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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:
11/11/18 - 01/17/19
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
1M1810250193-01-R2.A3L

FCC ID: **A3LSMG970U**

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

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model: SM-G970U
Additional Model(s): SM-G970U1, SM-G970W, SM-G970XU

Equipment Class	Band & Mode	Tx Frequency	SAR		
			1g Head (W/kg)	1g Body-Worn (W/kg)	1g Hotspot (W/kg)
PCE	CDMA/EVDO BC10 (§90S)	817.90 - 823.10 MHz	0.29	0.47	0.52
PCE	CDMA/EVDO BC0 (§22H)	824.70 - 848.31 MHz	0.36	0.42	0.65
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.30	0.66	1.01
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.21	0.34	0.68
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	0.16	0.51	1.36
PCE	UMTS 850	826.40 - 846.60 MHz	0.36	0.51	0.64
PCE	UMTS 1750	1712.4 - 1752.6 MHz	0.24	0.92	0.69
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.33	0.80	0.92
PCE	LTE Band 71	665.5 - 695.5 MHz	0.18	0.33	0.49
PCE	LTE Band 12	699.7 - 715.3 MHz	0.25	0.42	0.59
PCE	LTE Band 13	779.5 - 784.5 MHz	0.24	0.46	0.54
PCE	LTE Band 14	790.5 - 795.5 MHz	0.26	0.44	0.55
PCE	LTE Band 26 (Cell)	814.7 - 848.3 MHz	0.34	0.46	0.54
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	0.34	0.47	0.57
PCE	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	0.35	0.71	0.72
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	N/A	N/A	N/A
PCE	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	0.28	0.81	0.89
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	N/A	N/A	N/A
PCE	LTE Band 30	2307.5 - 2312.5 MHz	< 0.1	0.52	0.85
PCE	LTE Band 7	2502.5 - 2567.5 MHz	0.15	0.86	0.83
PCE	LTE Band 41	2498.5 - 2687.5 MHz	0.12	0.64	0.93
PCE	LTE Band 38	2572.5 - 2617.5 MHz	N/A	N/A	N/A
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.66	0.20	0.43
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.10	0.23	N/A
NII	U-NII-2C	5500 - 5720 MHz	0.13	0.19	N/A
NII	U-NII-3	5745 - 5825 MHz	0.14	0.13	0.30
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.68	< 0.1	0.11
Simultaneous SAR per KDB 690783 D01v01r03:			1.59	1.56	1.59

Note: This revised Test Report (S/N: 1M1810250193-01-R2.A3L) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.
Note: LTE Band 48 operations have been disabled.
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

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
CDMA/EVDO BC10 (§90S)	Voice/Data	817.90 - 823.10 MHz
CDMA/EVDO BC0 (§22H)	Voice/Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
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 71	Voice/Data	665.5 - 695.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 14	Voice/Data	790.5 - 795.5 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 30	Voice/Data	2307.5 - 2312.5 MHz
LTE Band 7	Voice/Data	2502.5 - 2567.5 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
LTE Band 38	Voice/Data	2572.5 - 2617.5 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2462 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 single step power reduction mechanism for SAR compliance under portable hotspot conditions for some wireless modes and bands. All hotspot SAR evaluations for this device were performed at the maximum allowed output power when hotspot is enabled. 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.

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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 Maximum 2G/3G/4G 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	**33.5**	**33.5**	**32.5**	**30.5**	**28.5**	**28.0**	**26.0**	**24.0**	**23.0**
	Nominal	**32.5**	**32.5**	**31.5**	**29.5**	**27.5**	**27.0**	**25.0**	**23.0**	**22.0**
GSM/GPRS/EDGE 1900	Maximum	**31.0**	**31.0**	**29.5**	**27.5**	**25.5**	**27.0**	**25.0**	**23.0**	**22.0**
	Nominal	**30.0**	**30.0**	**28.5**	**26.5**	**24.5**	**26.0**	**24.0**	**22.0**	**21.0**

Mode / Band		Modulated Average (dBm)			
		3GPP WCDMA	*3GPP HSDPA*	*3GPP HSUPA*	*3GPP DC-HSDPA*
UMTS Band 5 (850 MHz)	Maximum	**25.5**	**24.5**	**24.5**	**24.5**
	Nominal	**24.5**	**23.5**	**23.5**	**23.5**
UMTS Band 4 (1750 MHz)	Maximum	**25.0**	**24.0**	**24.0**	**24.0**
	Nominal	**24.0**	**23.0**	**23.0**	**23.0**
UMTS Band 2 (1900 MHz)	Maximum	**24.5**	**23.5**	**23.5**	**23.5**
	Nominal	**23.5**	**22.5**	**22.5**	**22.5**

Mode / Band		Modulated Average (dBm)
CDMA/EVDO BC10 (§90S)	Maximum	**26.0**
	Nominal	**25.0**
CDMA/EVDO BC0 (§22H)	Maximum	**26.0**
	Nominal	**25.0**
PCS CDMA/EVDO	Maximum	**24.5**
	Nominal	**23.5**

Mode / Band		Modulated Average (dBm)
LTE Band 71	Maximum	**25.5**
	Nominal	**24.5**
LTE Band 12	Maximum	**25.5**
	Nominal	**24.5**
LTE Band 13	Maximum	**25.5**
	Nominal	**24.5**
LTE Band 14	Maximum	**25.5**
	Nominal	**24.5**
LTE Band 26 (Cell)	Maximum	**25.8**
	Nominal	**24.8**
LTE Band 5 (Cell)	Maximum	**25.8**
	Nominal	**24.8**
LTE Band 66 (AWS)	Maximum	**25.0**
	Nominal	**24.0**
LTE Band 4 (AWS)	Maximum	**25.0**
	Nominal	**24.0**
LTE Band 25 (PCS)	Maximum	**24.5**
	Nominal	**23.5**
LTE Band 2 (PCS)	Maximum	**24.5**
	Nominal	**23.5**
LTE Band 30	Maximum	**23.5**
	Nominal	**22.5**
LTE Band 7	Maximum	**24.3**
	Nominal	**23.3**
LTE Band 48	Maximum	**24.0**
	Nominal	**23.0**
LTE Band 41 (PC3)	Maximum	**25.0**
	Nominal	**24.0**
LTE Band 41 (PC2)	Maximum	**28.0**
	Nominal	**27.0**
LTE Band 38	Maximum	**24.0**
	Nominal	**23.0**

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REV 21.2 M
12/05/2018

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1.3.2 Reduced 2G/3G/4G Output Power

Mode / Band		Burst Average GMSK (dBm)				Burst Average 8-PSK (dBm)			
		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**	**27.5**	**25.5**	**23.5**	**27.0**	**25.0**	**23.0**	**22.0**
	Nominal	**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*	*3GPP DC-HSDPA*
UMTS Band 4 (1750 MHz)	Maximum	**20.0**	**19.0**	**19.0**	**19.0**
	Nominal	**19.0**	**18.0**	**18.0**	**18.0**
UMTS Band 2 (1900 MHz)	Maximum	**19.5**	**18.5**	**18.5**	**18.5**
	Nominal	**18.5**	**17.5**	**17.5**	**17.5**

Mode / Band		Modulated Average (dBm)
PCS CDMA/EVDO	Maximum	**20.0**
	Nominal	**19.0**

Mode / Band		Modulated Average (dBm)
LTE Band 66 (AWS)	Maximum	**21.0**
	Nominal	**20.0**
LTE Band 4 (AWS)	Maximum	**21.0**
	Nominal	**20.0**
LTE Band 25 (PCS)	Maximum	**20.0**
	Nominal	**19.0**
LTE Band 2 (PCS)	Maximum	**20.0**
	Nominal	**19.0**
LTE Band 30	Maximum	**19.0**
	Nominal	**18.0**
LTE Band 7	Maximum	**19.0**
	Nominal	**18.0**
LTE Band 48	Maximum	**21.0**
	Nominal	**20.0**
LTE Band 41 (PC3)	Maximum	**22.5**
	Nominal	**21.5**
LTE Band 41 (PC2)	Maximum	**22.5**
	Nominal	**21.5**
LTE Band 38	Maximum	**21.0**
	Nominal	**20.0**

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1.3.3 Maximum Bluetooth and SISO/MIMO WLAN Output Power

Mode / Band		Modulated Average - Antenna 1 (dBm)		
	Channel	1	2-10	11
IEEE 802.11b (2.4 GHz)	Maximum	21.0		
	Nominal	20.0		
IEEE 802.11g (2.4 GHz)	Maximum	18.5	18.5	16.0
	Nominal	17.5	17.5	15.0
IEEE 802.11n (2.4 GHz)	Maximum	18.5	18.5	16.0
	Nominal	17.5	17.5	15.0
IEEE 802.11ax(SU) (2.4 GHz)	Maximum	15.0	18.0	13.5
	Nominal	14.0	17.0	12.5

Mode / Band		Modulated Average - Antenna 2 (dBm)		
	Channel	1	2-10	11
IEEE 802.11b (2.4 GHz)	Maximum	19.0		
	Nominal	18.0		
IEEE 802.11g (2.4 GHz)	Maximum	18.5	18.5	16.0
	Nominal	17.5	17.5	15.0
IEEE 802.11n (2.4 GHz)	Maximum	18.5	18.5	16.0
	Nominal	17.5	17.5	15.0
IEEE 802.11ax(SU) (2.4 GHz)	Maximum	15.0	18.0	13.5
	Nominal	14.0	17.0	12.5

Mode / Band		Modulated Average - SISO (dBm)													
		20 MHz Bandwidth					40 MHz Bandwidth					80 MHz Bandwidth			
	Channel	36	40-60	64	100	104-165	38	46-54	62	102	110-159	42	58	106	122-155
IEEE 802.11a (5 GHz)	Maximum	15.5	18.5	17.0	18.5										
	Nominal	14.5	17.5	16.0	17.5										
IEEE 802.11n (5 GHz)	Maximum	15.5	18.5	17.0	18.5		13.0	17.5	14.0	15.0	17.5				
	Nominal	14.5	17.5	16.0	17.5		12.0	16.5	13.0	14.0	16.5				
IEEE 802.11ac (5 GHz)	Maximum	15.5	18.5	17.0	18.5		13.0	17.5	14.0	15.0	17.5	12.5	13.0	12.5	16.5
	Nominal	14.5	17.5	16.0	17.5		12.0	16.5	13.0	14.0	16.5	11.5	12.0	11.5	15.5
IEEE 802.11ax(SU) (5 GHz)	Maximum	15.0	18.0	16.0	17.5	18.0	12.0	17.0	12.5	14.5	17.0	13.0	13.0	12.0	16.0
	Nominal	14.0	17.0	15.0	16.5	17.0	11.0	16.0	11.5	13.5	16.0	12.0	12.0	11.0	15.0

Mode / Band		Modulated Average - MIMO (dBm)		
		20 MHz Bandwidth		
	Channel	1	2-10	11
IEEE 802.11g (2.4 GHz)	Maximum	21.5		19.0
	Nominal	20.5		18.0
IEEE 802.11n (2.4 GHz)	Maximum	21.5		19.0
	Nominal	20.5		18.0
IEEE 802.11ax(SU) (2.4 GHz)	Maximum	15.0	18.0	13.5
	Nominal	14.0	17.0	12.5

Mode / Band		Modulated Average - MIMO (dBm)													
		20 MHz Bandwidth					40 MHz Bandwidth					80 MHz Bandwidth			
	Channel	36	40-60	64	100	104-165	38	46-54	62	102	110-159	42	58	106	122 - 155
IEEE 802.11a (5 GHz)	Maximum	15.5	21.5	17.0	21.5										
	Nominal	14.5	20.5	16.0	20.5										
IEEE 802.11n (5 GHz)	Maximum	15.5	21.5	17.0	21.5		13.0	20.5	14.0	15.0	20.5				
	Nominal	14.5	20.5	16.0	20.5		12.0	19.5	13.0	14.0	19.5				
IEEE 802.11ac (5 GHz)	Maximum	15.5	21.5	17.0	21.5		13.0	20.5	14.0	15.0	20.5	12.5	13.0	12.5	19.5
	Nominal	14.5	20.5	16.0	20.5		12.0	19.5	13.0	14.0	19.5	11.5	12.0	11.5	18.5
IEEE 802.11ax(SU) (5 GHz)	Maximum	15.0	18.0	16.0	17.5	18.0	12.0	17.0	12.5	14.5	17.0	13.0	13.0	12.0	16.0
	Nominal	14.0	17.0	15.0	16.5	17.0	11.0	16.0	11.5	13.5	16.0	12.0	12.0	11.0	15.0

Mode/Band		Modulated Average (dBm)
Bluetooth	Maximum	18.5
	Nominal	17.5
Bluetooth EDR	Maximum	12.5
	Nominal	11.5
Bluetooth LE (2Mbps)	Maximum	10.0
	Nominal	9.0
Bluetooth LE (1Mbps), 125/500Kbps	Maximum	9.0
	Nominal	8.0

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

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1.3.4 Reduced SISO and MIMO WLAN Output Power

Mode / Band		Modulated Average - SISO (dBm)		
	Channel	1	2-10	11
IEEE 802.11b (2.4 GHz)	Maximum	17.0		
	Nominal	16.0		
IEEE 802.11g (2.4 GHz)	Maximum	17.0		16.0
	Nominal	16.0		15.0
IEEE 802.11n (2.4 GHz)	Maximum	17.0		16.0
	Nominal	16.0		15.0
IEEE 802.11ax(SU) (2.4 GHz)	Maximum	15.0	17.0	13.5
	Nominal	14.0	16.0	12.5

Mode / Band		Modulated Average - SISO (dBm)										
		20 MHz Bandwidth	40 MHz Bandwidth					80 MHz Bandwidth			
	Channel	36 -165	38	46-54	62	102	110-159	42	58	106	122 - 155
IEEE 802.11a (5 GHz)	Maximum	14.0									
	Nominal	13.0									
IEEE 802.11n (5 GHz)	Maximum	14.0	13.0	14.0	14.0						
	Nominal	13.0	12.0	13.0	13.0						
IEEE 802.11ac (5 GHz)	Maximum	14.0	13.0	14.0	14.0			12.5	13.0	12.5	14.0
	Nominal	13.0	12.0	13.0	13.0			11.5	12.0	11.5	13.0
IEEE 802.11ax(SU) (5 GHz)	Maximum	14.0	12.0	14.0	12.5	14.0	14.0	13.0	13.0	12.0	14.0
	Nominal	13.0	11.0	13.0	11.5	13.0	13.0	12.0	12.0	11.0	13.0

Mode / Band		Modulated Average - MIMO (dBm)		
		20 MHz Bandwidth		
	Channel	1	2-10	11
IEEE 802.11g (2.4 GHz)	Maximum	20.0		19.0
	Nominal	19.0		18.0
IEEE 802.11n (2.4 GHz)	Maximum	20.0		19.0
	Nominal	19.0		18.0
IEEE 802.11ax(SU) (2.4 GHz)	Maximum	15.0	18.0	13.5
	Nominal	14.0	17.0	12.5

Mode / Band		Modulated Average - MIMO (dBm)												
		20 MHz Bandwidth				40 MHz Bandwidth					80 MHz Bandwidth			
	Channel	36	40-60	64	100 -165	38	46-54	62	102	110-159	42	58	106	122 - 155
IEEE 802.11a (5 GHz)	Maximum	15.5	17.0											
	Nominal	14.5	16.0											
IEEE 802.11n (5 GHz)	Maximum	15.5	17.0			13.0	17.0	14.0	15.0	17.0				
	Nominal	14.5	16.0			12.0	16.0	13.0	14.0	16.0				
IEEE 802.11ac (5 GHz)	Maximum	15.5	17.0			13.0	17.0	14.0	15.0	17.0	12.5	13.0	12.5	17.0
	Nominal	14.5	16.0			12.0	16.0	13.0	14.0	16.0	11.5	12.0	11.5	16.0
IEEE 802.11ax(SU) (5 GHz)	Maximum	15.0	17.0	16.0	17.0	12.0	17.0	12.5	14.5	17.0	13.0	13.0	12.0	16.0
	Nominal	14.0	16.0	15.0	16.0	11.0	16.0	11.5	13.5	16.0	12.0	12.0	11.0	15.0

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

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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	2-10	11	1	2-10	11	1	2-10	11
IEEE 802.11b (2.4 GHz)	Maximum	17.0			17.0			N/A		
	Nominal	16.0			16.0			N/A		
IEEE 802.11g (2.4 GHz)	Maximum	17.0		16.0	17.0		16.0	20.0		19.0
	Nominal	16.0		15.0	16.0		15.0	19.0		18.0
IEEE 802.11n (2.4 GHz)	Maximum	17.0		16.0	17.0		16.0	20.0		19.0
	Nominal	16.0		15.0	16.0		15.0	19.0		18.0
IEEE 802.11ax(SU) (2.4 GHz)	Maximum	15.0	17.0	13.5	15.0	17.0	13.5	15.0	18.0	13.5
	Nominal	14.0	16.0	12.5	14.0	16.0	12.5	14.0	17.0	12.5

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	15.5	17.0		
	Nominal	13.0	13.0	14.5	16.0		
IEEE 802.11n (5 GHz)	Maximum	14.0	14.0	15.5	17.0		
	Nominal	13.0	13.0	14.5	16.0		
IEEE 802.11ac (5 GHz)	Maximum	14.0	14.0	15.5	17.0		
	Nominal	13.0	13.0	14.5	16.0		
IEEE 802.11ax(SU) (5 GHz)	Maximum	14.0	14.0	15.0	17.0	16.0	17.0
	Nominal	13.0	13.0	14.0	16.0	15.0	16.0

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	13.0	14.0	14.0	14.0	14.0	13.0	14.0	14.0	14.0	14.0	13.0	17.0	14.0	15.0	17.0
	Nominal	12.0	13.0	13.0	13.0	13.0	12.0	13.0	13.0	13.0	13.0	12.0	16.0	13.0	14.0	16.0
IEEE 802.11ac (5 GHz)	Maximum	13.0	14.0	14.0	14.0	14.0	13.0	14.0	14.0	14.0	14.0	13.0	17.0	14.0	15.0	17.0
	Nominal	12.0	13.0	13.0	13.0	13.0	12.0	13.0	13.0	13.0	13.0	12.0	16.0	13.0	14.0	16.0
IEEE 802.11ax(SU) (5 GHz)	Maximum	12.0	14.0	12.5	14.0	14.0	12.0	14.0	12.5	14.0	14.0	12.0	17.0	12.5	14.5	17.0
	Nominal	11.0	13.0	11.5	13.0	13.0	11.0	13.0	11.5	13.0	13.0	11.0	16.0	11.5	13.5	16.0

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	12.5	13.0	12.5	14.0	12.5	13.0	12.5	14.0	12.5	13.0	12.5	17.0
	Nominal	11.5	12.0	11.5	13.0	11.5	12.0	11.5	13.0	11.5	12.0	11.5	16.0
IEEE 802.11ax(SU) (5 GHz)	Maximum	13.0	13.0	12.0	14.0	13.0	13.0	12.0	14.0	13.0	13.0	12.0	16.0
	Nominal	12.0	12.0	11.0	13.0	12.0	12.0	11.0	13.0	12.0	12.0	11.0	15.0

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

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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	2-10	11	1	2-10	11	1	2-10	11
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			14.0			17.0		
	Nominal	13.0			13.0			16.0		
IEEE 802.11n (2.4 GHz)	Maximum	14.0			14.0			17.0		
	Nominal	13.0			13.0			16.0		
IEEE 802.11ax(SU) (2.4 GHz)	Maximum	14.0		13.5	14.0		13.5	15.0	17.0	13.5
	Nominal	13.0		12.5	13.0		12.5	14.0	16.0	12.5

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	15.5	17.0		
	Nominal	13.0	13.0	14.5	16.0		
IEEE 802.11n (5 GHz)	Maximum	14.0	14.0	15.5	17.0		
	Nominal	13.0	13.0	14.5	16.0		
IEEE 802.11ac (5 GHz)	Maximum	14.0	14.0	15.5	17.0		
	Nominal	13.0	13.0	14.5	16.0		
IEEE 802.11ax(SU) (5 GHz)	Maximum	14.0	14.0	15.0	17.0	16.0	17.0
	Nominal	13.0	13.0	14.0	16.0	15.0	16.0

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	13.0	14.0	14.0	14.0	14.0	13.0	14.0	14.0	14.0	14.0	13.0	17.0	14.0	15.0	17.0
	Nominal	12.0	13.0	13.0	13.0	13.0	12.0	13.0	13.0	13.0	13.0	12.0	16.0	13.0	14.0	16.0
IEEE 802.11ac (5 GHz)	Maximum	13.0	14.0	14.0	14.0	14.0	13.0	14.0	14.0	14.0	14.0	13.0	17.0	14.0	15.0	17.0
	Nominal	12.0	13.0	13.0	13.0	13.0	12.0	13.0	13.0	13.0	13.0	12.0	16.0	13.0	14.0	16.0
IEEE 802.11ax(SU) (5 GHz)	Maximum	12.0	14.0	12.5	14.0	14.0	12.0	14.0	12.5	14.0	14.0	12.0	17.0	12.5	14.5	17.0
	Nominal	11.0	13.0	11.5	13.0	13.0	11.0	13.0	11.5	13.0	13.0	11.0	16.0	11.5	13.5	16.0

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	12.5	13.0	12.5	14.0	12.5	13.0	12.5	14.0	12.5	13.0	12.5	17.0
	Nominal	11.5	12.0	11.5	13.0	11.5	12.0	11.5	13.0	11.5	12.0	11.5	16.0
IEEE 802.11ax(SU) (5 GHz)	Maximum	13.0	13.0	12.0	14.0	13.0	13.0	12.0	14.0	13.0	13.0	12.0	16.0
	Nominal	12.0	12.0	11.0	13.0	12.0	12.0	11.0	13.0	12.0	12.0	11.0	15.0

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

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1.4 DUT Antenna Locations

The overall dimensions of this device are > 9 x 5 cm. The overall diagonal dimension of the device is ≤160 mm and the diagonal display is ≤150 mm. A diagram showing the location of the device antennas can be found in Appendix F.

