.100	5d080	7409	3.940	39.800	39.400	-1.01%
E	2450	HEAD	03/21/2019	23.1	20.8	0.100	797	3589	5.170	52.700	51.700	-1.90%
E	2600	HEAD	03/21/2019	23.1	20.8	0.100	1071	3589	5.740	56.300	57.400	1.95%
H	5250	HEAD	03/25/2019	20.7	21.0	0.050	1057	7409	3.750	79.200	75.000	-5.30%
H	5600	HEAD	03/25/2019	20.7	21.0	0.050	1057	7409	4.100	84.100	82.000	-2.50%
H	5750	HEAD	03/25/2019	20.7	21.0	0.050	1057	7409	3.870	80.500	77.400	-3.85%
L	750	BODY	03/14/2019	24.2	20.7	0.200	1161	7308	1.630	8.430	8.150	-3.32%
L	750	BODY	04/01/2019	21.7	19.7	0.200	1161	7308	1.700	8.430	8.500	0.83%
D	835	BODY	03/13/2019	21.9	21.5	0.200	4d133	7357	2.030	9.750	10.150	4.10%
D	835	BODY	03/18/2019	20.8	20.2	0.200	4d133	7357	2.060	9.750	10.300	5.64%
D	835	BODY	03/20/2019	21.7	21.2	0.200	4d133	7357	1.920	9.750	9.600	-1.54%
J	1750	BODY	03/18/2019	20.2	20.0	0.100	1150	7488	3.830	36.600	38.300	4.64%
J	1750	BODY	03/25/2019	21.4	20.4	0.100	1150	7488	3.720	36.600	37.200	1.64%
G	1900	BODY	03/14/2019	23.5	22.5	0.100	5d080	7410	4.030	39.200	40.300	2.81%
G	1900	BODY	03/20/2019	22.2	20.9	0.100	5d080	7410	4.200	39.200	42.000	7.14%
G	1900	BODY	03/25/2019	22.2	21.0	0.100	5d080	7410	4.170	39.200	41.700	6.38%
G	1900	BODY	03/27/2019	22.4	22.9	0.100	5d080	7410	4.220	39.200	42.200	7.65%
G	1900	BODY	04/01/2019	21.3	21.6	0.100	5d080	7410	4.160	39.200	41.600	6.12%
K	2450	BODY	03/18/2019	21.9	20.8	0.100	719	7417	5.400	50.100	54.000	7.78%
K	2450	BODY	03/25/2019	23.3	23.1	0.100	719	7417	5.050	50.100	50.500	0.80%
K	2450	BODY	03/30/2019	22.3	21.9	0.100	797	7417	5.090	51.100	50.900	-0.39%
K	2450	BODY	04/03/2019	24.4	23.1	0.100	981	7417	5.160	50.900	51.600	1.38%
K	2450	BODY	04/11/2019	23.5	22.1	0.100	719	7417	5.210	50.100	52.100	3.99%
K	2600	BODY	03/18/2019	21.9	20.8	0.100	1004	7417	5.260	54.800	52.600	-4.01%
K	2600	BODY	03/30/2019	22.3	21.9	0.100	1071	7417	5.560	54.200	55.600	2.58%
K	2600	BODY	04/03/2019	24.4	23.1	0.100	1064	7417	5.690	54.700	56.900	4.02%
L	5250	BODY	03/18/2019	21.3	19.8	0.050	1191	7308	3.600	77.000	72.000	-6.49%
L	5600	BODY	03/18/2019	21.3	19.8	0.050	1191	7308	4.070	79.200	81.400	2.78%
L	5750	BODY	03/18/2019	21.3	19.8	0.050	1191	7308	3.540	76.100	70.800	-6.96%
L	5250	BODY	03/25/2019	22.8	20.5	0.050	1191	7308	3.720	77.000	74.400	-3.38%
L	5600	BODY	03/25/2019	22.8	20.5	0.050	1191	7308	3.910	79.200	78.200	-1.26%
L	5750	BODY	03/25/2019	22.8	20.5	0.050	1191	7308	3.500	76.100	70.000	-8.02%

Table 10-5
System Verification Results – 10g

SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{10g} (W/kg)	1 W Target SAR_{10g} (W/kg)	1 W Normalized SAR_{10g} (W/kg)	$Deviation_{10g}$ (%)
System Verification TARGET & MEASURED												
L	750	BODY	03/14/2019	24.2	20.7	0.200	1161	7308	1.070	5.550	5.350	-3.60%
L	750	BODY	04/01/2019	21.7	19.7	0.200	1161	7308	1.140	5.550	5.700	2.70%
D	835	BODY	03/18/2019	20.8	20.2	0.200	4d133	7357	1.350	6.400	6.750	5.47%
D	835	BODY	03/20/2019	21.7	21.2	0.200	4d133	7357	1.260	6.400	6.300	-1.56%
J	1750	BODY	03/18/2019	20.2	20.0	0.100	1150	7488	2.000	19.400	20.000	3.09%
J	1750	BODY	03/25/2019	21.4	20.4	0.100	1150	7488	1.960	19.400	19.600	1.03%
J	1750	BODY	03/29/2019	21.1	21.1	0.100	1150	7488	2.080	19.400	20.800	7.22%
J	1750	BODY	04/01/2019	20.6	20.3	0.100	1148	7488	1.820	19.800	18.200	-8.08%
G	1900	BODY	03/14/2019	23.5	22.5	0.100	5d080	7410	2.080	20.600	20.800	0.97%
G	1900	BODY	03/20/2019	22.2	20.9	0.100	5d080	7410	2.150	20.600	21.500	4.37%
G	1900	BODY	03/25/2019	22.2	21.0	0.100	5d080	7410	2.140	20.600	21.400	3.88%
G	1900	BODY	03/27/2019	22.4	22.9	0.100	5d080	7410	2.180	20.600	21.800	5.83%
K	2450	BODY	03/25/2019	23.3	23.1	0.100	719	7417	2.310	23.700	23.100	-2.53%
K	2450	BODY	04/03/2019	24.4	23.1	0.100	981	7417	2.360	24.200	23.600	-2.48%
K	2600	BODY	04/03/2019	24.4	23.1	0.100	1064	7417	2.510	24.400	25.100	2.87%
L	5250	BODY	03/18/2019	21.3	19.8	0.050	1191	7308	1.000	21.600	20.000	-7.41%
L	5600	BODY	03/18/2019	21.3	19.8	0.050	1191	7308	1.120	22.200	22.400	0.90%
L	5750	BODY	03/18/2019	21.3	19.8	0.050	1191	7308	0.987	21.200	19.740	-6.89%
L	5250	BODY	03/25/2019	22.8	20.5	0.050	1191	7308	1.030	21.600	20.600	-4.63%
L	5600	BODY	03/25/2019	22.8	20.5	0.050	1191	7308	1.070	22.200	21.400	-3.60%
L	5750	BODY	03/25/2019	22.8	20.5	0.050	1191	7308	0.973	21.200	19.460	-8.21%

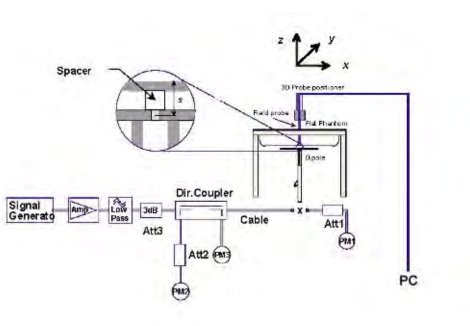


Figure 10-1
System Verification Setup Diagram

Figure 10-2
System Verification Setup Photo

11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
GSM 850 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.0	32.75	0.05	Right	Cheek	1152M	1:8.3	0.108	1.059	0.114	A1
836.60	190	GSM 850	GSM	33.0	32.75	0.18	Right	Tilt	1152M	1:8.3	0.052	1.059	0.055	
836.60	190	GSM 850	GSM	33.0	32.75	0.00	Left	Cheek	1152M	1:8.3	0.085	1.059	0.090	
836.60	190	GSM 850	GSM	33.0	32.75	0.09	Left	Tilt	1152M	1:8.3	0.043	1.059	0.046	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-2
GSM 1900 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GSM	30.0	29.84	-0.15	Right	Cheek	1167M	1:8.3	0.022	1.038	0.023	
1880.00	661	GSM 1900	GSM	30.0	29.84	-0.06	Right	Tilt	1167M	1:8.3	0.027	1.038	0.028	
1880.00	661	GSM 1900	GSM	30.0	29.84	0.08	Left	Cheek	1167M	1:8.3	0.039	1.038	0.040	A2
1880.00	661	GSM 1900	GSM	30.0	29.84	0.02	Left	Tilt	1167M	1:8.3	0.022	1.038	0.023	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-3
UMTS 850 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	4183	UMTS 850	RMC	24.0	23.18	32	-0.10	Right	Cheek	1152M	1:1	0.273	1.208	0.330	A3
836.60	4183	UMTS 850	RMC	24.0	23.18	32	0.06	Right	Tilt	1152M	1:1	0.139	1.208	0.168	
836.60	4183	UMTS 850	RMC	24.0	23.18	32	0.01	Left	Cheek	1152M	1:1	0.203	1.208	0.245	
836.60	4183	UMTS 850	RMC	24.0	23.18	32	0.04	Left	Tilt	1152M	1:1	0.107	1.208	0.129	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-4
UMTS 1750 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	0.10	Right	Cheek	1170M	1:1	0.087	1.167	0.102	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	0.18	Right	Tilt	1170M	1:1	0.112	1.167	0.131	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	0.12	Left	Cheek	1170M	1:1	0.125	1.167	0.146	A4
1732.40	1412	UMTS 1750	RMC	24.0	23.33	0.11	Left	Tilt	1170M	1:1	0.085	1.167	0.099	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-5
UMTS 1900 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	9400	UMTS 1900	RMC	24.0	22.94	-0.01	Right	Cheek	1167M	1:1	0.054	1.276	0.069	
1880.00	9400	UMTS 1900	RMC	24.0	22.94	0.03	Right	Tilt	1167M	1:1	0.064	1.276	0.082	
1880.00	9400	UMTS 1900	RMC	24.0	22.94	0.07	Left	Cheek	1167M	1:1	0.090	1.276	0.115	A5
1880.00	9400	UMTS 1900	RMC	24.0	22.94	0.11	Left	Tilt	1167M	1:1	0.045	1.276	0.057	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-6
LTE Band 12 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	8	-0.04	0	Right	Cheek	QPSK	1	0	1181M	1:1	0.115	1.199	0.138	A6
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	8	-0.07	1	Right	Cheek	QPSK	25	0	1181M	1:1	0.099	1.194	0.118	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	8	0.07	0	Right	Tilt	QPSK	1	0	1181M	1:1	0.055	1.199	0.066	
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	8	0.11	1	Right	Tilt	QPSK	25	0	1181M	1:1	0.050	1.194	0.060	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	8	-0.06	0	Left	Cheek	QPSK	1	0	1181M	1:1	0.088	1.199	0.106	
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	8	0.07	1	Left	Cheek	QPSK	25	0	1181M	1:1	0.087	1.194	0.104	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	8	0.07	0	Left	Tilt	QPSK	1	0	1181M	1:1	0.056	1.199	0.067	
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	8	0.07	1	Left	Tilt	QPSK	25	0	1181M	1:1	0.049	1.194	0.059	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-7
LTE Band 13 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	0.04	0	Right	Cheek	QPSK	1	49	1181M	1:1	0.213	1.262	0.269	A7
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	0.02	1	Right	Cheek	QPSK	25	25	1181M	1:1	0.182	1.213	0.221	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	0.02	0	Right	Tilt	QPSK	1	49	1181M	1:1	0.116	1.262	0.146	
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	0.11	1	Right	Tilt	QPSK	25	25	1181M	1:1	0.099	1.213	0.120	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	0.13	0	Left	Cheek	QPSK	1	49	1181M	1:1	0.152	1.262	0.192	
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	-0.01	1	Left	Cheek	QPSK	25	25	1181M	1:1	0.126	1.213	0.153	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	0.13	0	Left	Tilt	QPSK	1	49	1181M	1:1	0.103	1.262	0.130	
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	0.04	1	Left	Tilt	QPSK	25	25	1181M	1:1	0.088	1.213	0.107	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-8
LTE Band 26 (Cell) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	32	0.05	0	Right	Cheek	QPSK	1	0	1181M	1:1	0.298	1.159	0.345	A8
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	32	0.10	1	Right	Cheek	QPSK	36	0	1181M	1:1	0.254	1.189	0.302	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	32	0.18	0	Right	Tilt	QPSK	1	0	1181M	1:1	0.140	1.159	0.162	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	32	0.09	1	Right	Tilt	QPSK	36	0	1181M	1:1	0.125	1.189	0.149	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	32	0.07	0	Left	Cheek	QPSK	1	0	1181M	1:1	0.221	1.159	0.256	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	32	0.14	1	Left	Cheek	QPSK	36	0	1181M	1:1	0.186	1.189	0.221	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	32	0.10	0	Left	Tilt	QPSK	1	0	1181M	1:1	0.122	1.159	0.141	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	32	0.02	1	Left	Tilt	QPSK	36	0	1181M	1:1	0.101	1.189	0.120	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 11-9
LTE Band 66 (AWS) Head SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	0.07	0	Right	Cheek	QPSK	1	0	1192M	1:1	0.110	1.276	0.140	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	-0.05	1	Right	Cheek	QPSK	50	0	1192M	1:1	0.097	1.230	0.119	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	0.03	0	Right	Tilt	QPSK	1	0	1192M	1:1	0.117	1.276	0.149	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	0.07	1	Right	Tilt	QPSK	50	0	1192M	1:1	0.098	1.230	0.121	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	-0.12	0	Left	Cheek	QPSK	1	0	1192M	1:1	0.111	1.276	0.142	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	0.12	1	Left	Cheek	QPSK	50	0	1192M	1:1	0.091	1.230	0.112	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	0.12	0	Left	Tilt	QPSK	1	0	1192M	1:1	0.117	1.276	0.149	A9
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	0.10	1	Left	Tilt	QPSK	50	0	1192M	1:1	0.097	1.230	0.119	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 11-10
LTE Band 25 (PCS) Head SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	0.01	0	Right	Cheek	QPSK	1	50	1198M	1:1	0.052	1.309	0.068	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	0.08	1	Right	Cheek	QPSK	50	25	1198M	1:1	0.040	1.265	0.051	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	0.10	0	Right	Tilt	QPSK	1	50	1198M	1:1	0.061	1.309	0.080	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	0.13	1	Right	Tilt	QPSK	50	25	1198M	1:1	0.049	1.265	0.062	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	0.11	0	Left	Cheek	QPSK	1	50	1198M	1:1	0.086	1.309	0.113	A10
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	-0.19	1	Left	Cheek	QPSK	50	25	1198M	1:1	0.067	1.265	0.085	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	-0.15	0	Left	Tilt	QPSK	1	50	1198M	1:1	0.075	1.309	0.098	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	0.17	1	Left	Tilt	QPSK	50	25	1198M	1:1	0.058	1.265	0.073	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 11-11
LTE Band 41 Head SAR

MEASUREMENT RESULTS																		
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	0.12	0	Right	Cheek	QPSK	1	0	1143M	1:1.58	0.048	1.153	0.055	A11
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	0.11	1	Right	Cheek	QPSK	50	0	1143M	1:1.58	0.037	1.119	0.041	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	0.14	0	Right	Tilt	QPSK	1	0	1143M	1:1.58	0.022	1.153	0.025	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	0.16	1	Right	Tilt	QPSK	50	0	1143M	1:1.58	0.016	1.119	0.018	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	0.13	0	Left	Cheek	QPSK	1	0	1143M	1:1.58	0.040	1.153	0.046	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	0.20	1	Left	Cheek	QPSK	50	0	1143M	1:1.58	0.038	1.119	0.043	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	0.20	0	Left	Tilt	QPSK	1	0	1143M	1:1.58	0.019	1.153	0.022	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	0.18	1	Left	Tilt	QPSK	50	0	1143M	1:1.58	0.015	1.119	0.017	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-12
DTS Head SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2462	11	802.11b	DSSS	22	17.0	16.85	0.17	Right	Cheek	1	1101M	1	99.9	0.047	-	1.035	1.001	-	
2462	11	802.11b	DSSS	22	17.0	16.85	0.13	Right	Tilt	1	1101M	1	99.9	0.100	-	1.035	1.001	-	
2462	11	802.11b	DSSS	22	17.0	16.85	-0.20	Left	Cheek	1	1101M	1	99.9	0.051	-	1.035	1.001	-	
2462	11	802.11b	DSSS	22	17.0	16.85	0.21	Left	Tilt	1	1101M	1	99.9	0.102	0.064	1.035	1.001	0.066	
2462	11	802.11b	DSSS	22	17.0	16.82	0.11	Right	Cheek	2	1101M	1	99.9	0.148	-	1.042	1.001	-	
2462	11	802.11b	DSSS	22	17.0	16.82	0.13	Right	Tilt	2	1101M	1	99.9	0.169	0.109	1.042	1.001	**0.114**	A12
2462	11	802.11b	DSSS	22	17.0	16.82	0.04	Left	Cheek	2	1101M	1	99.9	0.086	-	1.042	1.001	-	
2462	11	802.11b	DSSS	22	17.0	16.82	0.03	Left	Tilt	2	1101M	1	99.9	0.141	-	1.042	1.001	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-13
NII Head SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5310	62	802.11n	OFDM	40	14.0	13.87	0.18	Right	Cheek	1	1101M	13.5	97.2	0.134	0.054	1.030	1.029	0.057	A13
5310	62	802.11n	OFDM	40	14.0	13.87	0.14	Right	Tilt	1	1101M	13.5	97.2	0.065	-	1.030	1.029	-	
5310	62	802.11n	OFDM	40	14.0	13.87	0.14	Left	Cheek	1	1101M	13.5	97.2	0.102	-	1.030	1.029	-	
5310	62	802.11n	OFDM	40	14.0	13.87	0.16	Left	Tilt	1	1101M	13.5	97.2	0.072	-	1.030	1.029	-	
5310	62	802.11n	OFDM	40	14.0	13.94	0.13	Right	Cheek	2	1101M	13.5	97.2	0.044	-	1.014	1.029	-	
5310	62	802.11n	OFDM	40	14.0	13.94	0.17	Right	Tilt	2	1101M	13.5	97.2	0.054	-	1.014	1.029	-	
5310	62	802.11n	OFDM	40	14.0	13.94	0.07	Left	Cheek	2	1101M	13.5	97.2	0.056	-	1.014	1.029	-	
5310	62	802.11n	OFDM	40	14.0	13.94	0.10	Left	Tilt	2	1101M	13.5	97.2	0.069	0.026	1.014	1.029	0.027	
5530	106	802.11ac	OFDM	80	14.0	12.86	-0.17	Right	Cheek	1	1101M	29.3	94.5	0.015	-	1.300	1.058	-	
5530	106	802.11ac	OFDM	80	14.0	12.86	0.00	Right	Tilt	1	1101M	29.3	94.5	0.017	0.001	1.300	1.058	0.001	
5530	106	802.11ac	OFDM	80	14.0	12.86	0.17	Left	Cheek	1	1101M	29.3	94.5	0.014	-	1.300	1.058	-	
5530	106	802.11ac	OFDM	80	14.0	12.86	-0.20	Left	Tilt	1	1101M	29.3	94.5	0.014	-	1.300	1.058	-	
5610	122	802.11ac	OFDM	80	14.0	12.86	0.20	Right	Cheek	2	1101M	29.3	96.2	0.033	-	1.300	1.040	-	
5610	122	802.11ac	OFDM	80	14.0	12.86	-0.19	Right	Tilt	2	1101M	29.3	96.2	0.065	-	1.300	1.040	-	
5610	122	802.11ac	OFDM	80	14.0	12.86	-0.20	Left	Cheek	2	1101M	29.3	96.2	0.069	-	1.300	1.040	-	
5610	122	802.11ac	OFDM	80	14.0	12.86	0.00	Left	Tilt	2	1101M	29.3	96.2	0.096	0.026	1.300	1.040	0.035	
5775	155	802.11ac	OFDM	80	14.0	12.58	0.00	Right	Cheek	1	1101M	29.3	94.5	0.060	-	1.387	1.058	-	
5775	155	802.11ac	OFDM	80	14.0	12.58	-0.17	Right	Tilt	1	1101M	29.3	94.5	0.076	0.030	1.387	1.058	0.044	
5775	155	802.11ac	OFDM	80	14.0	12.58	0.00	Left	Cheek	1	1101M	29.3	94.5	0.051	-	1.387	1.058	-	
5775	155	802.11ac	OFDM	80	14.0	12.58	0.00	Left	Tilt	1	1101M	29.3	94.5	0.060	-	1.387	1.058	-	
5775	155	802.11ac	OFDM	80	14.0	12.85	0.17	Right	Cheek	2	1101M	29.3	96.2	0.034	-	1.303	1.040	-	
5775	155	802.11ac	OFDM	80	14.0	12.85	0.00	Right	Tilt	2	1101M	29.3	96.2	0.070	-	1.303	1.040	-	
5775	155	802.11ac	OFDM	80	14.0	12.85	0.15	Left	Cheek	2	1101M	29.3	96.2	0.071	-	1.303	1.040	-	
5775	155	802.11ac	OFDM	80	14.0	12.85	0.17	Left	Tilt	2	1101M	29.3	96.2	0.095	0.025	1.303	1.040	0.034	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-14
DSS Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2402.00	0	Bluetooth	FHSS	16.5	16.18	0.21	Right	Cheek	1101M	1	77.1	0.030	1.076	1.297	0.042	
2402.00	0	Bluetooth	FHSS	16.5	16.18	0.19	Right	Tilt	1101M	1	77.1	0.051	1.076	1.297	0.071	
2402.00	0	Bluetooth	FHSS	16.5	16.18	0.19	Left	Cheek	1101M	1	77.1	0.022	1.076	1.297	0.031	
2402.00	0	Bluetooth	FHSS	16.5	16.18	-0.04	Left	Tilt	1101M	1	77.1	0.054	1.076	1.297	**0.075**	A14
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							**Head** **1.6 W/kg (mW/g)** averaged over 1 gram									

11.2 Standalone Body-Worn SAR Data

Table 11-15
GSM/UMTS Body-Worn SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	Spacing	Device Serial Number	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.0	32.75	N/A	0.05	15 mm	1152M	1:8.3	back	0.159	1.059	0.168	A15
1880.00	661	GSM 1900	GSM	30.0	29.84	N/A	-0.01	15 mm	1170M	1:8.3	back	0.115	1.038	0.119	A17
836.60	4183	UMTS 850	RMC	24.0	23.18	37	-0.01	15 mm	1152M	1:1	back	0.185	1.208	0.223	A19
1732.40	1412	UMTS 1750	RMC	24.0	23.33	N/A	-0.02	15 mm	1170M	1:1	back	0.497	1.167	0.580	A21
1880.00	9400	UMTS 1900	RMC	24.0	22.94	N/A	-0.04	15 mm	1167M	1:1	back	0.277	1.276	0.353	A23
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								**Body** **1.6 W/kg (mW/g)** averaged over 1 gram							

Table 11-16
LTE Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	9	0.09	0	1161M	QPSK	1	0	15 mm	back	1:1	0.171	1.199	0.205	A25
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	9	0.00	1	1161M	QPSK	25	0	15 mm	back	1:1	0.137	1.194	0.164	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	-0.01	0	1161M	QPSK	1	49	15 mm	back	1:1	0.199	1.262	0.251	A27
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	0.01	1	1161M	QPSK	25	25	15 mm	back	1:1	0.161	1.213	0.195	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	11	0.07	0	1161M	QPSK	1	0	15 mm	back	1:1	0.200	1.159	0.232	A29
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	11	0.05	1	1161M	QPSK	36	0	15 mm	back	1:1	0.162	1.189	0.193	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	N/A	-0.08	0	1198M	QPSK	1	0	15 mm	back	1:1	0.468	1.276	**0.597**	A31
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	N/A	-0.01	1	1198M	QPSK	50	0	15 mm	back	1:1	0.383	1.230	0.471	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	N/A	0.03	0	1198M	QPSK	1	50	15 mm	back	1:1	0.272	1.309	0.356	A33
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	N/A	0.01	1	1198M	QPSK	50	25	15 mm	back	1:1	0.217	1.265	0.275	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	N/A	-0.03	0	1143M	QPSK	1	0	15 mm	back	1:1.58	0.117	1.153	0.135	A35
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	N/A	0.07	1	1143M	QPSK	50	0	15 mm	back	1:1.58	0.092	1.119	0.103	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-17
DTS Body-Worn SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	20.0	19.97	0.19	15 mm	1	1105M	1	back	99.9	0.059	0.039	1.007	1.001	0.039	
2412	1	802.11b	DSSS	22	20.0	19.98	0.13	15 mm	2	1105M	1	back	99.9	0.127	0.087	1.005	1.001	**0.088**	A37
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-18
NII Body-Worn SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5320	64	802.11a	OFDM	20	18.0	17.91	-0.20	15 mm	1	1108M	6	back	98.8	0.198	0.086	1.021	1.012	0.089	
5280	56	802.11a	OFDM	20	18.0	17.99	-0.06	15 mm	2	1108M	6	back	98.7	0.092	0.031	1.002	1.013	0.031	
5500	100	802.11a	OFDM	20	18.0	17.94	-0.13	15 mm	1	1108M	6	back	98.8	0.647	0.292	1.014	1.012	**0.300**	A39
5720	144	802.11a	OFDM	20	18.0	17.98	-0.16	15 mm	2	1108M	6	back	98.7	0.150	0.056	1.005	1.013	0.057	
5785	157	802.11a	OFDM	20	18.0	17.97	0.13	15 mm	1	1108M	6	back	98.8	0.271	0.113	1.007	1.012	0.115	
5785	157	802.11a	OFDM	20	18.0	17.86	-0.12	15 mm	2	1108M	6	back	98.7	0.182	0.073	1.033	1.013	0.076	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-19
DSS Body-Worn SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2402	0	Bluetooth	FHSS	16.5	16.18	0.18	15 mm	1101M	1	back	77.1	0.022	1.076	1.297	**0.031**	A41
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram								

11.3 Standalone Hotspot SAR Data

Table 11-20
GPRS/UMTS Hotspot SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	Spacing	Device Serial Number	# of GPRS Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	190	GSM 850	GPRS	30.5	29.57	N/A	-0.03	10 mm	1152M	3	1:2.76	back	0.428	1.239	0.530	
836.60	190	GSM 850	GPRS	30.5	29.57	N/A	-0.18	10 mm	1152M	3	1:2.76	front	0.218	1.239	0.270	
836.60	190	GSM 850	GPRS	30.5	29.57	N/A	0.03	10 mm	1152M	3	1:2.76	bottom	0.231	1.239	0.286	
824.20	128	GSM 850	GPRS	30.5	29.55	N/A	0.03	10 mm	1152M	3	1:2.76	right	0.651	1.245	0.810	A16
836.60	190	GSM 850	GPRS	30.5	29.57	N/A	-0.09	10 mm	1152M	3	1:2.76	right	0.581	1.239	0.720	
848.80	251	GSM 850	GPRS	30.5	29.74	N/A	-0.01	10 mm	1152M	3	1:2.76	right	0.627	1.191	0.747	
1880.00	661	GSM 1900	GPRS	25.5	24.47	N/A	-0.09	10 mm	1170M	3	1:2.76	back	0.274	1.268	0.347	
1880.00	661	GSM 1900	GPRS	25.5	24.47	N/A	0.18	10 mm	1170M	3	1:2.76	front	0.132	1.268	0.167	
1850.20	512	GSM 1900	GPRS	25.5	24.37	N/A	-0.16	10 mm	1170M	3	1:2.76	bottom	0.567	1.297	0.735	
1880.00	661	GSM 1900	GPRS	25.5	24.47	N/A	0.08	10 mm	1170M	3	1:2.76	bottom	0.648	1.268	0.822	A18
1909.80	810	GSM 1900	GPRS	25.5	24.36	N/A	0.19	10 mm	1170M	3	1:2.76	bottom	0.622	1.300	0.809	
1880.00	661	GSM 1900	GPRS	25.5	24.47	N/A	0.08	10 mm	1170M	3	1:2.76	right	0.080	1.268	0.101	
1880.00	661	GSM 1900	GPRS	25.5	24.47	N/A	0.00	10 mm	1170M	3	1:2.76	left	0.045	1.268	0.057	
836.60	4183	UMTS 850	RMC	24.0	23.18	37	-0.17	10 mm	1152M	N/A	1:1	back	0.398	1.208	0.481	
836.60	4183	UMTS 850	RMC	24.0	23.18	37	0.00	10 mm	1152M	N/A	1:1	front	0.198	1.208	0.239	
836.60	4183	UMTS 850	RMC	24.0	23.18	37	0.01	10 mm	1152M	N/A	1:1	bottom	0.236	1.208	0.285	
836.60	4183	UMTS 850	RMC	24.0	23.18	37	-0.01	10 mm	1152M	N/A	1:1	right	0.441	1.208	0.533	A20
1732.40	1412	UMTS 1750	RMC	20.0	19.30	N/A	-0.07	10 mm	1170M	N/A	1:1	back	0.380	1.175	0.447	
1732.40	1412	UMTS 1750	RMC	20.0	19.30	N/A	0.05	10 mm	1170M	N/A	1:1	front	0.154	1.175	0.181	
1712.40	1312	UMTS 1750	RMC	20.0	19.29	N/A	0.01	10 mm	1170M	N/A	1:1	bottom	0.699	1.178	0.823	A22
1732.40	1412	UMTS 1750	RMC	20.0	19.30	N/A	-0.01	10 mm	1170M	N/A	1:1	bottom	0.669	1.175	0.786	
1752.60	1513	UMTS 1750	RMC	20.0	19.66	N/A	-0.05	10 mm	1170M	N/A	1:1	bottom	0.690	1.081	0.746	
1732.40	1412	UMTS 1750	RMC	20.0	19.30	N/A	-0.02	10 mm	1170M	N/A	1:1	right	0.120	1.175	0.141	
1732.40	1412	UMTS 1750	RMC	20.0	19.30	N/A	-0.02	10 mm	1170M	N/A	1:1	left	0.114	1.175	0.134	
1880.00	9400	UMTS 1900	RMC	20.5	20.07	N/A	0.00	10 mm	1167M	N/A	1:1	back	0.306	1.104	0.338	
1880.00	9400	UMTS 1900	RMC	20.5	20.07	N/A	0.04	10 mm	1167M	N/A	1:1	front	0.156	1.104	0.172	
1852.40	9262	UMTS 1900	RMC	20.5	20.04	N/A	-0.02	10 mm	1167M	N/A	1:1	bottom	0.772	1.112	0.858	
1880.00	9400	UMTS 1900	RMC	20.5	20.07	N/A	-0.05	10 mm	1167M	N/A	1:1	bottom	0.852	1.104	**0.941**	A24
1907.60	9538	UMTS 1900	RMC	20.5	19.96	N/A	-0.08	10 mm	1167M	N/A	1:1	bottom	0.771	1.132	0.873	
1880.00	9400	UMTS 1900	RMC	20.5	20.07	N/A	0.01	10 mm	1167M	N/A	1:1	right	0.111	1.104	0.123	
1880.00	9400	UMTS 1900	RMC	20.5	20.07	N/A	-0.04	10 mm	1167M	N/A	1:1	left	0.069	1.104	0.076	
1880.00	9400	UMTS 1900	RMC	20.5	20.07	N/A	-0.08	10 mm	1167M	N/A	1:1	bottom	0.829	1.104	0.915	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram						

Note: Blue entry represents variability measurement.

Table 11-21
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS

FREQUENCY MHz	Ch.		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	9	-0.04	0	1161M	QPSK	1	0	10 mm	back	1:1	0.211	1.199	0.253	
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	9	-0.10	1	1161M	QPSK	25	0	10 mm	back	1:1	0.162	1.194	0.193	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	9	0.07	0	1161M	QPSK	1	0	10 mm	front	1:1	0.157	1.199	0.188	
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	9	-0.01	1	1161M	QPSK	25	0	10 mm	front	1:1	0.130	1.194	0.155	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	9	0.02	0	1161M	QPSK	1	0	10 mm	bottom	1:1	0.142	1.199	0.170	
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	9	-0.03	1	1161M	QPSK	25	0	10 mm	bottom	1:1	0.115	1.194	0.137	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	9	-0.02	0	1161M	QPSK	1	0	10 mm	right	1:1	0.369	1.199	0.442	A26
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	9	0.02	1	1161M	QPSK	25	0	10 mm	right	1:1	0.304	1.194	0.363	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population	Body 1.6 W/kg (mW/g) averaged over 1 gram

Table 11-22
LTE Band 13 Hotspot SAR

MEASUREMENT RESULTS

FREQUENCY MHz	Ch.		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	-0.03	0	1161M	QPSK	1	49	10 mm	back	1:1	0.290	1.262	0.366	
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	-0.04	1	1161M	QPSK	25	25	10 mm	back	1:1	0.239	1.213	0.290	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	-0.02	0	1161M	QPSK	1	49	10 mm	front	1:1	0.185	1.262	0.233	
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	0.01	1	1161M	QPSK	25	25	10 mm	front	1:1	0.158	1.213	0.192	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	-0.04	0	1161M	QPSK	1	49	10 mm	bottom	1:1	0.190	1.262	0.240	
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	-0.06	1	1161M	QPSK	25	25	10 mm	bottom	1:1	0.155	1.213	0.188	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	0.18	0	1161M	QPSK	1	49	10 mm	right	1:1	0.430	1.262	0.543	A28
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	-0.01	1	1161M	QPSK	25	25	10 mm	right	1:1	0.351	1.213	0.426	

	Body 1.6 W/kg (mW/g) averaged over 1 gram

Table 11-23
LTE Band 26 (Cell) Hotspot SAR

MEASUREMENT RESULTS

FREQUENCY MHz	Ch.		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	11	-0.04	0	1161M	QPSK	1	0	10 mm	back	1:1	0.440	1.159	0.510	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	11	-0.11	1	1161M	QPSK	36	0	10 mm	back	1:1	0.360	1.189	0.428	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	11	0.07	0	1161M	QPSK	1	0	10 mm	front	1:1	0.238	1.159	0.276	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	11	0.09	1	1161M	QPSK	36	0	10 mm	front	1:1	0.196	1.189	0.233	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	11	0.03	0	1161M	QPSK	1	0	10 mm	bottom	1:1	0.282	1.159	0.327	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	11	0.00	1	1161M	QPSK	36	0	10 mm	bottom	1:1	0.231	1.189	0.275	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	11	-0.02	0	1161M	QPSK	1	0	10 mm	right	1:1	0.542	1.159	0.628	A30
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	11	-0.06	1	1161M	QPSK	36	0	10 mm	right	1:1	0.443	1.189	0.527	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population	Body 1.6 W/kg (mW/g) averaged over 1 gram

Table 11-24
LTE Band 66 (AWS) Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.40	-0.02	0	1198M	QPSK	1	50	10 mm	back	1:1	0.413	1.148	0.474	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.46	0.06	0	1198M	QPSK	50	0	10 mm	back	1:1	0.432	1.132	0.489	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.40	0.01	0	1198M	QPSK	1	50	10 mm	front	1:1	0.142	1.148	0.163	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.46	-0.05	0	1198M	QPSK	50	0	10 mm	front	1:1	0.149	1.132	0.169	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.40	-0.08	0	1198M	QPSK	1	50	10 mm	bottom	1:1	0.585	1.148	0.672	
1720.00	132072	Low	LTE Band 66 (AWS)	20	20.0	19.45	-0.04	0	1198M	QPSK	50	25	10 mm	bottom	1:1	0.630	1.135	0.715	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.46	-0.07	0	1198M	QPSK	50	0	10 mm	bottom	1:1	0.647	1.132	0.732	A32
1770.00	132572	High	LTE Band 66 (AWS)	20	20.0	19.20	-0.06	0	1198M	QPSK	50	0	10 mm	bottom	1:1	0.622	1.202	0.748	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.40	-0.06	0	1198M	QPSK	1	50	10 mm	right	1:1	0.107	1.148	0.123	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.46	-0.02	0	1198M	QPSK	50	0	10 mm	right	1:1	0.114	1.132	0.129	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.40	0.05	0	1198M	QPSK	1	50	10 mm	left	1:1	0.093	1.148	0.107	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.46	0.03	0	1198M	QPSK	50	0	10 mm	left	1:1	0.103	1.132	0.117	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-25
LTE Band 25 (PCS) Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.87	-0.02	0	1198M	QPSK	1	50	10 mm	back	1:1	0.252	1.030	0.260	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.92	0.04	0	1198M	QPSK	50	25	10 mm	back	1:1	0.256	1.019	0.261	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.87	0.07	0	1198M	QPSK	1	50	10 mm	front	1:1	0.122	1.030	0.126	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.92	0.00	0	1198M	QPSK	50	25	10 mm	front	1:1	0.127	1.019	0.129	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.87	-0.05	0	1198M	QPSK	1	50	10 mm	bottom	1:1	0.683	1.030	0.703	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.0	19.69	-0.03	0	1198M	QPSK	50	25	10 mm	bottom	1:1	0.677	1.074	0.727	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.92	-0.05	0	1198M	QPSK	50	25	10 mm	bottom	1:1	0.697	1.019	0.710	A34
1905.00	26590	High	LTE Band 25 (PCS)	20	20.0	19.67	-0.06	0	1198M	QPSK	50	50	10 mm	bottom	1:1	0.654	1.079	0.706	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.87	0.08	0	1198M	QPSK	1	50	10 mm	right	1:1	0.095	1.030	0.098	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.92	-0.01	0	1198M	QPSK	50	25	10 mm	right	1:1	0.100	1.019	0.102	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.87	0.00	0	1198M	QPSK	1	50	10 mm	left	1:1	0.065	1.030	0.067	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.92	-0.04	0	1198M	QPSK	50	25	10 mm	left	1:1	0.069	1.019	0.070	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-26
LTE Band 41 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.43	-0.01	0	1143M	QPSK	1	0	10 mm	back	1:1.58	0.190	1.140	0.217	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.45	-0.03	0	1143M	QPSK	50	0	10 mm	back	1:1.58	0.193	1.135	0.219	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.43	0.00	0	1143M	QPSK	1	0	10 mm	front	1:1.58	0.463	1.140	0.528	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.45	-0.04	0	1143M	QPSK	50	0	10 mm	front	1:1.58	0.446	1.135	0.506	
2506.00	39750	Low	LTE Band 41	20	21.0	20.06	0.04	0	1143M	QPSK	1	99	10 mm	bottom	1:1.58	0.722	1.242	0.897	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.43	0.04	0	1143M	QPSK	1	0	10 mm	bottom	1:1.58	0.668	1.140	0.762	
2593.00	40620	Mid	LTE Band 41	20	21.0	20.15	-0.08	0	1143M	QPSK	1	50	10 mm	bottom	1:1.58	0.640	1.216	0.778	
2636.50	41055	Mid-High	LTE Band 41	20	21.0	20.36	-0.11	0	1143M	QPSK	1	0	10 mm	bottom	1:1.58	0.657	1.159	0.761	
2680.00	41490	High	LTE Band 41	20	21.0	20.05	-0.12	0	1143M	QPSK	1	99	10 mm	bottom	1:1.58	0.543	1.245	0.676	
2506.00	39750	Low	LTE Band 41	20	21.0	20.37	0.07	0	1143M	QPSK	50	25	10 mm	bottom	1:1.58	0.734	1.156	0.849	A36
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.45	0.03	0	1143M	QPSK	50	0	10 mm	bottom	1:1.58	0.673	1.135	0.764	
2593.00	40620	Mid	LTE Band 41	20	21.0	20.41	0.00	0	1143M	QPSK	50	25	10 mm	bottom	1:1.58	0.632	1.146	0.724	
2636.50	41055	Mid-High	LTE Band 41	20	21.0	20.42	-0.15	0	1143M	QPSK	50	0	10 mm	bottom	1:1.58	0.682	1.143	0.780	
2680.00	41490	High	LTE Band 41	20	21.0	20.12	-0.19	0	1143M	QPSK	50	25	10 mm	bottom	1:1.58	0.560	1.225	0.686	
2636.50	41055	Mid-High	LTE Band 41	20	21.0	20.40	-0.14	0	1143M	QPSK	100	0	10 mm	bottom	1:1.58	0.666	1.148	0.765	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.43	0.15	0	1143M	QPSK	1	0	10 mm	right	1:1.58	0.103	1.140	0.117	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.45	-0.15	0	1143M	QPSK	50	0	10 mm	right	1:1.58	0.083	1.135	0.094	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.43	0.21	0	1143M	QPSK	1	0	10 mm	left	1:1.58	0.057	1.140	0.065	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.45	0.03	0	1143M	QPSK	50	0	10 mm	left	1:1.58	0.070	1.135	0.079	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT	Body
Spatial Peak	1.6 W/kg (mW/g)
Uncontrolled Exposure/General Population	averaged over 1 gram

Table 11-27
WLAN Hotspot SAR

MEASUREMENT RESULTS

FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	20.0	19.97	0.14	10 mm	1	1105M	1	back	99.9	0.139	-	1.007	1.001	-	
2412	1	802.11b	DSSS	22	20.0	19.97	0.15	10 mm	1	1105M	1	front	99.9	0.030	-	1.007	1.001	-	
2412	1	802.11b	DSSS	22	20.0	19.97	0.18	10 mm	1	1105M	1	top	99.9	0.139	-	1.007	1.001	-	
2412	1	802.11b	DSSS	22	20.0	19.97	0.16	10 mm	1	1105M	1	right	99.9	0.176	0.109	1.007	1.001	0.110	
2412	1	802.11b	DSSS	22	20.0	19.98	0.16	10 mm	2	1105M	1	back	99.9	0.370	0.219	1.005	1.001	0.220	A38
2412	1	802.11b	DSSS	22	20.0	19.98	0.16	10 mm	2	1105M	1	front	99.9	0.059	-	1.005	1.001	-	
2412	1	802.11b	DSSS	22	20.0	19.98	0.19	10 mm	2	1105M	1	top	99.9	0.266	-	1.005	1.001	-	
2412	1	802.11b	DSSS	22	20.0	19.98	0.17	10 mm	2	1105M	1	left	99.9	0.109	-	1.005	1.001	-	
5785	157	802.11a	OFDM	20	18.0	17.97	-0.03	10 mm	1	1108M	6	back	98.8	0.311	0.147	1.007	1.012	0.150	A40
5785	157	802.11a	OFDM	20	18.0	17.97	0.15	10 mm	1	1108M	6	front	98.8	0.056	-	1.007	1.012	-	
5785	157	802.11a	OFDM	20	18.0	17.97	0.14	10 mm	1	1108M	6	top	98.8	0.147	-	1.007	1.012	-	
5785	157	802.11a	OFDM	20	18.0	17.97	0.00	10 mm	1	1108M	6	right	98.8	0.136	-	1.007	1.012	-	
5785	157	802.11a	OFDM	20	18.0	17.86	-0.07	10 mm	2	1108M	6	back	98.7	0.253	-	1.033	1.013	-	
5785	157	802.11a	OFDM	20	18.0	17.86	0.00	10 mm	2	1108M	6	front	98.7	0.097	-	1.033	1.013	-	
5785	157	802.11a	OFDM	20	18.0	17.86	-0.12	10 mm	2	1108M	6	top	98.7	0.285	0.097	1.033	1.013	0.102	
5785	157	802.11a	OFDM	20	18.0	17.86	0.00	10 mm	2	1108M	6	left	98.7	0.064	-	1.033	1.013	-	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population	Body 1.6 W/kg (mW/g) averaged over 1 gram

Table 11-28
DSS Hotspot SAR

MEASUREMENT RESULTS

FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2402	0	Bluetooth	FHSS	16.5	16.18	0.13	10 mm	1101M	1	back	77.1	0.047	1.076	1.297	0.066	
2402	0	Bluetooth	FHSS	16.5	16.18	0.18	10 mm	1101M	1	front	77.1	0.013	1.076	1.297	0.018	
2402	0	Bluetooth	FHSS	16.5	16.18	0.04	10 mm	1101M	1	top	77.1	0.059	1.076	1.297	0.082	A42
2402	0	Bluetooth	FHSS	16.5	16.18	0.15	10 mm	1101M	1	right	77.1	0.039	1.076	1.297	0.054	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population	Body 1.6 W/kg (mW/g) averaged over 1 gram

11.4 Standalone Phablet SAR Data

Table 11-29
GPRS/UMTS Phablet SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	# of GPRS Slots	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GPRS	27.5	27.00	0.11	6 mm	1170M	3	1:2.76	back	0.353	1.122	0.396	
1880.00	661	GSM 1900	GPRS	27.5	27.00	-0.21	0 mm	1170M	3	1:2.76	front	0.506	1.122	0.568	
1880.00	661	GSM 1900	GPRS	27.5	27.00	-0.13	10 mm	1170M	3	1:2.76	bottom	0.524	1.122	0.588	
1880.00	661	GSM 1900	GPRS	27.5	27.00	0.05	0 mm	1170M	3	1:2.76	right	0.353	1.122	0.396	
1880.00	661	GSM 1900	GPRS	27.5	27.00	0.00	0 mm	1170M	3	1:2.76	left	0.128	1.122	0.144	
1880.00	661	GSM 1900	GPRS	25.5	24.47	0.01	0 mm	1170M	3	1:2.76	back	0.949	1.268	1.203	
1850.20	512	GSM 1900	GPRS	25.5	24.37	-0.13	0 mm	1170M	3	1:2.76	bottom	2.120	1.297	2.750	
1880.00	661	GSM 1900	GPRS	25.5	24.47	-0.05	0 mm	1170M	3	1:2.76	bottom	2.200	1.268	2.790	
1909.80	810	GSM 1900	GPRS	25.5	24.36	-0.12	0 mm	1170M	3	1:2.76	bottom	2.220	1.300	2.886	A43
1732.40	1412	UMTS 1750	RMC	24.0	23.33	-0.03	6 mm	1170M	N/A	1:1	back	0.882	1.167	1.029	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	-0.01	0 mm	1170M	N/A	1:1	front	1.070	1.167	1.249	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	-0.02	10 mm	1170M	N/A	1:1	bottom	0.871	1.167	1.016	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	0.00	0 mm	1170M	N/A	1:1	right	0.876	1.167	1.022	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	-0.17	0 mm	1170M	N/A	1:1	left	0.346	1.167	0.404	
1732.40	1412	UMTS 1750	RMC	20.0	19.30	-0.06	0 mm	1170M	N/A	1:1	back	1.230	1.175	1.445	
1712.40	1312	UMTS 1750	RMC	20.0	19.29	-0.06	0 mm	1170M	N/A	1:1	bottom	2.090	1.178	2.462	
1732.40	1412	UMTS 1750	RMC	20.0	19.30	-0.05	0 mm	1170M	N/A	1:1	bottom	2.110	1.175	2.479	
1752.60	1513	UMTS 1750	RMC	20.0	19.66	-0.06	0 mm	1170M	N/A	1:1	bottom	2.130	1.081	2.303	A44
1880.00	9400	UMTS 1900	RMC	24.0	22.94	0.08	6 mm	1167M	N/A	1:1	back	0.597	1.276	0.762	
1880.00	9400	UMTS 1900	RMC	24.0	22.94	-0.02	0 mm	1167M	N/A	1:1	front	0.846	1.276	1.079	
1880.00	9400	UMTS 1900	RMC	24.0	22.94	-0.02	10 mm	1167M	N/A	1:1	bottom	0.890	1.276	1.136	
1880.00	9400	UMTS 1900	RMC	24.0	22.94	-0.04	0 mm	1167M	N/A	1:1	right	0.601	1.276	0.767	
1880.00	9400	UMTS 1900	RMC	24.0	22.94	-0.17	0 mm	1167M	N/A	1:1	left	0.242	1.276	0.309	
1880.00	9400	UMTS 1900	RMC	20.5	20.07	-0.12	0 mm	1167M	N/A	1:1	back	1.080	1.104	1.192	
1852.40	9262	UMTS 1900	RMC	20.5	20.04	-0.10	0 mm	1167M	N/A	1:1	bottom	2.640	1.112	2.936	
1880.00	9400	UMTS 1900	RMC	20.5	20.07	-0.15	0 mm	1167M	N/A	1:1	bottom	2.830	1.104	**3.124**	A45
1907.60	9538	UMTS 1900	RMC	20.5	19.96	-0.14	0 mm	1167M	N/A	1:1	bottom	2.690	1.132	3.045	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**							**Phablet** **4.0 W/kg (mW/g)** averaged over 10 grams								

Table 11-30
LTE Band 66 (AWS) Phablet SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	0.12	0	1198M	QPSK	1	0	6 mm	back	1:1	0.966	1.276	1.233	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	-0.03	1	1198M	QPSK	50	0	6 mm	back	1:1	0.812	1.230	0.999	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	0.01	0	1198M	QPSK	1	0	0 mm	front	1:1	1.060	1.276	1.353	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	0.02	1	1198M	QPSK	50	0	0 mm	front	1:1	0.885	1.230	1.089	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	-0.03	0	1198M	QPSK	1	0	10 mm	bottom	1:1	0.869	1.276	1.109	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	-0.06	1	1198M	QPSK	50	0	10 mm	bottom	1:1	0.712	1.230	0.876	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	-0.03	0	1198M	QPSK	1	0	0 mm	right	1:1	0.721	1.276	0.920	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	0.05	1	1198M	QPSK	50	0	0 mm	right	1:1	0.579	1.230	0.712	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	-0.08	0	1198M	QPSK	1	0	0 mm	left	1:1	0.310	1.276	0.396	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	-0.03	1	1198M	QPSK	50	0	0 mm	left	1:1	0.243	1.230	0.299	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.40	-0.09	0	1198M	QPSK	1	50	0 mm	back	1:1	1.370	1.148	1.573	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.46	-0.09	0	1198M	QPSK	50	0	0 mm	back	1:1	1.480	1.132	1.675	
1720.00	132072	Low	LTE Band 66 (AWS)	20	20.0	19.33	-0.15	0	1198M	QPSK	1	99	0 mm	bottom	1:1	1.830	1.167	2.136	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.40	-0.16	0	1198M	QPSK	1	50	0 mm	bottom	1:1	1.860	1.148	2.135	
1770.00	132572	High	LTE Band 66 (AWS)	20	20.0	19.12	-0.15	0	1198M	QPSK	1	0	0 mm	bottom	1:1	1.920	1.225	2.352	
1720.00	132072	Low	LTE Band 66 (AWS)	20	20.0	19.45	-0.09	0	1198M	QPSK	50	25	0 mm	bottom	1:1	1.960	1.135	2.225	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.46	-0.04	0	1198M	QPSK	50	0	0 mm	bottom	1:1	2.020	1.132	2.287	A46
1770.00	132572	High	LTE Band 66 (AWS)	20	20.0	19.20	-0.12	0	1198M	QPSK	50	0	0 mm	bottom	1:1	1.990	1.202	2.392	
1720.00	132072	Low	LTE Band 66 (AWS)	20	20.0	19.39	-0.15	0	1198M	QPSK	100	0	0 mm	bottom	1:1	1.940	1.151	2.233	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Phablet 4.0 W/kg (mW/g) averaged over 10 grams										

Table 11-31
LTE Band 25 (PCS) Phablet SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	-0.12	0	1198M	QPSK	1	50	6 mm	back	1:1	0.585	1.309	0.766	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	-0.07	1	1198M	QPSK	50	25	6 mm	back	1:1	0.476	1.265	0.602	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	-0.10	0	1198M	QPSK	1	50	0 mm	front	1:1	0.750	1.309	0.982	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	-0.09	1	1198M	QPSK	50	25	0 mm	front	1:1	0.607	1.265	0.768	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	0.03	0	1198M	QPSK	1	50	10 mm	bottom	1:1	0.730	1.309	0.956	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	-0.07	1	1198M	QPSK	50	25	10 mm	bottom	1:1	0.594	1.265	0.751	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	-0.04	0	1198M	QPSK	1	50	0 mm	right	1:1	0.489	1.309	0.640	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	-0.03	1	1198M	QPSK	50	25	0 mm	right	1:1	0.401	1.265	0.507	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	0.01	0	1198M	QPSK	1	50	0 mm	left	1:1	0.186	1.309	0.243	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	-0.10	1	1198M	QPSK	50	25	0 mm	left	1:1	0.154	1.265	0.195	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.87	-0.06	0	1198M	QPSK	1	50	0 mm	back	1:1	1.080	1.030	1.112	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.92	-0.03	0	1198M	QPSK	50	25	0 mm	back	1:1	1.120	1.019	1.141	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.0	19.65	0.02	0	1198M	QPSK	1	0	0 mm	bottom	1:1	2.460	1.084	2.667	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.87	-0.12	0	1198M	QPSK	1	50	0 mm	bottom	1:1	2.580	1.030	2.657	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.0	19.56	-0.07	0	1198M	QPSK	1	0	0 mm	bottom	1:1	2.640	1.107	2.922	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.0	19.69	0.00	0	1198M	QPSK	50	25	0 mm	bottom	1:1	2.510	1.074	2.696	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.92	-0.07	0	1198M	QPSK	50	25	0 mm	bottom	1:1	2.670	1.019	2.721	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.0	19.67	-0.08	0	1198M	QPSK	50	50	0 mm	bottom	1:1	2.710	1.079	2.924	A47
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.86	-0.09	0	1198M	QPSK	100	0	0 mm	bottom	1:1	2.640	1.033	2.727	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Phablet 4.0 W/kg (mW/g) averaged over 10 grams										

Table 11-32
LTE Band 41 Phablet SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	-0.10	0	1143M	QPSK	1	0	6 mm	back	1:1.58	1.220	1.153	1.407	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	-0.11	1	1143M	QPSK	50	0	6 mm	back	1:1.58	1.010	1.119	1.130	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	0.12	0	1143M	QPSK	1	0	0 mm	front	1:1.58	1.290	1.153	1.487	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	0.21	1	1143M	QPSK	50	0	0 mm	front	1:1.58	1.100	1.119	1.231	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	0.11	0	1143M	QPSK	1	0	10 mm	bottom	1:1.58	0.523	1.153	0.603	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	-0.07	1	1143M	QPSK	50	0	10 mm	bottom	1:1.58	0.438	1.119	0.490	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	-0.01	0	1143M	QPSK	1	0	0 mm	right	1:1.58	0.316	1.153	0.364	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	-0.15	1	1143M	QPSK	50	0	0 mm	right	1:1.58	0.258	1.119	0.289	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	0.12	0	1143M	QPSK	1	0	0 mm	left	1:1.58	0.378	1.153	0.436	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	0.01	1	1143M	QPSK	50	0	0 mm	left	1:1.58	0.321	1.119	0.359	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.43	-0.10	0	1143M	QPSK	1	0	0 mm	back	1:1.58	0.806	1.140	0.919	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.45	-0.11	0	1143M	QPSK	50	0	0 mm	back	1:1.58	0.808	1.135	0.917	
2506.00	39750	Low	LTE Band 41	20	21.0	20.06	-0.19	0	1143M	QPSK	1	99	0 mm	bottom	1:1.58	1.880	1.242	2.335	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.43	-0.16	0	1143M	QPSK	1	0	0 mm	bottom	1:1.58	1.970	1.140	2.246	
2593.00	40620	Mid	LTE Band 41	20	21.0	20.15	-0.16	0	1143M	QPSK	1	50	0 mm	bottom	1:1.58	2.010	1.216	2.444	
2636.50	41055	Mid-High	LTE Band 41	20	21.0	20.36	-0.18	0	1143M	QPSK	1	0	0 mm	bottom	1:1.58	1.990	1.159	2.306	
2680.00	41490	High	LTE Band 41	20	21.0	20.05	-0.19	0	1143M	QPSK	1	99	0 mm	bottom	1:1.58	1.980	1.245	2.465	
2506.00	39750	Low	LTE Band 41	20	21.0	20.37	-0.16	0	1143M	QPSK	50	25	0 mm	bottom	1:1.58	1.890	1.156	2.185	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.45	-0.12	0	1143M	QPSK	50	0	0 mm	bottom	1:1.58	2.050	1.135	2.327	
2593.00	40620	Mid	LTE Band 41	20	21.0	20.41	0.15	0	1143M	QPSK	50	25	0 mm	bottom	1:1.58	2.140	1.146	2.452	A48
2636.50	41055	Mid-High	LTE Band 41	20	21.0	20.42	0.00	0	1143M	QPSK	50	0	0 mm	bottom	1:1.58	2.120	1.143	2.423	
2680.00	41490	High	LTE Band 41	20	21.0	20.12	-0.18	0	1143M	QPSK	50	25	0 mm	bottom	1:1.58	2.060	1.225	2.524	
2636.50	41055	Mid-High	LTE Band 41	20	21.0	20.40	-0.17	0	1143M	QPSK	100	0	0 mm	bottom	1:1.58	2.090	1.148	2.399	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Phablet 4.0 W/kg (mW/g) averaged over 10 grams										

Table 11-33
WLAN Phablet SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5320	64	802.11a	OFDM	20	18.0	17.91	0.18	0 mm	1	1108M	6	back	98.8	1.363	0.245	1.021	1.012	0.253	
5320	64	802.11a	OFDM	20	18.0	17.91	0.00	0 mm	1	1108M	6	front	98.8	0.307	-	1.021	1.012	-	
5320	64	802.11a	OFDM	20	18.0	17.91	0.14	0 mm	1	1108M	6	top	98.8	0.968	-	1.021	1.012	-	
5320	64	802.11a	OFDM	20	18.0	17.91	0.16	0 mm	1	1108M	6	right	98.8	0.322	-	1.021	1.012	-	
5280	56	802.11a	OFDM	20	18.0	17.99	0.12	0 mm	2	1108M	6	back	98.7	1.835	-	1.002	1.013	-	
5280	56	802.11a	OFDM	20	18.0	17.99	0.00	0 mm	2	1108M	6	front	98.7	0.494	-	1.002	1.013	-	
5280	56	802.11a	OFDM	20	18.0	17.99	-0.15	0 mm	2	1108M	6	top	98.7	4.485	0.517	1.002	1.013	0.525	
5280	56	802.11a	OFDM	20	18.0	17.99	0.14	0 mm	2	1108M	6	left	98.7	0.503	-	1.002	1.013	-	
5500	100	802.11a	OFDM	20	18.0	17.94	0.17	0 mm	1	1108M	6	back	98.8	3.792	0.418	1.014	1.012	0.429	
5500	100	802.11a	OFDM	20	18.0	17.94	0.00	0 mm	1	1108M	6	front	98.8	0.118	-	1.014	1.012	-	
5500	100	802.11a	OFDM	20	18.0	17.94	0.00	0 mm	1	1108M	6	top	98.8	2.446	-	1.014	1.012	-	
5500	100	802.11a	OFDM	20	18.0	17.94	0.16	0 mm	1	1108M	6	right	98.8	0.538	-	1.014	1.012	-	
5720	144	802.11a	OFDM	20	18.0	17.98	-0.17	0 mm	2	1108M	6	back	98.7	3.134	-	1.005	1.013	-	
5720	144	802.11a	OFDM	20	18.0	17.98	0.00	0 mm	2	1108M	6	front	98.7	0.634	-	1.005	1.013	-	
5720	144	802.11a	OFDM	20	18.0	17.98	0.13	0 mm	2	1108M	6	top	98.7	6.564	0.653	1.005	1.013	0.665	A49
5720	144	802.11a	OFDM	20	18.0	17.98	0.00	0 mm	2	1108M	6	left	98.7	0.699	-	1.005	1.013	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Phablet 4.0 W/kg (mW/g) averaged over 10 grams										

11.5 Standalone UMPC Body SAR

Table 11-34
GPRS/UMTS UMPC Body SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	Spacing	Device Serial Number	# of GPRS Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
824.20	128	GSM 850	GPRS	30.5	29.55	N/A	-0.10	10 mm	1152M	3	1:2.76	back	0.623	1.245	0.776	A50
836.60	190	GSM 850	GPRS	30.5	29.57	N/A	-0.05	10 mm	1152M	3	1:2.76	back	0.540	1.239	0.669	
848.80	251	GSM 850	GPRS	30.5	29.74	N/A	-0.17	10 mm	1152M	3	1:2.76	back	0.560	1.191	0.667	
836.60	190	GSM 850	GPRS	30.5	29.57	N/A	-0.04	10 mm	1152M	3	1:2.76	front	0.448	1.239	0.555	
836.60	190	GSM 850	GPRS	30.5	29.57	N/A	0.08	10 mm	1152M	3	1:2.76	bottom	0.364	1.239	0.451	
836.60	190	GSM 850	GPRS	30.5	29.57	N/A	0.05	10 mm	1152M	3	1:2.76	right	0.361	1.239	0.447	
1880.00	661	GSM 1900	GPRS	27.5	27.00	N/A	-0.05	10 mm	1170M	3	1:2.76	back	0.395	1.122	0.443	
1880.00	661	GSM 1900	GPRS	27.5	27.00	N/A	0.03	10 mm	1170M	3	1:2.76	front	0.400	1.122	0.449	
1880.00	661	GSM 1900	GPRS	27.5	27.00	N/A	-0.01	13 mm	1170M	3	1:2.76	bottom	0.512	1.122	0.574	
1850.20	512	GSM 1900	GPRS	25.5	24.37	N/A	0.03	10 mm	1170M	3	1:2.76	bottom	0.447	1.297	0.580	
1880.00	661	GSM 1900	GPRS	25.5	24.47	N/A	0.02	10 mm	1170M	3	1:2.76	bottom	0.558	1.268	0.708	A51
1909.80	810	GSM 1900	GPRS	25.5	24.36	N/A	0.03	10 mm	1170M	3	1:2.76	bottom	0.533	1.300	0.693	
1880.00	661	GSM 1900	GPRS	27.5	27.00	N/A	-0.03	10 mm	1170M	3	1:2.76	right	0.096	1.122	0.108	
836.60	4183	UMTS 850	RMC	24.0	23.18	37	-0.16	10 mm	1152M	N/A	1:1	back	0.475	1.208	0.574	A52
836.60	4183	UMTS 850	RMC	24.0	23.18	37	0.03	10 mm	1152M	N/A	1:1	front	0.424	1.208	0.512	
836.60	4183	UMTS 850	RMC	24.0	23.18	37	0.05	10 mm	1152M	N/A	1:1	bottom	0.275	1.208	0.332	
836.60	4183	UMTS 850	RMC	24.0	23.18	37	-0.05	10 mm	1152M	N/A	1:1	right	0.334	1.208	0.403	
1712.40	1312	UMTS 1750	RMC	24.0	23.26	N/A	0.01	10 mm	1170M	N/A	1:1	back	0.661	1.186	0.784	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	N/A	0.03	10 mm	1170M	N/A	1:1	back	0.732	1.167	0.854	
1752.60	1513	UMTS 1750	RMC	24.0	23.66	N/A	-0.01	10 mm	1170M	N/A	1:1	back	0.778	1.081	0.841	
1712.40	1312	UMTS 1750	RMC	24.0	23.26	N/A	-0.08	10 mm	1170M	N/A	1:1	front	0.697	1.186	0.827	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	N/A	-0.08	10 mm	1170M	N/A	1:1	front	0.773	1.167	0.902	
1752.60	1513	UMTS 1750	RMC	24.0	23.66	N/A	-0.08	10 mm	1170M	N/A	1:1	front	0.832	1.081	0.899	A53
1712.40	1312	UMTS 1750	RMC	24.0	23.26	N/A	0.01	13 mm	1170M	N/A	1:1	bottom	0.649	1.186	0.770	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	N/A	0.01	13 mm	1170M	N/A	1:1	bottom	0.734	1.167	0.857	
1752.60	1513	UMTS 1750	RMC	24.0	23.66	N/A	-0.01	13 mm	1170M	N/A	1:1	bottom	0.804	1.081	0.869	
1732.40	1412	UMTS 1750	RMC	20.0	19.30	N/A	-0.06	10 mm	1170M	N/A	1:1	bottom	0.451	1.175	0.530	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	N/A	-0.03	10 mm	1170M	N/A	1:1	right	0.369	1.167	0.431	
1852.40	9262	UMTS 1900	RMC	24.0	23.14	N/A	-0.05	10 mm	1167M	N/A	1:1	back	0.655	1.219	0.798	
1880.00	9400	UMTS 1900	RMC	24.0	22.94	N/A	-0.03	10 mm	1167M	N/A	1:1	back	0.658	1.276	0.840	
1907.60	9538	UMTS 1900	RMC	24.0	23.05	N/A	0.21	10 mm	1167M	N/A	1:1	back	0.599	1.245	0.746	
1852.40	9262	UMTS 1900	RMC	24.0	23.14	N/A	-0.04	10 mm	1167M	N/A	1:1	front	0.601	1.219	0.733	
1880.00	9400	UMTS 1900	RMC	24.0	22.94	N/A	0.01	10 mm	1167M	N/A	1:1	front	0.644	1.276	0.822	
1907.60	9538	UMTS 1900	RMC	24.0	23.05	N/A	0.01	10 mm	1167M	N/A	1:1	front	0.512	1.245	0.637	
1852.40	9262	UMTS 1900	RMC	24.0	23.14	N/A	-0.01	13 mm	1167M	N/A	1:1	bottom	0.780	1.219	0.951	
1880.00	9400	UMTS 1900	RMC	24.0	22.94	N/A	-0.01	13 mm	1167M	N/A	1:1	bottom	0.799	1.276	1.020	
1907.60	9538	UMTS 1900	RMC	24.0	23.05	N/A	-0.02	13 mm	1167M	N/A	1:1	bottom	0.804	1.245	1.001	A54
1852.40	9262	UMTS 1900	RMC	20.5	20.04	N/A	-0.01	10 mm	1167M	N/A	1:1	bottom	0.655	1.112	0.728	
1880.00	9400	UMTS 1900	RMC	20.5	20.07	N/A	0.01	10 mm	1167M	N/A	1:1	bottom	0.702	1.104	0.775	
1907.60	9538	UMTS 1900	RMC	20.5	19.96	N/A	0.02	10 mm	1167M	N/A	1:1	bottom	0.713	1.132	0.807	
1880.00	9400	UMTS 1900	RMC	24.0	22.94	N/A	-0.11	10 mm	1167M	N/A	1:1	right	0.143	1.276	0.182	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									UMPC Body 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-35
LTE Band 12 UMPC Body SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	9	0.00	0	1161M	QPSK	1	0	10 mm	back	1:1	0.184	1.199	0.221	
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	9	0.02	1	1161M	QPSK	25	0	10 mm	back	1:1	0.155	1.194	0.185	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	9	0.02	0	1161M	QPSK	1	0	10 mm	front	1:1	0.212	1.199	0.254	
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	9	-0.03	1	1161M	QPSK	25	0	10 mm	front	1:1	0.167	1.194	0.199	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	9	-0.02	0	1161M	QPSK	1	0	10 mm	bottom	1:1	0.143	1.199	0.171	
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	9	0.02	1	1161M	QPSK	25	0	10 mm	bottom	1:1	0.116	1.194	0.139	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	9	-0.04	0	1161M	QPSK	1	0	10 mm	right	1:1	0.217	1.199	0.260	A55
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	9	0.04	1	1161M	QPSK	25	0	10 mm	right	1:1	0.188	1.194	0.224	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									UMPC Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-36
LTE Band 13 UMPC Body SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	0.01	0	1161M	QPSK	1	49	10 mm	back	1:1	0.251	1.262	0.317	
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	0.04	1	1161M	QPSK	25	25	10 mm	back	1:1	0.203	1.213	0.246	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	-0.06	0	1161M	QPSK	1	49	10 mm	front	1:1	0.288	1.262	0.363	A56
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	0.05	1	1161M	QPSK	25	25	10 mm	front	1:1	0.235	1.213	0.285	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	-0.03	0	1161M	QPSK	1	49	10 mm	bottom	1:1	0.202	1.262	0.255	
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	-0.02	1	1161M	QPSK	25	25	10 mm	bottom	1:1	0.155	1.213	0.188	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	-0.07	0	1161M	QPSK	1	49	10 mm	right	1:1	0.208	1.262	0.262	
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	0.13	1	1161M	QPSK	25	25	10 mm	right	1:1	0.173	1.213	0.210	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									UMPC Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-37
LTE Band 26 (Cell) UMPC Body SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	11	-0.03	0	1161M	QPSK	1	0	10 mm	back	1:1	0.603	1.159	0.699	A57
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	11	-0.05	1	1161M	QPSK	36	0	10 mm	back	1:1	0.491	1.189	0.584	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	11	-0.02	0	1161M	QPSK	1	0	10 mm	front	1:1	0.500	1.159	0.580	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	11	0.01	1	1161M	QPSK	36	0	10 mm	front	1:1	0.403	1.189	0.479	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	11	-0.03	0	1161M	QPSK	1	0	10 mm	bottom	1:1	0.410	1.159	0.475	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	11	-0.02	1	1161M	QPSK	36	0	10 mm	bottom	1:1	0.336	1.189	0.400	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	11	0.00	0	1161M	QPSK	1	0	10 mm	right	1:1	0.442	1.159	0.512	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	11	-0.04	1	1161M	QPSK	36	0	10 mm	right	1:1	0.357	1.189	0.424	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									UMPC Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-38
LTE Band 66 (AWS) UMPC Body SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	-0.03	0	1198M	QPSK	1	0	10 mm	back	1:1	0.679	1.276	0.866	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.0	22.93	-0.02	0	1198M	QPSK	1	99	10 mm	back	1:1	0.744	1.279	0.952	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.0	22.72	-0.01	0	1198M	QPSK	1	0	10 mm	back	1:1	0.764	1.343	1.026	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	-0.10	1	1198M	QPSK	50	0	10 mm	back	1:1	0.575	1.230	0.707	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.09	-0.07	1	1198M	QPSK	100	0	10 mm	back	1:1	0.595	1.233	0.734	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	0.04	0	1198M	QPSK	1	0	10 mm	front	1:1	0.743	1.276	0.948	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.0	22.93	0.07	0	1198M	QPSK	1	99	10 mm	front	1:1	0.850	1.279	1.087	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.0	22.72	0.04	0	1198M	QPSK	1	0	10 mm	front	1:1	0.894	1.343	**1.201**	A58
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	0.02	1	1198M	QPSK	50	0	10 mm	front	1:1	0.612	1.230	0.753	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.09	0.01	1	1198M	QPSK	100	0	10 mm	front	1:1	0.638	1.233	0.787	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	-0.04	0	1198M	QPSK	1	0	13 mm	bottom	1:1	0.561	1.276	0.716	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	-0.04	1	1198M	QPSK	50	0	13 mm	bottom	1:1	0.483	1.230	0.594	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.40	-0.01	0	1198M	QPSK	1	50	10 mm	bottom	1:1	0.420	1.148	0.482	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.46	-0.06	0	1198M	QPSK	50	0	10 mm	bottom	1:1	0.430	1.132	0.487	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	0.03	0	1198M	QPSK	1	0	10 mm	right	1:1	0.305	1.276	0.389	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	-0.06	1	1198M	QPSK	50	0	10 mm	right	1:1	0.257	1.230	0.316	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.0	22.72	0.01	0	1198M	QPSK	1	0	10 mm	front	1:1	0.791	1.343	1.062	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									**UMPC Body 1.6 W/kg (mW/g)** averaged over 1 gram										

Note: Blue entry represents variability measurement.

Table 11-39
LTE Band 25 (PCS) UMPC Body SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	22.67	-0.09	0	1192M	QPSK	1	99	10 mm	back	1:1	0.573	1.358	0.778	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	0.08	0	1192M	QPSK	1	50	10 mm	back	1:1	0.582	1.309	0.762	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	22.65	-0.05	0	1192M	QPSK	1	99	10 mm	back	1:1	0.596	1.365	0.814	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	0.03	1	1192M	QPSK	50	25	10 mm	back	1:1	0.482	1.265	0.610	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.94	-0.04	1	1192M	QPSK	100	0	10 mm	back	1:1	0.351	1.276	0.448	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	-0.07	0	1192M	QPSK	1	50	10 mm	front	1:1	0.489	1.309	0.640	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	0.02	1	1192M	QPSK	50	25	10 mm	front	1:1	0.401	1.265	0.507	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	22.67	0.02	0	1192M	QPSK	1	99	13 mm	bottom	1:1	0.669	1.358	0.909	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	-0.09	0	1192M	QPSK	1	50	13 mm	bottom	1:1	0.668	1.309	0.874	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	22.65	-0.01	0	1192M	QPSK	1	99	13 mm	bottom	1:1	0.694	1.365	0.947	A59
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	-0.08	1	1192M	QPSK	50	25	13 mm	bottom	1:1	0.552	1.265	0.698	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.94	-0.05	1	1192M	QPSK	100	0	13 mm	bottom	1:1	0.546	1.276	0.697	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.87	-0.08	0	1192M	QPSK	1	50	10 mm	bottom	1:1	0.586	1.030	0.604	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.92	-0.03	0	1192M	QPSK	50	25	10 mm	bottom	1:1	0.595	1.019	0.606	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	-0.07	0	1192M	QPSK	1	50	10 mm	right	1:1	0.158	1.309	0.207	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	0.00	1	1192M	QPSK	50	25	10 mm	right	1:1	0.128	1.265	0.162	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									UMPC Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-40
LTE Band 41 UMPC Body SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
2506.00	39750	Low	LTE Band 41	20	24.0	23.30	-0.01	0	1143M	QPSK	1	0	10 mm	back	1:1.58	0.699	1.175	0.821	
2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.20	-0.03	0	1143M	QPSK	1	0	10 mm	back	1:1.58	0.793	1.202	0.953	A60
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	0.18	0	1143M	QPSK	1	0	10 mm	back	1:1.58	0.745	1.153	0.859	
2636.50	41055	Mid-High	LTE Band 41	20	24.0	23.11	0.04	0	1143M	QPSK	1	0	10 mm	back	1:1.58	0.719	1.227	0.882	
2680.00	41490	High	LTE Band 41	20	24.0	23.02	-0.08	0	1143M	QPSK	1	99	10 mm	back	1:1.58	0.649	1.253	0.813	
2506.00	39750	Low	LTE Band 41	20	23.0	22.45	-0.04	1	1143M	QPSK	50	25	10 mm	back	1:1.58	0.582	1.135	0.661	
2549.50	40185	Low-Mid	LTE Band 41	20	23.0	22.31	0.00	1	1143M	QPSK	50	0	10 mm	back	1:1.58	0.637	1.172	0.747	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	0.03	1	1143M	QPSK	50	0	10 mm	back	1:1.58	0.614	1.119	0.687	
2636.50	41055	Mid-High	LTE Band 41	20	23.0	22.21	0.01	1	1143M	QPSK	50	0	10 mm	back	1:1.58	0.564	1.199	0.676	
2680.00	41490	High	LTE Band 41	20	23.0	22.13	-0.01	1	1143M	QPSK	50	25	10 mm	back	1:1.58	0.510	1.222	0.623	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.49	0.02	1	1143M	QPSK	100	0	10 mm	back	1:1.58	0.618	1.125	0.695	
2506.00	39750	Low	LTE Band 41	20	24.0	23.30	0.13	0	1143M	QPSK	1	0	10 mm	front	1:1.58	0.689	1.175	0.810	
2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.20	-0.01	0	1143M	QPSK	1	0	10 mm	front	1:1.58	0.709	1.202	0.852	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	-0.01	0	1143M	QPSK	1	0	10 mm	front	1:1.58	0.660	1.153	0.761	
2636.50	41055	Mid-High	LTE Band 41	20	24.0	23.11	0.15	0	1143M	QPSK	1	0	10 mm	front	1:1.58	0.586	1.227	0.719	
2680.00	41490	High	LTE Band 41	20	24.0	23.02	-0.12	0	1143M	QPSK	1	99	10 mm	front	1:1.58	0.625	1.253	0.783	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	-0.01	1	1143M	QPSK	50	0	10 mm	front	1:1.58	0.532	1.119	0.595	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.49	-0.01	1	1143M	QPSK	100	0	10 mm	front	1:1.58	0.531	1.125	0.597	
2506.00	39750	Low	LTE Band 41	20	24.0	23.30	-0.07	0	1143M	QPSK	1	0	13 mm	bottom	1:1.58	0.756	1.175	0.888	
2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.20	-0.10	0	1143M	QPSK	1	0	13 mm	bottom	1:1.58	0.781	1.202	0.939	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	-0.09	0	1143M	QPSK	1	0	13 mm	bottom	1:1.58	0.754	1.153	0.869	
2636.50	41055	Mid-High	LTE Band 41	20	24.0	23.11	-0.07	0	1143M	QPSK	1	0	13 mm	bottom	1:1.58	0.710	1.227	0.871	
2680.00	41490	High	LTE Band 41	20	24.0	23.02	-0.02	0	1143M	QPSK	1	99	13 mm	bottom	1:1.58	0.652	1.253	0.817	
2506.00	39750	Low	LTE Band 41	20	23.0	22.45	-0.06	1	1143M	QPSK	50	25	13 mm	bottom	1:1.58	0.626	1.135	0.711	
2549.50	40185	Low-Mid	LTE Band 41	20	23.0	22.31	-0.08	1	1143M	QPSK	50	0	13 mm	bottom	1:1.58	0.625	1.172	0.733	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	-0.03	1	1143M	QPSK	50	0	13 mm	bottom	1:1.58	0.616	1.119	0.689	
2636.50	41055	Mid-High	LTE Band 41	20	23.0	22.21	0.01	1	1143M	QPSK	50	0	13 mm	bottom	1:1.58	0.556	1.199	0.667	
2680.00	41490	High	LTE Band 41	20	23.0	22.13	-0.01	1	1143M	QPSK	50	25	13 mm	bottom	1:1.58	0.513	1.222	0.627	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.49	-0.04	1	1143M	QPSK	100	0	13 mm	bottom	1:1.58	0.600	1.125	0.675	
2506.00	39750	Low	LTE Band 41	20	21.0	20.06	-0.06	0	1143M	QPSK	1	99	10 mm	bottom	1:1.58	0.604	1.242	0.750	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.43	-0.06	0	1143M	QPSK	1	0	10 mm	bottom	1:1.58	0.611	1.140	0.697	
2593.00	40620	Mid	LTE Band 41	20	21.0	20.15	-0.04	0	1143M	QPSK	1	50	10 mm	bottom	1:1.58	0.557	1.216	0.677	
2636.50	41055	Mid-High	LTE Band 41	20	21.0	20.36	0.08	0	1143M	QPSK	1	0	10 mm	bottom	1:1.58	0.533	1.159	0.618	
2680.00	41490	High	LTE Band 41	20	21.0	20.05	-0.08	0	1143M	QPSK	1	99	10 mm	bottom	1:1.58	0.504	1.245	0.627	
2506.00	39750	Low	LTE Band 41	20	21.0	20.37	-0.03	0	1143M	QPSK	50	25	10 mm	bottom	1:1.58	0.623	1.156	0.720	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.45	-0.08	0	1143M	QPSK	50	0	10 mm	bottom	1:1.58	0.617	1.135	0.700	
2593.00	40620	Mid	LTE Band 41	20	21.0	20.41	0.00	0	1143M	QPSK	50	25	10 mm	bottom	1:1.58	0.571	1.146	0.654	
2636.50	41055	Mid-High	LTE Band 41	20	21.0	20.42	0.01	0	1143M	QPSK	50	0	10 mm	bottom	1:1.58	0.537	1.143	0.614	
2680.00	41490	High	LTE Band 41	20	21.0	20.12	-0.03	0	1143M	QPSK	50	25	10 mm	bottom	1:1.58	0.507	1.225	0.621	
2636.50	41055	Mid-High	LTE Band 41	20	21.0	20.40	-0.01	0	1143M	QPSK	100	0	10 mm	bottom	1:1.58	0.521	1.148	0.598	
2506.00	39750	Low	LTE Band 41	20	24.0	23.30	0.12	0	1143M	QPSK	1	0	10 mm	right	1:1.58	0.290	1.175	0.341	
2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.20	-0.12	0	1143M	QPSK	1	0	10 mm	right	1:1.58	0.398	1.202	0.478	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	-0.07	0	1143M	QPSK	1	0	10 mm	right	1:1.58	0.535	1.153	0.617	
2636.50	41055	Mid-High	LTE Band 41	20	24.0	23.11	-0.08	0	1143M	QPSK	1	0	10 mm	right	1:1.58	0.567	1.227	0.696	
2680.00	41490	High	LTE Band 41	20	24.0	23.02	0.05	0	1143M	QPSK	1	99	10 mm	right	1:1.58	0.224	1.253	0.281	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	-0.03	1	1143M	QPSK	50	0	10 mm	right	1:1.58	0.447	1.119	0.500	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.49	-0.05	1	1143M	QPSK	100	0	10 mm	right	1:1.58	0.461	1.125	0.519	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									UMPC Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-41
WLAN UMPC Body SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	20.0	19.97	0.09	10 mm	1	1099M	1	back	99.9	0.265	-	1.007	1.001	-	
2412	1	802.11b	DSSS	22	20.0	19.97	-0.19	10 mm	1	1099M	1	front	99.9	0.349	0.231	1.007	1.001	0.233	
2412	1	802.11b	DSSS	22	20.0	19.97	0.16	10 mm	1	1099M	1	top	99.9	0.518	0.329	1.007	1.001	0.332	
2412	1	802.11b	DSSS	22	20.0	19.97	0.08	10 mm	1	1099M	1	right	99.9	0.253	-	1.007	1.001	-	
2412	1	802.11b	DSSS	22	20.0	19.98	0.06	10 mm	2	1099M	1	back	99.9	0.299	0.196	1.005	1.001	0.197	
2412	1	802.11b	DSSS	22	20.0	19.98	0.11	10 mm	2	1099M	1	front	99.9	0.141	0.111	1.005	1.001	0.112	
2412	1	802.11b	DSSS	22	20.0	19.98	0.18	10 mm	2	1099M	1	top	99.9	0.227	-	1.005	1.001	-	
5320	64	802.11a	OFDM	20	18.0	17.91	-0.16	10 mm	1	1108M	6	back	98.8	0.278	0.134	1.021	1.012	0.138	
5320	64	802.11a	OFDM	20	18.0	17.91	0.14	10 mm	1	1108M	6	front	98.8	0.226	-	1.021	1.012	-	
5320	64	802.11a	OFDM	20	18.0	17.91	-0.14	10 mm	1	1108M	6	top	98.8	0.132	-	1.021	1.012	-	
5320	64	802.11a	OFDM	20	18.0	17.91	-0.16	10 mm	1	1108M	6	right	98.8	0.034	-	1.021	1.012	-	
5280	56	802.11a	OFDM	20	18.0	17.99	0.20	10 mm	2	1108M	6	back	98.7	0.148	-	1.002	1.013	-	
5280	56	802.11a	OFDM	20	18.0	17.99	0.14	10 mm	2	1108M	6	front	98.7	0.155	-	1.002	1.013	-	
5280	56	802.11a	OFDM	20	18.0	17.99	-0.14	10 mm	2	1108M	6	top	98.7	0.158	0.068	1.002	1.013	0.069	
5500	100	802.11a	OFDM	20	18.0	17.94	0.19	10 mm	1	1108M	6	back	98.8	0.794	0.405	1.014	1.012	0.416	
5500	100	802.11a	OFDM	20	18.0	17.94	0.13	10 mm	1	1108M	6	front	98.8	0.533	0.241	1.014	1.012	0.247	
5500	100	802.11a	OFDM	20	18.0	17.94	-0.04	10 mm	1	1108M	6	top	98.8	0.326	-	1.014	1.012	-	
5500	100	802.11a	OFDM	20	18.0	17.94	0.00	10 mm	1	1108M	6	right	98.8	0.072	-	1.014	1.012	-	
5720	144	802.11a	OFDM	20	18.0	17.98	-0.02	10 mm	2	1108M	6	back	98.7	0.183	-	1.005	1.013	-	
5720	144	802.11a	OFDM	20	18.0	17.98	-0.15	10 mm	2	1108M	6	front	98.7	0.225	-	1.005	1.013	-	
5720	144	802.11a	OFDM	20	18.0	17.98	-0.13	10 mm	2	1108M	6	top	98.7	0.539	0.222	1.005	1.013	0.226	
5785	157	802.11a	OFDM	20	18.0	17.97	-0.20	10 mm	1	1108M	6	back	98.8	0.448	0.153	1.007	1.012	0.156	
5785	157	802.11a	OFDM	20	18.0	17.97	0.05	10 mm	1	1108M	6	front	98.8	0.892	0.395	1.007	1.012	0.403	
5785	157	802.11a	OFDM	20	18.0	17.97	-0.11	10 mm	1	1108M	6	top	98.8	0.306	-	1.007	1.012	-	
5785	157	802.11a	OFDM	20	18.0	17.97	-0.12	10 mm	1	1108M	6	right	98.8	0.139	-	1.007	1.012	-	
5785	157	802.11a	OFDM	20	18.0	17.86	0.19	10 mm	2	1108M	6	back	98.7	0.248	-	1.033	1.013	-	
5785	157	802.11a	OFDM	20	18.0	17.86	-0.04	10 mm	2	1108M	6	front	98.7	0.229	-	1.033	1.013	-	
5785	157	802.11a	OFDM	20	18.0	17.86	-0.21	10 mm	2	1108M	6	top	98.7	0.554	0.221	1.033	1.013	0.231	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population	UMPC Body 1.6 W/kg (mW/g) averaged over 1 gram

Table 11-42
2.4 GHz WLAN MIMO UMPC Body SAR with 2.4 GHz and 5 GHz WLAN SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
2457	10	802.11n	OFDM	20	17.0	16.76	17.0	16.62	0.12	10 mm	MIMO	1105M	13	back	98.7	0.373	0.218	1.091	1.013	0.241	
2457	10	802.11n	OFDM	20	17.0	16.76	17.0	16.62	0.12	10 mm	MIMO	1105M	13	front	98.7	0.374	0.200	1.091	1.013	0.221	
2457	10	802.11n	OFDM	20	17.0	16.76	17.0	16.62	-0.04	10 mm	MIMO	1105M	13	top	98.7	0.652	0.387	1.091	1.013	0.428	A61
2457	10	802.11n	OFDM	20	17.0	16.76	17.0	16.62	0.19	10 mm	MIMO	1105M	13	right	98.7	0.330	-	1.091	1.013	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											UMPC Body 1.6 W/kg (mW/g) averaged over 1 gram										

Note: DTS MIMO was additionally evaluated at the maximum allowed output power during operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 5 GHz WIFI was not transmitting during the above evaluations.

Table 11-43
NII WLAN MIMO UMPC Body SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
5280	56	802.11n	OFDM	20	18.0	17.90	18.0	17.99	0.18	10 mm	MIMO	1108M	13	back	98.6	0.399	0.215	1.023	1.014	0.223	
5280	56	802.11n	OFDM	20	18.0	17.90	18.0	17.99	0.19	10 mm	MIMO	1108M	13	front	98.6	0.324	-	1.023	1.014	-	
5280	56	802.11n	OFDM	20	18.0	17.90	18.0	17.99	0.15	10 mm	MIMO	1108M	13	top	98.6	0.261	-	1.023	1.014	-	
5280	56	802.11n	OFDM	20	18.0	17.90	18.0	17.99	0.20	10 mm	MIMO	1108M	13	right	98.6	0.068	-	1.023	1.014	-	
5500	100	802.11n	OFDM	20	18.0	17.94	18.0	17.86	0.10	10 mm	MIMO	1108M	13	back	98.6	0.948	0.481	1.033	1.014	0.504	A62
5500	100	802.11n	OFDM	20	18.0	17.94	18.0	17.86	0.10	10 mm	MIMO	1108M	13	front	98.6	0.627	0.278	1.033	1.014	0.291	
5500	100	802.11n	OFDM	20	18.0	17.94	18.0	17.86	0.18	10 mm	MIMO	1108M	13	top	98.6	0.483	-	1.033	1.014	-	
5500	100	802.11n	OFDM	20	18.0	17.94	18.0	17.86	-0.16	10 mm	MIMO	1108M	13	right	98.6	0.130	-	1.033	1.014	-	
5785	157	802.11n	OFDM	20	18.0	17.91	18.0	17.84	0.16	10 mm	MIMO	1108M	13	back	98.6	0.544	-	1.038	1.014	-	
5785	157	802.11n	OFDM	20	18.0	17.91	18.0	17.84	0.07	10 mm	MIMO	1108M	13	front	98.6	0.947	0.416	1.038	1.014	0.438	
5785	157	802.11n	OFDM	20	18.0	17.91	18.0	17.84	-0.03	10 mm	MIMO	1108M	13	top	98.6	0.733	0.311	1.038	1.014	0.327	
5785	157	802.11n	OFDM	20	18.0	17.91	18.0	17.84	0.06	10 mm	MIMO	1108M	13	right	98.6	0.221	-	1.038	1.014	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											UMPC Body 1.6 W/kg (mW/g) averaged over 1 gram										

Note: To achieve the 21.0 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18.0 dBm.

Table 11-44
5 GHz WLAN MIMO UMPC Body SAR with 2.4 GHz and 5 GHz WLAN SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
5310	62	802.11n	OFDM	40	14.0	13.87	14.0	13.94	-0.15	10 mm	MIMO	1108M	27	back	97.3	0.174	0.087	1.030	1.028	0.092	
5310	62	802.11n	OFDM	40	14.0	13.87	14.0	13.94	-0.14	10 mm	MIMO	1108M	27	front	97.3	0.134	-	1.030	1.028	-	
5310	62	802.11n	OFDM	40	14.0	13.87	14.0	13.94	-0.12	10 mm	MIMO	1108M	27	top	97.3	0.106	-	1.030	1.028	-	
5310	62	802.11n	OFDM	40	14.0	13.87	14.0	13.94	0.14	10 mm	MIMO	1108M	27	right	97.3	0.020	-	1.030	1.028	-	
5530	106	802.11ac	OFDM	80	14.0	12.86	14.0	12.80	-0.03	10 mm	MIMO	1108M	58.5	back	90.7	0.293	0.151	1.318	1.103	0.220	
5530	106	802.11ac	OFDM	80	14.0	12.86	14.0	12.80	0.21	10 mm	MIMO	1108M	58.5	front	90.7	0.194	-	1.318	1.103	-	
5530	106	802.11ac	OFDM	80	14.0	12.86	14.0	12.80	-0.07	10 mm	MIMO	1108M	58.5	top	90.7	0.154	-	1.318	1.103	-	
5530	106	802.11ac	OFDM	80	14.0	12.86	14.0	12.80	0.13	10 mm	MIMO	1108M	58.5	right	90.7	0.027	-	1.318	1.103	-	
5775	155	802.11ac	OFDM	80	14.0	12.58	14.0	12.85	-0.10	10 mm	MIMO	1108M	58.5	back	90.7	0.180	-	1.387	1.103	-	
5775	155	802.11ac	OFDM	80	14.0	12.58	14.0	12.85	0.20	10 mm	MIMO	1108M	58.5	front	90.7	0.268	0.088	1.387	1.103	0.135	
5775	155	802.11ac	OFDM	80	14.0	12.58	14.0	12.85	0.19	10 mm	MIMO	1108M	58.5	top	90.7	0.206	-	1.387	1.103	-	
5775	155	802.11ac	OFDM	80	14.0	12.58	14.0	12.85	0.00	10 mm	MIMO	1108M	58.5	right	90.7	0.049	-	1.387	1.103	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											UMPC Body 1.6 W/kg (mW/g) averaged over 1 gram										

Note: NII MIMO was additionally evaluated at the maximum allowed output power during operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 2.4 GHz WIFI was not transmitting during the above evaluations.

Table 11-45
DSS UMPC Body SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2402	0	Bluetooth	FHSS	16.5	16.18	-0.09	10 mm	1105M	1	back	77.1	0.082	1.076	1.297	0.114	
2402	0	Bluetooth	FHSS	16.5	16.18	-0.04	10 mm	1105M	1	front	77.1	0.106	1.076	1.297	0.148	
2402	0	Bluetooth	FHSS	16.5	16.18	-0.08	10 mm	1105M	1	top	77.1	0.144	1.076	1.297	**0.201**	A63
2402	0	Bluetooth	FHSS	16.5	16.18	0.02	10 mm	1105M	1	right	77.1	0.071	1.076	1.297	0.099	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							UMPC Body 1.6 W/kg (mW/g) averaged over 1 gram									

11.6 Standalone UMPC Extremity SAR

Table 11-46
GPRS/UMTS UMPC Extremity SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	Spacing	Device Serial Number	# of GPRS Slots	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	190	GSM 850	GPRS	30.5	29.57	N/A	-0.15	0 mm	1152M	3	1:2.76	back	0.845	1.239	1.047	A64
836.60	190	GSM 850	GPRS	30.5	29.57	N/A	0.01	0 mm	1152M	3	1:2.76	front	0.736	1.239	0.912	
836.60	190	GSM 850	GPRS	30.5	29.57	N/A	0.10	0 mm	1152M	3	1:2.76	bottom	0.546	1.239	0.676	
836.60	190	GSM 850	GPRS	30.5	29.57	N/A	-0.09	0 mm	1152M	3	1:2.76	right	0.362	1.239	0.449	
1880.00	661	GSM 1900	GPRS	27.5	27.00	N/A	-0.03	8 mm	1170M	3	1:2.76	back	0.230	1.122	0.258	
1880.00	661	GSM 1900	GPRS	27.5	27.00	N/A	0.02	7 mm	1170M	3	1:2.76	front	0.370	1.122	0.415	
1880.00	661	GSM 1900	GPRS	27.5	27.00	N/A	-0.01	13 mm	1170M	3	1:2.76	bottom	0.273	1.122	0.306	
1880.00	661	GSM 1900	GPRS	27.5	27.00	N/A	-0.07	0 mm	1170M	3	1:2.76	right	0.416	1.122	0.467	
1880.00	661	GSM 1900	GPRS	25.5	24.47	N/A	-0.11	0 mm	1170M	3	1:2.76	back	0.987	1.268	1.252	
1880.00	661	GSM 1900	GPRS	25.5	24.47	N/A	0.00	0 mm	1170M	3	1:2.76	front	1.200	1.268	1.522	
1850.20	512	GSM 1900	GPRS	25.5	24.37	N/A	-0.15	0 mm	1170M	3	1:2.76	bottom	2.380	1.297	3.087	
1880.00	661	GSM 1900	GPRS	25.5	24.47	N/A	0.20	0 mm	1170M	3	1:2.76	bottom	2.600	1.268	**3.297**	A65
1909.80	810	GSM 1900	GPRS	25.5	24.36	N/A	-0.07	0 mm	1170M	3	1:2.76	bottom	2.530	1.300	3.289	
836.60	4183	UMTS 850	RMC	24.0	23.18	37	-0.18	0 mm	1152M	N/A	1:1	back	0.890	1.208	1.075	
826.40	4132	UMTS 850	RMC	24.0	23.13	37	-0.01	0 mm	1152M	N/A	1:1	front	1.020	1.222	1.246	
836.60	4183	UMTS 850	RMC	24.0	23.18	37	0.01	0 mm	1152M	N/A	1:1	front	1.390	1.208	1.679	A66
846.60	4233	UMTS 850	RMC	24.0	23.35	37	-0.02	0 mm	1152M	N/A	1:1	front	0.883	1.161	1.025	
836.60	4183	UMTS 850	RMC	24.0	23.18	37	-0.05	0 mm	1152M	N/A	1:1	bottom	0.450	1.208	0.544	
836.60	4183	UMTS 850	RMC	24.0	23.18	37	-0.16	0 mm	1152M	N/A	1:1	right	0.923	1.208	1.115	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	N/A	0.05	8 mm	1170M	N/A	1:1	back	0.643	1.167	0.750	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	N/A	-0.04	7 mm	1170M	N/A	1:1	front	0.692	1.167	0.808	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	N/A	0.01	13 mm	1170M	N/A	1:1	bottom	0.386	1.167	0.450	
1732.40	1412	UMTS 1750	RMC	24.0	23.33	N/A	-0.03	0 mm	1170M	N/A	1:1	right	0.884	1.167	1.032	
1732.40	1412	UMTS 1750	RMC	20.0	19.30	N/A	-0.03	0 mm	1170M	N/A	1:1	back	1.220	1.175	1.434	
1732.40	1412	UMTS 1750	RMC	20.0	19.30	N/A	-0.01	0 mm	1170M	N/A	1:1	front	1.330	1.175	1.563	
1712.40	1312	UMTS 1750	RMC	20.0	19.29	N/A	-0.14	0 mm	1170M	N/A	1:1	bottom	1.750	1.178	2.062	
1732.40	1412	UMTS 1750	RMC	20.0	19.30	N/A	-0.09	0 mm	1170M	N/A	1:1	bottom	1.830	1.175	2.150	
1752.60	1513	UMTS 1750	RMC	20.0	19.66	N/A	-0.13	0 mm	1170M	N/A	1:1	bottom	1.950	1.081	2.108	A67
1880.00	9400	UMTS 1900	RMC	24.0	22.94	N/A	0.01	8 mm	1167M	N/A	1:1	back	0.471	1.276	0.601	
1880.00	9400	UMTS 1900	RMC	24.0	22.94	N/A	0.02	7 mm	1167M	N/A	1:1	front	0.567	1.276	0.723	
1880.00	9400	UMTS 1900	RMC	24.0	22.94	N/A	-0.01	13 mm	1167M	N/A	1:1	bottom	0.428	1.276	0.546	
1880.00	9400	UMTS 1900	RMC	24.0	22.94	N/A	-0.09	0 mm	1167M	N/A	1:1	right	0.700	1.276	0.893	
1852.40	9262	UMTS 1900	RMC	20.5	20.04	N/A	-0.07	0 mm	1167M	N/A	1:1	back	1.820	1.112	2.024	
1880.00	9400	UMTS 1900	RMC	20.5	20.07	N/A	-0.08	0 mm	1167M	N/A	1:1	back	1.830	1.104	2.020	
1907.60	9538	UMTS 1900	RMC	20.5	19.96	N/A	-0.08	0 mm	1167M	N/A	1:1	back	1.670	1.132	1.890	
1880.00	9400	UMTS 1900	RMC	20.5	20.07	N/A	0.01	0 mm	1167M	N/A	1:1	front	1.730	1.104	1.910	
1852.40	9262	UMTS 1900	RMC	20.5	20.04	N/A	0.19	0 mm	1167M	N/A	1:1	bottom	2.800	1.112	3.114	
1880.00	9400	UMTS 1900	RMC	20.5	20.07	N/A	0.18	0 mm	1167M	N/A	1:1	bottom	2.840	1.104	3.135	A68
1907.60	9538	UMTS 1900	RMC	20.5	19.96	N/A	0.19	0 mm	1167M	N/A	1:1	bottom	2.720	1.132	3.079	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								UMPC Extremity 4.0 W/kg (mW/g) averaged over 10 grams								

Table 11-47
LTE Band 12 UMPC Extremity SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	9	0.07	0	1161M	QPSK	1	0	0 mm	back	1:1	0.573	1.199	0.687	
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	9	0.06	1	1161M	QPSK	25	0	0 mm	back	1:1	0.477	1.194	0.570	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	9	-0.02	0	1161M	QPSK	1	0	0 mm	front	1:1	0.725	1.199	0.869	A69
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	9	-0.03	1	1161M	QPSK	25	0	0 mm	front	1:1	0.611	1.194	0.730	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	9	-0.14	0	1161M	QPSK	1	0	0 mm	bottom	1:1	0.454	1.199	0.544	
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	9	-0.13	1	1161M	QPSK	25	0	0 mm	bottom	1:1	0.380	1.194	0.454	
707.50	23095	Mid	LTE Band 12	10	24.0	23.21	9	-0.18	0	1161M	QPSK	1	0	0 mm	right	1:1	0.696	1.199	0.835	
707.50	23095	Mid	LTE Band 12	10	23.0	22.23	9	-0.16	1	1161M	QPSK	25	0	0 mm	right	1:1	0.576	1.194	0.688	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											UMPC Extremity 4.0 W/kg (mW/g) averaged over 10 grams									

Table 11-48
LTE Band 13 UMPC Extremity SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	-0.01	0	1161M	QPSK	1	49	0 mm	back	1:1	0.722	1.262	0.911	
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	0.02	1	1161M	QPSK	25	25	0 mm	back	1:1	0.604	1.213	0.733	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	0.09	0	1161M	QPSK	1	49	0 mm	front	1:1	0.986	1.262	1.244	A70
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	0.01	1	1161M	QPSK	25	25	0 mm	front	1:1	0.839	1.213	1.018	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	-0.02	0	1161M	QPSK	1	49	0 mm	bottom	1:1	0.359	1.262	0.453	
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	-0.19	1	1161M	QPSK	25	25	0 mm	bottom	1:1	0.307	1.213	0.372	
782.00	23230	Mid	LTE Band 13	10	24.0	22.99	0	-0.18	0	1161M	QPSK	1	49	0 mm	right	1:1	0.815	1.262	1.029	
782.00	23230	Mid	LTE Band 13	10	23.0	22.16	0	-0.18	1	1161M	QPSK	25	25	0 mm	right	1:1	0.680	1.213	0.825	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											UMPC Extremity 4.0 W/kg (mW/g) averaged over 10 grams									

Table 11-49
LTE Band 26 (Cell) UMPC Extremity SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	11	-0.17	0	1161M	QPSK	1	0	0 mm	back	1:1	1.450	1.159	1.681	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	11	-0.11	1	1161M	QPSK	36	0	0 mm	back	1:1	1.180	1.189	1.403	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	11	0.00	0	1161M	QPSK	1	0	0 mm	front	1:1	1.640	1.159	1.901	A71
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	11	-0.01	1	1161M	QPSK	36	0	0 mm	front	1:1	1.340	1.189	1.593	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	11	-0.10	0	1161M	QPSK	1	0	0 mm	bottom	1:1	0.694	1.159	0.804	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	11	-0.13	1	1161M	QPSK	36	0	0 mm	bottom	1:1	0.545	1.189	0.648	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	24.86	11	-0.13	0	1161M	QPSK	1	0	0 mm	right	1:1	1.190	1.159	1.379	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	23.75	11	-0.04	1	1161M	QPSK	36	0	0 mm	right	1:1	0.954	1.189	1.134	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										UMPC Extremity 4.0 W/kg (mW/g) averaged over 10 grams										

Table 11-50
LTE Band 66 (AWS) UMPC Extremity SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	0.04	0	1198M	QPSK	1	0	8 mm	back	1:1	0.449	1.276	0.573	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	0.13	1	1198M	QPSK	50	0	8 mm	back	1:1	0.384	1.230	0.472	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	-0.09	0	1198M	QPSK	1	0	7 mm	front	1:1	0.603	1.276	0.769	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	0.00	1	1198M	QPSK	50	0	7 mm	front	1:1	0.504	1.230	0.620	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	-0.04	0	1198M	QPSK	1	0	13 mm	bottom	1:1	0.293	1.276	0.374	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	-0.04	1	1198M	QPSK	50	0	13 mm	bottom	1:1	0.253	1.230	0.311	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	22.94	-0.04	0	1198M	QPSK	1	0	0 mm	right	1:1	0.738	1.276	0.942	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.0	22.10	-0.04	1	1198M	QPSK	50	0	0 mm	right	1:1	0.613	1.230	0.754	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.40	0.00	0	1198M	QPSK	1	50	0 mm	back	1:1	1.100	1.148	1.263	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.46	-0.01	0	1198M	QPSK	50	0	0 mm	back	1:1	1.150	1.132	1.302	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.40	0.15	0	1198M	QPSK	1	50	0 mm	front	1:1	1.350	1.148	1.550	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.46	0.12	0	1198M	QPSK	50	0	0 mm	front	1:1	1.440	1.132	1.630	
1720.00	132072	Low	LTE Band 66 (AWS)	20	20.0	19.33	-0.19	0	1198M	QPSK	1	99	0 mm	bottom	1:1	1.990	1.167	2.322	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.40	-0.13	0	1198M	QPSK	1	50	0 mm	bottom	1:1	2.070	1.148	2.376	
1770.00	132572	High	LTE Band 66 (AWS)	20	20.0	19.12	-0.15	0	1198M	QPSK	1	0	0 mm	bottom	1:1	2.210	1.225	2.707	
1720.00	132072	Low	LTE Band 66 (AWS)	20	20.0	19.45	-0.12	0	1198M	QPSK	50	25	0 mm	bottom	1:1	2.100	1.135	2.384	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.0	19.46	-0.10	0	1198M	QPSK	50	0	0 mm	bottom	1:1	2.230	1.132	2.524	
1770.00	132572	High	LTE Band 66 (AWS)	20	20.0	19.20	-0.16	0	1198M	QPSK	50	0	0 mm	bottom	1:1	2.330	1.202	2.801	A72
1720.00	132072	Low	LTE Band 66 (AWS)	20	20.0	19.39	-0.16	0	1198M	QPSK	100	0	0 mm	bottom	1:1	2.100	1.151	2.417	
1770.00	132572	High	LTE Band 66 (AWS)	20	20.0	19.20	-0.08	0	1198M	QPSK	50	0	0 mm	bottom	1:1	2.330	1.202	2.801	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									UMPC Extremity 4.0 W/kg (mW/g) averaged over 10 grams										

Note: Blue entry represents variability measurement.

Table 11-51
LTE Band 25 (PCS) UMPC Extremity SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	-0.04	0	1192M	QPSK	1	50	8 mm	back	1:1	0.414	1.309	0.542	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	0.00	1	1192M	QPSK	50	25	8 mm	back	1:1	0.341	1.265	0.431	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	0.03	0	1192M	QPSK	1	50	7 mm	front	1:1	0.443	1.309	0.580	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	0.02	1	1192M	QPSK	50	25	7 mm	front	1:1	0.362	1.265	0.458	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	-0.09	0	1192M	QPSK	1	50	13 mm	bottom	1:1	0.360	1.309	0.471	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	-0.08	1	1192M	QPSK	50	25	13 mm	bottom	1:1	0.296	1.265	0.374	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	22.83	-0.19	0	1192M	QPSK	1	50	0 mm	right	1:1	0.604	1.309	0.791	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.0	21.98	-0.12	1	1192M	QPSK	50	25	0 mm	right	1:1	0.485	1.265	0.614	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.87	-0.09	0	1192M	QPSK	1	50	0 mm	back	1:1	1.480	1.030	1.524	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.92	-0.08	0	1192M	QPSK	50	25	0 mm	back	1:1	1.530	1.019	1.559	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.87	0.00	0	1192M	QPSK	1	50	0 mm	front	1:1	1.310	1.030	1.349	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.92	0.03	0	1192M	QPSK	50	25	0 mm	front	1:1	1.360	1.019	1.386	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.0	19.65	-0.05	0	1192M	QPSK	1	0	0 mm	bottom	1:1	2.960	1.084	3.209	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.87	-0.15	0	1192M	QPSK	1	50	0 mm	bottom	1:1	2.850	1.030	2.936	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.0	19.56	0.06	0	1192M	QPSK	1	0	0 mm	bottom	1:1	2.860	1.107	3.166	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.0	19.69	-0.13	0	1192M	QPSK	50	50	0 mm	bottom	1:1	3.060	1.074	3.286	A73
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.92	-0.21	0	1192M	QPSK	50	25	0 mm	bottom	1:1	3.000	1.019	3.057	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.0	19.67	0.03	0	1192M	QPSK	50	50	0 mm	bottom	1:1	2.880	1.079	3.108	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.0	19.86	-0.21	0	1192M	QPSK	100	0	0 mm	bottom	1:1	3.000	1.033	3.099	
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.0	19.69	-0.05	0	1192M	QPSK	50	50	0 mm	bottom	1:1	2.950	1.074	3.168	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									UMPC Extremity 4.0 W/kg (mW/g) averaged over 10 grams										

Note: Blue entry represents variability measurement.

Table 11-52
LTE Band 41 UMPC Extremity SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	-0.02	0	1143M	QPSK	1	0	8 mm	back	1:1.58	0.398	1.153	0.459	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	-0.06	1	1143M	QPSK	50	0	8 mm	back	1:1.58	0.341	1.119	0.382	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	-0.02	0	1143M	QPSK	1	0	7 mm	front	1:1.58	0.385	1.153	0.444	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	-0.07	1	1143M	QPSK	50	0	7 mm	front	1:1.58	0.314	1.119	0.351	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	-0.09	0	1143M	QPSK	1	0	13 mm	bottom	1:1.58	0.357	1.153	0.412	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	-0.03	1	1143M	QPSK	50	0	13 mm	bottom	1:1.58	0.291	1.119	0.326	
2593.00	40620	Mid	LTE Band 41	20	24.0	23.38	-0.13	0	1143M	QPSK	1	0	0 mm	right	1:1.58	1.000	1.153	1.153	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.51	-0.15	1	1143M	QPSK	50	0	0 mm	right	1:1.58	0.825	1.119	0.923	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.43	0.06	0	1143M	QPSK	1	0	0 mm	back	1:1.58	0.983	1.140	1.121	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.45	0.02	0	1143M	QPSK	50	0	0 mm	back	1:1.58	1.010	1.135	1.146	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.43	0.04	0	1143M	QPSK	1	0	0 mm	front	1:1.58	1.050	1.140	1.197	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.45	0.06	0	1143M	QPSK	50	0	0 mm	front	1:1.58	1.090	1.135	1.237	
2506.00	39750	Low	LTE Band 41	20	21.0	20.06	-0.20	0	1143M	QPSK	1	99	0 mm	bottom	1:1.58	2.050	1.242	2.546	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.43	-0.11	0	1143M	QPSK	1	0	0 mm	bottom	1:1.58	2.130	1.140	2.428	
2593.00	40620	Mid	LTE Band 41	20	21.0	20.15	-0.06	0	1143M	QPSK	1	50	0 mm	bottom	1:1.58	2.270	1.216	2.760	
2636.50	41055	Mid-High	LTE Band 41	20	21.0	20.36	-0.13	0	1143M	QPSK	1	0	0 mm	bottom	1:1.58	2.090	1.159	2.422	
2680.00	41490	High	LTE Band 41	20	21.0	20.05	-0.15	0	1143M	QPSK	1	99	0 mm	bottom	1:1.58	2.080	1.245	2.590	
2506.00	39750	Low	LTE Band 41	20	21.0	20.37	-0.11	0	1143M	QPSK	50	25	0 mm	bottom	1:1.58	2.110	1.156	2.439	
2549.50	40185	Low-Mid	LTE Band 41	20	21.0	20.45	-0.19	0	1143M	QPSK	50	0	0 mm	bottom	1:1.58	2.240	1.135	2.542	
2593.00	40620	Mid	LTE Band 41	20	21.0	20.41	-0.15	0	1143M	QPSK	50	25	0 mm	bottom	1:1.58	2.300	1.146	2.636	
2636.50	41055	Mid-High	LTE Band 41	20	21.0	20.42	-0.12	0	1143M	QPSK	50	0	0 mm	bottom	1:1.58	2.170	1.143	2.480	
2680.00	41490	High	LTE Band 41	20	21.0	20.12	-0.14	0	1143M	QPSK	50	25	0 mm	bottom	1:1.58	2.090	1.225	2.560	
2636.50	41055	Mid-High	LTE Band 41	20	21.0	20.40	-0.18	0	1143M	QPSK	100	0	0 mm	bottom	1:1.58	2.360	1.148	2.709	A74
2506.00	39750	Low	LTE Band 41	20	21.0	20.37	-0.19	0	1143M	QPSK	50	25	0 mm	bottom	1:1.58	2.210	1.156	2.555	
2636.50	41055	Mid-High	LTE Band 41	20	21.0	20.40	-0.21	0	1143M	QPSK	100	0	0 mm	bottom	1:1.58	2.360	1.148	2.709	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									UMPC Extremity 4.0 W/kg (mW/g) averaged over 10 grams										

Note: Blue entry represents variability measurement.

Table 11-53
WLAN UMPC Extremity SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	20.0	19.97	0.19	0 mm	1	1099M	1	back	99.9	2.343	-	1.007	1.001	-	
2412	1	802.11b	DSSS	22	20.0	19.97	0.00	0 mm	1	1099M	1	front	99.9	8.464	1.760	1.007	1.001	1.774	A75
2437	6	802.11b	DSSS	22	20.0	19.92	0.17	0 mm	1	1099M	1	front	99.9	7.059	1.400	1.019	1.001	1.428	
2462	11	802.11b	DSSS	22	20.0	19.72	0.00	0 mm	1	1099M	1	front	99.9	6.249	1.360	1.067	1.001	1.453	
2412	1	802.11b	DSSS	22	20.0	19.97	0.19	0 mm	1	1099M	1	top	99.9	8.676	1.530	1.007	1.001	1.542	
2412	1	802.11b	DSSS	22	20.0	19.97	0.17	0 mm	1	1099M	1	right	99.9	3.369	-	1.007	1.001	-	
2412	1	802.11b	DSSS	22	20.0	19.98	-0.16	0 mm	2	1099M	1	back	99.9	4.378	-	1.005	1.001	-	
2412	1	802.11b	DSSS	22	20.0	19.98	0.00	0 mm	2	1099M	1	front	99.9	2.723	-	1.005	1.001	-	
2412	1	802.11b	DSSS	22	20.0	19.98	0.14	0 mm	2	1099M	1	top	99.9	6.197	0.980	1.005	1.001	0.986	
5320	64	802.11a	OFDM	20	18.0	17.91	-0.12	0 mm	1	1108M	6	back	98.8	2.019	0.299	1.021	1.012	0.309	
5320	64	802.11a	OFDM	20	18.0	17.91	0.05	0 mm	1	1108M	6	front	98.8	4.165	0.416	1.021	1.012	0.430	
5320	64	802.11a	OFDM	20	18.0	17.91	0.13	0 mm	1	1108M	6	top	98.8	1.045	-	1.021	1.012	-	
5320	64	802.11a	OFDM	20	18.0	17.91	-0.06	0 mm	1	1108M	6	right	98.8	0.219	-	1.021	1.012	-	
5280	56	802.11a	OFDM	20	18.0	17.99	-0.18	0 mm	2	1108M	6	back	98.7	2.151	0.231	1.002	1.013	0.234	
5280	56	802.11a	OFDM	20	18.0	17.99	-0.02	0 mm	2	1108M	6	front	98.7	2.360	0.322	1.002	1.013	0.327	
5280	56	802.11a	OFDM	20	18.0	17.99	-0.14	0 mm	2	1108M	6	top	98.7	5.703	0.449	1.002	1.013	0.456	
5500	100	802.11a	OFDM	20	18.0	17.94	0.14	0 mm	1	1108M	6	back	98.8	2.712	0.532	1.014	1.012	0.546	
5500	100	802.11a	OFDM	20	18.0	17.94	-0.08	0 mm	1	1108M	6	front	98.8	6.943	0.659	1.014	1.012	0.676	
5500	100	802.11a	OFDM	20	18.0	17.94	0.12	0 mm	1	1108M	6	top	98.8	3.325	-	1.014	1.012	-	
5500	100	802.11a	OFDM	20	18.0	17.94	-0.05	0 mm	1	1108M	6	right	98.8	0.625	-	1.014	1.012	-	
5720	144	802.11a	OFDM	20	18.0	17.98	-0.12	0 mm	2	1108M	6	back	98.7	3.180	0.380	1.005	1.013	0.387	
5720	144	802.11a	OFDM	20	18.0	17.98	-0.07	0 mm	2	1108M	6	front	98.7	2.961	0.321	1.005	1.013	0.327	
5720	144	802.11a	OFDM	20	18.0	17.98	-0.20	0 mm	2	1108M	6	top	98.7	10.539	0.733	1.005	1.013	0.746	
5785	157	802.11a	OFDM	20	18.0	17.97	0.16	0 mm	1	1108M	6	back	98.8	5.106	0.558	1.007	1.012	0.569	
5785	157	802.11a	OFDM	20	18.0	17.97	0.04	0 mm	1	1108M	6	front	98.8	7.973	0.720	1.007	1.012	0.734	
5785	157	802.11a	OFDM	20	18.0	17.97	-0.14	0 mm	1	1108M	6	top	98.8	1.751	-	1.007	1.012	-	
5785	157	802.11a	OFDM	20	18.0	17.97	0.04	0 mm	1	1108M	6	right	98.8	0.782	-	1.007	1.012	-	
5785	157	802.11a	OFDM	20	18.0	17.86	-0.12	0 mm	2	1108M	6	back	98.7	3.840	0.396	1.033	1.013	0.414	
5785	157	802.11a	OFDM	20	18.0	17.86	-0.05	0 mm	2	1108M	6	front	98.7	2.697	0.321	1.033	1.013	0.336	
5785	157	802.11a	OFDM	20	18.0	17.86	-0.18	0 mm	2	1108M	6	top	98.7	11.544	0.764	1.033	1.013	0.799	A76
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								UMPC Extremity 4.0 W/kg (mW/g) averaged over 10 grams											

Table 11-54
DTS WLAN MIMO UMPC Extremity SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
2452	9	802.11n	OFDM	20	18.0	17.96	18.0	17.85	-0.19	0 mm	MIMO	1105M	13	back	98.7	5.811	1.190	1.035	1.013	1.248	
2452	9	802.11n	OFDM	20	18.0	17.96	18.0	17.85	0.00	0 mm	MIMO	1105M	13	front	98.7	5.340	1.330	1.035	1.013	1.394	
2412	1	802.11n	OFDM	20	18.0	17.70	18.0	17.95	0.12	0 mm	MIMO	1105M	13	top	98.7	7.869	1.720	1.072	1.013	1.868	
2437	6	802.11n	OFDM	20	18.0	17.85	18.0	17.89	0.18	0 mm	MIMO	1105M	13	top	98.7	5.621	1.210	1.035	1.013	1.269	
2452	9	802.11n	OFDM	20	18.0	17.96	18.0	17.85	0.13	0 mm	MIMO	1105M	13	top	98.7	9.170	1.670	1.035	1.013	1.751	
2452	9	802.11n	OFDM	20	18.0	17.96	18.0	17.85	0.19	0 mm	MIMO	1105M	13	right	98.7	2.529	-	1.035	1.013	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										UMPC Extremity 4.0 W/kg (mW/g) averaged over 10 grams											

Note: To achieve the 21.0 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18.0 dBm.

Table 11-55
5 GHz WLAN UMPC Extremity SAR with 2.4 GHz and 5 GHz WLAN SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
5310	62	802.11n	OFDM	40	14.0	13.87	14.0	13.94	0.00	0 mm	MIMO	1108M	27	back	97.3	0.841	-	1.030	1.028	-	
5310	62	802.11n	OFDM	40	14.0	13.87	14.0	13.94	0.05	0 mm	MIMO	1108M	27	front	97.3	1.800	-	1.030	1.028	-	
5310	62	802.11n	OFDM	40	14.0	13.87	14.0	13.94	-0.18	0 mm	MIMO	1108M	27	top	97.3	2.333	0.190	1.030	1.028	0.201	
5310	62	802.11n	OFDM	40	14.0	13.87	14.0	13.94	0.00	0 mm	MIMO	1108M	27	right	97.3	0.102	-	1.030	1.028	-	
5530	106	802.11ac	OFDM	80	14.0	12.86	14.0	12.80	-0.18	0 mm	MIMO	1108M	58.5	back	90.7	1.620	-	1.318	1.103	-	
5530	106	802.11ac	OFDM	80	14.0	12.86	14.0	12.80	0.00	0 mm	MIMO	1108M	58.5	front	90.7	2.197	-	1.318	1.103	-	
5530	106	802.11ac	OFDM	80	14.0	12.86	14.0	12.80	-0.02	0 mm	MIMO	1108M	58.5	top	90.7	2.977	0.235	1.318	1.103	0.342	
5530	106	802.11ac	OFDM	80	14.0	12.86	14.0	12.80	-0.11	0 mm	MIMO	1108M	58.5	right	90.7	0.258	-	1.318	1.103	-	
5775	155	802.11ac	OFDM	80	14.0	12.58	14.0	12.85	-0.12	0 mm	MIMO	1108M	58.5	back	90.7	2.254	-	1.387	1.103	-	
5775	155	802.11ac	OFDM	80	14.0	12.58	14.0	12.85	0.10	0 mm	MIMO	1108M	58.5	front	90.7	2.379	-	1.387	1.103	-	
5775	155	802.11ac	OFDM	80	14.0	12.58	14.0	12.85	0.15	0 mm	MIMO	1108M	58.5	top	90.7	3.733	0.274	1.387	1.103	0.419	
5775	155	802.11ac	OFDM	80	14.0	12.58	14.0	12.85	0.17	0 mm	MIMO	1108M	58.5	right	90.7	0.303	-	1.387	1.103	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										UMPC Extremity 4.0 W/kg (mW/g) averaged over 10 grams											

Note: NII MIMO was additionally evaluated at the maximum allowed output power during operations with Simultaneous 2.4 GHz and 5 GHz WLAN. 2.4 GHz WIFI was not transmitting during the above evaluations.

Table 11-56
DSS UMPC Extremity SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (10g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2402	0	Bluetooth	FHSS	16.5	16.18	0.15	0 mm	1105M	1	back	77.1	0.337	1.076	1.297	0.470	
2402	0	Bluetooth	FHSS	16.5	16.18	0.00	0 mm	1105M	1	front	77.1	0.726	1.076	1.297	1.013	A77
2402	0	Bluetooth	FHSS	16.5	16.18	0.06	0 mm	1105M	1	top	77.1	0.579	1.076	1.297	0.808	
2402	0	Bluetooth	FHSS	16.5	16.18	-0.04	0 mm	1105M	1	right	77.1	0.222	1.076	1.297	0.310	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							UMPC Extremity 4.0 W/kg (mW/g) averaged over 10 grams								

11.7 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB Publication 648474 D04v01r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was ≤ 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were required.
8. Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 13 for variability analysis.
9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 6.7 for more details).
10. Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" when it is in closed configuration since the diagonal dimension is > 160 mm and < 200 mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6 (See Section 6.9 for more information)
11. This device supports dynamic antenna tuning for some bands. Per FCC Guidance, SAR was measured according to the normally required SAR measurement configurations with tuner active. The auto-tune state determined by the device was verified before and after each SAR measurement and is listed in tables above. Please see Section 14 for supplemental data.
12. This device utilizes power reduction for some wireless modes and technologies, as outlined in Section 1.3. The maximum output power allowed for each transmitter and exposure condition was evaluated for SAR compliance based on expected use conditions and simultaneous transmission scenarios.
13. Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds below.
14. Per FCC KDB Publication 941225 D07v01r02, this device is considered a "UMPC mini-tablet" when it is in open configuration. UMPC body 1g SAR tests are required on all surfaces and edges ≤ 25 mm from a transmitting antenna. Therefore, to address hand exposure, UMPC extremity 10g SAR tests are required at a test separation distance of 0 mm for all measured 1g SAR (at 10 mm) configurations.

GSM Test Notes:

1. Body-Worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
2. Justification for reduced test configurations per KDB Publication 941225 D01v03r01 and October 2013 TCB Workshop Notes: The source-based frame-averaged output power was evaluated for all GPRS/EDGE slot configurations. The configuration with the highest target frame averaged output power was evaluated for hotspot SAR. When the maximum frame-averaged powers are equivalent across two or more slots (within 0.25 dB), the configuration with the most number of time slots was tested.
3. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power

variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel was used.

UMTS Notes:

1. UMTS mode in was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v03r01. AMR and HSPA SAR was not required per the 3G Test Reduction Procedure in KDB Publication 941225 D01v03r01.
2. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel was used.

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r04. The general test procedures used for testing can be found in Section 8.5.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 and MCC=001 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
4. Per FCC KDB Publication 447498 D01v06, when the reported LTE Band 41 SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg for 1g evaluations, testing at the other channels was required for such test configurations.
5. TDD LTE was tested per the guidance provided in FCC KDB Publication 941225 D05v02r04. Testing was performed using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.

WLAN Notes:

1. For held-to-ear, hotspot, phablet, and UMPC mini-tablet operations, the initial test position procedures were applied. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g evaluations, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n/ax) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 8.6.5 for more information.
3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 8.6.6 for more information.
4. Per KDB Publication 248227 D01v02r02, SAR for MIMO was evaluated by following the simultaneous SAR provisions from KDB Publication 447498 D01v06 by either evaluating the sum of the 1g SAR values of each antenna transmitting independently or making a SAR measurement with both antennas transmitting simultaneously. Please see Section 12 for complete analysis.

5. When the maximum reported 1g averaged SAR is ≤0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.
6. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.
7. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

Bluetooth Notes

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests test mode type. Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 100% transmission duty factor to determine compliance. See Section 9.5 for the time domain plot and calculation for the duty factor of the device.

12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

12.1 Introduction

The following procedures adopted from FCC KDB Publication 447498 D01v06 are applicable to devices with built-in unlicensed transmitters such as 802.11 and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

12.2 Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore, simultaneous transmission analysis is required. Per FCC KDB Publication 447498 D01v06 4.3.2 and IEEE 1528-2013 Section 6.3.4.1.2, simultaneous transmission SAR test exclusion may be applied when the sum of the 1g or 10g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is within SAR limits. The different test positions in an exposure condition may be considered collectively to determine SAR test exclusion according to the sum of 1g or 10g SAR.

12.3 Head SAR Simultaneous Transmission Analysis

Table 12-1
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	0.114	0.066	0.114	0.180	0.228	0.294
	GSM 1900	0.040	0.066	0.114	0.106	0.154	0.220
	UMTS 850	0.330	0.066	0.114	0.396	0.444	0.510
	UMTS 1750	0.146	0.066	0.114	0.212	0.260	0.326
	UMTS 1900	0.115	0.066	0.114	0.181	0.229	0.295
	LTE Band 12	0.138	0.066	0.114	0.204	0.252	0.318
	LTE Band 13	0.269	0.066	0.114	0.335	0.383	0.449
	LTE Band 26 (Cell)	0.345	0.066	0.114	0.411	0.459	**0.525**
	LTE Band 66 (AWS)	0.149	0.066	0.114	0.215	0.263	0.329
	LTE Band 25 (PCS)	0.113	0.066	0.114	0.179	0.227	0.293
	LTE Band 41	0.055	0.066	0.114	0.121	0.169	0.235

Table 12-2
Simultaneous Transmission Scenario with 5 GHz WLAN (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	0.114	0.057	0.035	0.171	0.149	0.206
	GSM 1900	0.040	0.057	0.035	0.097	0.075	0.132
	UMTS 850	0.330	0.057	0.035	0.387	0.365	0.422
	UMTS 1750	0.146	0.057	0.035	0.203	0.181	0.238
	UMTS 1900	0.115	0.057	0.035	0.172	0.150	0.207
	LTE Band 12	0.138	0.057	0.035	0.195	0.173	0.230
	LTE Band 13	0.269	0.057	0.035	0.326	0.304	0.361
	LTE Band 26 (Cell)	0.345	0.057	0.035	0.402	0.380	**0.437**
	LTE Band 66 (AWS)	0.149	0.057	0.035	0.206	0.184	0.241
	LTE Band 25 (PCS)	0.113	0.057	0.035	0.170	0.148	0.205
	LTE Band 41	0.055	0.057	0.035	0.112	0.090	0.147

Table 12-3
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO and 5 GHz WLAN MIMO (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Head SAR	GSM 850	0.114	0.066	0.114	0.057	0.035	0.386
	GSM 1900	0.040	0.066	0.114	0.057	0.035	0.312
	UMTS 850	0.330	0.066	0.114	0.057	0.035	0.602
	UMTS 1750	0.146	0.066	0.114	0.057	0.035	0.418
	UMTS 1900	0.115	0.066	0.114	0.057	0.035	0.387
	LTE Band 12	0.138	0.066	0.114	0.057	0.035	0.410
	LTE Band 13	0.269	0.066	0.114	0.057	0.035	0.541
	LTE Band 26 (Cell)	0.345	0.066	0.114	0.057	0.035	**0.617**
	LTE Band 66 (AWS)	0.149	0.066	0.114	0.057	0.035	0.421
	LTE Band 25 (PCS)	0.113	0.066	0.114	0.057	0.035	0.385
	LTE Band 41	0.055	0.066	0.114	0.057	0.035	0.327

Table 12-4
Simultaneous Transmission Scenario with Bluetooth (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	GSM 850	0.114	0.075	0.189
	GSM 1900	0.040	0.075	0.115
	UMTS 850	0.330	0.075	0.405
	UMTS 1750	0.146	0.075	0.221
	UMTS 1900	0.115	0.075	0.190
	LTE Band 12	0.138	0.075	0.213
	LTE Band 13	0.269	0.075	0.344
	LTE Band 26 (Cell)	0.345	0.075	**0.420**
	LTE Band 66 (AWS)	0.149	0.075	0.224
	LTE Band 25 (PCS)	0.113	0.075	0.188
	LTE Band 41	0.055	0.075	0.130

Table 12-5
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Antenna 1(Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	GSM 850	0.114	0.075	0.057	0.246
	GSM 1900	0.040	0.075	0.057	0.172
	UMTS 850	0.330	0.075	0.057	0.462
	UMTS 1750	0.146	0.075	0.057	0.278
	UMTS 1900	0.115	0.075	0.057	0.247
	LTE Band 12	0.138	0.075	0.057	0.270
	LTE Band 13	0.269	0.075	0.057	0.401
	LTE Band 26 (Cell)	0.345	0.075	0.057	**0.477**
	LTE Band 66 (AWS)	0.149	0.075	0.057	0.281
	LTE Band 25 (PCS)	0.113	0.075	0.057	0.245
	LTE Band 41	0.055	0.075	0.057	0.187

Table 12-6
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Antenna 2(Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	GSM 850	0.114	0.075	0.035	0.224
	GSM 1900	0.040	0.075	0.035	0.150
	UMTS 850	0.330	0.075	0.035	0.440
	UMTS 1750	0.146	0.075	0.035	0.256
	UMTS 1900	0.115	0.075	0.035	0.225
	LTE Band 12	0.138	0.075	0.035	0.248
	LTE Band 13	0.269	0.075	0.035	0.379
	LTE Band 26 (Cell)	0.345	0.075	0.035	**0.455**
	LTE Band 66 (AWS)	0.149	0.075	0.035	0.259
	LTE Band 25 (PCS)	0.113	0.075	0.035	0.223
	LTE Band 41	0.055	0.075	0.035	0.165

Table 12-7
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN MIMO(Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Head SAR	GSM 850	0.114	0.075	0.057	0.035	0.281
	GSM 1900	0.040	0.075	0.057	0.035	0.207
	UMTS 850	0.330	0.075	0.057	0.035	0.497
	UMTS 1750	0.146	0.075	0.057	0.035	0.313
	UMTS 1900	0.115	0.075	0.057	0.035	0.282
	LTE Band 12	0.138	0.075	0.057	0.035	0.305
	LTE Band 13	0.269	0.075	0.057	0.035	0.436
	LTE Band 26 (Cell)	0.345	0.075	0.057	0.035	**0.512**
	LTE Band 66 (AWS)	0.149	0.075	0.057	0.035	0.316
	LTE Band 25 (PCS)	0.113	0.075	0.057	0.035	0.280
	LTE Band 41	0.055	0.075	0.057	0.035	0.222

12.4 Body-Worn Simultaneous Transmission Analysis

Table 12-8
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Body-Worn	GSM 850	0.168	0.039	0.088	0.207	0.256	0.295
	GSM 1900	0.119	0.039	0.088	0.158	0.207	0.246
	UMTS 850	0.223	0.039	0.088	0.262	0.311	0.350
	UMTS 1750	0.580	0.039	0.088	0.619	0.668	0.707
	UMTS 1900	0.353	0.039	0.088	0.392	0.441	0.480
	LTE Band 12	0.205	0.039	0.088	0.244	0.293	0.332
	LTE Band 13	0.251	0.039	0.088	0.290	0.339	0.378
	LTE Band 26 (Cell)	0.232	0.039	0.088	0.271	0.320	0.359
	LTE Band 66 (AWS)	0.597	0.039	0.088	0.636	0.685	**0.724**
	LTE Band 25 (PCS)	0.356	0.039	0.088	0.395	0.444	0.483
	LTE Band 41	0.135	0.039	0.088	0.174	0.223	0.262

Table 12-9
Simultaneous Transmission Scenario with 5 GHz WLAN (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Body-Worn	GSM 850	0.168	0.300	0.076	0.468	0.244	0.544
	GSM 1900	0.119	0.300	0.076	0.419	0.195	0.495
	UMTS 850	0.223	0.300	0.076	0.523	0.299	0.599
	UMTS 1750	0.580	0.300	0.076	0.880	0.656	0.956
	UMTS 1900	0.353	0.300	0.076	0.653	0.429	0.729
	LTE Band 12	0.205	0.300	0.076	0.505	0.281	0.581
	LTE Band 13	0.251	0.300	0.076	0.551	0.327	0.627
	LTE Band 26 (Cell)	0.232	0.300	0.076	0.532	0.308	0.608
	LTE Band 66 (AWS)	0.597	0.300	0.076	0.897	0.673	**0.973**
	LTE Band 25 (PCS)	0.356	0.300	0.076	0.656	0.432	0.732
	LTE Band 41	0.135	0.300	0.076	0.435	0.211	0.511

Table 12-10
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO and 5 GHz WLAN MIMO (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Body-Worn	GSM 850	0.168	0.039	0.088	0.300	0.076	0.671
	GSM 1900	0.119	0.039	0.088	0.300	0.076	0.622
	UMTS 850	0.223	0.039	0.088	0.300	0.076	0.726
	UMTS 1750	0.580	0.039	0.088	0.300	0.076	1.083
	UMTS 1900	0.353	0.039	0.088	0.300	0.076	0.856
	LTE Band 12	0.205	0.039	0.088	0.300	0.076	0.708
	LTE Band 13	0.251	0.039	0.088	0.300	0.076	0.754
	LTE Band 26 (Cell)	0.232	0.039	0.088	0.300	0.076	0.735
	LTE Band 66 (AWS)	0.597	0.039	0.088	0.300	0.076	**1.100**
	LTE Band 25 (PCS)	0.356	0.039	0.088	0.300	0.076	0.859
	LTE Band 41	0.135	0.039	0.088	0.300	0.076	0.638

Table 12-11
Simultaneous Transmission Scenario with Bluetooth (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	GSM 850	0.168	0.031	0.199
	GSM 1900	0.119	0.031	0.150
	UMTS 850	0.223	0.031	0.254
	UMTS 1750	0.580	0.031	0.611
	UMTS 1900	0.353	0.031	0.384
	LTE Band 12	0.205	0.031	0.236
	LTE Band 13	0.251	0.031	0.282
	LTE Band 26 (Cell)	0.232	0.031	0.263
	LTE Band 66 (AWS)	0.597	0.031	**0.628**
	LTE Band 25 (PCS)	0.356	0.031	0.387
	LTE Band 41	0.135	0.031	0.166

Table 12-12
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Antenna 1 (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	GSM 850	0.168	0.031	0.300	0.499
	GSM 1900	0.119	0.031	0.300	0.450
	UMTS 850	0.223	0.031	0.300	0.554
	UMTS 1750	0.580	0.031	0.300	0.911
	UMTS 1900	0.353	0.031	0.300	0.684
	LTE Band 12	0.205	0.031	0.300	0.536
	LTE Band 13	0.251	0.031	0.300	0.582
	LTE Band 26 (Cell)	0.232	0.031	0.300	0.563
	LTE Band 66 (AWS)	0.597	0.031	0.300	**0.928**
	LTE Band 25 (PCS)	0.356	0.031	0.300	0.687
	LTE Band 41	0.135	0.031	0.300	0.466

Table 12-13
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Antenna 2 (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	GSM 850	0.168	0.031	0.076	0.275
	GSM 1900	0.119	0.031	0.076	0.226
	UMTS 850	0.223	0.031	0.076	0.330
	UMTS 1750	0.580	0.031	0.076	0.687
	UMTS 1900	0.353	0.031	0.076	0.460
	LTE Band 12	0.205	0.031	0.076	0.312
	LTE Band 13	0.251	0.031	0.076	0.358
	LTE Band 26 (Cell)	0.232	0.031	0.076	0.339
	LTE Band 66 (AWS)	0.597	0.031	0.076	**0.704**
	LTE Band 25 (PCS)	0.356	0.031	0.076	0.463
	LTE Band 41	0.135	0.031	0.076	0.242

Table 12-14
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN MIMO (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Body-Worn	GSM 850	0.168	0.031	0.300	0.076	0.575
	GSM 1900	0.119	0.031	0.300	0.076	0.526
	UMTS 850	0.223	0.031	0.300	0.076	0.630
	UMTS 1750	0.580	0.031	0.300	0.076	0.987
	UMTS 1900	0.353	0.031	0.300	0.076	0.760
	LTE Band 12	0.205	0.031	0.300	0.076	0.612
	LTE Band 13	0.251	0.031	0.300	0.076	0.658
	LTE Band 26 (Cell)	0.232	0.031	0.300	0.076	0.639
	LTE Band 66 (AWS)	0.597	0.031	0.300	0.076	**1.004**
	LTE Band 25 (PCS)	0.356	0.031	0.300	0.076	0.763
	LTE Band 41	0.135	0.031	0.300	0.076	0.542

12.5 Hotspot SAR Simultaneous Transmission Analysis

Per FCC KDB Publication 941225 D06v02r01, the devices edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR (“-“).

(*) For test positions that were not required to be evaluated for WLAN SAR per FCC KDB publication 248227, the worst case WLAN SAR result for the applicable exposure conditions was used for simultaneous transmission analysis.

Table 12-15
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	0.810	0.110	0.220	0.920	1.030	1.140
	GPRS 1900	0.822	0.110	0.220	0.932	1.042	1.152
	UMTS 850	0.533	0.110	0.220	0.643	0.753	0.863
	UMTS 1750	0.823	0.110	0.220	0.933	1.043	1.153
	UMTS 1900	0.941	0.110	0.220	1.051	1.161	**1.271**
	LTE Band 12	0.442	0.110	0.220	0.552	0.662	0.772
	LTE Band 13	0.543	0.110	0.220	0.653	0.763	0.873
	LTE Band 26 (Cell)	0.628	0.110	0.220	0.738	0.848	0.958
	LTE Band 66 (AWS)	0.748	0.110	0.220	0.858	0.968	1.078
	LTE Band 25 (PCS)	0.727	0.110	0.220	0.837	0.947	1.057
	LTE Band 41	0.897	0.110	0.220	1.007	1.117	1.227

Table 12-16
Simultaneous Transmission Scenario with 5 GHz WLAN (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	GPRS 850	0.810	0.150	0.102	0.960	0.912	1.062
	GPRS 1900	0.822	0.150	0.102	0.972	0.924	1.074
	UMTS 850	0.533	0.150	0.102	0.683	0.635	0.785
	UMTS 1750	0.823	0.150	0.102	0.973	0.925	1.075
	UMTS 1900	0.941	0.150	0.102	1.091	1.043	**1.193**
	LTE Band 12	0.442	0.150	0.102	0.592	0.544	0.694
	LTE Band 13	0.543	0.150	0.102	0.693	0.645	0.795
	LTE Band 26 (Cell)	0.628	0.150	0.102	0.778	0.730	0.880
	LTE Band 66 (AWS)	0.748	0.150	0.102	0.898	0.850	1.000
	LTE Band 25 (PCS)	0.727	0.150	0.102	0.877	0.829	0.979
	LTE Band 41	0.897	0.150	0.102	1.047	0.999	1.149

Table 12-17
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO and 5 GHz WLAN MIMO (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	5	1+2+3+4+5
Hotspot SAR	GPRS 850	0.810	0.110	0.220	0.150	0.102	1.392
	GPRS 1900	0.822	0.110	0.220	0.150	0.102	1.404
	UMTS 850	0.533	0.110	0.220	0.150	0.102	1.115
	UMTS 1750	0.823	0.110	0.220	0.150	0.102	1.405
	UMTS 1900	0.941	0.110	0.220	0.150	0.102	**1.523**
	LTE Band 12	0.442	0.110	0.220	0.150	0.102	1.024
	LTE Band 13	0.543	0.110	0.220	0.150	0.102	1.125
	LTE Band 26 (Cell)	0.628	0.110	0.220	0.150	0.102	1.210
	LTE Band 66 (AWS)	0.748	0.110	0.220	0.150	0.102	1.330
	LTE Band 25 (PCS)	0.727	0.110	0.220	0.150	0.102	1.309
	LTE Band 41	0.897	0.110	0.220	0.150	0.102	1.479

Table 12-18
Simultaneous Transmission Scenario with Bluetooth (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	GPRS 850	0.810	0.082	0.892
	GPRS 1900	0.822	0.082	0.904
	UMTS 850	0.533	0.082	0.615
	UMTS 1750	0.823	0.082	0.905
	UMTS 1900	0.941	0.082	**1.023**
	LTE Band 12	0.442	0.082	0.524
	LTE Band 13	0.543	0.082	0.625
	LTE Band 26 (Cell)	0.628	0.082	0.710
	LTE Band 66 (AWS)	0.748	0.082	0.830
	LTE Band 25 (PCS)	0.727	0.082	0.809
	LTE Band 41	0.897	0.082	0.979

Table 12-19
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Antenna 1 (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	GPRS 850	0.810	0.082	0.150	1.042
	GPRS 1900	0.822	0.082	0.150	1.054
	UMTS 850	0.533	0.082	0.150	0.765
	UMTS 1750	0.823	0.082	0.150	1.055
	UMTS 1900	0.941	0.082	0.150	**1.173**
	LTE Band 12	0.442	0.082	0.150	0.674
	LTE Band 13	0.543	0.082	0.150	0.775
	LTE Band 26 (Cell)	0.628	0.082	0.150	0.860
	LTE Band 66 (AWS)	0.748	0.082	0.150	0.980
	LTE Band 25 (PCS)	0.727	0.082	0.150	0.959
	LTE Band 41	0.897	0.082	0.150	1.129

Table 12-20
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Antenna 2 (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	GPRS 850	0.810	0.082	0.102	0.994
	GPRS 1900	0.822	0.082	0.102	1.006
	UMTS 850	0.533	0.082	0.102	0.717
	UMTS 1750	0.823	0.082	0.102	1.007
	UMTS 1900	0.941	0.082	0.102	**1.125**
	LTE Band 12	0.442	0.082	0.102	0.626
	LTE Band 13	0.543	0.082	0.102	0.727
	LTE Band 26 (Cell)	0.628	0.082	0.102	0.812
	LTE Band 66 (AWS)	0.748	0.082	0.102	0.932
	LTE Band 25 (PCS)	0.727	0.082	0.102	0.911
	LTE Band 41	0.897	0.082	0.102	1.081

Table 12-21
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN MIMO (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	GPRS 850	0.810	0.082	0.150	0.102	1.144
	GPRS 1900	0.822	0.082	0.150	0.102	1.156
	UMTS 850	0.533	0.082	0.150	0.102	0.867
	UMTS 1750	0.823	0.082	0.150	0.102	1.157
	UMTS 1900	0.941	0.082	0.150	0.102	**1.275**
	LTE Band 12	0.442	0.082	0.150	0.102	0.776
	LTE Band 13	0.543	0.082	0.150	0.102	0.877
	LTE Band 26 (Cell)	0.628	0.082	0.150	0.102	0.962
	LTE Band 66 (AWS)	0.748	0.082	0.150	0.102	1.082
	LTE Band 25 (PCS)	0.727	0.082	0.150	0.102	1.061
	LTE Band 41	0.897	0.082	0.150	0.102	1.231

12.6 Phablet Simultaneous Transmission Analysis

Per FCC KDB Publication 941225 D06v02r01, the devices edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR ("-").

(*) For test positions that were not required to be evaluated for WLAN SAR per FCC KDB publication 248227, the worst case WLAN SAR result for the applicable exposure conditions was used for simultaneous transmission analysis.

For SAR summation, the highest reported SAR across all test distances was used as the most conservative evaluation for simultaneous transmission analysis for each device edge.

Per FCC KDB Publication 648474 D04 Handset SAR, Phablet SAR tests were not required if wireless router 1g SAR (scaled to the maximum output power, including tolerance) < 1.2 W/kg. Therefore no further analysis beyond the tables included in this section was required to determine that possible simultaneous transmission scenarios would not exceed the SAR limit.

Table 12-22
Simultaneous Transmission Scenario with 5 GHz WLAN (Phablet)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Phablet SAR	GPRS 1900	2.886	0.429	0.665	3.315	3.551	**3.980**
	UMTS 1750	2.479	0.429	0.665	2.908	3.144	3.573
	UMTS 1900	3.124	0.429	0.665	3.553	3.789	See Table Below
	LTE Band 66 (AWS)	2.392	0.429	0.665	2.821	3.057	3.486
	LTE Band 25 (PCS)	2.924	0.429	0.665	3.353	3.589	See Table Below
	LTE Band 41	2.524	0.429	0.665	2.953	3.189	3.618

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Phablet SAR	Back	1.192	0.429	0.665*	2.286
	Front	1.079	0.429*	0.665*	2.173
	Top	-	0.429*	0.665	1.094
	Bottom	3.124	-	-	**3.124**
	Right	0.767	0.429*	-	1.196
	Left	0.309	-	0.665*	0.974

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Phablet SAR	Back	1.141	0.429	0.665*	2.235
	Front	0.982	0.429*	0.665*	2.076
	Top	-	0.429*	0.665	1.094
	Bottom	2.924	-	-	**2.924**
	Right	0.640	0.429*	-	1.069
	Left	0.243	-	0.665*	0.908

12.7 UMPC Body Simultaneous Transmission Analysis

Per FCC KDB Publication 941225 D06v02r01, the devices edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR ("-").

(*) For test positions that were not required to be evaluated for WLAN SAR per FCC KDB publication 248227, the worst case WLAN SAR result for the applicable exposure conditions was used for simultaneous transmission analysis.

Table 12-23
Simultaneous Transmission Scenario with 2.4 GHz WLAN (UMPC Body)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
UMPC Body SAR	GPRS 850	0.776	0.332	0.197	1.108	0.973	1.305
	GPRS 1900	0.708	0.332	0.197	1.040	0.905	1.237
	UMTS 850	0.574	0.332	0.197	0.906	0.771	1.103
	UMTS 1750	0.902	0.332	0.197	1.234	1.099	1.431
	UMTS 1900	1.020	0.332	0.197	1.352	1.217	**1.549**
	LTE Band 12	0.260	0.332	0.197	0.592	0.457	0.789
	LTE Band 13	0.363	0.332	0.197	0.695	0.560	0.892
	LTE Band 26 (Cell)	0.699	0.332	0.197	1.031	0.896	1.228
	LTE Band 66 (AWS)	1.201	0.332	0.197	**1.533**	1.398	See Table Below
	LTE Band 25 (PCS)	0.947	0.332	0.197	1.279	1.144	1.476
	LTE Band 41	0.953	0.332	0.197	1.285	1.150	1.482

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
UMPC Body SAR	Back	1.026	0.332*	0.197	1.358	1.223	**1.555**
	Front	1.201	0.233	0.112	1.434	1.313	1.546
	Top	-	0.332	0.197*	0.332	0.197	0.529
	Bottom	0.716	-	-	0.716	0.716	0.716
	Right	0.389	0.332*	-	0.721	0.389	0.721

Table 12-24
Simultaneous Transmission Scenario with 5 GHz WLAN (UMPC Body)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
UMPC Body SAR	GPRS 850	0.776	0.416	0.231	1.192	1.007
	GPRS 1900	0.708	0.416	0.231	1.124	0.939
	UMTS 850	0.574	0.416	0.231	0.990	0.805
	UMTS 1750	0.902	0.416	0.231	1.318	1.133
	UMTS 1900	1.020	0.416	0.231	1.436	1.251
	LTE Band 12	0.260	0.416	0.231	0.676	0.491
	LTE Band 13	0.363	0.416	0.231	0.779	0.594
	LTE Band 26 (Cell)	0.699	0.416	0.231	1.115	0.930
	LTE Band 66 (AWS)	1.201	0.416	0.231	See Table Below	**1.432**
	LTE Band 25 (PCS)	0.947	0.416	0.231	1.363	1.178
	LTE Band 41	0.953	0.416	0.231	1.369	1.184

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
UMPC Body SAR	Back	1.026	0.416	**1.442**	N/A
	Front	1.201	0.403	See Note 1	0.01
	Top	-	0.416*	0.416	N/A
	Bottom	0.716	-	0.716	N/A
	Right	0.389	0.416*	0.805	N/A

Table 12-25
Simultaneous Transmission Scenario with 5 GHz WLAN MIMO (UMPC Body)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Body SAR	GPRS 850	0.776	0.504	1.280
	GPRS 1900	0.708	0.504	1.212
	UMTS 850	0.574	0.504	1.078
	UMTS 1750	0.902	0.504	1.406
	UMTS 1900	1.020	0.504	**1.524**
	LTE Band 12	0.260	0.504	0.764
	LTE Band 13	0.363	0.504	0.867
	LTE Band 26 (Cell)	0.699	0.504	1.203
	LTE Band 66 (AWS)	1.201	0.504	See Table Below
	LTE Band 25 (PCS)	0.947	0.504	1.451
	LTE Band 41	0.953	0.504	1.457

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
UMPC Body SAR	Back	1.026	0.504	**1.530**	N/A
	Front	1.201	0.438	See Note 1	0.01
	Top	-	0.327	0.327	N/A
	Bottom	0.716	-	0.716	N/A
	Right	0.389	0.504*	0.893	N/A

Table 12-26
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO and 5 GHz WLAN MIMO (UMPC Body)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN MIMO at 19 dBm SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	GPRS 850	0.776	0.428	0.220	1.424
	GPRS 1900	0.708	0.428	0.220	1.356
	UMTS 850	0.574	0.428	0.220	1.222
	UMTS 1750	0.902	0.428	0.220	**1.550**
	UMTS 1900	1.020	0.428	0.220	See Table Below
	LTE Band 12	0.260	0.428	0.220	0.908
	LTE Band 13	0.363	0.428	0.220	1.011
	LTE Band 26 (Cell)	0.699	0.428	0.220	1.347
	LTE Band 66 (AWS)	1.201	0.428	0.220	See Table Below
	LTE Band 25 (PCS)	0.947	0.428	0.220	See Table Below
	LTE Band 41	0.953	0.428	0.220	See Table Below

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN MIMO at 19 dBm SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	0.840	0.241	0.220	**1.301**
	Front	0.822	0.221	0.135	1.178
	Top	-	0.428	0.220*	0.648
	Bottom	1.020	-	-	1.020
	Right	0.182	0.428*	0.220*	0.830

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN MIMO at 19 dBm SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	1.026	0.241	0.220	1.487
	Front	1.201	0.221	0.135	**1.557**
	Top	-	0.428	0.220*	0.648
	Bottom	0.716	-	-	0.716
	Right	0.389	0.428*	0.220*	1.037

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN MIMO at 19 dBm SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	0.814	0.241	0.220	**1.275**
	Front	0.640	0.221	0.135	0.996
	Top	-	0.428	0.220*	0.648
	Bottom	0.947	-	-	0.947
	Right	0.207	0.428*	0.220*	0.855

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN MIMO at 19 dBm SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	0.953	0.241	0.220	**1.414**
	Front	0.852	0.221	0.135	1.208
	Top	-	0.428	0.220*	0.648
	Bottom	0.939	-	-	0.939
	Right	0.696	0.428*	0.220*	1.344

Table 12-27
Simultaneous Transmission Scenario with Bluetooth (UMPC Body)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Body SAR	GPRS 850	0.776	0.201	0.977
	GPRS 1900	0.708	0.201	0.909
	UMTS 850	0.574	0.201	0.775
	UMTS 1750	0.902	0.201	1.103
	UMTS 1900	1.020	0.201	1.221
	LTE Band 12	0.260	0.201	0.461
	LTE Band 13	0.363	0.201	0.564
	LTE Band 26 (Cell)	0.699	0.201	0.900
	LTE Band 66 (AWS)	1.201	0.201	**1.402**
	LTE Band 25 (PCS)	0.947	0.201	1.148
	LTE Band 41	0.953	0.201	1.154

Table 12-28
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Antenna 1 (UMPC Body)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	GPRS 850	0.776	0.201	0.416	1.393
	GPRS 1900	0.708	0.201	0.416	1.325
	UMTS 850	0.574	0.201	0.416	1.191
	UMTS 1750	0.902	0.201	0.416	1.519
	UMTS 1900	1.020	0.201	0.416	See Table Below
	LTE Band 12	0.260	0.201	0.416	0.877
	LTE Band 13	0.363	0.201	0.416	0.980
	LTE Band 26 (Cell)	0.699	0.201	0.416	1.316
	LTE Band 66 (AWS)	1.201	0.201	0.416	See Table Below
	LTE Band 25 (PCS)	0.947	0.201	0.416	1.564
	LTE Band 41	0.953	0.201	0.416	**1.570**

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	0.840	0.114	0.416	1.370
	Front	0.822	0.148	0.403	**1.373**
	Top	-	0.201	0.416*	0.617
	Bottom	1.020	-	-	1.020
	Right	0.182	0.099	0.416*	0.697

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
UMPC Body SAR	Back	1.026	0.114	0.416	**1.556**	N/A	N/A	N/A
	Front	1.201	0.148	0.403	See Note 1	0.01	0.01	0.02
	Top	-	0.201	0.416*	0.617	N/A	N/A	N/A
	Bottom	0.716	-	-	0.716	N/A	N/A	N/A
	Right	0.389	0.099	0.416*	0.904	N/A	N/A	N/A

Table 12-29
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Antenna 2 (UMPC Body)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	GPRS 850	0.776	0.201	0.231	1.208
	GPRS 1900	0.708	0.201	0.231	1.140
	UMTS 850	0.574	0.201	0.231	1.006
	UMTS 1750	0.902	0.201	0.231	1.334
	UMTS 1900	1.020	0.201	0.231	**1.452**
	LTE Band 12	0.260	0.201	0.231	0.692
	LTE Band 13	0.363	0.201	0.231	0.795
	LTE Band 26 (Cell)	0.699	0.201	0.231	1.131
	LTE Band 66 (AWS)	1.201	0.201	0.231	See Table Below
	LTE Band 25 (PCS)	0.947	0.201	0.231	1.379
	LTE Band 41	0.953	0.201	0.231	1.385

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	1.026	0.114	0.231*	1.371
	Front	1.201	0.148	0.231*	**1.580**
	Top	-	0.201	0.231	0.432
	Bottom	0.716	-	-	0.716
	Right	0.389	0.099	-	0.488

Table 12-30
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN MIMO (UMPC Body)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	GPRS 850	0.776	0.201	0.504	**1.481**
	GPRS 1900	0.708	0.201	0.504	1.413
	UMTS 850	0.574	0.201	0.504	1.279
	UMTS 1750	0.902	0.201	0.504	See Table Below
	UMTS 1900	1.020	0.201	0.504	See Table Below
	LTE Band 12	0.260	0.201	0.504	0.965
	LTE Band 13	0.363	0.201	0.504	1.068
	LTE Band 26 (Cell)	0.699	0.201	0.504	1.404
	LTE Band 66 (AWS)	1.201	0.201	0.504	See Table Below
	LTE Band 25 (PCS)	0.947	0.201	0.504	See Table Below
	LTE Band 41	0.953	0.201	0.504	See Table Below

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	0.854	0.114	0.504	1.472
	Front	0.902	0.148	0.438	**1.488**
	Top	-	0.201	0.327	0.528
	Bottom	0.869	-	-	0.869
	Right	0.431	0.099	0.504*	1.034

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	0.840	0.114	0.504	**1.458**
	Front	0.822	0.148	0.438	1.408
	Top	-	0.201	0.327	0.528
	Bottom	1.020	-	-	1.020
	Right	0.182	0.099	0.504*	0.785

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
UMPC Body SAR	Back	1.026	0.114	0.504	See Note 1	0.01	0.01	0.02
	Front	1.201	0.148	0.438	See Note 1	0.01	0.01	0.02
	Top	-	0.201	0.327	0.528	N/A	N/A	N/A
	Bottom	0.716	-	-	0.716	N/A	N/A	N/A
	Right	0.389	0.099	0.504*	**0.992**	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	0.814	0.114	0.504	**1.432**
	Front	0.640	0.148	0.438	1.226
	Top	-	0.201	0.327	0.528
	Bottom	0.947	-	-	0.947
	Right	0.207	0.099	0.504*	0.810

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Body SAR	Back	0.953	0.114	0.504	**1.571**
	Front	0.852	0.148	0.438	1.438
	Top	-	0.201	0.327	0.528
	Bottom	0.939	-	-	0.939
	Right	0.696	0.099	0.504*	1.299

Notes:

1. No evaluation was performed to determine the aggregate 1g SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.04 per FCC KDB 447498 D01v06. See Section 12.9 for detailed SPLS ratio analysis.