Table 1-1
Device Edges/Sides for SAR Testing

Mode	Back	Front	Top	Bottom	Right	Left
EVDO BC10 (§90S)	Yes	Yes	No	Yes	Yes	Yes
EVDO BC0 (§22H)	Yes	Yes	No	Yes	Yes	Yes
PCS EVDO	Yes	Yes	No	Yes	Yes	Yes
GPRS 850	Yes	Yes	No	Yes	Yes	Yes
GPRS 1900	Yes	Yes	No	Yes	Yes	Yes
UMTS 850	Yes	Yes	No	Yes	Yes	Yes
UMTS 1750	Yes	Yes	No	Yes	Yes	Yes
UMTS 1900	Yes	Yes	No	Yes	Yes	Yes
LTE Band 71	Yes	Yes	No	Yes	Yes	Yes
LTE Band 12	Yes	Yes	No	Yes	Yes	Yes
LTE Band 13	Yes	Yes	No	Yes	Yes	Yes
LTE Band 14	Yes	Yes	No	Yes	Yes	Yes
LTE Band 26 (Cell)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 5 (Cell)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 66 (AWS)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 25 (PCS)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 30	Yes	Yes	No	Yes	Yes	Yes
LTE Band 7	Yes	Yes	No	Yes	No	Yes
LTE Band 7 Antenna A	Yes	Yes	No	Yes	Yes	Yes
LTE Band 48	Yes	Yes	No	Yes	No	Yes
LTE Band 41	Yes	Yes	No	Yes	No	Yes
2.4 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
2.4 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
Bluetooth	Yes	Yes	Yes	No	No	Yes

Note: Particular DUT edges were not required to be evaluated for wireless router SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v02r01 Section III. 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.

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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 1-2
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Notes
1	1x CDMA voice + 2.4 GHz WI-FI	Yes	Yes	N/A	
2	1x CDMA voice + 5 GHz WI-FI	Yes	Yes	N/A	
3	1x CDMA voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	^ Bluetooth Tethering is considered
4	1x CDMA voice +2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	N/A	^ Bluetooth Tethering is considered
5	1x CDMA voice +2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes^	Yes	N/A	^ Bluetooth Tethering is considered
6	1x CDMA voice + 2.4 GHz WI-FI MIMO	Yes	Yes	N/A	
7	1x CDMA voice + 5 GHz WI-FI MIMO	Yes	Yes	N/A	
8	1x CDMA voice + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes	Yes	N/A	
9	1x CDMA voice + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	N/A	
10	GSM voice + 2.4 GHz WI-FI	Yes	Yes	N/A	
11	GSM voice + 5 GHz WI-FI	Yes	Yes	N/A	
12	GSM voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	^ Bluetooth Tethering is considered
13	GSM voice + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	N/A	^ Bluetooth Tethering is considered
14	GSM voice + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes^	Yes	N/A	^ Bluetooth Tethering is considered
15	GSM voice + 2.4 GHz WI-FI MIMO	Yes	Yes	N/A	
16	GSM voice + 5 GHz WI-FI MIMO	Yes	Yes	N/A	
17	GSM voice + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes	Yes	N/A	
18	GSM voice + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	N/A	
19	UMTS + 2.4 GHz WI-FI	Yes	Yes	Yes	
20	UMTS + 5 GHz WI-FI	Yes	Yes	Yes	
21	UMTS + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	^ Bluetooth Tethering is considered
22	UMTS + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	Yes^	^ Bluetooth Tethering is considered
23	UMTS + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes^	Yes	Yes^	^ Bluetooth Tethering is considered
24	UMTS + 2.4 GHz WI-FI MIMO	Yes	Yes	Yes	
25	UMTS + 5 GHz WI-FI MIMO	Yes	Yes	Yes	
26	UMTS + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes	Yes	Yes	
27	UMTS + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	Yes	
28	LTE + 2.4 GHz WI-FI	Yes	Yes	Yes	
29	LTE + 5 GHz WI-FI	Yes	Yes	Yes	
30	LTE + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	^ Bluetooth Tethering is considered
31	LTE + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	Yes^	^ Bluetooth Tethering is considered
32	LTE + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes^	Yes	Yes^	^ Bluetooth Tethering is considered
33	LTE + 2.4 GHz WI-FI MIMO	Yes	Yes	Yes	
34	LTE + 5 GHz WI-FI MIMO	Yes	Yes	Yes	
35	LTE + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes	Yes	Yes	
36	LTE + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes	Yes	Yes	
37	CDMA/EVDO data + 2.4 GHz WI-FI	Yes*	Yes*	Yes	* Pre-installed VOIP applications are considered
38	CDMA/EVDO data + 5 GHz WI-FI	Yes*	Yes*	Yes	* Pre-installed VOIP applications are considered
39	CDMA/EVDO data + 2.4 GHz Bluetooth	Yes*^	Yes*	Yes^	* Pre-installed VOIP applications are considered ^ Bluetooth Tethering is considered
40	CDMA/EVDO data + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes*^	Yes*	Yes^	* Pre-installed VOIP applications are considered ^ Bluetooth Tethering is considered
41	CDMA/EVDO data + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes*^	Yes*	Yes^	* Pre-installed VOIP applications are considered ^ Bluetooth Tethering is considered
42	CDMA/EVDO data + 2.4 GHz WI-FI MIMO	Yes*	Yes*	Yes	* Pre-installed VOIP applications are considered
43	CDMA/EVDO data + 5 GHz WI-FI MIMO	Yes*	Yes*	Yes	* Pre-installed VOIP applications are considered
44	CDMA/EVDO data + 2.4 GHz WI-FI + 5 GHz WI-FI	Yes*	Yes*	Yes	* Pre-installed VOIP applications are considered
45	CDMA/EVDO data + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	Yes*	Yes*	Yes	* Pre-installed VOIP applications are considered
46	GPRS/EDGE + 2.4 GHz WI-FI	N/A	N/A	Yes	
47	GPRS/EDGE + 5 GHz WI-FI	N/A	N/A	Yes	
48	GPRS/EDGE + 2.4 GHz Bluetooth	N/A	N/A	Yes^	^ Bluetooth Tethering is considered
49	GPRS/EDGE + 2.4 GHz Bluetooth + 5 GHz WI-FI	N/A	N/A	Yes^	^ Bluetooth Tethering is considered
50	GPRS/EDGE + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	N/A	N/A	Yes^	^ Bluetooth Tethering is considered
51	GPRS/EDGE + 2.4 GHz WI-FI MIMO	N/A	N/A	Yes	
52	GPRS/EDGE + 5 GHz WI-FI MIMO	N/A	N/A	Yes	
53	GPRS/EDGE + 2.4 GHz WI-FI + 5 GHz WI-FI	N/A	N/A	Yes	
54	GPRS/EDGE + 2.4 GHz WI-FI MIMO + 5 GHz WI-FI MIMO	N/A	N/A	Yes	

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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.

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 IEEE 802.11ax with the following features:

a) Up to 80 MHz Bandwidth only for 5 GHz
b) Up to 20 MHz 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.

(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

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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.

CDMA 1X Advanced technology was not required for SAR since the maximum allowed output powers for 1x Advanced was not more than 0.25 dB higher than the maximum powers for 1x and the measured SAR in any 1x mode exposure conditions was not greater than 1.2 W/kg per FCC KDB Publication 941225 D01v03r01.

This device supports LTE Carrier Aggregation (CA) in the downlink only. All uplink communications are identical to Release 8 specifications. Per FCC KDB Publication 941225 D05A v01r02, SAR for downlink only LTE CA operations was not needed since the maximum average output power in downlink only LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive. The downlink carrier aggregation exclusion analysis can be found in Appendix H.

This device supports downlink 4x4 MIMO operations for some LTE Bands. Per May 2017 TCB Workshop Guidance, SAR for downlink 4x4 MIMO was not needed since the maximum average output power in 4x4 downlink MIMO mode was not > 0.25 dB higher than the maximum output power with downlink 4x4 MIMO inactive.

This device supports 64QAM and 256QAM on the uplink and 256QAM on the downlink for LTE Operations. Conducted powers for 64QAM and 256QAM uplink configurations were measured per Section 5.1 of FCC KDB Publication 941225D05v02r05. SAR was not required for 64QAM or 256QAM since the highest maximum output power for 64QAM and 256QAM is $\leq \frac{1}{2}$ dB higher than the same configuration in QPSK and the reported SAR for the QPSK configuration is $\leq$ 1.45W/kg, per Section 5.2.4 of FCC KDB Publication 941225 D05v02r05.

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 both Power Class 2 (PC2) and Power Class 3 (PC3) for LTE Band 41. Per May 2017 TCB Workshop Notes, SAR tests were performed with Power Class 3 (given the specific UL/DL limitations for Power Class 2). Additionally, SAR testing for the power class condition was evaluated for the highest configuration in Power Class 3 for each test configuration to confirm the results were scalable linearly (See Section 14.2).

This device supports LTE Carrier Aggregation (CA) for LTE Band 5, LTE Band 66, and LTE Band 41 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per 2017 Fall TCB Workshop Notes.

This device uses antenna B for LTE Band 7 standalone operations. During some inter-band downlink carrier aggregation scenarios with Band 7 as the PCC, the transmit operations for this band is switched to Antenna A. Both antennas were completely evaluated for SAR following FCC KDB procedures for all test positions and exposure conditions for LTE Band 7. Per FCC Guidance, the device was connected in a radiated downlink carrier aggregation scenario for evaluations of Antenna A. The operational description contains more information about this switching mechanism.

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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)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- May 2017 TCB Workshop Notes (LTE 4x4 Downlink MIMO, LTE Band 41 Power Class 2/3)
- April 2018 TCB Workshop Notes (LTE Carrier Aggregation)

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.

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2 LTE INFORMATION

LTE Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 71 (665.5 - 695.5 MHz)				
	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 13 (779.5 - 784.5 MHz)				
	LTE Band 14 (790.5 - 795.5 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 30 (2307.5 - 2312.5 MHz)				
	LTE Band 7 (2502.5 - 2567.5 MHz)				
	LTE Band 48 (3552.5 - 3697.5 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
	LTE Band 38 (2572.5 - 2617.5 MHz)				
Channel Bandwidths	LTE Band 71: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 13: 5 MHz, 10 MHz				
	LTE Band 14: 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 30: 5 MHz, 10 MHz				
	LTE Band 7: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 48: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 38: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 71: 5 MHz	665.5 (133147)		680.5 (133297)	695.5 (133447)	
LTE Band 71: 10 MHz	668 (133172)		680.5 (133297)	693 (133422)	
LTE Band 71: 15 MHz	670.5 (133197)		680.5 (133297)	690.5 (133397)	
LTE Band 71: 20 MHz	673 (133222)		680.5 (133297)	688 (133372)	
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 14: 5 MHz	790.5 (23305)		793 (23330)	795.5 (23355)	
LTE Band 14: 10 MHz	N/A		793 (23330)	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 30: 5 MHz	2307.5 (27685)		2310 (27710)	2312.5 (27735)	
LTE Band 30: 10 MHz	N/A		2310 (27710)	N/A	
LTE Band 7: 5 MHz	2502.5 (20775)		2535 (21100)	2567.5 (21425)	
LTE Band 7: 10 MHz	2505 (20800)		2535 (21100)	2565 (21400)	
LTE Band 7: 15 MHz	2507.5 (20825)		2535 (21100)	2562.5 (21375)	
LTE Band 7: 20 MHz	2510 (20850)		2535 (21100)	2560 (21350)	
LTE Band 48: 5 MHz	3552.5 (55265)	3600.8 (55748)	N/A	3649.2 (56232)	3697.5 (56715)
LTE Band 48: 10 MHz	3555 (55290)	3601.7 (55757)	N/A	3648.3 (56223)	3695 (56690)
LTE Band 48: 15 MHz	3557.5 (55315)	3602.5 (55765)	N/A	3647.5 (56215)	3692.5 (56665)
LTE Band 48: 20 MHz	3560 (55340)	3603.3 (55773)	N/A	3646.7 (56207)	3690 (56640)
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)
LTE Band 38: 5 MHz	2572.5 (37775)		2595 (38000)	2617.5 (38225)	
LTE Band 38: 10 MHz	2575 (37800)		2595 (38000)	2615 (38200)	
LTE Band 38: 15 MHz	2577.5 (37825)		2595 (38000)	2612.5 (38175)	
LTE Band 38: 20 MHz	2580 (37850)		2595 (38000)	2610 (38150)	
UE Category	DL UE Cat 20 (QPSK, 16QAM, 64QAM, 256QAM), UL UE Cat 18 (QPSK, 16QAM, 64QAM, 256QAM)				
Modulations Supported in UL	QPSK, 16QAM, 64QAM, 256QAM				
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 Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations				
LTE Additional Information	This device does not support full CA features on 3GPP Release 14. It supports carrier aggregation, downlink MIMO, LAA features as shown in Section 9 and Appendix H. All other uplink communications are identical to the Release 8 specifications. Uplink communications are done on the PCC unless otherwise specified. The following LTE Release 14 Features are not supported: Relay, HetNet, Enhanced eICIC, MDH, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

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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

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

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]

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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:

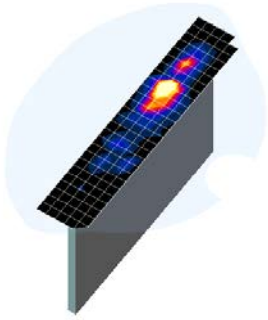

Figure 4-1 Sample SAR Area Scan

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

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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].

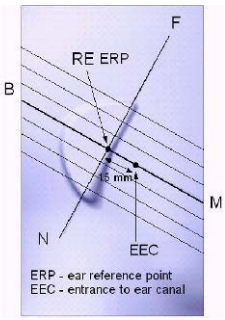

Figure 5-1
Close-Up Side view of ERP

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

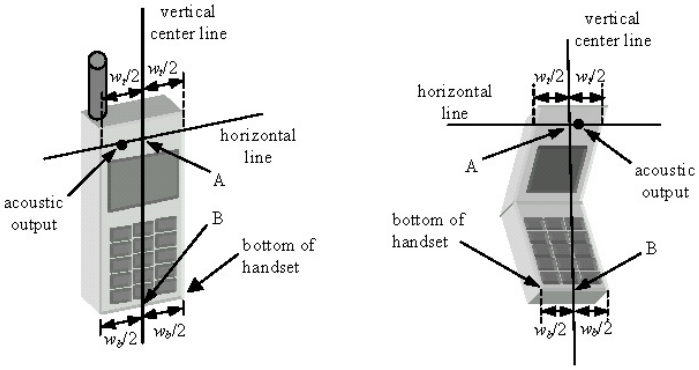

Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

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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).

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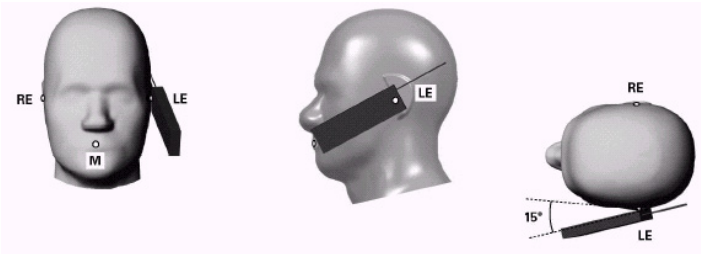

Figure 6-2 Front, Side and Top View of Ear/15º Tilt Position

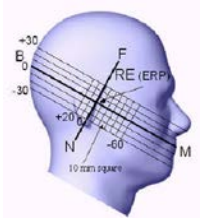

Figure 6-3
Side view w/ relevant markings

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

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.

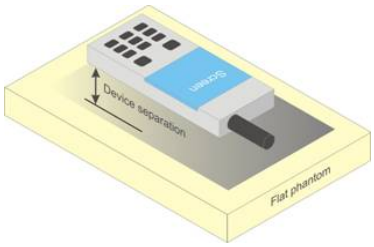

Figure 6-4
Sample Body-Worn Diagram

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

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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.

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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.

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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 CDMA2000

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

8.4.1 Output Power Verification

See 3GPP2 C.S0011/TIA-98-E as recommended by FCC KDB Publication 941225 D01v03r01 “3G SAR Measurement Procedures.” Maximum output power is verified on the High, Middle and Low channels according to procedures in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E. SO55 tests were measured with power control bits in the “All Up” condition.

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1. If the mobile station (MS) supports Reverse TCH RC 1 and Forward TCH RC 1, set up a call using Fundamental Channel Test Mode 1 (RC=1/1) with 9600 bps data rate only.
2. Under RC1, C.S0011 Table 4.4.5.2-1, Table 8-1 parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH_0 and demodulation of RC 3,4, or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9600 bps Fundamental Channel and 9600 bps SCH0 data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2, Table 8-2 was applied.

Table 8-1
Parameters for Max. Power for RC1

Parameter	Units	Value
$\hat{I}_{or}$	dBm/1.23 MHz	-104
$\frac{\text{Pilot } E_c}{I_{or}}$	dB	-7
$\frac{\text{Traffic } E_c}{I_{or}}$	dB	-7.4

Table 8-2
Parameters for Max. Power for RC3

Parameter	Units	Value
$\hat{I}_{or}$	dBm/1.23 MHz	-86
$\frac{\text{Pilot } E_c}{I_{or}}$	dB	-7
$\frac{\text{Traffic } E_c}{I_{or}}$	dB	-7.4

5. FCHs were configured at full rate for maximum SAR with “All Up” power control bits.

8.4.2 Head SAR Measurements

SAR for next to the ear head exposure is measured in RC3 with the handset configured to transmit at fullrate in SO55. The 3G SAR test reduction procedure is applied to RC1 with RC3 as the primary mode; otherwise, SAR is required for the channel with maximum measured output in RC1 using the head exposure configuration that results in the highest reported SAR in RC3.

Head SAR is additionally evaluated using EVDO Rev. A to support compliance for VoIP operations. See Section 8.4.5 for EVDO Rev. A configuration parameters.

8.4.3 Body-worn SAR Measurements

SAR for body-worn exposure configurations is measured in RC3 with the DUT configured to transmit at full rate on FCH with all other code channels disabled using TDSO / SO32. The 3G SAR test reduction procedure is applied to the multiple code channel configuration (FCH+SCHn), with FCH only as the primary mode. Otherwise, SAR is required for multiple code channel configuration (FCH + SCHn), with FCH at full rate and SCH0 enabled at 9600 bps, using the highest reported SAR configuration for FCH only. When multiple code channels are enabled, the transmitter output can shift by more than 0.5 dB and may lead to higher SAR drifts and SCH dropouts.

The 3G SAR test reduction procedure is applied to body-worn accessory SAR in RC1 with RC3 as the primary mode. Otherwise, SAR is required for RC1, with SO55 and full rate, using the highest reported SAR configuration for body-worn accessory exposure in RC3.

8.4.4 Body-worn SAR Measurements for EVDO Devices

For handsets with EVDO capabilities, the 3G SAR test reduction procedure is applied to EVDO Rev. 0 with 1x RTT RC3 as the primary mode to determine body-worn accessory test requirements. Otherwise, body-worn accessory SAR is required for Rev. 0, at 153.6 kbps, using the highest reported SAR configuration for body-worn accessory exposure in RC3.

The 3G SAR test reduction procedure is applied to Rev. A, with Rev. 0 as the primary mode to determine body-worn accessory SAR test requirements. When SAR is not required for Rev. 0, the 3G SAR test reduction is applied with 1x RTT RC3 as the primary mode.

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When SAR is required for EVDO Rev. A, SAR is measured with a Reverse Data Channel payload size of 4096 bits and a Termination Target of 16 slots defined for Subtype 2 Physical Layer configurations, using the highest reported SAR configuration for body-worn accessory exposure in Rev. 0 or 1x RTT RC3, as appropriate.

8.4.5 Body SAR Measurements for EVDO Hotspot

Hotspot Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0. The 3G SAR test reduction procedure is applied to Rev. A, Subtype 2 Physical layer configuration, with Rev. 0 as the primary mode; otherwise, SAR is measured for Rev. A using the highest reported SAR configuration for body-worn accessory exposure in Rev. 0. The AT is tested with a Reverse Data Channel rate of 153.6 kbps in Subtype 0/1 Physical Layer configurations; and a Reverse Data Channel payload size of 4096 bits and Termination Target of 16 slots in Subtype 2 Physical Layer configurations.

For EVDO data devices that also support 1x RTT voice and/or data operations, the 3G SAR test reduction procedure is applied to 1x RTT RC3 and RC1 with EVDO Rev. 0 and Rev. A as the respective primary modes. Otherwise, the 'Body-Worn Accessory SAR' procedures in the '3GPP2 CDMA 2000 1x Handsets' section are applied.

8.4.6 CDMA2000 1x Advanced

This device additionally supports 1x Advanced. Conducted powers are measured using SO75 with RC8 on the uplink and RC11 on the downlink per FCC KDB Publication 941225 D01v03r01. Smart blanking is disabled for all measurements. The EUT is configured with forward power control Mode 000 and reverse power control at 400 bps. Conducted powers are measured on an Agilent 8960 Series 10 Wireless Communications Test Set, Model E5515C using the CDMA2000 1x Advanced application, Option E1962B-410.

The 3G SAR test reduction procedure is applied to the 1x-Advanced transmission mode with 1x RTT RC3 as the primary mode. When SAR measurement is required, the 1x-Advanced power measurement configurations are used. The1x Advanced SAR procedures are applied separately to head, body-worn accessory and other exposure conditions.

8.5 SAR Measurement Conditions for UMTS

8.5.1 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.

8.5.2 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.

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8.5.3 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.

8.5.4 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.

8.5.5 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.

8.5.6 SAR Measurement Conditions for DC-HSDPA

SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

8.6 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).

8.6.1 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.