12.8 UMPC Extremity Simultaneous Transmission Analysis

Per FCC KDB Publication 941225 D06v02r01, the devices edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR (“-“).

(*) For test positions that were not required to be evaluated for WLAN SAR per FCC KDB publication 248227, the worst case WLAN SAR result for the applicable exposure conditions was used for simultaneous transmission analysis.

Table 12-31
Simultaneous Transmission Scenario with 2.4 GHz WLAN (UMPC Extremity)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
UMPC Extremity SAR	GPRS 850	1.047	1.774	0.986	2.821	2.033
	GPRS 1900	3.297	1.774	0.986	See Table Below	See Table Below
	UMTS 850	1.679	1.774	0.986	3.453	2.665
	UMTS 1750	2.150	1.774	0.986	**3.924**	3.136
	UMTS 1900	3.135	1.774	0.986	See Table Below	See Table Below
	LTE Band 12	0.869	1.774	0.986	2.643	1.855
	LTE Band 13	1.244	1.774	0.986	3.018	2.230
	LTE Band 26 (Cell)	1.901	1.774	0.986	3.675	2.887
	LTE Band 66 (AWS)	2.801	1.774	0.986	See Table Below	3.787
	LTE Band 25 (PCS)	3.286	1.774	0.986	See Table Below	See Table Below
	LTE Band 41	2.760	1.774	0.986	See Table Below	3.746

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
UMPC Extremity SAR	Back	1.252	1.774*	0.986*	3.026	2.238
	Front	1.522	1.774	0.986*	3.296	2.508
	Top	-	1.542	0.986	1.542	0.986
	Bottom	3.297	-	-	**3.297**	**3.297**
	Right	0.467	1.774*	-	2.241	0.467

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
UMPC Extremity SAR	Back	2.024	1.774*	0.986*	**3.798**	3.010
	Front	1.910	1.774	0.986*	3.684	2.896
	Top	-	1.542	0.986	1.542	0.986
	Bottom	3.135	-	-	3.135	3.135
	Right	0.893	1.774*	-	2.667	0.893

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Extremity SAR	Back	1.302	1.774*	3.076
	Front	1.630	1.774	**3.404**
	Top	-	1.542	1.542
	Bottom	2.801	-	2.801
	Right	0.942	1.774*	2.716

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
UMPC Extremity SAR	Back	1.559	1.774*	0.986*	**3.333**	2.545
	Front	1.386	1.774	0.986*	3.160	2.372
	Top	-	1.542	0.986	1.542	0.986
	Bottom	3.286	-	-	3.286	3.286
	Right	0.791	1.774*	-	2.565	0.791

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Extremity SAR	Back	1.146	1.774*	2.920
	Front	1.237	1.774	**3.011**
	Top	-	1.542	1.542
	Bottom	2.760	-	2.760
	Right	1.153	1.774*	2.927

Table 12-32
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO (UMPC Extremity)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Extremity SAR	GPRS 850	1.047	1.868	2.915
	GPRS 1900	3.297	1.868	See Table Below
	UMTS 850	1.679	1.868	3.547
	UMTS 1750	2.150	1.868	See Table Below
	UMTS 1900	3.135	1.868	See Table Below
	LTE Band 12	0.869	1.868	2.737
	LTE Band 13	1.244	1.868	3.112
	LTE Band 26 (Cell)	1.901	1.868	**3.769**
	LTE Band 66 (AWS)	2.801	1.868	See Table Below
	LTE Band 25 (PCS)	3.286	1.868	See Table Below
	LTE Band 41	2.760	1.868	See Table Below

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Extremity SAR	Back	1.252	1.248	2.500
	Front	1.522	1.394	2.916
	Top	-	1.868	1.868
	Bottom	3.297	-	**3.297**
	Right	0.467	1.868*	2.335

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Extremity SAR	Back	1.434	1.248	2.682
	Front	1.563	1.394	**2.957**
	Top	-	1.868	1.868
	Bottom	2.150	-	2.150
	Right	1.032	1.868*	2.900

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Extremity SAR	Back	2.024	1.248	3.272
	Front	1.910	1.394	**3.304**
	Top	-	1.868	1.868
	Bottom	3.135	-	3.135
	Right	0.893	1.868*	2.761

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Extremity SAR	Back	1.302	1.248	2.550
	Front	1.630	1.394	**3.024**
	Top	-	1.868	1.868
	Bottom	2.801	-	2.801
	Right	0.942	1.868*	2.810

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Extremity SAR	Back	1.559	1.248	2.807
	Front	1.386	1.394	2.780
	Top	-	1.868	1.868
	Bottom	3.286	-	**3.286**
	Right	0.791	1.868*	2.659

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Extremity SAR	Back	1.146	1.248	2.394
	Front	1.237	1.394	2.631
	Top	-	1.868	1.868
	Bottom	2.760	-	2.760
	Right	1.153	1.868*	**3.021**

Table 12-33
Simultaneous Transmission Scenario with 5 GHz WLAN (UMPC Extremity)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
UMPC Extremity SAR	GPRS 850	1.047	0.734	0.799	1.781	1.846	2.580
	GPRS 1900	3.297	0.734	0.799	See Table Below	See Table Below	See Table Below
	UMTS 850	1.679	0.734	0.799	2.413	2.478	3.212
	UMTS 1750	2.150	0.734	0.799	2.884	2.949	3.683
	UMTS 1900	3.135	0.734	0.799	3.869	**3.934**	See Table Below
	LTE Band 12	0.869	0.734	0.799	1.603	1.668	2.402
	LTE Band 13	1.244	0.734	0.799	1.978	2.043	2.777
	LTE Band 26 (Cell)	1.901	0.734	0.799	2.635	2.700	3.434
	LTE Band 66 (AWS)	2.801	0.734	0.799	3.535	3.600	See Table Below
	LTE Band 25 (PCS)	3.286	0.734	0.799	See Table Below	See Table Below	See Table Below
	LTE Band 41	2.760	0.734	0.799	3.494	3.559	See Table Below

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
UMPC Extremity SAR	Back	1.252	0.569	0.414	1.821	1.666	2.235
	Front	1.522	0.734	0.336	2.256	1.858	2.592
	Top	-	0.734*	0.799	0.734	0.799	1.533
	Bottom	3.297	-	-	**3.297**	**3.297**	**3.297**
	Right	0.467	0.734*	-	1.201	0.467	1.201

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	2.024	0.569	0.414	3.007
	Front	1.910	0.734	0.336	2.980
	Top	-	0.734*	0.799	1.533
	Bottom	3.135	-	-	**3.135**
	Right	0.893	0.734*	-	1.627

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.302	0.569	0.414	2.285
	Front	1.630	0.734	0.336	2.700
	Top	-	0.734*	0.799	1.533
	Bottom	2.801	-	-	**2.801**
	Right	0.942	0.734*	-	1.676

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
UMPC Extremity SAR	Back	1.559	0.569	0.414	2.128	1.973	2.542
	Front	1.386	0.734	0.336	2.120	1.722	2.456
	Top	-	0.734*	0.799	0.734	0.799	1.533
	Bottom	3.286	-	-	**3.286**	**3.286**	**3.286**
	Right	0.791	0.734*	-	1.525	0.791	1.525

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.146	0.569	0.414	2.129
	Front	1.237	0.734	0.336	2.307
	Top	-	0.734*	0.799	1.533
	Bottom	2.760	-	-	**2.760**
	Right	1.153	0.734*	-	1.887

Table 12-34
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO and 5 GHz WLAN MIMO (UMPC Extremity)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	GPRS 850	1.047	1.868	0.419	3.334
	GPRS 1900	3.297	1.868	0.419	See Table Below
	UMTS 850	1.679	1.868	0.419	**3.966**
	UMTS 1750	2.150	1.868	0.419	See Table Below
	UMTS 1900	3.135	1.868	0.419	See Table Below
	LTE Band 12	0.869	1.868	0.419	3.156
	LTE Band 13	1.244	1.868	0.419	3.531
	LTE Band 26 (Cell)	1.901	1.868	0.419	See Table Below
	LTE Band 66 (AWS)	2.801	1.868	0.419	See Table Below
	LTE Band 25 (PCS)	3.286	1.868	0.419	See Table Below
	LTE Band 41	2.760	1.868	0.419	See Table Below

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.252	1.248	0.419*	2.919
	Front	1.522	1.394	0.419*	**3.335**
	Top	-	1.868	0.419	2.287
	Bottom	3.297	-	-	3.297
	Right	0.467	1.868*	0.419*	2.754

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.434	1.248	0.419*	3.101
	Front	1.563	1.394	0.419*	**3.376**
	Top	-	1.868	0.419	2.287
	Bottom	2.150	-	-	2.150
	Right	1.032	1.868*	0.419*	3.319

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	2.024	1.248	0.419*	3.691
	Front	1.910	1.394	0.419*	**3.723**
	Top	-	1.868	0.419	2.287
	Bottom	3.135	-	-	3.135
	Right	0.893	1.868*	0.419*	3.180

Simult Tx	Configuration	LTE Band 26 (Cell) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.681	1.248	0.419*	3.348
	Front	1.901	1.394	0.419*	**3.714**
	Top	-	1.868	0.419	2.287
	Bottom	0.804	-	-	0.804
	Right	1.379	1.868*	0.419*	3.666

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.302	1.248	0.419*	2.969
	Front	1.630	1.394	0.419*	**3.443**
	Top	-	1.868	0.419	2.287
	Bottom	2.801	-	-	2.801
	Right	0.942	1.868*	0.419*	3.229

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.559	1.248	0.419*	3.226
	Front	1.386	1.394	0.419*	3.199
	Top	-	1.868	0.419	2.287
	Bottom	3.286	-	-	**3.286**
	Right	0.791	1.868*	0.419*	3.078

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.146	1.248	0.419*	2.813
	Front	1.237	1.394	0.419*	3.050
	Top	-	1.868	0.419	2.287
	Bottom	2.760	-	-	2.760
	Right	1.153	1.868*	0.419*	**3.440**

Table 12-35
Simultaneous Transmission Scenario with Bluetooth (UMPC Extremity)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Extremity SAR	GPRS 850	1.047	1.013	2.060
	GPRS 1900	3.297	1.013	See Table Below
	UMTS 850	1.679	1.013	2.692
	UMTS 1750	2.150	1.013	3.163
	UMTS 1900	3.135	1.013	See Table Below
	LTE Band 12	0.869	1.013	1.882
	LTE Band 13	1.244	1.013	2.257
	LTE Band 26 (Cell)	1.901	1.013	2.914
	LTE Band 66 (AWS)	2.801	1.013	**3.814**
	LTE Band 25 (PCS)	3.286	1.013	See Table Below
	LTE Band 41	2.760	1.013	3.773

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Extremity SAR	Back	1.252	0.470	1.722
	Front	1.522	1.013	2.535
	Top	-	0.808	0.808
	Bottom	3.297	-	**3.297**
	Right	0.467	0.310	0.777

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Extremity SAR	Back	2.024	0.470	2.494
	Front	1.910	1.013	2.923
	Top	-	0.808	0.808
	Bottom	3.135	-	**3.135**
	Right	0.893	0.310	1.203

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
UMPC Extremity SAR	Back	1.559	0.470	2.029
	Front	1.386	1.013	2.399
	Top	-	0.808	0.808
	Bottom	3.286	-	**3.286**
	Right	0.791	0.310	1.101

Table 12-36
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Antenna 1 (UMPC Extremity)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	GPRS 850	1.047	1.013	0.734	2.794
	GPRS 1900	3.297	1.013	0.734	See Table Below
	UMTS 850	1.679	1.013	0.734	3.426
	UMTS 1750	2.150	1.013	0.734	**3.897**
	UMTS 1900	3.135	1.013	0.734	See Table Below
	LTE Band 12	0.869	1.013	0.734	2.616
	LTE Band 13	1.244	1.013	0.734	2.991
	LTE Band 26 (Cell)	1.901	1.013	0.734	3.648
	LTE Band 66 (AWS)	2.801	1.013	0.734	See Table Below
	LTE Band 25 (PCS)	3.286	1.013	0.734	See Table Below
	LTE Band 41	2.760	1.013	0.734	See Table Below

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.252	0.470	0.569	2.291
	Front	1.522	1.013	0.734	3.269
	Top	-	0.808	0.734*	1.542
	Bottom	3.297	-	-	**3.297**
	Right	0.467	0.310	0.734*	1.511

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	2.024	0.470	0.569	3.063
	Front	1.910	1.013	0.734	**3.657**
	Top	-	0.808	0.734*	1.542
	Bottom	3.135	-	-	3.135
	Right	0.893	0.310	0.734*	1.937

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.302	0.470	0.569	2.341
	Front	1.630	1.013	0.734	**3.377**
	Top	-	0.808	0.734*	1.542
	Bottom	2.801	-	-	2.801
	Right	0.942	0.310	0.734*	1.986

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.559	0.470	0.569	2.598
	Front	1.386	1.013	0.734	3.133
	Top	-	0.808	0.734*	1.542
	Bottom	3.286	-	-	**3.286**
	Right	0.791	0.310	0.734*	1.835

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.146	0.470	0.569	2.185
	Front	1.237	1.013	0.734	**2.984**
	Top	-	0.808	0.734*	1.542
	Bottom	2.760	-	-	2.760
	Right	1.153	0.310	0.734*	2.197

Table 12-37
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN Antenna 2 (UMPC Extremity)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	GPRS 850	1.047	1.013	0.799	2.859
	GPRS 1900	3.297	1.013	0.799	See Table Below
	UMTS 850	1.679	1.013	0.799	3.491
	UMTS 1750	2.150	1.013	0.799	**3.962**
	UMTS 1900	3.135	1.013	0.799	See Table Below
	LTE Band 12	0.869	1.013	0.799	2.681
	LTE Band 13	1.244	1.013	0.799	3.056
	LTE Band 26 (Cell)	1.901	1.013	0.799	3.713
	LTE Band 66 (AWS)	2.801	1.013	0.799	See Table Below
	LTE Band 25 (PCS)	3.286	1.013	0.799	See Table Below
	LTE Band 41	2.760	1.013	0.799	See Table Below

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.252	0.470	0.414	2.136
	Front	1.522	1.013	0.336	2.871
	Top	-	0.808	0.799	1.607
	Bottom	3.297	-	-	**3.297**
	Right	0.467	0.310	-	0.777

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	2.024	0.470	0.414	2.908
	Front	1.910	1.013	0.336	**3.259**
	Top	-	0.808	0.799	1.607
	Bottom	3.135	-	-	3.135
	Right	0.893	0.310	-	1.203

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.302	0.470	0.414	2.186
	Front	1.630	1.013	0.336	**2.979**
	Top	-	0.808	0.799	1.607
	Bottom	2.801	-	-	2.801
	Right	0.942	0.310	-	1.252

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.559	0.470	0.414	2.443
	Front	1.386	1.013	0.336	2.735
	Top	-	0.808	0.799	1.607
	Bottom	3.286	-	-	**3.286**
	Right	0.791	0.310	-	1.101

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
UMPC Extremity SAR	Back	1.146	0.470	0.414	2.030
	Front	1.237	1.013	0.336	2.586
	Top	-	0.808	0.799	1.607
	Bottom	2.760	-	-	**2.760**
	Right	1.153	0.310	-	1.463

Table 12-38
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN MIMO (UMPC Extremity)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
UMPC Extremity SAR	GPRS 850	1.047	1.013	0.734	0.799	3.593
	GPRS 1900	3.297	1.013	0.734	0.799	See Table Below
	UMTS 850	1.679	1.013	0.734	0.799	See Table Below
	UMTS 1750	2.150	1.013	0.734	0.799	See Table Below
	UMTS 1900	3.135	1.013	0.734	0.799	See Table Below
	LTE Band 12	0.869	1.013	0.734	0.799	3.415
	LTE Band 13	1.244	1.013	0.734	0.799	**3.790**
	LTE Band 26 (Cell)	1.901	1.013	0.734	0.799	See Table Below
	LTE Band 66 (AWS)	2.801	1.013	0.734	0.799	See Table Below
	LTE Band 25 (PCS)	3.286	1.013	0.734	0.799	See Table Below
	LTE Band 41	2.760	1.013	0.734	0.799	See Table Below

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.252	0.470	0.569	0.414	2.705
	Front	1.522	1.013	0.734	0.336	**3.605**
	Top	-	0.808	0.734*	0.799	2.341
	Bottom	3.297	-	-	-	3.297
	Right	0.467	0.310	0.734*	-	1.511

Simult Tx	Configuration	UMTS 850 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.075	0.470	0.569	0.414	2.528
	Front	1.679	1.013	0.734	0.336	**3.762**
	Top	-	0.808	0.734*	0.799	2.341
	Bottom	0.544	-	-	-	0.544
	Right	1.115	0.310	0.734*	-	2.159

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.434	0.470	0.569	0.414	2.887
	Front	1.563	1.013	0.734	0.336	**3.646**
	Top	-	0.808	0.734*	0.799	2.341
	Bottom	2.150	-	-	-	2.150
	Right	1.032	0.310	0.734*	-	2.076

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	2.024	0.470	0.569	0.414	3.477
	Front	1.910	1.013	0.734	0.336	**3.993**
	Top	-	0.808	0.734*	0.799	2.341
	Bottom	3.135	-	-	-	3.135
	Right	0.893	0.310	0.734*	-	1.937

Simult Tx	Configuration	LTE Band 26 (Cell) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.681	0.470	0.569	0.414	3.134
	Front	1.901	1.013	0.734	0.336	**3.984**
	Top	-	0.808	0.734*	0.799	2.341
	Bottom	0.804	-	-	-	0.804
	Right	1.379	0.310	0.734*	-	2.423

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.302	0.470	0.569	0.414	2.755
	Front	1.630	1.013	0.734	0.336	**3.713**
	Top	-	0.808	0.734*	0.799	2.341
	Bottom	2.801	-	-	-	2.801
	Right	0.942	0.310	0.734*	-	1.986

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.559	0.470	0.569	0.414	3.012
	Front	1.386	1.013	0.734	0.336	**3.469**
	Top	-	0.808	0.734*	0.799	2.341
	Bottom	3.286	-	-	-	3.286
	Right	0.791	0.310	0.734*	-	1.835

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
UMPC Extremity SAR	Back	1.146	0.470	0.569	0.414	2.599
	Front	1.237	1.013	0.734	0.336	**3.320**
	Top	-	0.808	0.734*	0.799	2.341
	Bottom	2.760	-	-	-	2.760
	Right	1.153	0.310	0.734*	-	2.197

12.9 SPLSR Evaluation and Analysis

Per FCC KDB Publication 447498 D01v06, when the sum of the standalone transmitters is more than 1.6 W/kg for 1g and 4 W/kg for 10g, the SAR sum to peak locations can be analyzed to determine SAR distribution overlaps. When the SAR peak to location ratio (shown below) for each pair of antennas is $\leq$ 0.04 for 1g and $\leq$0.10 for 10g, simultaneous SAR evaluation is not required. The distance between the transmitters was calculated using the following formula.

$$\text{Distance}_{Tx1-Tx2} = R_i = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} \text{ (Mini-Tablet)}$$

$$\text{SPLS Ratio} = \frac{(SAR_1 + SAR_2)^{1.5}}{R_i}$$

12.9.1 Back Side UMPC Body SPLSR Evaluation and Analysis

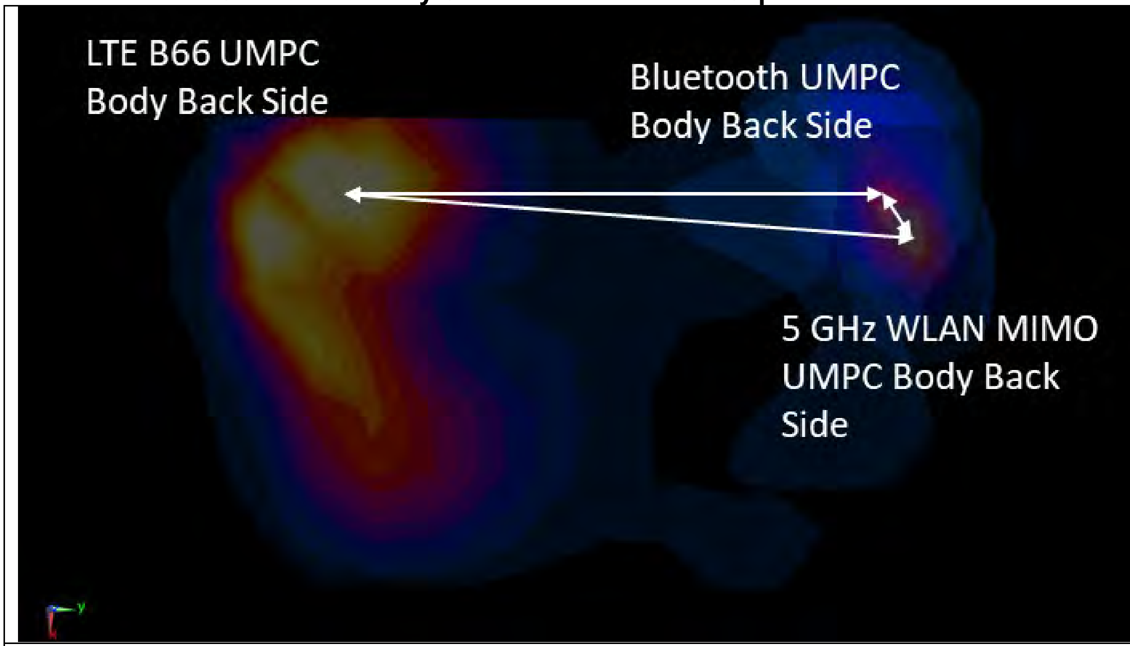
Table 12-39
Peak SAR Locations for Back Side UMPC Body

Mode/Band	x (mm)	y (mm)
5 GHz WLAN MIMO	-51.00	77.00
Bluetooth	-80.00	77.00
LTE Band 66 (AWS)	-47.00	-92.00

Table 12-40
Back Side UMPC Body SAR to Peak Location Separation Ratio Calculations

Antenna Pair		Standalone SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$	
LTE Band 66 (AWS)	Bluetooth	1.026	0.114	1.140	172.19	0.01	1
LTE Band 66 (AWS)	5 GHz WLAN MIMO	1.026	0.504	1.530	169.05	0.01	
5 GHz WLAN MIMO	Bluetooth	0.504	0.114	0.618	29.00	0.02	

Table 12-41
Back Side UMPC Body SAR to Peak Location Separation Ratio Plots



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12.9.2 Front Side UMPC Body SPLSR Evaluation and Analysis

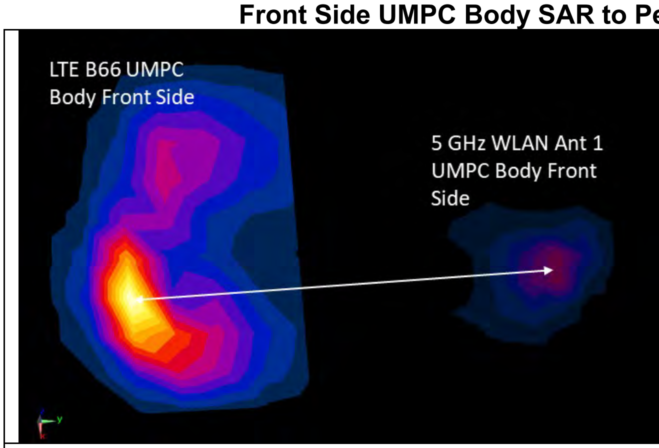
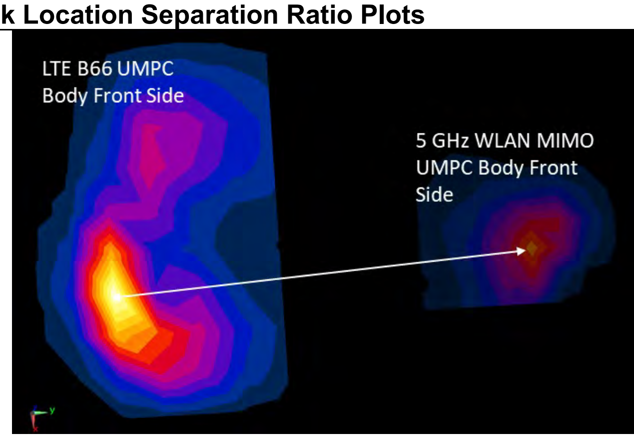
Table 12-42
Peak SAR Locations for Front Side UMPC Body

Mode/Band	x (mm)	y (mm)
5 GHz WLAN Ant 1	8.00	69.00
5 GHz WLAN MIMO	5.00	73.00
Bluetooth	32.20	68.60
LTE Band 66 (AWS)	14.50	-78.50

Table 12-43
Front Side UMPC Body SAR to Peak Location Separation Ratio Calculations

Antenna Pair		Standalone SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$	
LTE Band 66 (AWS)	5 GHz WLAN Ant 1	1.201	0.403	1.604	147.64	0.01	1
LTE Band 66 (AWS)	5 GHz WLAN MIMO	1.201	0.438	1.639	151.80	0.01	2
LTE Band 66 (AWS)	Bluetooth	1.201	0.148	1.349	148.16	0.01	3
LTE Band 66 (AWS)	5 GHz WLAN Ant 1	1.201	0.403	1.604	147.64	0.01	
5 GHz WLAN Ant 1	Bluetooth	0.403	0.148	0.551	24.20	0.02	
LTE Band 66 (AWS)	Bluetooth	1.201	0.148	1.349	148.16	0.01	4
LTE Band 66 (AWS)	5 GHz WLAN MIMO	1.201	0.438	1.639	151.80	0.01	
5 GHz WLAN MIMO	Bluetooth	0.438	0.148	0.586	27.55	0.02	

Table 12-44
Front Side UMPC Body SAR to Peak Location Separation Ratio Plots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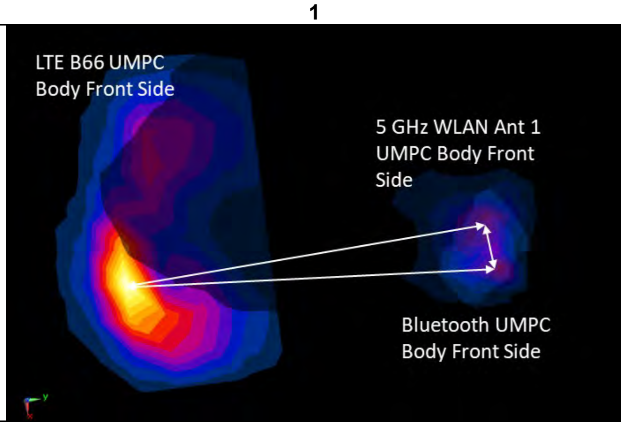
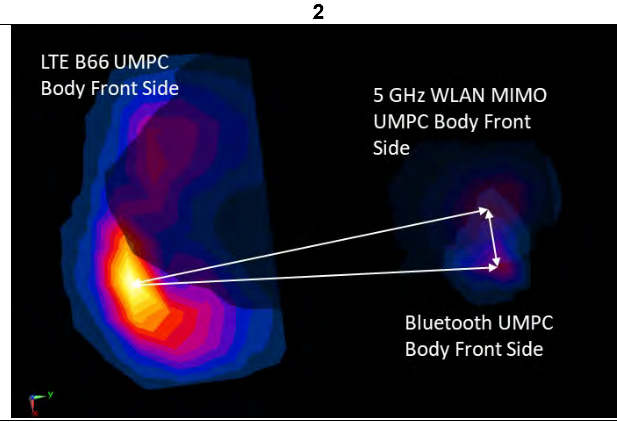
	
3	4

12.10 Simultaneous Transmission Conclusion

The above numerical summed SAR results and SPLSR analysis are sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and IEEE 1528- 2013 Section 6.3.4.1.

13 SAR MEASUREMENT VARIABILITY

13.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01r04, SAR measurement variability was assessed for each frequency band, which was determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media were required for SAR measurements in a frequency band, the variability measurement procedures were applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium. These additional measurements were repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device was returned to ambient conditions (normal room temperature) with the battery fully charged before it was re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement Variability was assessed using the following procedures for each frequency band:

1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1g SAR limit).
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg
5) When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

Table 13-1
1g Body/1g UMPC Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Configuration	Side	Spacing	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1900	1880.00	9400	UMTS 1900	RMC	Closed	bottom	10 mm	0.852	0.829	1.03	N/A	N/A	N/A	N/A
1750	1770.00	132572	LTE Band 66 (AWS), 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	Open	front	10 mm	0.894	0.791	1.13	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body/UMPC Body 1.6 W/kg (mW/g) averaged over 1 gram							

Table 13-2
10g Body/10g UMPC Extremity SAR Measurement Variability Results

PHABLET VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Configuration	Side	Spacing	Measured SAR (10g)	1st Repeated SAR (10g)	Ratio	2nd Repeated SAR (10g)	Ratio	3rd Repeated SAR (10g)	Ratio
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1750	1770.00	132572	LTE Band 66 (AWS), 20 MHz Bandwidth	QPSK, 50 RB, 0 RB Offset	Open	bottom	0 mm	2.330	2.330	1.00	N/A	N/A	N/A	N/A
1900	1860.00	26140	LTE Band 25 (PCS), 20 MHz Bandwidth	QPSK, 50 RB, 50 RB Offset	Open	bottom	0 mm	3.060	2.950	1.04	N/A	N/A	N/A	N/A
2450	2506.00	39750	LTE Band 41, 20 MHz Bandwidth	QPSK, 50 RB, 25 RB Offset	Open	bottom	0 mm	2.110	2.210	1.05	N/A	N/A	N/A	N/A
2600	2636.50	41055	LTE Band 41, 20 MHz Bandwidth	QPSK, 100 RB, 0 RB Offset	Open	bottom	0 mm	2.360	2.360	1.00	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								**Phablet/UMPC Extremity**						
Spatial Peak								**4.0 W/kg (mW/g)**						
Uncontrolled Exposure/General Population								averaged over 10 grams						

13.2 Measurement Uncertainty

The measured SAR was <1.5 W/kg for 1g and <3.75 W/kg for 10g for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE 1528-2013 was not required.

14 ADDITIONAL TESTING PER FCC GUIDANCE

14.1 Tuner Testing

The following test procedures were followed to demonstrate that the SAR results in Section 11 represented the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR was measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. Additional single point SAR time-sweep measurements were evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence on the antenna characteristics, other than impedance matching.

To evaluate all the tuner states, the 60 tuner states were divided among the aggregate band, mode and exposure combinations so that each combination was evaluated for at least 20 tuner states and also so that at least 3 single point SAR measurements were made for every available tuner state. Single point time-sweep measurements were performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state was able to be established remotely so that the device was not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe remained stationary at the same position throughout the entire series of single point measurements for each combination. When the single point SAR or 1g SAR was > 1.2 W/kg for a particular band/mode/exposure condition, point SAR measurements were made for all 60 states.

The operational description contains more information about the design and implementation of the dynamic antenna tuning.

Table 14-1
Supplemental Head SAR Data

Supplemental Head SAR Data							
UMTS 850		LTE Band 12		LTE Band 13		LTE Band 26	
RMC		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 49 RB Offsets		QPSK, 15MHz Bandwidth, 1 RB, 0 RB Offsets	
Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Right Cheek
Frequency (MHz)	836.60	Frequency (MHz)	707.50	Frequency (MHz)	782.00	Frequency (MHz)	831.50
Channel	4183	Channel	23095	Channel	23230	Channel	26865
Measured 1g SAR (W/kg)	0.273	Measured 1g SAR (W/kg)	0.115	Measured 1g SAR (W/kg)	0.213	Measured 1g SAR (W/kg)	0.298
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 32)	0.305	Auto-tune (State 8)	0.157	Auto-tune (State 0)	0.232	Auto-tune (State 32)	0.421
Default (State 0)	0.222	Default (State 0)	0.082	Default (State 0)	0.233	Default (State 0)	0.331
State 0	0.222	State 0	0.082	State 0	0.233	State 0	0.331
State 1	0.221	State 4	0.106	State 2	0.191	State 2	0.262
State 4	0.176	State 7	0.125	State 8	0.152	State 5	0.245
State 7	0.142	State 8	0.152	State 10	0.111	State 12	0.076
State 9	0.104	State 9	0.164	State 15	0.031	State 14	0.044
State 12	0.044	State 11	0.103	State 16	0.218	State 17	0.302
State 13	0.034	State 13	0.040	State 17	0.218	State 21	0.223
State 14	0.025	State 20	0.103	State 19	0.165	State 22	0.2
State 17	0.207	State 23	0.122	State 21	0.157	State 24	0.184
State 19	0.168	State 24	0.126	State 22	0.143	State 25	0.151
State 20	0.164	State 25	0.141	State 27	0.076	State 26	0.12
State 21	0.161	State 27	0.141	State 29	0.046	State 28	0.067
State 23	0.131	State 29	0.065	State 30	0.035	State 32	0.428
State 26	0.074	State 32	0.027	State 32	0.195	State 34	0.384
State 28	0.040	State 33	0.026	State 34	0.226	State 38	0.339
State 30	0.023	State 34	0.052	State 37	0.234	State 40	0.319
State 32	0.292	State 36	0.036	State 39	0.235	State 42	0.237
State 37	0.240	State 37	0.034	State 42	0.217	State 43	0.195
State 41	0.163	State 42	0.010	State 43	0.193	State 44	0.147
State 43	0.102	State 44	0.003	State 45	0.123	State 46	0.09
State 51	0.223	State 46	0.001	State 47	0.06	State 48	0.329
State 53	0.293	State 48	0.062	State 49	0.218	State 49	0.302
State 54	0.221	State 50	0.035	State 50	0.192	State 52	0.303
State 55	0.205	State 54	0.062	State 55	0.219	State 56	0.423
State 57	0.221	State 55	0.067	State 56	0.193	State 58	0.302

Table 14-2
Supplemental Body SAR Data

Supplemental Body SAR Data							
UMTS 850		LTE Band 12		LTE Band 13		LTE Band 26	
RMC		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 49 RB Offsets		QPSK, 15MHz Bandwidth, 1 RB, 0 RB Offsets	
Test Position	Back Side Open Configuration	Test Position	Right Edge Closed Configuration	Test Position	Right Edge Closed Configuration	Test Position	Back Side Open Configuration
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	836.60	Frequency (MHz)	707.50	Frequency (MHz)	782.00	Frequency (MHz)	831.50
Channel	4183	Channel	23095	Channel	23230	Channel	26865
Measured 1g SAR (W/kg)	0.475	Measured 1g SAR (W/kg)	0.369	Measured 1g SAR (W/kg)	0.430	Measured 1g SAR (W/kg)	0.603
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 37)	0.551	Auto-tune (State 9)	0.457	Auto-tune (State 0)	0.586	Auto-tune (State 11)	1.135
Default (State 0)	0.492	Default (State 0)	0.300	Default (State 0)	0.580	Default (State 0)	0.605
State 0	0.492	State 0	0.300	State 0	0.580	State 0	0.605
State 1	0.491	State 3	0.394	State 1	0.586	State 2	0.749
State 3	0.381	State 5	0.408	State 3	0.505	State 3	0.768
State 6	0.321	State 8	0.451	State 5	0.494	State 4	0.782
State 7	0.304	State 9	0.463	State 6	0.466	State 6	0.842
State 8	0.292	State 10	0.442	State 11	0.285	State 11	1.080
State 10	0.202	State 14	0.132	State 15	0.104	State 12	1.054
State 11	0.166	State 17	0.312	State 18	0.469	State 15	0.528
State 13	0.104	State 18	0.378	State 22	0.418	State 16	0.660
State 16	0.446	State 20	0.389	State 27	0.242	State 18	0.769
State 19	0.333	State 21	0.396	State 29	0.154	State 23	0.841
State 21	0.313	State 24	0.423	State 31	0.086	State 29	0.986
State 22	0.278	State 26	0.427	State 35	0.531	State 31	0.709
State 24	0.251	State 29	0.234	State 38	0.529	State 35	0.384
State 25	0.207	State 30	0.169	State 40	0.528	State 36	0.386
State 28	0.104	State 33	0.144	State 41	0.497	State 39	0.400
State 31	0.047	State 36	0.201	State 45	0.220	State 41	0.327
State 33	0.572	State 38	0.168	State 46	0.161	State 45	0.128
State 35	0.576	State 40	0.140	State 47	0.104	State 49	0.637
State 36	0.573	State 44	0.027	State 50	0.447	State 50	0.271
State 37	0.571	State 47	0.008	State 51	0.582	State 52	0.634
State 39	0.554	State 51	0.295	State 52	0.561	State 53	0.275
State 48	0.489	State 57	0.305	State 53	0.450	State 54	0.577
State 57	0.492	State 58	0.314	State 57	0.586	State 56	0.268
State 58	0.444	State 59	0.146	State 59	0.453	State 59	0.273

15 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	85033E	3.5mm Standard Calibration Kit	8/13/2018	Annual	8/13/2019	MY53402352
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A	N/A	N/A	3051A00187
Agilent	8753E	(30kHz-6GHz) Network Analyzer	9/28/2018	Annual	9/28/2019	JP38020182
Agilent	8753ES	S-Parameter Network Analyzer	7/30/2018	Annual	7/30/2019	MY40000670
Agilent	8753ES	S-Parameter Vector Network Analyzer	8/30/2018	Annual	8/30/2019	MY40003841
Agilent	E4432B	ESG-D Series Signal Generator	4/19/2018	Annual	4/19/2019	US40053896
Agilent	E4438C	ESG Vector Signal Generator	4/18/2018	Annual	4/18/2019	MY45091346
Agilent	E4440A	PSA Series Spectrum Analyzer	11/14/2018	Annual	11/14/2019	MY46186272
Agilent	E5515C	8960 Series 10 Wireless Communications Test Set	12/18/2018	Annual	12/18/2019	GB42230325
Agilent	E5515C	Wireless Communications Test Set	2/28/2018	Biennial	2/28/2020	GB41450275
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46170464
Agilent	N5182A	MXG Vector Signal Generator	4/18/2018	Annual	4/18/2019	MY47420800
Agilent	N9020A	MXA Signal Analyzer	4/24/2018	Annual	4/24/2019	US46470561
Agilent	N9030A	PXA Signal Analyzer (44GHz)	5/25/2018	Annual	5/25/2019	MY52350166
Amplifier Research	150A100C	Amplifier	CBT	N/A	CBT	350132
Amplifier Research	150A100C	DC Amplifier	CBT	N/A	CBT	348812
Anritsu	MA24106A	USB Power Sensor	7/17/2018	Annual	7/17/2019	1827527
Anritsu	MA24106A	USB Power Sensor	4/18/2018	Annual	4/18/2019	1344556
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1126066
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1207470
Anritsu	ML2495A	Power Meter	10/21/2018	Annual	10/21/2019	941001
Anritsu	MT8820C	Radio Communication Analyzer	6/27/2018	Annual	6/27/2019	6201240328
Anritsu	MT8862A	Wireless Connectivity Test Set	7/3/2018	Annual	7/3/2019	6261782395
COMTech	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M1S5A00-009
COMTECH	AR85729-5/5759B	Solid State Amplifier	CBT	N/A	CBT	M3W1A00-1002
Control Company	4040	Therm./ Clock/ Humidity Monitor	1/8/2019	Annual	1/8/2020	160473909
Control Company	4352	Ultra Long Stem Thermometer	5/2/2017	Biennial	5/2/2019	170330144
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/4/2018	Annual	6/4/2019	MY53401181
Keysight Technologies	AT/N6705B	DC Power Supply	CBT	N/A	CBT	MY53001315
Keysignt Technologies	U3401A	Digital Multimeter	5/17/2018	Annual	5/17/2019	MY57201470
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mitutoyo	CD-6"CSX	Digital Caliper	4/18/2018	Biennial	4/18/2020	13264165
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Pasternack	NC-100	Torque Wrench	4/18/2018	Annual	4/18/2019	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE5011-1	Torque Wrench	7/19/2017	Biennial	7/19/2019	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	5/18/2018	Annual	5/18/2019	109892
Rohde & Schwarz	CMW500	Radio Communication Tester	4/20/2018	Annual	4/20/2019	128635
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	5/29/2018	Annual	5/29/2019	161662
Seekonk	NC-100	Torque Wrench 5/16", 8" lbs	7/11/2018	Annual	7/11/2019	N/A
Seekonk	NC-100	Torque Wrench	7/11/2018	Annual	7/11/2019	N/A
Seekonk	NC-100	Torque Wrench (8" lb)	5/10/2018	Biennial	5/10/2020	21053
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/15/2018	Annual	5/15/2019	1070
SPEAG	DAKS-3.5	Portable Dielectric Assessment Kit	8/22/2018	Annual	8/22/2019	1041
SPEAG	EX3DV4	SAR Probe	1/25/2019	Annual	1/25/2020	3589
SPEAG	EX3DV4	SAR Probe	4/18/2018	Annual	4/18/2019	7357
SPEAG	EX3DV4	SAR Probe	6/25/2018	Annual	6/25/2019	7409
SPEAG	EX3DV4	SAR Probe	8/23/2018	Annual	8/23/2019	7308
SPEAG	EX3DV4	SAR Probe	1/24/2019	Annual	1/24/2020	7488
SPEAG	EX3DV4	SAR Probe	7/20/2018	Annual	7/20/2019	7410
SPEAG	EX3DV4	SAR Probe	2/19/2019	Annual	2/19/2020	7417
SPEAG	D750V3	750 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	1161
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	4d133
SPEAG	D1750V2	1750 MHz SAR Dipole	10/22/2018	Annual	10/22/2019	1150
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Annual	10/23/2019	5d080
SPEAG	D2450V2	2450 MHz SAR Dipole	9/11/2017	Biennial	9/11/2019	797
SPEAG	D2600V2	2600 MHz SAR Dipole	9/13/2016	Triennial	9/13/2019	1071
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/16/2018	Biennial	1/16/2020	1057
SPEAG	D2450V2	2450 MHz SAR Dipole	8/17/2017	Biennial	8/17/2019	719
SPEAG	D2450V2	2450 MHz SAR Dipole	8/16/2018	Annual	8/16/2019	981
SPEAG	D2600V2	2600 MHz SAR Dipole	4/11/2018	Annual	4/11/2019	1004
SPEAG	D2600V2	2600 MHz SAR Dipole	6/7/2017	Biennial	6/7/2019	1064
SPEAG	D5GHzV2	5 GHz SAR Dipole	9/21/2016	Triennial	9/21/2019	1191
SPEAG	D1750V2	1750 MHz SAR Dipole	5/9/2017	Biennial	5/9/2019	1148
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/22/2018	Annual	8/22/2019	1450
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/11/2018	Annual	4/11/2019	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/18/2018	Annual	6/18/2019	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/3/2018	Annual	10/3/2019	1558
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/15/2019	Annual	1/15/2020	1530
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/11/2018	Annual	7/11/2019	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/13/2019	Annual	2/13/2020	665

All equipment was used solely within its calibration period.

Note: CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path. The power meter offset was then adjusted to compensate for the measurement system losses. This level offset is stored within the power meter before measurements are made. This calibration verification procedure applies to the system verification and output power measurements. The calibrated reading is then taken directly from the power meter after compensation of the losses for all final power measurements.

a	c	d	e = f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	Tol. (± %)	Prob. Dist.	Div.	c_i 1gm	c_i 10 gms	1gm u_i (± %)	10gms u_i (± %)	v_i
Measurement System								
Probe Calibration	6.55	N	1	1.0	1.0	6.6	6.6	∞
Axial Isotropy	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	1.3	N	1	0.7	0.7	0.9	0.9	∞
Boundary Effect	2.0	R	1.73	1.0	1.0	1.2	1.2	∞
Linearity	0.3	N	1	1.0	1.0	0.3	0.3	∞
System Detection Limits	0.25	R	1.73	1.0	1.0	0.1	0.1	∞
Readout Electronics	0.3	N	1	1.0	1.0	0.3	0.3	∞
Response Time	0.8	R	1.73	1.0	1.0	0.5	0.5	∞
Integration Time	2.6	R	1.73	1.0	1.0	1.5	1.5	∞
RF Ambient Conditions - Noise	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
RF Ambient Conditions - Reflections	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	0.4	R	1.73	1.0	1.0	0.2	0.2	∞
Probe Positioning w/ respect to Phantom	6.7	R	1.73	1.0	1.0	3.9	3.9	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	4.0	R	1.73	1.0	1.0	2.3	2.3	∞
Test Sample Related								
Test Sample Positioning	2.7	N	1	1.0	1.0	2.7	2.7	35
Device Holder Uncertainty	1.67	N	1	1.0	1.0	1.7	1.7	5
Output Power Variation - SAR drift measurement	5.0	R	1.73	1.0	1.0	2.9	2.9	∞
SAR Scaling	0.0	R	1.73	1.0	1.0	0.0	0.0	∞
Phantom & Tissue Parameters								
Phantom Uncertainty (Shape & Thickness tolerances)	7.6	R	1.73	1.0	1.0	4.4	4.4	∞
Liquid Conductivity - measurement uncertainty	4.2	N	1	0.78	0.71	3.3	3.0	10
Liquid Permittivity - measurement uncertainty	4.1	N	1	0.23	0.26	1.0	1.1	10
Liquid Conductivity - Temperature Uncertainty	3.4	R	1.73	0.78	0.71	1.5	1.4	∞
Liquid Permittivity - Temperature Unceritainty	0.6	R	1.73	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Combined Standard Uncertainty (k=1)		RSS				11.5	11.3	60
Expanded Uncertainty (95% CONFIDENCE LEVEL)		k=2				23.0	22.6	

17 CONCLUSION

17.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Innovation, Science, and Economic Development Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

18 REFERENCES

[1] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, Aug. 1996.

[2] ANSI/IEEE C95.1-2005, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, 2006.

[3] ANSI/IEEE C95.1-1992, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3kHz to 300GHz, New York: IEEE, Sept. 1992.

[4] ANSI/IEEE C95.3-2002, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave, New York: IEEE, December 2002.

[5] IEEE Standards Coordinating Committee 39 –Standards Coordinating Committee 34 – IEEE Std. 1528-2013, IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.

[6] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for RadioFrequency Electromagnetic Fields, NCRP Report No. 86, 1986. Reprinted Feb. 1995.

[7] T. Schmid, O. Egger, N. Kuster, Automated E-field scanning system for dosimetric assessments, IEEE Transaction on Microwave Theory and Techniques, vol. 44, Jan. 1996, pp. 105-113.

[8] K. Pokovic, T. Schmid, N. Kuster, Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies, ICECOM97, Oct. 1997, pp. 1 -124.

[9] K. Pokovic, T. Schmid, and N. Kuster, E-field Probe with improved isotropy in brain simulating liquids, Proceedings of the ELMAR, Zadar, Croatia, June 23-25, 1996, pp. 172-175.

[10] Schmid & Partner Engineering AG, Application Note: Data Storage and Evaluation, June 1998, p2.

[11] V. Hombach, K. Meier, M. Burkhardt, E. Kuhn, N. Kuster, The Dependence of EM Energy Absorption upon Human Modeling at 900 MHz, IEEE Transaction on Microwave Theory and Techniques, vol. 44 no. 10, Oct. 1996, pp. 1865-1873.

[12] N. Kuster and Q. Balzano, Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300MHz, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.

[13] G. Hartsgrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bioelectromagnetics, Canada: 1987, pp. 29-36.

[14] Q. Balzano, O. Garay, T. Manning Jr., Electromagnetic Energy Exposure of Simulated Users of Portable Cellular Telephones, IEEE Transactions on Vehicular Technology, vol. 44, no.3, Aug. 1995.

[15] W. Gander, Computermathematick, Birkhaeuser, Basel, 1992.

[16] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second edition, Cambridge University Press, 1992.

[17] N. Kuster, R. Kastle, T. Schmid, Dosimetric evaluation of mobile communications equipment with known precision, IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.

[18] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10kHz-300GHz, Jan. 1995.

[19] Prof. Dr. Niels Kuster, ETH, Eidgenössische Technische Hoschschule Zürich, Dosimetric Evaluation of the Cellular Phone.

[20] IEC 62209-1, Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1: Devices used next to the ear (Frequency range of 300 MHz to 6 GHz), July 2016.

[21] Innovation, Science, Economic Development Canada RSS-102 Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) Issue 5, March 2015.

[22] Health Canada Safety Code 6 Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency Range from 3 kHz – 300 GHz, 2015

[23] FCC SAR Test Procedures for 2G-3G Devices, Mobile Hotspot and UMPC Devices KDB Publications 941225, D01-D07

[24] SAR Measurement Guidance for IEEE 802.11 Transmitters, KDB Publication 248227 D01

[25] FCC SAR Considerations for Handsets with Multiple Transmitters and Antennas, KDB Publications 648474 D03-D04

[26] FCC SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers, FCC KDB Publication 616217 D04

[27] FCC SAR Measurement and Reporting Requirements for 100MHz – 6 GHz, KDB Publications 865664 D01-D02

[28] FCC General RF Exposure Guidance and SAR Procedures for Dongles, KDB Publication 447498, D01-D02

[29] Anexo à Resolução No. 533, de 10 de Septembro de 2009.

[30] IEC 62209-2, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz), Mar. 2010.

APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1152M

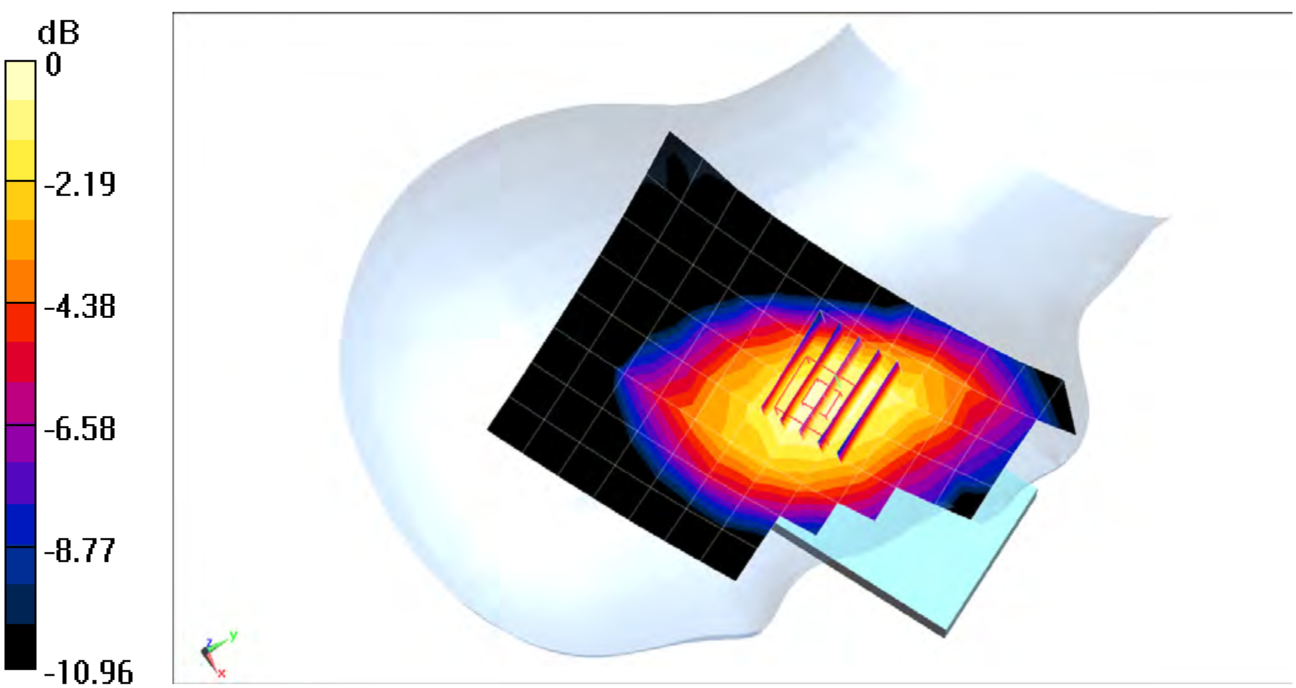
Communication System: UID 0, GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.924 S/m; ε_r = 43.04; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 03-27-2019; Ambient Temp: 22.0°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(10.11, 10.11, 10.11) @ 836.6 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GSM 850, Right Head, Cheek, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.09 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.148 W/kg
SAR(1 g) = 0.108 W/kg



0 dB = 0.134 W/kg = -8.73 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1167M

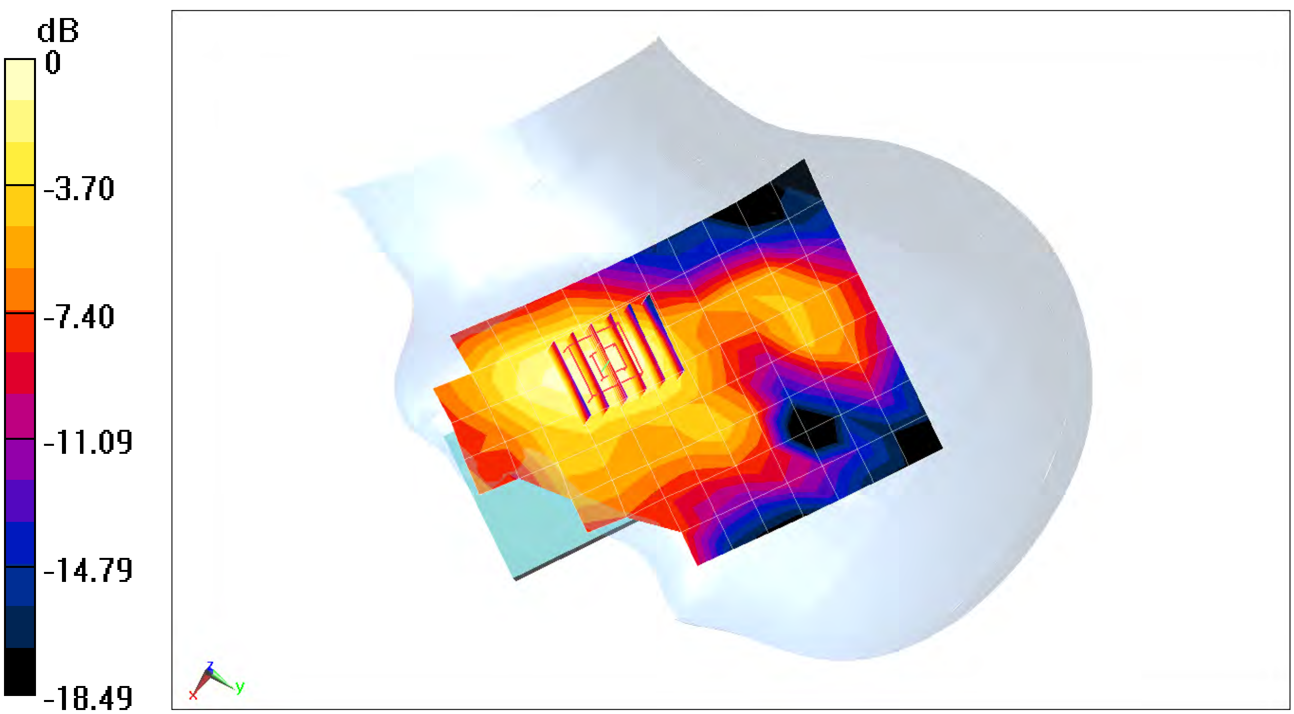
Communication System: UID 0, GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.411 S/m; ε_r = 41.386; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 04-01-2019; Ambient Temp: 21.5°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1880 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GSM 1900, Left Head, Cheek, Mid.ch

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.442 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.0600 W/kg
SAR(1 g) = 0.039 W/kg



0 dB = 0.0518 W/kg = -12.86 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1152M

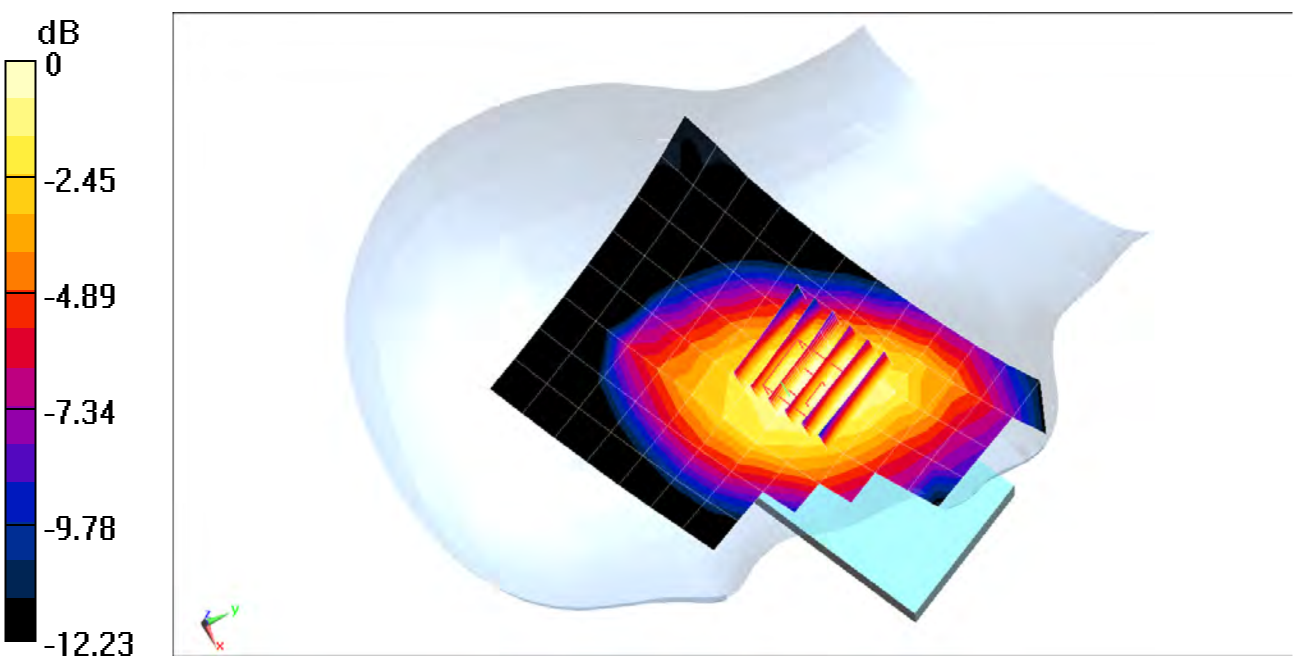
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
$f = 836.6$ MHz; $\sigma = 0.924$ S/m; $\varepsilon_r = 43.04$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 03-27-2019; Ambient Temp: 22.0°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(10.11, 10.11, 10.11) @ 836.6 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 850, Right Head, Cheek, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.43 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.361 W/kg
SAR(1 g) = 0.273 W/kg



0 dB = 0.329 W/kg = -4.83 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1170M

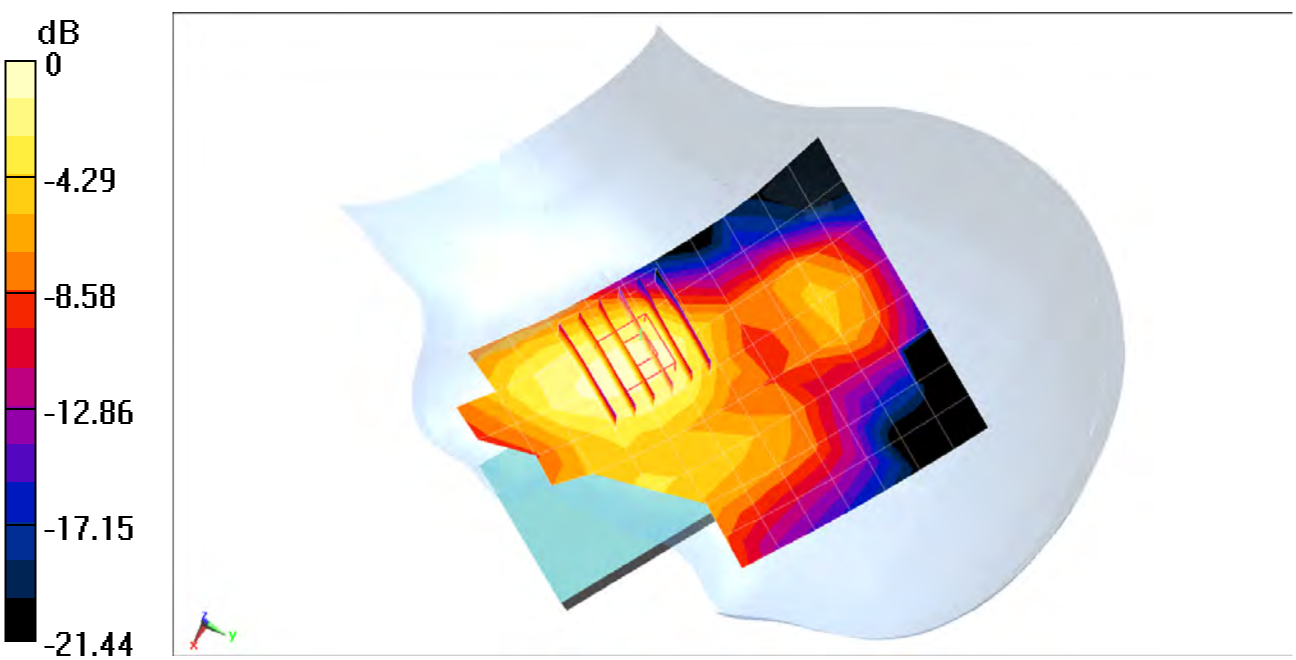
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1732.4 MHz; σ = 1.345 S/m; ε_r = 38.463; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 03-24-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN3589; ConvF(7.31, 7.31, 7.31) @ 1732.4 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1750, Left Head, Cheek, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.761 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.199 W/kg
SAR(1 g) = 0.125 W/kg



0 dB = 0.166 W/kg = -7.80 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1167M

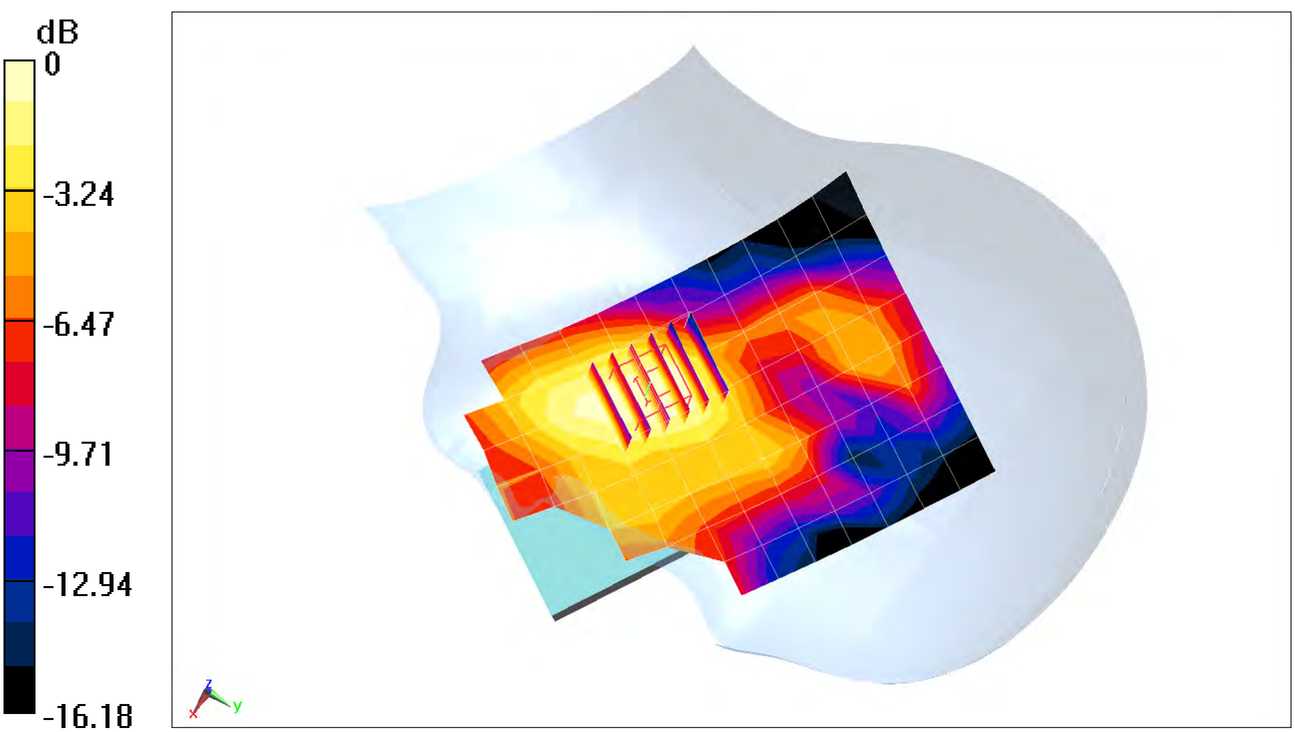
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.411 S/m; ε_r = 41.386; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 04-01-2019; Ambient Temp: 21.5°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1880 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1900, Left Head, Cheek, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.163 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.136 W/kg
SAR(1 g) = 0.090 W/kg



0 dB = 0.118 W/kg = -9.28 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1181M

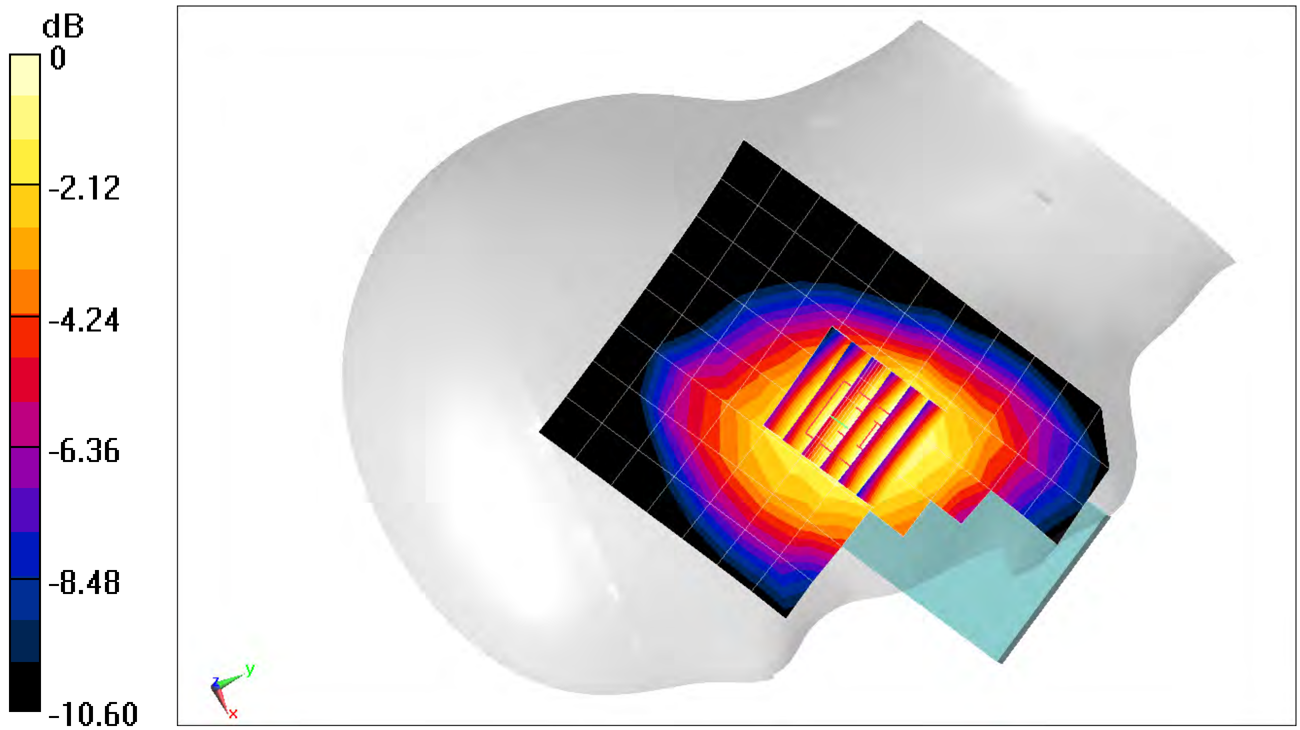
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 MHz Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.853 S/m; ε_r = 41.073; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 03-28-2019; Ambient Temp: 23.1°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN3589; ConvF(8.67, 8.67, 8.67) @ 707.5 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 12, Right Head, Cheek, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.23 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.145 W/kg
SAR(1 g) = 0.115 W/kg



0 dB = 0.135 W/kg = -8.70 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1181M

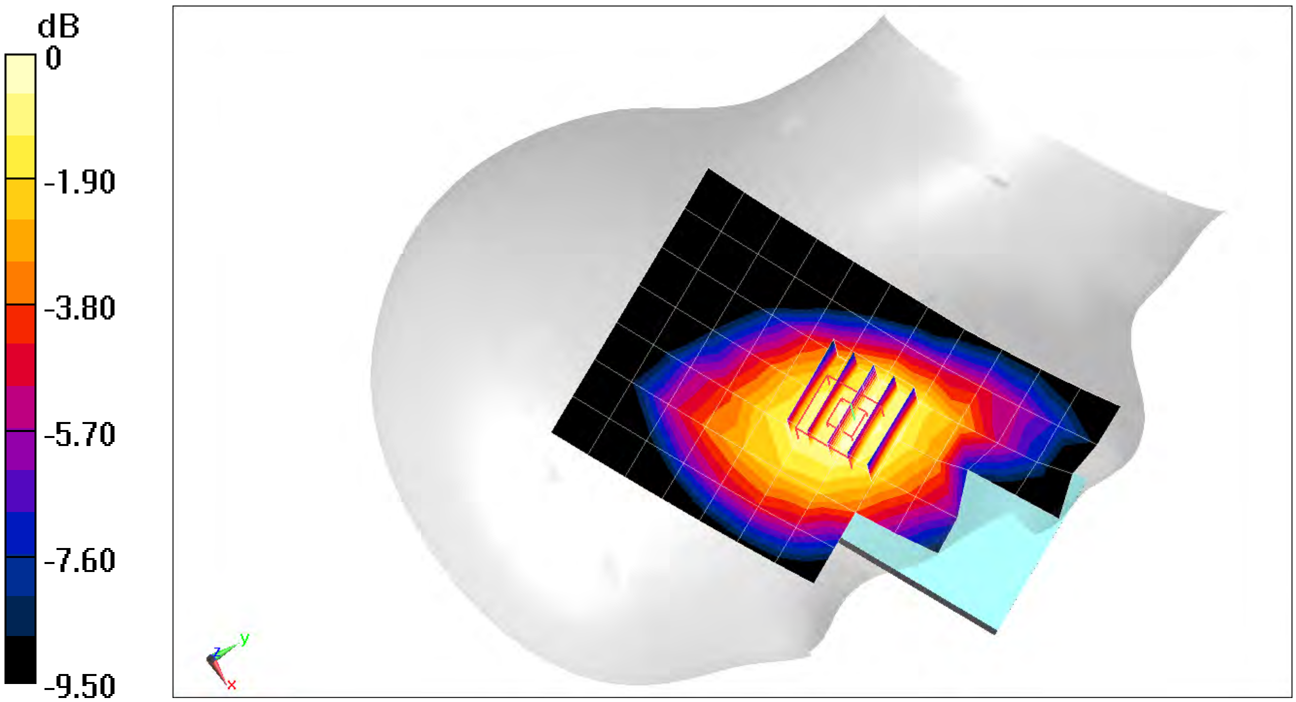
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 MHz Medium parameters used (interpolated):
f = 782 MHz; σ = 0.878 S/m; ε_r = 40.867; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 03-28-2019; Ambient Temp: 23.1°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN3589; ConvF(8.67, 8.67, 8.67) @ 782 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 13, Right Head, Cheek, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 49 RB Offset

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.58 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.277 W/kg
SAR(1 g) = 0.213 W/kg



0 dB = 0.257 W/kg = -5.90 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1181M

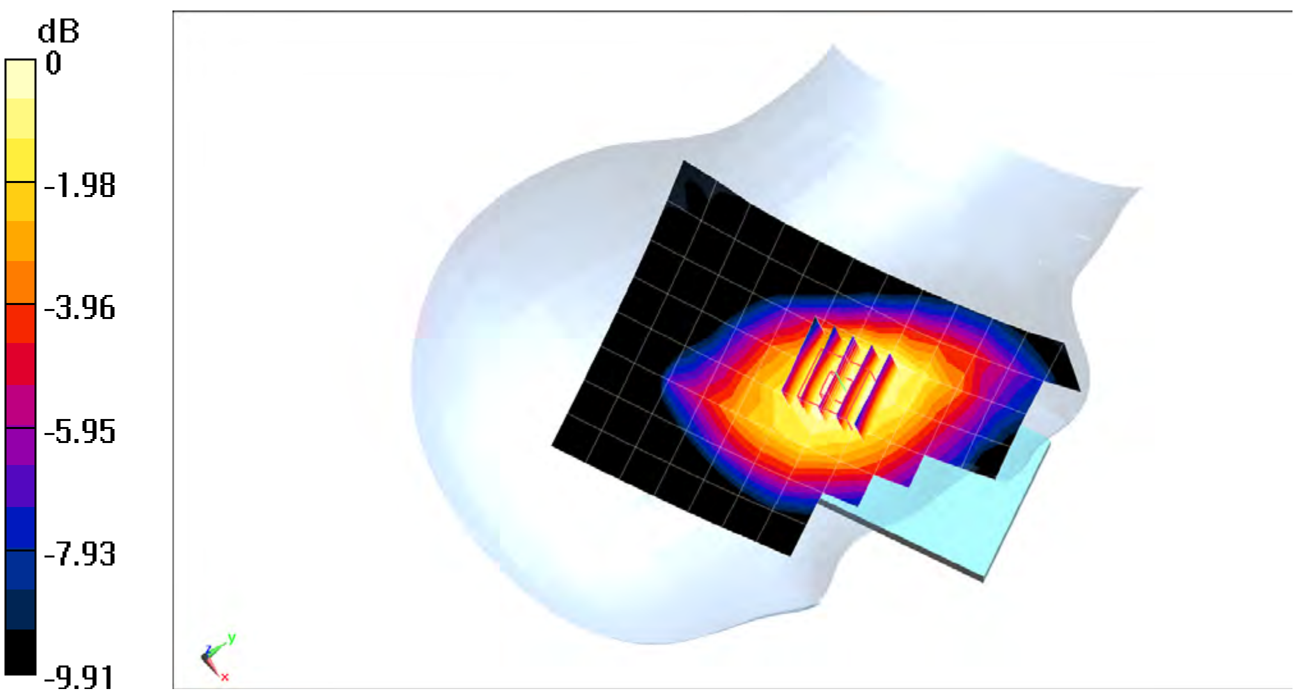
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.918 S/m; ε_r = 43.098; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 03-27-2019; Ambient Temp: 22.0°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(10.11, 10.11, 10.11) @ 831.5 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 26 (Cell.), Right Head, Cheek, Mid.ch,
15 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.96 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.390 W/kg
SAR(1 g) = 0.298 W/kg



0 dB = 0.355 W/kg = -4.50 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1192M

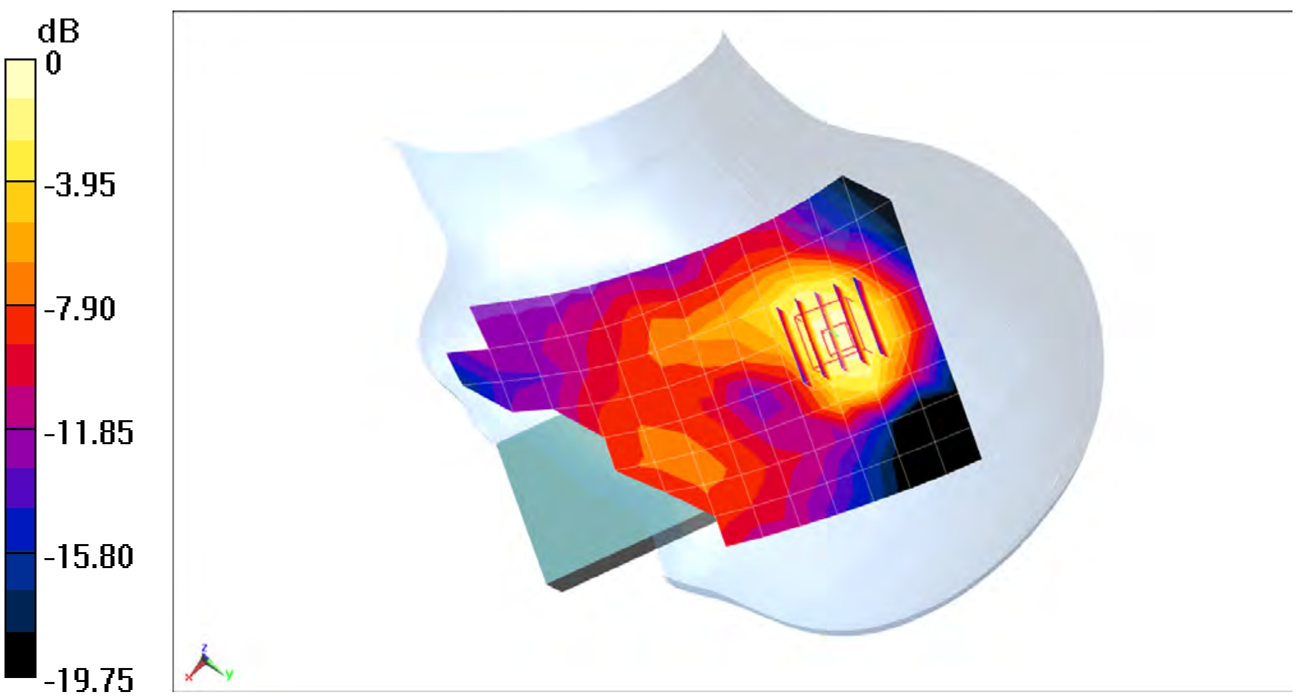
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1720 MHz; σ = 1.338 S/m; ε_r = 38.484; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 03-24-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN3589; ConvF(7.31, 7.31, 7.31) @ 1720 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), Left Head, Tilt, Low.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.20 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.186 W/kg
SAR(1 g) = 0.117 W/kg



0 dB = 0.160 W/kg = -7.96 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1198M

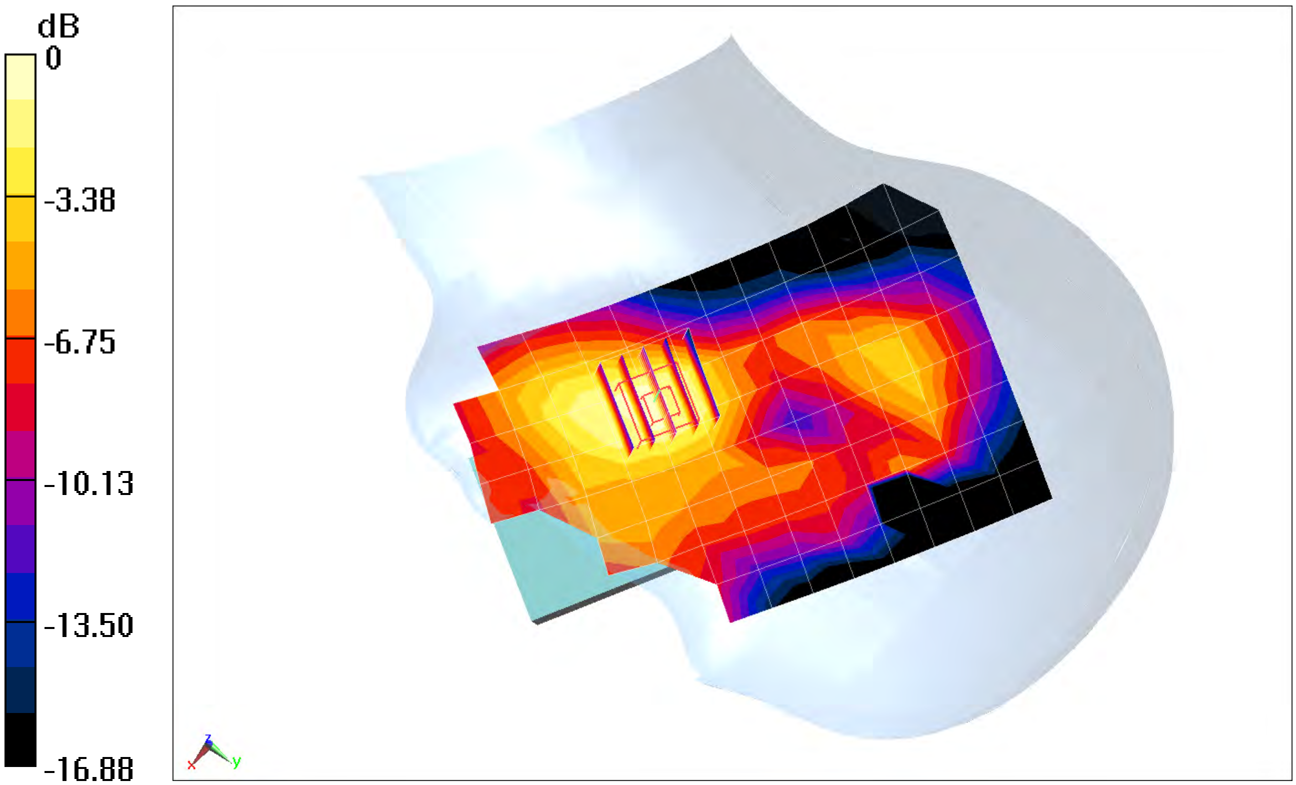
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1882.5 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1882.5 MHz; σ = 1.413 S/m; ε_r = 41.384; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 04-01-2019; Ambient Temp: 21.5°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1882.5 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 25 (PCS), Left Head, Cheek, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.492 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.141 W/kg
SAR(1 g) = 0.086 W/kg



0 dB = 0.121 W/kg = -9.17 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1143M

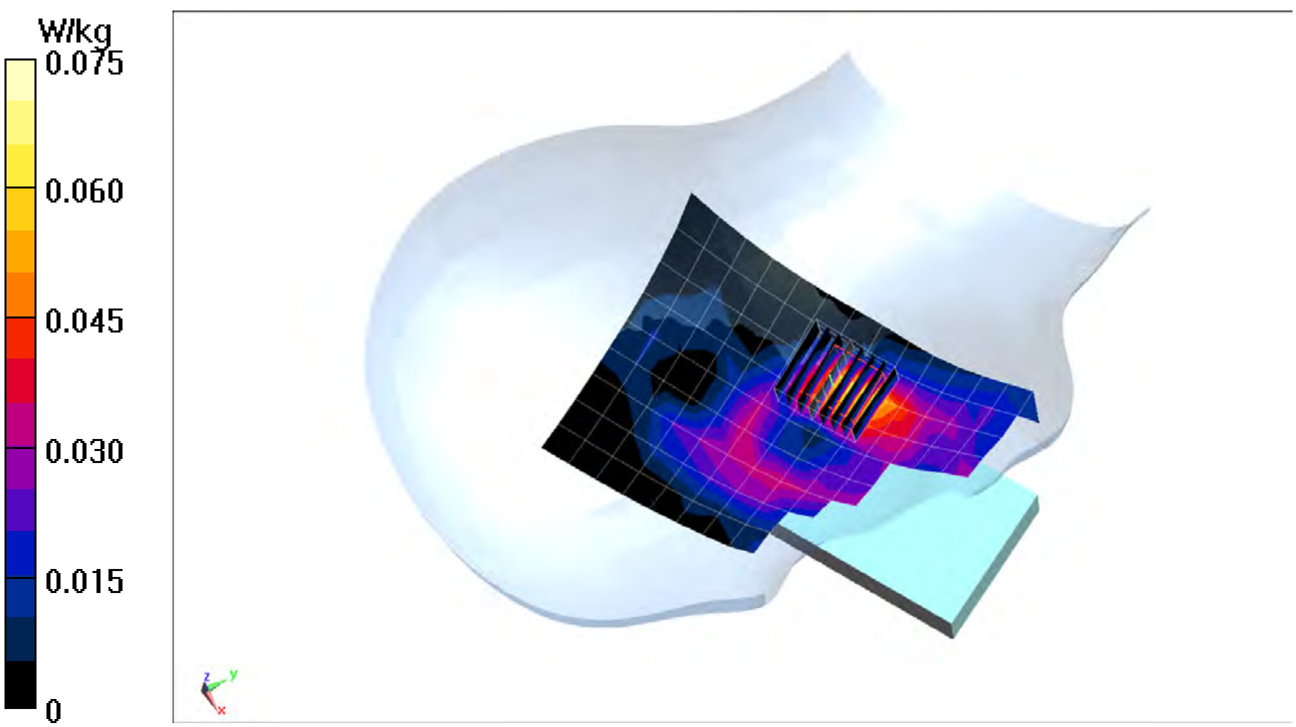
Communication System: UID 0, LTE Band 41; Frequency: 2593 MHz; Duty Cycle: 1:1.58
Medium: 2450 Head Medium parameters used (interpolated):
f = 2593 MHz; σ = 1.942 S/m; ε_r = 37.947; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 03-21-2019; Ambient Temp: 23.1°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN3589; ConvF(6.25, 6.25, 6.25) @ 2593 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 41, Right Head, Cheek, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.664 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.0920 W/kg
SAR(1 g) = 0.048 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1101M

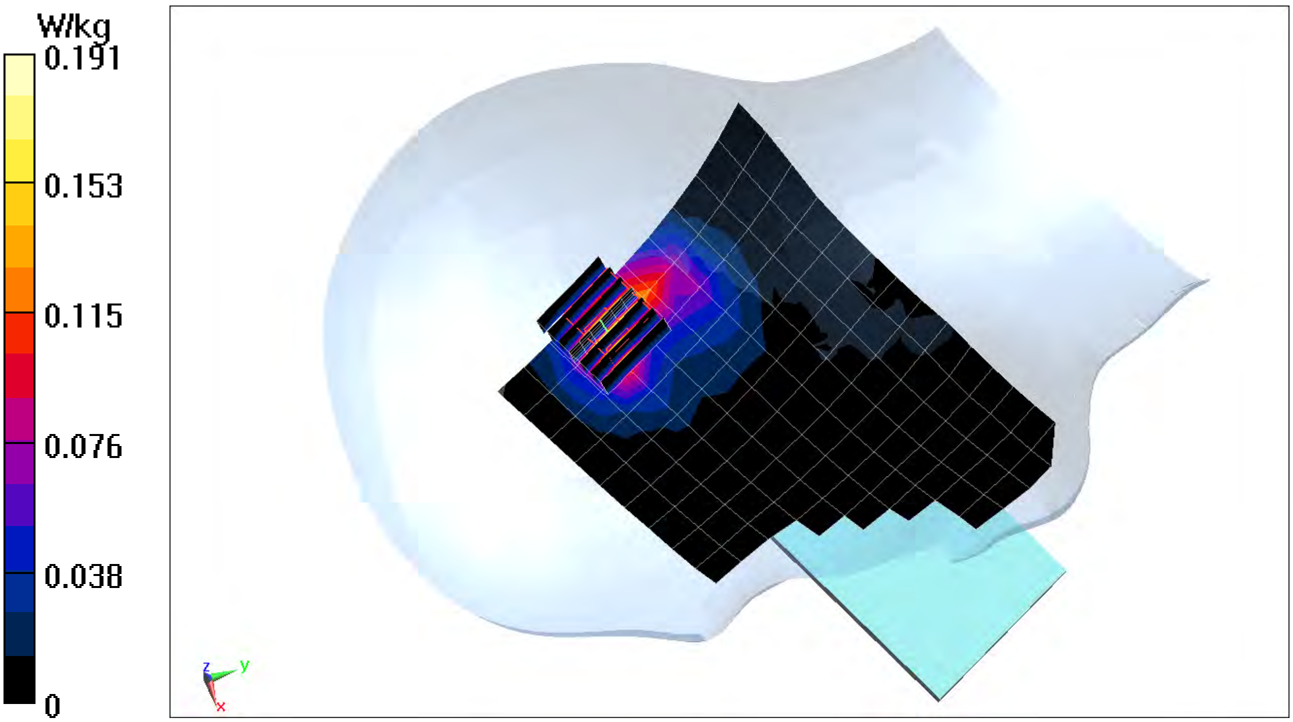
Communication System: UID 0, _IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.835 S/m; ε_r = 38.163; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 03-21-2019; Ambient Temp: 23.1°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN3589; ConvF(6.46, 6.46, 6.46) @ 2462 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: IEEE 802.11b Antenna 2, 22 MHz Bandwidth,
Right Head, Tilt, Ch 11, 1 Mbps**

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.300 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.259 W/kg
SAR(1 g) = 0.109 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1101M

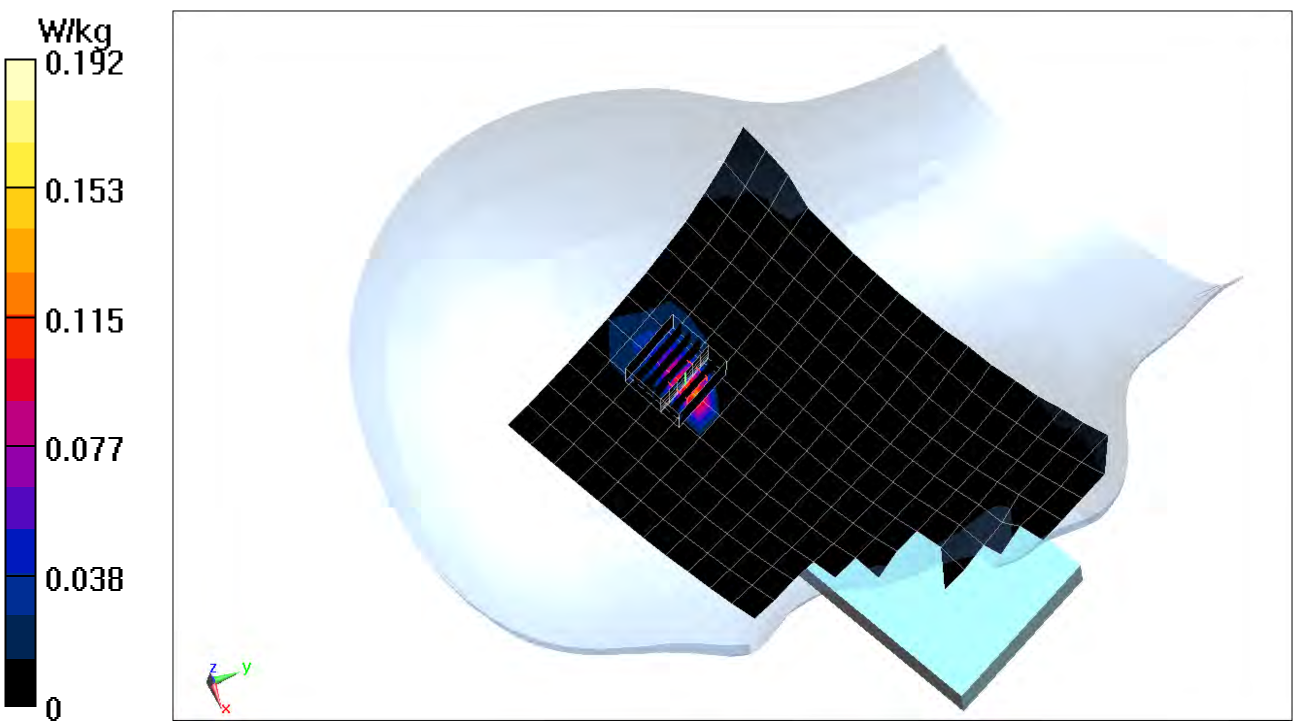
Communication System: UID 0, 802.11n 5.2-5.8 GHz Band; Frequency: 5310 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head Medium parameters used (interpolated):
f = 5310 MHz; σ = 4.603 S/m; ε_r = 34.545; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 03-25-2019; Ambient Temp: 20.7°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(5.2, 5.2, 5.2) @ 5310 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11n Antenna 1, U-NII-2A, 40 MHz Bandwidth, Right Head, Cheek, Ch 62, 13.5 Mbps

Area Scan (13x21x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 1.692 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.279 W/kg
SAR(1 g) = 0.054 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1101M

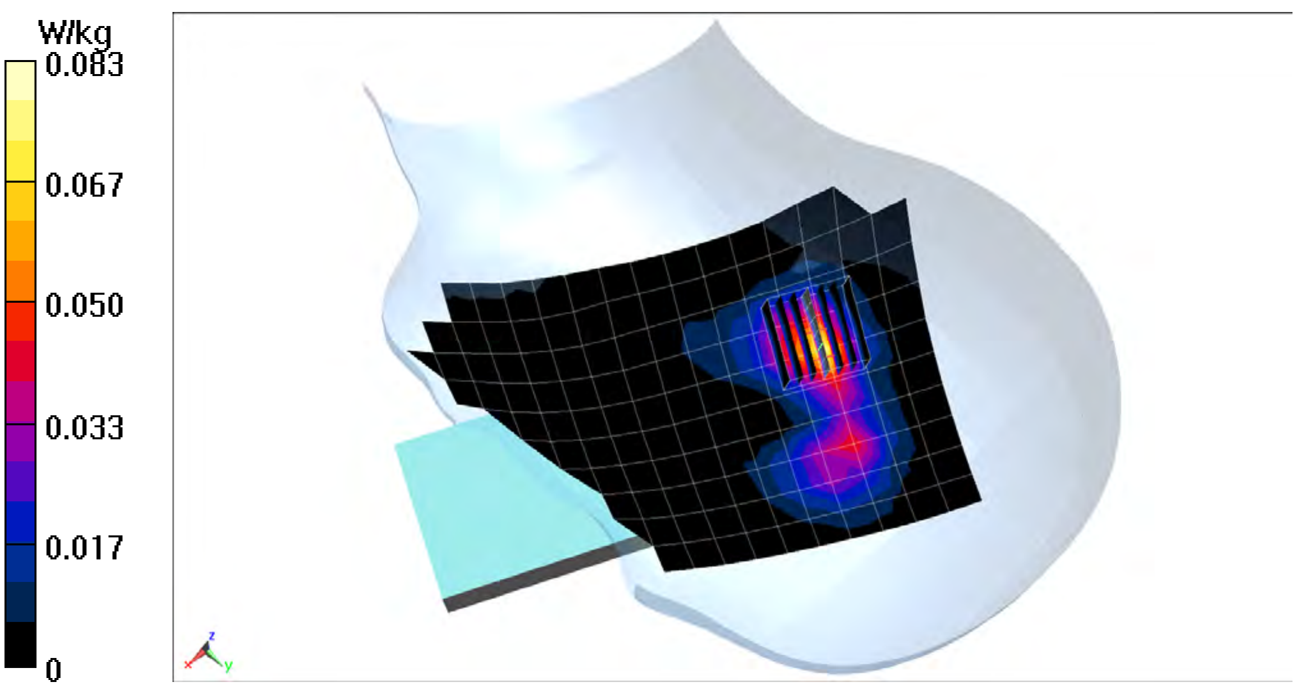
Communication System: UID 0, Bluetooth; Frequency: 2402 MHz; Duty Cycle: 1:1.297
Medium: 2450 Head Medium parameters used (interpolated):
f = 2402 MHz; σ = 1.79 S/m; ε_r = 38.275; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 03-21-2019; Ambient Temp: 23.1°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN3589; ConvF(6.46, 6.46, 6.46) @ 2402 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Bluetooth, Left Head, Tilt, Ch 0, 1 Mbps

Area Scan (11x19x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.079 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.102 W/kg
SAR(1 g) = 0.054 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1152M

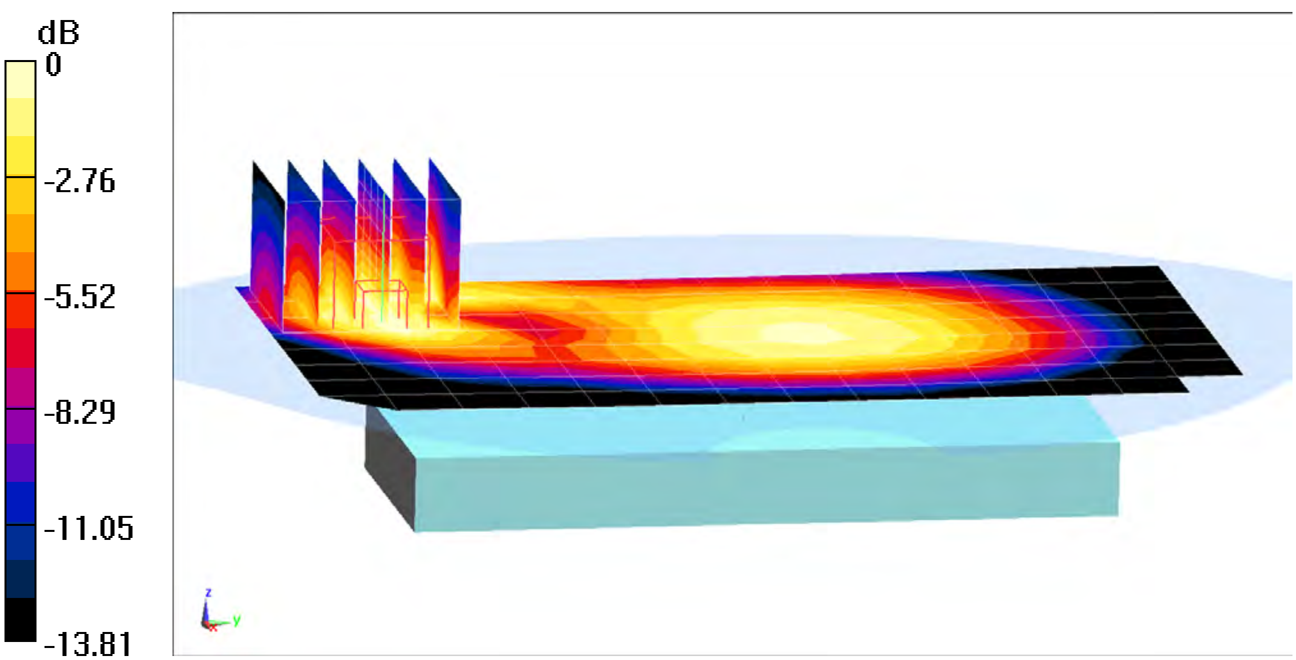
Communication System: UID 0, GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.999 S/m; ε_r = 54.973; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-13-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 836.6 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GSM 850, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.88 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.261 W/kg
SAR(1 g) = 0.159 W/kg



0 dB = 0.225 W/kg = -6.48 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1152M

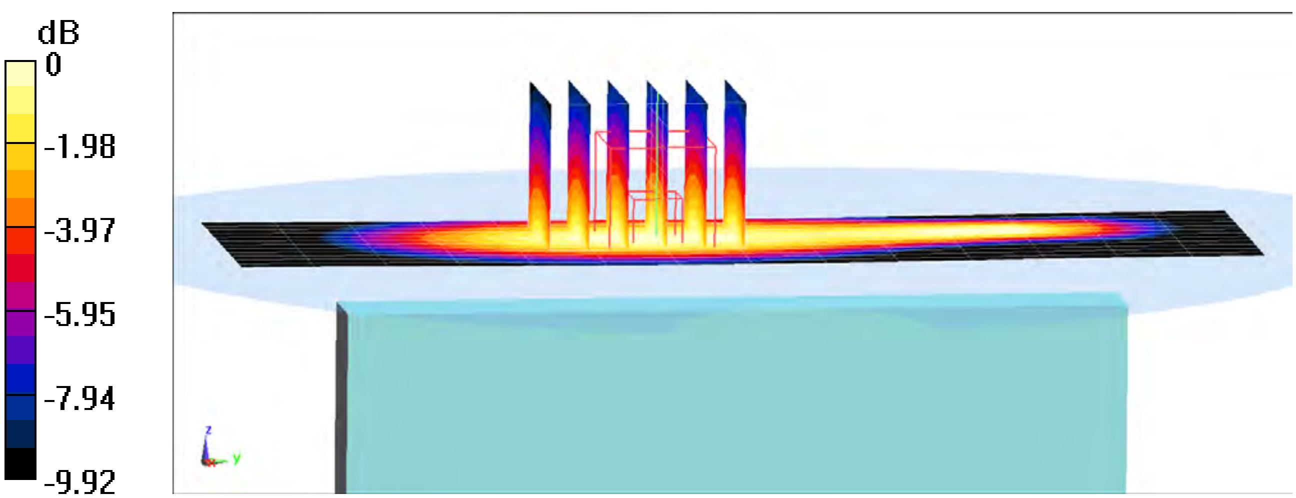
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 824.2 MHz; Duty Cycle: 1:2.76
Medium: 835 Body Medium parameters used (interpolated):
f = 824.2 MHz; σ = 0.957 S/m; ε_r = 53.346; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-18-2019; Ambient Temp: 20.8°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 824.2 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GPRS 850, Body SAR, Right Edge, Low.ch 3 Tx Slots

Area Scan (13x15x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.04 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.958 W/kg
SAR(1 g) = 0.651 W/kg



0 dB = 0.852 W/kg = -0.70 dBW/kg

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1170M

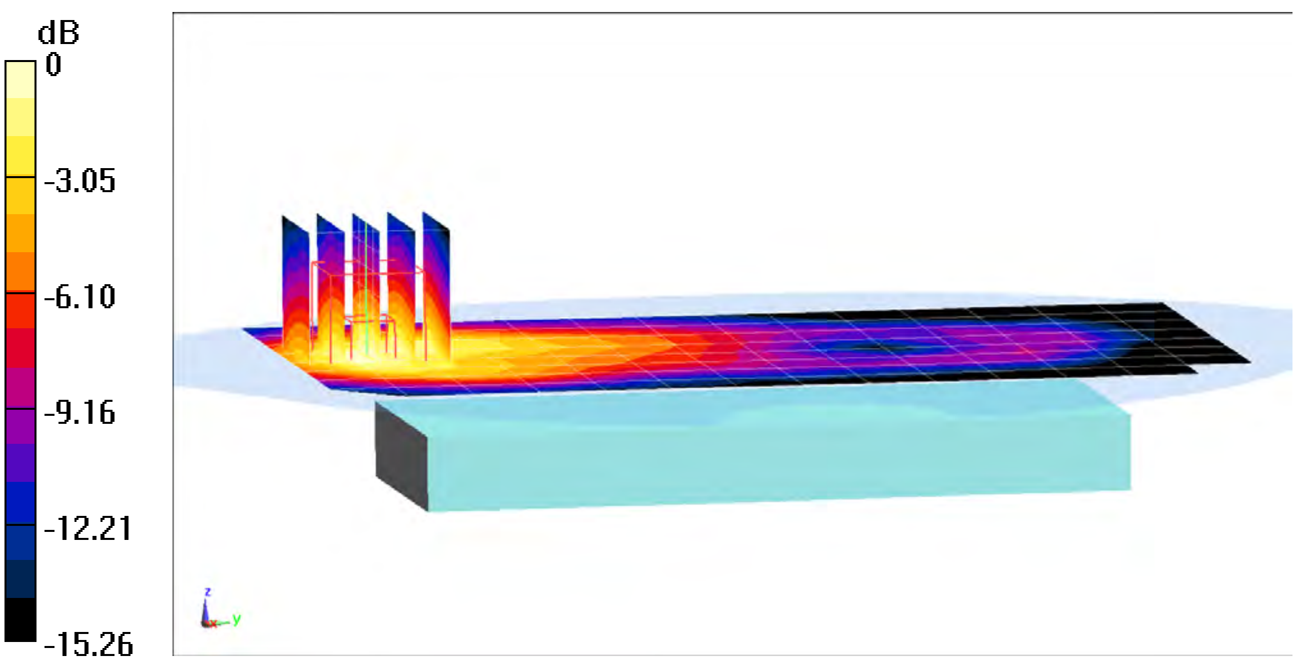
Communication System: UID 0, GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.537 S/m; ε_r = 52.383; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-20-2019; Ambient Temp: 22.2°C; Tissue Temp:20.9°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GSM 1900, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.055 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.188 W/kg
SAR(1 g) = 0.115 W/kg



0 dB = 0.162 W/kg = -7.90 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1170M

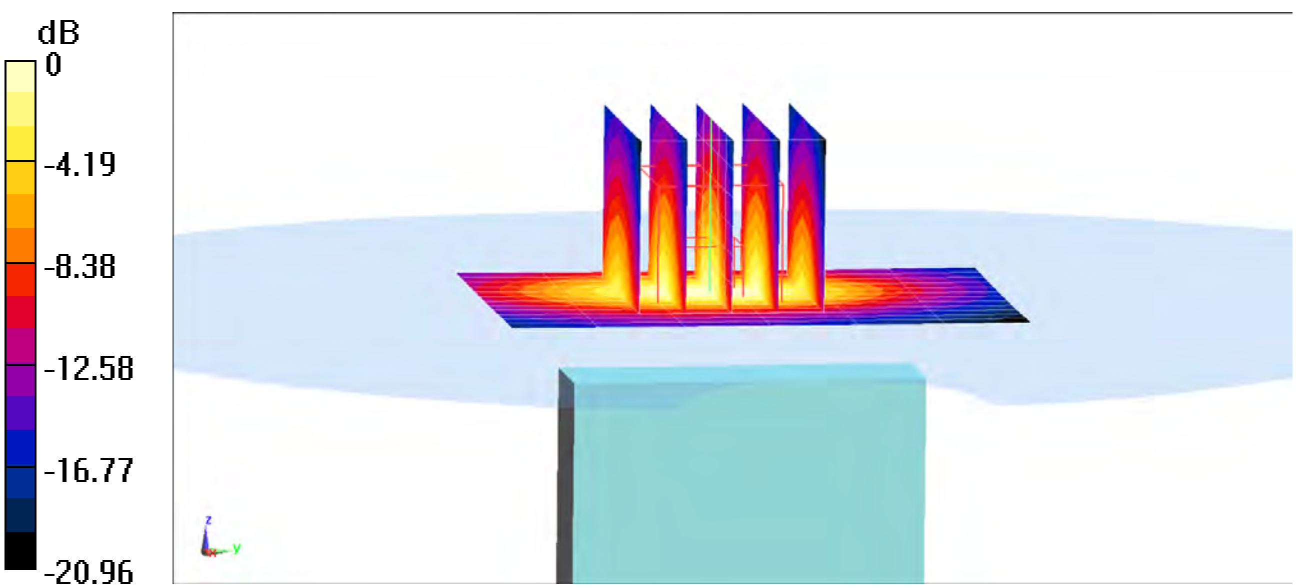
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.537 S/m; ε_r = 52.383; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-20-2019; Ambient Temp: 22.2°C; Tissue Temp:20.9°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GPRS 1900, Body SAR, Bottom Edge, Mid.ch, 3 Tx Slots

Area Scan (13x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.40 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.648 W/kg



0 dB = 0.980 W/kg = -0.09 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1152M

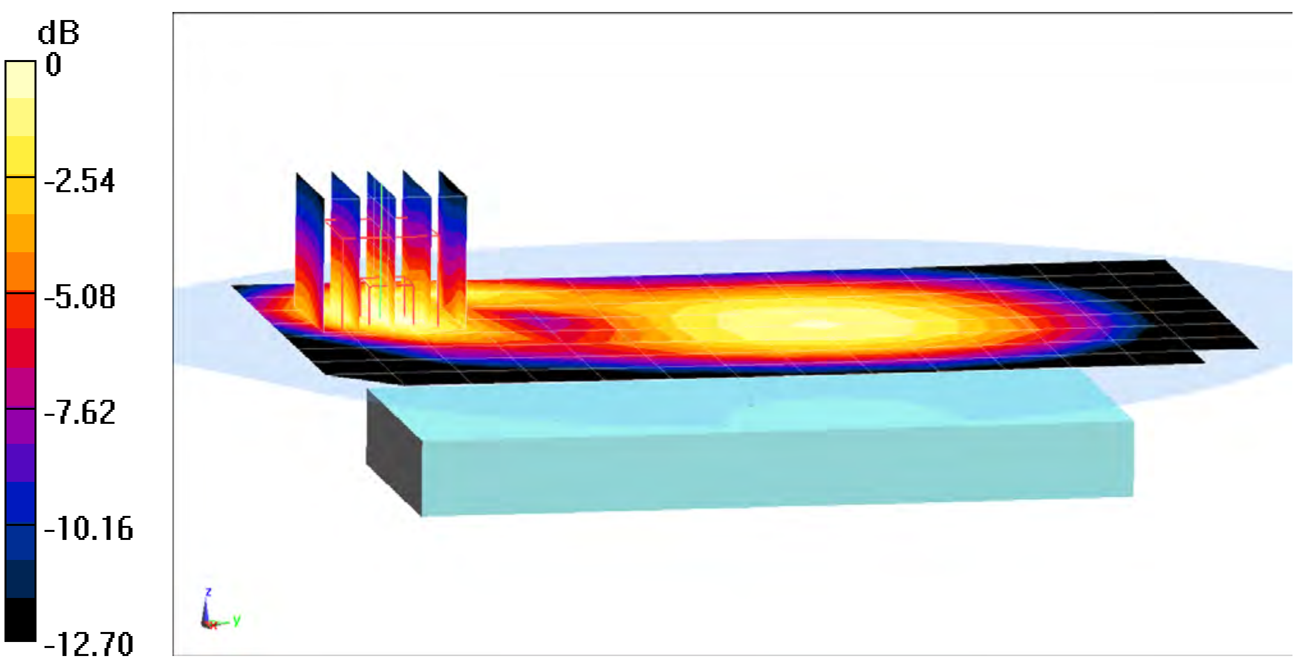
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.999 S/m; ε_r = 54.973; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-13-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 836.6 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 850, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.04 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.305 W/kg
SAR(1 g) = 0.185 W/kg



0 dB = 0.259 W/kg = -5.87 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1152M

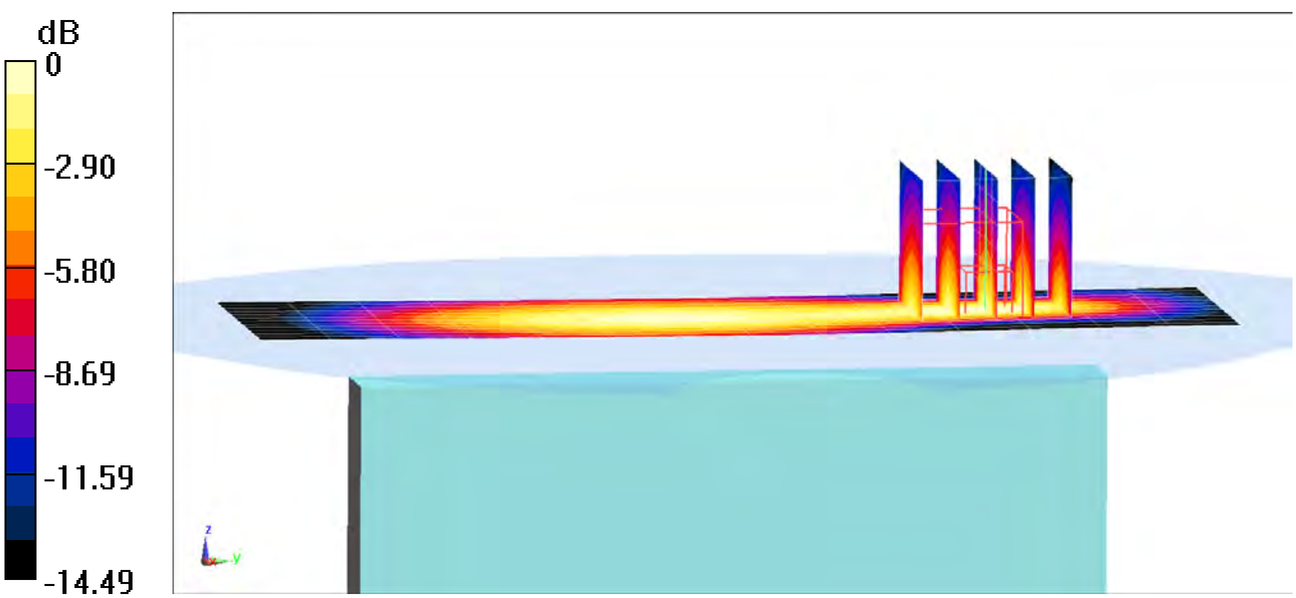
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.999 S/m; ε_r = 54.973; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-13-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 836.6 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 850, Body SAR, Right Edge, Mid.ch

Area Scan (13x15x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.97 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.786 W/kg
SAR(1 g) = 0.441 W/kg



0 dB = 0.658 W/kg = -1.82 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1170M

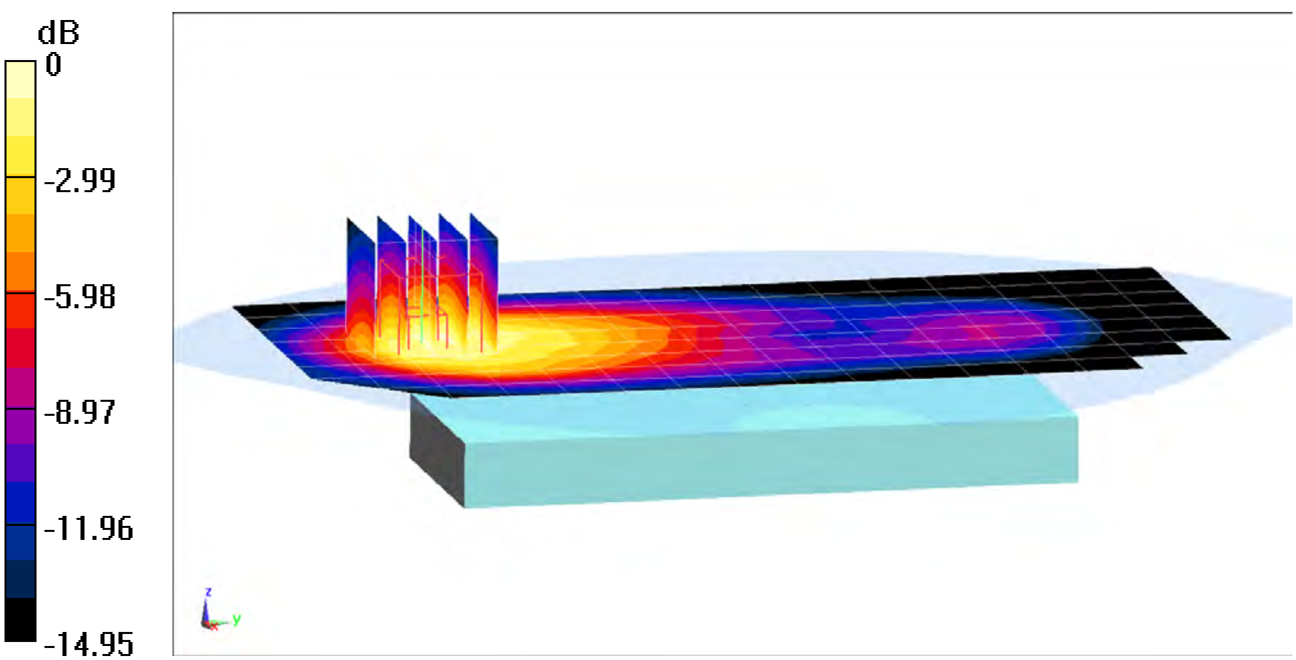
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.4 MHz; σ = 1.516 S/m; ε_r = 51.402; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-18-2019; Ambient Temp: 20.2°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1732.4 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1750, Body SAR, Back side, Mid.ch

Area Scan (9x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.90 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.809 W/kg
SAR(1 g) = 0.497 W/kg



0 dB = 0.702 W/kg = -1.54 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1170M

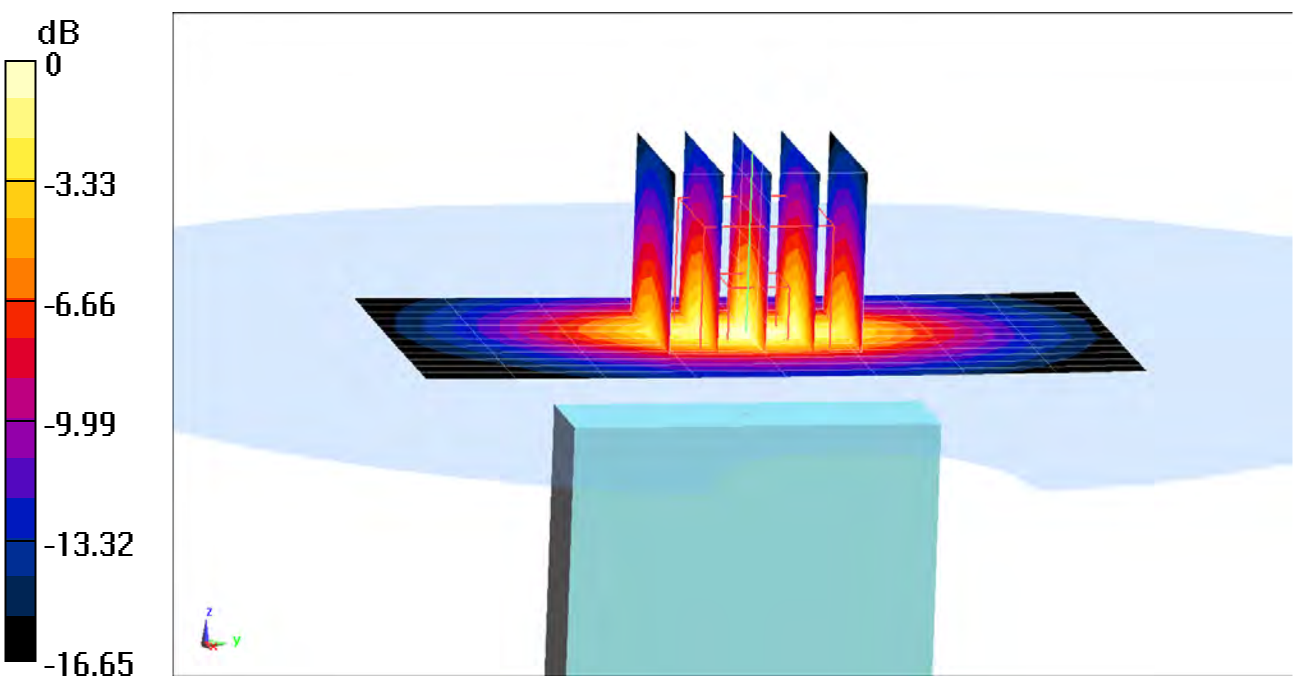
Communication System: UID 0, UMTS; Frequency: 1712.4 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1712.4 MHz; σ = 1.494 S/m; ε_r = 51.481; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-18-2019; Ambient Temp: 20.2°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1712.4 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1750, Body SAR, Bottom Edge, Low.ch

Area Scan (13x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.98 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.24 W/kg
SAR(1 g) = 0.699 W/kg



0 dB = 1.06 W/kg = 0.25 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1167M

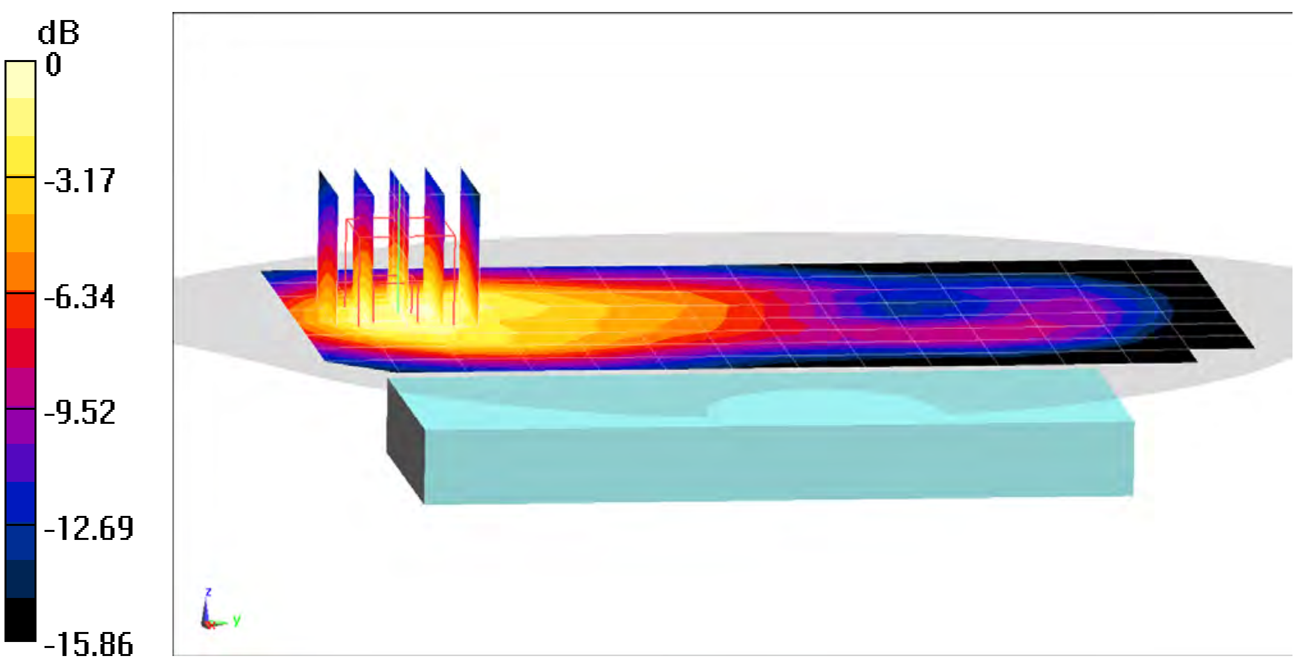
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.513 S/m; ε_r = 52.398; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-14-2019; Ambient Temp: 23.5°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1900, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.09 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.447 W/kg
SAR(1 g) = 0.277 W/kg



0 dB = 0.387 W/kg = -4.12 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1167M

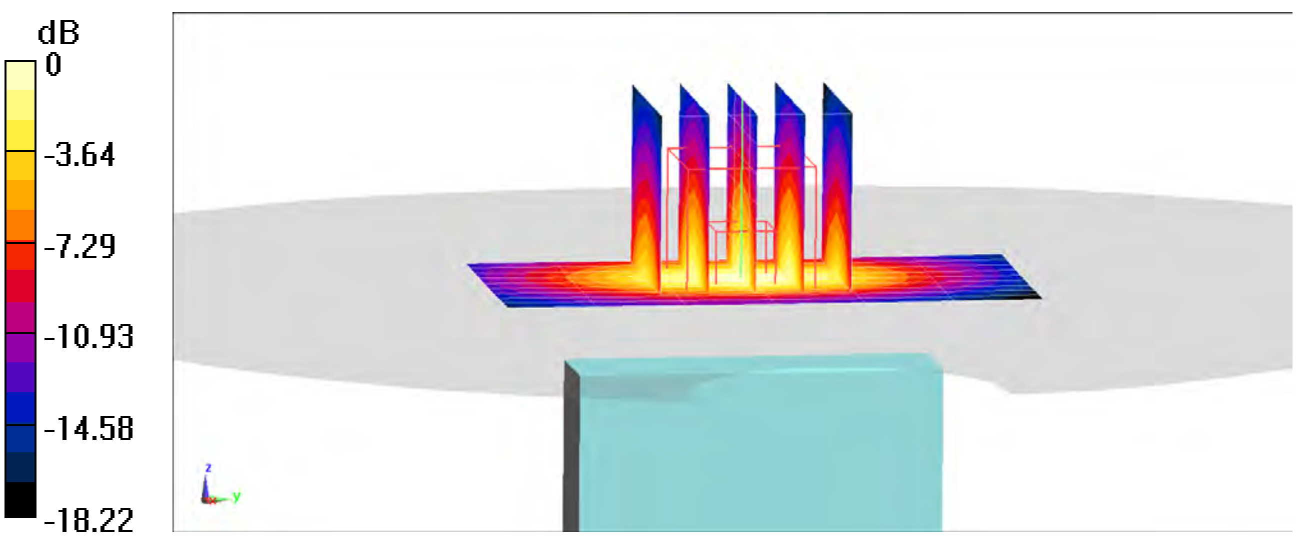
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.513 S/m; ε_r = 52.398; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-14-2019; Ambient Temp: 23.5°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1900, Body SAR, Bottom Edge, Mid.ch

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.30 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.50 W/kg
SAR(1 g) = 0.852 W/kg



0 dB = 1.29 W/kg = 1.11 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1161M

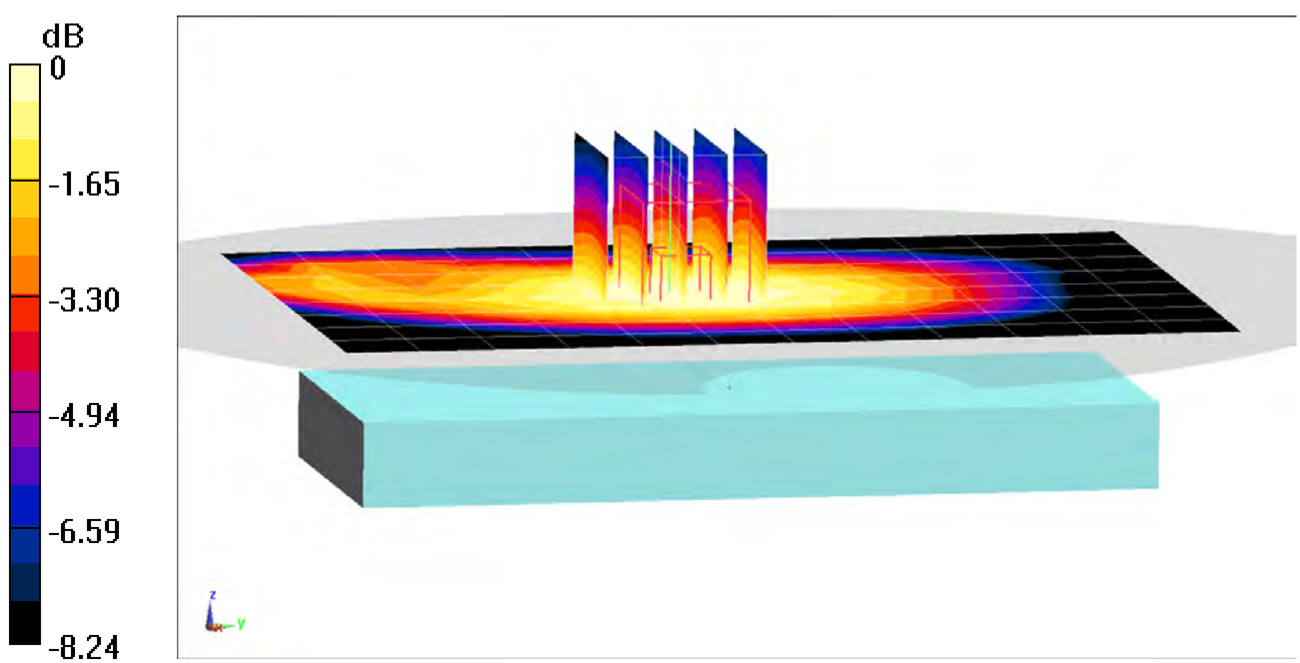
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.938 S/m; ε_r = 54.159; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date:03-14-2019; Ambient Temp: 24.2°C; Tissue Temp:20.7°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 707.5 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 12, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.76 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.227 W/kg
SAR(1 g) = 0.171 W/kg



0 dB = 0.207 W/kg = -6.84 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1161M

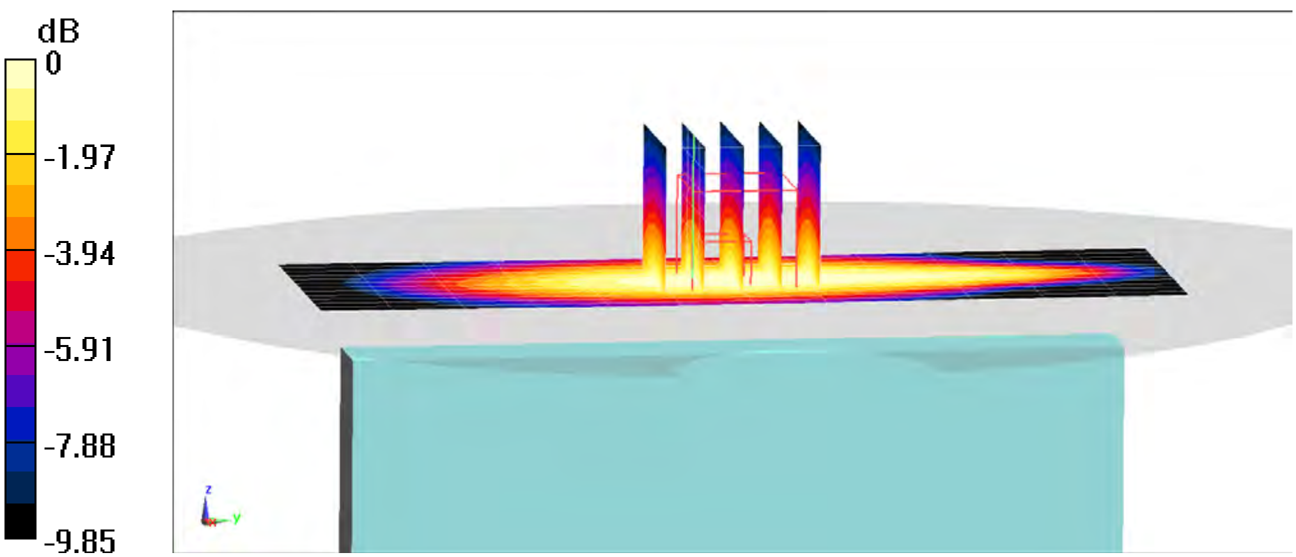
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.938 S/m; ε_r = 54.159; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date:03-14-2019; Ambient Temp: 24.2°C; Tissue Temp:20.7°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 707.5 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 12, Body SAR, Right Edge, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (13x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.33 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.552 W/kg
SAR(1 g) = 0.369 W/kg



0 dB = 0.485 W/kg = -3.14 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1161M

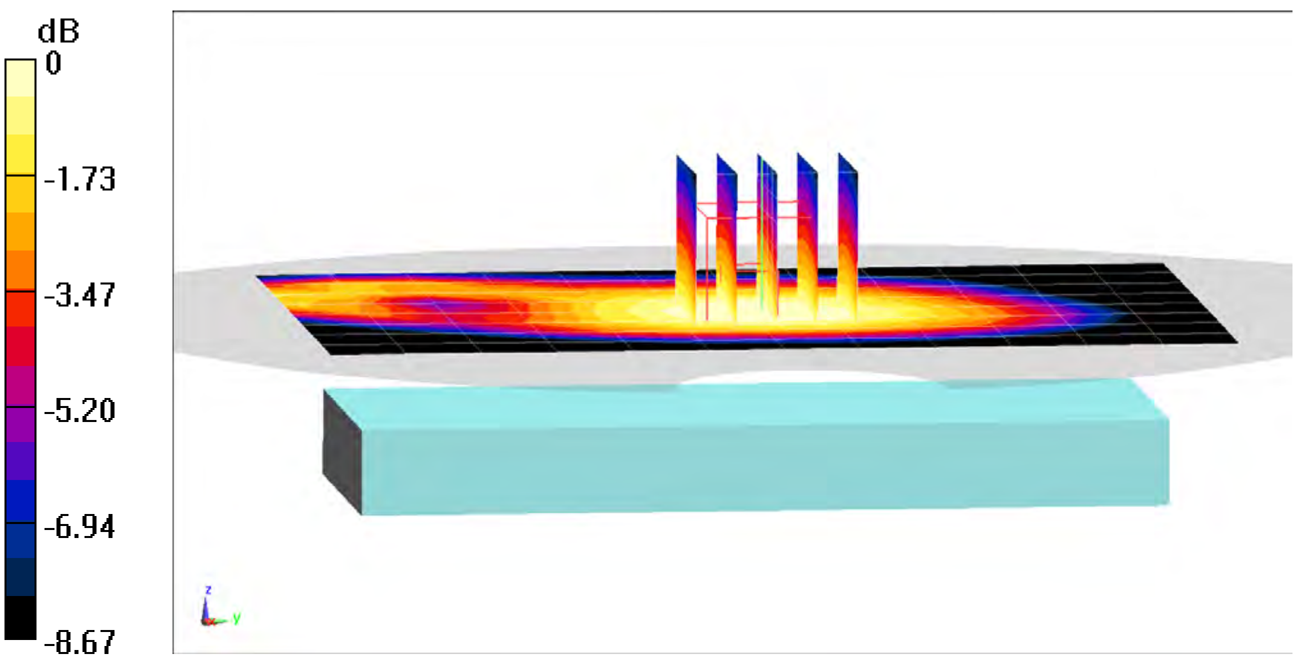
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 782 MHz; σ = 0.967 S/m; ε_r = 53.962; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date:03-14-2019; Ambient Temp: 24.2°C; Tissue Temp:20.7°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 782 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 13, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 49 RB Offset

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.56 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.267 W/kg
SAR(1 g) = 0.199 W/kg



0 dB = 0.243 W/kg = -6.14 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1161M

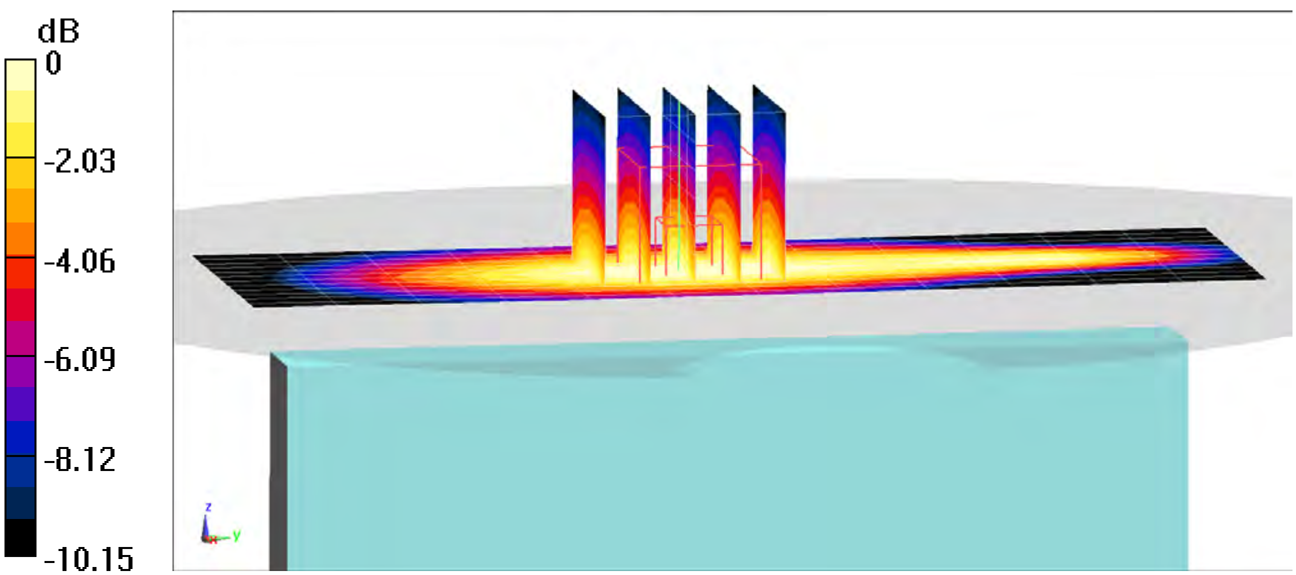
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 782 MHz; σ = 0.967 S/m; ε_r = 53.962; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date:03-14-2019; Ambient Temp: 24.2°C; Tissue Temp:20.7°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 782 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 13, Body SAR, Right Edge, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 49 RB Offset

Area Scan (13x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.25 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.642 W/kg
SAR(1 g) = 0.430 W/kg



0 dB = 0.569 W/kg = -2.45 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1161M

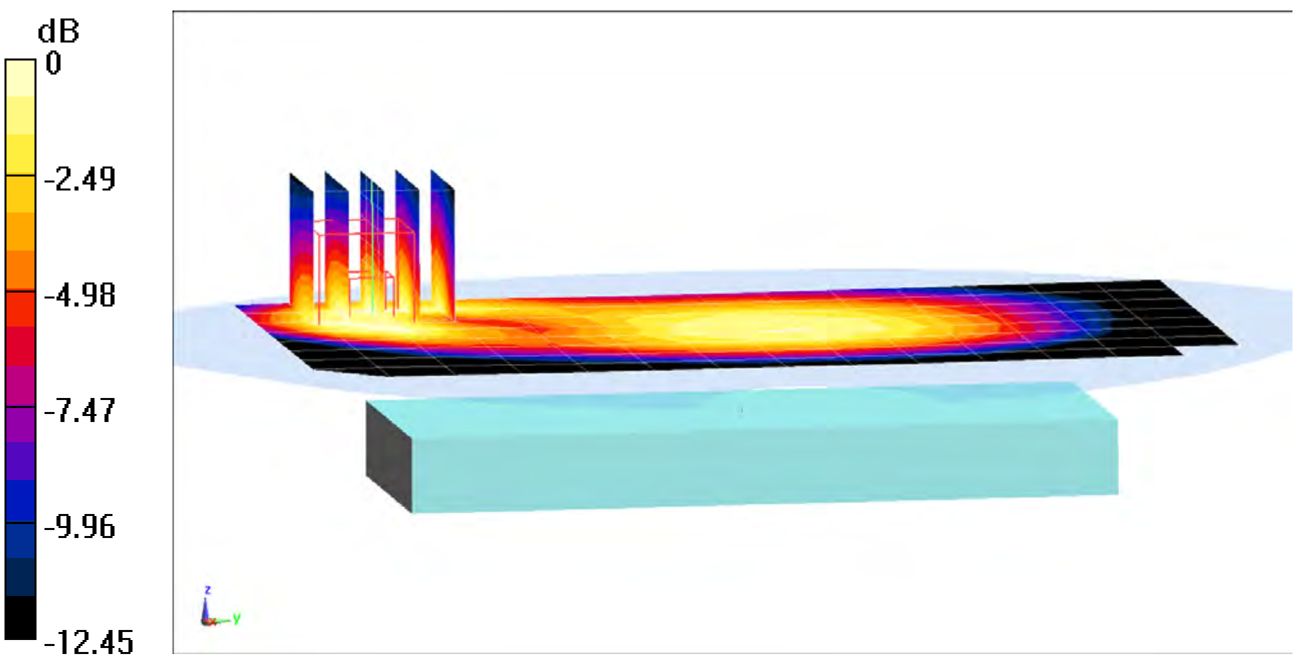
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.994 S/m; ε_r = 55.025; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-13-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 831.5 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 26 (Cell.), Body SAR, Back side, Mid.ch, 15 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.72 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.329 W/kg
SAR(1 g) = 0.200 W/kg



0 dB = 0.282 W/kg = -5.50 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1161M

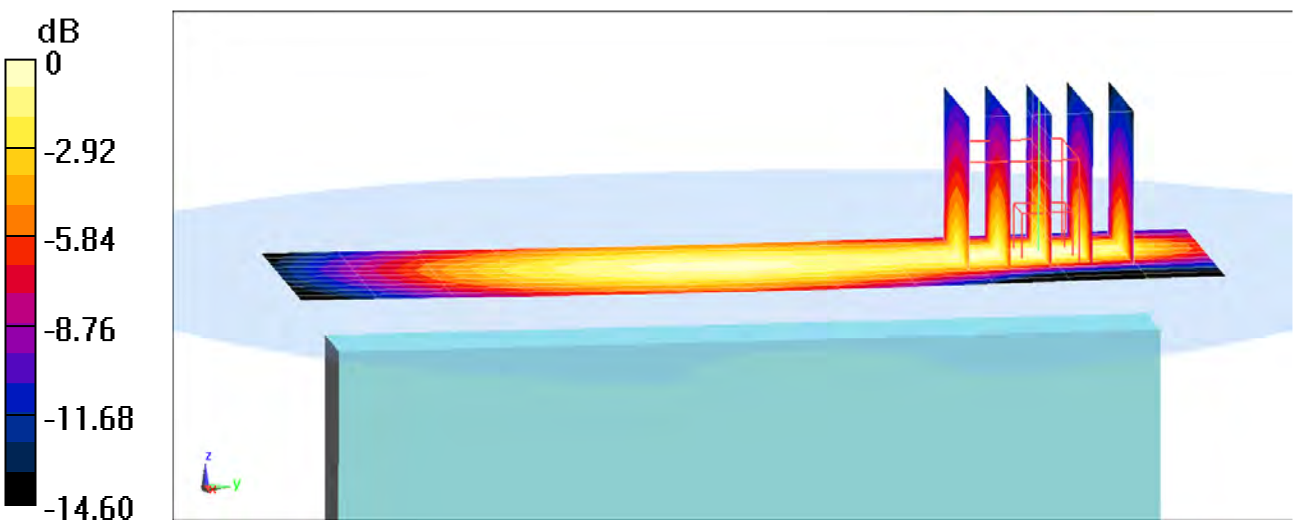
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.994 S/m; ε_r = 55.025; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-13-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 831.5 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 26 (Cell.), Body SAR, Right Edge, Mid.ch, 15 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (11x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.39 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.979 W/kg
SAR(1 g) = 0.542 W/kg



0 dB = 0.801 W/kg = -0.96 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1198M

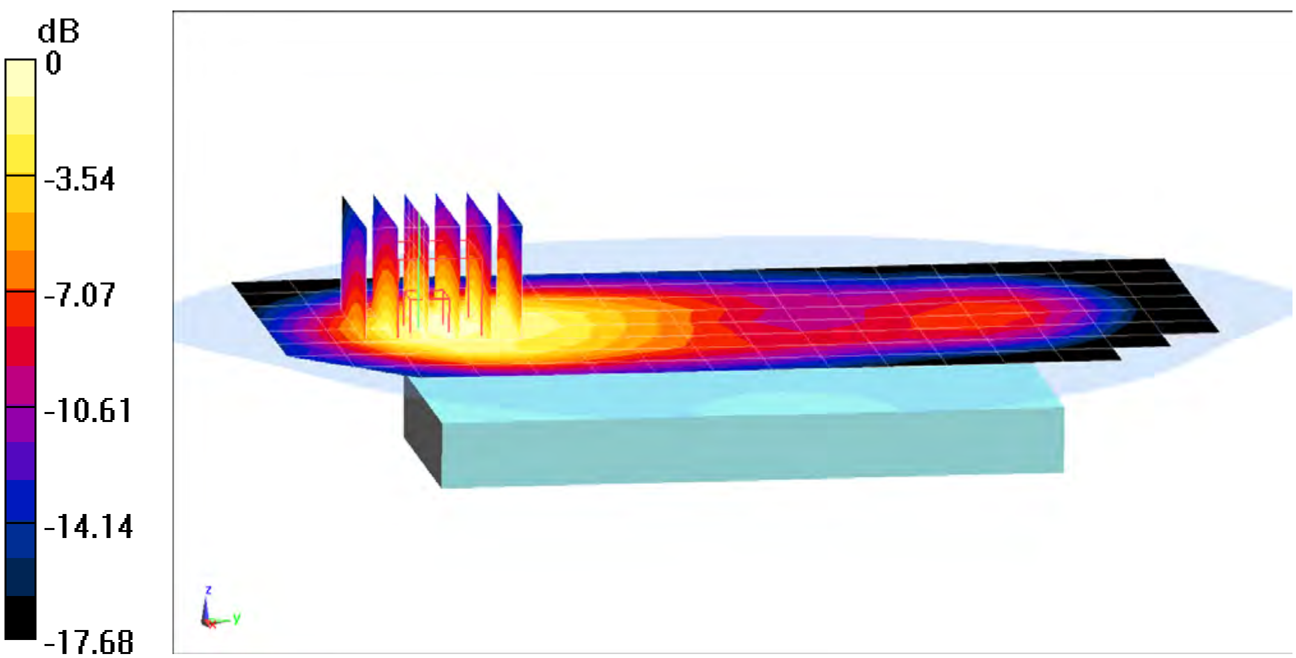
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1720 MHz; σ = 1.502 S/m; ε_r = 51.451; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-18-2019; Ambient Temp: 20.2°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1720 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), Body SAR, Back side, Low.ch, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.83 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.760 W/kg
SAR(1 g) = 0.468 W/kg



0 dB = 0.649 W/kg = -1.88 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1198M

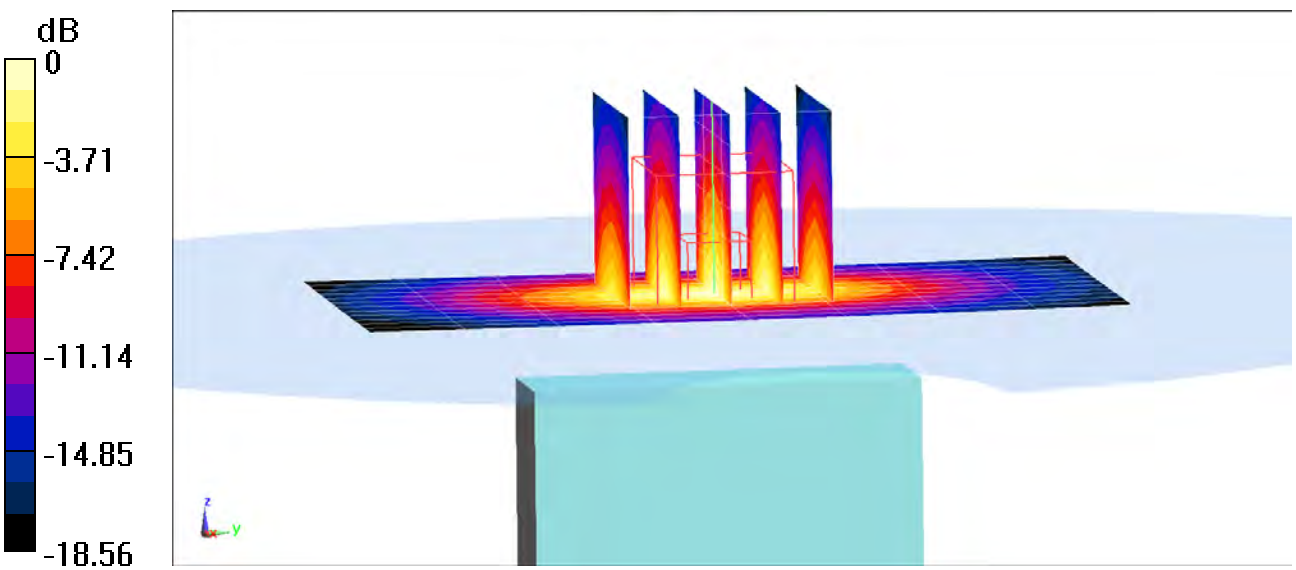
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1745 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1745 MHz; σ = 1.53 S/m; ε_r = 51.353; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-18-2019; Ambient Temp: 20.2°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1745 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), Body SAR, Bottom Edge, Mid.ch,
20 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset

Area Scan (13x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.89 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.647 W/kg



0 dB = 0.984 W/kg = -0.07 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1198M

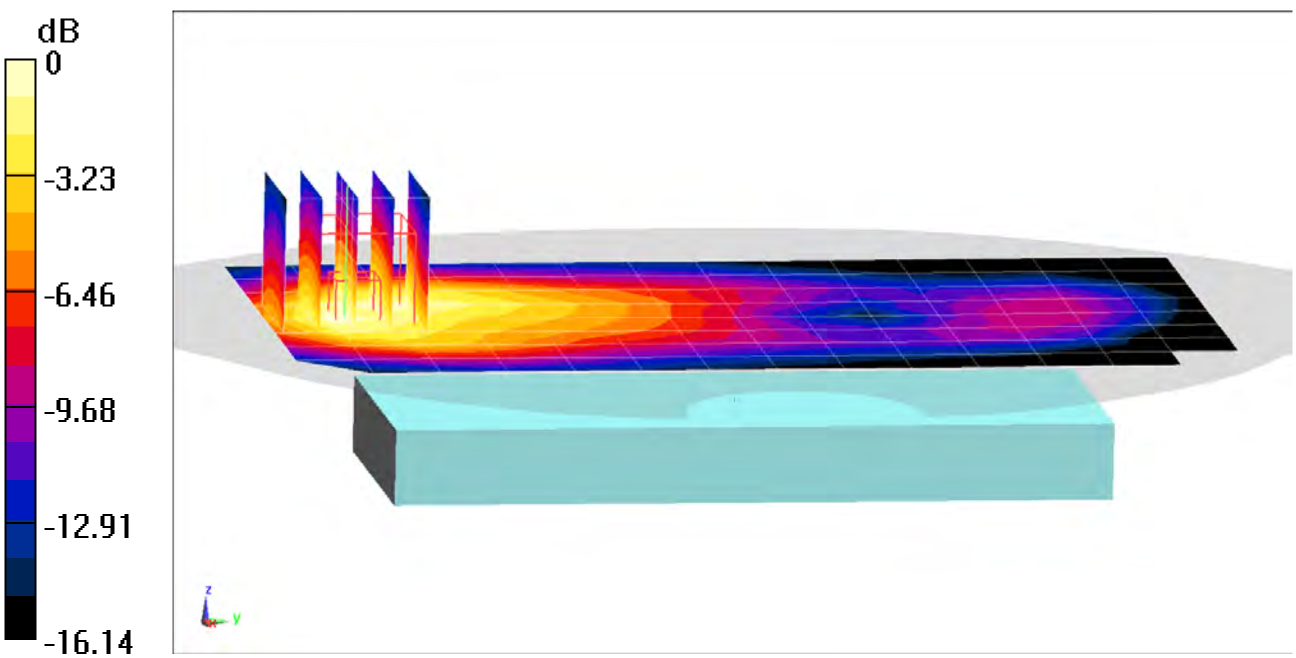
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1882.5 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1882.5 MHz; σ = 1.516 S/m; ε_r = 52.39; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-14-2019; Ambient Temp: 23.5°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1882.5 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 25 (PCS), Body SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.96 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.437 W/kg
SAR(1 g) = 0.272 W/kg



0 dB = 0.372 W/kg = -4.29 dBW/kg

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1198M

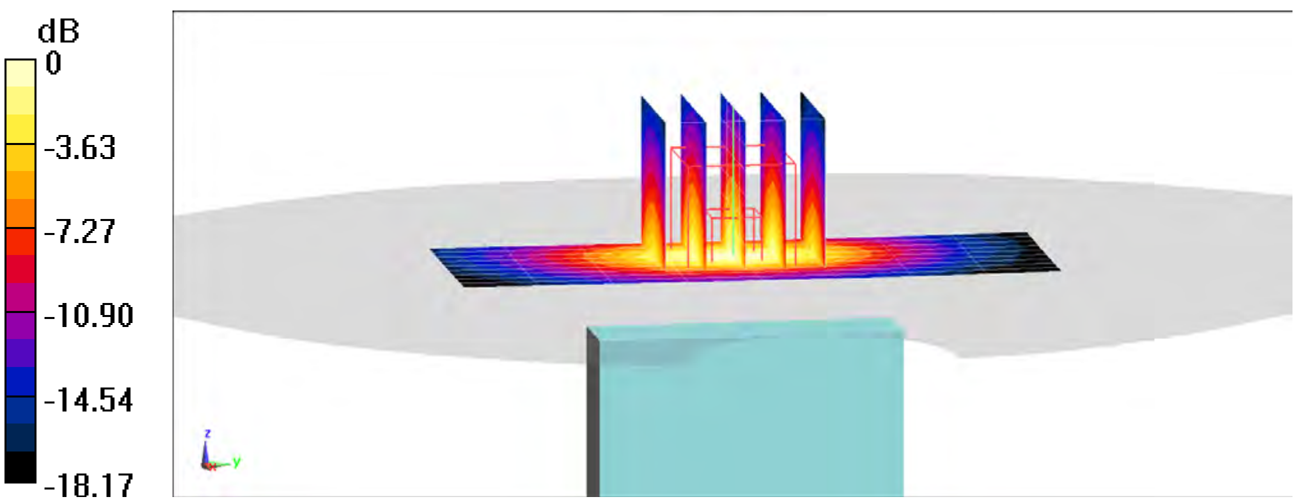
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1882.5 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1882.5 MHz; σ = 1.516 S/m; ε_r = 52.39; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-14-2019; Ambient Temp: 23.5°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1882.5 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 25 (PCS), Body SAR, Bottom Edge, Mid.ch,
20 MHz Bandwidth, QPSK, 50 RB, 25 RB Offset