8.6.2 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.

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8.6.3 A-MPR

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

8.6.4 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.

8.6.5 TDD

LTE TDD testing is performed using the SAR test guidance provided in FCC KDB 941225 D05v02r04. TDD is tested at the highest duty factor using UL-DL configuration 0 with special subframe configuration 6 and applying the FDD LTE procedures in KDB 941225 D05v02r04. SAR testing is performed using the extended cyclic prefix listed in 3GPP TS 36.211 Section 4.

8.6.6 Downlink Only Carrier Aggregation

Conducted power measurements with LTE Carrier Aggregation (CA) (downlink only) active are made in accordance to KDB Publication 941225 D05Av01r02. The RRC connection is only handled by one cell, the primary component carrier (PCC) for downlink and uplink communications. After making a data connection to the PCC, the UE device adds secondary component carrier(s) (SCC) on the downlink only. All uplink communications and acknowledgements remain identical to specifications when downlink carrier aggregation is inactive on the PCC. Additional conducted output powers are measured with the downlink carrier aggregation active for the configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band. Per FCC KDB Publication 941225 D05Av01r02, no SAR measurements are required for downlink only carrier aggregation configurations when the average output power with downlink only carrier aggregation active is not more than 0.25 dB higher than the average output power with downlink only carrier aggregation inactive.

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8.7 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.

8.7.1 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.

8.7.2 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.

8.7.3 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.

8.7.4 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.

8.7.5 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:

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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.

8.7.6 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.

8.7.7 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 8.7.6).

8.7.8 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.

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8.7.9 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.

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9 RF CONDUCTED POWERS

9.1 CDMA Conducted Powers

Table 9-1
Maximum Conducted Power

				Loopback			Data			
Band	**Channel**	**Rule Part**	**Frequency**	**SO55 [dBm]**	**SO55 [dBm]**	**SO75 [dBm]**	**TDSO SO32 [dBm]**	**TDSO SO32 [dBm]**	**1x EvDO Rev. 0 [dBm]**	**1x EvDO Rev. A [dBm]**
	F-RC		MHz	RC1	RC3	RC11	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	564	90S	820.1	25.05	25.00	24.96	24.99	25.00	25.08	25.06
Cellular	1013	22H	824.7	25.08	25.10	24.98	25.09	25.08	25.13	25.13
	384	22H	836.52	25.09	25.15	25.00	25.07	25.06	25.16	25.11
	777	22H	848.31	24.93	24.94	24.86	24.92	24.94	25.01	24.96
PCS	25	24E	1851.25	23.60	23.51	23.61	23.56	23.59	23.65	23.62
	600	24E	1880	23.61	23.45	23.57	23.46	23.53	23.57	23.52
	1175	24E	1908.75	23.46	23.33	23.42	23.37	23.39	23.42	23.45

Table 9-2
Reduced Conducted Power

				Data			
Band	**Channel**	**Rule Part**	**Frequency**	**TDSO SO32 [dBm]**	**TDSO SO32 [dBm]**	**1x EvDO Rev. 0 [dBm]**	**1x EvDO Rev. A [dBm]**
	F-RC		MHz	FCH+SCH	FCH	(RTAP)	(RETAP)
PCS	25	24E	1851.25	18.64	18.62	18.73	18.74
	600	24E	1880	18.58	18.60	18.72	18.77
	1175	24E	1908.75	18.42	18.44	18.61	18.62

Note: RC1 is only applicable for IS-95 compatibility. For FCC Rule Part 90S, Per FCC KDB Publication 447498 D01v06 4.1.g), only one channel is required since the device operates within the transmission range of 817.90 – 823.10 MHz**.**

Figure 9-1
Power Measurement Setup

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9.2 GSM Conducted Powers

Table 9-3
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	32.92	32.94	31.80	**29.38**	27.66	27.36	25.48	23.28	22.16
	190	32.96	33.01	31.86	**29.64**	27.58	27.34	25.55	23.34	22.24
	251	33.00	32.97	31.57	**29.49**	27.47	27.46	25.46	23.20	22.18
GSM 1900	512	30.12	30.24	28.65	**26.43**	24.48	25.84	24.01	22.09	20.94
	661	30.15	30.23	28.65	**26.47**	24.51	25.69	24.05	22.04	21.01
	810	30.09	30.07	28.37	**26.52**	24.40	25.60	23.92	21.84	20.82

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	23.89	23.91	25.78	**25.12**	24.65	18.33	19.46	19.02	19.15
	190	23.93	23.98	25.84	**25.38**	24.57	18.31	19.53	19.08	19.23
	251	23.97	23.94	25.55	**25.23**	24.46	18.43	19.44	18.94	19.17
GSM 1900	512	21.09	21.21	22.63	**22.17**	21.47	16.81	17.99	17.83	17.93
	661	21.12	21.20	22.63	**22.21**	21.50	16.66	18.03	17.78	18.00
	810	21.06	21.04	22.35	**22.26**	21.39	16.57	17.90	17.58	17.81

GSM 850	**Frame Avg.Targets:**	23.47	23.47	25.48	**25.24**	24.49	17.97	18.98	18.74	18.99
GSM 1900		20.97	20.97	22.48	**22.24**	21.49	16.97	17.98	17.74	17.99

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Table 9-4
Reduced Conducted Power

Maximum Burst-Averaged Output Power									
		GPRS/EDGE Data (GMSK)				*EDGE Data (8-PSK)*			
Band	**Channel**	**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	27.41	26.53	**24.42**	22.49	25.72	23.42	21.67	20.67
	661	27.84	26.63	**24.49**	22.44	25.80	23.71	21.89	20.54
	810	27.79	26.35	**24.34**	22.51	25.80	23.79	21.81	20.55

Calculated Maximum Frame-Averaged Output Power									
		GPRS/EDGE Data (GMSK)				*EDGE Data (8-PSK)*			
Band	**Channel**	**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	18.38	20.51	**20.16**	19.48	16.69	17.40	17.41	17.66
	661	18.81	20.61	**20.23**	19.43	16.77	17.69	17.63	17.53
	810	18.76	20.33	**20.08**	19.50	16.77	17.77	17.55	17.54

GSM 1900	**Frame Avg.Targets:**	18.47	20.48	**20.24**	19.49	16.97	17.98	17.74	17.99

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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 9-2
Power Measurement Setup

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9.3 UMTS Conducted Powers

Table 9-5
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	24.30	24.28	24.23	24.18	24.22	24.28	23.55	23.62	23.53	-
99		12.2 kbps AMR	24.29	24.26	24.23	24.21	24.26	24.22	23.49	23.61	23.50	-
6	HSDPA	Subtest 1	23.37	23.44	23.35	23.28	23.37	23.44	22.52	22.63	22.46	0
6		Subtest 2	23.47	23.35	23.34	23.28	23.39	23.43	22.47	22.69	22.45	0
6		Subtest 3	22.96	22.92	22.88	22.83	22.81	22.91	22.03	22.10	21.92	0.5
6		Subtest 4	22.93	22.89	22.85	22.80	22.86	23.05	22.09	22.18	21.97	0.5
6	HSUPA	Subtest 1	23.42	23.45	23.40	23.26	23.33	23.36	22.53	22.69	22.48	0
6		Subtest 2	21.43	21.43	21.38	21.21	21.27	21.33	20.48	20.63	20.44	2
6		Subtest 3	22.43	22.41	22.37	22.24	22.26	22.31	21.51	21.63	21.45	1
6		Subtest 4	21.40	21.42	21.34	21.21	21.26	21.30	20.48	20.62	20.41	2
6		Subtest 5	23.43	23.34	23.47	23.29	23.35	23.42	22.56	22.73	22.53	0
8	DC-HSDPA	Subtest 1	23.44	23.46	23.45	23.40	23.47	23.51	22.63	22.78	22.57	0
8		Subtest 2	23.50	23.52	23.45	23.42	23.47	23.48	22.61	22.73	22.60	0
8		Subtest 3	23.01	22.98	22.94	22.90	22.97	23.02	22.10	22.21	22.06	0.5
8		Subtest 4	23.02	23.00	22.95	22.82	22.96	23.01	22.18	22.25	22.04	0.5

Table 9-6
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	19.09	19.12	19.20	18.30	18.29	18.34	-
99		12.2 kbps AMR	19.11	19.15	19.21	18.33	18.27	18.25	-
6	HSDPA	Subtest 1	18.01	18.09	18.14	17.36	17.51	17.28	0
6		Subtest 2	18.00	18.08	18.11	17.33	17.42	17.30	0
6		Subtest 3	17.49	17.53	17.61	16.89	17.02	16.81	0.5
6		Subtest 4	17.46	17.59	17.58	16.88	16.99	16.79	0.5
6	HSUPA	Subtest 1	17.98	18.07	18.10	17.29	17.43	17.23	0
6		Subtest 2	15.97	16.02	16.07	15.30	15.39	15.20	2
6		Subtest 3	16.94	17.02	17.04	16.27	16.39	16.15	1
6		Subtest 4	15.97	16.04	16.04	15.31	15.37	15.21	2
6		Subtest 5	17.99	18.07	18.10	17.36	17.51	17.29	0
8	DC-HSDPA	Subtest 1	18.06	18.12	18.15	17.38	17.45	17.29	0
8		Subtest 2	18.05	18.11	18.13	17.34	17.44	17.28	0
8		Subtest 3	17.55	17.62	17.65	16.89	16.95	16.81	0.5
8		Subtest 4	17.60	17.62	17.69	16.88	16.99	16.82	0.5

DC-HSDPA considerations

- 3GPP Specification 34.121-1 Release 8 Ver 8.10.0 was used for DC-HSDPA guidance
- H-Set 12 (QPSK) was confirmed to be used during DC-HSDPA measurements
- The DUT supports UE category 24 for HSDPA

Figure 9-3
Power Measurement Setup

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9.4 LTE Conducted Powers

9.4.1 LTE Band 71

Table 9-7
LTE Band 71 Conducted Powers - 20 MHz Bandwidth

LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 133297 (680.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**24.62**	0	0
	1	50	24.30		0
	1	99	24.37		0
	50	0	**23.78**	0-1	1
	50	25	23.75		1
	50	50	23.61		1
	100	0	23.72		1
16QAM	1	0	23.82	0-1	1
	1	50	23.57		1
	1	99	23.65		1
	50	0	22.71	0-2	2
	50	25	22.66		2
	50	50	22.52		2
	100	0	22.68		2
64QAM	1	0	22.79	0-2	2
	1	50	22.53		2
	1	99	22.61		2
	50	0	21.69	0-3	3
	50	25	21.74		3
	50	50	21.55		3
	100	0	21.70		3
256QAM	1	0	19.74	0-5	5
	1	50	19.63		5
	1	99	19.57		5
	50	0	19.72		5
	50	25	19.70		5
	50	50	19.57		5
	100	0	19.69		5

Note: LTE Band 71 at 20 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 9-8
LTE Band 71 Conducted Powers - 15 MHz Bandwidth

LTE Band 71 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 133297 (680.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.61	0	0
	1	36	24.52		0
	1	74	24.31		0
	36	0	23.75	0-1	1
	36	18	23.69		1
	36	37	23.56		1
	75	0	23.64		1
16QAM	1	0	23.93	0-1	1
	1	36	23.71		1
	1	74	23.56		1
	36	0	22.75	0-2	2
	36	18	22.65		2
	36	37	22.56		2
	75	0	22.59		2
64QAM	1	0	22.92	0-2	2
	1	36	22.78		2
	1	74	22.46		2
	36	0	21.77	0-3	3
	36	18	21.66		3
	36	37	21.51		3
	75	0	21.62		3
256QAM	1	0	19.83	0-5	5
	1	36	19.74		5
	1	74	19.38		5
	36	0	19.65		5
	36	18	19.63		5
	36	37	19.47		5
	75	0	19.58		5

Note: LTE Band 71 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.

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Table 9-9
LTE Band 71 Conducted Powers - 10 MHz Bandwidth

LTE Band 71 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 133172 (668.0 MHz)	Mid Channel 133297 (680.5 MHz)	High Channel 133422 (693.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.40	24.45	24.39	0	0
	1	25	24.06	24.37	24.31		0
	1	49	24.27	24.31	24.13		0
	25	0	23.61	23.57	23.48	0-1	1
	25	12	23.53	23.53	23.42		1
	25	25	23.43	23.43	23.33		1
	50	0	23.54	23.51	23.40		1
16QAM	1	0	23.77	23.86	23.71	0-1	1
	1	25	23.34	23.74	23.65		1
	1	49	23.66	23.56	23.41		1
	25	0	22.55	22.60	22.44	0-2	2
	25	12	22.57	22.55	22.39		2
	25	25	22.49	22.46	22.31		2
	50	0	22.56	22.56	22.33		2
64QAM	1	0	22.76	22.71	22.66	0-2	2
	1	25	22.23	22.69	22.61		2
	1	49	22.61	22.51	22.37		2
	25	0	21.54	21.56	21.43	0-3	3
	25	12	21.57	21.52	21.38		3
	25	25	21.43	21.43	21.29		3
	50	0	21.48	21.51	21.39		3
256QAM	1	0	19.63	19.71	19.71	0-5	5
	1	25	19.15	19.68	19.49		5
	1	49	19.46	19.36	19.34		5
	25	0	19.58	19.52	19.42		5
	25	12	19.59	19.53	19.39		5
	25	25	19.38	19.47	19.31		5
	50	0	19.51	19.53	19.35		5

Table 9-10
LTE Band 71 Conducted Powers - 5 MHz Bandwidth

LTE Band 71 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 133147 (665.5 MHz)	Mid Channel 133297 (680.5 MHz)	High Channel 133447 (695.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.51	24.47	24.23	0	0
	1	12	24.38	23.75	23.88		0
	1	24	24.27	24.12	24.09		0
	12	0	23.56	23.59	23.47	0-1	1
	12	6	23.66	23.53	23.44		1
	12	13	23.51	23.51	23.37		1
	25	0	23.59	23.61	23.38		1
16QAM	1	0	23.81	23.63	23.52	0-1	1
	1	12	23.43	23.49	23.52		1
	1	24	23.56	23.42	23.41		1
	12	0	22.54	22.66	22.38	0-2	2
	12	6	22.61	22.62	22.44		2
	12	13	22.53	22.56	22.29		2
	25	0	22.51	22.54	22.36		2
64QAM	1	0	22.74	22.62	22.85	0-2	2
	1	12	22.58	22.46	22.53		2
	1	24	22.59	22.44	22.42		2
	12	0	21.64	21.62	21.43	0-3	3
	12	6	21.53	21.59	21.38		3
	12	13	21.48	21.51	21.41		3
	25	0	21.52	21.55	21.43		3
256QAM	1	0	19.63	19.57	19.64	0-5	5
	1	12	19.61	19.33	19.27		5
	1	24	19.38	19.51	19.43		5
	12	0	19.55	19.56	19.38		5
	12	6	19.47	19.49	19.41		5
	12	13	19.42	19.47	19.29		5
	25	0	19.53	19.55	19.38		5

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9.4.2 LTE Band 12

Table 9-11
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	24.16	0	0
	1	25	23.90		0
	1	49	**24.30**		0
	25	0	23.30	0-1	1
	25	12	**23.33**		1
	25	25	23.29		1
	50	0	23.28		1
16QAM	1	0	23.57	0-1	1
	1	25	23.40		1
	1	49	23.64		1
	25	0	22.27	0-2	2
	25	12	22.29		2
	25	25	22.33		2
	50	0	22.31		2
64QAM	1	0	22.52	0-2	2
	1	25	22.20		2
	1	49	22.53		2
	25	0	21.33	0-3	3
	25	12	21.32		3
	25	25	21.31		3
	50	0	21.30		3
256QAM	1	0	19.56	0-5	5
	1	25	19.14		5
	1	49	19.52		5
	25	0	19.47		5
	25	12	19.41		5
	25	25	19.32		5
	50	0	19.40		5

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 9-12
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	24.59	24.34	24.27	0	0
	1	12	24.42	23.90	23.93		0
	1	24	24.32	24.25	24.02		0
	12	0	23.49	23.56	23.63	0-1	1
	12	6	23.51	23.51	23.70		1
	12	13	23.55	23.49	23.60		1
	25	0	23.56	23.59	23.65		1
16QAM	1	0	23.58	23.66	23.61	0-1	1
	1	12	23.25	23.13	23.28		1
	1	24	23.31	23.42	23.36		1
	12	0	22.61	22.67	22.67	0-2	2
	12	6	22.55	22.61	22.68		2
	12	13	22.49	22.52	22.63		2
	25	0	22.54	22.59	22.62		2
64QAM	1	0	22.51	22.29	22.57	0-2	2
	1	12	22.04	21.82	22.19		2
	1	24	22.22	22.17	22.40		2
	12	0	21.64	21.62	21.68	0-3	3
	12	6	21.59	21.52	21.65		3
	12	13	21.51	21.57	21.52		3
	25	0	21.55	21.62	21.61		3
256QAM	1	0	19.59	19.48	19.62	0-5	5
	1	12	18.83	18.67	18.89		5
	1	24	19.23	19.35	19.51		5
	12	0	19.48	19.53	19.73		5
	12	6	19.46	19.45	19.61		5
	12	13	19.47	19.40	19.66		5
	25	0	19.55	19.52	19.71		5

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Table 9-13
LTE Band 12 Conducted Powers - 3 MHz Bandwidth

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23025 (700.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23165 (714.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.47	24.58	24.46	0	0
	1	7	24.46	24.51	24.31		0
	1	14	24.35	24.32	24.08		0
	8	0	23.55	23.44	23.54	0-1	1
	8	4	23.52	23.41	23.51		1
	8	7	23.54	23.34	23.46		1
	15	0	23.63	23.58	23.60		1
16QAM	1	0	23.26	23.83	23.61	0-1	1
	1	7	23.27	23.96	23.62		1
	1	14	23.57	23.76	23.45		1
	8	0	22.61	22.47	22.66	0-2	2
	8	4	22.65	22.57	22.53		2
	8	7	22.52	22.48	22.48		2
	15	0	22.58	22.52	22.62		2
64QAM	1	0	22.70	22.60	22.67	0-2	2
	1	7	22.37	22.46	22.59		2
	1	14	22.45	22.63	22.49		2
	8	0	21.59	21.51	21.66	0-3	3
	8	4	21.50	21.41	21.68		3
	8	7	21.47	21.39	21.62		3
	15	0	21.54	21.57	21.57		3
256QAM	1	0	19.56	19.52	19.61	0-5	5
	1	7	18.94	19.53	18.90		5
	1	14	19.38	19.42	19.51		5
	8	0	19.61	19.44	19.66		5
	8	4	19.46	19.42	19.57		5
	8	7	19.38	19.37	19.49		5
	15	0	19.47	19.44	19.64		5

Table 9-14
LTE Band 12 Conducted Powers -1.4 MHz Bandwidth

LTE Band 12 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23017 (699.7 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23173 (715.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.29	24.16	24.36	0	0
	1	2	24.16	24.18	24.34		0
	1	5	24.24	24.06	24.14		0
	3	0	24.28	24.07	24.17		0
	3	2	24.21	24.30	24.16		0
	3	3	24.41	24.39	24.08		0
	6	0	23.38	23.39	23.35	0-1	1
16QAM	1	0	23.65	23.84	23.55	0-1	1
	1	2	23.78	23.63	23.60		1
	1	5	23.62	23.66	23.42		1
	3	0	23.05	23.16	23.23		1
	3	2	23.32	23.31	23.35		1
	3	3	23.28	23.25	23.28		1
	6	0	22.50	22.44	22.52	0-2	2
64QAM	1	0	22.41	22.28	22.52	0-2	2
	1	2	22.59	22.52	22.64		2
	1	5	22.39	22.37	22.42		2
	3	0	22.21	22.21	22.28		2
	3	2	22.51	22.41	22.35		2
	3	3	22.43	22.35	22.39		2
	6	0	21.42	21.38	21.42	0-3	3
256QAM	1	0	19.34	19.72	19.43	0-5	5
	1	2	19.53	19.62	19.42		5
	1	5	19.16	19.63	19.30		5
	3	0	19.31	19.19	19.60		5
	3	2	19.57	19.34	19.65		5
	3	3	19.52	19.33	19.70		5
	6	0	19.36	19.22	19.41		5

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9.4.3 LTE Band 13

Table 9-15
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	24.25	0	0
	1	25	24.19		0
	1	49	**24.40**		0
	25	0	**23.73**	0-1	1
	25	12	23.69		1
	25	25	23.58		1
	50	0	23.69		1
16QAM	1	0	23.48	0-1	1
	1	25	23.53		1
	1	49	23.64		1
	25	0	22.73	0-2	2
	25	12	22.72		2
	25	25	22.47		2
	50	0	22.52		2
64QAM	1	0	22.43	0-2	2
	1	25	22.41		2
	1	49	22.70		2
	25	0	21.72	0-3	3
	25	12	21.67		3
	25	25	21.55		3
	50	0	21.64		3
256QAM	1	0	19.89	0-5	5
	1	25	19.44		5
	1	49	19.70		5
	25	0	19.73		5
	25	12	19.72		5
	25	25	19.57		5
	50	0	19.66		5

Table 9-16
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	24.38	0	0
	1	12	24.14		0
	1	24	24.39		0
	12	0	23.89	0-1	1
	12	6	23.77		1
	12	13	23.74		1
	25	0	23.87		1
16QAM	1	0	23.84	0-1	1
	1	12	23.39		1
	1	24	23.57		1
	12	0	22.79	0-2	2
	12	6	22.78		2
	12	13	22.84		2
	25	0	22.82		2
64QAM	1	0	22.53	0-2	2
	1	12	21.99		2
	1	24	22.25		2
	12	0	21.83	0-3	3
	12	6	21.59		3
	12	13	21.73		3
	25	0	21.86		3
256QAM	1	0	19.53	0-5	5
	1	12	19.09		5
	1	24	19.57		5
	12	0	19.72		5
	12	6	19.72		5
	12	13	19.78		5
	25	0	19.81		5

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.