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.97 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.697 W/kg



0 dB = 1.05 W/kg = 0.21 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1143M

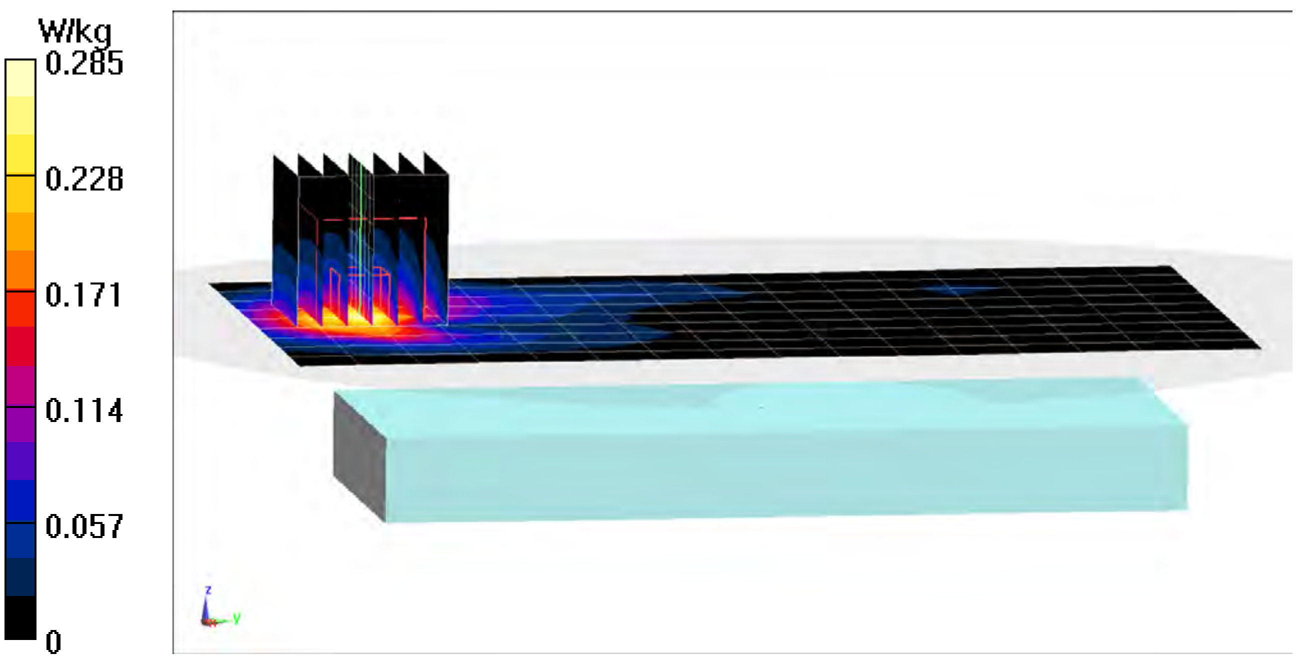
Communication System: UID 0, LTE Band 41; Frequency: 2593 MHz; Duty Cycle: 1:1.58
Medium: 2450 Body Medium parameters used (interpolated):
f = 2593 MHz; σ = 2.202 S/m; ε_r = 50.387; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-18-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2593 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 41, Body SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.652 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.235 W/kg
SAR(1 g) = 0.117 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1143M

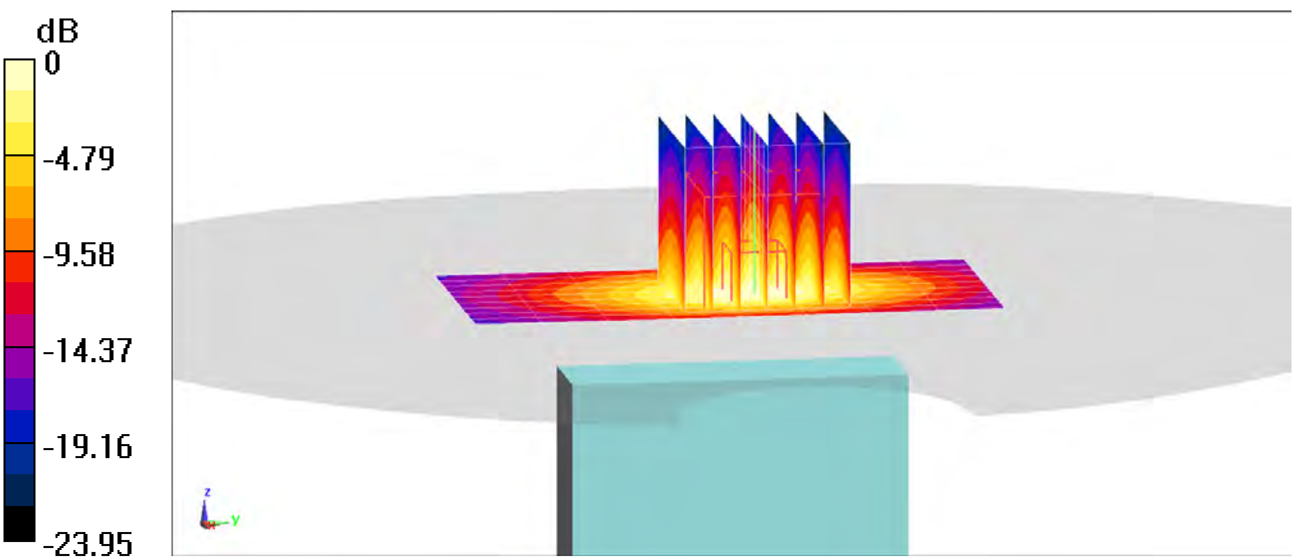
Communication System: UID 0, _LTE Band 41; Frequency: 2506 MHz; Duty Cycle: 1:1.58
Medium: 2450 Body Medium parameters used (interpolated):
f = 2506 MHz; σ = 2.105 S/m; ε_r = 50.403; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-03-2019; Ambient Temp: 24.4°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2506 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 41, Body SAR, Bottom Edge, Low.ch,
20 MHz Bandwidth, QPSK, 50 RB, 25 RB Offset

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.86 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.734 W/kg



0 dB = 1.45 W/kg = 1.61 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1105M

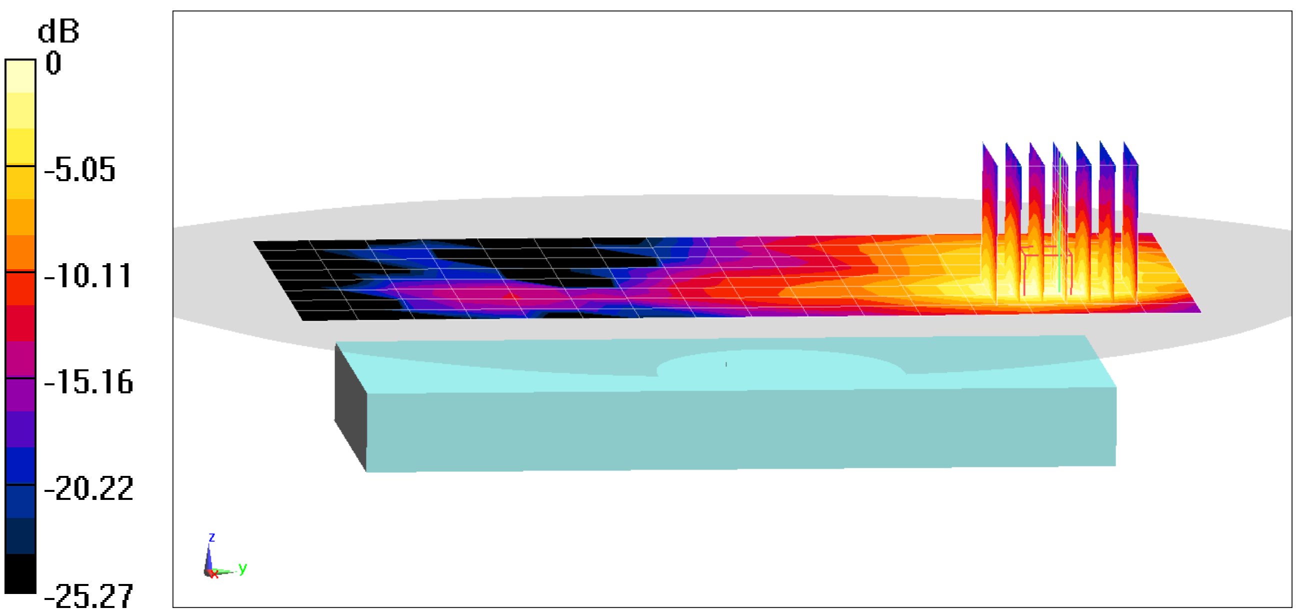
Communication System: UID 0, _IEEE 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2412 MHz; σ = 1.972 S/m; ε_r = 50.783; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-25-2019; Ambient Temp: 23.3°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2412 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11b Antenna 2, 22 MHz Bandwidth,
Body SAR, Ch 1, 1 Mbps, Back Side

Area Scan (9x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.079 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.182 W/kg
SAR(1 g) = 0.087 W/kg



0 dB = 0.143 W/kg = -8.45 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1105M

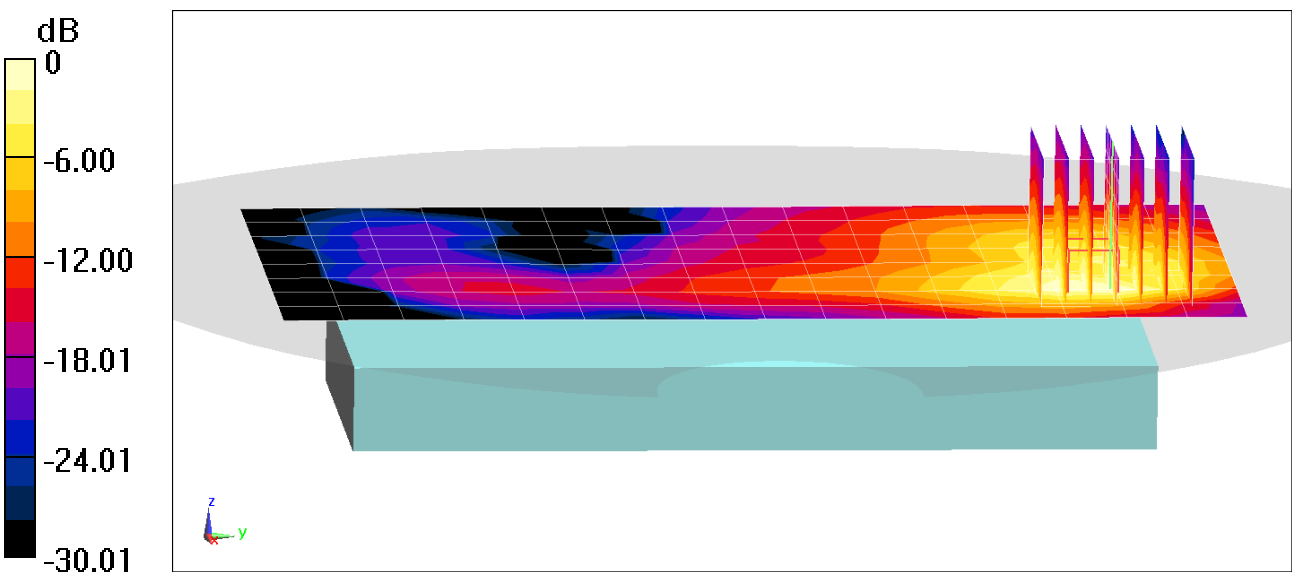
Communication System: UID 0, _IEEE 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2412 MHz; σ = 1.972 S/m; ε_r = 50.783; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 23.3°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2412 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11b Antenna 2, 22 MHz Bandwidth,
Body SAR, Ch 1, 1 Mbps, Back Side

Area Scan (9x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.197 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.495 W/kg
SAR(1 g) = 0.219 W/kg



0 dB = 0.377 W/kg = -4.24 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1108M

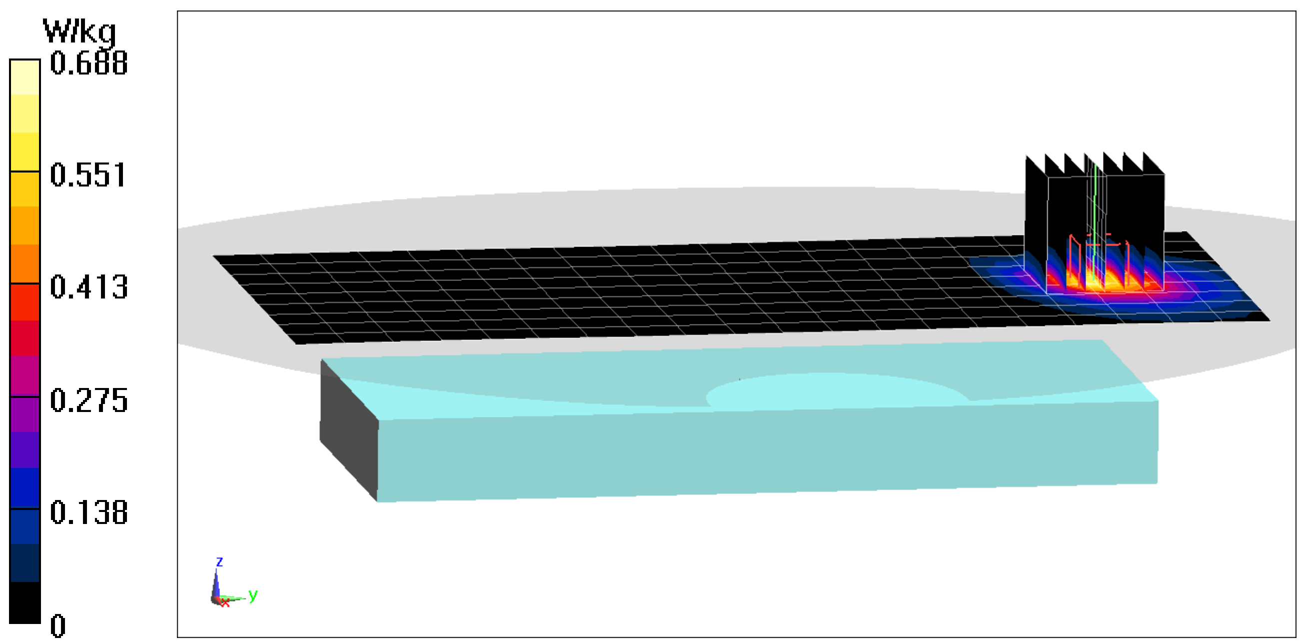
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used:
f = 5500 MHz; σ = 5.789 S/m; ε_r = 48.472; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-18-2019; Ambient Temp: 21.3°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7308; ConvF(4, 4, 4) @ 5500 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a Antenna 1, UNII-2C, 20 MHz Bandwidth, Body SAR, Ch 100, 6 Mbps, Back Side

Area Scan (10x21x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 7.460 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.292 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1108M

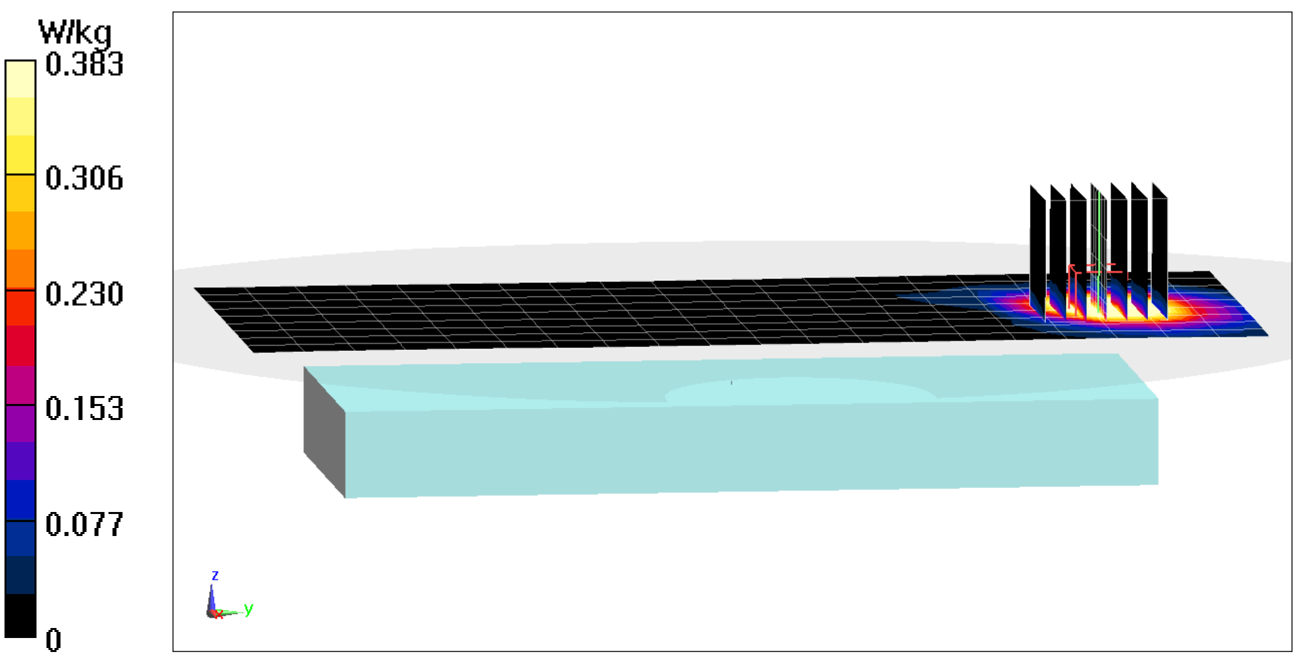
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5785 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used:
f = 5785 MHz; σ = 6.246 S/m; ε_r = 47.904; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-18-2019; Ambient Temp: 21.3°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7308; ConvF(4.18, 4.18, 4.18) @ 5785 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a Antenna 1, UNII-3, 20 MHz Bandwidth, Body SAR, Ch 157, 6 Mbps, Back Side

Area Scan (10x21x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 5.055 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.634 W/kg
SAR(1 g) = 0.147 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1101M

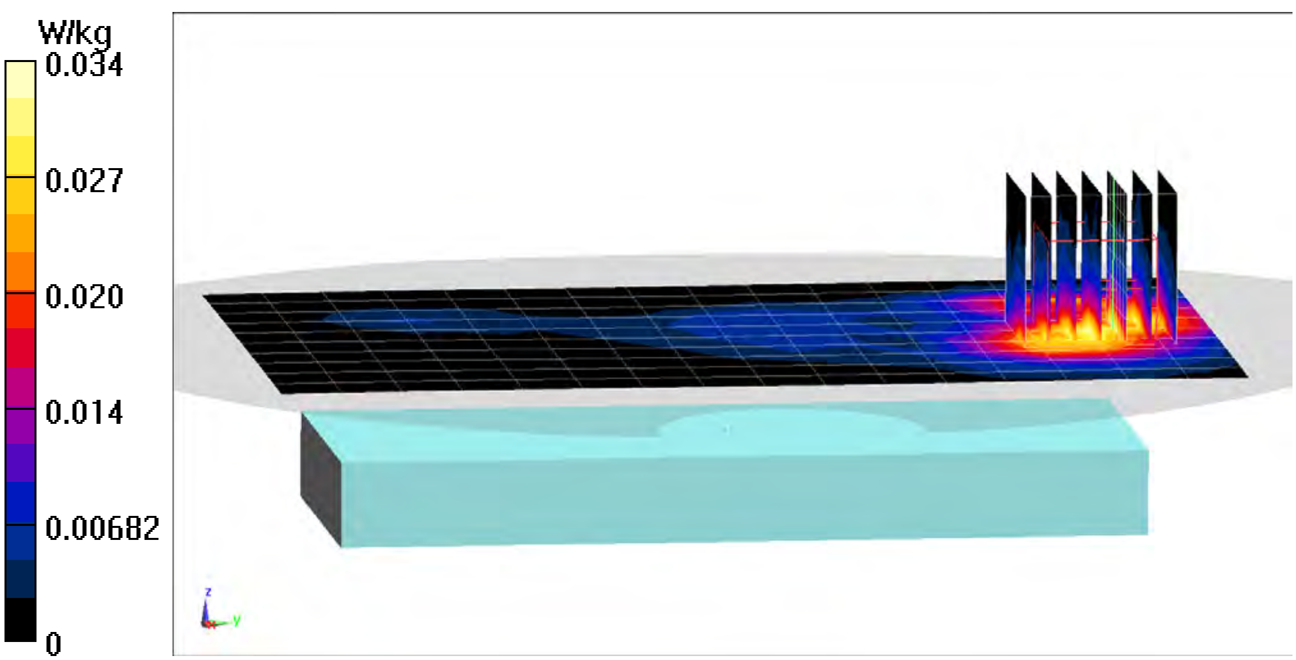
Communication System: UID 0, Bluetooth; Frequency: 2402 MHz; Duty Cycle: 1:1.297
Medium: 2450 Body Medium parameters used (interpolated):
f = 2402 MHz; σ = 1.960 S/m; ε_r = 50.810; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-25-2019; Ambient Temp: 23.3°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2402 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Bluetooth, Body SAR, Ch 0, 1 Mbps, Back Side

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.489 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.0410 W/kg
SAR(1 g) = 0.022 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1101M

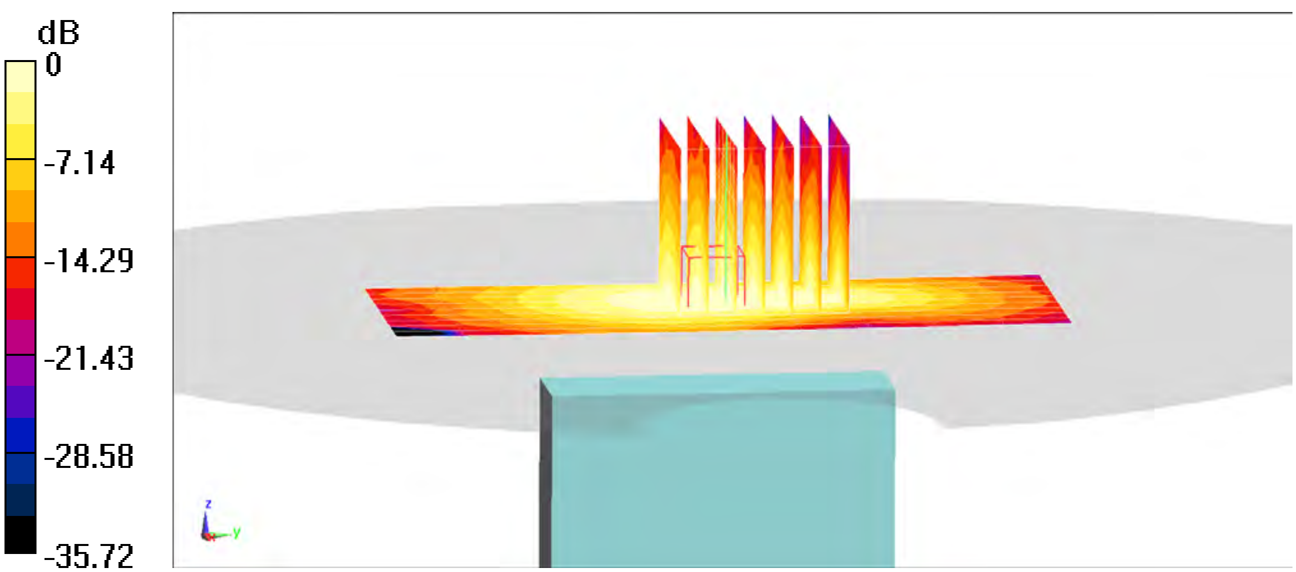
Communication System: UID 0, Bluetooth; Frequency: 2402 MHz; Duty Cycle: 1:1.297
Medium: 2450 Body Medium parameters used (interpolated):
f = 2402 MHz; σ = 1.96 S/m; ε_r = 50.81; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 23.3°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2402 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Bluetooth, Body SAR, Ch 0, 1 Mbps, Top Edge

Area Scan (10x11x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.710 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.112 W/kg
SAR(1 g) = 0.059 W/kg



0 dB = 0.0919 W/kg = -10.37 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1170M

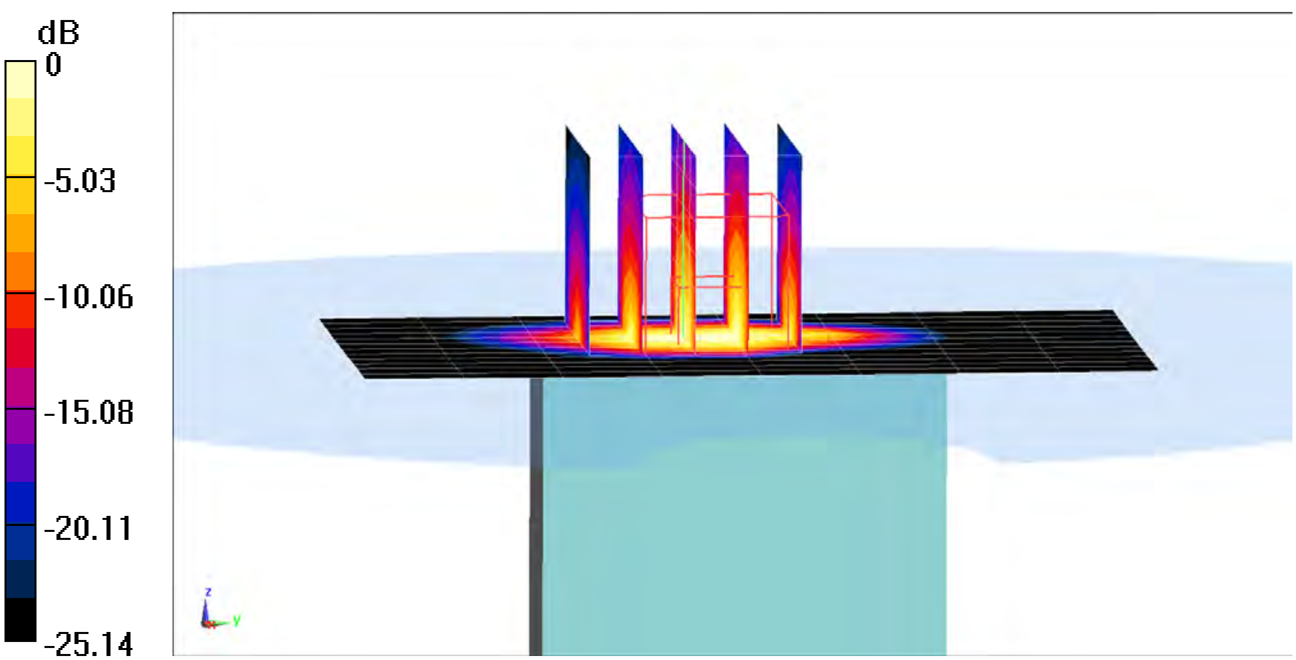
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 1909.8 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body Medium parameters used:
f = 1910 MHz; σ = 1.57 S/m; ε_r = 52.262; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-20-2019; Ambient Temp: 22.2°C; Tissue Temp:20.9°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1909.8 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GPRS 1900, Phablet SAR, Bottom Edge, High.ch, 3 Tx Slots

Area Scan (13x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 60.87 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 12.5 W/kg
SAR(10 g) = 2.22 W/kg



0 dB = 9.31 W/kg = 9.69 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1170M

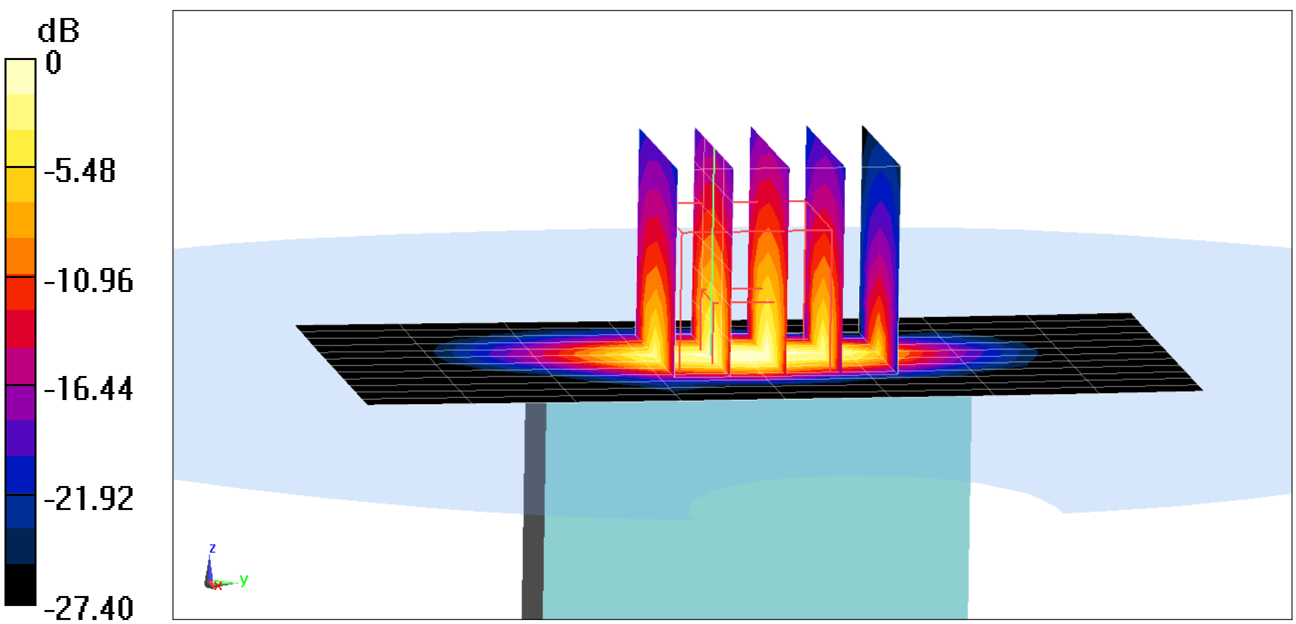
Communication System: UID 0, UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1752.6 MHz; σ = 1.543 S/m; ε_r = 51.606; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-01-2019; Ambient Temp: 20.6°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1752.6 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1750, Phablet SAR, Bottom Edge, High.ch

Area Scan (13x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 61.82 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 12.0 W/kg
SAR(10 g) = 2.13 W/kg



0 dB = 9.41 W/kg = 9.74 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1167M

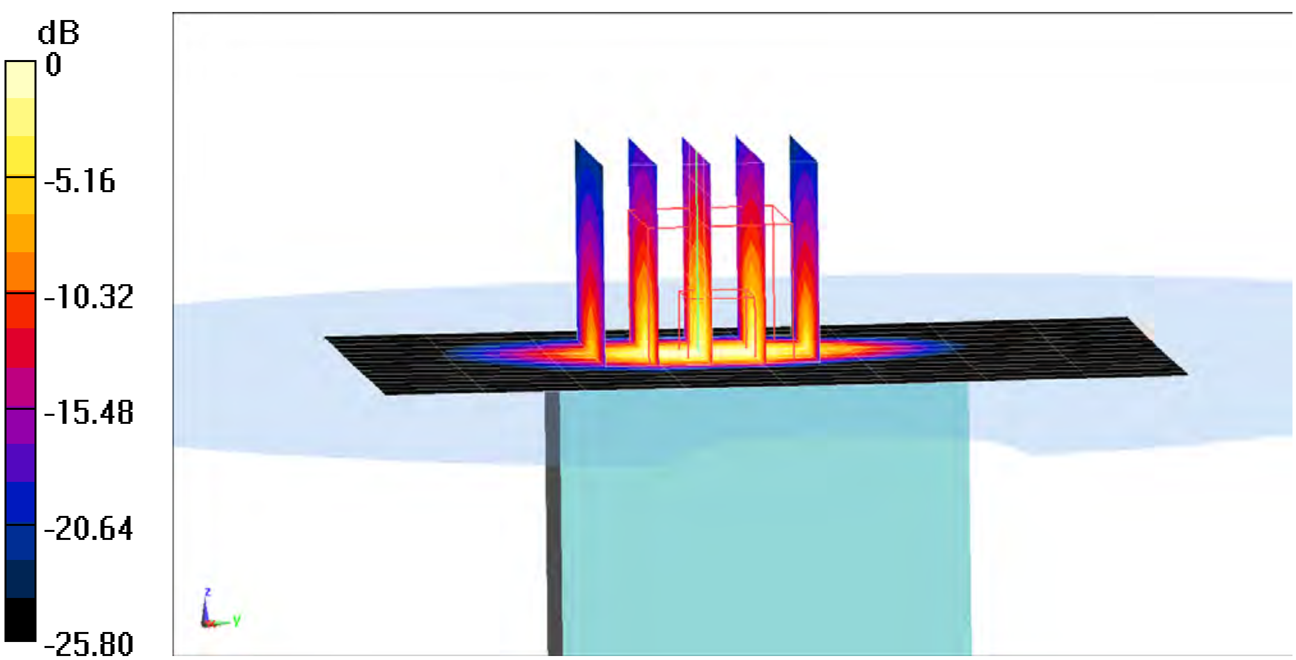
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.537 S/m; ε_r = 52.383; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-20-2019; Ambient Temp: 22.2°C; Tissue Temp:20.9°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1900, Phablet SAR, Bottom Edge, Mid.ch

Area Scan (15x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 70.53 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 15.9 W/kg
SAR(10 g) = 2.83 W/kg



0 dB = 12.4 W/kg = 10.93 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1198M

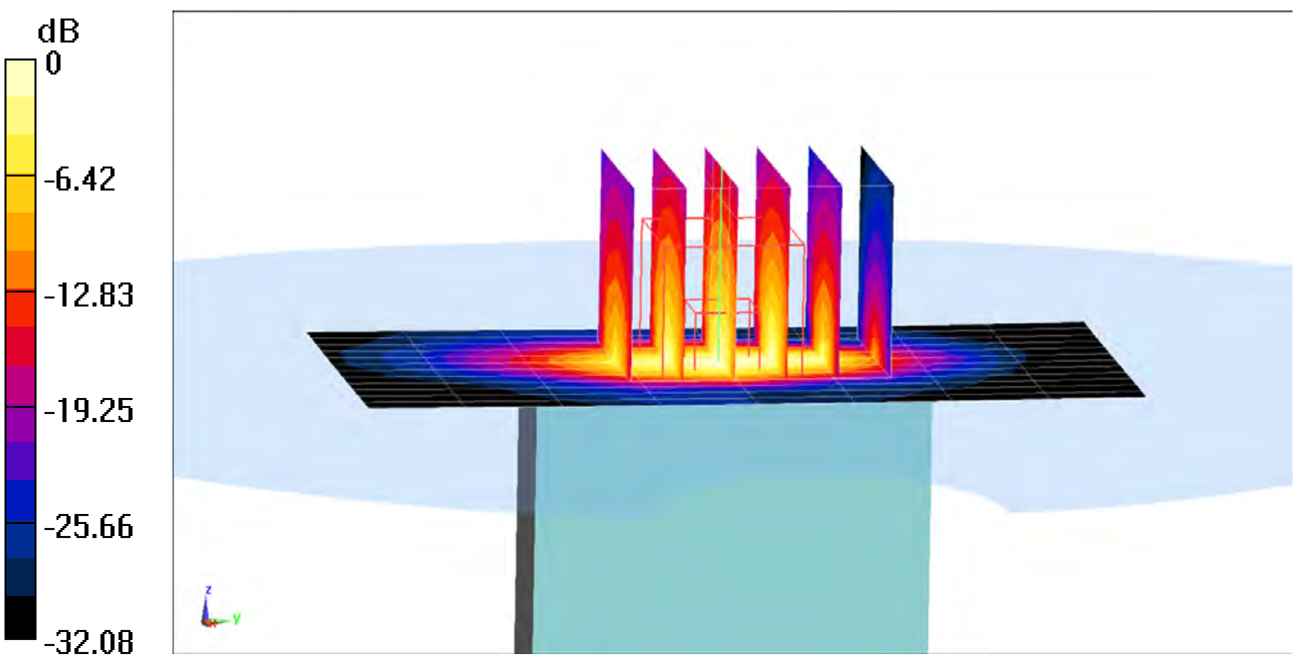
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1745 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1745 MHz; σ = 1.53 S/m; ε_r = 51.353; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-18-2019; Ambient Temp: 20.2°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1745 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), Phablet SAR, Bottom Edge, Mid.ch, 20 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset

Area Scan (13x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 56.17 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 11.6 W/kg
SAR(10 g) = 2.02 W/kg



0 dB = 9.28 W/kg = 9.68 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1198M

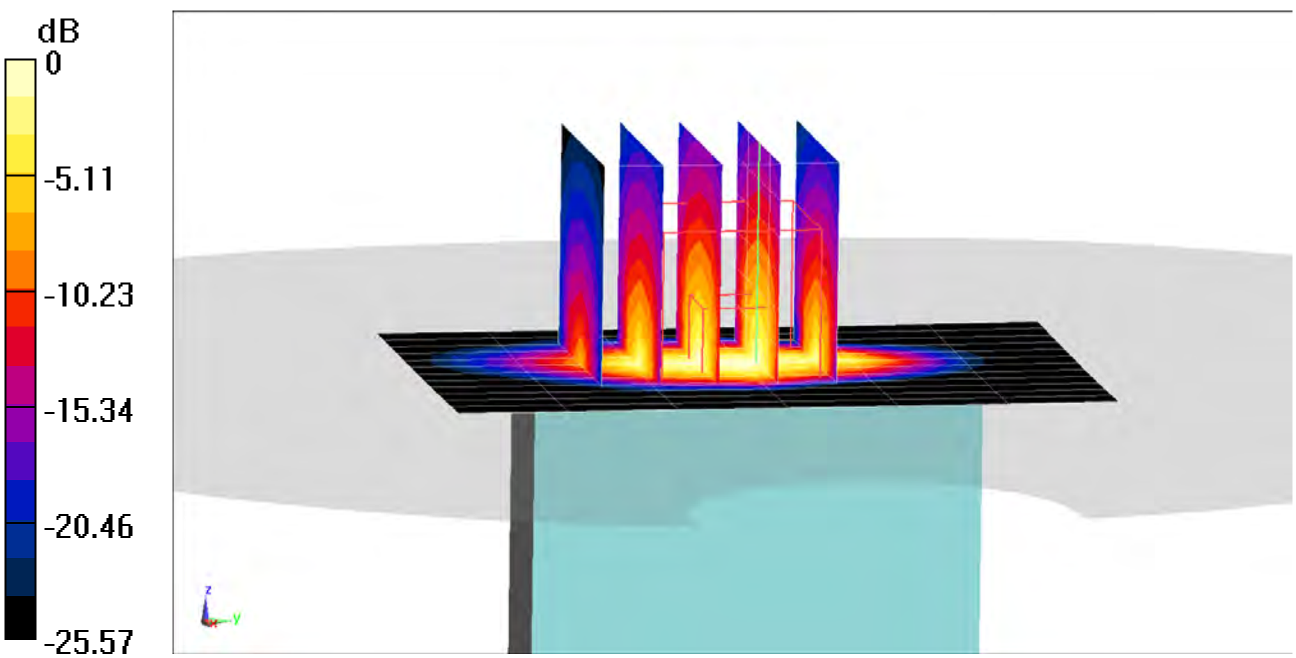
Communication System: UID 0, _LTE Band 25 (PCS); Frequency: 1905 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1905 MHz; σ = 1.54 S/m; ε_r = 52.321; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-14-2019; Ambient Temp: 23.5°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1905 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 25 (PCS), Phablet SAR, Bottom Edge, High.ch, 20 MHz Bandwidth, QPSK, 50 RB, 50 RB Offset

Area Scan (13x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 67.98 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 15.4 W/kg
SAR(10 g) = 2.71 W/kg



0 dB = 11.7 W/kg = 10.68 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1143M

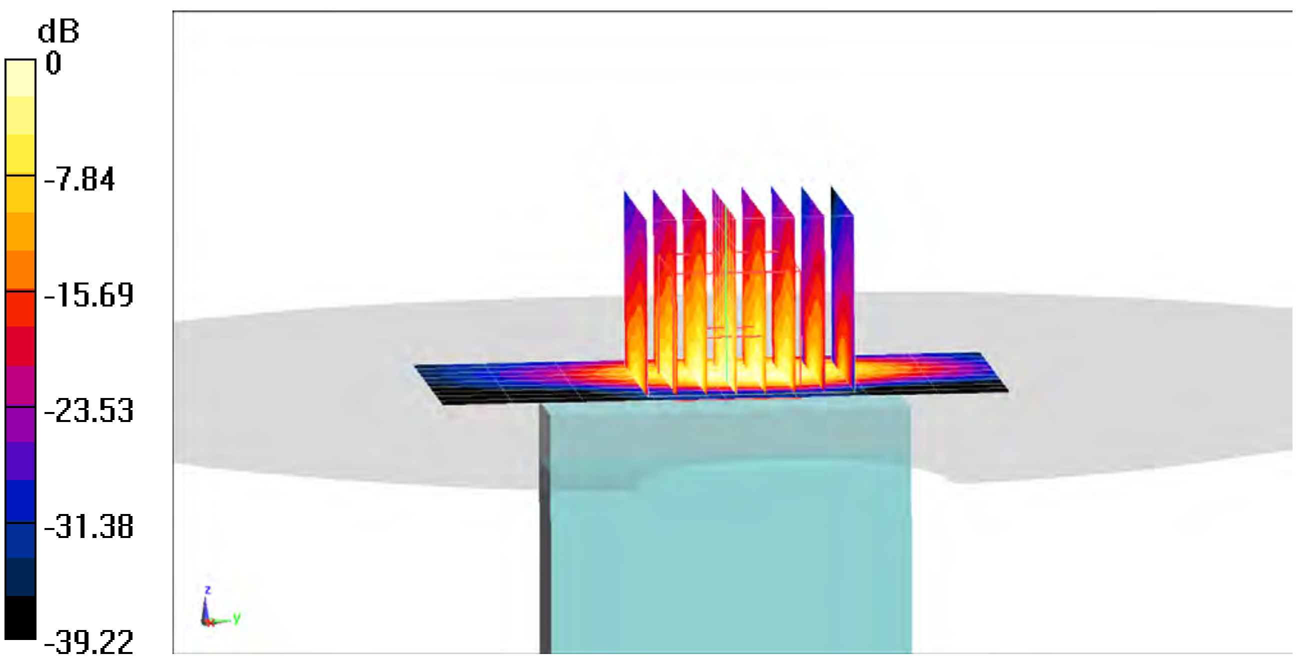
Communication System: UID 0, LTE Band 41; Frequency: 2593 MHz; Duty Cycle: 1:1.58
Medium: 2450 Body Medium parameters used (interpolated):
f = 2593 MHz; σ = 2.208 S/m; ε_r = 50.154; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-03-2019; Ambient Temp: 24.4°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2593 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 41, Phablet SAR, Bottom Edge, Mid.ch,
20 MHz Bandwidth, QPSK, 50 RB, 25 RB Offset**

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.96 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 15.9 W/kg
SAR(10 g) = 2.14 W/kg



0 dB = 11.5 W/kg = 10.61 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1108M

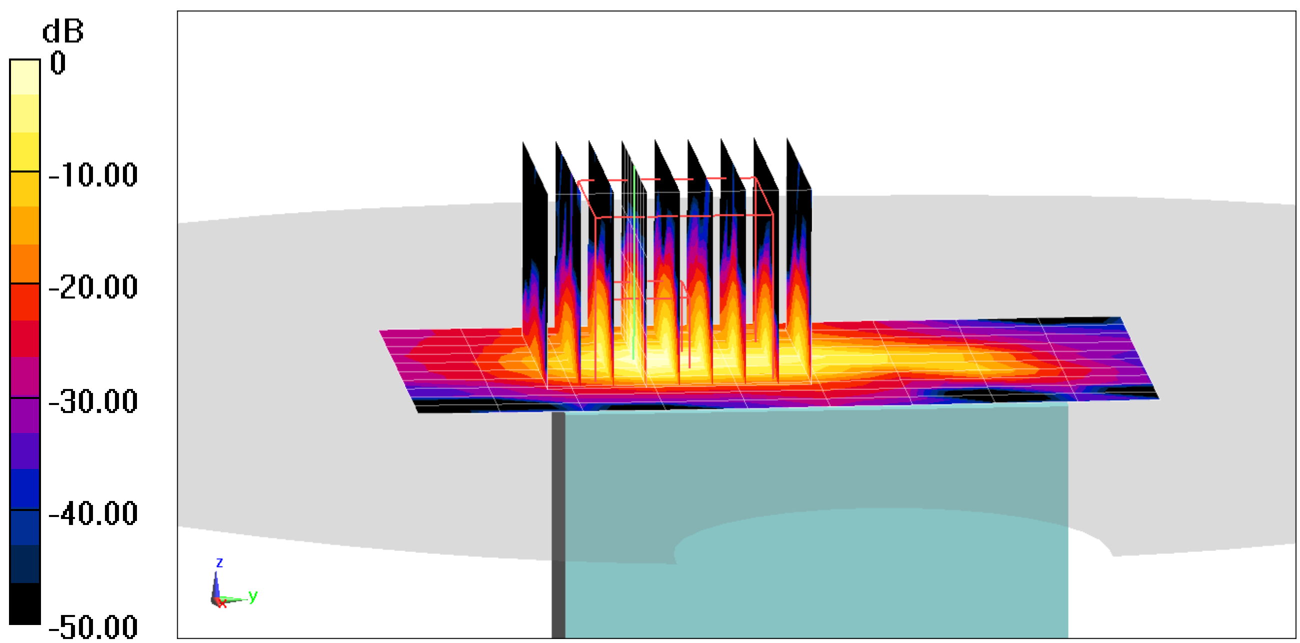
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5720 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used (interpolated):
f = 5720 MHz; σ = 6.142 S/m; ε_r = 48.049; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-18-2019; Ambient Temp: 21.3°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7308; ConvF(4.18, 4.18, 4.18) @ 5720 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a Antenna 2, U-NII-2C, 20 MHz Bandwidth, Phablet SAR, Ch 144, 6 Mbps, Top Edge

Area Scan (11x10x1): Measurement grid: dx=5mm, dy=10mm
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 24.19 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 21.1 W/kg
SAR(10 g) = 0.653 W/kg



0 dB = 9.91 W/kg = 9.96 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1152M

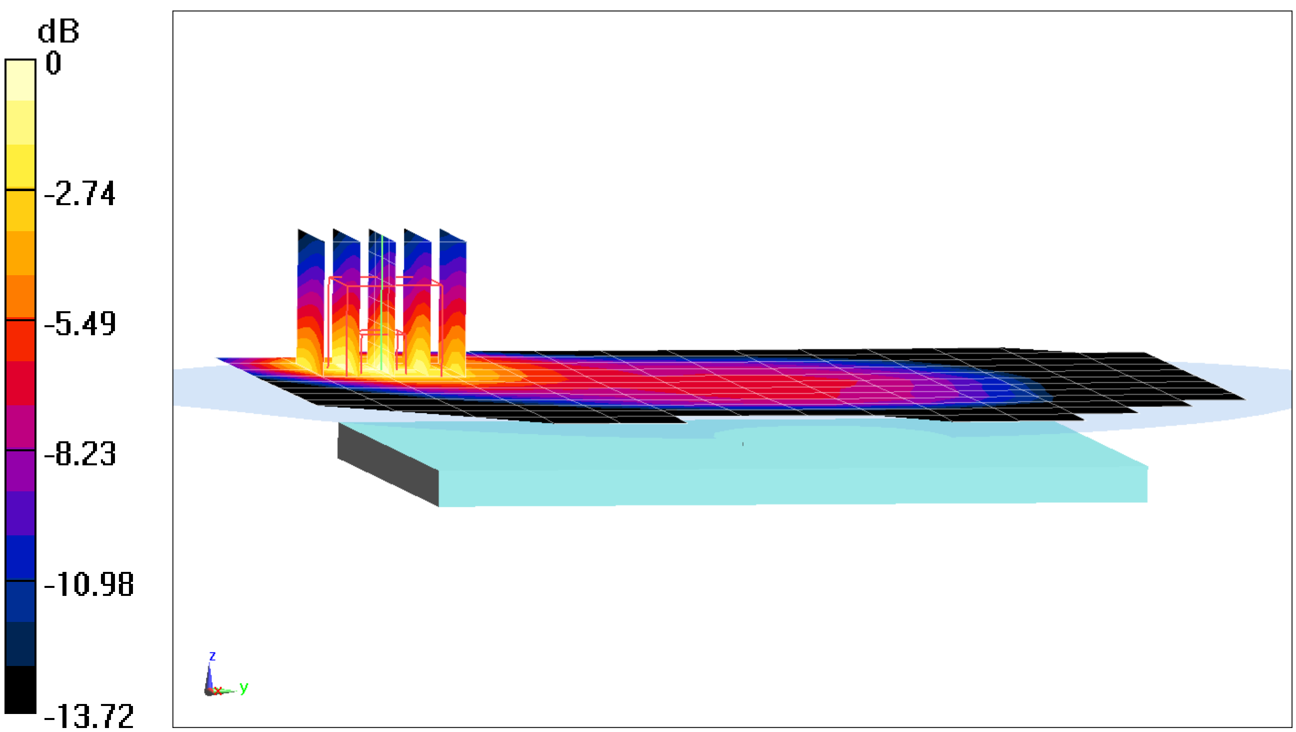
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 824.2 MHz; Duty Cycle: 1:2.76
Medium: 835 Body Medium parameters used (interpolated):
$f = 824.2$ MHz; $\sigma = 0.957$ S/m; $\varepsilon_r = 53.346$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-18-2019; Ambient Temp: 20.8°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 824.2 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GPRS 850, UMPC Body SAR, Back side, Low.ch, 3 Tx Slots

Area Scan (13x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.57 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.623 W/kg



0 dB = 0.891 W/kg = -0.50 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1170M

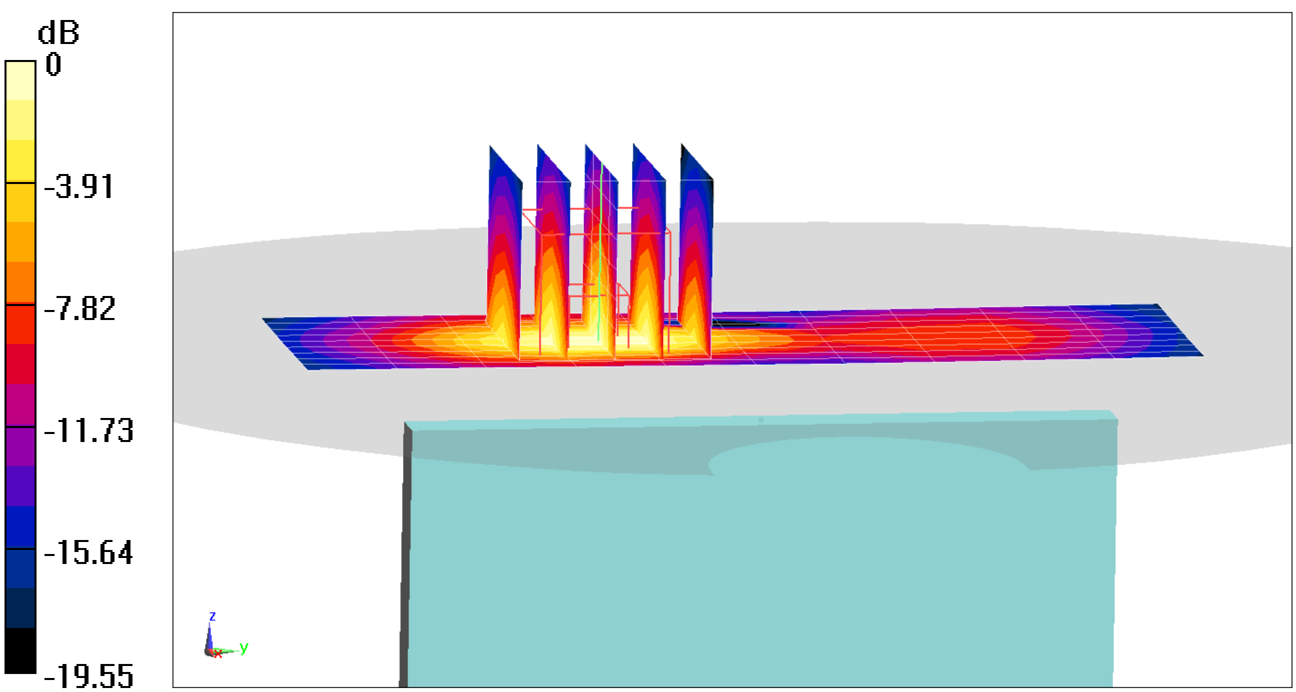
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.551 S/m; ε_r = 52.047; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-27-2019; Ambient Temp: 22.4°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GPRS 1900, UMPC Body SAR, Bottom Edge, Mid.ch, 3 Tx Slots

Area Scan (10x11x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.38 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.558 W/kg



0 dB = 0.863 W/kg = -0.64 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1152M

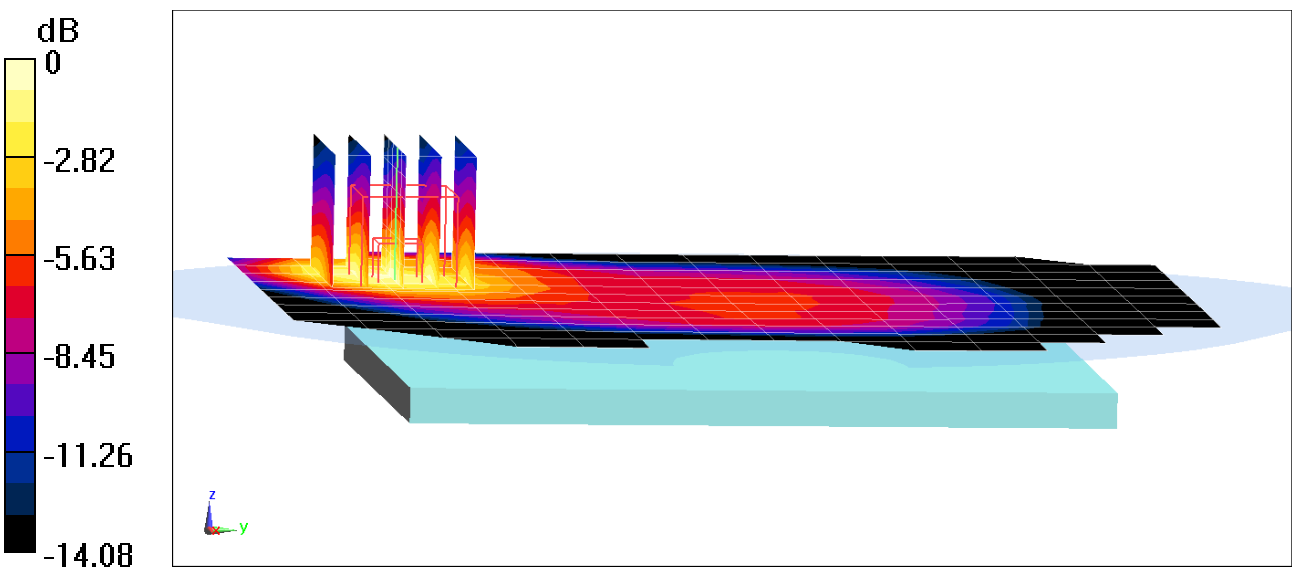
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.97 S/m; ε_r = 53.229; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-18-2019; Ambient Temp: 20.8°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 836.6 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 850, UMPC Body SAR, Back side, Mid.ch

Area Scan (13x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.32 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.807 W/kg
SAR(1 g) = 0.475 W/kg



0 dB = 0.659 W/kg = -1.81 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1170M

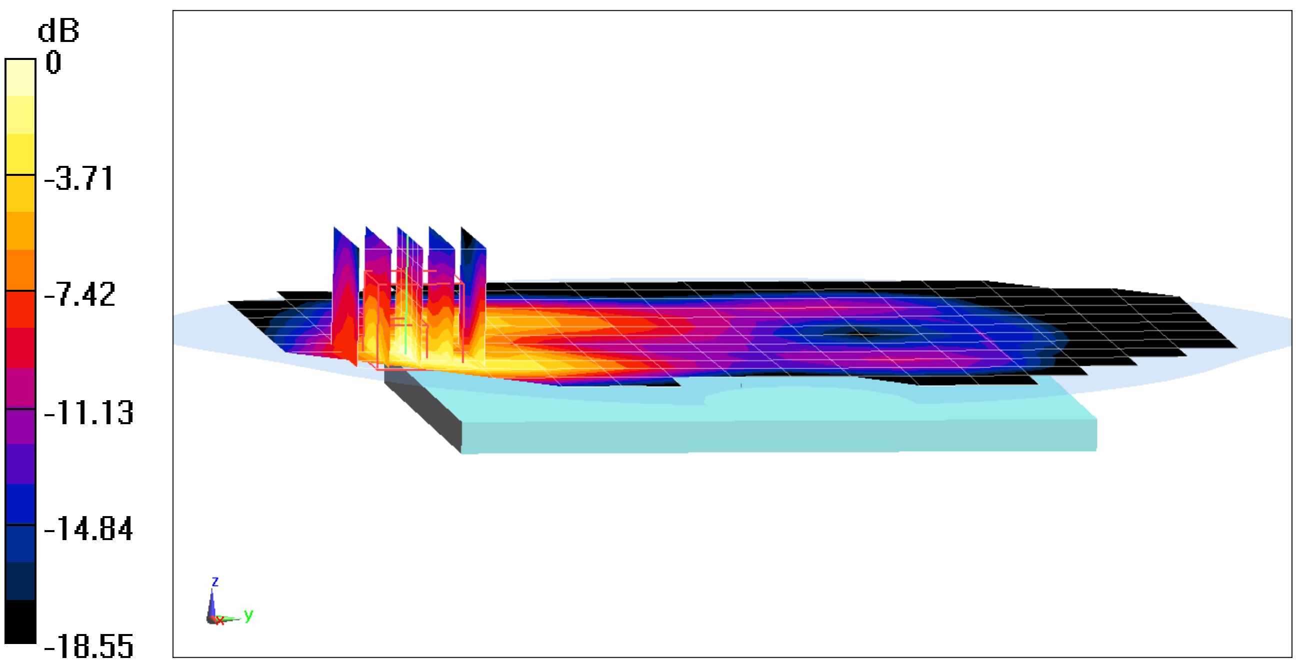
Communication System: UID 0, _UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1752.6 MHz; σ = 1.546 S/m; ε_r = 51.385; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 21.4°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1752.6 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1750, UMPC Body SAR, Front side, High.ch

Area Scan (13x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.94 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.832 W/kg



0 dB = 1.27 W/kg = 1.04 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1167M

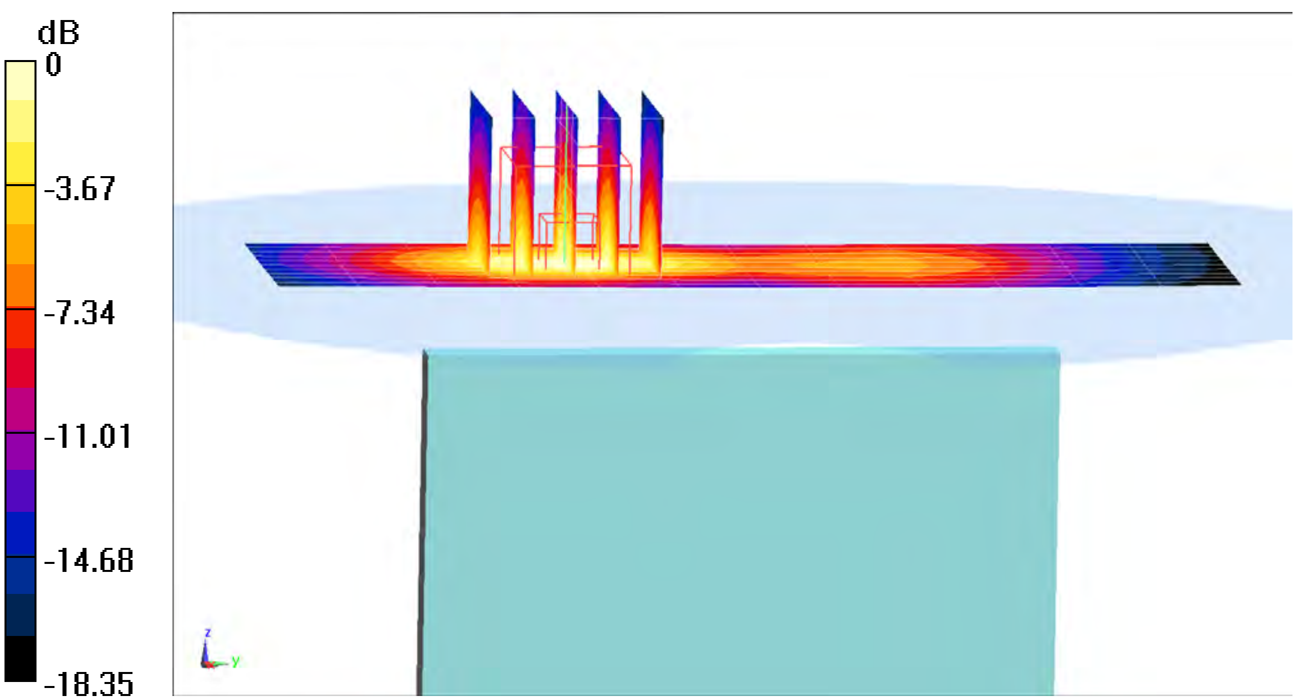
Communication System: UID 0, _UMTS; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1907.6 MHz; σ = 1.581 S/m; ε_r = 52.695; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.3 cm

Test Date: 03-25-2019; Ambient Temp: 22.2°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1907.6 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1900, UMPC Body SAR, Bottom Edge, High.ch

Area Scan (11x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.98 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.804 W/kg



0 dB = 1.18 W/kg = 0.72 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1161M

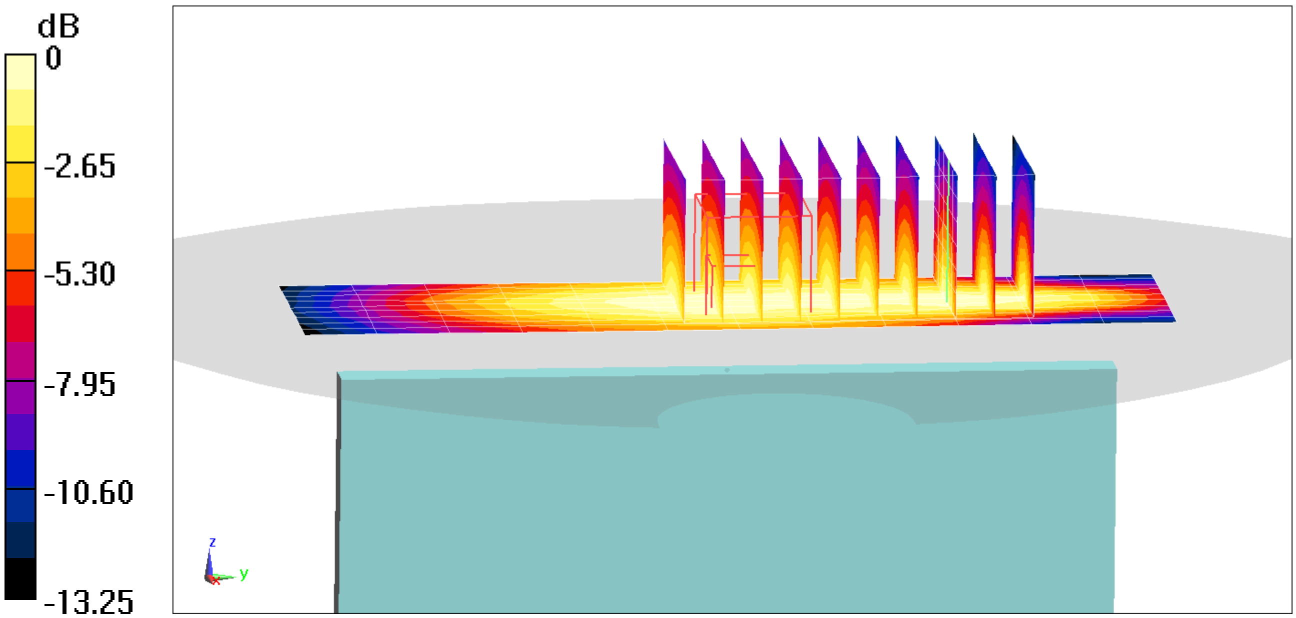
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750MHz Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.939 S/m; ε_r = 54.184; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-01-2019; Ambient Temp: 21.7°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 707.5 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 12, UMPC Body SAR, Right Edge, Mid.ch, 10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (10x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (6x10x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.50 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.320 W/kg
SAR(1 g) = 0.217 W/kg



0 dB = 0.281 W/kg = -5.51 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1161M

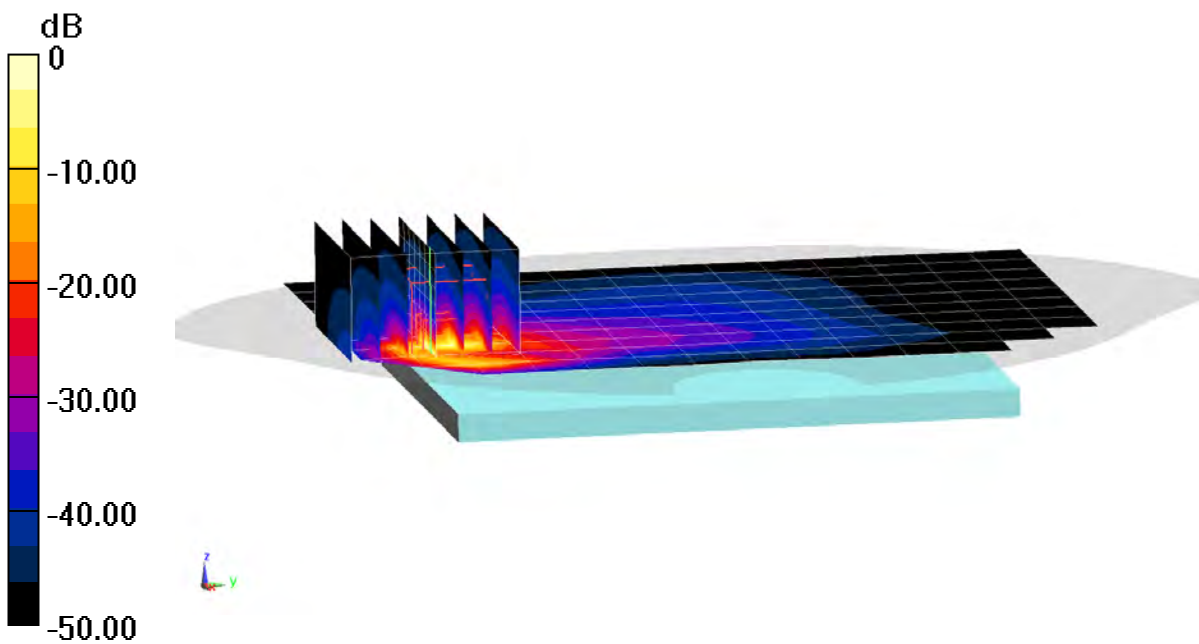
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 782 MHz; σ = 0.967 S/m; ε_r = 53.962; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date:03-14-2019; Ambient Temp: 24.2°C; Tissue Temp:20.7°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 782 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 13, UMPC Body SAR, Front side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 49 RB Offset

Area Scan (11x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.64 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.520 W/kg
SAR(1 g) = 0.288 W/kg



0 dB = 0.431 W/kg = -3.66 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1161M

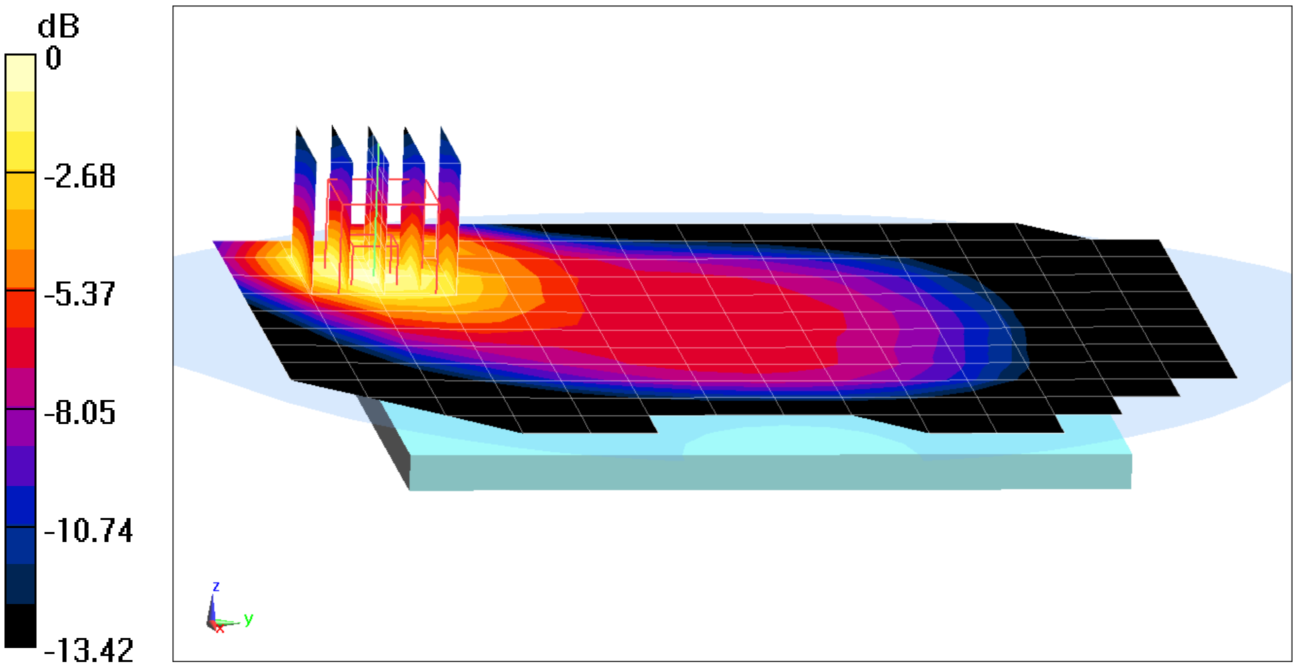
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.973 S/m; ε_r = 53.616; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-20-2019; Ambient Temp: 21.7°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 831.5 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 26 (Cell.), UMPC Body SAR, Back side, Mid.ch, 15 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (13x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.04 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.603 W/kg



0 dB = 0.862 W/kg = -0.64 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1198M

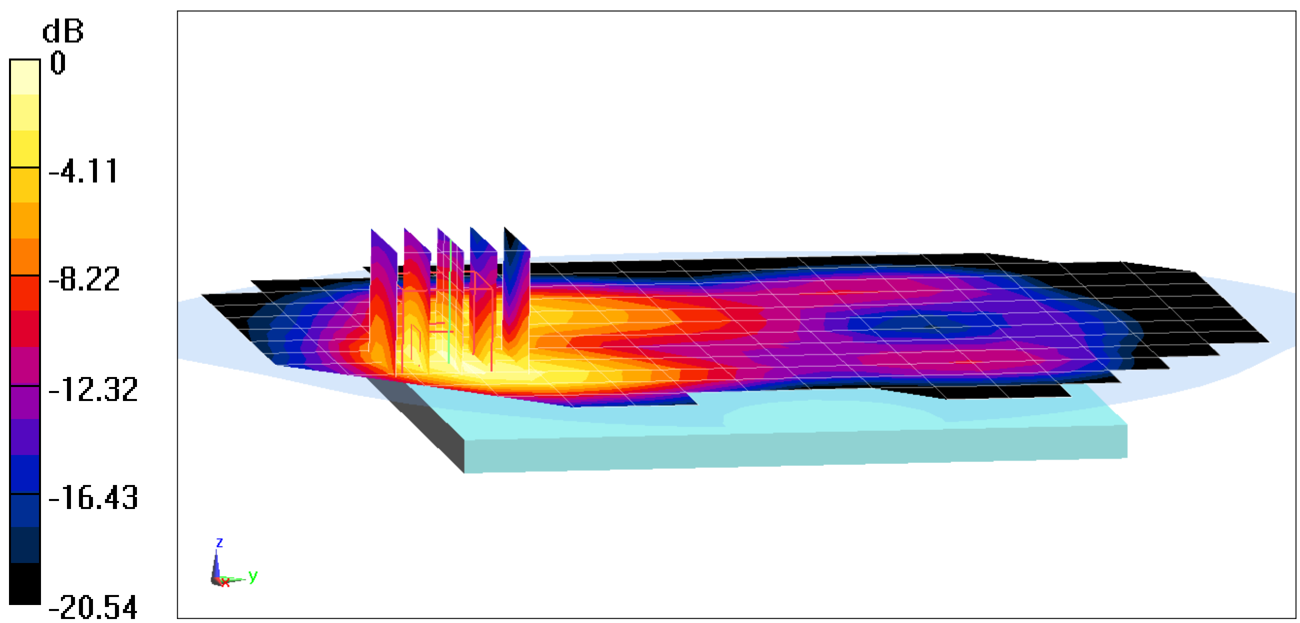
Communication System: UID 0, _LTE Band 66 (AWS); Frequency: 1770 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1770 MHz; σ = 1.565 S/m; ε_r = 51.309; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 21.4°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1770 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), UMPC Body SAR, Front side, High.ch, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (13x17x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.14 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.63 W/kg
SAR(1 g) = 0.894 W/kg



0 dB = 1.36 W/kg = 1.34 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1192M

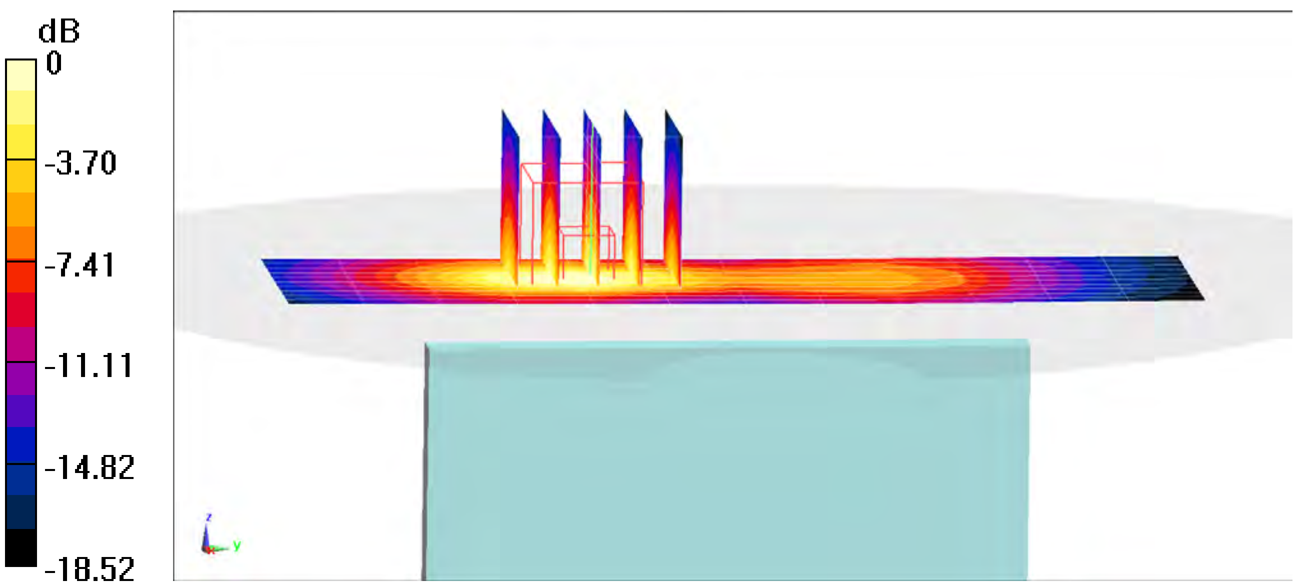
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1905 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1905 MHz; σ = 1.578 S/m; ε_r = 52.703; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.3 cm

Test Date: 03-25-2019; Ambient Temp: 22.2°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1905 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 25 (PCS), UMPC Body SAR, Bottom Edge, High.ch, 20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset

Area Scan (9x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.27 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.694 W/kg



0 dB = 1.13 W/kg = 0.53 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1143M