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9.4.4 LTE Band 14

Table 9-17
LTE Band 14 Conducted Powers - 10 MHz Bandwidth

LTE Band 14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23330 (793.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**24.46**	0	0
	1	25	24.16		0
	1	49	24.13		0
	25	0	**23.63**	0-1	1
	25	12	23.59		1
	25	25	23.38		1
	50	0	23.57		1
16QAM	1	0	23.80	0-1	1
	1	25	23.73		1
	1	49	23.48		1
	25	0	22.62	0-2	2
	25	12	22.61		2
	25	25	22.39		2
	50	0	22.51		2
64QAM	1	0	22.81	0-2	2
	1	25	22.45		2
	1	49	22.57		2
	25	0	21.63	0-3	3
	25	12	21.57		3
	25	25	21.36		3
	50	0	21.56		3
256QAM	1	0	19.63	0-5	5
	1	25	19.35		5
	1	49	19.36		5
	25	0	19.61		5
	25	12	19.58		5
	25	25	19.37		5
	50	0	19.51		5

Table 9-18
LTE Band 14 Conducted Powers - 5 MHz Bandwidth

LTE Band 14 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23330 (793.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.66	0	0
	1	12	24.31		0
	1	24	24.36		0
	12	0	23.86	0-1	1
	12	6	23.74		1
	12	13	23.61		1
	25	0	23.75		1
16QAM	1	0	23.82	0-1	1
	1	12	23.20		1
	1	24	23.80		1
	12	0	22.91	0-2	2
	12	6	22.87		2
	12	13	22.78		2
	25	0	22.79		2
64QAM	1	0	22.96	0-2	2
	1	12	22.48		2
	1	24	22.87		2
	12	0	21.92	0-3	3
	12	6	21.84		3
	12	13	21.77		3
	25	0	21.73		3
256QAM	1	0	19.95	0-5	5
	1	12	19.38		5
	1	24	19.88		5
	12	0	19.82		5
	12	6	19.80		5
	12	13	19.69		5
	25	0	19.74		5

Note: LTE Band 14 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.

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9.4.5 LTE Band 26 (Cell)

Table 9-19
LTE Band 26 (Cell) Conducted Powers - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channe 26865 (831.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.87	0	0
	1	36	**24.98**		0
	1	74	24.89		0
	36	0	24.08	0-1	1
	36	18	**24.13**		1
	36	37	24.07		1
	75	0	24.10		1
16QAM	1	0	24.25	0-1	1
	1	36	24.32		1
	1	74	24.18		1
	36	0	23.08	0-2	2
	36	18	23.15		2
	36	37	23.02		2
	75	0	23.05		2
64QAM	1	0	23.23	0-2	2
	1	36	23.35		2
	1	74	23.13		2
	36	0	22.07	0-3	3
	36	18	22.17		3
	36	37	22.06		3
	75	0	22.13		3
256QAM	1	0	20.17	0-5	5
	1	36	20.23		5
	1	74	20.08		5
	36	0	20.03		5
	36	18	20.09		5
	36	37	20.03		5
	75	0	20.15		5

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 9-20
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	24.56	25.05	24.78	0	0
	1	25	24.51	24.85	24.69		0
	1	49	24.72	24.99	24.48		0
	25	0	24.12	24.35	24.10	0-1	1
	25	12	24.11	24.33	23.97		1
	25	25	23.94	24.22	24.02		1
	50	0	24.09	24.29	24.10		1
16QAM	1	0	23.82	24.38	24.16	0-1	1
	1	25	23.86	24.26	24.04		1
	1	49	24.09	24.41	23.89		1
	25	0	23.11	23.31	23.13	0-2	2
	25	12	23.06	23.29	23.29		2
	25	25	23.01	23.25	23.24		2
	50	0	23.05	23.26	23.28		2
64QAM	1	0	22.73	23.42	23.26	0-2	2
	1	25	22.87	23.35	23.03		2
	1	49	23.11	23.44	22.88		2
	25	0	22.08	22.29	22.13	0-3	3
	25	12	22.05	22.27	22.12		3
	25	25	21.97	22.20	22.20		3
	50	0	22.06	22.28	22.19		3
256QAM	1	0	20.22	20.32	20.33	0-5	5
	1	25	20.03	20.09	20.02		5
	1	49	20.16	20.27	20.28		5
	25	0	20.08	20.29	20.25		5
	25	12	20.06	20.24	20.28		5
	25	25	20.02	20.20	20.19		5
	50	0	20.04	20.27	20.18		5

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Table 9-21
LTE Band 26 (Cell) Conducted Powers - 5 MHz Bandwidth

LTE Band 26 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26715 (816.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27015 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.42	24.87	24.77	0	0
	1	12	24.50	24.83	24.59		0
	1	24	24.47	24.84	24.57		0
	12	0	24.13	24.39	23.99	0-1	1
	12	6	24.11	24.30	24.10		1
	12	13	24.03	24.28	24.16		1
	25	0	24.07	24.36	24.01		1
16QAM	1	0	23.72	24.32	23.98	0-1	1
	1	12	23.80	24.38	23.91		1
	1	24	24.04	24.21	23.75		1
	12	0	23.24	23.32	23.07	0-2	2
	12	6	23.13	23.43	23.23		2
	12	13	23.16	23.29	23.29		2
	25	0	23.09	23.30	23.01		2
64QAM	1	0	22.73	23.37	23.08	0-2	2
	1	12	22.75	23.45	22.88		2
	1	24	22.95	23.30	22.74		2
	12	0	22.21	22.34	22.12	0-3	3
	12	6	22.12	22.35	22.26		3
	12	13	22.08	22.32	22.27		3
	25	0	22.13	22.33	22.15		3
256QAM	1	0	20.11	20.37	20.20	0-5	5
	1	12	20.20	20.29	20.35		5
	1	24	20.17	20.42	20.27		5
	12	0	20.12	20.31	20.36		5
	12	6	20.21	20.37	20.32		5
	12	13	20.20	20.27	20.33		5
	25	0	20.12	20.34	20.28		5

Table 9-22
LTE Band 26 (Cell) Conducted Powers - 3 MHz Bandwidth

LTE Band 26 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26705 (815.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27025 (847.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.53	24.97	24.54	0	0
	1	7	24.53	25.00	24.58		0
	1	14	24.56	24.94	24.41		0
	8	0	24.03	24.29	24.13	0-1	1
	8	4	24.01	24.20	24.18		1
	8	7	23.96	24.05	24.04		1
	15	0	24.03	24.18	24.06		1
16QAM	1	0	23.69	24.25	23.81	0-1	1
	1	7	23.82	24.32	23.94		1
	1	14	23.93	24.02	23.74		1
	8	0	23.09	23.17	23.25	0-2	2
	8	4	23.15	23.29	23.27		2
	8	7	23.06	23.13	23.18		2
	15	0	23.05	23.26	23.19		2
64QAM	1	0	22.69	23.28	22.81	0-2	2
	1	7	22.72	23.38	22.93		2
	1	14	22.68	23.29	22.75		2
	8	0	22.08	22.31	22.30	0-3	3
	8	4	22.02	22.19	22.15		3
	8	7	21.97	22.20	22.10		3
	15	0	22.11	22.30	22.25		3
256QAM	1	0	20.08	20.32	20.32	0-5	5
	1	7	20.22	20.29	20.19		5
	1	14	20.13	20.22	20.20		5
	8	0	20.03	20.21	20.03		5
	8	4	20.06	20.25	20.15		5
	8	7	20.01	20.21	20.06		5
	15	0	20.05	20.26	20.24		5

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Table 9-23
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	24.40	24.92	24.61	0	0
	1	2	24.54	25.04	24.59		0
	1	5	24.55	24.76	24.49		0
	3	0	24.48	24.99	24.48		0
	3	2	24.51	25.00	24.44		0
	3	3	24.47	24.95	24.42		0
	6	0	24.00	24.13	23.98	0-1	1
16QAM	1	0	23.61	24.30	23.83	0-1	1
	1	2	23.63	24.32	23.96		1
	1	5	23.86	24.38	23.73		1
	3	0	23.58	24.16	23.76		1
	3	2	23.57	24.24	23.77		1
	3	3	23.45	24.07	23.65		1
	6	0	23.03	23.12	23.14	0-2	2
64QAM	1	0	22.51	23.16	22.79	0-2	2
	1	2	22.62	23.29	22.74		2
	1	5	22.67	23.33	22.62		2
	3	0	22.44	23.26	22.68		2
	3	2	22.54	23.37	22.72		2
	3	3	22.53	23.24	22.62		2
	6	0	21.90	22.08	21.98	0-3	3
256QAM	1	0	20.01	20.23	20.20	0-5	5
	1	2	20.22	20.12	20.32		5
	1	5	20.21	20.07	20.17		5
	3	0	20.09	20.16	20.05		5
	3	2	20.12	20.35	20.11		5
	3	3	20.08	20.31	20.18		5
	6	0	19.95	20.07	20.01		5

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9.4.6 LTE Band 5 (Cell)

Table 9-24
LTE Band 5 (Cell) Conducted Powers - 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 20525 (836.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**24.89**	0	0
	1	25	24.70		0
	1	49	24.81		0
	25	0	**24.00**	0-1	1
	25	12	23.97		1
	25	25	23.93		1
	50	0	23.99		1
16QAM	1	0	24.25	0-1	1
	1	25	23.96		1
	1	49	24.03		1
	25	0	22.95	0-2	2
	25	12	22.96		2
	25	25	22.92		2
	50	0	22.92		2
64QAM	1	0	23.21	0-2	2
	1	25	22.85		2
	1	49	22.97		2
	25	0	21.95	0-3	3
	25	12	21.93		3
	25	25	21.81		3
	50	0	21.94		3
256QAM	1	0	20.18	0-5	5
	1	25	19.86		5
	1	49	19.97		5
	25	0	19.94		5
	25	12	19.90		5
	25	25	19.92		5
	50	0	19.91		5

Note: LTE Band 5 (Cell) 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 9-25
LTE Band 5 (Cell) Conducted Powers - 5 MHz Bandwidth

LTE Band 5 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20425 (826.5 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20625 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.71	24.86	24.87	0	0
	1	12	24.54	24.76	24.81		0
	1	24	24.59	24.88	24.69		0
	12	0	24.27	24.32	24.32	0-1	1
	12	6	24.25	24.33	24.28		1
	12	13	24.18	24.31	24.26		1
	25	0	24.20	24.26	24.33		1
16QAM	1	0	24.11	24.48	24.06	0-1	1
	1	12	24.08	24.47	23.72		1
	1	24	24.07	24.52	24.01		1
	12	0	23.35	23.34	23.42	0-2	2
	12	6	23.24	23.31	23.39		2
	12	13	23.28	23.28	23.32		2
	25	0	23.24	23.31	23.29		2
64QAM	1	0	23.23	23.51	23.43	0-2	2
	1	12	23.18	22.89	22.82		2
	1	24	23.42	23.14	23.19		2
	12	0	22.31	22.33	22.33	0-3	3
	12	6	22.25	22.38	22.39		3
	12	13	22.28	22.34	22.29		3
	25	0	22.23	22.24	22.31		3
256QAM	1	0	19.78	19.97	20.32	0-5	5
	1	12	19.46	19.74	20.44		5
	1	24	19.86	19.87	20.25		5
	12	0	20.13	20.27	20.30		5
	12	6	20.17	20.15	20.33		5
	12	13	20.14	20.29	20.29		5
	25	0	20.21	20.25	20.31		5

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Table 9-26
LTE Band 5 (Cell) Conducted Powers - 3 MHz Bandwidth

LTE Band 5 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20415 (825.5 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20635 (847.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.04	24.96	25.01	0	0
	1	7	24.46	24.72	24.57		0
	1	14	24.97	25.08	24.93		0
	8	0	24.17	24.24	24.28	0-1	1
	8	4	24.23	24.33	24.35		1
	8	7	24.24	24.16	24.10		1
	15	0	24.15	24.30	24.31		1
16QAM	1	0	23.82	24.20	24.39	0-1	1
	1	7	23.58	24.29	24.36		1
	1	14	23.99	23.94	24.14		1
	8	0	23.25	23.21	23.32	0-2	2
	8	4	23.27	23.34	23.35		2
	8	7	23.18	23.18	23.27		2
	15	0	23.22	23.31	23.33		2
64QAM	1	0	22.76	23.48	23.19	0-2	2
	1	7	22.57	23.44	22.76		2
	1	14	23.20	23.43	23.15		2
	8	0	22.18	22.40	22.35	0-3	3
	8	4	22.13	22.31	22.15		3
	8	7	22.01	22.17	22.12		3
	15	0	22.18	22.35	22.27		3
256QAM	1	0	20.00	20.33	19.80	0-5	5
	1	7	20.24	19.77	19.68		5
	1	14	20.14	20.04	20.20		5
	8	0	20.13	20.31	20.33		5
	8	4	20.12	20.12	20.16		5
	8	7	20.02	20.22	20.19		5
	15	0	20.17	20.33	20.12		5

Table 9-27
LTE Band 5 (Cell) Conducted Powers -1.4 MHz Bandwidth

LTE Band 5 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20407 (824.7 MHz)	Mid Channel 20525 (836.5 MHz)	High Channel 20643 (848.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.87	24.97	24.82	0	0
	1	2	24.83	25.20	24.99		0
	1	5	24.94	25.16	24.88		0
	3	0	24.93	25.04	25.06		0
	3	2	24.96	25.15	25.01		0
	3	3	25.00	25.07	24.91		0
	6	0	24.16	24.27	24.20	0-1	1
16QAM	1	0	24.03	24.04	24.07	0-1	1
	1	2	23.97	24.32	24.31		1
	1	5	24.14	24.32	24.16		1
	3	0	23.81	24.24	24.22		1
	3	2	23.92	24.28	24.29		1
	3	3	24.01	24.25	24.15		1
	6	0	23.08	23.25	23.26	0-2	2
64QAM	1	0	23.28	23.29	23.01	0-2	2
	1	2	23.30	23.47	23.14		2
	1	5	23.44	23.11	23.13		2
	3	0	22.93	23.12	23.27		2
	3	2	23.16	23.25	23.32		2
	3	3	22.90	23.33	23.25		2
	6	0	22.01	22.09	22.26	0-5	3
256QAM	1	0	20.11	20.30	20.26		5
	1	2	20.18	20.53	20.48		5
	1	5	20.28	20.40	20.27		5
	3	0	19.94	19.95	20.03		5
	3	2	19.93	20.02	20.07		5
	3	3	20.00	20.14	20.16		5
	6	0	19.93	20.10	20.10	0-3	5

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9.4.7 LTE Band 66 (AWS)

Table 9-28
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	24.35	24.39	**24.55**	0	0
	1	50	24.13	24.47	24.26		0
	1	99	24.13	24.43	24.24		0
	50	0	23.42	23.68	**23.72**	0-1	1
	50	25	23.34	23.62	23.55		1
	50	50	23.36	23.62	23.48		1
	100	0	23.34	23.66	23.53		1
16QAM	1	0	23.66	23.42	23.79	0-1	1
	1	50	23.54	23.79	23.42		1
	1	99	23.36	23.77	23.30		1
	50	0	22.42	22.72	22.62	0-2	2
	50	25	22.35	22.67	22.55		2
	50	50	22.36	22.61	22.48		2
	100	0	22.33	22.64	22.53		2
64QAM	1	0	22.51	22.46	22.70	0-2	2
	1	50	22.37	22.66	22.30		2
	1	99	22.43	22.69	22.35		2
	50	0	21.42	21.73	21.62	0-3	3
	50	25	21.35	21.67	21.58		3
	50	50	21.36	21.61	21.50		3
	100	0	21.35	21.66	21.54		3
256QAM	1	0	19.47	19.54	19.61	0-5	5
	1	50	19.39	19.43	19.44		5
	1	99	19.29	19.47	19.65		5
	50	0	19.38	19.51	19.69		5
	50	25	19.31	19.44	19.66		5
	50	50	19.25	19.41	19.63		5
	100	0	19.35	19.37	19.67		5

Table 9-29
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	24.27	24.51	24.49	0	0
	1	36	24.18	24.50	24.47		0
	1	74	24.28	24.58	24.27		0
	36	0	23.36	23.70	23.63	0-1	1
	36	18	23.35	23.70	23.65		1
	36	37	23.29	23.69	23.60		1
	75	0	23.35	23.71	23.64		1
16QAM	1	0	23.57	23.77	23.95	0-1	1
	1	36	23.54	23.91	23.78		1
	1	74	23.60	23.91	23.44		1
	36	0	22.37	22.75	22.69	0-2	2
	36	18	22.35	22.71	22.68		2
	36	37	22.31	22.69	22.60		2
	75	0	22.38	22.72	22.63		2
64QAM	1	0	22.67	22.72	22.81	0-2	2
	1	36	22.49	22.78	22.79		2
	1	74	22.62	22.81	22.49		2
	36	0	21.42	21.76	21.72	0-3	3
	36	18	21.40	21.75	21.67		3
	36	37	21.31	21.70	21.62		3
	75	0	21.33	21.72	21.62		3
256QAM	1	0	19.41	19.61	19.57	0-5	5
	1	36	19.31	19.59	19.67		5
	1	74	19.45	19.60	19.66		5
	36	0	19.22	19.51	19.55		5
	36	18	19.25	19.53	19.56		5
	36	37	19.13	19.50	19.50		5
	75	0	19.27	19.50	19.54		5

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Table 9-30
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	23.98	24.38	24.29	0	0
	1	25	24.05	24.38	24.31		0
	1	49	24.01	24.38	24.23		0
	25	0	23.15	23.56	23.49	0-1	1
	25	12	23.17	23.57	23.50		1
	25	25	23.09	23.55	23.44		1
	50	0	23.21	23.58	23.53		1
16QAM	1	0	23.39	23.69	23.74	0-1	1
	1	25	23.40	23.72	23.69		1
	1	49	23.34	23.62	23.57		1
	25	0	22.20	22.57	22.51	0-2	2
	25	12	22.21	22.57	22.51		2
	25	25	22.12	22.53	22.47		2
	50	0	22.19	22.57	22.51		2
64QAM	1	0	22.33	22.76	22.67	0-2	2
	1	25	22.37	22.65	22.66		2
	1	49	22.29	22.73	22.52		2
	25	0	21.21	21.57	21.53	0-3	3
	25	12	21.23	21.59	21.52		3
	25	25	21.14	21.51	21.46		3
	50	0	21.20	21.59	21.53		3
256QAM	1	0	19.17	19.63	19.43	0-5	5
	1	25	19.19	19.55	19.42		5
	1	49	19.16	19.48	19.47		5
	25	0	19.10	19.43	19.44		5
	25	12	19.08	19.55	19.41		5
	25	25	19.02	19.43	19.39		5
	50	0	19.09	19.45	19.42		5

Table 9-31
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	24.24	24.39	24.23	0	0
	1	12	24.39	24.31	24.37		0
	1	24	24.17	24.16	24.03		0
	12	0	23.15	23.52	23.50	0-1	1
	12	6	23.16	23.55	23.51		1
	12	13	23.21	23.53	23.51		1
	25	0	23.17	23.56	23.50		1
16QAM	1	0	23.31	23.89	23.52	0-1	1
	1	12	23.44	23.52	23.63		1
	1	24	23.23	23.18	23.36		1
	12	0	22.21	22.59	22.51	0-2	2
	12	6	22.17	22.60	22.58		2
	12	13	22.22	22.61	22.57		2
	25	0	22.20	22.58	22.50		2
64QAM	1	0	22.14	22.20	22.43	0-2	2
	1	12	22.05	22.06	22.81		2
	1	24	22.25	22.02	22.45		2
	12	0	21.21	21.68	21.61	0-3	3
	12	6	21.26	21.63	21.59		3
	12	13	21.25	21.69	21.56		3
	25	0	21.19	21.58	21.48		3
256QAM	1	0	19.54	19.64	19.52	0-5	5
	1	12	19.48	19.65	19.66		5
	1	24	19.32	19.57	19.52		5
	12	0	19.36	19.49	19.38		5
	12	6	19.14	19.41	19.41		5
	12	13	19.25	19.50	19.42		5
	25	0	19.21	19.46	19.44		5

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Table 9-32
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	24.13	24.52	24.20	0	0
	1	7	24.14	24.63	24.63		0
	1	14	24.04	24.72	24.15		0
	8	0	23.13	23.61	23.46	0-1	1
	8	4	23.06	23.51	23.53		1
	8	7	23.08	23.54	23.35		1
	15	0	23.14	23.67	23.54		1
16QAM	1	0	23.31	23.71	23.48	0-1	1
	1	7	22.87	23.76	23.69		1
	1	14	22.86	23.59	23.44		1
	8	0	22.14	22.66	22.39	0-2	2
	8	4	22.06	22.76	22.38		2
	8	7	22.01	22.61	22.47		2
	15	0	22.14	22.53	22.45		2
64QAM	1	0	22.38	22.89	22.17	0-2	2
	1	7	22.20	22.73	22.44		2
	1	14	22.44	22.83	22.55		2
	8	0	21.10	21.63	21.47	0-3	3
	8	4	21.31	21.54	21.44		3
	8	7	21.19	21.49	21.38		3
	15	0	21.19	21.59	21.43		3
256QAM	1	0	19.34	19.51	19.61	0-5	5
	1	7	19.49	19.46	19.51		5
	1	14	19.35	19.31	19.54		5
	8	0	19.46	19.31	19.43		5
	8	4	19.24	19.31	19.61		5
	8	7	19.45	19.35	19.38		5
	15	0	19.36	19.41	19.42		5

Table 9-33
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	24.26	24.24	24.12	0	0
	1	2	24.18	24.46	24.44		0
	1	5	24.06	24.50	24.22		0
	3	0	23.94	24.01	24.04		0
	3	2	23.96	24.37	24.17		0
	3	3	23.92	24.27	24.24		0
	6	0	23.24	23.55	23.34	0-1	1
16QAM	1	0	23.64	23.33	23.57	0-1	1
	1	2	23.21	23.72	23.69		1
	1	5	23.59	23.18	23.55		1
	3	0	23.12	23.22	23.25		1
	3	2	23.13	23.43	23.17		1
	3	3	23.11	23.36	23.17		1
	6	0	22.06	22.31	22.45	0-2	2
64QAM	1	0	22.50	22.80	22.59	0-2	2
	1	2	22.24	22.62	22.64		2
	1	5	22.28	22.82	22.37		2
	3	0	22.02	22.27	22.26		2
	3	2	21.82	22.49	22.40		2
	3	3	22.09	22.51	22.48		2
	6	0	21.05	21.22	21.35	0-3	3
256QAM	1	0	19.58	19.57	19.75	0-5	5
	1	2	19.25	19.52	19.65		5
	1	5	19.11	19.37	19.68		5
	3	0	19.57	19.45	19.61		5
	3	2	19.35	19.45	19.79		5
	3	3	19.56	19.49	19.56		5
	6	0	19.47	19.55	19.60		5

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Table 9-34
LTE Band 66 (AWS) Reduced 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	20.12	**20.48**	20.32	0	0
	1	50	19.94	20.31	19.89		0
	1	99	19.98	20.26	20.10		0
	50	0	20.31	**20.62**	20.51	0-1	0
	50	25	20.21	20.55	20.45		0
	50	50	20.23	20.50	20.38		0
	100	0	20.23	20.44	20.44		0
16QAM	1	0	20.51	20.75	20.69	0-1	0
	1	50	20.32	20.66	20.27		0
	1	99	20.36	20.65	20.50		0
	50	0	20.33	20.64	20.53	0-2	0
	50	25	20.26	20.58	20.47		0
	50	50	20.26	20.52	20.40		0
	100	0	20.25	20.57	20.46		0
64QAM	1	0	20.40	20.67	20.56	0-2	0
	1	50	20.30	20.63	20.51		0
	1	99	20.31	20.57	20.44		0
	50	0	20.40	20.70	20.60	0-3	0
	50	25	20.33	20.64	20.54		0
	50	50	20.32	20.58	20.46		0
	100	0	20.32	20.63	20.51		0
256QAM	1	0	19.43	19.47	19.64	0-5	1
	1	50	19.41	19.42	19.42		1
	1	99	19.38	19.46	19.69		1
	50	0	19.42	19.52	19.64		1
	50	25	19.31	19.44	19.63		1
	50	50	19.29	19.43	19.61		1
	100	0	19.31	19.49	19.65		1

Table 9-35
LTE Band 66 (AWS) Reduced 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	20.17	20.54	20.48	0	0
	1	36	20.13	20.46	20.45		0
	1	74	20.17	20.47	20.40		0
	36	0	20.32	20.65	20.61	0-1	0
	36	18	20.43	20.66	20.63		0
	36	37	20.23	20.64	20.61		0
	75	0	20.35	20.65	20.61		0
16QAM	1	0	20.52	20.87	20.90	0-1	0
	1	36	20.63	20.81	20.77		0
	1	74	20.64	20.84	20.73		0
	36	0	20.34	20.70	20.62	0-2	0
	36	18	20.27	20.68	20.62		0
	36	37	20.25	20.62	20.59		0
	75	0	20.28	20.68	20.61		0
64QAM	1	0	20.50	20.79	20.72	0-2	0
	1	36	20.34	20.80	20.68		0
	1	74	20.39	20.80	20.66		0
	36	0	20.38	20.68	20.63	0-3	0
	36	18	20.35	20.67	20.67		0
	36	37	20.30	20.68	20.57		0
	75	0	20.34	20.69	20.64		0
256QAM	1	0	19.48	19.78	19.72	0-5	1
	1	36	19.37	19.82	19.66		1
	1	74	19.48	19.64	19.64		1
	36	0	19.27	19.68	19.68		1
	36	18	19.31	19.72	19.62		1
	36	37	19.24	19.68	19.58		1
	75	0	19.30	19.73	19.61		1

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Table 9-36
LTE Band 66 (AWS) Reduced 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	20.01	20.27	20.33	0	0
	1	25	20.00	20.24	20.36		0
	1	49	20.22	20.19	20.27		0
	25	0	20.15	20.10	20.48	0-1	0
	25	12	20.13	20.37	20.46		0
	25	25	20.09	20.34	20.38		0
	50	0	20.15	20.35	20.45		0
16QAM	1	0	20.44	20.55	20.72	0-1	0
	1	25	20.39	20.57	20.66		0
	1	49	20.32	20.52	20.73		0
	25	0	20.19	20.39	20.47	0-2	0
	25	12	20.18	20.38	20.40		0
	25	25	20.11	20.32	20.38		0
	50	0	20.14	20.38	20.44		0
64QAM	1	0	20.30	20.60	20.72	0-2	0
	1	25	20.31	20.21	20.51		0
	1	49	20.30	20.53	20.58		0
	25	0	20.12	20.37	20.42	0-3	0
	25	12	20.35	20.40	20.45		0
	25	25	20.12	20.34	20.38		0
	50	0	20.15	20.40	20.45		0
256QAM	1	0	19.23	19.43	19.59	0-5	1
	1	25	19.34	19.46	19.51		1
	1	49	19.21	19.40	19.45		1
	25	0	19.20	19.39	19.36		1
	25	12	19.20	19.42	19.46		1
	25	25	19.10	19.35	19.40		1
	50	0	19.15	19.39	19.45		1

Table 9-37
LTE Band 66 (AWS) Reduced 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	20.04	20.40	20.30	0	0
	1	12	19.67	20.02	19.97		0
	1	24	20.15	20.03	20.01		0
	12	0	20.09	20.43	20.50	0-1	0
	12	6	20.12	20.54	20.48		0
	12	13	20.11	20.57	20.43		0
	25	0	20.20	20.55	20.40		0
16QAM	1	0	20.57	20.21	20.27	0-1	0
	1	12	19.98	20.05	20.34		0
	1	24	20.16	20.41	20.35		0
	12	0	20.14	20.61	20.47	0-2	0
	12	6	20.35	20.65	20.46		0
	12	13	20.10	20.64	20.37		0
	25	0	20.12	20.56	20.36		0
64QAM	1	0	20.20	20.71	20.35	0-2	0
	1	12	19.87	20.87	19.83		0
	1	24	20.02	20.74	20.22		0
	12	0	20.10	20.56	20.48	0-3	0
	12	6	20.17	20.65	20.44		0
	12	13	20.05	20.62	20.37		0
	25	0	20.10	20.55	20.50		0
256QAM	1	0	19.26	19.89	19.42	0-5	1
	1	12	19.01	19.52	18.95		1
	1	24	19.15	19.21	19.22		1
	12	0	19.11	19.51	19.28		1
	12	6	19.13	19.59	19.41		1
	12	13	19.15	19.85	19.41		1
	25	0	19.16	19.44	19.45		1

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Table 9-38
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	19.99	20.10	20.67	0	0
	1	7	19.78	19.82	20.53		0
	1	14	20.06	19.96	20.57		0
	8	0	19.82	20.40	20.25	0-1	0
	8	4	20.12	20.55	20.21		0
	8	7	20.10	20.42	20.16		0
	15	0	20.05	20.54	20.34		0
16QAM	1	0	20.07	20.32	20.48	0-1	0
	1	7	20.02	19.89	20.44		0
	1	14	20.13	20.20	20.69		0
	8	0	20.19	20.53	20.27	0-2	0
	8	4	20.20	20.49	20.51		0
	8	7	20.08	20.43	20.28		0
	15	0	20.04	20.40	20.32		0
64QAM	1	0	20.16	20.35	20.26	0-2	0
	1	7	19.37	20.02	20.02		0
	1	14	20.17	20.20	19.82		0
	8	0	20.13	20.26	20.35	0-3	0
	8	4	20.03	20.31	20.42		0
	8	7	20.10	20.37	20.35		0
	15	0	20.22	20.51	20.33		0
256QAM	1	0	19.05	19.35	19.60	0-5	1
	1	7	19.14	19.40	19.02		1
	1	14	19.13	19.35	19.10		1
	8	0	19.02	19.12	19.40		1
	8	4	19.04	19.37	19.31		1
	8	7	19.14	19.28	19.19		1
	15	0	19.11	19.18	19.23		1

Table 9-39
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	20.11	20.47	20.25	0	0
	1	2	20.18	20.35	20.24		0
	1	5	20.27	20.45	20.15		0
	3	0	19.70	20.20	20.01		0
	3	2	19.62	20.10	20.23		0
	3	3	19.82	20.12	20.23		0
	6	0	20.20	20.26	20.30	0-1	0
16QAM	1	0	20.06	20.56	20.22	0-1	0
	1	2	19.90	20.78	20.85		0
	1	5	19.83	20.59	20.01		0
	3	0	19.74	20.24	20.31		0
	3	2	20.06	20.25	20.45		0
	3	3	19.95	20.49	20.15		0
	6	0	19.80	20.38	20.20	0-2	0
64QAM	1	0	19.77	20.34	20.43	0-2	0
	1	2	20.07	20.44	20.71		0
	1	5	20.05	20.22	20.53		0
	3	0	19.82	20.20	20.12		0
	3	2	19.83	20.45	20.22		0
	3	3	19.98	20.48	20.33		0
	6	0	20.01	20.23	20.50	0-3	0
256QAM	1	0	19.14	19.20	19.05	0-5	1
	1	2	19.29	19.60	19.42		1
	1	5	19.15	19.37	18.85		1
	3	0	18.83	19.12	19.03		1
	3	2	19.14	19.28	19.07		1
	3	3	19.26	19.12	19.15		1
	6	0	19.13	19.14	19.12		1

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9.4.8 LTE Band 25 (PCS)

Table 9-40
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	**23.90**	23.71	23.66	0	0
	1	50	23.64	23.39	23.59		0
	1	99	23.83	23.63	23.77		0
	50	0	**23.04**	22.85	22.94	0-1	1
	50	25	22.99	22.82	22.90		1
	50	50	22.96	22.73	22.87		1
	100	0	22.99	22.80	22.90		1
16QAM	1	0	23.30	23.04	22.94	0-1	1
	1	50	22.95	22.74	22.85		1
	1	99	23.07	23.03	23.08		1
	50	0	22.09	21.85	21.95	0-2	2
	50	25	22.02	21.80	21.91		2
	50	50	21.96	21.75	21.88		2
	100	0	21.95	21.74	21.86		2
64QAM	1	0	22.17	22.02	21.92	0-2	2
	1	50	21.73	21.57	21.80		2
	1	99	22.05	21.93	22.05		2
	50	0	21.09	20.90	21.06	0-3	3
	50	25	21.05	20.88	20.98		3
	50	50	21.04	20.80	20.94		3
	100	0	21.02	20.85	20.96		3
256QAM	1	0	19.11	19.02	19.08	0-5	5
	1	50	19.08	18.92	18.86		5
	1	99	18.99	18.98	18.64		5
	50	0	19.05	19.11	18.79		5
	50	25	19.02	19.01	18.65		5
	50	50	19.03	18.95	18.98		5
	100	0	18.95	18.89	18.74		5

Table 9-41
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	23.90	23.60	23.74	0	0
	1	36	23.78	23.53	23.68		0
	1	74	23.79	23.57	23.69		0
	36	0	22.99	22.75	22.91	0-1	1
	36	18	23.03	22.75	22.91		1
	36	37	22.98	22.72	22.87		1
	75	0	23.04	22.76	22.90		1
16QAM	1	0	23.29	23.01	23.08	0-1	1
	1	36	23.18	22.87	23.02		1
	1	74	23.15	22.80	23.04		1
	36	0	22.08	21.81	21.95	0-2	2
	36	18	22.04	21.78	21.93		2
	36	37	22.02	21.73	21.89		2
	75	0	22.05	21.77	21.91		2
64QAM	1	0	22.34	21.99	22.04	0-2	2
	1	36	22.13	21.83	22.03		2
	1	74	22.11	21.80	22.06		2
	36	0	21.08	20.81	20.97	0-3	3
	36	18	21.08	20.78	20.93		3
	36	37	21.02	20.75	20.91		3
	75	0	21.02	20.75	20.91		3
256QAM	1	0	19.26	18.97	19.01	0-5	5
	1	36	19.13	18.90	18.96		5
	1	74	19.17	18.69	18.87		5
	36	0	19.17	18.89	19.01		5
	36	18	19.18	18.84	18.99		5
	36	37	19.06	18.81	18.99		5
	75	0	19.10	18.87	18.93		5

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Table 9-42
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	23.73	23.53	23.64	0	0
	1	25	23.77	23.41	23.18		0
	1	49	23.68	23.43	23.61		0
	25	0	22.88	22.62	22.77	0-1	1
	25	12	22.90	22.60	22.79		1
	25	25	22.83	22.56	22.73		1
	50	0	22.94	22.62	22.81		1
16QAM	1	0	23.09	22.78	22.91	0-1	1
	1	25	23.08	22.82	22.58		1
	1	49	23.02	22.72	22.88		1
	25	0	21.95	21.65	21.77	0-2	2
	25	12	21.94	21.64	21.78		2
	25	25	21.89	21.57	21.75		2
	50	0	21.91	21.62	21.80		2
64QAM	1	0	22.13	21.84	21.87	0-2	2
	1	25	22.05	21.76	21.57		2
	1	49	22.03	21.71	21.87		2
	25	0	20.95	20.66	20.79	0-3	3
	25	12	20.96	20.65	20.83		3
	25	25	20.90	20.60	20.76		3
	50	0	20.92	20.64	20.80		3
256QAM	1	0	19.10	18.86	18.92	0-5	5
	1	25	19.15	18.85	18.88		5
	1	49	19.05	18.77	18.91		5
	25	0	19.00	18.76	18.89		5
	25	12	19.02	18.81	18.93		5
	25	25	18.94	18.68	18.82		5
	50	0	19.00	18.73	18.86		5

Table 9-43
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	23.61	23.37	23.48	0	0
	1	12	23.64	23.39	23.58		0
	1	24	23.59	23.40	23.62		0
	12	0	22.81	22.56	22.67	0-1	1
	12	6	22.88	22.61	22.71		1
	12	13	22.84	22.54	22.74		1
	25	0	22.87	22.55	22.69		1
16QAM	1	0	22.98	22.79	22.85	0-1	1
	1	12	22.98	22.71	22.88		1
	1	24	22.87	22.68	22.88		1
	12	0	21.85	21.65	21.79	0-2	2
	12	6	21.90	21.64	21.80		2
	12	13	21.85	21.63	21.85		2
	25	0	21.93	21.61	21.78		2
64QAM	1	0	22.07	21.79	21.89	0-2	2
	1	12	22.08	21.75	21.95		2
	1	24	21.99	21.74	21.95		2
	12	0	20.99	20.74	20.77	0-3	3
	12	6	21.00	20.73	20.82		3
	12	13	20.99	20.74	20.81		3
	25	0	20.95	20.68	20.81		3
256QAM	1	0	19.18	18.84	19.01	0-5	5
	1	12	19.19	18.86	19.15		5
	1	24	19.16	18.86	18.91		5
	12	0	19.12	18.78	18.85		5
	12	6	19.07	18.85	18.89		5
	12	13	19.06	18.86	18.96		5
	25	0	19.07	18.78	18.87		5

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Table 9-44
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	23.77	23.43	23.53	0	0
	1	7	23.72	23.39	23.58		0
	1	14	23.71	23.44	23.64		0
	8	0	22.84	22.57	22.70	0-1	1
	8	4	22.89	22.60	22.78		1
	8	7	22.84	22.56	22.76		1
	15	0	22.98	22.66	22.77		1
16QAM	1	0	23.09	22.79	22.85	0-1	1
	1	7	23.04	22.72	22.87		1
	1	14	23.05	22.76	22.94		1
	8	0	21.98	21.67	21.78	0-2	2
	8	4	21.95	21.69	21.84		2
	8	7	21.90	21.63	21.80		2
	15	0	21.91	21.61	21.76		2
64QAM	1	0	22.05	21.81	21.82	0-2	2
	1	7	22.01	21.70	21.88		2
	1	14	22.02	21.72	21.92		2
	8	0	20.94	20.67	20.75	0-3	3
	8	4	20.92	20.68	20.78		3
	8	7	20.94	20.68	20.73		3
	15	0	20.92	20.61	20.81		3
256QAM	1	0	19.27	18.87	19.01	0-5	5
	1	7	19.24	18.88	19.05		5
	1	14	19.18	18.92	19.05		5
	8	0	19.16	18.87	18.82		5
	8	4	19.19	18.72	19.03		5
	8	7	19.14	18.85	18.86		5
	15	0	19.09	18.76	18.95		5

Table 9-45
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	23.56	23.37	23.50	0	0
	1	2	23.67	23.43	23.59		0
	1	5	23.59	23.36	23.57		0
	3	0	23.73	23.43	23.61		0
	3	2	23.74	23.48	23.66		0
	3	3	23.73	23.41	23.63		0
	6	0	22.84	22.57	22.73	0-1	1
16QAM	1	0	22.97	22.63	22.85	0-1	1
	1	2	23.07	22.77	22.96		1
	1	5	23.07	22.71	22.82		1
	3	0	22.90	22.59	22.77		1
	3	2	22.97	22.59	22.82		1
	3	3	22.89	22.55	22.75		1
	6	0	21.89	21.61	21.78	0-2	2
64QAM	1	0	21.98	21.64	21.79	0-2	2
	1	2	22.05	21.77	21.88		2
	1	5	22.00	21.72	21.78		2
	3	0	21.92	21.63	21.74		2
	3	2	21.90	21.63	21.76		2
	3	3	21.92	21.66	21.77		2
	6	0	20.79	20.61	20.73	0-3	3
256QAM	1	0	19.14	18.79	18.95	0-5	5
	1	2	19.16	18.81	18.82		5
	1	5	19.15	18.76	19.10		5
	3	0	19.11	18.81	18.97		5
	3	2	19.19	18.86	19.05		5
	3	3	19.08	18.86	18.95		5
	6	0	19.00	18.73	18.94		5

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Table 9-46
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	**19.46**	19.17	19.23	0	0
	1	50	19.17	18.84	18.93		0
	1	99	19.31	19.03	19.27		0
	50	0	**19.57**	19.30	19.44	0-1	0
	50	25	19.53	19.22	19.41		0
	50	50	19.42	19.24	19.32		0
	100	0	19.45	19.23	19.40		0
16QAM	1	0	19.49	19.53	19.34	0-1	0
	1	50	19.30	19.23	19.23		0
	1	99	19.58	19.35	19.52		0
	50	0	19.56	19.26	19.47	0-2	0
	50	25	19.46	19.19	19.37		0
	50	50	19.41	19.13	19.33		0
	100	0	19.44	19.23	19.37		0
64QAM	1	0	19.66	19.47	19.40	0-2	0
	1	50	19.40	19.11	19.10		0
	1	99	19.62	19.37	19.44		0
	50	0	19.58	19.35	19.42	0-3	0
	50	25	19.50	19.29	19.40		0
	50	50	19.44	19.24	19.30		0
	100	0	19.48	19.31	19.40		0
256QAM	1	0	18.56	18.38	18.27	0-5	1
	1	50	18.14	18.03	18.09		1
	1	99	18.52	18.23	18.44		1
	50	0	18.50	18.27	18.41		1
	50	25	18.49	18.19	18.30		1
	50	50	18.41	18.14	18.27		1
	100	0	18.48	18.21	18.40		1

Table 9-47
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	19.32	18.97	19.10	0	0
	1	36	19.19	18.87	19.05		0
	1	74	19.15	18.90	19.06		0
	36	0	19.33	19.13	19.27	0-1	0
	36	18	19.34	19.10	19.23		0
	36	37	19.27	19.03	19.21		0
	75	0	19.32	19.08	19.20		0
16QAM	1	0	19.36	19.10	19.21	0-1	0
	1	36	19.26	18.98	19.14		0
	1	74	19.24	19.07	19.10		0
	36	0	19.31	19.02	19.21	0-2	0
	36	18	19.31	19.01	19.15		0
	36	37	19.27	18.99	19.26		0
	75	0	19.22	19.03	19.23		0
64QAM	1	0	19.54	19.28	19.31	0-2	0
	1	36	19.43	19.13	19.30		0
	1	74	19.37	19.06	19.26		0
	36	0	19.32	19.07	19.25	0-3	0
	36	18	19.33	19.07	19.22		0
	36	37	19.28	18.97	19.19		0
	75	0	19.32	19.08	19.29		0
256QAM	1	0	18.53	18.44	18.41	0-5	1
	1	36	18.39	18.25	18.37		1
	1	74	18.26	18.26	18.40		1
	36	0	18.71	18.29	18.48		1
	36	18	18.65	18.26	18.44		1
	36	37	18.53	18.25	18.42		1
	75	0	18.48	18.27	18.44		1

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Table 9-48
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	19.13	19.01	19.04	0	0
	1	25	19.08	18.60	18.60		0
	1	49	19.03	18.94	18.94		0
	25	0	19.20	19.09	19.12	0-1	0
	25	12	19.21	19.11	19.08		0
	25	25	19.12	19.07	19.10		0
	50	0	19.17	19.10	19.10		0
16QAM	1	0	19.26	19.08	19.07	0-1	0
	1	25	19.20	19.04	18.66		0
	1	49	19.17	19.05	19.05		0
	25	0	19.17	19.06	19.18	0-2	0
	25	12	19.21	19.11	19.13		0
	25	25	19.12	19.04	19.08		0
	50	0	19.16	19.08	19.12		0
64QAM	1	0	19.34	19.18	19.16	0-2	0
	1	25	19.34	18.80	18.91		0
	1	49	19.22	19.14	19.13		0
	25	0	19.21	19.15	19.18	0-3	0
	25	12	19.22	19.10	19.13		0
	25	25	19.14	19.11	19.07		0
	50	0	19.20	19.14	19.15		0
256QAM	1	0	18.15	18.01	18.22	0-5	1
	1	25	18.30	18.14	18.00		1
	1	49	18.26	18.13	18.20		1
	25	0	18.33	18.03	18.26		1
	25	12	18.36	18.09	18.28		1
	25	25	18.27	18.00	18.19		1
	50	0	18.34	18.08	18.31		1