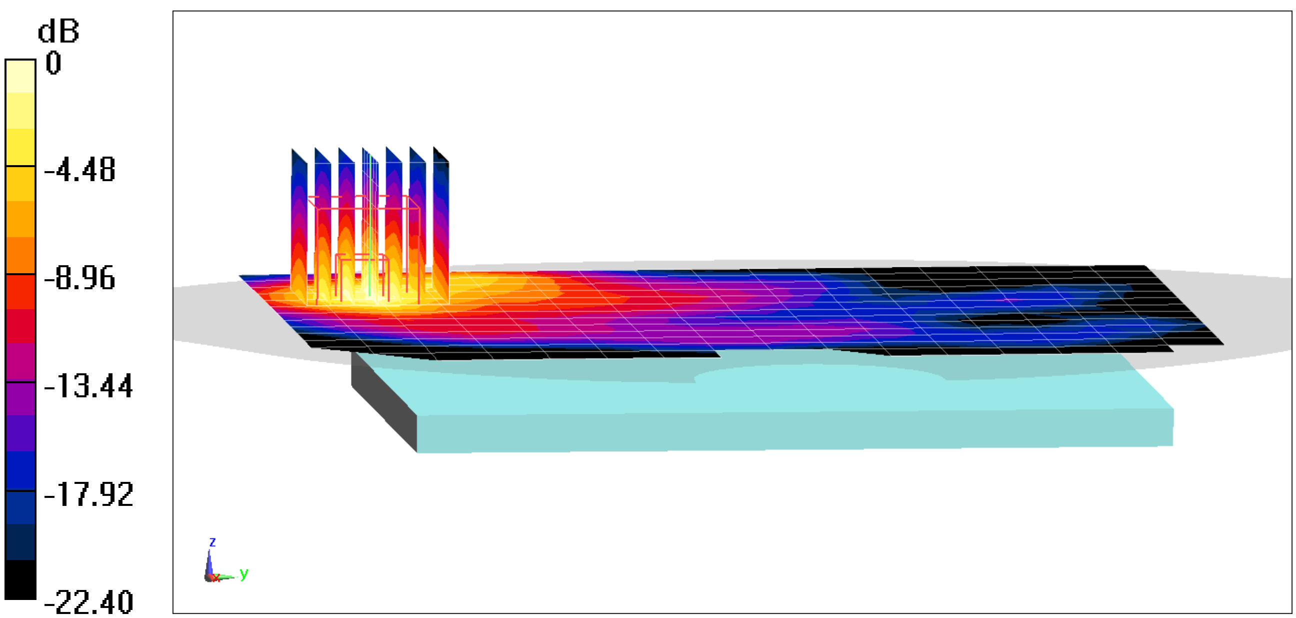
Communication System: UID 0, LTE Band 41; Frequency: 2549.5 MHz; Duty Cycle: 1:1.58
Medium: 2450 Body Medium parameters used:
f = 2550 MHz; σ = 2.147 S/m; ε_r = 50.322; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-30-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2549.5 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 41, UMPC Body SAR, Back side, Low-Mid.ch, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (14x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.29 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.63 W/kg
SAR(1 g) = 0.793 W/kg



0 dB = 1.29 W/kg = 1.11 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1105M

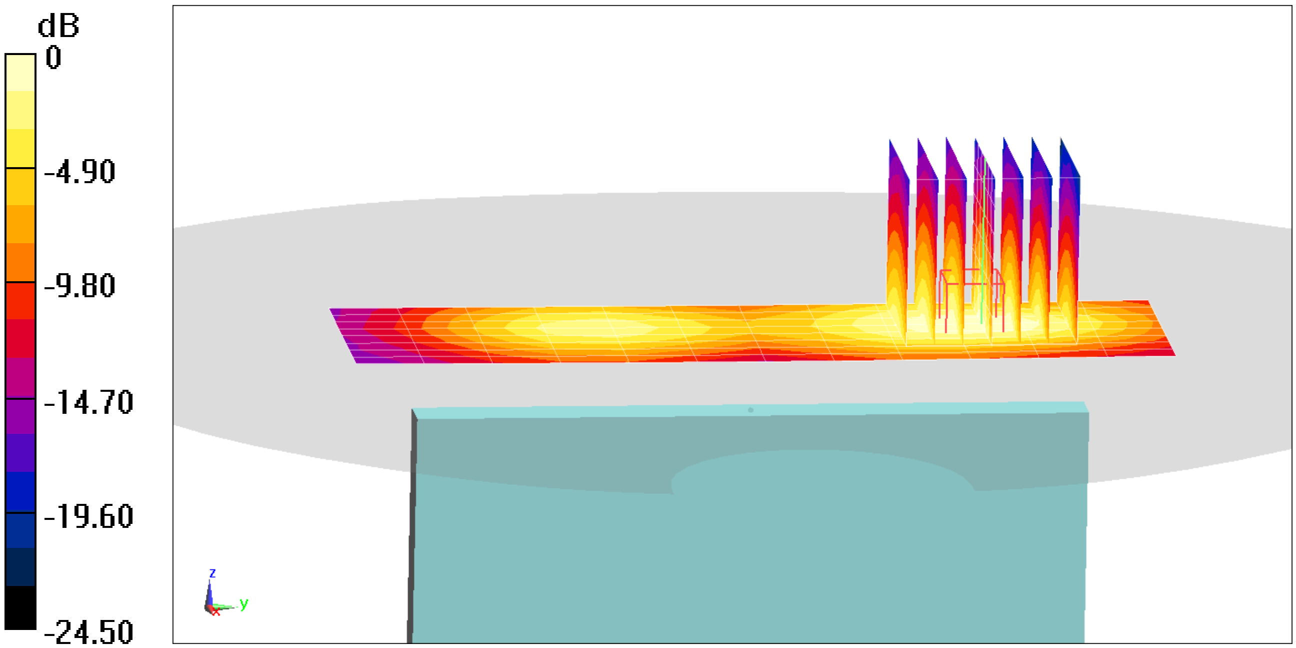
Communication System: UID 0, _IEEE 802.11n; Frequency: 2457 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2457 MHz; σ = 2.041 S/m; ε_r = 52.007; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-11-2019; Ambient Temp: 23.5°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2457 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11n MIMO, 20 MHz Bandwidth,
UMPC Body SAR, Ch 10, 13 Mbps, Top Edge

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.17 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.765 W/kg
SAR(1 g) = 0.387 W/kg



0 dB = 0.525 W/kg = -2.80 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1108M

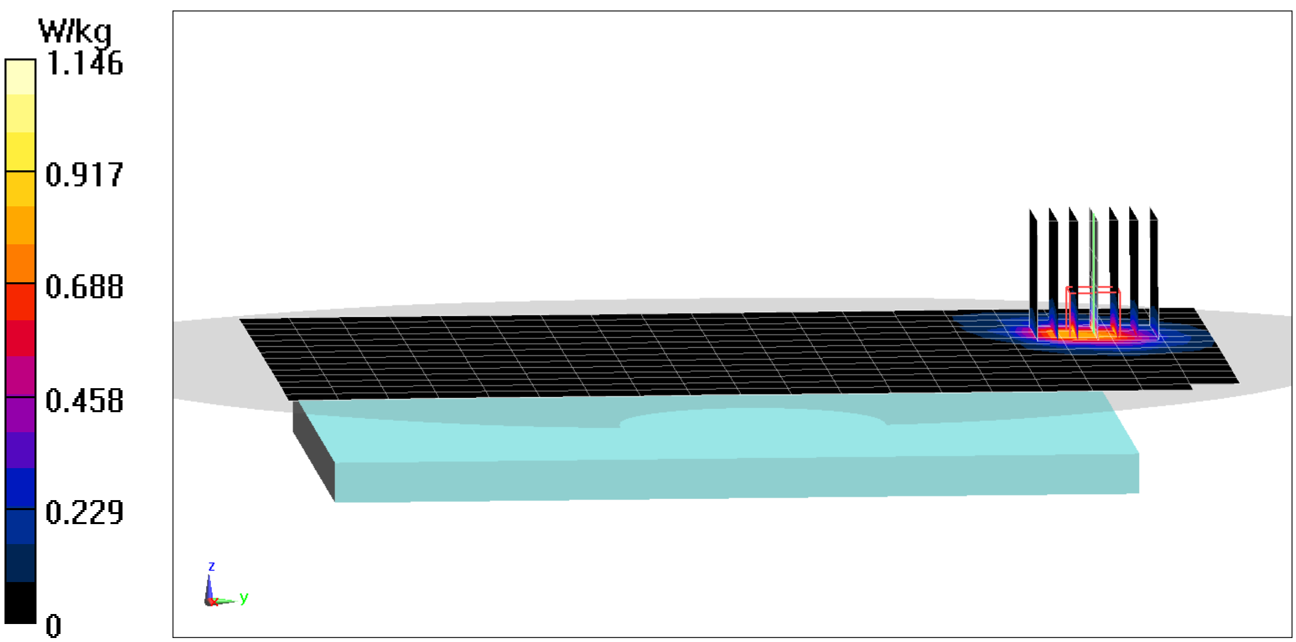
Communication System: UID 0, 802.11n 5.2-5.8 GHz Band; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used:
f = 5500 MHz; σ = 5.793 S/m; ε_r = 48.321; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 22.8°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7308; ConvF(4, 4, 4) @ 5500 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11n MIMO, UNII-2C, 20 MHz Bandwidth, UMPC Body SAR, Ch 100, 13 Mbps, Back Side

Area Scan (15x20x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 9.721 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 1.83 W/kg
SAR(1 g) = 0.481 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1105M

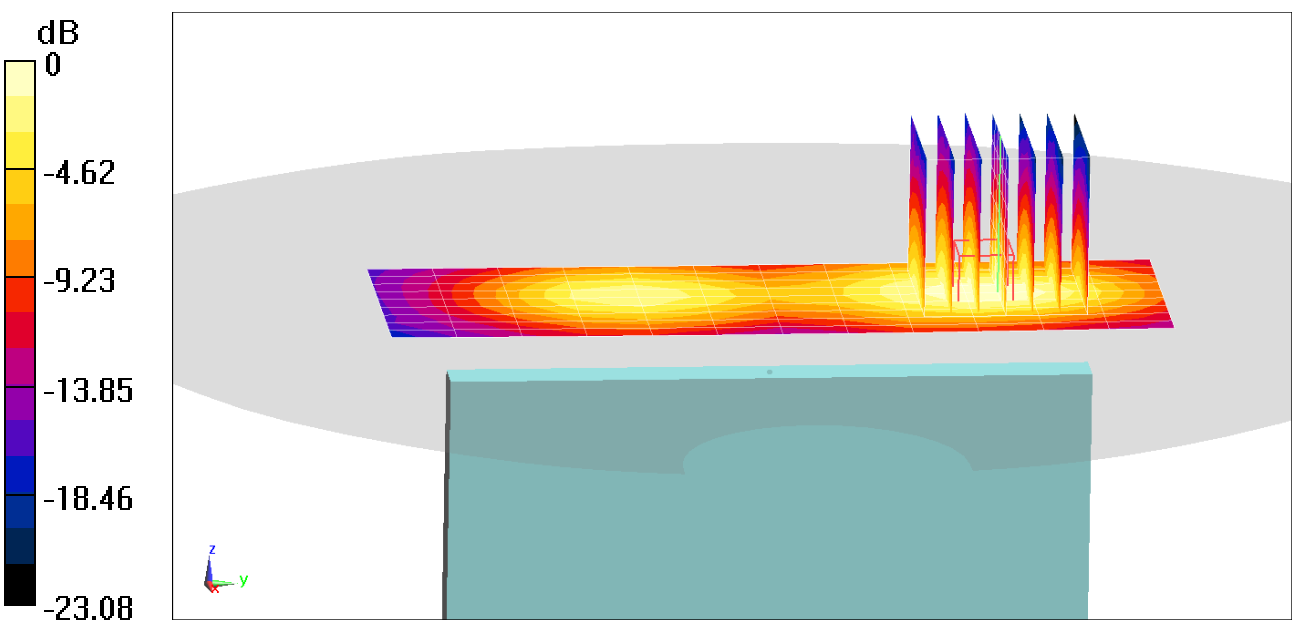
Communication System: UID 0, Bluetooth; Frequency: 2402 MHz; Duty Cycle: 1:1.297
Medium: 2450 Body Medium parameters used (interpolated):
f = 2402 MHz; σ = 1.96 S/m; ε_r = 50.81; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 23.3°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2402 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Bluetooth, UMPC Body SAR, Ch 0, 1 Mbps, Top Edge

Area Scan (10x13x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.154 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.280 W/kg
SAR(1 g) = 0.144 W/kg



0 dB = 0.228 W/kg = -6.42 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1152M

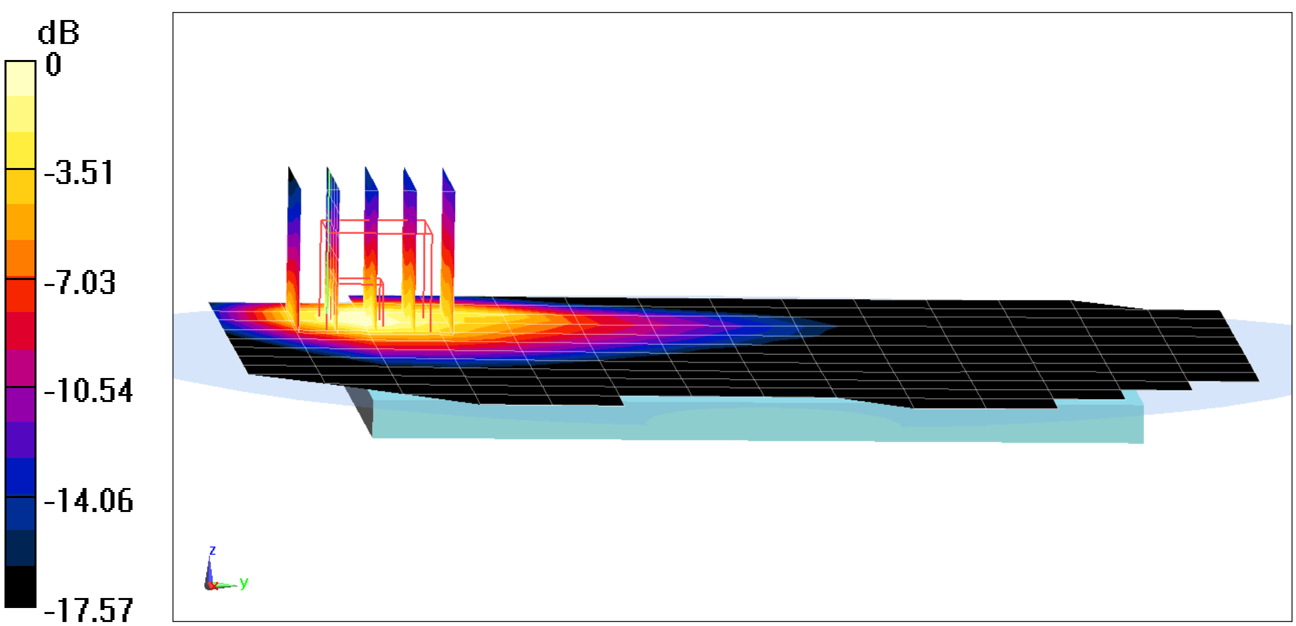
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:2.76
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.97 S/m; ε_r = 53.229; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-18-2019; Ambient Temp: 20.8°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 836.6 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GPRS 850, UMPC Extremity SAR, Back side, Mid.ch, 3 Tx Slots

Area Scan (13x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 38.05 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 3.51 W/kg
SAR(10 g) = 0.845 W/kg



0 dB = 2.52 W/kg = 4.01 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1170M

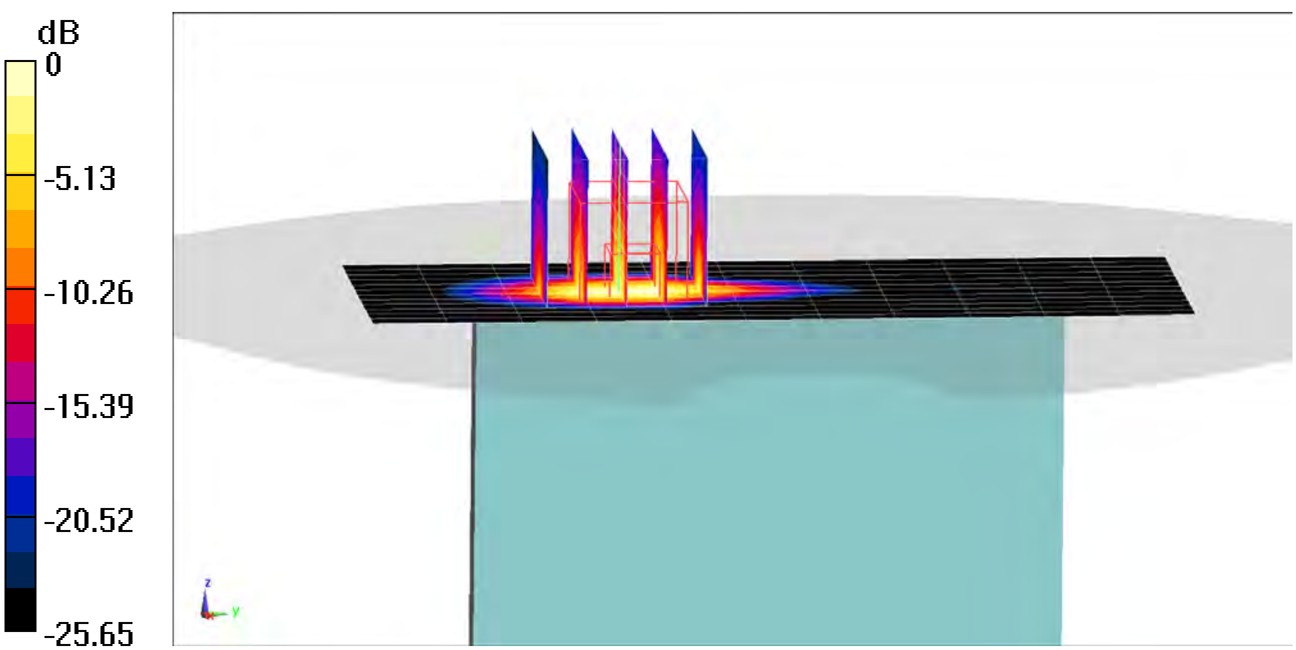
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.551 S/m; ε_r = 52.047; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-27-2019; Ambient Temp: 22.4°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GPRS 1900, UMPC Extremity SAR, Bottom Edge, Mid.ch, 3 Tx Slots

Area Scan (13x12x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 70.09 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 15.5 W/kg
SAR(10 g) = 2.6 W/kg



0 dB = 12.8 W/kg = 11.07 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1152M

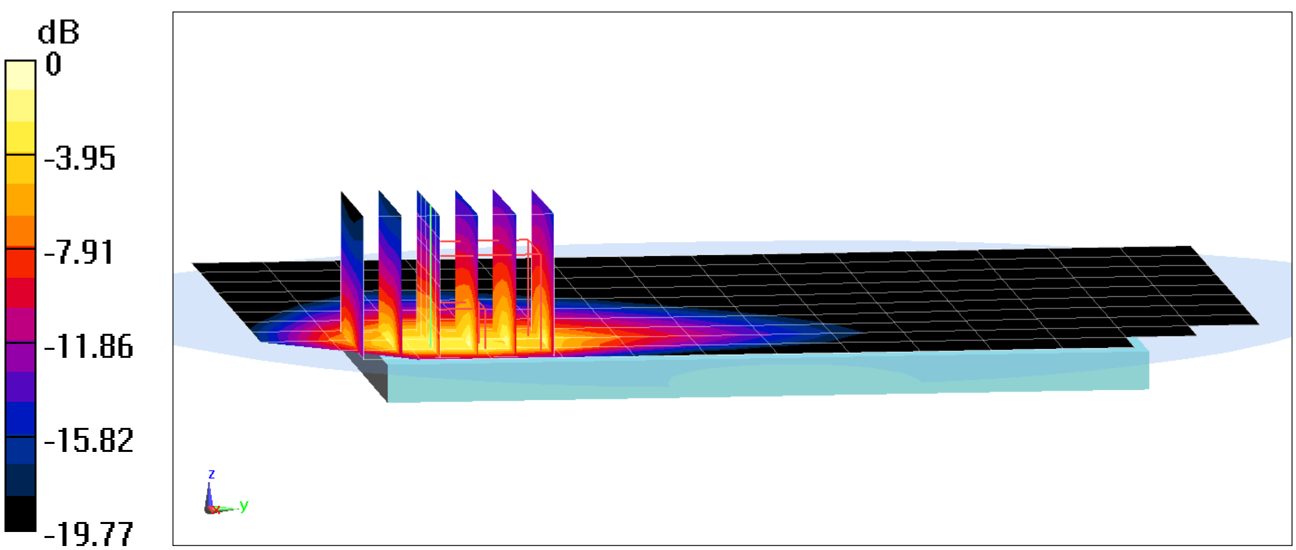
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.97 S/m; ε_r = 53.229; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-18-2019; Ambient Temp: 20.8°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 836.6 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 850, UMPC Extremity SAR, Front side, Mid.ch

Area Scan (11x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 54.42 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 6.68 W/kg
SAR(10 g) = 1.39 W/kg



0 dB = 5.15 W/kg = 7.12 dBW/kg

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1170M

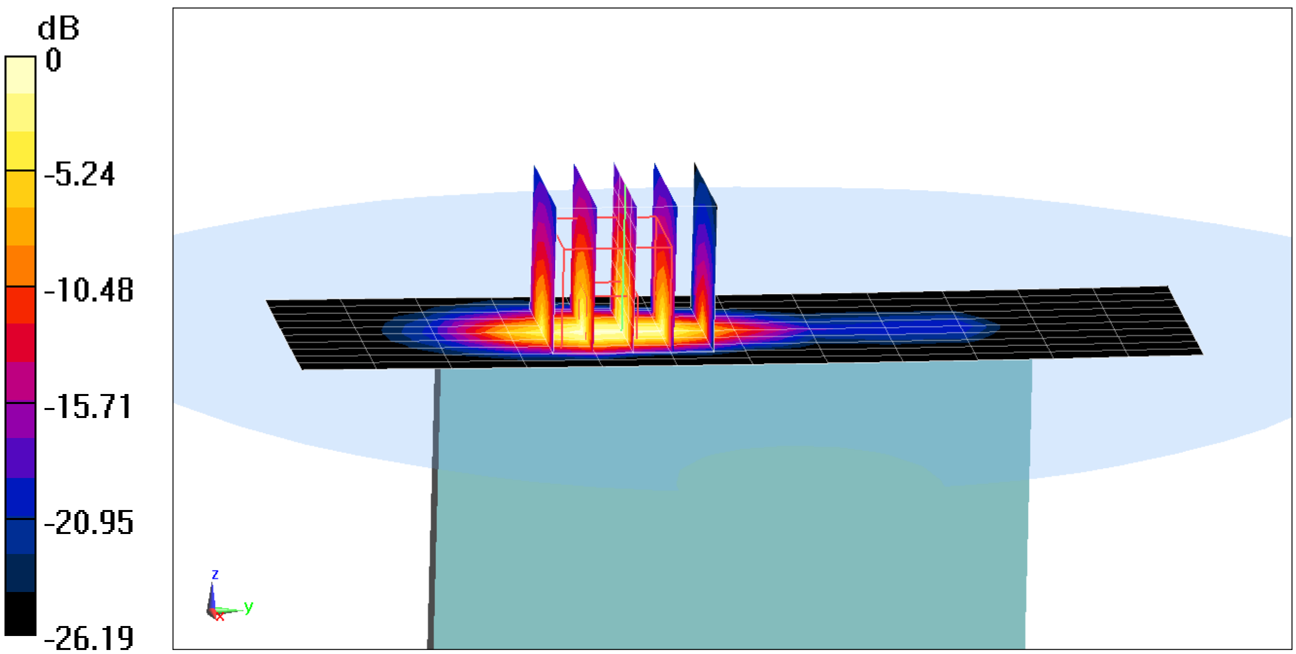
Communication System: UID 0, UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1752.6 MHz; σ = 1.533 S/m; ε_r = 51.621; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-29-2019; Ambient Temp: 21.1°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1752.6 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1750, UMPC Extremity SAR, Bottom Edge, High.ch

Area Scan (11x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 61.64 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 11.5 W/kg
SAR(10 g) = 1.95 W/kg



0 dB = 9.35 W/kg = 9.71 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1167M

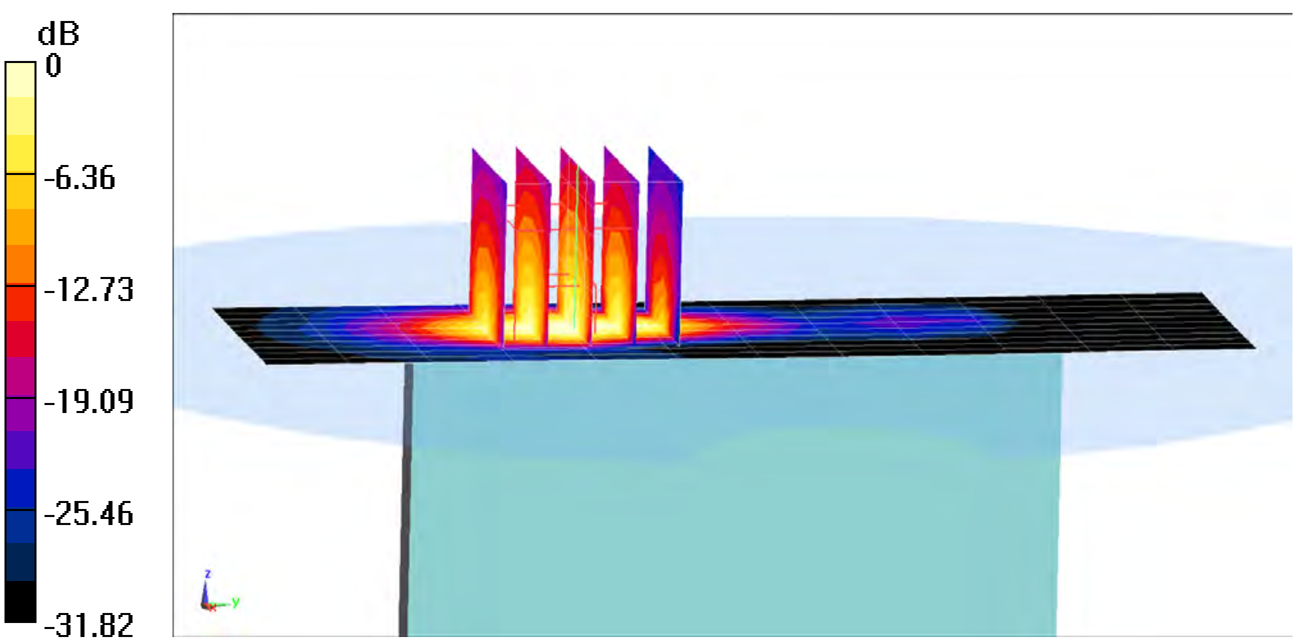
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; $\sigma = 1.549$ S/m; $\varepsilon_r = 52.779$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-25-2019; Ambient Temp: 22.2°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1900, UMPC Extremity SAR, Bottom Edge, Mid.ch

Area Scan (11x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 73.60 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 17.6 W/kg
SAR(10 g) = 2.84 W/kg



0 dB = 13.6 W/kg = 11.34 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1161M

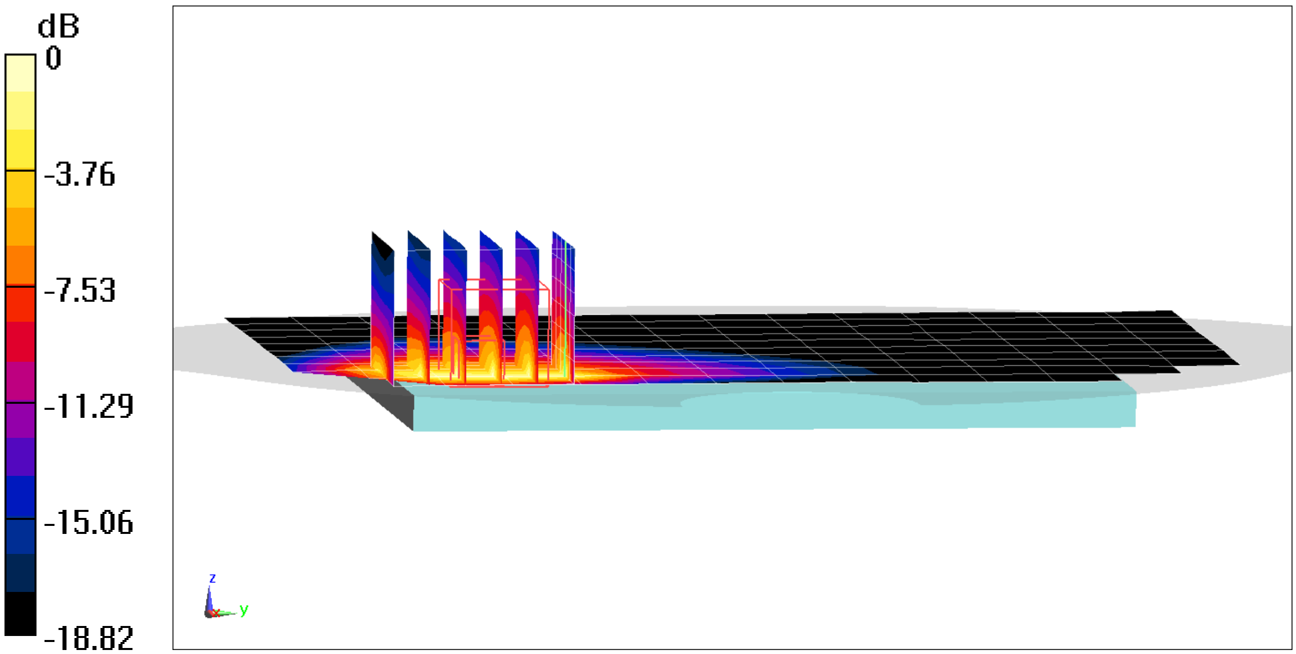
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750MHz Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.939 S/m; ε_r = 54.184; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-01-2019; Ambient Temp: 21.7°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 707.5 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 12, UMPC Extremity SAR, Front side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

Area Scan (11x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 40.53 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 4.21 W/kg
SAR(10 g) = 0.725 W/kg



0 dB = 2.96 W/kg = 4.71 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1161M

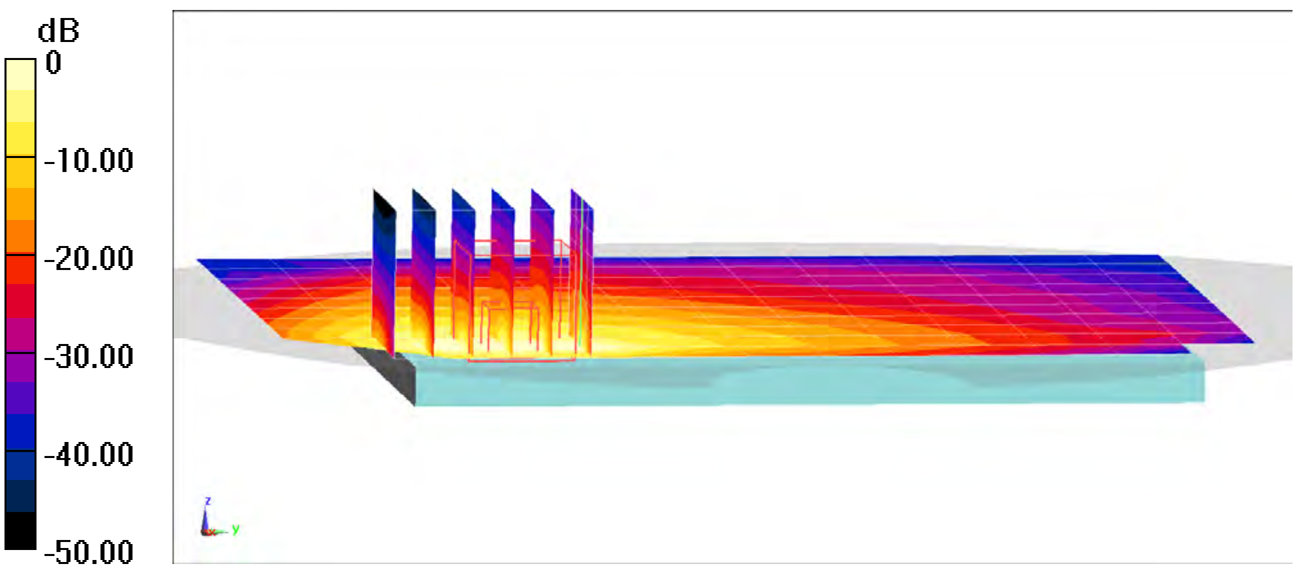
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 782 MHz; σ = 0.967 S/m; ε_r = 53.962; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date:03-14-2019; Ambient Temp: 24.2°C; Tissue Temp:20.7°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 782 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 13, UMPC Extremity SAR, Front side, Mid.ch, 10 MHz Bandwidth, QPSK, 1 RB, 49 RB Offset

Area Scan (11x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 42.98 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 5.41 W/kg
SAR(10 g) = 0.986 W/kg



0 dB = 4.04 W/kg = 6.06 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1161M

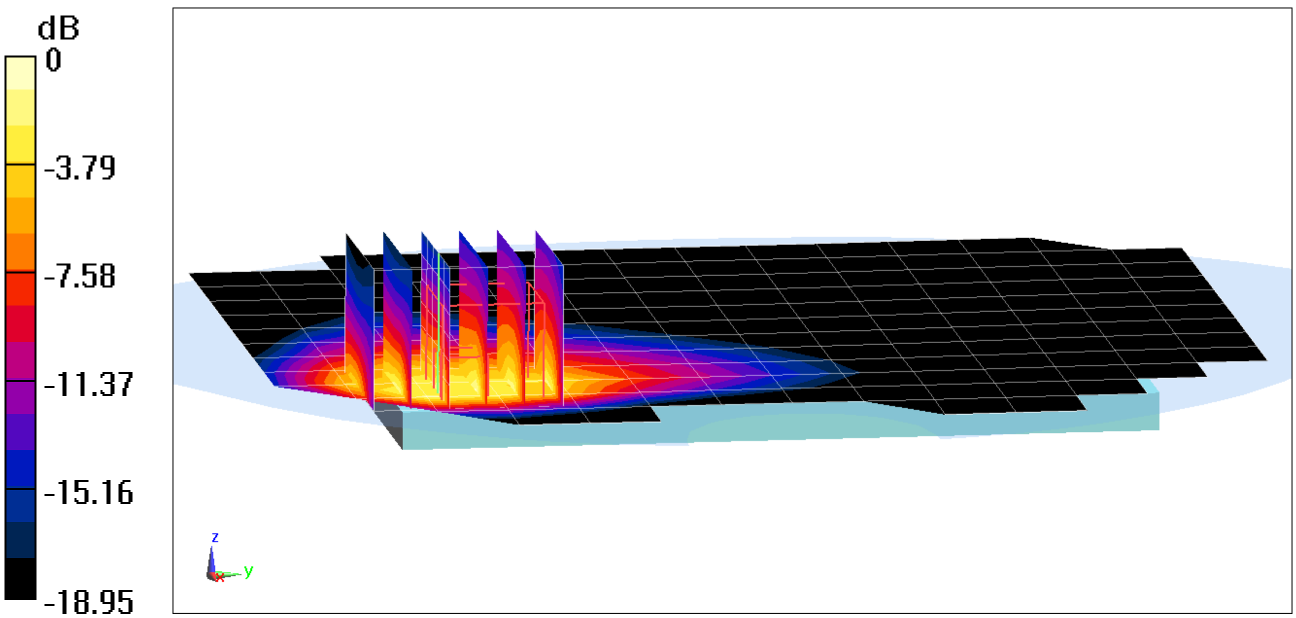
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.973 S/m; ε_r = 53.616; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-20-2019; Ambient Temp: 21.7°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 831.5 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 26 (Cell.), UMPC Extremity SAR, Front side, Mid.ch,
15 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (13x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 59.63 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 7.38 W/kg
SAR(10 g) = 1.64 W/kg



0 dB = 5.83 W/kg = 7.66 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1198M

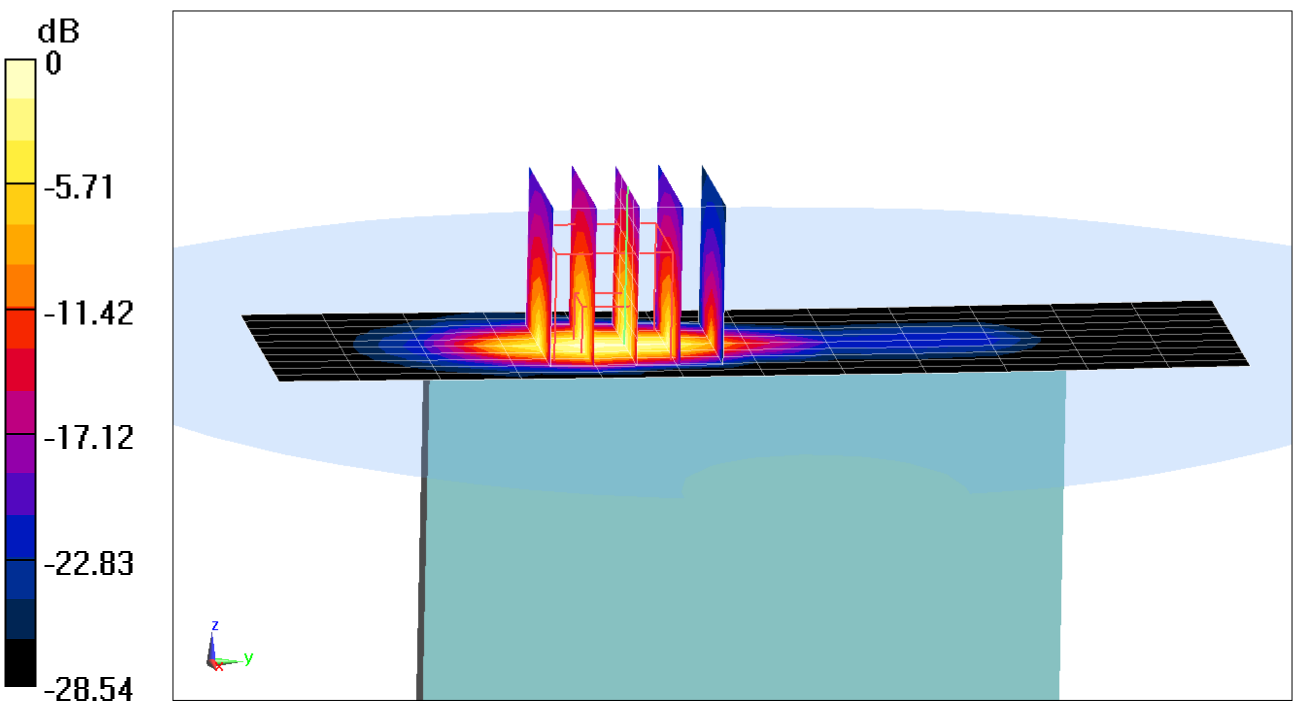
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1770 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1770 MHz; σ = 1.565 S/m; ε_r = 51.309; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-25-2019; Ambient Temp: 21.4°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1770 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), UMPC Extremity SAR, Bottom Edge, High.ch, 20 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset

Area Scan (11x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 66.59 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 14.5 W/kg
SAR(10 g) = 2.33 W/kg



0 dB = 11.5 W/kg = 10.61 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1192M

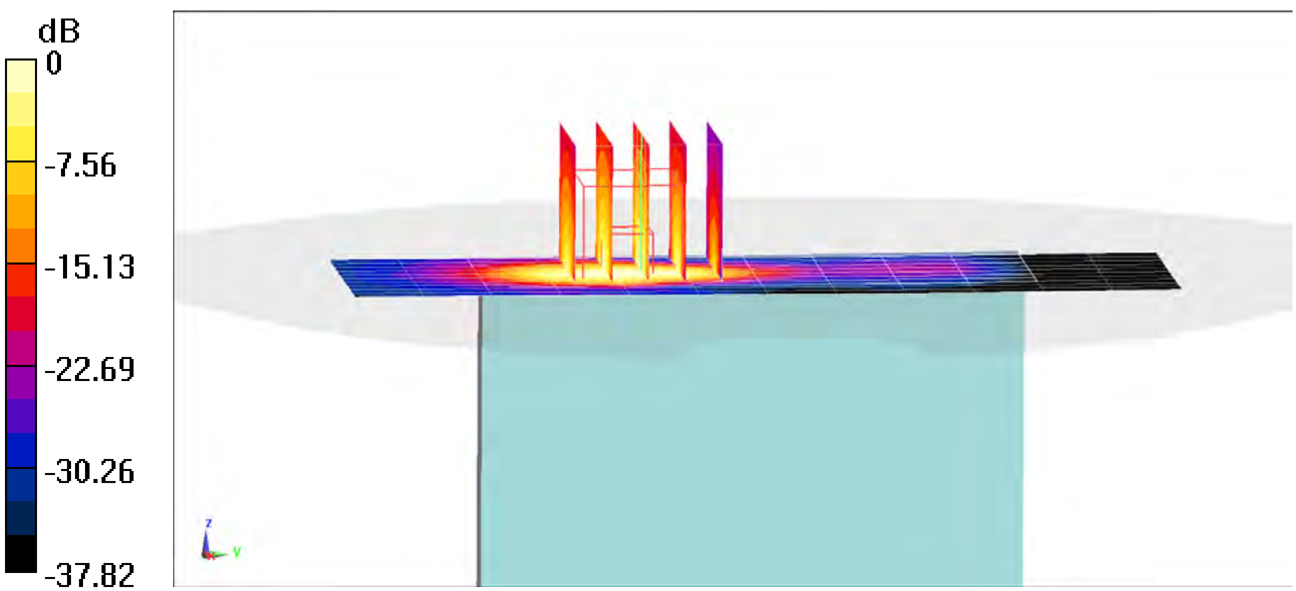
Communication System: UID 0, _LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1860 MHz; σ = 1.527 S/m; ε_r = 52.847; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-25-2019; Ambient Temp: 22.2°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1860 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 25 (PCS), UMPC Extremity SAR, Bottom Edge, Low.ch, 20 MHz Bandwidth, QPSK, 50 RB, 50 RB Offset

Area Scan (9x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 78.04 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 18.5 W/kg
SAR(10 g) = 3.06 W/kg



0 dB = 13.9 W/kg = 11.43 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1143M

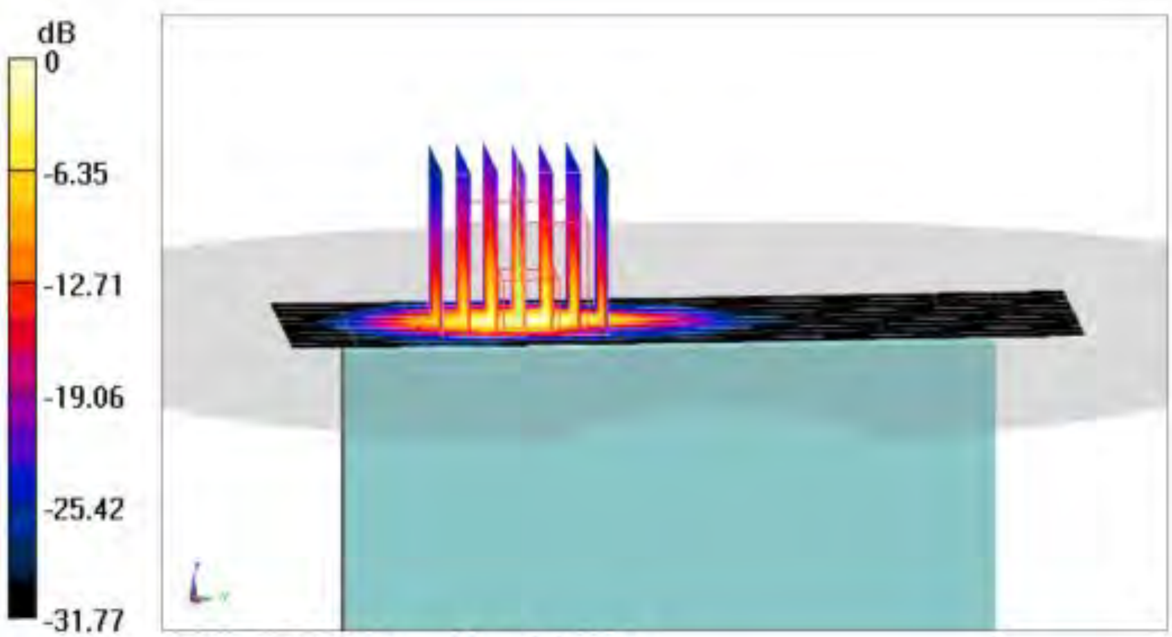
Communication System: UID 0, LTE Band 41; Frequency: 2636.5 MHz; Duty Cycle: 1:1.58
Medium: 2450 Body Medium parameters used (interpolated):
f = 2636.5 MHz; σ = 2.26 S/m; ε_r = 50.018; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-03-2019; Ambient Temp: 24.4°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2636.5 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 41, UMPC Extremity SAR, Bottom Edge, Mid-High.ch, 20 MHz Bandwidth, QPSK, 100 RB, 0 RB Offset

Area Scan (10x13x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 62.90 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 23.7 W/kg
SAR(10 g) = 2.36 W/kg



0 dB = 15.8 W/kg = 11.99 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1099M

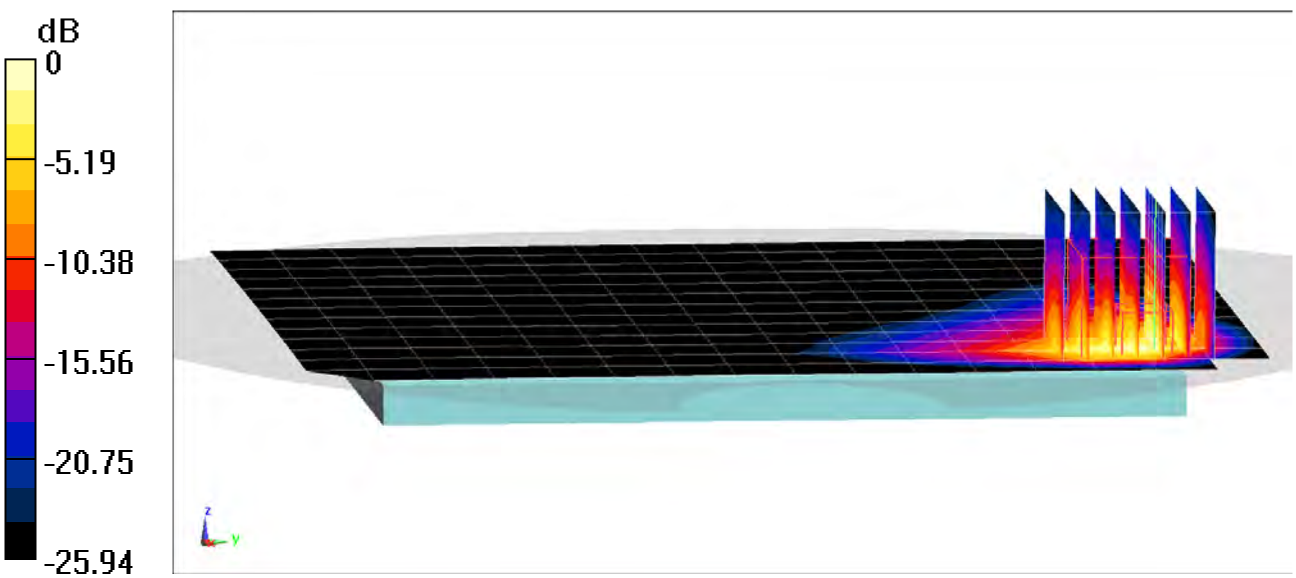
Communication System: UID 0, _IEEE 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2412 MHz; σ = 1.972 S/m; ε_r = 50.783; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-25-2019; Ambient Temp: 23.3°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2412 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11b Antenna 1, 22 MHz Bandwidth, UMPC Extremity SAR, Ch 1, 1 Mbps, Front Side

Area Scan (8x8x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.22 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 13.6 W/kg
SAR(10 g) = 1.76 W/kg



0 dB = 3.95 W/kg = 5.97 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1108M

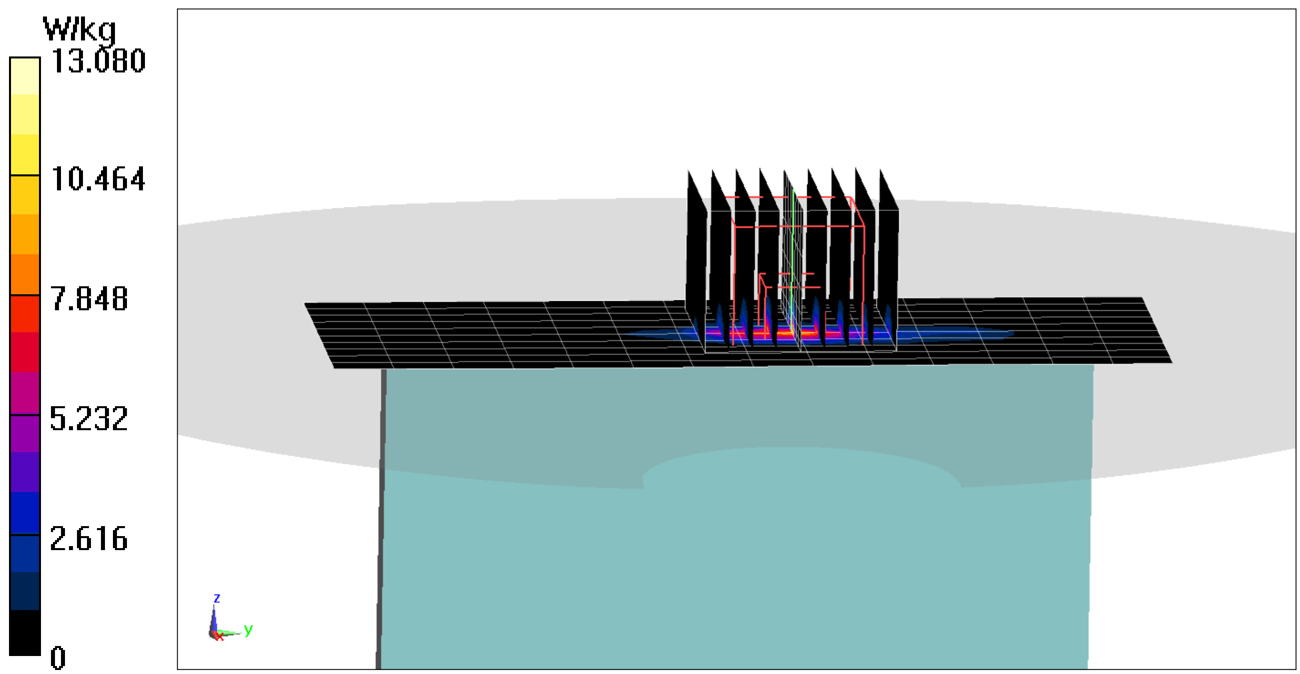
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5785 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used:
f = 5785 MHz; σ = 6.233 S/m; ε_r = 47.755; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-25-2019; Ambient Temp: 22.8°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7308; ConvF(4.18, 4.18, 4.18) @ 5785 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a Antenna 2, U-NII-3, 20 MHz Bandwidth, UMPC Extremity SAR, Ch 157, 6 Mbps, Top Edge

Area Scan (11x15x1): Measurement grid: dx=5mm, dy=10mm
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 24.84 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 32.4 W/kg
SAR(10 g) = 0.764 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMF907N; Type: Portable Handset; Serial: 1105M

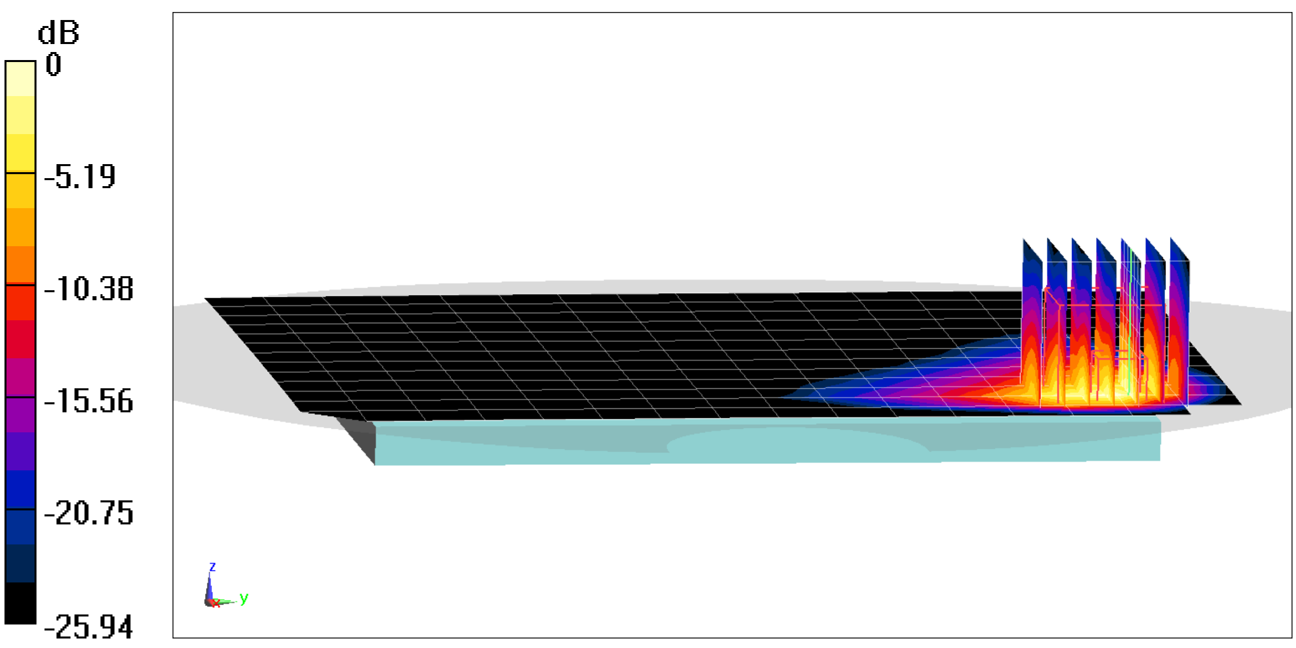
Communication System: UID 0, Bluetooth; Frequency: 2402 MHz; Duty Cycle: 1:1.297
Medium: 2450 Body Medium parameters used (interpolated):
f = 2402 MHz; σ = 1.96 S/m; ε_r = 50.81; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 03-25-2019; Ambient Temp: 23.3°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2402 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Bluetooth, UMPC Extremity SAR, Ch 0, 1 Mbps, Front Side

Area Scan (14x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.65 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 5.37 W/kg
SAR(10 g) = 0.726 W/kg



0 dB = 3.93 W/kg = 5.94 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1161

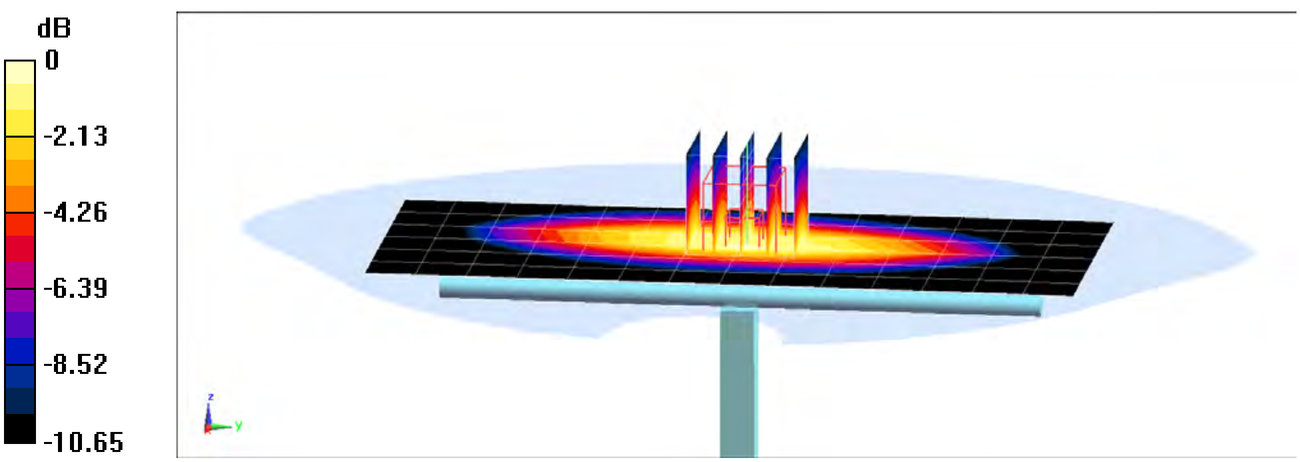
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 MHz Head Medium parameters used (interpolated):
f = 750 MHz; σ = 0.866 S/m; ε_r = 40.946; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-28-2019; Ambient Temp: 23.1°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN3589; ConvF(8.67, 8.67, 8.67) @ 750 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

750 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.35 W/kg
SAR(1 g) = 1.51 W/kg
Deviation(1 g) = -5.98%



0 dB = 2.06 W/kg = 3.14 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d133

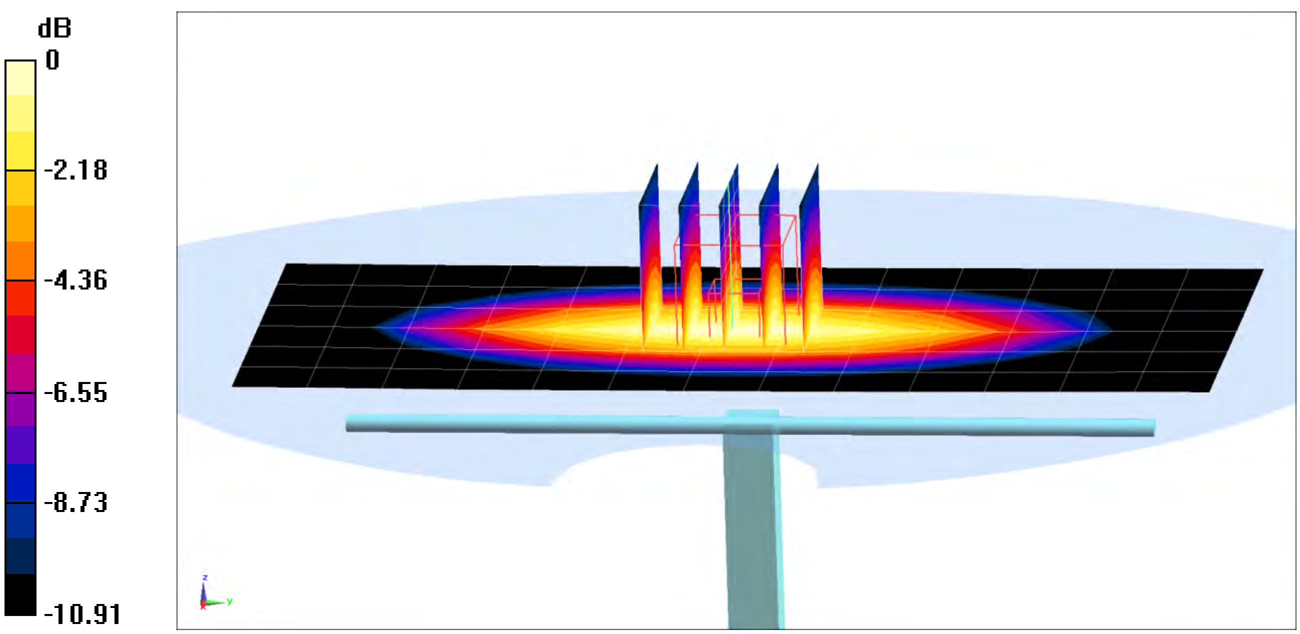
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.922 S/m; ε_r = 43.058; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-27-2019; Ambient Temp: 22.0°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(10.11, 10.11, 10.11) @ 835 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.84 W/kg
SAR(1 g) = 1.92 W/kg
Deviation(1 g) = 1.80%



0 dB = 2.55 W/kg = 4.07 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1150

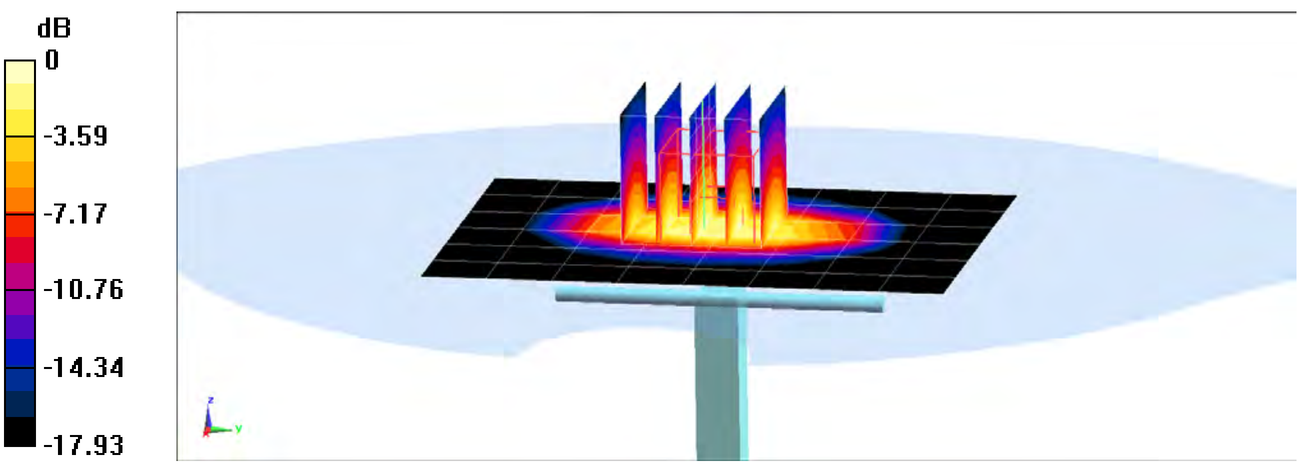
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used:
f = 1750 MHz; σ = 1.356 S/m; ε_r = 38.434; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-24-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN3589; ConvF(7.31, 7.31, 7.31) @ 1750 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 6.89 W/kg
SAR(1 g) = 3.63 W/kg
Deviation(1 g) = -0.55%



0 dB = 5.64 W/kg = 7.51 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

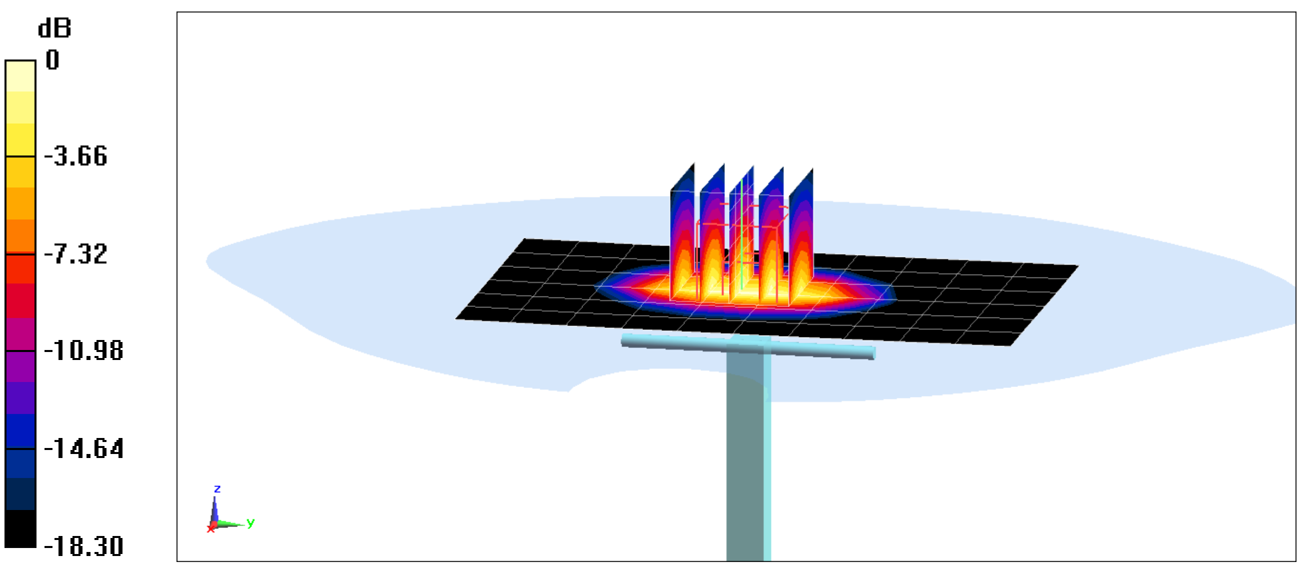
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.424 S/m; ε_r = 41.366; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-01-2019; Ambient Temp: 21.5°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1900 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.50 W/kg
SAR(1 g) = 3.94 W/kg
Deviation(1 g) = -1.01%



0 dB = 6.23 W/kg = 7.94 dBW/kg

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 797

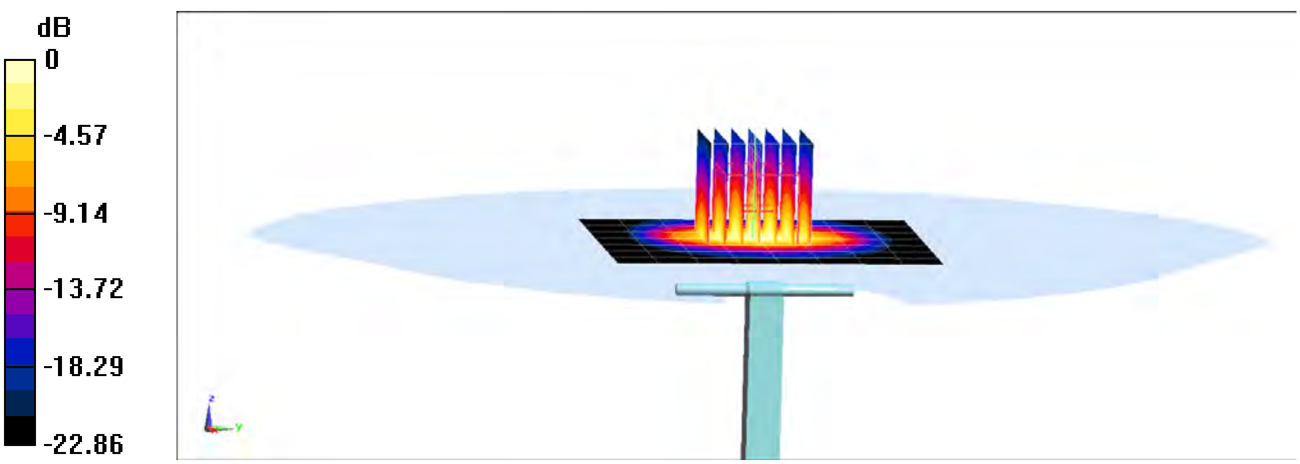
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.825 S/m; ε_r = 38.176; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-21-2019; Ambient Temp: 23.1°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN3589; ConvF(6.46, 6.46, 6.46) @ 2450 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.6 W/kg
SAR(1 g) = 5.17 W/kg
Deviation(1 g) = -1.90%



0 dB = 9.05 W/kg = 9.57 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1071

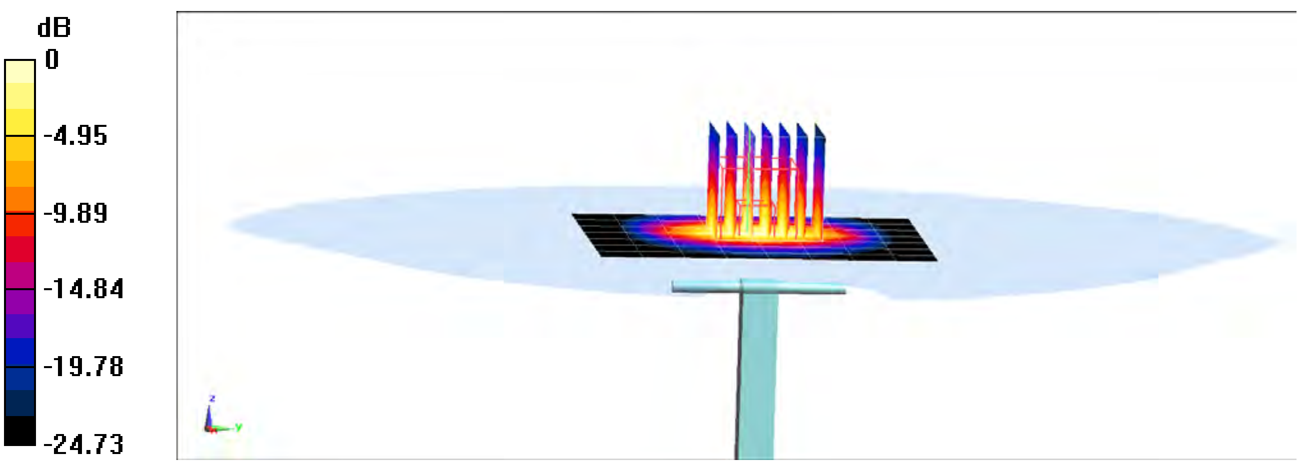
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2600 MHz; σ = 1.948 S/m; ε_r = 37.934; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-21-2019; Ambient Temp: 23.1°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN3589; ConvF(6.25, 6.25, 6.25) @ 2600 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2600 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 12.6 W/kg
SAR(1 g) = 5.74 W/kg
Deviation(1 g) = 1.95%



0 dB = 9.81 W/kg = 9.92 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057

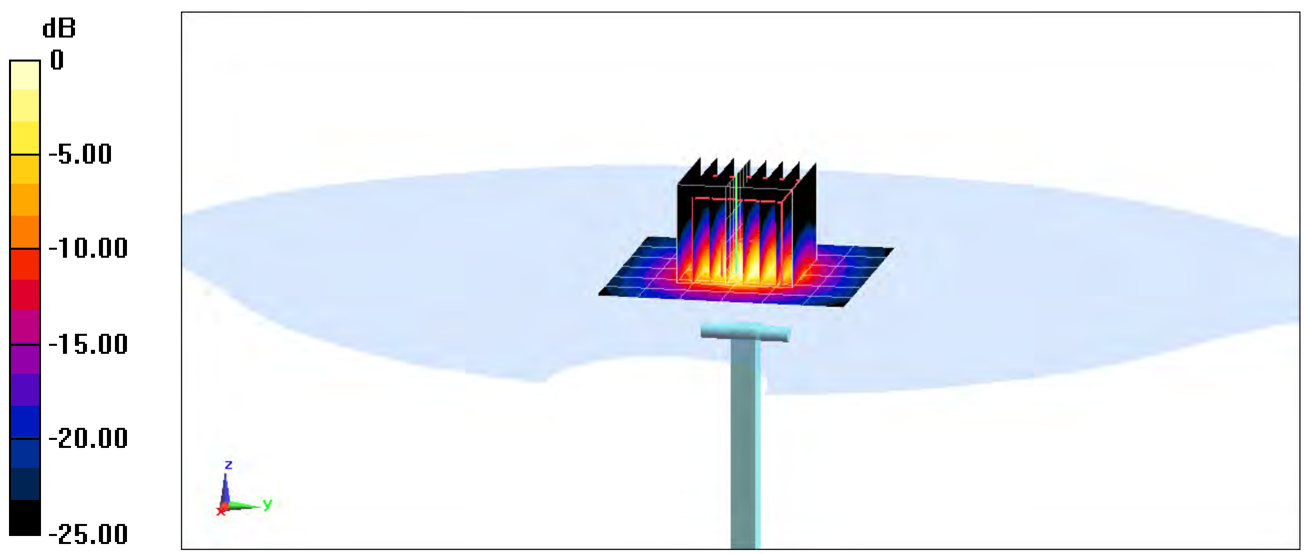
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5250 MHz; σ = 4.536 S/m; ε_r = 34.646; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 20.7°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(5.2, 5.2, 5.2) @ 5250 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

5250 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 15.3 W/kg
SAR(1 g) = 3.75 W/kg
Deviation(1 g) = -5.30%



0 dB = 8.72 W/kg = 9.41 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057

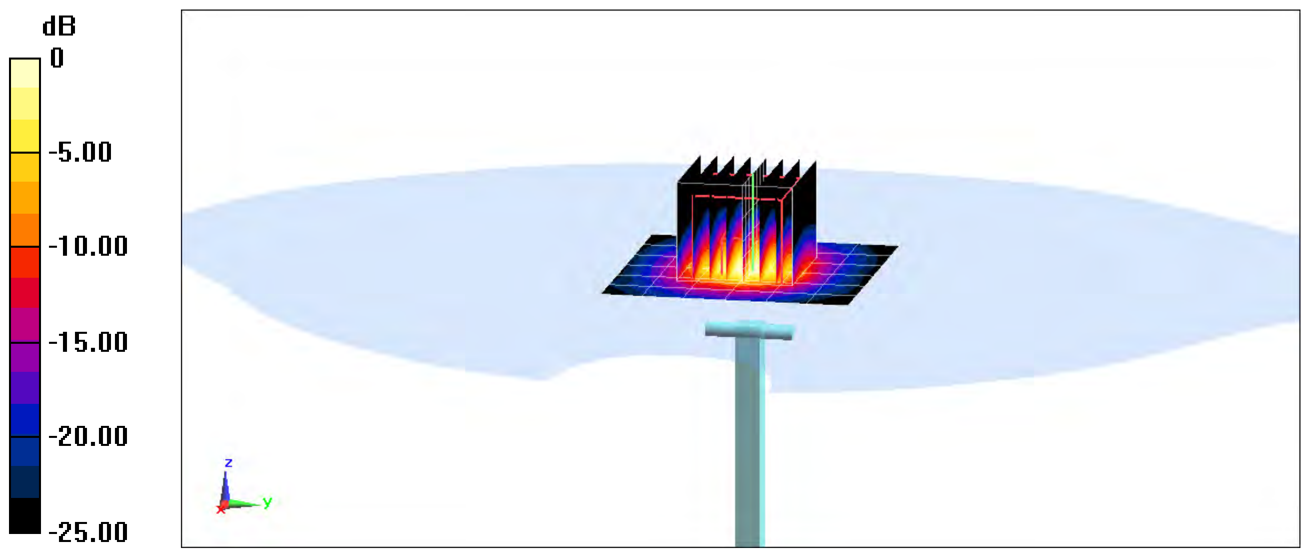
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used:
f = 5600 MHz; σ = 4.924 S/m; ε_r = 34.044; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 20.7°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(4.77, 4.77, 4.77) @ 5600 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

5600 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 18.4 W/kg
SAR(1 g) = 4.1 W/kg
Deviation(1 g) = -2.50%



0 dB = 9.95 W/kg = 9.98 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057

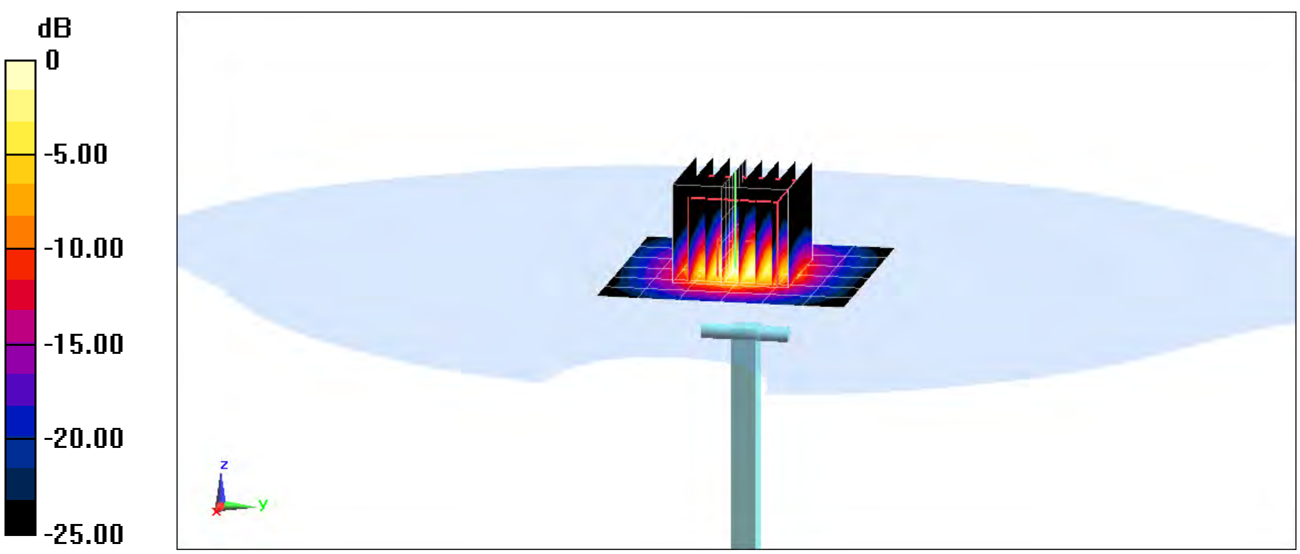
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5750 MHz; σ = 5.101 S/m; ε_r = 33.783; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 20.7°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(4.82, 4.82, 4.82) @ 5750 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

5750 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 18.0 W/kg
SAR(1 g) = 3.87 W/kg
Deviation(1 g) = -3.85%



0 dB = 9.48 W/kg = 9.77 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1161

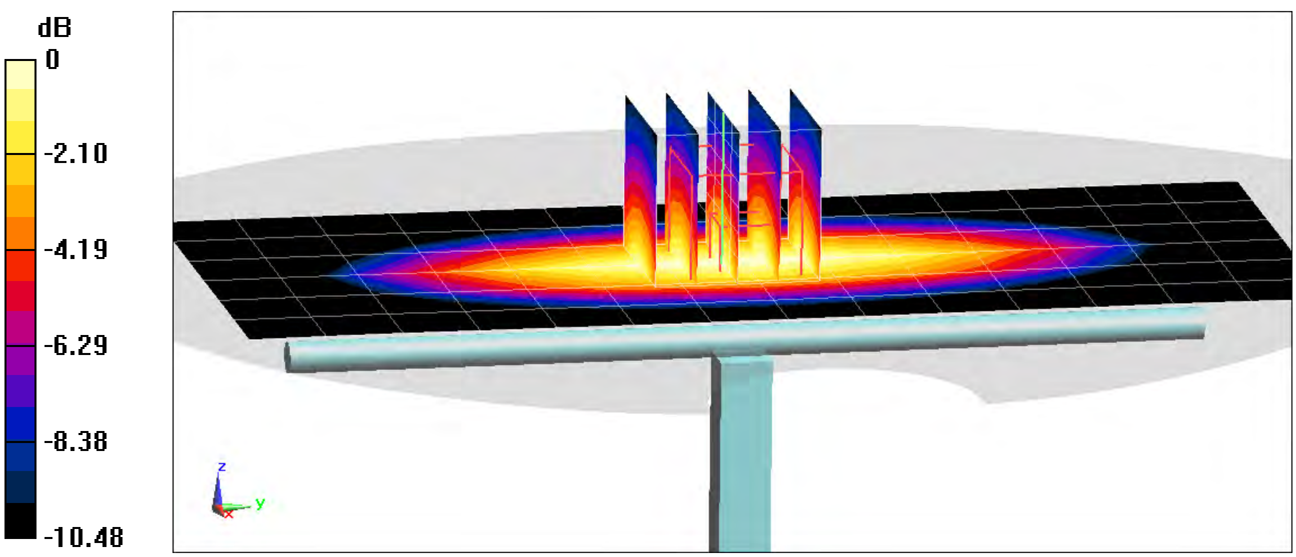
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 750 MHz; σ = 0.955 S/m; ε_r = 54.041; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date:03-14-2019; Ambient Temp: 24.2°C; Tissue Temp:20.7°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 750 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

750 MHz System Verification at 23.0 dBm (200 mW)|

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.48 W/kg
SAR(1 g) = 1.63 W/kg; SAR(10 g) = 1.07 W/kg
Deviation(1 g) = -3.32%; Deviation(10 g) = -3.60%



0 dB = 2.18 W/kg = 3.38 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1161

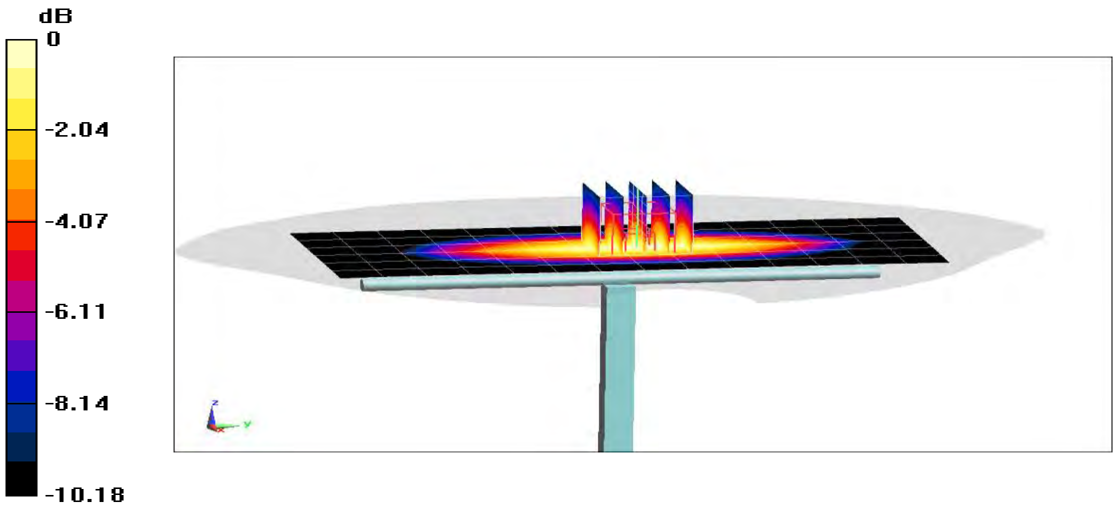
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750MHz Body Medium parameters used (interpolated):
f = 750 MHz; σ = 0.954 S/m; ε_r = 54.024; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-01-2019; Ambient Temp: 21.7°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 750 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

750 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.51 W/kg
SAR(1 g) = 1.7 W/kg; SAR(10 g) = 1.14 W/kg
Deviation(1 g) = 0.83%; Deviation(10 g) = 2.70%



0 dB = 2.25 W/kg = 3.52 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d133

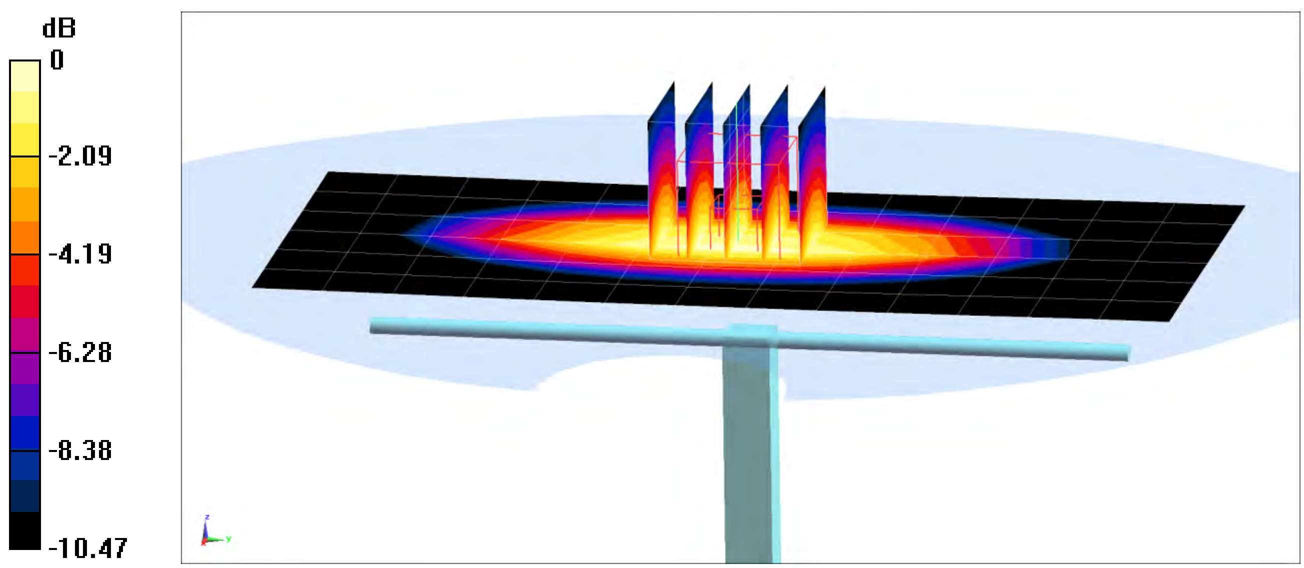
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.998 S/m; ε_r = 54.99; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-13-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 835 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 3.06 W/kg
SAR(1 g) = 2.03 W/kg
Deviation(1 g) = 4.10%



0 dB = 2.72 W/kg = 4.35 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d133

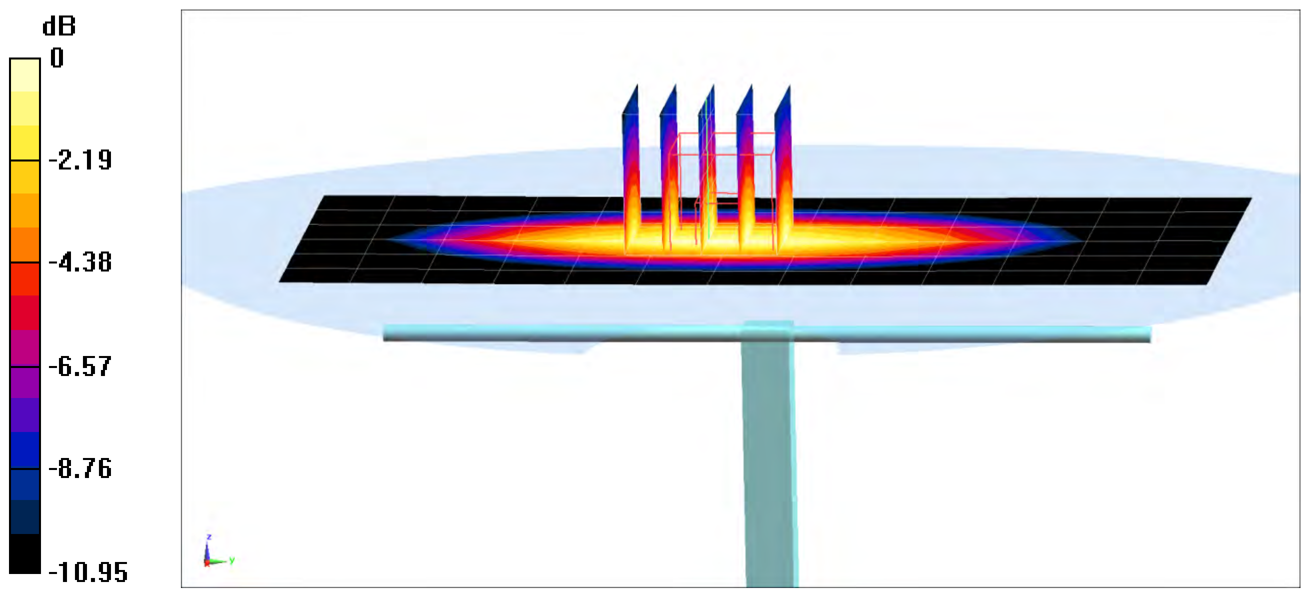
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; $\sigma = 0.968$ S/m; $\varepsilon_r = 53.245$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-18-2019; Ambient Temp: 20.8°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 835 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 3.12 W/kg
SAR(1 g) = 2.06 W/kg; SAR(10 g) = 1.35 W/kg
Deviation(1 g) = 5.64%; Deviation(10 g) = 5.47%



0 dB = 2.77 W/kg = 4.42 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d133

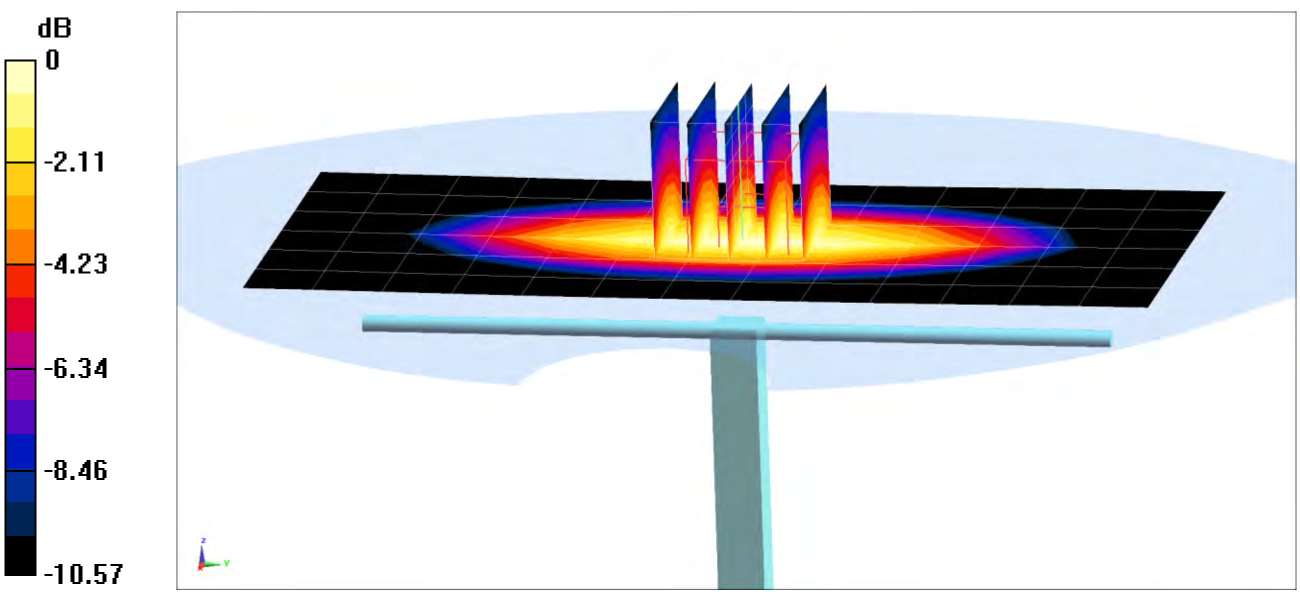
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.976 S/m; ε_r = 53.581; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 03-20-2019; Ambient Temp: 21.7°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 835 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.91 W/kg
SAR(1 g) = 1.92 W/kg; SAR(10 g) = 1.26 W/kg
Deviation(1 g) = -1.54%; Deviation(10 g) = -1.56%



0 dB = 2.58 W/kg = 4.12 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1150

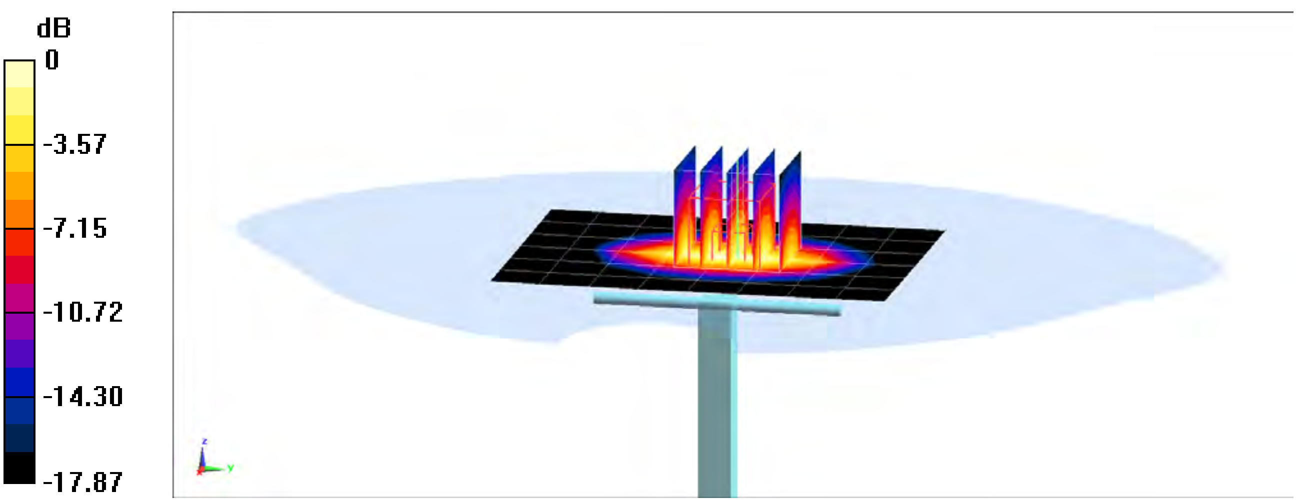
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used:
f = 1750 MHz; σ = 1.536 S/m; ε_r = 51.333; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-18-2019; Ambient Temp: 20.2°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1750 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.05 W/kg
SAR(1 g) = 3.83 W/kg; SAR(10 g) = 2 W/kg
Deviation(1 g) = 4.64%; Deviation(10 g) = 3.09%



0 dB = 5.91 W/kg = 7.72 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1150

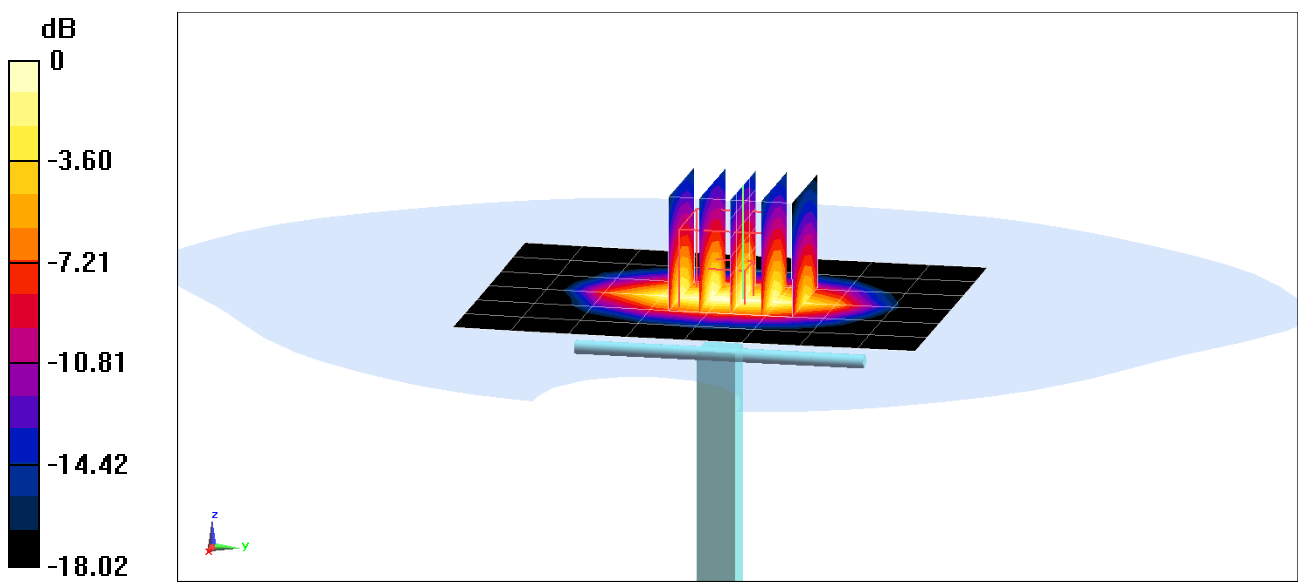
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used:
f = 1750 MHz; σ = 1.543 S/m; ε_r = 51.396; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 21.4°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1750 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 6.91 W/kg
SAR(1 g) = 3.72 W/kg; SAR(10 g) = 1.96 W/kg
Deviation(1 g) = 1.64%; Deviation(10 g) = 1.03%



0 dB = 5.67 W/kg = 7.54 dBW/kg

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1150

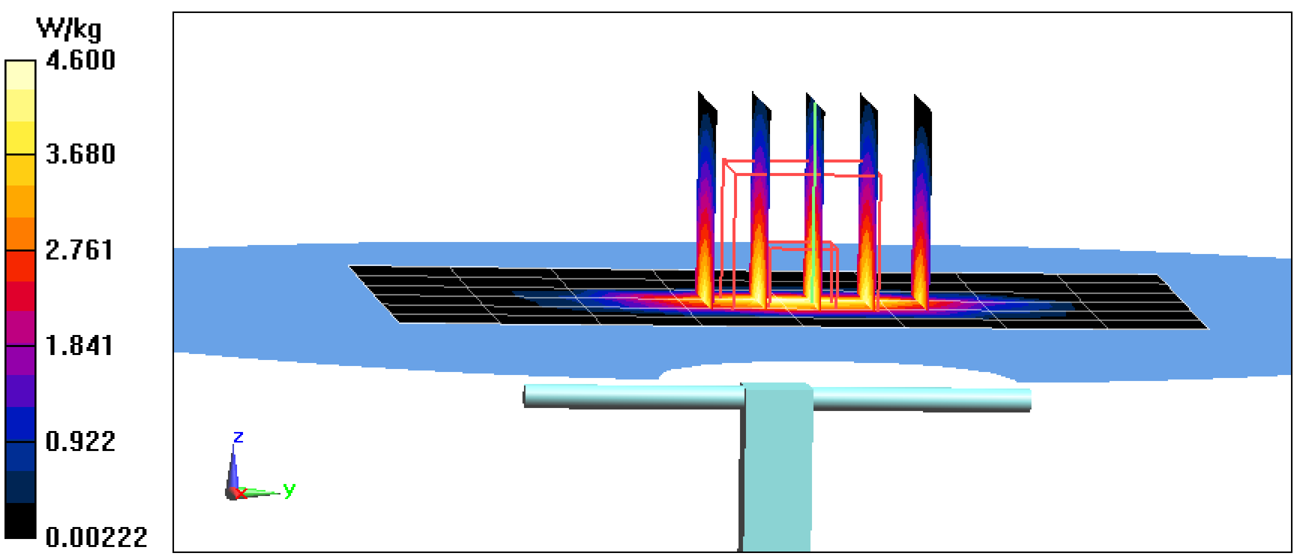
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.53 S/m; ε_r = 51.631; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-29-2019; Ambient Temp: 21.1°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1750 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.21 W/kg
SAR(10 g) = 2.08 W/kg
Deviation(10 g) = 7.22%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1148

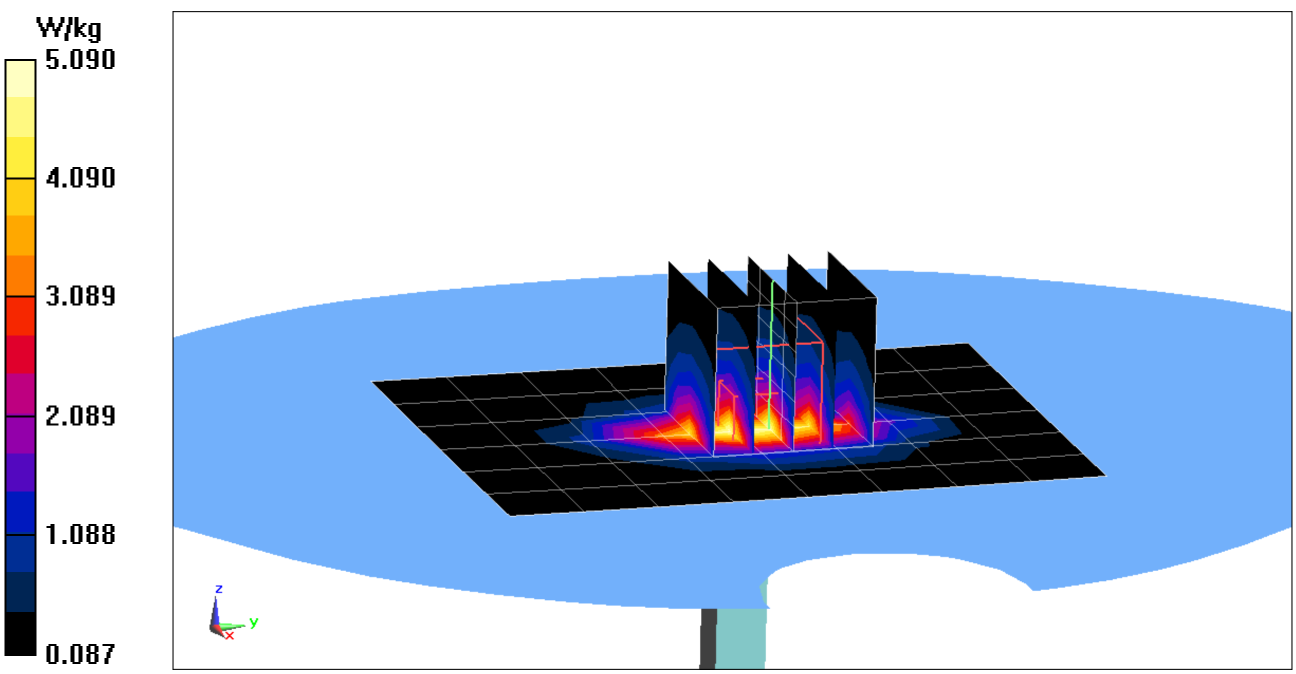
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
$f = 1750$ MHz; $\sigma = 1.54$ S/m; $\varepsilon_r = 51.617$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-01-2019; Ambient Temp: 20.6°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1750 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 6.13 W/kg
SAR(10 g) = 1.82 W/kg
Deviation(10 g) = -8.08%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

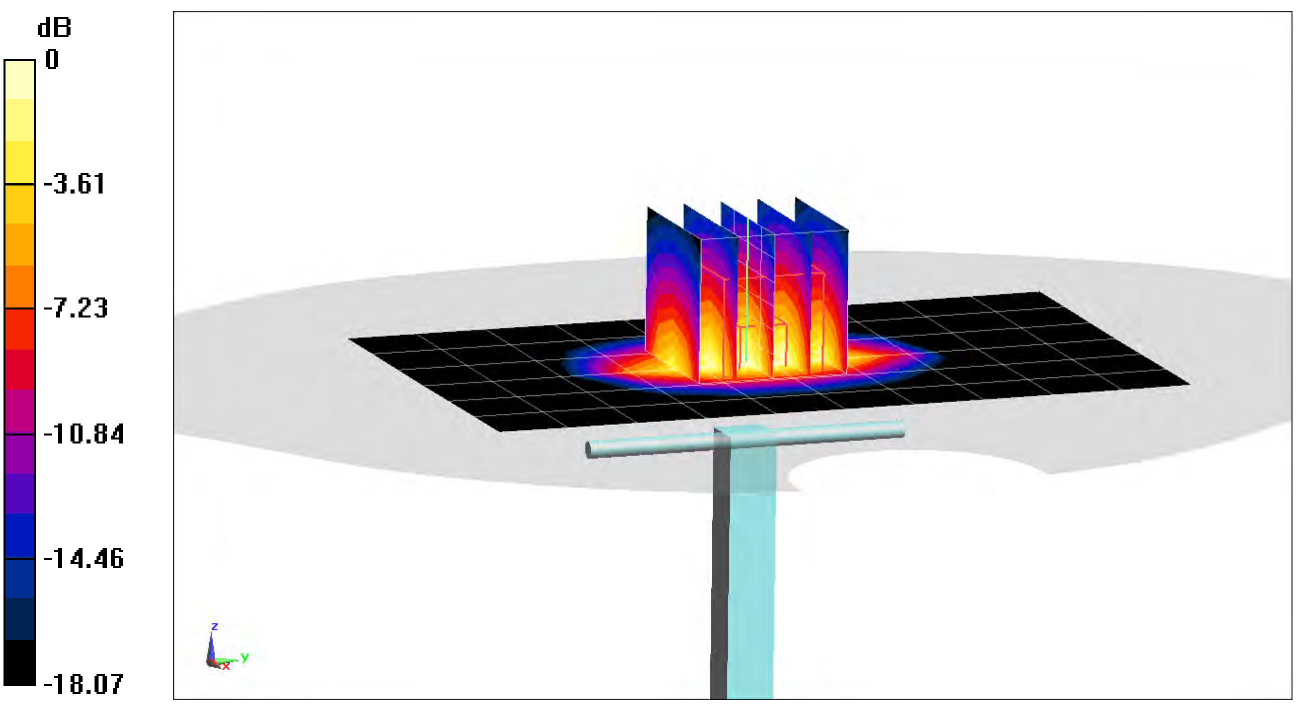
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.534 S/m; ε_r = 52.336; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-14-2019; Ambient Temp: 23.5°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1900 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.37 W/kg
SAR(1 g) = 4.03 W/kg; SAR(10 g) = 2.08 W/kg
Deviation(1 g) = 2.81%; Deviation(10 g) = 0.97%



0 dB = 6.22 W/kg = 7.94 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

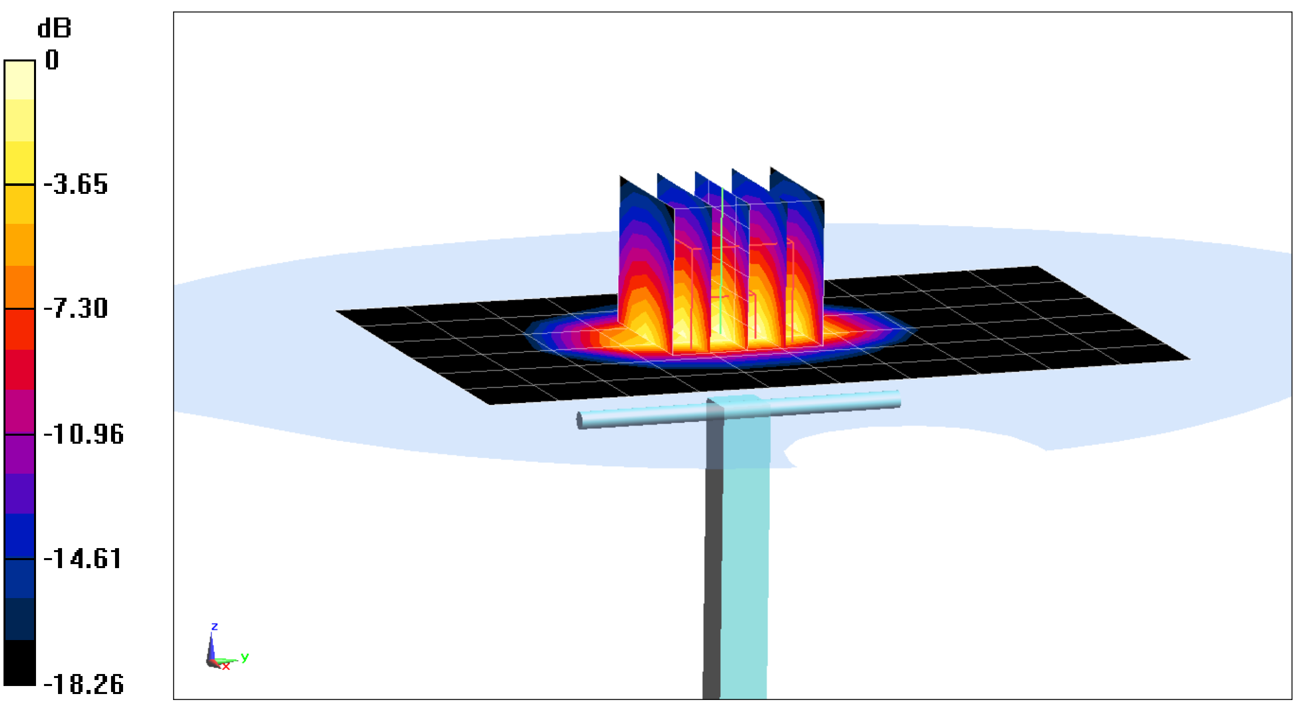
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.559 S/m; ε_r = 52.302; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-20-2019; Ambient Temp: 22.2°C; Tissue Temp: 20.9°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1900 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.78 W/kg
SAR(1 g) = 4.2 W/kg; SAR(10 g) = 2.15 W/kg
Deviation(1 g) = 7.14%; Deviation(10 g) = 4.37%



0 dB = 6.54 W/kg = 8.16 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

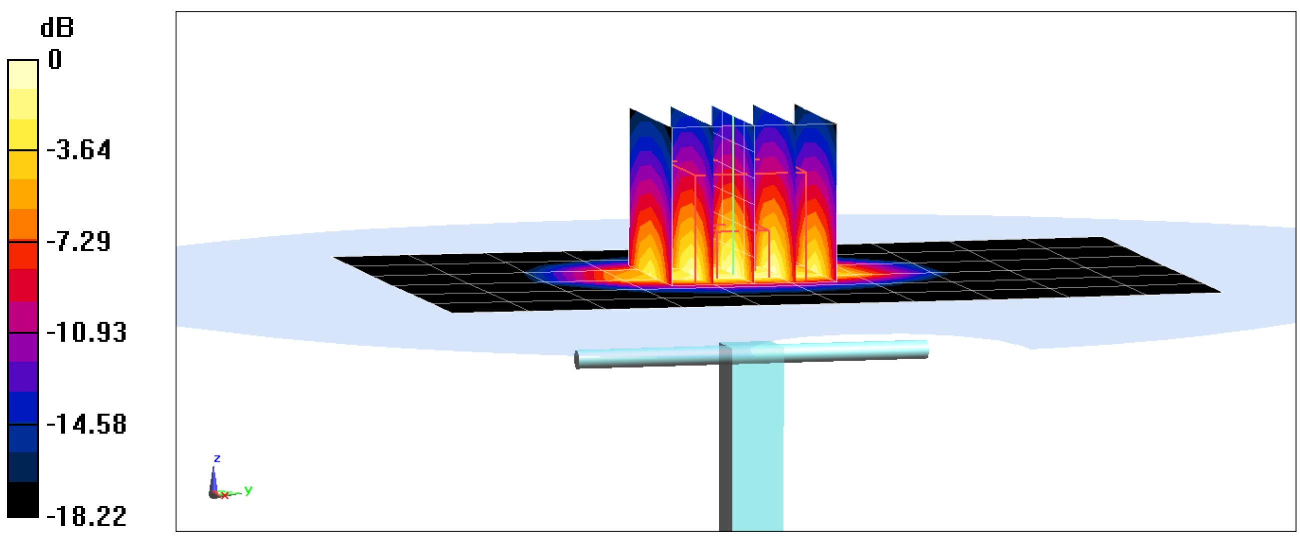
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.572 S/m; ε_r = 52.718; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 22.2°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1900 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.57 W/kg
SAR(1 g) = 4.17 W/kg; SAR(10g) = 2.14 W/kg
Deviation(1 g) = 6.38%; Deviation(10g) = 3.88%



0 dB = 6.45 W/kg = 8.10 dBW/kg

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

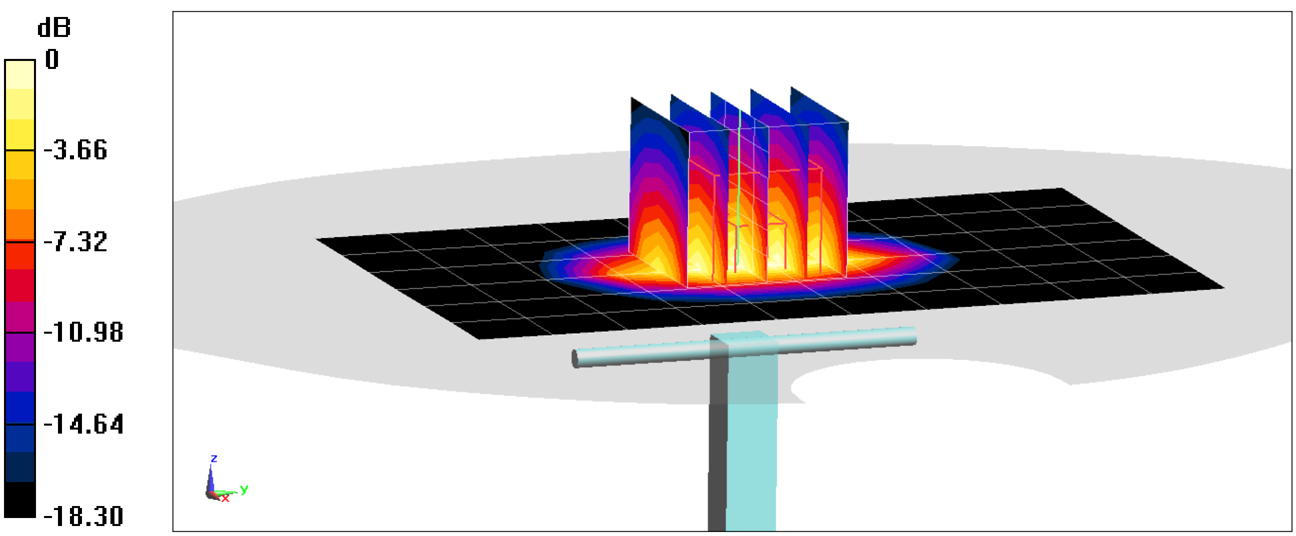
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.574 S/m; ε_r = 51.98; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-27-2019; Ambient Temp: 22.4°C; Tissue Temp: 22.9°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1900 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: Front; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.76 W/kg
SAR(1 g) = 4.22 W/kg; SAR(10g) = 2.18 W/kg
Deviation(1 g) = 7.65%; Deviation(10g) = 5.83%



0 dB = 6.52 W/kg = 8.14 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

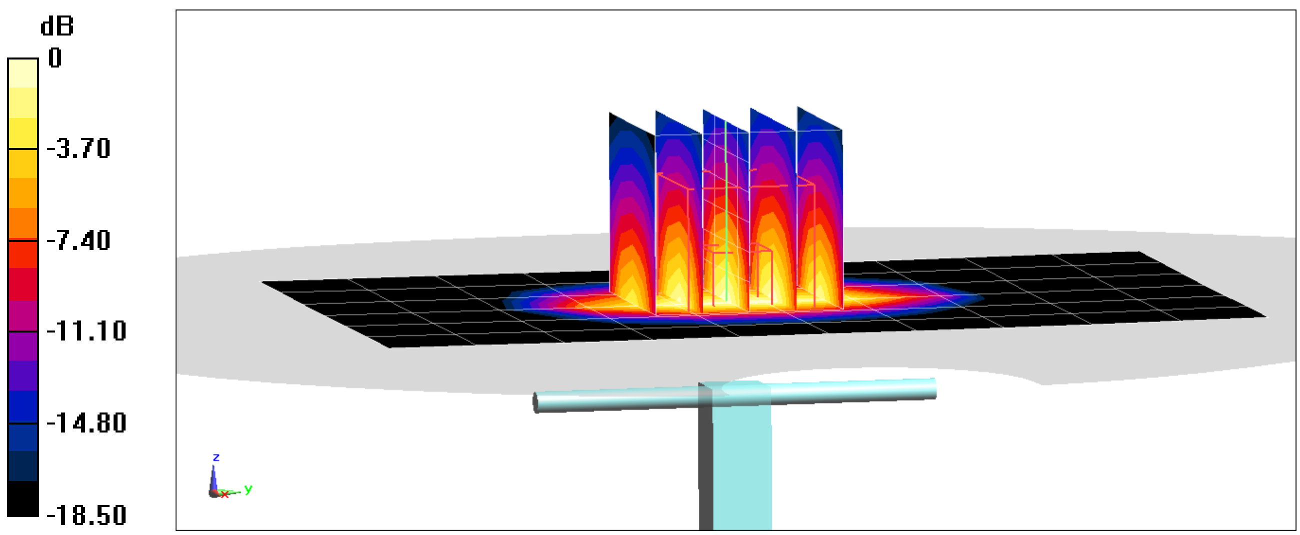
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.573 S/m; ε_r = 51.511; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 4-1-2019; Ambient Temp: 21.3°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1900 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: Front 30 degreee; Type: QD 000 P40 CD; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.62 W/kg
SAR(1 g) = 4.16 W/kg
Deviation(1 g) = 6.12%



0 dB = 6.42 W/kg = 8.08 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 719

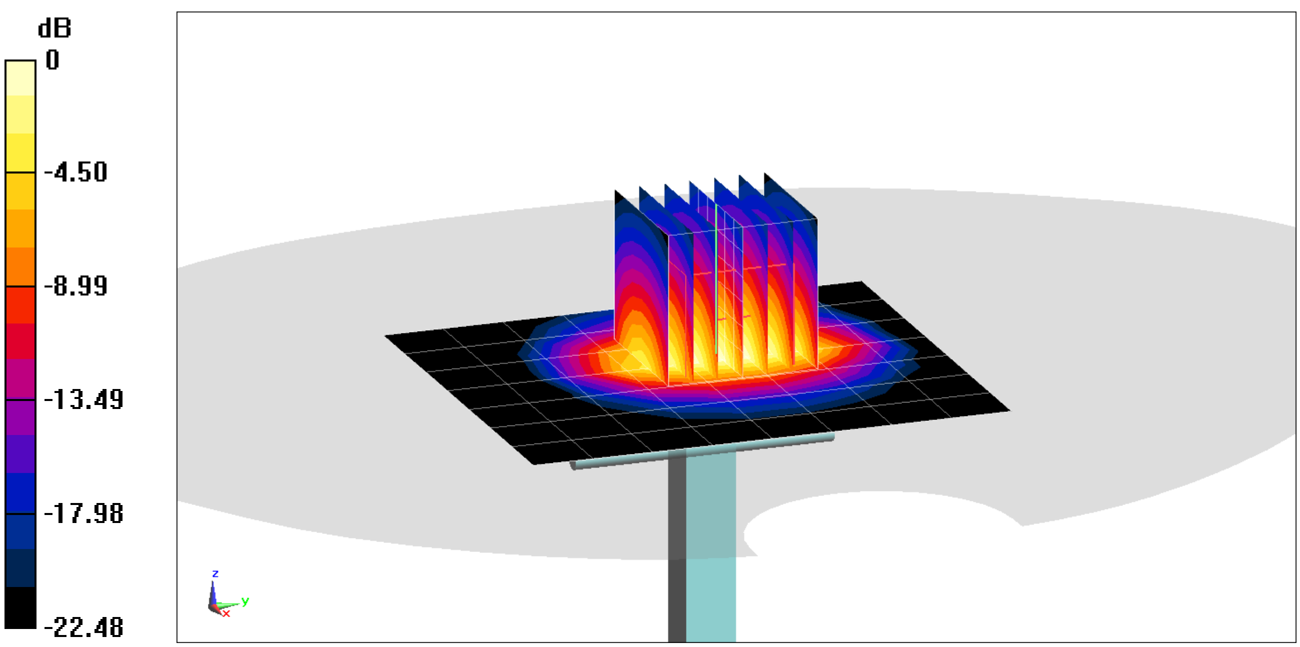
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
$f = 2450$ MHz; $\sigma = 2.033$ S/m; $\varepsilon_r = 50.813$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-18-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2450 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.2 W/kg
SAR(1 g) = 5.4 W/kg
Deviation(1 g) = 7.78%



0 dB = 9.08 W/kg = 9.58 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 719

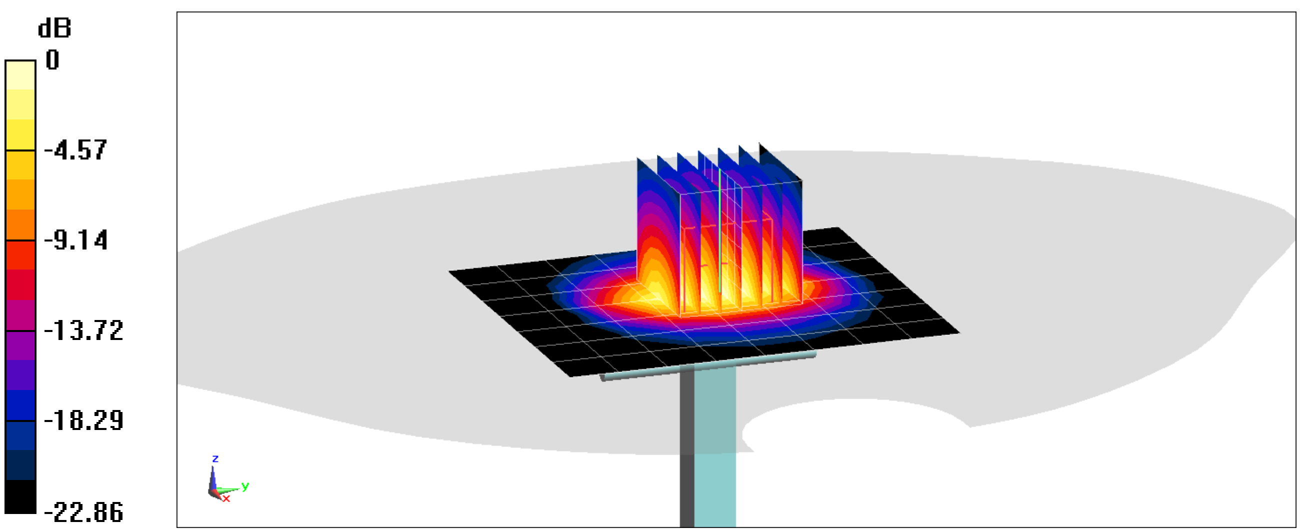
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2450 MHz; σ = 2.017 S/m; ε_r = 50.682; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 23.3°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2450 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.4 W/kg
SAR(1 g) = 5.05 W/kg; SAR(10 g) = 2.31 W/kg
Deviation(1 g) = 0.80%; Deviation(10 g) = -2.53%



0 dB = 8.48 W/kg = 9.28 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 797

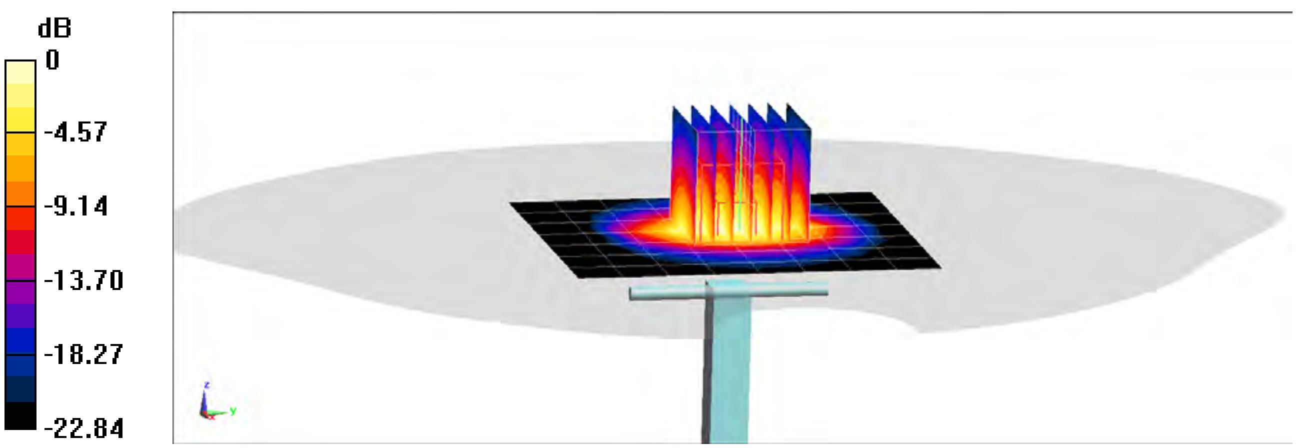
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2450 MHz; σ = 2.029 S/m; ε_r = 50.645; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-30-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2450 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.6 W/kg
SAR(1 g) = 5.09 W/kg
Deviation(1 g) = -0.39%



0 dB = 8.54 W/kg = 9.31 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 981

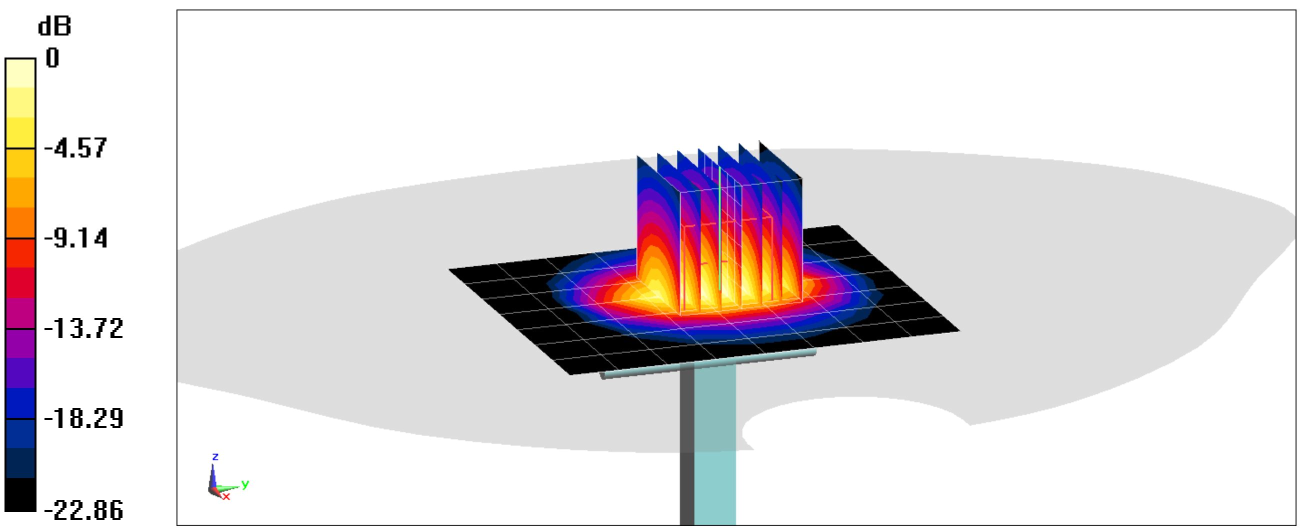
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2450 MHz; σ = 2.043 S/m; ε_r = 50.575; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-03-2019; Ambient Temp: 24.4°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2450 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.7 W/kg
SAR(1 g) = 5.16 W/kg; SAR(10 g) = 2.36 W/kg
Deviation(1 g) = 1.38%; Deviation(10 g) = -2.48%



0 dB = 8.48 W/kg = 9.28 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 719

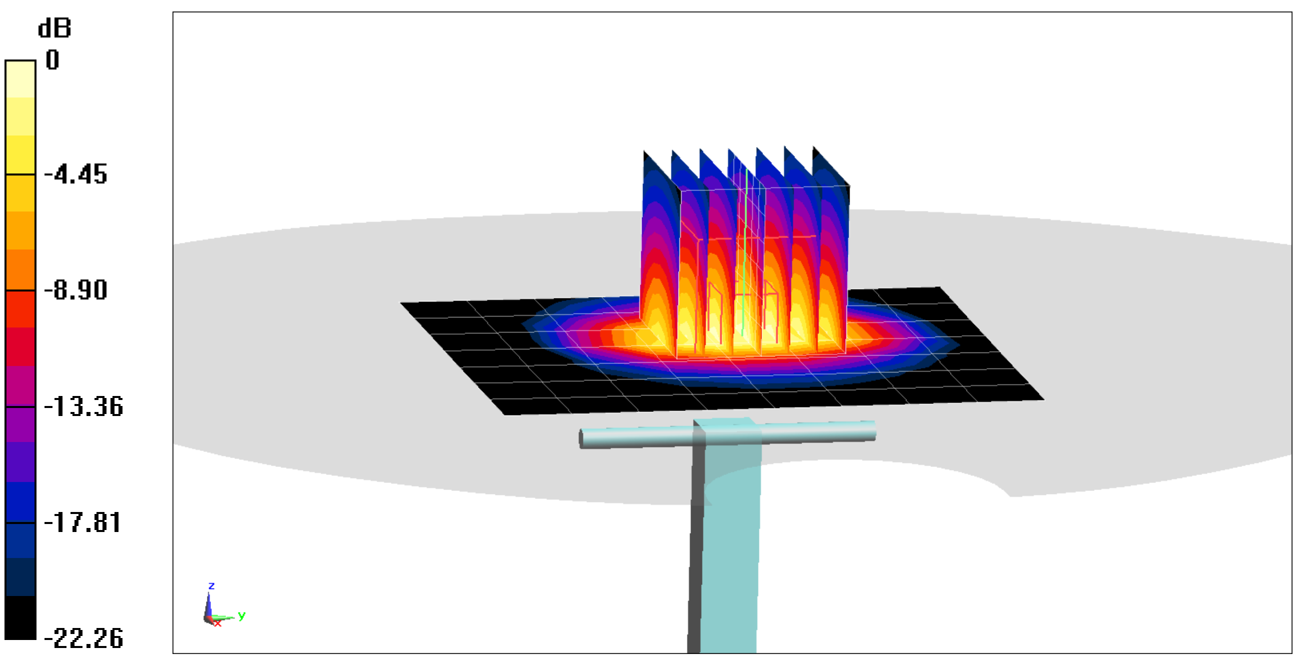
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2450 MHz; σ = 2.033 S/m; ε_r = 52.027; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-11-2019; Ambient Temp: 23.5°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2450 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.8 W/kg
SAR(1 g) = 5.21 W/kg
Deviation(1 g) = 3.99%



0 dB = 8.81 W/kg = 9.45 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1004

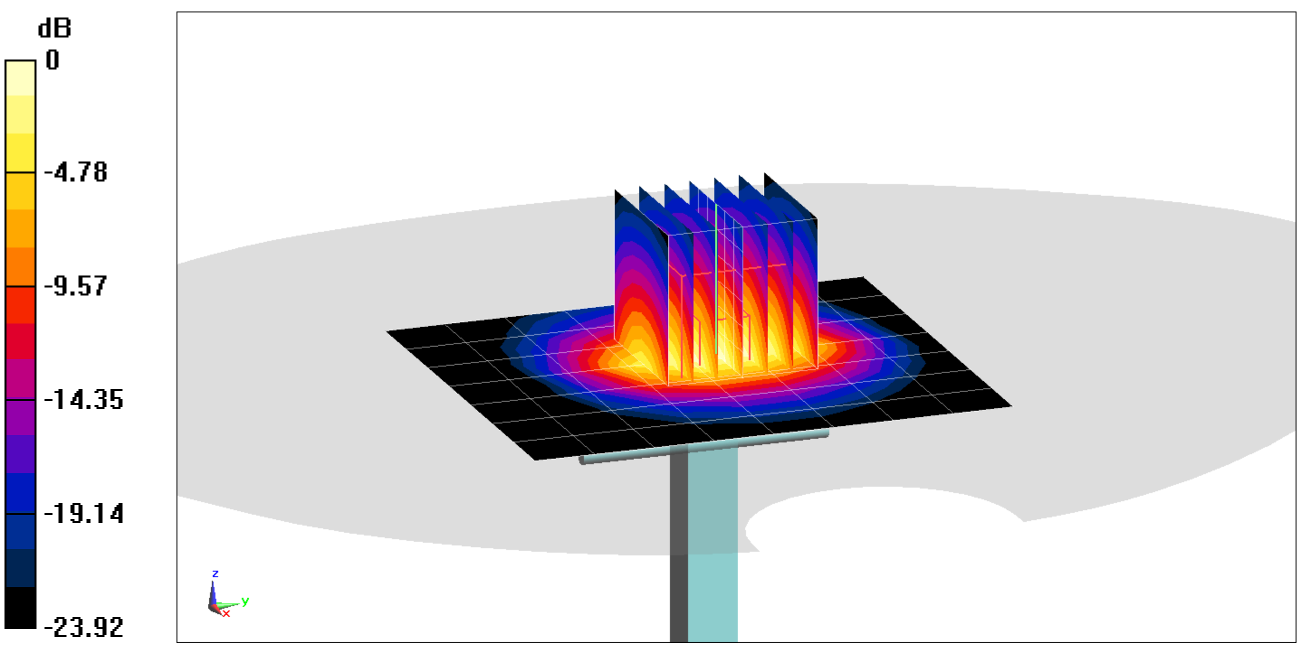
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2600 MHz; σ = 2.211 S/m; ε_r = 50.368; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-18-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2600 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2600 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.5 W/kg
SAR(1 g) = 5.26 W/kg
Deviation(1 g) = -4.01%



0 dB = 9.17 W/kg = 9.62 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1071

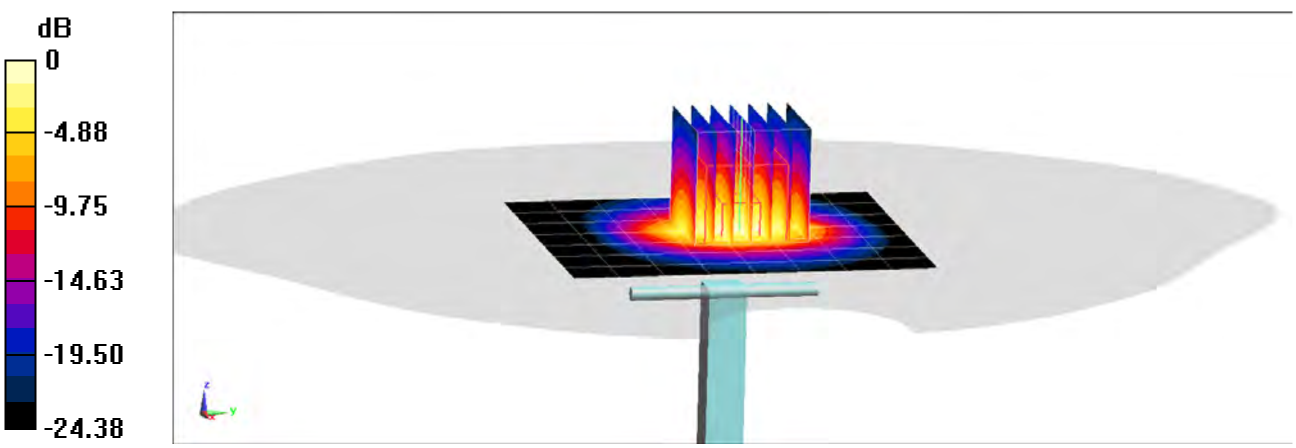
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2600 MHz; σ = 2.207 S/m; ε_r = 50.159; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-30-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2600 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2600 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 12.1 W/kg
SAR(1 g) = 5.56 W/kg
Deviation(1 g) = 2.58%



0 dB = 9.59 W/kg = 9.82 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1064

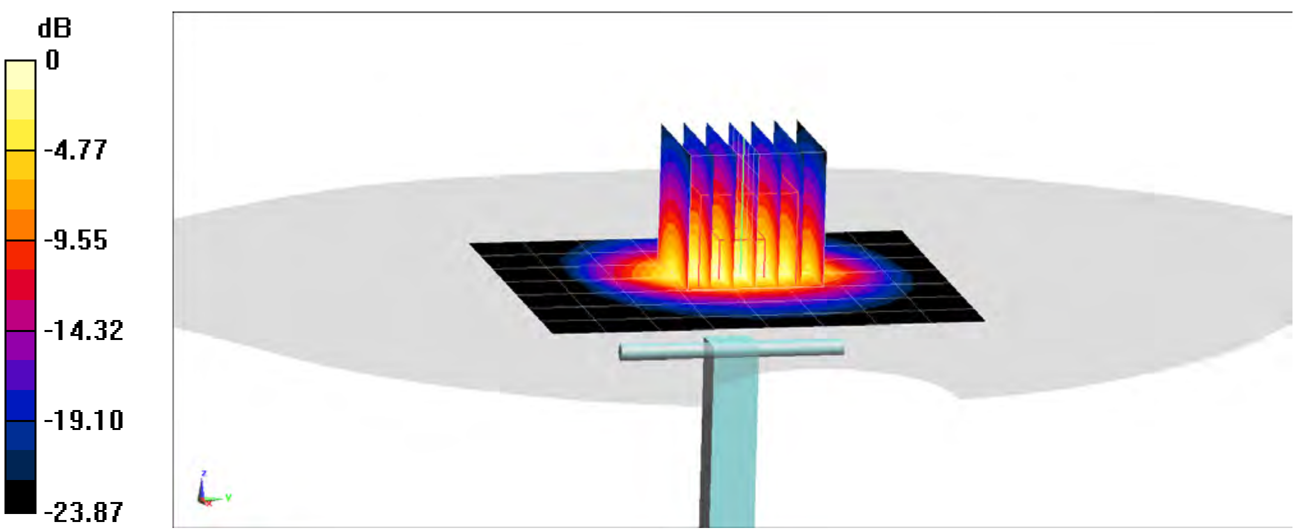
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2600 MHz; σ = 2.216 S/m; ε_r = 50.136; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-03-2019; Ambient Temp: 24.4°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2600 MHz; Calibrated: 2/19/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/13/2019
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2600 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 12.3 W/kg
SAR(1 g) = 5.69 W/kg; SAR(10 g) = 2.51 W/kg
Deviation(1 g) = 4.02%; Deviation(10 g) = 2.87%



0 dB = 9.81 W/kg = 9.92 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

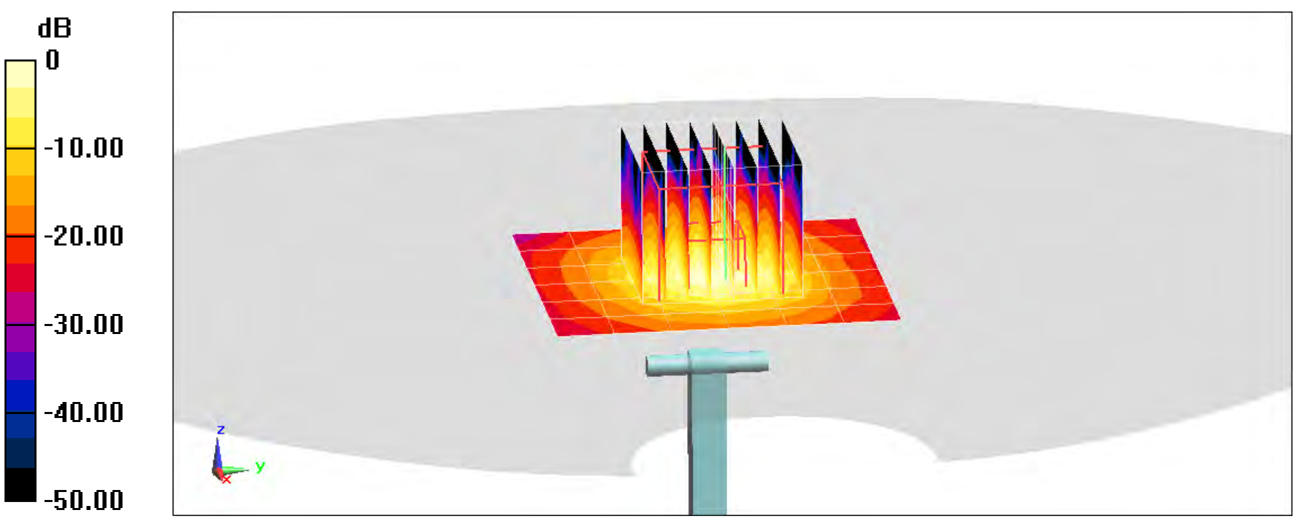
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used (interpolated):
f = 5250 MHz; σ = 5.436 S/m; ε_r = 48.939; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-18-2019; Ambient Temp: 21.3°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7308; ConvF(4.48, 4.48, 4.48) @ 5250 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

5250 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 14.8 W/kg
SAR(1 g) = 3.6 W/kg; SAR(10 g) = 1.000 W/kg
Deviation(1 g) = -6.49%; Deviation(10 g) = -7.41%



0 dB = 8.54 W/kg = 9.31 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

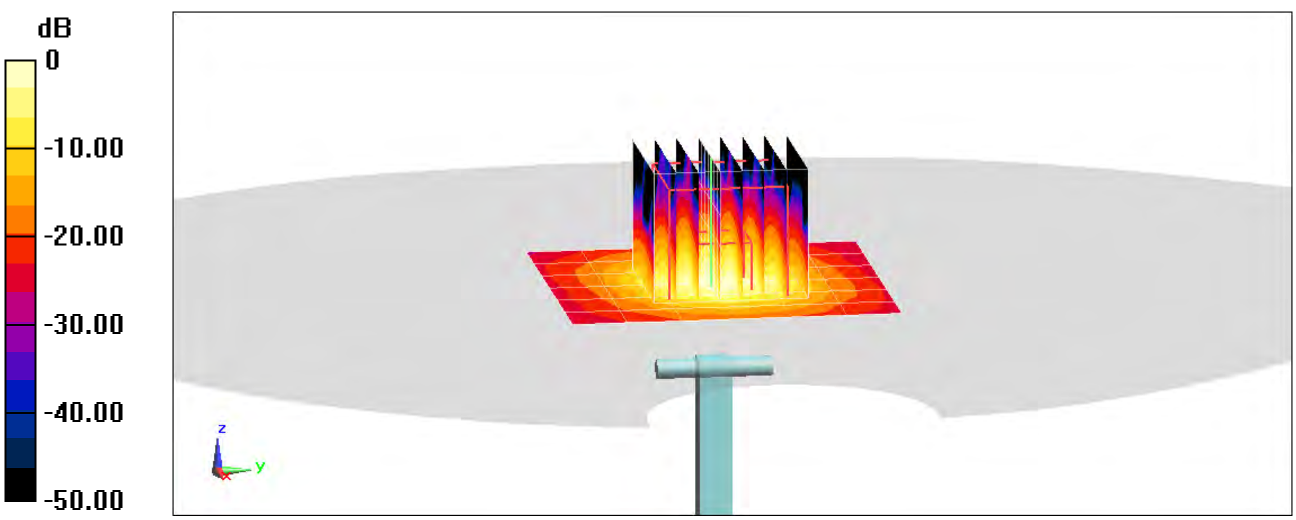
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used:
f = 5600 MHz; σ = 5.951 S/m; ε_r = 48.289; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-18-2019; Ambient Temp: 21.3°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7308; ConvF(4, 4, 4) @ 5600 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

5600 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 4.07 W/kg; SAR(10 g) = 1.12 W/kg
Deviation(1 g) = 2.78%; Deviation(10 g) = 0.90%



0 dB = 9.94 W/kg = 9.97 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

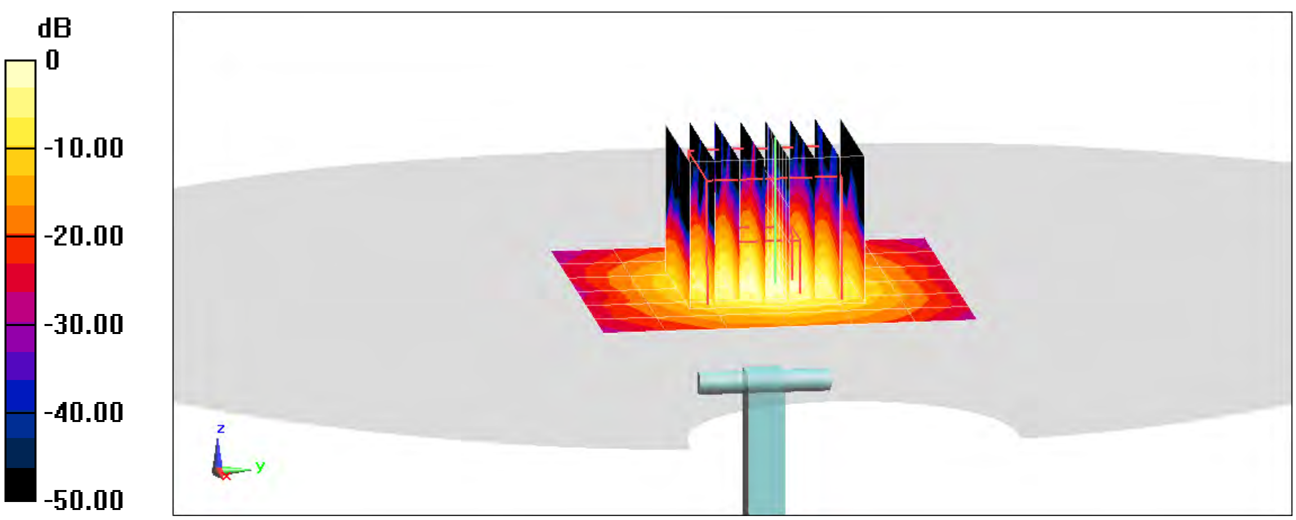
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used (interpolated):
f = 5750 MHz; σ = 6.187 S/m; ε_r = 47.968; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-18-2019; Ambient Temp: 21.3°C; Tissue Temp: 19.8°C

Probe: EX3DV4 - SN7308; ConvF(4.18, 4.18, 4.18) @ 5750 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

5750 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 16.9 W/kg
SAR(1 g) = 3.54 W/kg; SAR(10 g) = 0.987 W/kg
Deviation(1 g) = -6.96%; Deviation(10 g) = -6.89%



0 dB = 8.86 W/kg = 9.47 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

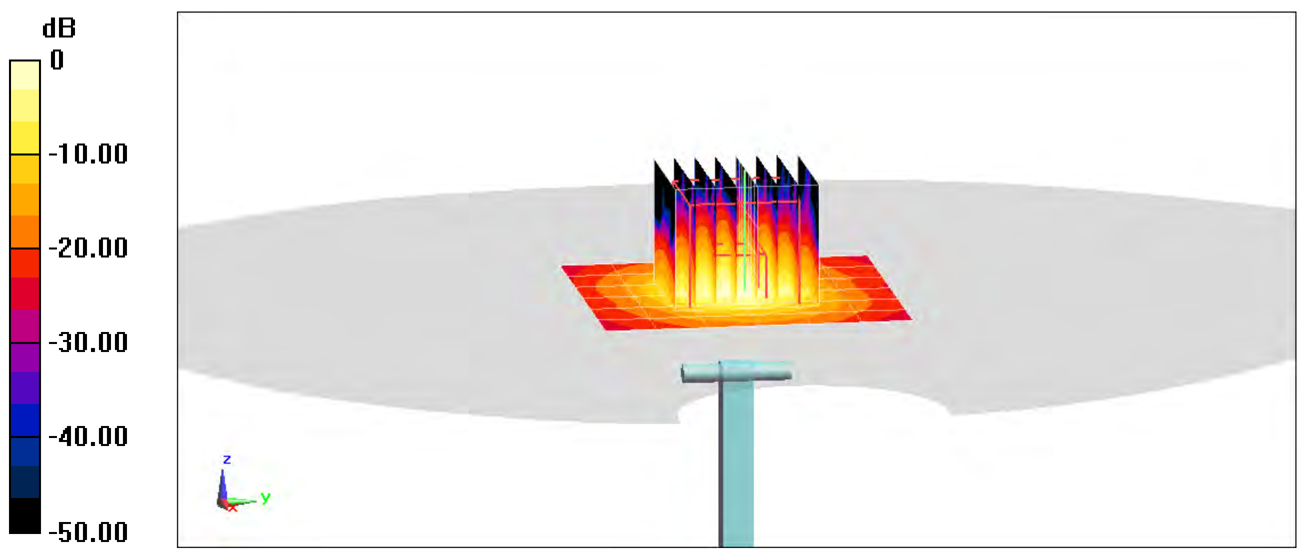
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used (interpolated):
f = 5250 MHz; σ = 5.432 S/m; ε_r = 48.752; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 22.8°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7308; ConvF(4.48, 4.48, 4.48) @ 5250 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

5250 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 15.1 W/kg
SAR(1 g) = 3.72 W/kg; SAR(10 g) = 1.03 W/kg
Deviation(1 g) = -3.38%; Deviation(10 g) = -4.63%



0 dB = 8.65 W/kg = 9.37 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

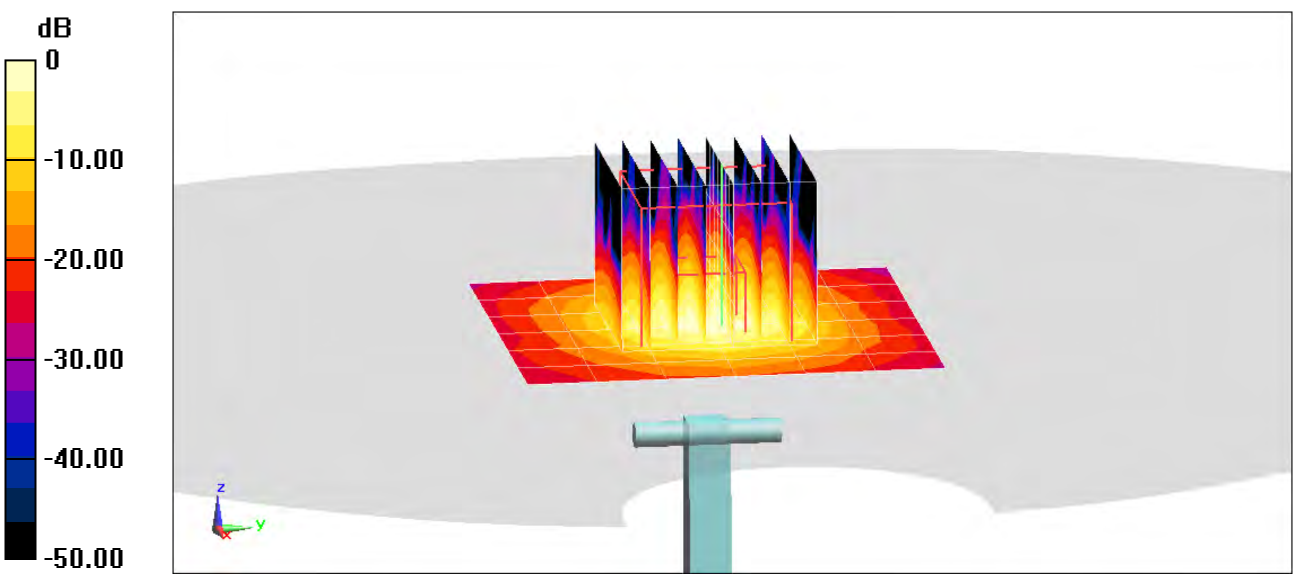
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used:
f = 5600 MHz; σ = 5.947 S/m; ε_r = 48.114; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 22.8°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7308; ConvF(4, 4, 4) @ 5600 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

5600 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 17.4 W/kg
SAR(1 g) = 3.91 W/kg; SAR(10 g) = 1.07 W/kg
Deviation(1 g) = -1.26%; Deviation(10 g) = -3.60%



0 dB = 9.45 W/kg = 9.75 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

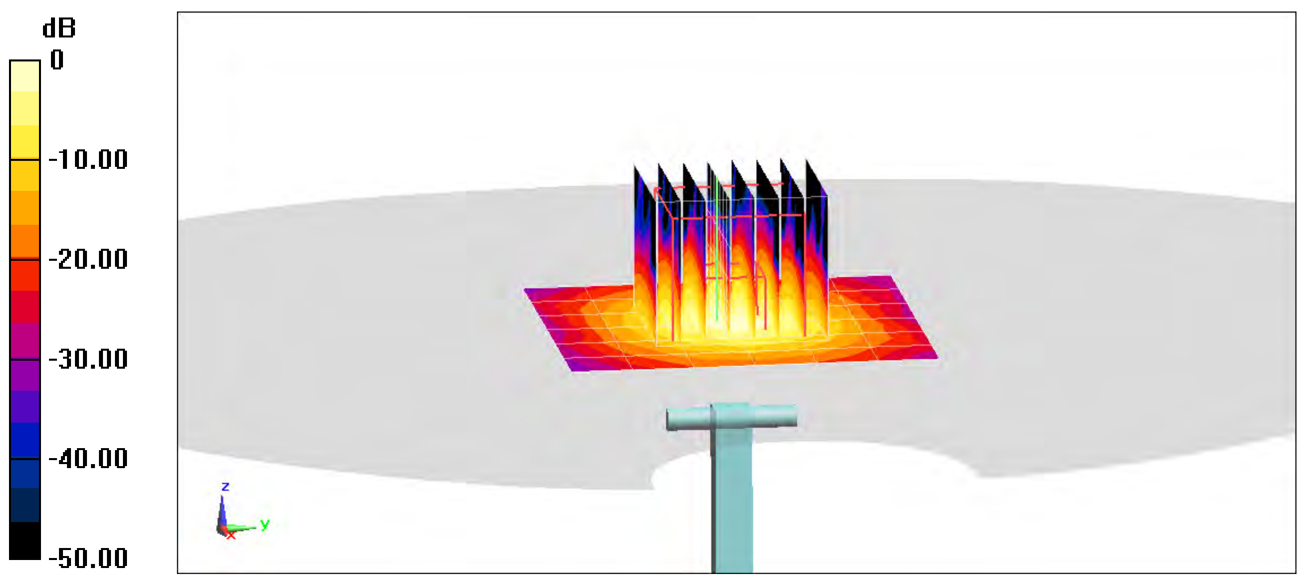
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used (interpolated):
f = 5750 MHz; σ = 6.178 S/m; ε_r = 47.843; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 03-25-2019; Ambient Temp: 22.8°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7308; ConvF(4.18, 4.18, 4.18) @ 5750 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

5750 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 16.2 W/kg
SAR(1 g) = 3.5 W/kg; SAR(10 g) = 0.973 W/kg
Deviation(1 g) = -8.02%; Deviation(10 g) = -8.21%



0 dB = 8.90 W/kg = 9.49 dBW/kg

APPENDIX C: PROBE CALIBRATION

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D5GHzV2-1057_Jan18**

CALIBRATION CERTIFICATE

Object: D5GHzV2 - SN:1057

Calibration procedure(s): QA CAL-22.v2
Calibration procedure for dipole validation kits between 3-6 GHz

BN
01-25-2018

Calibration date: January 16, 2018

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

BN
02/06/2019

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-17 (No. 217-02521/02522)	Apr-18
Power sensor NRP-Z91	SN: 103244	04-Apr-17 (No. 217-02521)	Apr-18
Power sensor NRP-Z91	SN: 103245	04-Apr-17 (No. 217-02522)	Apr-18
Reference 20 dB Attenuator	SN: 5058 (20k)	07-Apr-17 (No. 217-02528)	Apr-18
Type-N mismatch combination	SN: 5047.2 / 06327	07-Apr-17 (No. 217-02529)	Apr-18
Reference Probe EX3DV4	SN: 3503	30-Dec-17 (No. EX3-3503_Dec17)	Dec-18
DAE4	SN: 601	26-Oct-17 (No. DAE4-601_Oct17)	Oct-18

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-16)	In house check: Oct-18
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-16)	In house check: Oct-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 18, 2018

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5200 MHz ± 1 MHz 5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5750 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	36.2 ± 6 %	4.55 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.91 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**79.2 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.28 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.8 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.8 ± 6 %	4.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.41 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**84.1 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.40 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.0 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.5 ± 6 %	5.06 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.06 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**80.5 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.30 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.0 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.3 ± 6 %	5.41 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.36 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**73.1 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.06 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**20.4 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.36 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.2 ± 6 %	5.48 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5250 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.64 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**75.9 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.13 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.1 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.6 ± 6 %	5.94 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	8.05 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**79.9 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.25 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**22.3 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.3	5.94 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.3 ± 6 %	6.15 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5750 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.72 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**76.7 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.14 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.2 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.2 ± 6 %	6.22 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.68 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**76.3 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.13 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.1 W/kg ± 19.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	50.0 Ω - 5.5 jΩ
Return Loss	- 25.2 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	54.7 Ω - 2.1 jΩ
Return Loss	- 26.2 dB

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	52.7 Ω + 0.0 jΩ
Return Loss	- 31.5 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	49.3 Ω - 6.7 jΩ
Return Loss	- 23.4 dB

Antenna Parameters with Body TSL at 5250 MHz

Impedance, transformed to feed point	48.4 Ω - 3.9 jΩ
Return Loss	- 27.4 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	55.3 Ω - 1.6 jΩ
Return Loss	- 25.6 dB

Antenna Parameters with Body TSL at 5750 MHz

Impedance, transformed to feed point	52.6 Ω + 1.1 jΩ
Return Loss	- 31.2 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	51.8 Ω - 0.4 jΩ
Return Loss	- 34.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.203 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	November 27, 2006

Appendix (Additional assessments outside the scope of SCS 0108)

Measurement Conditions (f=5200 MHz)

DASY system configuration, as far as not given on page 1 and 3.