Table 9-49
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	19.02	19.20	19.22	0	0
	1	12	19.53	19.19	19.20		0
	1	24	19.28	18.67	19.25		0
	12	0	19.42	19.10	19.30	0-1	0
	12	6	19.44	19.12	19.23		0
	12	13	19.36	18.93	19.29		0
	25	0	19.40	18.96	19.30		0
16QAM	1	0	19.61	19.03	19.23	0-1	0
	1	12	19.55	19.14	19.02		0
	1	24	19.23	18.69	19.02		0
	12	0	19.47	18.89	19.33	0-2	0
	12	6	19.45	18.97	19.32		0
	12	13	19.39	18.95	19.27		0
	25	0	19.40	18.96	19.30		0
64QAM	1	0	19.60	18.80	19.13	0-2	0
	1	12	19.35	18.63	19.00		0
	1	24	19.32	18.88	19.29		0
	12	0	19.50	18.98	19.35	0-3	0
	12	6	19.46	19.02	19.30		0
	12	13	19.32	18.96	19.20		0
	25	0	19.44	19.00	19.21		0
256QAM	1	0	18.35	18.30	18.33	0-5	1
	1	12	18.28	18.11	18.52		1
	1	24	18.54	18.25	18.47		1
	12	0	18.42	18.15	18.28		1
	12	6	18.54	18.12	18.37		1
	12	13	18.30	18.11	18.35		1
	25	0	18.38	18.14	18.23		1

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Table 9-50
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	19.10	19.17	19.10	0	0
	1	7	19.37	19.20	19.56		0
	1	14	19.13	19.30	19.41		0
	8	0	19.14	19.22	19.25	0-1	0
	8	4	19.23	19.14	19.23		0
	8	7	19.02	18.95	19.27		0
	15	0	19.24	19.09	19.39		0
16QAM	1	0	18.98	19.17	19.33	0-1	0
	1	7	19.18	19.32	19.25		0
	1	14	19.30	19.33	19.56		0
	8	0	19.15	19.24	19.44	0-2	0
	8	4	19.18	19.19	19.43		0
	8	7	19.00	19.17	19.42		0
	15	0	19.19	19.27	19.41		0
64QAM	1	0	19.52	19.24	19.59	0-2	0
	1	7	19.54	19.10	19.17		0
	1	14	19.26	19.29	19.55		0
	8	0	19.25	19.08	19.32	0-3	0
	8	4	19.28	19.17	19.43		0
	8	7	19.11	19.05	19.11		0
	15	0	19.23	19.20	19.42		0
256QAM	1	0	18.30	18.44	18.50	0-5	1
	1	7	18.00	18.13	18.32		1
	1	14	18.52	18.12	18.41		1
	8	0	18.42	18.17	18.37		1
	8	4	18.50	18.16	18.27		1
	8	7	18.25	18.13	18.25		1
	15	0	18.29	18.16	18.41		1

Table 9-51
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	19.51	19.33	19.39	0	0
	1	2	19.30	19.20	19.05		0
	1	5	19.38	19.05	19.28		0
	3	0	18.95	18.77	18.79		0
	3	2	18.89	18.72	19.02		0
	3	3	18.94	18.99	18.92		0
	6	0	19.28	18.95	19.33	0-1	0
16QAM	1	0	19.60	19.38	19.70	0-1	0
	1	2	19.38	19.25	19.51		0
	1	5	19.30	19.17	19.44		0
	3	0	19.15	18.80	19.05		0
	3	2	19.39	19.02	19.31		0
	3	3	19.35	19.04	19.22		0
	6	0	19.20	18.85	19.15	0-2	0
64QAM	1	0	19.35	19.13	19.19	0-2	0
	1	2	19.51	19.44	19.20		0
	1	5	19.46	19.26	19.30		0
	3	0	19.17	18.72	19.38		0
	3	2	19.37	19.11	19.50		0
	3	3	19.35	19.05	19.31		0
	6	0	19.34	19.15	19.22	0-3	0
256QAM	1	0	18.41	18.17	18.41	0-5	1
	1	2	18.55	18.35	18.13		1
	1	5	18.55	18.51	18.10		1
	3	0	18.16	18.02	18.20		1
	3	2	18.27	18.10	18.32		1
	3	3	18.21	18.13	18.31		1
	6	0	18.25	18.02	18.39		1

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9.4.9 LTE Band 30

Table 9-52
LTE Band 30 Conducted Powers - 10 MHz Bandwidth

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 27710 (2310.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**22.70**	0	0
	1	25	22.58		0
	1	49	22.68		0
	25	0	**21.99**	0-1	1
	25	12	21.97		1
	25	25	21.93		1
	50	0	21.98		1
16QAM	1	0	22.21	0-1	1
	1	25	22.05		1
	1	49	22.17		1
	25	0	21.01	0-2	2
	25	12	21.02		2
	25	25	20.94		2
	50	0	20.98		2
64QAM	1	0	21.13	0-2	2
	1	25	20.97		2
	1	49	21.04		2
	25	0	20.02	0-3	3
	25	12	20.02		3
	25	25	19.95		3
	50	0	19.98		3
256QAM	1	0	18.22	0-5	5
	1	25	18.00		5
	1	49	18.04		5
	25	0	18.09		5
	25	12	18.06		5
	25	25	18.01		5
	50	0	18.07		5

Table 9-53
LTE Band 30 Conducted Powers - 5 MHz Bandwidth

LTE Band 30 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 27710 (2310.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	22.64	0	0
	1	12	22.78		0
	1	24	22.62		0
	12	0	21.73	0-1	1
	12	6	21.80		1
	12	13	21.74		1
	25	0	21.75		1
16QAM	1	0	21.98	0-1	1
	1	12	22.05		1
	1	24	21.93		1
	12	0	20.84	0-2	2
	12	6	20.88		2
	12	13	20.82		2
	25	0	20.76		2
64QAM	1	0	20.91	0-2	2
	1	12	21.06		2
	1	24	20.90		2
	12	0	19.81	0-3	3
	12	6	19.85		3
	12	13	19.79		3
	25	0	19.74		3
256QAM	1	0	17.77	0-5	5
	1	12	17.91		5
	1	24	17.76		5
	12	0	17.72		5
	12	6	17.76		5
	12	13	17.77		5
	25	0	17.70		5

Note: LTE Band 30 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.

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Table 9-54
LTE Band 30 Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 27710 (2310.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**18.30**	0	0
	1	25	17.96		0
	1	49	18.19		0
	25	0	**18.10**	0-1	0
	25	12	18.06		0
	25	25	17.99		0
	50	0	18.06		0
16QAM	1	0	18.27	0-1	0
	1	25	18.04		0
	1	49	18.20		0
	25	0	18.15	0-2	0
	25	12	18.13		0
	25	25	18.03		0
	50	0	18.08		0
64QAM	1	0	18.50	0-2	0
	1	25	17.96		0
	1	49	18.19		0
	25	0	18.19	0-3	0
	25	12	18.20		0
	25	25	18.10		0
	50	0	18.15		0
256QAM	1	0	17.69	0-5	0.5
	1	25	17.41		0.5
	1	49	17.60		0.5
	25	0	17.66		0.5
	25	12	17.72		0.5
	25	25	17.61		0.5
	50	0	17.64		0.5

Table 9-55
LTE Band 30 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 30 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 27710 (2310.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	18.08	0	0
	1	12	18.09		0
	1	24	18.00		0
	12	0	18.15	0-1	0
	12	6	18.19		0
	12	13	18.14		0
	25	0	18.17		0
16QAM	1	0	18.23	0-1	0
	1	12	18.44		0
	1	24	18.30		0
	12	0	18.26	0-2	0
	12	6	18.28		0
	12	13	18.24		0
	25	0	18.19		0
64QAM	1	0	18.33	0-2	0
	1	12	18.42		0
	1	24	18.34		0
	12	0	18.27	0-3	0
	12	6	18.29		0
	12	13	18.24		0
	25	0	18.19		0
256QAM	1	0	17.80	0-5	0.5
	1	12	17.88		0.5
	1	24	17.78		0.5
	12	0	17.70		0.5
	12	6	17.80		0.5
	12	13	17.77		0.5
	25	0	17.69		0.5

Note: LTE Band 30 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.

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9.4.10 LTE Band 7

Table 9-56
LTE Band 7 Antenna B Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20850 (2510.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21350 (2560.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.17	23.30	**23.33**	0	0
	1	50	23.00	23.08	23.01		0
	1	99	23.29	23.19	23.30		0
	50	0	22.37	22.57	**22.58**	0-1	1
	50	25	22.41	22.53	22.48		1
	50	50	22.39	22.41	22.48		1
	100	0	22.21	22.52	22.53		1
16QAM	1	0	22.46	22.63	22.73	0-1	1
	1	50	22.56	22.70	22.49		1
	1	99	22.58	22.63	22.58		1
	50	0	21.43	21.54	21.55	0-2	2
	50	25	21.45	21.55	21.48		2
	50	50	21.42	21.46	21.43		2
	100	0	21.41	21.53	21.48		2
64QAM	1	0	21.41	21.63	21.68	0-2	2
	1	50	21.05	21.21	21.18		2
	1	99	21.55	21.50	21.58		2
	50	0	20.45	20.58	20.56	0-3	3
	50	25	20.46	20.56	20.47		3
	50	50	20.36	20.54	20.51		3
	100	0	20.40	20.49	20.49		3
256QAM	1	0	18.38	18.68	18.36	0-5	5
	1	50	18.25	18.33	18.34		5
	1	99	18.32	18.42	18.44		5
	50	0	18.31	18.43	18.43		5
	50	25	18.29	18.51	18.37		5
	50	50	18.31	18.36	18.28		5
	100	0	18.34	18.49	18.48		5

Table 9-57
LTE Band 7 Antenna B Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 7 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20825 (2507.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21375 (2562.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.19	23.53	23.26	0	0
	1	36	23.42	23.52	23.20		0
	1	74	23.51	23.42	23.25		0
	36	0	22.52	22.74	22.62	0-1	1
	36	18	22.59	22.73	22.73		1
	36	37	22.61	22.74	22.63		1
	75	0	22.28	22.75	22.51		1
16QAM	1	0	22.28	22.68	22.02	0-1	1
	1	36	22.74	22.83	21.94		1
	1	74	22.83	22.79	22.11		1
	36	0	21.66	21.79	21.74	0-2	2
	36	18	21.68	21.75	21.66		2
	36	37	21.56	21.72	21.69		2
	75	0	21.61	21.72	21.69		2
64QAM	1	0	21.38	21.69	21.07	0-2	2
	1	36	21.77	21.82	20.95		2
	1	74	21.80	21.73	21.20		2
	36	0	20.66	20.79	20.72	0-3	3
	36	18	20.66	20.78	20.67		3
	36	37	20.68	20.63	20.71		3
	75	0	20.63	20.72	20.67		3
256QAM	1	0	18.38	18.57	18.60	0-5	5
	1	36	18.37	18.56	18.58		5
	1	74	18.52	18.63	18.67		5
	36	0	18.35	18.48	18.49		5
	36	18	18.37	18.54	18.47		5
	36	37	18.38	18.51	18.46		5
	75	0	18.35	18.51	18.47		5

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Table 9-58
LTE Band 7 Antenna B Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 7 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20800 (2505.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21400 (2565.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.14	23.38	23.20	0	0
	1	25	22.95	22.96	23.25		0
	1	49	23.26	23.33	23.33		0
	25	0	22.35	22.53	22.55	0-1	1
	25	12	22.40	22.51	22.54		1
	25	25	22.40	22.45	22.56		1
	50	0	22.46	22.59	22.52		1
16QAM	1	0	22.27	22.63	22.00	0-1	1
	1	25	22.25	22.40	22.13		1
	1	49	22.63	22.59	22.21		1
	25	0	21.46	21.56	21.54	0-2	2
	25	12	21.48	21.56	21.59		2
	25	25	21.38	21.51	21.57		2
	50	0	21.47	21.54	21.56		2
64QAM	1	0	21.36	21.71	20.99	0-2	2
	1	25	21.16	21.37	21.14		2
	1	49	21.61	21.58	21.28		2
	25	0	20.45	20.58	20.55	0-3	3
	25	12	20.47	20.57	20.57		3
	25	25	20.47	20.51	20.57		3
	50	0	20.48	20.55	20.49		3
256QAM	1	0	18.24	18.40	18.25	0-5	5
	1	25	17.89	18.09	18.07		5
	1	49	18.27	18.39	18.39		5
	25	0	18.16	18.33	18.26		5
	25	12	18.15	18.35	18.31		5
	25	25	18.16	18.30	18.30		5
	50	0	18.15	18.32	18.29		5

Table 9-59
LTE Band 7 Antenna B Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 7 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20775 (2502.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21425 (2567.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.14	23.27	23.26	0	0
	1	12	23.19	23.36	23.40		0
	1	24	23.23	23.33	23.49		0
	12	0	22.26	22.38	22.37	0-1	1
	12	6	22.26	22.43	22.49		1
	12	13	22.27	22.40	22.48		1
	25	0	22.21	22.46	22.52		1
16QAM	1	0	22.43	22.70	22.08	0-1	1
	1	12	22.51	22.65	22.39		1
	1	24	22.46	22.60	22.36		1
	12	0	21.45	21.59	21.48	0-2	2
	12	6	21.47	21.60	21.63		2
	12	13	21.44	21.52	21.57		2
	25	0	21.40	21.54	21.50		2
64QAM	1	0	21.42	21.67	21.02	0-2	2
	1	12	21.54	21.70	21.33		2
	1	24	21.53	21.62	21.41		2
	12	0	20.44	20.60	20.55	0-3	3
	12	6	20.49	20.63	20.69		3
	12	13	20.48	20.56	20.60		3
	25	0	20.45	20.57	20.55		3
256QAM	1	0	18.31	18.52	18.51	0-5	5
	1	12	18.30	18.50	18.49		5
	1	24	18.33	18.47	18.53		5
	12	0	18.19	18.37	18.29		5
	12	6	18.23	18.43	18.46		5
	12	13	18.17	18.41	18.35		5
	25	0	18.19	18.40	18.33		5

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Table 9-60
LTE Band 7 Antenna B Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20850 (2510.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21350 (2560.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	17.64	17.83	**18.09**	0	0
	1	50	17.48	17.66	17.61		0
	1	99	17.74	17.76	17.87		0
	50	0	17.94	18.11	**18.14**	0-1	0
	50	25	17.97	18.07	18.09		0
	50	50	17.96	18.01	18.03		0
	100	0	18.02	18.07	18.08		0
16QAM	1	0	18.06	18.20	18.30	0-1	0
	1	50	18.18	18.25	18.27		0
	1	99	18.14	18.19	18.09		0
	50	0	18.01	18.16	18.11	0-2	0
	50	25	18.01	18.11	18.08		0
	50	50	18.10	18.02	18.01		0
	100	0	17.98	18.11	18.11		0
64QAM	1	0	18.00	18.16	18.25	0-2	0
	1	50	17.75	17.87	17.73		0
	1	99	18.12	18.09	18.15		0
	50	0	18.06	18.21	18.12	0-3	0
	50	25	17.91	18.13	18.08		0
	50	50	17.93	18.10	18.02		0
	100	0	18.01	18.10	18.07		0
256QAM	1	0	18.14	18.29	18.28	0-5	0
	1	50	17.98	18.03	18.02		0
	1	99	18.05	18.34	18.08		0
	50	0	18.01	18.13	18.18		0
	50	25	18.07	18.10	18.11		0
	50	50	18.02	18.04	18.13		0
	100	0	18.12	18.05	18.10		0

Table 9-61
LTE Band 7 Antenna B Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 7 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20825 (2507.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21375 (2562.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	17.81	17.99	18.05	0	0
	1	36	17.79	17.96	17.99		0
	1	74	17.88	17.92	18.02		0
	36	0	18.06	18.25	18.23	0-1	0
	36	18	18.09	18.21	18.13		0
	36	37	18.10	18.15	18.21		0
	75	0	18.14	18.25	18.29		0
16QAM	1	0	18.30	18.44	18.40	0-1	0
	1	36	18.29	18.31	18.33		0
	1	74	18.35	18.37	18.36		0
	36	0	18.26	18.31	18.24	0-2	0
	36	18	18.20	18.27	18.23		0
	36	37	18.22	18.23	18.21		0
	75	0	18.14	18.29	18.27		0
64QAM	1	0	18.28	18.43	18.50	0-2	0
	1	36	18.01	18.15	18.19		0
	1	74	18.36	18.27	18.41		0
	36	0	18.21	18.35	18.32	0-3	0
	36	18	18.24	18.34	18.28		0
	36	37	18.23	18.35	18.29		0
	75	0	18.16	18.23	18.27		0
256QAM	1	0	18.03	18.23	18.24	0-5	0
	1	36	18.02	18.21	18.20		0
	1	74	18.11	18.18	18.21		0
	36	0	18.00	18.19	18.13		0
	36	18	18.01	18.18	18.12		0
	36	37	18.01	18.15	18.09		0
	75	0	18.00	18.15	18.14		0

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Table 9-62
LTE Band 7 Antenna B Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 7 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20800 (2505.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21400 (2565.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	17.61	17.87	17.86	0	0
	1	25	17.32	17.44	17.44		0
	1	49	17.65	17.82	17.89		0
	25	0	17.87	18.07	18.04	0-1	0
	25	12	17.89	18.09	18.03		0
	25	25	17.87	18.01	18.01		0
	50	0	17.98	18.08	18.08		0
16QAM	1	0	18.08	18.22	18.21	0-1	0
	1	25	17.66	17.92	17.87		0
	1	49	18.12	18.09	18.17		0
	25	0	17.96	18.11	18.06	0-2	0
	25	12	18.03	18.14	18.12		0
	25	25	18.00	18.04	18.09		0
	50	0	18.02	18.07	18.09		0
64QAM	1	0	18.08	18.27	18.22	0-2	0
	1	25	17.64	17.83	17.86		0
	1	49	18.10	18.23	18.27		0
	25	0	18.02	18.13	18.12	0-3	0
	25	12	18.03	18.13	18.14		0
	25	25	17.94	18.09	18.11		0
	50	0	18.02	18.07	18.09		0
256QAM	1	0	17.90	18.10	18.06	0-5	0
	1	25	17.72	17.87	17.71		0
	1	49	17.91	18.05	18.03		0
	25	0	17.82	18.00	17.99		0
	25	12	17.83	18.04	17.97		0
	25	25	17.81	17.97	17.94		0
	50	0	17.82	18.00	17.99		0

Table 9-63
LTE Band 7 Antenna B Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 7 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20775 (2502.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21425 (2567.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	17.71	17.85	17.84	0	0
	1	12	17.75	17.88	17.93		0
	1	24	17.79	17.84	17.92		0
	12	0	17.92	18.08	18.04	0-1	0
	12	6	17.98	18.13	18.15		0
	12	13	17.94	18.09	18.07		0
	25	0	18.01	18.14	18.12		0
16QAM	1	0	18.13	18.28	18.26	0-1	0
	1	12	18.13	18.24	18.27		0
	1	24	18.19	18.20	18.32		0
	12	0	17.95	18.19	18.10	0-2	0
	12	6	18.05	18.22	18.26		0
	12	13	18.02	18.13	18.15		0
	25	0	18.01	18.19	18.03		0
64QAM	1	0	18.06	18.20	18.19	0-2	0
	1	12	17.88	18.06	18.15		0
	1	24	18.13	18.15	18.37		0
	12	0	18.05	18.19	18.13	0-3	0
	12	6	18.11	18.27	18.23		0
	12	13	18.05	18.20	18.25		0
	25	0	18.03	18.13	18.13		0
256QAM	1	0	17.97	18.10	18.11	0-5	0
	1	12	18.04	18.17	18.22		0
	1	24	17.98	18.09	18.14		0
	12	0	17.90	18.02	18.03		0
	12	6	17.93	18.12	18.11		0
	12	13	17.88	18.05	18.06		0
	25	0	17.91	18.10	18.02		0

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Table 9-64
LTE Band 7 Antenna A Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20850 (2510.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21350 (2560.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.05	23.40	23.34	0	0
	1	50	23.22	23.32	23.13		0
	1	99	**23.56**	23.53	23.22		0
	50	0	22.59	22.23	22.26	0-1	1
	50	25	22.73	22.58	22.07		1
	50	50	**22.78**	22.50	22.24		1
	100	0	22.47	22.46	22.16		1
16QAM	1	0	22.59	22.88	22.79	0-1	1
	1	50	22.39	22.61	22.41		1
	1	99	22.82	22.87	22.53		1
	50	0	21.62	21.64	21.67	0-2	2
	50	25	21.68	21.53	21.66		2
	50	50	21.71	21.41	21.77		2
	100	0	21.70	21.56	21.52		2
64QAM	1	0	21.36	21.66	21.70	0-2	2
	1	50	21.77	21.54	21.30		2
	1	99	21.71	21.63	21.58		2
	50	0	20.62	20.64	20.72	0-3	3
	50	25	20.79	20.56	20.59		3
	50	50	20.73	20.48	20.70		3
	100	0	20.66	20.51	20.58		3
256QAM	1	0	18.80	18.62	18.68	0-5	5
	1	50	18.74	18.39	18.51		5
	1	99	18.71	18.65	18.52		5
	50	0	18.70	18.56	18.67		5
	50	25	18.62	18.51	18.68		5
	50	50	18.69	18.49	18.58		5
	100	0	18.66	18.49	18.57		5

Table 9-65
LTE Band 7 Antenna A Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 7 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20825 (2507.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21375 (2562.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.11	23.47	23.31	0	0
	1	36	23.19	23.24	23.22		0
	1	74	23.72	23.50	23.26		0
	36	0	22.10	22.48	22.22	0-1	1
	36	18	22.78	22.61	22.33		1
	36	37	22.74	22.54	22.91		1
	75	0	22.01	22.18	22.13		1
16QAM	1	0	22.36	23.00	22.57	0-1	1
	1	36	22.60	22.74	22.21		1
	1	74	22.94	23.02	22.51		1
	36	0	21.27	21.61	21.50	0-2	2
	36	18	21.80	21.59	21.49		2
	36	37	21.74	21.60	21.85		2
	75	0	21.85	21.55	21.63		2
64QAM	1	0	21.35	21.94	21.49	0-2	2
	1	36	21.58	21.71	21.26		2
	1	74	21.98	21.87	21.39		2
	36	0	20.46	20.60	20.64	0-3	3
	36	18	20.75	20.57	20.51		3
	36	37	20.77	20.49	20.91		3
	75	0	20.76	20.54	20.75		3
256QAM	1	0	18.94	18.77	18.94	0-5	5
	1	36	18.88	18.69	18.96		5
	1	74	18.74	18.76	18.95		5
	36	0	18.71	18.44	18.94		5
	36	18	18.72	18.49	18.96		5
	36	37	18.66	18.45	18.95		5
	75	0	18.65	18.44	18.96		5

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Table 9-66
LTE Band 7 Antenna A Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 7 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20800 (2505.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21400 (2565.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.83	23.25	23.31	0	0
	1	25	22.88	22.94	23.30		0
	1	49	23.55	23.27	23.33		0
	25	0	21.84	22.34	22.20	0-1	1
	25	12	22.09	22.38	22.53		1
	25	25	22.60	22.46	22.87		1
	50	0	22.09	22.35	22.93		1
16QAM	1	0	22.24	22.56	22.23	0-1	1
	1	25	22.29	22.37	22.37		1
	1	49	22.80	22.75	22.26		1
	25	0	21.13	21.46	21.86	0-2	2
	25	12	21.36	21.44	21.85		2
	25	25	21.66	21.39	21.74		2
	50	0	21.38	21.38	21.86		2
64QAM	1	0	21.29	21.59	21.16	0-2	2
	1	25	21.25	21.27	21.24		2
	1	49	21.61	21.68	21.36		2
	25	0	20.25	20.43	20.39	0-3	3
	25	12	20.42	20.42	20.44		3
	25	25	20.63	20.33	20.44		3
	50	0	20.48	20.39	20.45		3
256QAM	1	0	18.54	18.63	18.46	0-5	5
	1	25	18.38	18.27	18.39		5
	1	49	18.75	18.52	18.42		5
	25	0	18.52	18.36	18.45		5
	25	12	18.59	18.35	18.48		5
	25	25	18.53	18.28	18.49		5
	50	0	18.55	18.34	18.46		5

Table 9-67
LTE Band 7 Antenna A Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 7 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20775 (2502.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21425 (2567.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	22.72	23.13	23.08	0	0
	1	12	22.71	23.31	23.10		0
	1	24	22.73	23.38	23.43		0
	12	0	22.01	22.51	22.58	0-1	1
	12	6	22.20	22.55	22.57		1
	12	13	22.37	22.49	22.58		1
	25	0	21.64	22.28	22.55		1
16QAM	1	0	22.26	22.64	22.14	0-1	1
	1	12	22.09	22.74	22.16		1
	1	24	22.25	22.88	22.24		1
	12	0	21.39	21.61	21.57	0-2	2
	12	6	21.13	21.59	21.55		2
	12	13	21.43	21.52	21.52		2
	25	0	21.01	21.42	21.54		2
64QAM	1	0	21.27	21.63	21.08	0-2	2
	1	12	21.22	21.66	21.30		2
	1	24	21.18	21.72	21.25		2
	12	0	20.17	20.51	20.56	0-3	3
	12	6	20.26	20.53	20.57		3
	12	13	20.44	20.47	20.55		3
	25	0	20.11	20.41	20.54		3
256QAM	1	0	18.52	18.58	18.04	0-5	5
	1	12	18.54	18.61	18.43		5
	1	24	18.56	18.55	18.56		5
	12	0	18.61	18.47	18.48		5
	12	6	18.62	18.44	18.58		5
	12	13	18.59	18.39	18.58		5
	25	0	18.63	18.36	18.52		5

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Table 9-68
LTE Band 7 Antenna A Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20850 (2510.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21350 (2560.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	18.22	18.05	18.22	0	0
	1	50	18.03	17.71	17.96		0
	1	99	18.13	18.06	**18.35**		0
	50	0	18.44	18.16	**18.45**	0-1	0
	50	25	18.38	18.08	18.42		0
	50	50	18.36	18.06	18.31		0
	100	0	18.33	18.12	18.34		0
16QAM	1	0	18.60	18.49	18.54	0-1	0
	1	50	18.37	18.19	18.31		0
	1	99	18.45	18.31	18.53		0
	50	0	18.36	18.14	18.45	0-2	0
	50	25	18.31	18.11	18.35		0
	50	50	18.30	18.10	18.29		0
	100	0	18.39	18.09	18.37		0
64QAM	1	0	18.46	18.35	18.53	0-2	0
	1	50	18.10	18.09	18.08		0
	1	99	18.42	18.24	18.45		0
	50	0	18.40	18.17	18.49	0-3	0
	50	25	18.43	18.13	18.33		0
	50	50	18.34	18.02	18.37		0
	100	0	18.32	18.09	18.39		0
256QAM	1	0	18.49	18.25	18.43	0-5	0
	1	50	18.12	18.04	18.35		0
	1	99	18.45	18.34	18.53		0
	50	0	18.38	18.24	18.46		0
	50	25	18.34	18.17	18.39		0
	50	50	18.32	18.10	18.28		0
	100	0	18.37	18.08	18.35		0

Table 9-69
LTE Band 7 Antenna A Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 7 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20825 (2507.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21375 (2562.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	18.23	18.18	18.31	0	0
	1	36	18.16	18.14	18.42		0
	1	74	18.12	18.27	18.44		0
	36	0	18.31	18.28	18.58	0-1	0
	36	18	18.28	18.27	18.62		0
	36	37	18.30	18.29	18.54		0
	75	0	18.26	18.27	18.59		0
16QAM	1	0	18.57	18.59	18.79	0-1	0
	1	36	18.69	18.61	18.75		0
	1	74	18.64	18.82	18.78		0
	36	0	18.29	18.33	18.58	0-2	0
	36	18	18.28	18.23	18.59		0
	36	37	18.24	18.26	18.51		0
	75	0	18.27	18.27	18.55		0
64QAM	1	0	18.53	18.61	18.78	0-2	0
	1	36	18.58	18.51	18.79		0
	1	74	18.38	18.75	18.78		0
	36	0	18.31	18.27	18.66	0-3	0
	36	18	18.29	18.31	18.64		0
	36	37	18.31	18.29	18.61		0
	75	0	18.29	18.26	18.59		0
256QAM	1	0	18.48	18.62	18.84	0-5	0
	1	36	18.53	18.46	18.69		0
	1	74	18.49	18.61	18.80		0
	36	0	18.34	18.27	18.51		0
	36	18	18.36	18.30	18.66		0
	36	37	18.28	18.26	18.53		0
	75	0	18.32	18.25	18.62		0

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Table 9-70
LTE Band 7 Antenna A Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 7 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20800 (2505.0 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21400 (2565.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	18.02	17.97	18.35	0	0
	1	25	17.69	17.68	17.98		0
	1	49	17.95	18.01	18.27		0
	25	0	18.10	18.17	18.38	0-1	0
	25	12	18.09	18.13	18.43		0
	25	25	18.08	18.05	18.35		0
	50	0	18.12	18.11	18.44		0
16QAM	1	0	18.56	18.47	18.78	0-1	0
	1	25	18.13	18.12	18.43		0
	1	49	18.48	18.54	18.77		0
	25	0	18.09	18.07	18.45	0-2	0
	25	12	18.12	18.09	18.46		0
	25	25	18.06	18.13	18.42		0
	50	0	18.10	18.11	18.43		0
64QAM	1	0	18.38	18.36	18.76	0-2	0
	1	25	18.00	17.95	18.50		0
	1	49	18.37	18.36	18.73		0
	25	0	18.08	18.04	18.49	0-3	0
	25	12	18.10	18.10	18.45		0
	25	25	18.09	18.09	18.45		0
	50	0	18.11	18.12	18.48		0
256QAM	1	0	18.33	18.30	18.59	0-5	0
	1	25	18.00	17.90	18.43		0
	1	49	18.35	18.39	18.66		0
	25	0	18.09	18.09	18.32		0
	25	12	18.17	18.12	18.48		0
	25	25	18.13	18.11	18.43		0
	50	0	18.10	18.17	18.45		0

Table 9-71
LTE Band 7 Antenna A Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 7 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 20775 (2502.5 MHz)	Mid Channel 21100 (2535.0 MHz)	High Channel 21425 (2567.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	18.11	18.02	18.31	0	0
	1	12	18.07	18.07	18.36		0
	1	24	18.06	18.04	18.35		0
	12	0	18.14	18.01	18.45	0-1	0
	12	6	18.21	18.12	18.53		0
	12	13	18.16	18.16	18.42		0
	25	0	18.13	18.19	18.36		0
16QAM	1	0	18.57	18.44	18.81	0-1	0
	1	12	18.55	18.35	18.75		0
	1	24	18.54	18.46	18.77		0
	12	0	18.24	18.16	18.39	0-2	0
	12	6	18.20	18.21	18.60		0
	12	13	18.19	18.22	18.48		0
	25	0	18.17	18.09	18.42		0
64QAM	1	0	18.47	18.36	18.78	0-2	0
	1	12	18.41	18.43	18.85		0
	1	24	18.37	18.41	18.74		0
	12	0	18.16	18.18	18.39	0-3	0
	12	6	18.26	18.17	18.59		0
	12	13	18.19	18.24	18.52		0
	25	0	18.14	18.12	18.47		0
256QAM	1	0	18.36	18.28	18.29	0-5	0
	1	12	18.37	18.35	18.78		0
	1	24	18.41	18.37	18.75		0
	12	0	18.21	18.02	18.42		0
	12	6	18.23	18.24	18.58		0
	12	13	18.18	18.17	18.40		0
	25	0	18.24	18.20	18.46		0

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9.4.11 LTE Band 48

Table 9-72
LTE Band 48 Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 48 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 55340 (3560.0 MHz)	Low-Mid Channel 55773 (3603.3 MHz)	Mid-High Channel 56207 (3646.7 MHz)	High Channel 56640 (3690.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]					
QPSK	1	0	23.03	23.07	22.97	23.18	0	0
	1	50	22.87	22.78	22.65	22.93		0
	1	99	23.09	22.95	22.95	**23.20**		0
	50	0	22.29	22.30	22.13	**22.46**	0-1	1
	50	25	22.31	22.24	22.09	22.42		1
	50	50	22.31	22.19	22.07	22.42		1
	100	0	22.30	22.24	22.09	22.42		1
16QAM	1	0	22.10	22.14	21.98	22.24	0-1	1
	1	50	21.96	21.83	21.68	22.01		1
	1	99	22.21	21.99	21.94	22.18		1
	50	0	21.31	21.29	21.11	21.43	0-2	2
	50	25	21.33	21.24	21.10	21.42		2
	50	50	21.35	21.19	21.11	21.40		2
	100	0	21.33	21.25	21.10	21.40		2
64QAM	1	0	20.86	20.88	20.70	20.98	0-2	2
	1	50	20.64	20.56	20.41	20.78		2
	1	99	20.92	20.75	20.68	20.93		2
	50	0	20.35	20.34	20.14	20.51	0-3	3
	50	25	20.36	20.30	20.13	20.47		3
	50	50	20.38	20.22	20.10	20.42		3
	100	0	20.34	20.25	20.10	20.43		3
256QAM	1	0	17.99	18.12	17.85	18.20	0-5	5
	1	50	17.88	17.87	17.62	17.93		5
	1	99	18.12	17.91	17.85	18.21		5
	50	0	18.35	18.38	17.85	18.52		5
	50	25	18.35	18.30	18.16	18.47		5
	50	50	18.34	18.19	18.13	18.45		5
	100	0	18.33	18.22	18.08	18.44		5

Table 9-73
LTE Band 48 Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 48 15 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 55315 (3557.5 MHz)	Low-Mid Channel 55765 (3602.5 MHz)	Mid-High Channel 56215 (3647.5 MHz)	High Channel 56665 (3692.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]					
QPSK	1	0	23.26	23.14	23.40	23.52	0	0
	1	36	23.23	23.24	23.27	23.36		0
	1	74	23.31	23.31	23.30	23.46		0
	36	0	22.53	22.52	22.52	22.46	0-1	1
	36	18	22.53	22.53	22.51	22.48		1
	36	37	22.53	22.48	22.50	22.51		1
	75	0	22.62	22.59	22.58	22.56		1
16QAM	1	0	22.45	22.36	22.39	22.46	0-1	1
	1	36	22.40	22.33	22.34	22.36		1
	1	74	22.47	22.38	22.37	22.35		1
	36	0	21.55	21.47	21.44	21.50	0-2	2
	36	18	21.56	21.42	21.45	21.44		2
	36	37	21.54	21.44	21.44	21.45		2
	75	0	21.60	21.57	21.58	21.55		2
64QAM	1	0	21.21	21.10	21.14	21.15	0-2	2
	1	36	21.21	21.05	21.08	21.10		2
	1	74	21.27	21.13	21.11	21.13		2
	36	0	20.68	20.51	20.56	20.57	0-3	3
	36	18	20.68	20.51	20.55	20.58		3
	36	37	20.68	20.50	20.53	20.54		3
	75	0	20.68	20.59	20.63	20.59		3
256QAM	1	0	18.30	18.34	18.42	18.39	0-5	5
	1	36	18.31	18.26	18.37	18.31		5
	1	74	18.32	18.29	18.39	18.30		5
	36	0	18.52	18.53	18.66	18.61		5
	36	18	18.53	18.52	18.63	18.57		5
	36	37	18.50	18.52	18.60	18.55		5
	75	0	18.65	18.60	18.67	18.61		5

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Table 9-74
LTE Band 48 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 48 10 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 55290 (3555.0 MHz)	Low-Mid Channel 55773 (3601.7 MHz)	Mid-High Channel 56207 (3648.3 MHz)	High Channel 56690 (3695.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]					
QPSK	1	0	23.08	23.22	23.18	23.31	0	0
	1	25	23.21	23.30	23.26	23.38		0
	1	49	23.16	23.23	23.22	23.26		0
	25	0	22.43	22.50	22.50	22.63	0-1	1
	25	12	22.45	22.48	22.48	22.61		1
	25	25	22.40	22.49	22.49	22.61		1
	50	0	22.44	22.50	22.53	22.60		1
16QAM	1	0	22.17	22.30	22.34	22.49	0-1	1
	1	25	22.28	22.37	22.43	22.55		1
	1	49	22.19	22.29	22.30	22.44		1
	25	0	21.44	21.50	21.56	21.64	0-2	2
	25	12	21.42	21.48	21.53	21.63		2
	25	25	21.42	21.46	21.51	21.64		2
	50	0	21.41	21.49	21.54	21.65		2
64QAM	1	0	20.96	21.03	21.10	21.24	0-2	2
	1	25	21.03	21.09	21.18	21.28		2
	1	49	20.91	21.00	21.02	21.15		2
	25	0	20.39	20.46	20.53	20.65	0-3	3
	25	12	20.37	20.44	20.50	20.62		3
	25	25	20.39	20.43	20.49	20.63		3
	50	0	20.44	20.52	20.57	20.70		3
256QAM	1	0	18.16	18.20	18.37	18.50	0-5	5
	1	25	18.23	18.27	18.45	18.56		5
	1	49	18.14	18.17	18.33	18.44		5
	25	0	18.45	18.51	18.62	18.76		5
	25	12	18.45	18.49	18.60	18.74		5
	25	25	18.41	18.48	18.61	18.70		5
	50	0	18.49	18.53	18.66	18.79		5

Table 9-75
LTE Band 48 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 48 5 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 55265 (3552.5 MHz)	Low-Mid Channel 55773 (3600.8 MHz)	Mid-High Channel 56207 (3649.2 MHz)	High Channel 56715 (3697.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]					
QPSK	1	0	23.30	23.55	23.34	23.49	0	0
	1	12	23.39	23.69	23.39	23.70		0
	1	24	23.22	23.54	23.33	23.46		0
	12	0	22.35	22.52	22.34	22.50	0-1	1
	12	6	22.34	22.38	22.30	22.49		1
	12	13	22.34	22.52	22.33	22.50		1
	25	0	22.42	22.59	22.33	22.52		1
16QAM	1	0	22.39	22.59	22.40	22.59	0-1	1
	1	12	22.49	22.80	22.49	22.68		1
	1	24	22.34	22.54	22.39	22.48		1
	12	0	21.24	21.45	21.23	21.44	0-2	2
	12	6	21.25	21.47	21.24	21.42		2
	12	13	21.26	21.44	21.24	21.48		2
	25	0	21.40	21.59	21.34	21.59		2
64QAM	1	0	21.14	21.31	21.14	21.21	0-2	2
	1	12	21.20	21.52	21.23	21.44		2
	1	24	21.13	21.32	21.10	21.20		2
	12	0	20.31	20.54	20.31	20.59	0-3	3
	12	6	20.27	20.48	20.27	20.49		3
	12	13	20.31	20.52	20.29	20.49		3
	25	0	20.36	20.55	20.32	20.55		3
256QAM	1	0	18.35	18.82	18.16	18.48	0-5	5
	1	12	18.56	18.82	18.55	18.74		5
	1	24	18.30	18.45	18.18	18.49		5
	12	0	18.46	18.69	18.53	18.68		5
	12	6	18.44	18.68	18.42	18.63		5
	12	13	18.46	18.67	18.49	18.67		5
	25	0	18.43	18.64	18.42	18.62		5

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Table 9-76
LTE Band 48 Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 48 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 55340 (3560.0 MHz)	Low-Mid Channel 55773 (3603.3 MHz)	Mid-High Channel 56207 (3646.7 MHz)	High Channel 56640 (3690.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]					
QPSK	1	0	20.04	20.06	20.05	**20.32**	0	0
	1	50	19.89	19.83	19.78	20.00		0
	1	99	20.11	19.89	20.08	20.21		0
	50	0	20.31	20.34	20.29	**20.53**	0-1	0
	50	25	20.26	20.30	20.28	20.48		0
	50	50	20.28	20.25	20.25	20.45		0
	100	0	20.10	20.05	20.07	20.31		0
16QAM	1	0	20.27	20.24	20.15	20.38	0-1	0
	1	50	20.16	19.95	19.88	20.09		0
	1	99	20.41	20.06	20.15	20.27		0
	50	0	20.48	20.39	20.32	20.53	0-2	0
	50	25	20.50	20.33	20.30	20.49		0
	50	50	20.54	20.31	20.32	20.46		0
	100	0	20.52	20.35	20.29	20.51		0
64QAM	1	0	20.08	20.02	19.89	20.10	0-2	0
	1	50	19.87	19.68	19.63	19.86		0
	1	99	20.13	19.86	19.91	19.98		0
	50	0	20.57	20.47	20.35	20.61	0-3	0
	50	25	20.55	20.38	20.33	20.54		0
	50	50	20.54	20.33	20.32	20.48		0
	100	0	20.54	20.36	20.31	20.51		0
256QAM	1	0	18.20	18.21	18.09	18.33	0-5	2
	1	50	18.09	17.85	17.83	18.01		2
	1	99	18.12	18.01	18.10	18.19		2
	50	0	18.49	18.46	18.36	18.63		2
	50	25	18.51	18.38	18.34	18.54		2
	50	50	18.53	18.32	18.34	18.50		2
	100	0	18.51	18.34	18.30	18.49		2

Table 9-77
LTE Band 48 Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 48 15 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 55315 (3557.5 MHz)	Low-Mid Channel 55765 (3602.5 MHz)	Mid-High Channel 56215 (3647.5 MHz)	High Channel 56665 (3692.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]					
QPSK	1	0	20.18	20.22	20.11	20.26	0	0
	1	36	20.22	20.15	20.06	20.14		0
	1	74	20.29	20.11	20.03	20.11		0
	36	0	20.43	20.39	20.28	20.42	0-1	0
	36	18	20.41	20.35	20.27	20.37		0
	36	37	20.43	20.31	20.25	20.28		0
	75	0	20.44	20.35	20.28	20.40		0
16QAM	1	0	20.36	20.37	20.28	20.45	0-1	0
	1	36	20.42	20.29	20.22	20.36		0
	1	74	20.49	20.27	20.28	20.32		0
	36	0	20.39	20.41	20.28	20.44	0-2	0
	36	18	20.46	20.38	20.29	20.41		0
	36	37	20.45	20.32	20.26	20.36		0
	75	0	20.46	20.39	20.30	20.42		0
64QAM	1	0	20.07	20.01	19.87	20.04	0-2	0
	1	36	20.01	19.96	19.83	19.96		0
	1	74	20.09	19.92	19.87	19.93		0
	36	0	19.90	19.90	19.77	19.93	0-3	0
	36	18	19.93	19.88	19.81	19.91		0
	36	37	19.89	19.81	19.77	19.84		0
	75	0	20.02	19.93	19.84	19.93		0
256QAM	1	0	18.35	18.14	17.95	17.91	0-5	2
	1	36	18.22	18.06	17.86	17.81		2
	1	74	18.29	18.11	17.84	17.79		2
	36	0	18.46	18.32	18.11	18.09		2
	36	18	18.45	18.30	18.09	18.05		2
	36	37	18.40	18.28	18.08	18.05		2
	75	0	18.47	18.33	18.11	18.08		2