Phantom	SAM Head Phantom	For usage with cSAR3DV2-R/L

SAR result with SAM Head (Top)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.24 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**82.6 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.6 W/kg ± 19.9 % (k=2)**

SAR result with SAM Head (Mouth)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.54 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**85.6 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.37 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.7 W/kg ± 19.9 % (k=2)**

SAR result with SAM Head (Neck)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.14 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**81.6 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.37 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.7 W/kg ± 19.9 % (k=2)**

SAR result with SAM Head (Ear)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	5.16 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**51.7 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	1.76 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**17.7 W/kg ± 19.9 % (k=2)**

Measurement Conditions (f=5800 MHz)

DASY system configuration, as far as not given on page 1 and 3.

Phantom	SAM Head Phantom	For usage with cSAR3DV2-R/L

SAR result with SAM Head (Top)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.62 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**86.3 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.41 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.1 W/kg ± 19.9 % (k=2)**

SAR result with SAM Head (Mouth)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.88 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**88.9 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.44 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.4 W/kg ± 19.9 % (k=2)**

SAR result with SAM Head (Neck)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.33 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**83.4 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.5 W/kg ± 19.9 % (k=2)**

SAR result with SAM Head (Ear)

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	5.68 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**56.8 W/kg ± 20.3 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	1.89 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**18.9 W/kg ± 19.9 % (k=2)**

DASY5 Validation Report for Head TSL

Date: 11.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1057

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: f = 5250 MHz; σ = 4.55 S/m; ε_r = 36.2; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5600 MHz; σ = 4.9 S/m; ε_r = 35.8; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5750 MHz; σ = 5.06 S/m; ε_r = 35.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

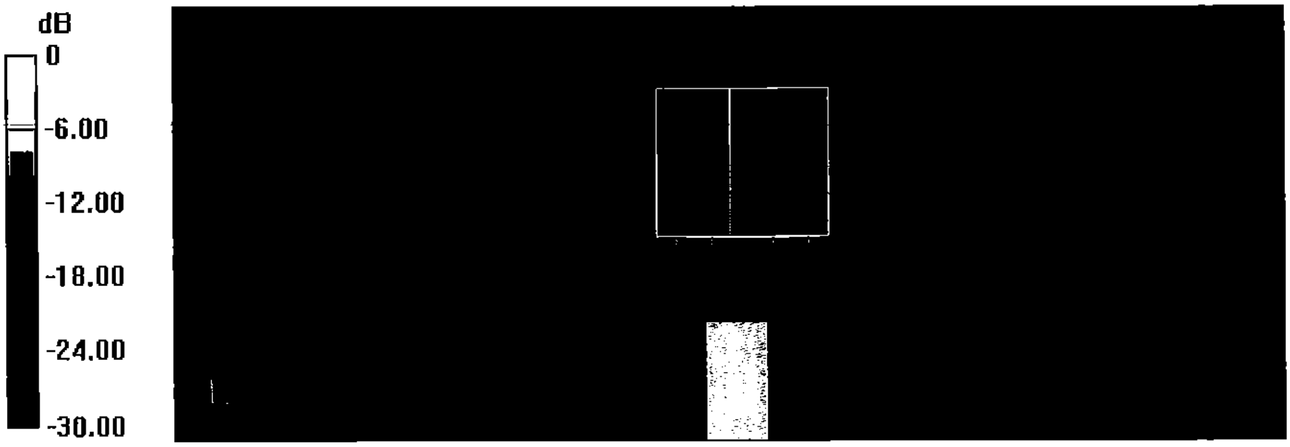
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.51, 5.51, 5.51); Calibrated: 30.12.2017, ConvF(5.05, 5.05, 5.05); Calibrated: 30.12.2017, ConvF(4.98, 4.98, 4.98); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601 - modified; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 72.54 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 27.5 W/kg
SAR(1 g) = 7.91 W/kg; SAR(10 g) = 2.28 W/kg
Maximum value of SAR (measured) = 17.7 W/kg

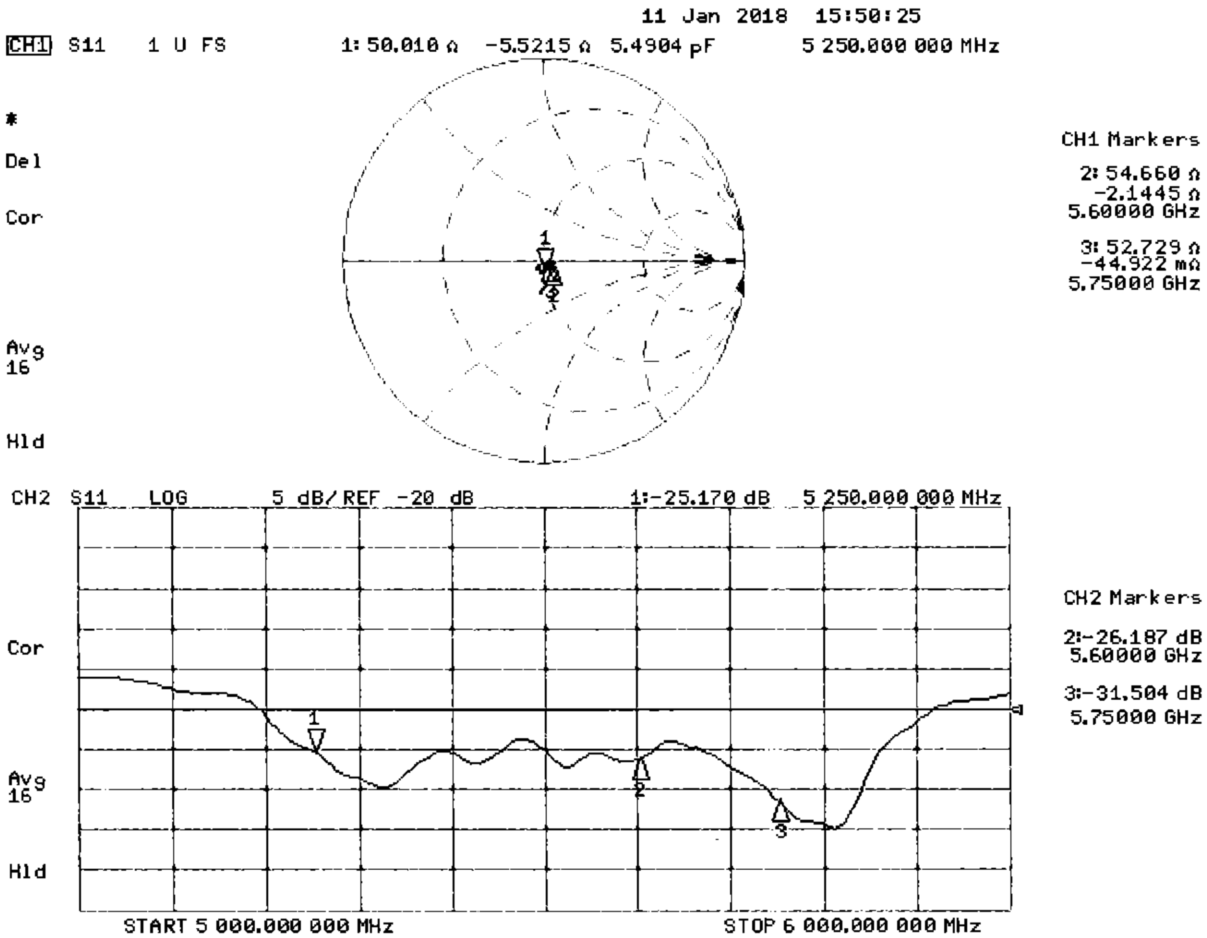
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 72.77 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 32.2 W/kg
SAR(1 g) = 8.41 W/kg; SAR(10 g) = 2.4 W/kg
Maximum value of SAR (measured) = 19.7 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 70.93 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 31.4 W/kg
SAR(1 g) = 8.06 W/kg; SAR(10 g) = 2.3 W/kg
Maximum value of SAR (measured) = 18.9 W/kg



0 dB = 18.9 W/kg = 12.76 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 10.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1057

Communication System: UID 0 - CW; Frequency: 5200 MHz, Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz, Frequency: 5800 MHz
Medium parameters used:f = 5200 MHz; σ = 5.41 S/m; ε_r = 47.3; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5250 MHz; σ = 5.48 S/m; ε_r = 47.2; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5600 MHz; σ = 5.94 S/m; ε_r = 46.6; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5750 MHz; σ = 6.15 S/m; ε_r = 46.3; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5800 MHz; σ = 6.22 S/m; ε_r = 46.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.35, 5.35, 5.35); Calibrated: 30.12.2017, ConvF(5.26, 5.26, 5.26); Calibrated: 30.12.2017, ConvF(4.65, 4.65, 4.65); Calibrated: 30.12.2017, ConvF(4.57, 4.57, 4.57); Calibrated: 30.12.2017, ConvF(4.53, 4.53, 4.53); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

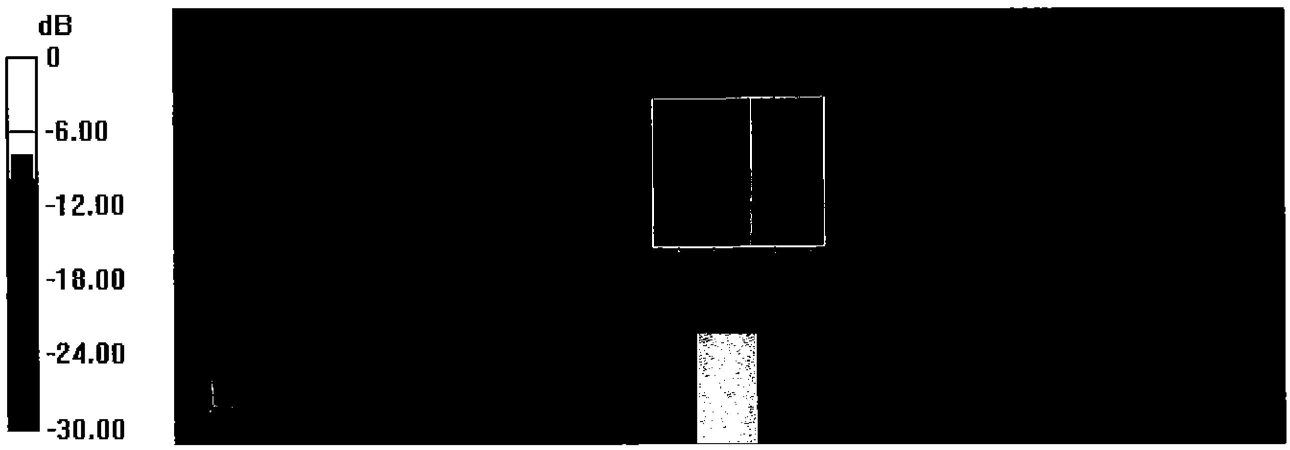
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 64.05 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 27.6 W/kg
SAR(1 g) = 7.36 W/kg; SAR(10 g) = 2.06 W/kg
Maximum value of SAR (measured) = 17.1 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 64.53 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 29.4 W/kg
SAR(1 g) = 7.64 W/kg; SAR(10 g) = 2.13 W/kg
Maximum value of SAR (measured) = 17.9 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.09 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 34.0 W/kg
SAR(1 g) = 8.05 W/kg; SAR(10 g) = 2.25 W/kg
Maximum value of SAR (measured) = 19.5 W/kg

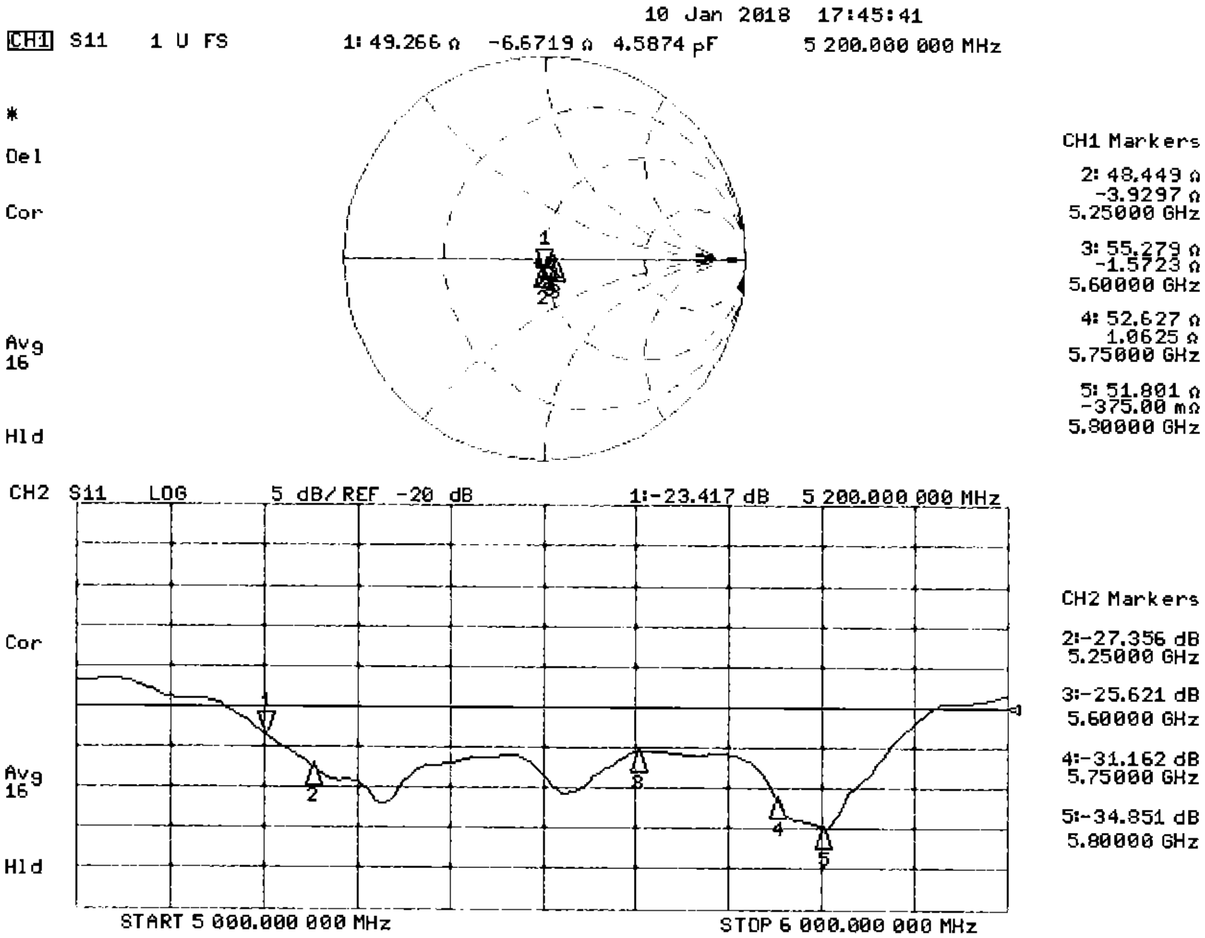
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 63.45 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 32.9 W/kg
SAR(1 g) = 7.72 W/kg; SAR(10 g) = 2.14 W/kg
Maximum value of SAR (measured) = 18.9 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 63.14 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 33.3 W/kg
SAR(1 g) = 7.68 W/kg; SAR(10 g) = 2.13 W/kg



0 dB = 18.9 W/kg = 12.76 dBW/kg

Impedance Measurement Plot for Body TSL



DASY5 Validation Report for SAM Head

Date: 16.01.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN:1057

Communication System: UID 0 - CW; Frequency: 5200 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 4.59 S/m; ε_r = 36.5; ρ = 1000 kg/m3 ,
Medium parameters used: f = 5800 MHz; σ = 5.28 S/m; ε_r = 35.4; ρ = 1000 kg/m3
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.75, 5.75, 5.75); Calibrated: 30.12.2017, ConvF(4.96, 4.96, 4.96); Calibrated: 30.12.2017;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 26.10.2017
- Phantom: SAM Head
- DASY52 52.10.0(1446); SEMCAD X 14.6.10(7417)

SAM Head/Top - 5200/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 72.99 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 30.6 W/kg
SAR(1 g) = 8.24 W/kg; SAR(10 g) = 2.35 W/kg
Maximum value of SAR (measured) = 19.7 W/kg

SAM Head/Top - 5800/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 73.00 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 36.5 W/kg
SAR(1 g) = 8.62 W/kg; SAR(10 g) = 2.41 W/kg
Maximum value of SAR (measured) = 21.9 W/kg

SAM Head/Mouth - 5200/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 72.79 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 29.5 W/kg
SAR(1 g) = 8.54 W/kg; SAR(10 g) = 2.37 W/kg
Maximum value of SAR (measured) = 20.7 W/kg

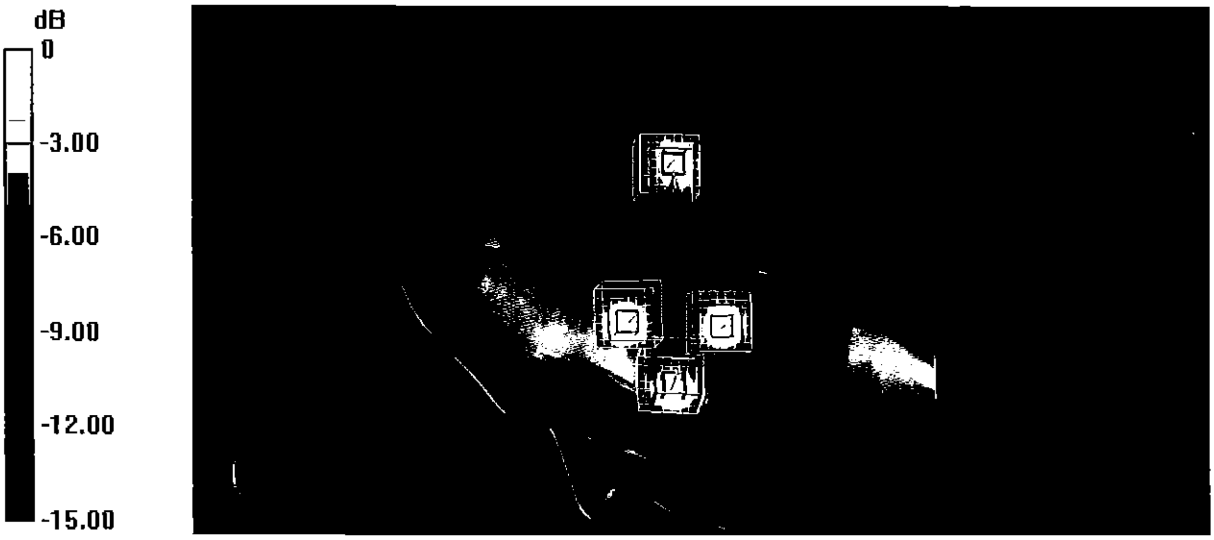
SAM Head/Mouth - 5800/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 71.69 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 34.9 W/kg
SAR(1 g) = 8.88 W/kg; SAR(10 g) = 2.44 W/kg
Maximum value of SAR (measured) = 23.0 W/kg

SAM Head/Neck - 5200/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 72.48 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 27.9 W/kg
SAR(1 g) = 8.14 W/kg; SAR(10 g) = 2.37 W/kg
Maximum value of SAR (measured) = 19.3 W/kg

SAM Head/Neck - 5800/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 72.90 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 33.4 W/kg
SAR(1 g) = 8.33 W/kg; SAR(10 g) = 2.35 W/kg
Maximum value of SAR (measured) = 21.8 W/kg

SAM Head/Ear - 5200/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 54.68 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 16.3 W/kg
SAR(1 g) = 5.16 W/kg; SAR(10 g) = 1.76 W/kg
Maximum value of SAR (measured) = 11.1 W/kg

SAM Head/Ear - 5800/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 56.96 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 21.2 W/kg
SAR(1 g) = 5.68 W/kg; SAR(10 g) = 1.89 W/kg
Maximum value of SAR (measured) = 13.8 W/kg



0 dB = 13.8 W/kg = 11.40 dBW/kg

Certification of Calibration

Object	D5GHzV2 – SN: 1057
Calibration procedure(s)	Procedure for Calibration Extension for SAR Dipoles.
Extension Calibration date:	1/16/2019
Description:	SAR Validation Dipole at 5250, 5600, and 5750 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8753ES	S-Parameter Network Analyzer	2/8/2018	Annual	2/8/2019	US39170122
Agilent	N5182A	MXG Vector Signal Generator	4/18/2018	Annual	4/18/2019	MY47420800
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Anritsu	MA2411B	Pulse Power Sensor	3/2/2018	Annual	3/2/2019	1207364
Anritsu	MA2411B	Pulse Power Sensor	3/2/2018	Annual	3/2/2019	1339018
Anritsu	ML2495A	Power Meter	10/21/2018	Annual	10/21/2019	941001
Control Company	4040	Therm./Clock/Humidity Monitor	3/31/2017	Biennial	3/31/2019	170232394
Control Company	4352	Ultra Long Stem Thermometer	5/2/2017	Biennial	5/2/2019	170330156
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/4/2018	Annual	6/4/2019	MY53401181
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Seekonk	NC-100	Torque Wrench	7/11/2018	Annual	7/11/2019	N/A
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/3/2018	Annual	10/3/2019	1558
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/18/2018	Annual	6/18/2019	1334
SPEAG	DAK-3.5	Dielectric Assessment Kit	9/11/2018	Annual	9/11/2019	1091
SPEAG	EX3DV4	SAR Probe	8/23/2018	Annual	8/23/2019	7308
SPEAG	EX3DV4	SAR Probe	6/25/2018	Annual	6/25/2019	7409

Measurement Uncertainty = ±23% (k=2)

	Name	Function	Signature
Calibrated By:	Brodie Halbfoster	Test Engineer	BRODIE HALBFOSTER
Approved By:	Kaitlin O'Keefe	Senior Technical Manager	KOK

DIPOLE CALIBRATION EXTENSION

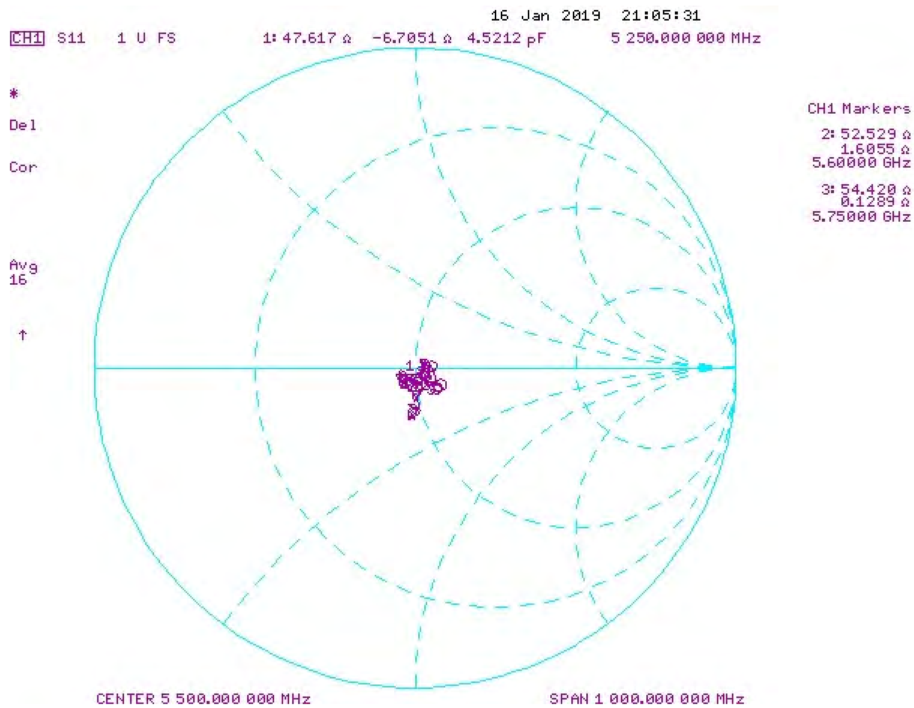
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

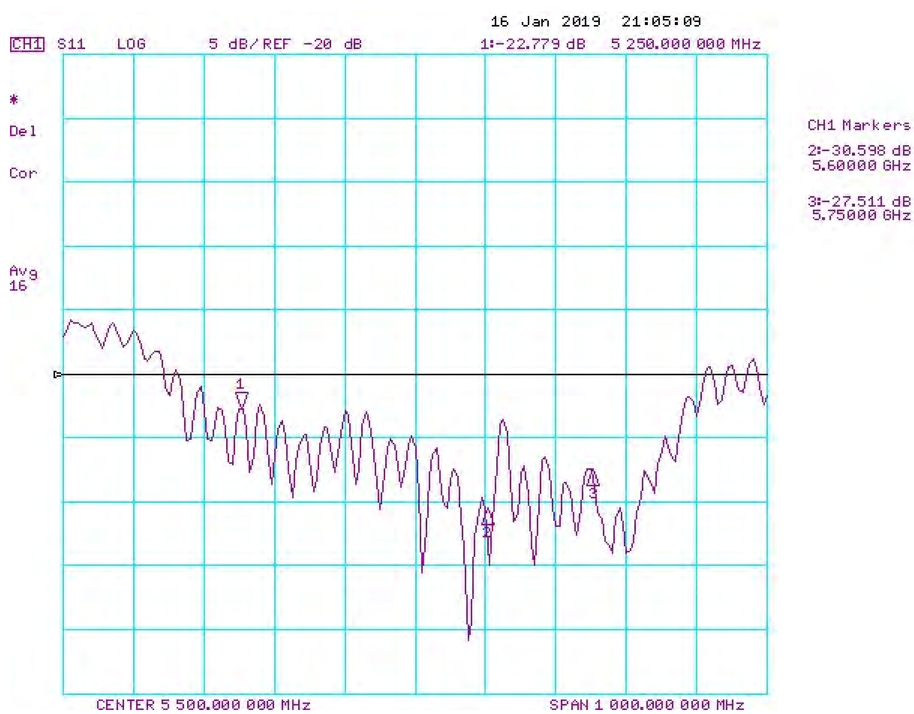
1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

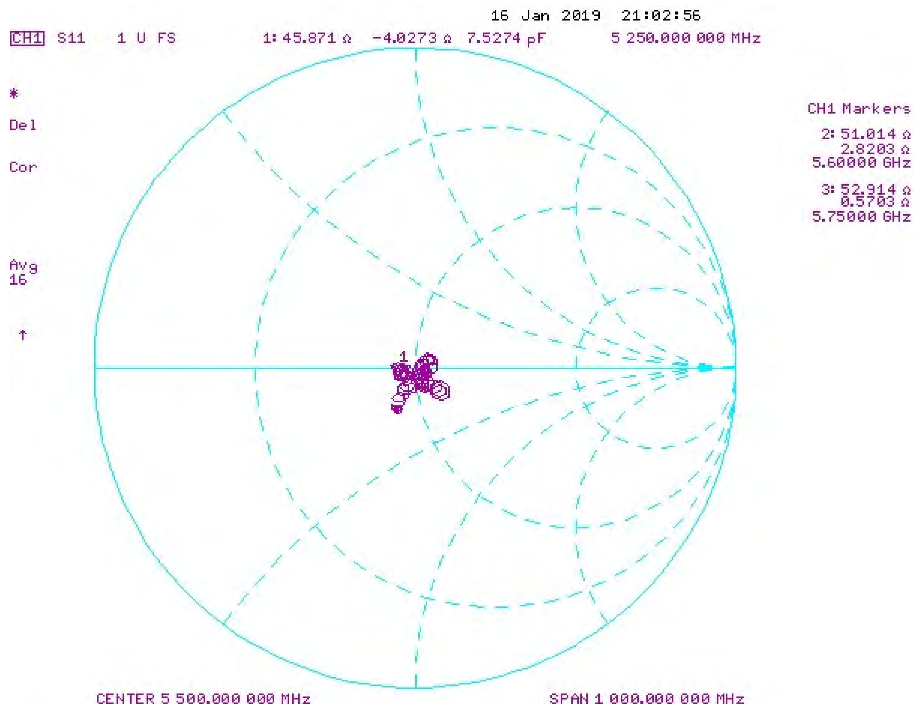
Frequency (MHz)	Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 17.0 dBm	Measured Head SAR (1g) W/kg @ 17.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 17.0 dBm	Measured Head SAR (10g) W/kg @ 17.0 dBm	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
5250	1/16/2018	1/16/2019	1.203	3.96	3.63	-8.33%	1.14	1.04	-8.77%	50	47.6	2.4	-5.5	-6.7	1.2	-25.2	-22.8	9.60%	PASS
5600	1/16/2018	1/16/2019	1.203	4.205	3.84	-8.68%	1.2	1.09	-9.17%	54.7	52.5	2.2	-2.1	1.6	3.7	-26.2	-30.6	-16.80%	PASS
5750	1/16/2018	1/16/2019	1.203	4.025	3.76	-6.58%	1.15	1.07	-6.96%	52.7	54.4	1.7	0	0.1	0.1	-31.5	-27.5	12.70%	PASS
Frequency (MHz)	Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 17.0 dBm	Measured Body SAR (1g) W/kg @ 17.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 17.0 dBm	Measured Body SAR (10g) W/kg @ 17.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary	Measured Impedance Body (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
5250	1/16/2018	1/16/2019	1.203	3.795	3.73	-1.71%	1.06	1.03	-2.37%	48.4	45.9	2.5	-3.9	-4	0.1	-27.4	-24.5	10.50%	PASS
5600	1/16/2018	1/16/2019	1.203	3.995	4.06	1.63%	1.12	1.12	0.45%	55.3	51	4.3	-1.6	2.8	4.4	-25.6	-30.7	-20.00%	PASS
5750	1/16/2018	1/16/2019	1.203	3.835	3.65	-4.82%	1.06	1.02	-3.77%	52.6	52.9	0.3	1.1	0.6	0.5	-31.2	-30.7	1.60%	PASS

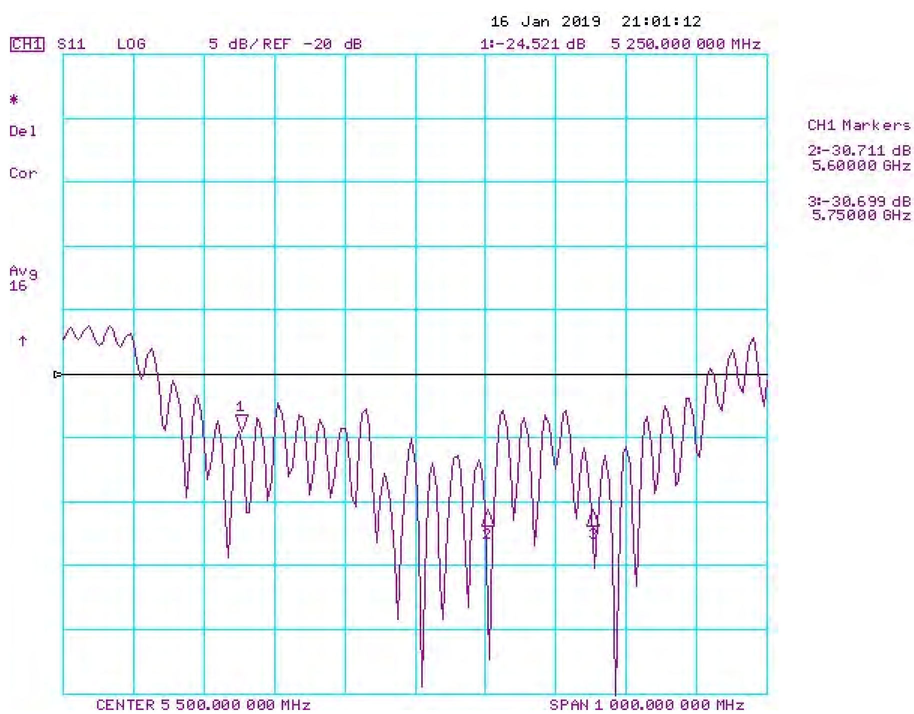
Impedance & Return-Loss Measurement Plot for Head TSL





Impedance & Return-Loss Measurement Plot for Body TSL





Calibration Laboratory of
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Engineering AG
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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **D5GHzV2-1191_Sep16**

CALIBRATION CERTIFICATE

Object	D5GHzV2 - SN:1191
Calibration procedure(s)	QA CAL-22.v2 Calibration procedure for dipole validation kits between 3-6 GHz
Calibration date:	September 21, 2016

BN✓
09-28-2016

Extended PM✓
9/20/2018

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	06-Apr-16 (No. 217-02288/02289)	Apr-17
Power sensor NRP-Z91	SN: 103244	06-Apr-16 (No. 217-02288)	Apr-17
Power sensor NRP-Z91	SN: 103245	06-Apr-16 (No. 217-02289)	Apr-17
Reference 20 dB Attenuator	SN: 5058 (20k)	05-Apr-16 (No. 217-02292)	Apr-17
Type-N mismatch combination	SN: 5047.2 / 06327	05-Apr-16 (No. 217-02295)	Apr-17
Reference Probe EX3DV4	SN: 3503	30-Jun-16 (No. EX3-3503_Jun16)	Jun-17
DAE4	SN: 601	30-Dec-15 (No. DAE4-601_Dec15)	Dec-16

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (No. 217-02222)	In house check: Oct-16
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (No. 217-02223)	In house check: Oct-16
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Jun-15)	In house check: Oct-16
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-15)	In house check: Oct-16

	Name	Function	Signature
Calibrated by:	Leif Klysner	Laboratory Technician	Leif Klysner
Approved by:	Katja Pokovic	Technical Manager	

Issued: September 22, 2016

Calibration Laboratory of
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Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: **SCS 0108**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
c) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5250 MHz ± 1 MHz 5600 MHz ± 1 MHz 5750 MHz ± 1 MHz	

Head TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	35.9	4.71 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.5 ± 6 %	4.59 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5250 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.96 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**78.9 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.29 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.6 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.5	5.07 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.0 ± 6 %	4.93 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.45 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**83.6 W / kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.41 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**23.8 W/kg ± 19.5 % (k=2)**

Head TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.4	5.22 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	33.8 ± 6 %	5.08 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5750 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.99 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**79.1 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.27 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**22.4 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5250 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.9	5.36 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.4 ± 6 %	5.52 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5250 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.74 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**77.0 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.17 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.6 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5600 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.5	5.77 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.8 ± 6 %	6.00 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5600 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.96 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**79.2 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.24 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**22.2 W/kg ± 19.5 % (k=2)**

Body TSL parameters at 5750 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.3	5.94 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.5 ± 6 %	6.21 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5750 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.65 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**76.1 W/kg ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.14 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**21.2 W/kg ± 19.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL at 5250 MHz

Impedance, transformed to feed point	55.7 Ω - 4.3 jΩ
Return Loss	- 23.4 dB

Antenna Parameters with Head TSL at 5600 MHz

Impedance, transformed to feed point	58.3 Ω - 3.2 jΩ
Return Loss	- 21.8 dB

Antenna Parameters with Head TSL at 5750 MHz

Impedance, transformed to feed point	58.1 Ω + 4.8 jΩ
Return Loss	- 21.2 dB

Antenna Parameters with Body TSL at 5250 MHz

Impedance, transformed to feed point	56.1 Ω - 3.7 jΩ
Return Loss	- 23.4 dB

Antenna Parameters with Body TSL at 5600 MHz

Impedance, transformed to feed point	58.9 Ω - 1.7 jΩ
Return Loss	- 21.7 dB

Antenna Parameters with Body TSL at 5750 MHz

Impedance, transformed to feed point	59.5 Ω + 6.9 jΩ
Return Loss	- 19.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.204 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	August 28, 2003

DASY5 Validation Report for Head TSL

Date: 21.09.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1191

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: f = 5250 MHz; σ = 4.59 S/m; ε_r = 34.5; ρ = 1000 kg/m^3 , Medium parameters used: f = 5600 MHz; σ = 4.93 S/m; ε_r = 34; ρ = 1000 kg/m^3 , Medium parameters used: f = 5750 MHz; σ = 5.08 S/m; ε_r = 33.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

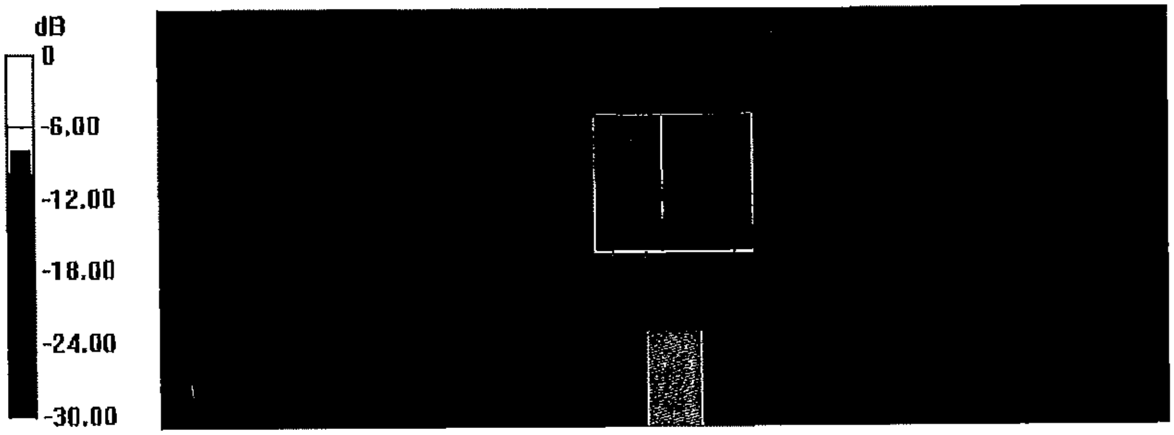
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.42, 5.42, 5.42); Calibrated: 30.06.2016, ConvF(4.89, 4.89, 4.89); Calibrated: 30.06.2016, ConvF(4.85, 4.85, 4.85); Calibrated: 30.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5250 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 68.49 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 28.6 W/kg
SAR(1 g) = 7.96 W/kg; SAR(10 g) = 2.29 W/kg
Maximum value of SAR (measured) = 18.2 W/kg

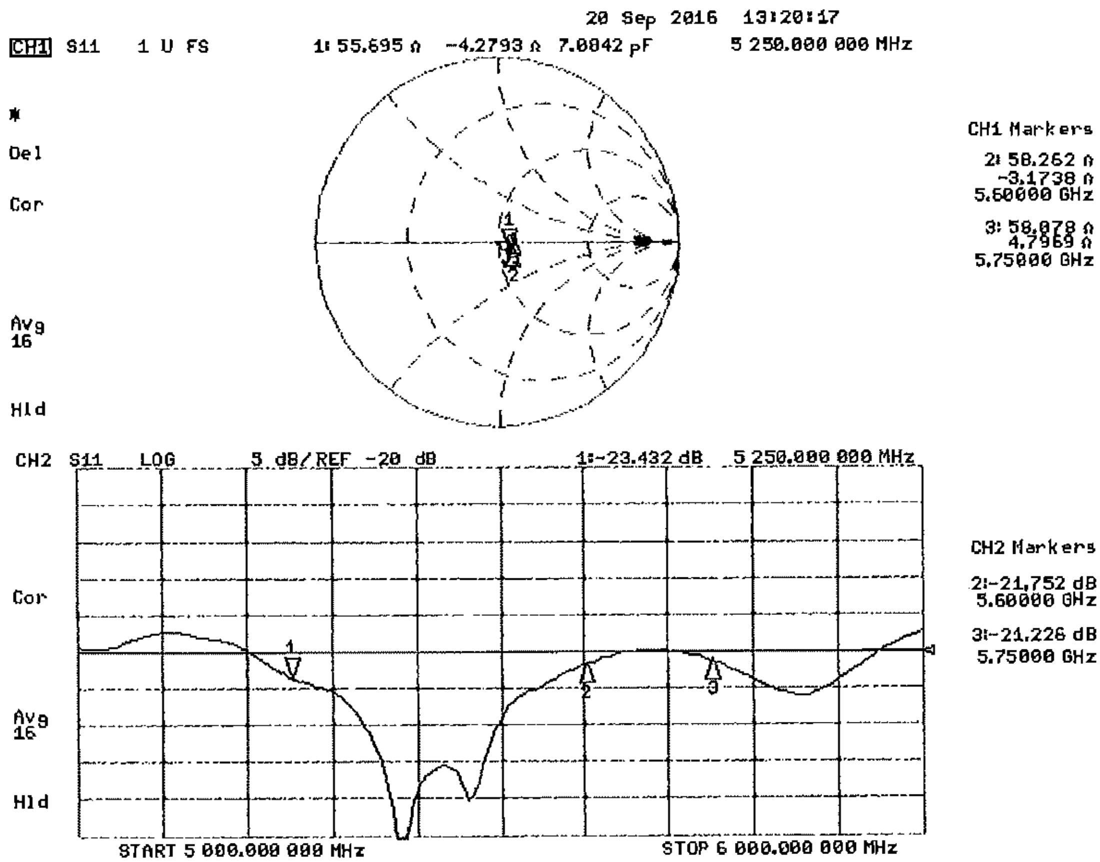
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 69.34 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 32.9 W/kg
SAR(1 g) = 8.45 W/kg; SAR(10 g) = 2.41 W/kg
Maximum value of SAR (measured) = 20.0 W/kg

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 67.15 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 32.3 W/kg
SAR(1 g) = 7.99 W/kg; SAR(10 g) = 2.27 W/kg
Maximum value of SAR (measured) = 19.3 W/kg



0 dB = 18.2 W/kg = 12.60 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 20.09.2016

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1191

Communication System: UID 0 - CW; Frequency: 5250 MHz, Frequency: 5600 MHz, Frequency: 5750 MHz
Medium parameters used: f = 5250 MHz; σ = 5.52 S/m; ε_r = 47.4; ρ = 1000 kg/m^3 , Medium parameters used: f = 5600 MHz; σ = 6 S/m; ε_r = 46.8; ρ = 1000 kg/m^3 , Medium parameters used: f = 5750 MHz; σ = 6.21 S/m; ε_r = 46.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

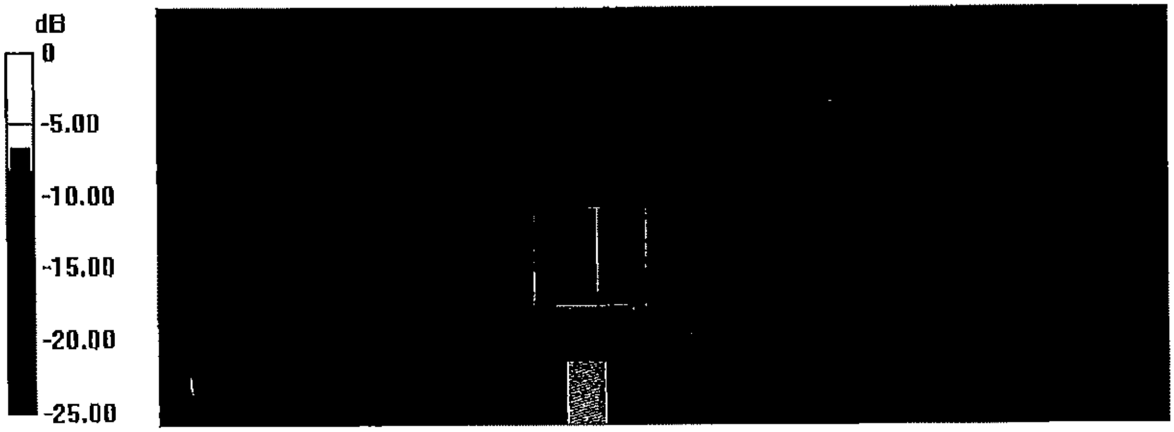
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.85, 4.85, 4.85); Calibrated: 30.06.2016, ConvF(4.35, 4.35, 4.35); Calibrated: 30.06.2016, ConvF(4.3, 4.3, 4.3); Calibrated: 30.06.2016;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.12.2015
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.8(1258); SEMCAD X 14.6.10(7372)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5250MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 66.49 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 29.1 W/kg
SAR(1 g) = 7.74 W/kg; SAR(10 g) = 2.17 W/kg
Maximum value of SAR (measured) = 17.7 W/kg

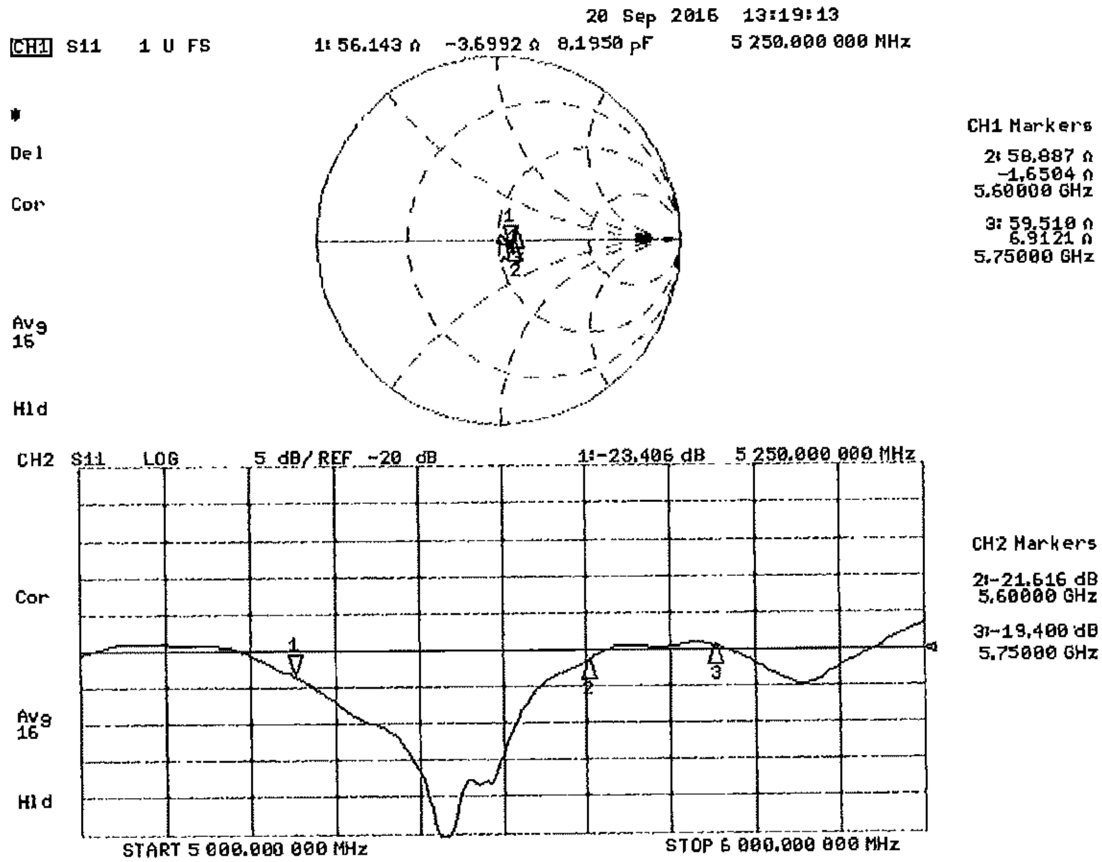
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.85 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 32.5 W/kg
SAR(1 g) = 7.96 W/kg; SAR(10 g) = 2.24 W/kg
Maximum value of SAR (measured) = 18.8 W/kg

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5750 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 64.21 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 32.7 W/kg
SAR(1 g) = 7.65 W/kg; SAR(10 g) = 2.14 W/kg
Maximum value of SAR (measured) = 18.5 W/kg



0 dB = 17.7 W/kg = 12.48 dBW/kg

Impedance Measurement Plot for Body TSL



Certification of Calibration

Object D5GHzV2 – SN: 1191

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

Extension Calibration date: 9/19/2017

Description: SAR Validation Dipole at 5250, 5600, and 5750 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Control Company	4040	Therm./Clock/Humidity Monitor	3/31/2017	Biennial	3/31/2019	170232394
Control Company	4352	Ultra Long Stem Thermometer	5/2/2017	Biennial	5/2/2019	170330156
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/1/2017	Annual	6/1/2018	MY53401181
Agilent	8753ES	S-Parameter Network Analyzer	10/26/2016	Annual	10/26/2017	US39170118
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/10/2017	Annual	5/10/2018	1070
SPEAG	EX3DV4	SAR Probe	1/13/2017	Annual	1/13/2018	3589
SPEAG	EX3DV4	SAR Probe	2/13/2017	Annual	2/13/2018	3914
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/16/2017	Annual	1/16/2018	1466
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/9/2017	Annual	2/9/2018	665
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1207364
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1339018
Anritsu	ML2495A	Power Meter	10/16/2015	Biennial	10/16/2017	941001
Agilent	N5182A	MXG Vector Signal Generator	2/28/2017	Annual	2/28/2018	MY47420800
Seekonk	NC-100	Torque Wrench	11/6/2015	Biennial	11/6/2017	N/A
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A

Measurement Uncertainty = ±23% (k=2)

	Name	Function	Signature
Calibrated By:	Brodie Halbfoster	Test Engineer	BRODIE HALBFOSTER
Approved By:	Kaitlin O'Keefe	Senior Technical Manager	KOK

DIPOLE CALIBRATION EXTENSION

Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

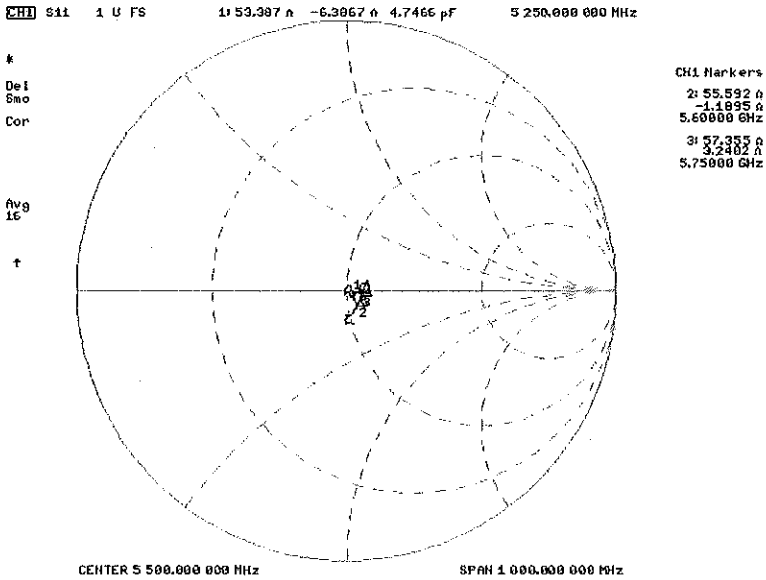
1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

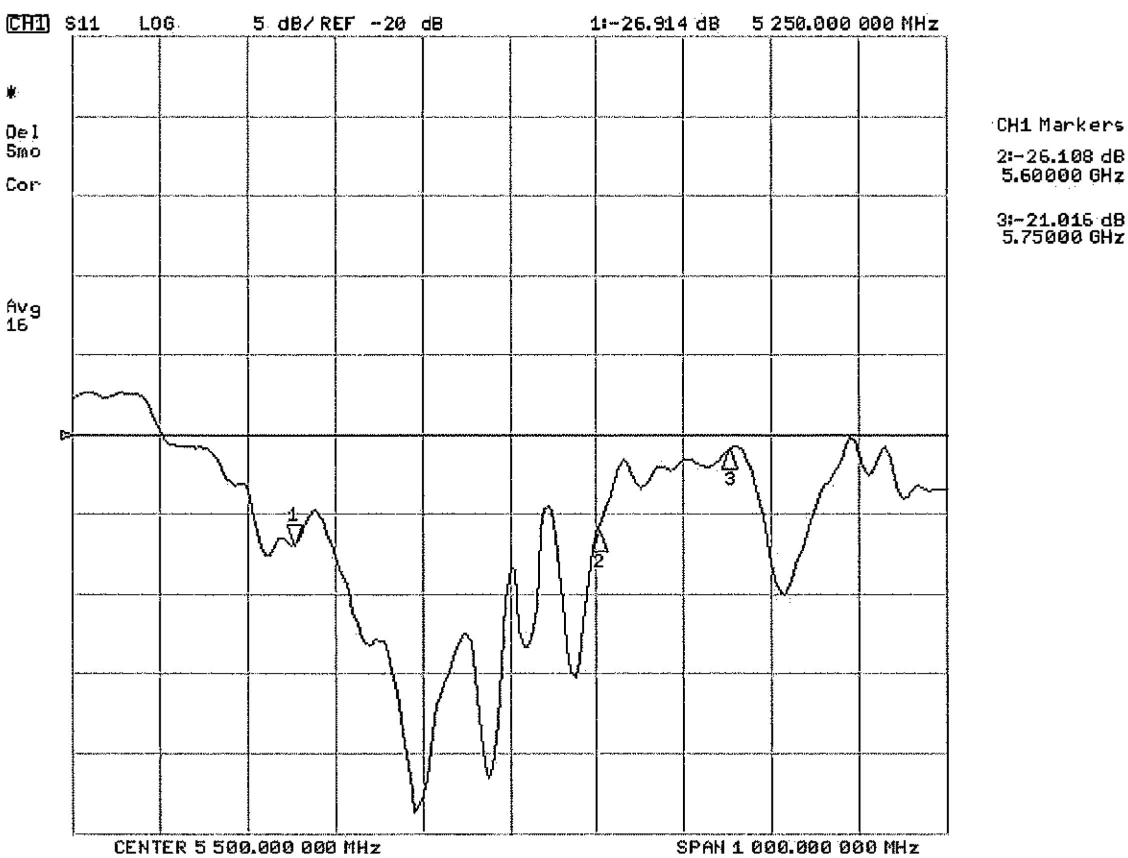
The following dipole was checked to pass the above 3 requirements to have 2-year calibration period from the calibration date:

Frequency (MHz)	Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 17.0 dBm	Measured Head SAR (1g) W/kg @ 17.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 17.0 dBm	Measured Head SAR (10g) W/kg @ 17.0 dBm	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
5250	9/21/2016	9/19/2017	1.204	3.95	3.70	-6.21%	1.13	1.05	-7.08%	55.7	53.4	2.3	-4.3	-6.4	2.1	-23.4	-26.9	-15.00%	PASS
5600	9/21/2016	9/19/2017	1.204	4.18	4.03	-3.59%	1.19	1.13	-5.04%	58.3	55.6	2.7	-3.2	-1.2	2.0	-21.8	-26.1	-19.80%	PASS
5750	9/21/2016	9/19/2017	1.204	3.96	3.94	-0.38%	1.12	1.10	-1.79%	58.1	57.4	0.7	4.8	3.2	1.6	-21.2	-21.0	0.90%	PASS

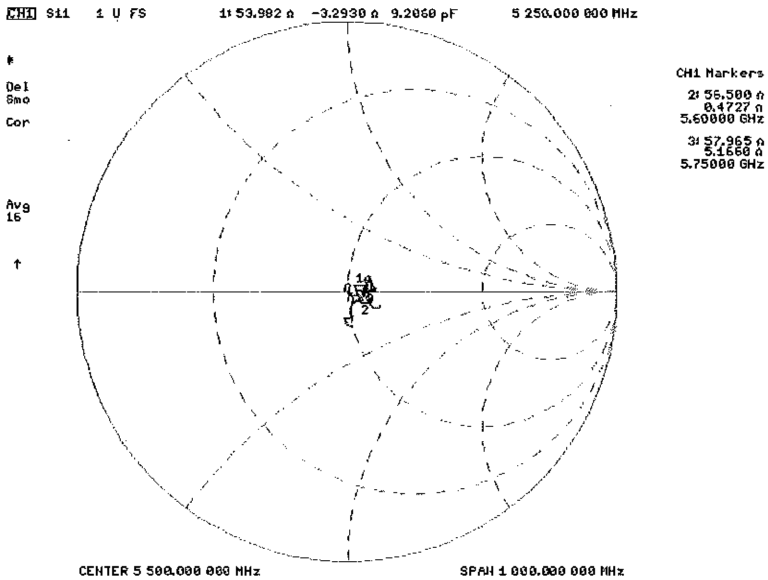
Frequency (MHz)	Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 17.0 dBm	Measured Body SAR (1g) W/kg @ 17.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 17.0 dBm	Measured Body SAR (10g) W/kg @ 17.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary	Measured Impedance Body (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
5250	9/21/2016	9/19/2017	1.204	3.85	3.80	-1.30%	1.08	1.06	-1.85%	56.1	54.0	2.1	-3.7	-3.3	0.4	-23.4	-26.0	-11.10%	PASS
5600	9/21/2016	9/19/2017	1.204	3.96	4.06	2.53%	1.11	1.13	1.80%	58.9	56.5	2.4	-1.7	0.5	2.2	-21.7	-24.5	-12.80%	PASS
5750	9/21/2016	9/19/2017	1.204	3.81	3.66	-3.81%	1.06	1.02	-3.77%	59.5	58.0	1.5	6.9	5.2	1.7	-19.4	-21.1	-8.70%	PASS

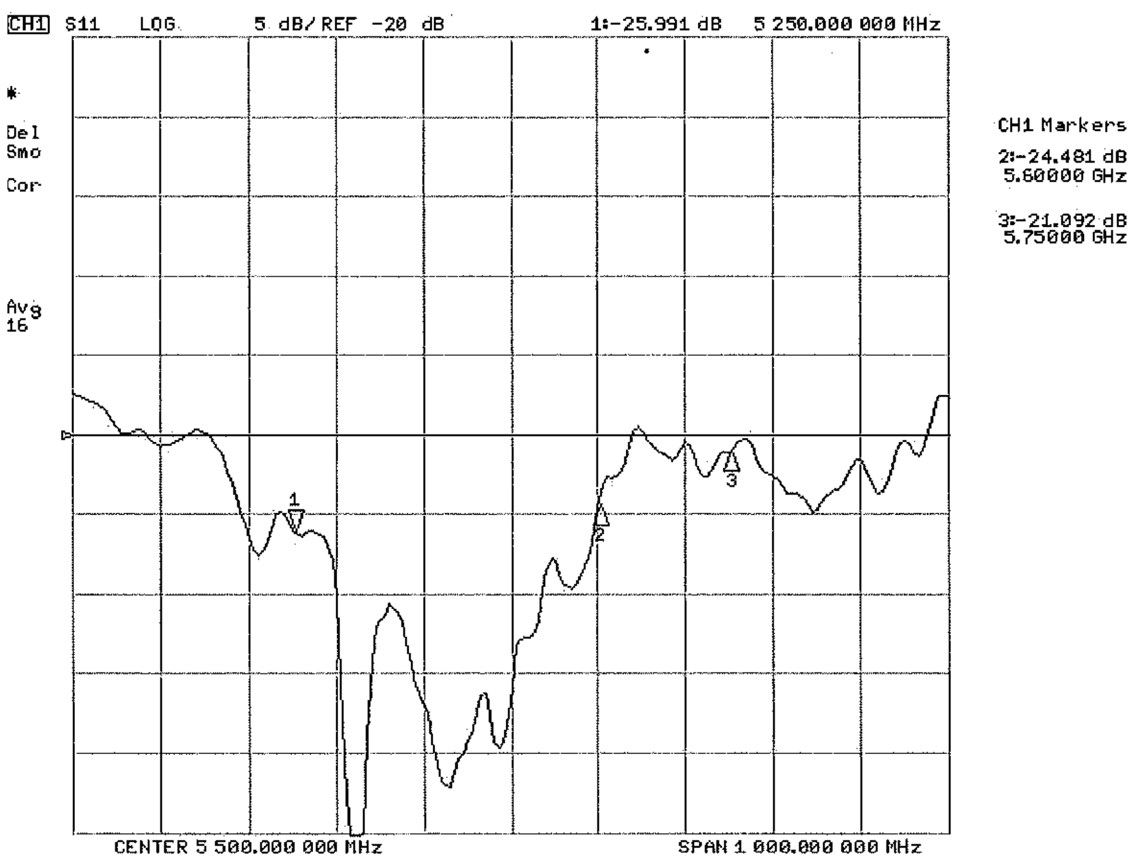
Impedance & Return-Loss Measurement Plot for Head TSL





Impedance & Return-Loss Measurement Plot for Body TSL





PCTEST ENGINEERING LABORATORY, INC.
7185 Oakland Mills Road, Columbia, MD 21046 USA
Tel. +1.410.290.6652 / Fax +1.410.290.6654
http://www.pctest.com

Certification of Calibration

Object D5GHzV2 – SN: 1191

Calibration procedure(s) Procedure for Calibration Extension for SAR Dipoles.

Extension Calibration date: 9/11/2018

Description: SAR Validation Dipole at 5250, 5600, and 5750 MHz.

Calibration Equipment used:

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Control Company	4040	Therm./Clock/Humidity Monitor	3/31/2017	Biennial	3/31/2019	170232394
Control Company	4352	Ultra Long Stem Thermometer	5/2/2017	Biennial	5/2/2019	170330156
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/4/2018	Annual	6/4/2019	MY53401181
Agilent	8753ES	S-Parameter Vector Network Analyzer	8/30/2018	Annual	8/30/2019	MY40003841
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/15/2018	Annual	5/15/2019	1070
SPEAG	EX3DV4	SAR Probe	6/25/2018	Annual	6/25/2019	7409
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/18/2018	Annual	6/18/2019	1334
SPEAG	EX3DV4	SAR Probe	4/18/2018	Annual	4/18/2019	7357
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/11/2018	Annual	4/11/2019	1407
Anritsu	MA2411B	Pulse Power Sensor	3/2/2018	Annual	3/2/2019	1207364
Anritsu	MA2411B	Pulse Power Sensor	3/2/2018	Annual	3/2/2019	1339018
Anritsu	ML2495A	Power Meter	10/22/2017	Annual	10/22/2018	1328004
Agilent	N5182A	MXG Vector Signal Generator	4/18/2018	Annual	4/18/2019	MY47420800
Seekonk	NC-100	Torque Wrench	7/11/2018	Annual	7/11/2019	N/A
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A

Note: CBT (Calibrated Before Testing). Prior to testing, the measurement paths containing a cable, amplifier, attenuator, coupler or filter were connected to a calibrated source (i.e. a signal generator) to determine the losses of the measurement path.

Measurement Uncertainty = ±23% (k=2)

	Name	Function	Signature
Calibrated By:	Brodie Halbfoster	Test Engineer	BRODIE HALBFOSTER
Approved By:	Kaitlin O'Keefe	Senior Technical Manager	KOK

DIPOLE CALIBRATION EXTENSION

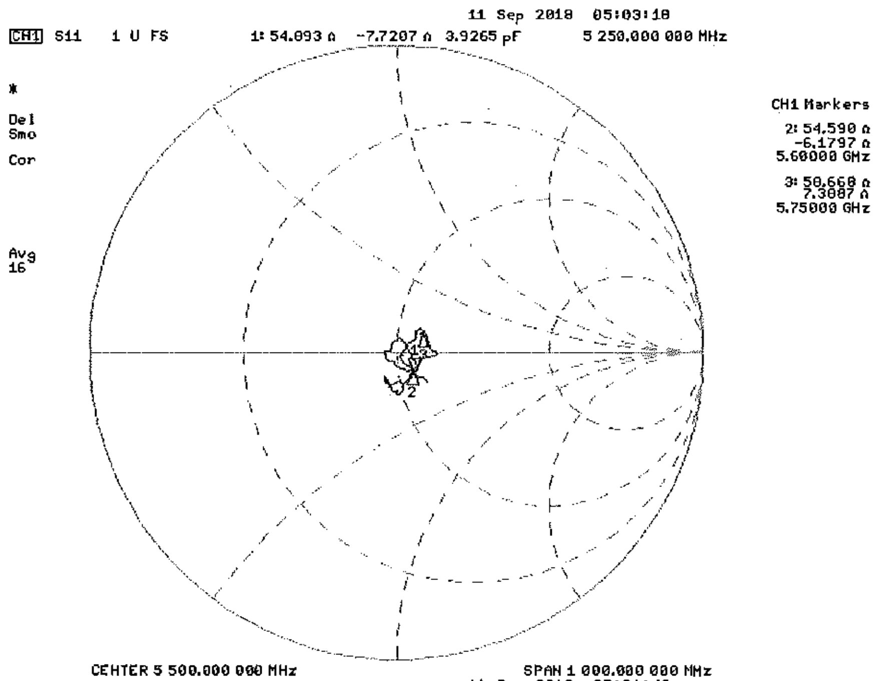
Per KDB 865664 D01, calibration intervals of up to three years may be considered for reference dipoles when it is demonstrated that the SAR target, impedance and return loss of a dipole have remained stable according to the following requirements:

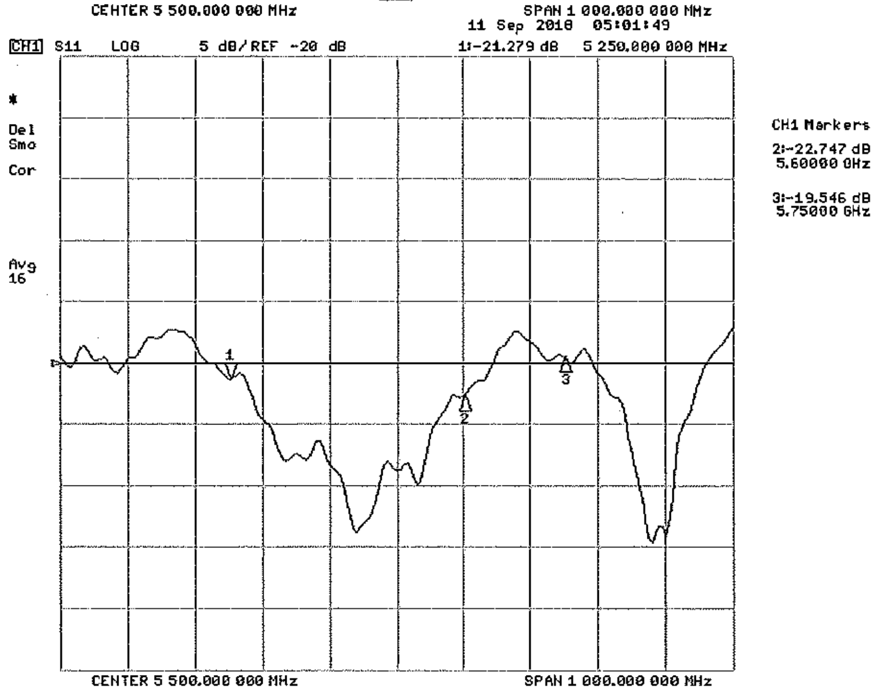
1. The measured SAR does not deviate more than 10% from the target on the calibration certificate.
2. The return-loss does not deviate more than 20% from the previous measurement and meets the required 20dB minimum return-loss requirement.
3. The measurement of real or imaginary parts of impedance does not deviate more than 5Ω from the previous measurement.

The following dipole was checked to pass the above 3 requirements to have 3-year calibration period from the calibration date:

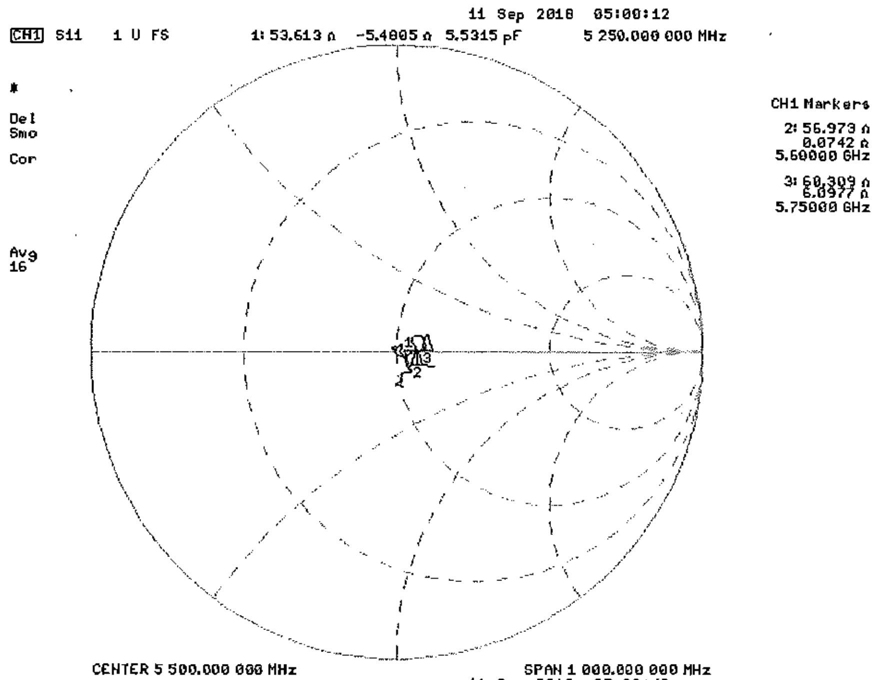
Frequency (MHz)	Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Head (1g) W/kg @ 17.0 dBm	Measured Head SAR (1g) W/kg @ 17.0 dBm	Deviation 1g (%)	Certificate SAR Target Head (10g) W/kg @ 17.0 dBm	Measured Head SAR (10g) W/kg @ 17.0 dBm	Deviation 10g (%)	Certificate Impedance Head (Ohm) Real	Measured Impedance Head (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Head (Ohm) Imaginary	Measured Impedance Head (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Head (dB)	Measured Return Loss Head (dB)	Deviation (%)	PASS/FAIL
5250	9/21/2016	9/11/2018	1.204	3.945	3.9	-1.14%	1.13	1.11	-1.77%	55.7	54.9	0.8	-4.3	-7.7	3.4	-23.4	-21.3	9.10%	PASS
5600	9/21/2016	9/11/2018	1.204	4.18	4.19	0.24%	1.19	1.18	-0.84%	58.3	54.6	3.7	-3.2	-6.2	3	-21.8	-22.7	-4.30%	PASS
5750	9/21/2016	9/11/2018	1.204	3.955	3.82	-3.41%	1.12	1.08	-3.57%	58.1	58.7	0.6	4.8	7.4	2.6	-21.2	-19.5	7.80%	PASS
Frequency (MHz)	Calibration Date	Extension Date	Certificate Electrical Delay (ns)	Certificate SAR Target Body (1g) W/kg @ 17.0 dBm	Measured Body SAR (1g) W/kg @ 17.0 dBm	Deviation 1g (%)	Certificate SAR Target Body (10g) W/kg @ 17.0 dBm	Measured Body SAR (10g) W/kg @ 17.0 dBm	Deviation 10g (%)	Certificate Impedance Body (Ohm) Real	Measured Impedance Body (Ohm) Real	Difference (Ohm) Real	Certificate Impedance Body (Ohm) Imaginary	Measured Impedance Body (Ohm) Imaginary	Difference (Ohm) Imaginary	Certificate Return Loss Body (dB)	Measured Return Loss Body (dB)	Deviation (%)	PASS/FAIL
5250	9/21/2016	9/11/2018	1.204	3.85	3.6	-6.49%	1.08	1.01	-6.48%	56.1	53.6	2.5	-3.7	-5.5	1.8	-23.4	-24	-2.40%	PASS
5600	9/21/2016	9/11/2018	1.204	3.96	4.01	1.26%	1.11	1.1	-0.90%	58.9	57	1.9	-1.7	0.1	1.8	-21.7	-23.8	-9.70%	PASS
5750	9/21/2016	9/11/2018	1.204	3.805	3.88	1.97%	1.06	1.06	0.00%	59.5	60.3	0.8	6.9	6.1	0.8	-19.4	-19.2	1.00%	PASS

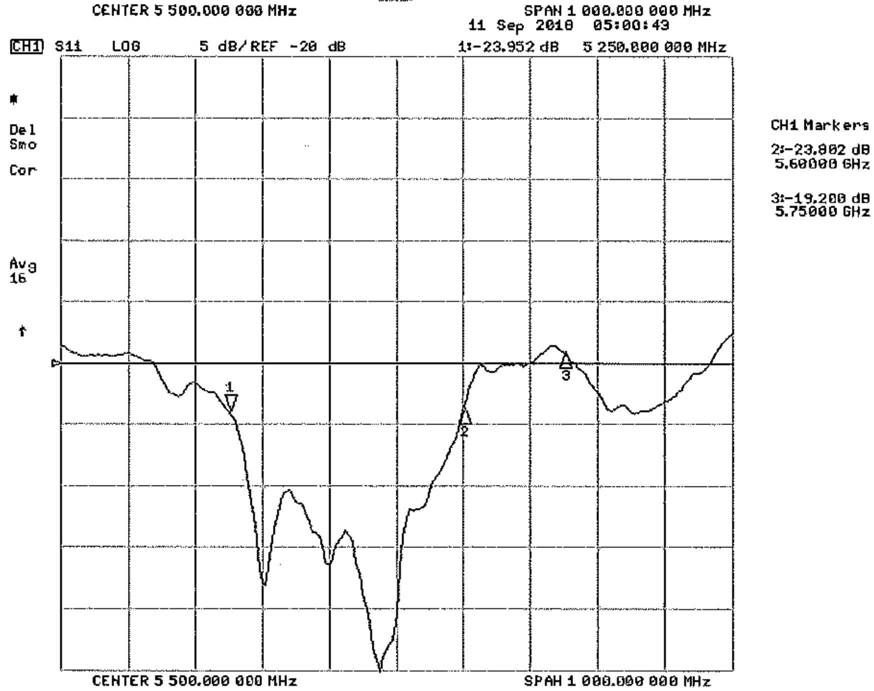
Impedance & Return-Loss Measurement Plot for Head TSL





Impedance & Return-Loss Measurement Plot for Body TSL





Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 0108

Client PC Test

Certificate No: D750V3-1161_Oct18

CALIBRATION CERTIFICATE

Object	D750V3 - SN:1161
Calibration procedure(s)	QA CAL-05.v10 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	October 19, 2018

BN ✓
10-30-2018

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: 5058 (20k)	04-Apr-18 (No. 217-02682)	Apr-19
Type-N mismatch combination	SN: 5047.2 / 06327	04-Apr-18 (No. 217-02683)	Apr-19
Reference Probe EX3DV4	SN: 7349	30-Dec-17 (No. EX3-7349_Dec17)	Dec-18
DAE4	SN: 601	04-Oct-18 (No. DAE4-601_Oct18)	Oct-19

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter EPM-442A	SN: GB37480704	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
Power sensor HP 8481A	SN: MY41092317	07-Oct-15 (in house check Oct-18)	In house check: Oct-20
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-18)	In house check: Oct-20
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

	Name	Function	Signature
Calibrated by:	Manu Seitz	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: October 22, 2018

Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland

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Swiss Calibration Service

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.8 ± 6 %	0.89 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.02 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**8.03 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.32 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**5.26 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.1 ± 6 %	0.96 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.11 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**8.43 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.39 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**5.55 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.6 Ω - 1.9 jΩ
Return Loss	- 25.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.6 Ω - 4.2 jΩ
Return Loss	- 27.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.032 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	November 19, 2015

DASY5 Validation Report for Head TSL

Date: 19.10.2018

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1161

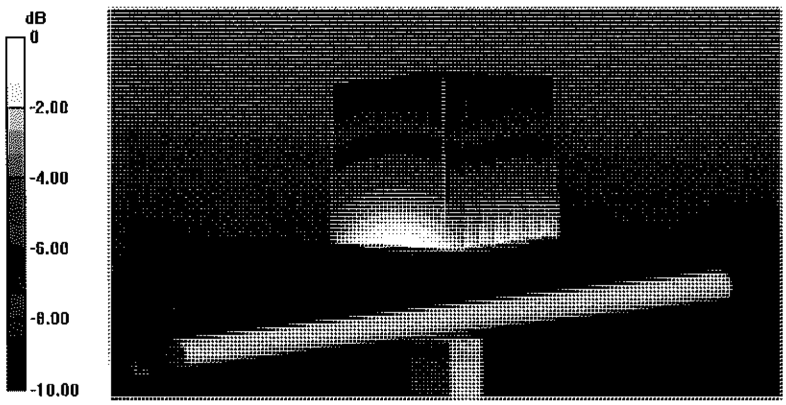
Communication System: UID 0 - CW; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.89 S/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(10.22, 10.22, 10.22) @ 750 MHz; Calibrated: 30.12.2017
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.10.2018
- Phantom: Flat Phantom 4.9 (front); Type: QD 00L P49 AA; Serial: 1001
- DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 58.51 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.04 W/kg
SAR(1 g) = 2.02 W/kg; SAR(10 g) = 1.32 W/kg
Maximum value of SAR (measured) = 2.70 W/kg



0 dB = 2.70 W/kg = 4.31 dBW/kg