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Table 9-78
LTE Band 48 Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 48 10 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 55290 (3555.0 MHz)	Low-Mid Channel 55773 (3601.7 MHz)	Mid-High Channel 56207 (3648.3 MHz)	High Channel 56690 (3695.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]					
QPSK	1	0	19.99	20.16	20.05	20.15	0	0
	1	25	20.16	20.06	19.96	20.09		0
	1	49	20.11	20.06	19.99	19.97		0
	25	0	20.26	20.23	20.13	20.27	0-1	0
	25	12	20.27	20.21	20.13	20.22		0
	25	25	20.27	20.16	20.10	20.17		0
	50	0	20.27	20.25	20.16	20.28		0
16QAM	1	0	20.23	20.30	20.12	20.29	0-1	0
	1	25	20.28	20.26	20.14	20.23		0
	1	49	20.32	20.19	20.08	20.17		0
	25	0	20.19	20.19	20.08	20.21	0-2	0
	25	12	20.23	20.16	20.07	20.19		0
	25	25	20.20	20.14	20.04	20.12		0
	50	0	20.31	20.28	20.19	20.29		0
64QAM	1	0	19.84	19.95	19.82	19.90	0-2	0
	1	25	19.95	19.89	19.80	19.89		0
	1	49	19.91	19.82	19.75	19.74		0
	25	0	19.83	19.81	19.68	19.83	0-3	0
	25	12	19.90	19.80	19.68	19.82		0
	25	25	19.85	19.75	19.67	19.76		0
	50	0	19.82	19.78	19.68	19.78		0
256QAM	1	0	17.92	17.67	17.77	17.80	0-5	2
	1	25	17.89	17.76	17.83	17.74		2
	1	49	17.83	17.60	17.64	17.67		2
	25	0	18.08	17.94	17.98	17.94		2
	25	12	18.05	17.93	17.96	17.88		2
	25	25	17.98	17.89	17.93	17.82		2
	50	0	18.10	17.98	18.03	17.97		2

Table 9-79
LTE Band 48 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 48 5 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel 55265 (3552.5 MHz)	Low-Mid Channel 55773 (3600.8 MHz)	Mid-High Channel 56207 (3649.2 MHz)	High Channel 56715 (3697.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]					
QPSK	1	0	20.12	20.21	19.99	20.18	0	0
	1	12	20.21	20.20	20.10	20.20		0
	1	24	20.13	20.06	20.04	20.07		0
	12	0	20.32	20.29	20.13	20.32	0-1	0
	12	6	20.41	20.33	20.17	20.31		0
	12	13	20.28	20.19	20.17	20.23		0
	25	0	20.32	20.30	20.16	20.30		0
16QAM	1	0	20.29	20.35	20.15	20.31	0-1	0
	1	12	20.34	20.36	20.25	20.34		0
	1	24	20.33	20.23	20.17	20.24		0
	12	0	20.37	20.35	20.19	20.34	0-2	0
	12	6	20.38	20.35	20.22	20.36		0
	12	13	20.34	20.24	20.20	20.28		0
	25	0	20.26	20.25	20.09	20.25		0
64QAM	1	0	19.94	19.97	19.82	19.97	0-2	0
	1	12	20.04	20.02	19.90	20.04		0
	1	24	20.00	19.92	19.84	19.92		0
	12	0	19.89	19.89	19.71	19.87	0-3	0
	12	6	19.94	19.90	19.73	19.89		0
	12	13	19.86	19.79	19.76	19.83		0
	25	0	19.93	19.87	19.69	19.89		0
256QAM	1	0	17.94	17.77	17.79	17.78	0-5	2
	1	12	17.94	17.83	17.86	17.77		2
	1	24	17.86	17.70	17.75	17.69		2
	12	0	18.17	18.01	17.92	17.96		2
	12	6	18.18	18.04	18.12	18.01		2
	12	13	18.11	17.94	18.05	17.95		2
	25	0	18.09	17.98	17.96	17.96		2

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9.4.12 LTE Band 41

Table 9-80
LTE Band 41 PC3 Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	23.58	23.49	23.39	23.39	**23.59**	0	0
	1	50	23.50	23.30	23.20	23.32	23.43		0
	1	99	23.42	23.34	23.09	23.20	23.38		0
	50	0	22.78	22.67	22.48	22.61	**22.79**	0-1	1
	50	25	22.73	22.57	22.43	22.57	22.66		1
	50	50	22.78	22.53	22.45	22.47	22.60		1
	100	0	22.75	22.62	22.46	22.53	22.64		1
16QAM	1	0	22.77	22.58	22.39	22.54	22.35	0-1	1
	1	50	22.71	22.46	22.27	22.39	22.38		1
	1	99	22.67	22.38	22.23	22.64	22.52		1
	50	0	21.90	21.74	21.57	21.68	21.58	0-2	2
	50	25	21.91	21.73	21.57	21.57	21.62		2
	50	50	21.92	21.61	21.52	21.44	21.64		2
	100	0	21.90	21.49	21.58	21.59	21.61		2
64QAM	1	0	21.52	21.34	21.10	21.25	21.21	0-2	2
	1	50	21.53	21.20	21.06	21.11	21.11		2
	1	99	21.38	21.10	20.91	20.95	21.24		2
	50	0	20.92	20.82	20.61	20.77	20.62	0-3	3
	50	25	20.93	20.74	20.59	20.65	20.65		3
	50	50	20.95	20.67	20.55	20.50	20.67		3
	100	0	20.89	20.70	20.54	20.58	20.63		3
256QAM	1	0	18.58	18.26	17.97	18.30	18.12	0-5	5
	1	50	18.56	18.24	17.99	18.37	18.09		5
	1	99	18.44	18.22	17.91	18.17	18.31		5
	50	0	18.85	18.54	18.37	18.64	18.66		5
	50	25	18.80	18.59	18.32	18.55	18.66		5
	50	50	18.83	18.39	18.30	18.41	18.76		5
	100	0	18.67	18.56	18.31	18.51	18.60		5

Table 9-81
LTE Band 41 PC3 Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	23.57	23.42	23.16	23.54	23.39	0	0
	1	36	23.51	23.35	23.08	23.37	23.37		0
	1	74	23.58	23.24	23.08	23.21	23.48		0
	36	0	22.78	22.60	22.29	22.57	22.53	0-1	1
	36	18	22.82	22.59	22.33	22.55	22.60		1
	36	37	22.82	22.51	22.32	22.46	22.60		1
	75	0	22.83	22.58	22.32	22.54	22.59		1
16QAM	1	0	22.77	22.52	22.25	22.58	22.45	0-1	1
	1	36	22.66	22.45	22.20	22.46	22.49		1
	1	74	22.70	22.34	22.18	22.31	22.60		1
	36	0	21.78	21.58	21.29	21.57	21.50	0-2	2
	36	18	21.80	21.58	21.31	21.55	21.58		2
	36	37	21.80	21.49	21.30	21.44	21.58		2
	75	0	21.81	21.57	21.29	21.53	21.59		2
64QAM	1	0	21.38	21.17	20.83	21.52	21.05	0-2	2
	1	36	21.32	21.09	20.80	21.04	21.08		2
	1	74	21.38	20.96	20.80	20.93	21.23		2
	36	0	20.72	20.56	20.25	20.54	20.48	0-3	3
	36	18	20.76	20.55	20.28	20.51	20.54		3
	36	37	20.77	20.47	20.25	20.41	20.54		3
	75	0	20.82	20.56	20.32	20.52	20.56		3
256QAM	1	0	18.63	18.31	18.04	18.43	18.22	0-5	5
	1	36	18.51	18.18	18.01	18.24	18.24		5
	1	74	18.51	18.19	18.00	18.09	18.42		5
	36	0	18.79	18.50	18.23	18.53	18.60		5
	36	18	18.75	18.54	18.36	18.52	18.55		5
	36	37	18.80	18.42	18.20	18.43	18.55		5
	75	0	18.77	18.54	18.27	18.53	18.55		5

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Table 9-82
LTE Band 41 PC3 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	23.46	23.30	23.03	23.26	23.44	0	0
	1	25	23.38	23.33	23.06	23.32	23.34		0
	1	49	23.41	23.18	22.96	23.14	23.24		0
	25	0	22.72	22.54	22.24	22.46	22.49	0-1	1
	25	12	22.70	22.54	22.25	22.43	22.50		1
	25	25	22.67	22.46	22.20	22.38	22.44		1
	50	0	22.55	22.42	22.14	22.36	22.42		1
16QAM	1	0	22.58	22.38	22.04	22.35	22.34	0-1	1
	1	25	22.55	22.41	22.08	22.34	22.40		1
	1	49	22.55	22.31	21.98	22.21	22.29		1
	25	0	21.57	21.41	21.09	21.33	21.36	0-2	2
	25	12	21.57	21.39	21.08	21.32	21.36		2
	25	25	21.54	21.33	21.04	21.26	21.30		2
	50	0	21.66	21.48	21.17	21.41	21.44		2
64QAM	1	0	21.25	21.04	20.68	21.00	21.02	0-2	2
	1	25	21.15	21.04	20.71	20.95	21.01		2
	1	49	21.18	20.95	20.65	20.87	20.92		2
	25	0	20.67	20.51	20.22	20.44	20.46	0-3	3
	25	12	20.69	20.52	20.20	20.43	20.47		3
	25	25	20.63	20.46	20.16	20.38	20.41		3
	50	0	20.66	20.50	20.17	20.41	20.45		3
256QAM	1	0	18.36	18.26	17.94	18.22	18.24	0-5	5
	1	25	18.34	18.17	17.93	18.20	18.21		5
	1	49	18.32	18.02	17.82	18.22	18.13		5
	25	0	18.62	18.42	18.08	18.43	18.49		5
	25	12	18.52	18.47	18.11	18.41	18.42		5
	25	25	18.58	18.48	18.04	18.43	18.47		5
	50	0	18.72	18.46	18.16	18.52	18.43		5

Table 9-83
LTE Band 41 PC3 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	23.28	23.27	22.87	23.16	23.19	0	0
	1	12	23.32	23.19	22.93	23.16	23.23		0
	1	24	23.32	23.20	22.93	23.16	23.24		0
	12	0	22.50	22.37	22.02	22.26	22.30	0-1	1
	12	6	22.55	22.42	22.05	22.30	22.40		1
	12	13	22.52	22.37	22.08	22.33	22.41		1
	25	0	22.61	22.43	22.08	22.34	22.41		1
16QAM	1	0	22.60	22.50	22.03	22.33	22.34	0-1	1
	1	12	22.59	22.36	22.04	22.36	22.36		1
	1	24	22.58	22.39	22.12	22.36	22.40		1
	12	0	21.60	21.42	21.06	21.30	21.34	0-2	2
	12	6	21.62	21.43	21.09	21.34	21.45		2
	12	13	21.64	21.42	21.12	21.37	21.39		2
	25	0	21.52	21.37	21.00	21.31	21.33		2
64QAM	1	0	21.23	21.06	20.67	20.98	20.99	0-2	2
	1	12	21.21	21.03	20.76	20.94	21.00		2
	1	24	21.23	21.03	20.72	21.03	21.07		2
	12	0	20.63	20.46	20.04	20.30	20.36	0-3	3
	12	6	20.64	20.47	20.04	20.30	20.43		3
	12	13	20.61	20.44	20.13	20.37	20.44		3
	25	0	20.64	20.48	20.09	20.42	20.43		3
256QAM	1	0	18.36	18.19	17.75	18.10	18.12	0-5	5
	1	12	18.35	18.11	17.81	18.10	18.04		5
	1	24	18.33	18.11	17.81	18.03	18.14		5
	12	0	18.69	18.45	18.04	18.39	18.30		5
	12	6	18.63	18.47	18.10	18.39	18.38		5
	12	13	18.71	18.51	18.08	18.38	18.40		5
	25	0	18.62	18.36	18.03	18.37	18.39		5

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Table 9-84
LTE Band 41 PC3 Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	21.41	21.48	**21.70**	21.46	21.30	0	0
	1	50	21.35	21.27	21.30	21.20	21.10		0
	1	99	21.45	21.29	21.19	21.14	20.98		0
	50	0	21.63	21.45	**21.72**	21.57	21.48	0-1	0
	50	25	21.68	21.43	21.58	21.50	21.42		0
	50	50	21.71	21.42	21.50	21.43	21.33		0
	100	0	21.65	21.67	21.69	21.50	21.42		0
16QAM	1	0	21.67	21.64	21.67	21.62	21.54	0-1	0
	1	50	21.46	21.47	21.48	21.35	21.26		0
	1	99	21.61	21.54	21.38	21.34	21.25		0
	50	0	21.75	21.75	21.68	21.59	21.48	0-2	0
	50	25	21.72	21.69	21.56	21.52	21.42		0
	50	50	21.68	21.64	21.53	21.44	21.33		0
	100	0	21.73	21.71	21.62	21.53	21.43		0
64QAM	1	0	21.34	21.31	21.38	21.22	21.15	0-2	0
	1	50	21.14	21.12	21.10	21.04	20.96		0
	1	99	21.21	21.18	21.07	20.97	20.87		0
	50	0	21.33	21.31	21.25	21.19	21.10	0-3	0.5
	50	25	21.30	21.30	21.18	21.13	21.03		0.5
	50	50	21.28	21.23	21.15	21.08	20.96		0.5
	100	0	21.30	21.30	21.19	21.14	21.05		0.5
256QAM	1	0	19.12	19.10	19.04	18.91	18.93	0-5	2.5
	1	50	18.93	18.99	18.92	18.89	18.77		2.5
	1	99	19.05	19.06	18.82	18.87	18.79		2.5
	50	0	19.30	19.38	19.24	19.13	19.11		2.5
	50	25	19.35	19.25	19.17	19.00	18.96		2.5
	50	50	19.37	19.28	19.10	19.08	18.88		2.5
	100	0	19.27	19.36	19.19	19.03	18.89		2.5

Table 9-85
LTE Band 41 PC3 Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	21.35	21.48	21.34	21.31	21.22	0	0
	1	36	21.29	21.30	21.13	21.13	21.03		0
	1	74	21.30	21.26	21.11	21.08	20.94		0
	36	0	21.52	21.55	21.41	21.37	21.25	0-1	0
	36	18	21.52	21.51	21.35	21.34	21.22		0
	36	37	21.48	21.44	21.28	21.28	21.15		0
	75	0	21.54	21.48	21.36	21.35	21.22		0
16QAM	1	0	21.54	21.64	21.33	21.44	21.36	0-1	0
	1	36	21.44	21.46	21.25	21.26	21.16		0
	1	74	21.47	21.45	21.27	21.24	21.10		0
	36	0	21.53	21.54	21.36	21.35	21.23	0-2	0
	36	18	21.54	21.50	21.35	21.33	21.20		0
	36	37	21.50	21.45	21.31	21.28	21.12		0
	75	0	21.55	21.51	21.36	21.34	21.20		0
64QAM	1	0	21.19	21.28	21.14	21.06	21.02	0-2	0
	1	36	21.09	21.10	20.93	20.88	20.81		0
	1	74	21.15	21.07	20.91	20.87	20.85		0
	36	0	21.01	21.06	20.95	20.99	20.83	0-3	0.5
	36	18	21.02	21.04	20.91	20.94	20.80		0.5
	36	37	21.01	20.98	20.84	20.86	20.71		0.5
	75	0	21.13	21.16	20.98	20.99	20.85		0.5
256QAM	1	0	19.00	19.16	18.99	19.04	18.90	0-5	2.5
	1	36	18.91	19.01	18.74	18.80	18.67		2.5
	1	74	18.94	19.04	18.77	18.84	18.65		2.5
	36	0	19.18	19.25	19.06	19.10	18.98		2.5
	36	18	19.20	19.24	19.04	19.07	18.97		2.5
	36	37	19.19	19.19	18.99	19.08	18.92		2.5
	75	0	19.21	19.27	19.06	19.09	19.01		2.5

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Table 9-86
LTE Band 41 PC3 Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	21.29	21.43	21.30	21.30	21.03	0	0
	1	25	21.00	21.34	21.19	21.21	21.02		0
	1	49	21.27	21.27	21.13	21.12	20.90		0
	25	0	21.54	21.56	21.41	21.38	21.24	0-1	0
	25	12	21.54	21.53	21.39	21.35	21.23		0
	25	25	21.51	21.48	21.32	21.32	21.18		0
	50	0	21.57	21.56	21.43	21.39	21.25		0
16QAM	1	0	21.50	21.53	21.34	21.43	21.36	0-1	0
	1	25	21.21	21.55	21.37	21.34	21.24		0
	1	49	21.50	21.39	21.24	21.29	21.21		0
	25	0	21.47	21.49	21.32	21.31	21.21	0-2	0
	25	12	21.47	21.47	21.33	21.29	21.20		0
	25	25	21.47	21.45	21.31	21.26	21.16		0
	50	0	21.59	21.57	21.40	21.40	21.31		0
64QAM	1	0	21.21	21.26	21.06	21.04	20.89	0-2	0
	1	25	20.88	21.19	21.05	21.00	20.91		0
	1	49	21.17	21.14	20.93	20.98	20.77		0
	25	0	21.24	21.27	21.09	21.05	20.90	0-3	0.5
	25	12	21.24	21.22	21.06	21.03	20.88		0.5
	25	25	21.23	21.15	20.99	20.98	20.85		0.5
	50	0	21.23	21.21	21.03	21.02	20.89		0.5
256QAM	1	0	18.75	18.97	18.76	18.75	18.74	0-5	2.5
	1	25	18.60	18.91	18.64	18.72	18.63		2.5
	1	49	18.75	18.89	18.63	18.65	18.59		2.5
	25	0	19.04	19.14	18.90	18.94	18.83		2.5
	25	12	19.05	19.13	18.90	18.94	18.83		2.5
	25	25	19.04	19.07	18.84	18.92	18.81		2.5
	50	0	19.11	19.18	18.95	19.00	18.88		2.5

Table 9-87
LTE Band 41 PC3 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	21.38	21.44	21.20	21.22	21.07	0	0
	1	12	21.40	21.42	21.23	21.30	21.14		0
	1	24	21.40	21.30	21.19	21.20	21.08		0
	12	0	21.59	21.58	21.44	21.35	21.23	0-1	0
	12	6	21.63	21.60	21.45	21.37	21.30		0
	12	13	21.58	21.56	21.39	21.39	21.24		0
	25	0	21.62	21.61	21.47	21.36	21.28		0
16QAM	1	0	21.65	21.63	21.45	21.40	21.30	0-1	0
	1	12	21.62	21.64	21.47	21.46	21.36		0
	1	24	21.67	21.56	21.38	21.38	21.27		0
	12	0	21.64	21.66	21.50	21.40	21.32	0-2	0
	12	6	21.68	21.67	21.52	21.43	21.40		0
	12	13	21.63	21.62	21.48	21.43	21.36		0
	25	0	21.60	21.56	21.43	21.33	21.29		0
64QAM	1	0	21.49	21.36	21.12	21.02	20.95	0-2	0
	1	12	21.34	21.31	21.10	21.10	21.00		0
	1	24	21.33	21.27	21.11	21.05	20.94		0
	12	0	21.33	21.35	21.19	21.07	20.96	0-3	0.5
	12	6	21.38	21.36	21.20	21.11	21.03		0.5
	12	13	21.34	21.29	21.15	21.12	20.98		0.5
	25	0	21.36	21.36	21.18	21.09	21.02		0.5
256QAM	1	0	18.90	18.96	18.68	18.74	18.63	0-5	2.5
	1	12	18.91	18.98	18.71	18.79	18.70		2.5
	1	24	18.92	18.89	18.66	18.76	18.60		2.5
	12	0	19.15	19.19	18.99	18.96	18.87		2.5
	12	6	19.18	19.23	19.03	18.97	18.95		2.5
	12	13	19.13	19.16	18.97	18.99	18.88		2.5
	25	0	19.11	19.17	18.95	18.91	18.86		2.5

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Table 9-88
LTE Band 41 PC2 Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	27.19	27.10	27.16	27.11	**27.20**	0	0
	1	50	27.10	27.08	27.08	27.09	27.09		0
	1	99	27.10	27.02	27.01	27.03	27.03		0
	50	0	26.79	26.66	26.47	26.68	26.68	0-1	1
	50	25	26.80	26.61	26.45	26.64	**26.83**		1
	50	50	26.80	26.42	26.36	26.45	26.62		1
	100	0	26.82	26.55	26.41	26.52	26.70		1
16QAM	1	0	26.87	26.76	26.43	26.74	26.67	0-1	1
	1	50	26.86	26.66	26.42	26.68	26.72		1
	1	99	26.85	26.57	26.39	26.53	26.76		1
	50	0	25.80	25.61	25.32	25.62	25.60	0-2	2
	50	25	25.83	25.58	25.34	25.58	25.64		2
	50	50	25.84	25.48	25.33	25.46	25.70		2
	100	0	25.83	25.56	25.34	25.58	25.63		2
64QAM	1	0	25.76	25.55	25.17	25.46	25.41	0-2	2
	1	50	25.71	25.43	25.17	25.42	25.46		2
	1	99	25.67	25.33	25.16	25.28	25.63		2
	50	0	24.80	24.61	24.31	24.64	24.57	0-3	3
	50	25	24.82	24.57	24.33	24.59	24.64		3
	50	50	24.81	24.47	24.34	24.47	24.68		3
	100	0	24.80	24.55	24.31	24.53	24.63		3
256QAM	1	0	22.26	21.93	21.77	21.95	21.86	0-5	5
	1	50	22.18	21.94	21.79	21.82	21.85		5
	1	99	22.14	21.80	21.69	21.76	21.89		5
	50	0	22.33	22.15	21.90	22.07	21.96		5
	50	25	22.36	22.13	21.91	22.00	21.97		5
	50	50	22.38	22.02	21.89	21.79	22.03		5
	100	0	22.28	22.02	21.88	21.96	21.94		5

Table 9-89
LTE Band 41 PC2 Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	27.60	27.37	27.13	27.48	27.32	0	0
	1	36	27.54	27.31	27.11	27.35	27.37		0
	1	74	27.58	27.22	27.11	27.22	27.49		0
	36	0	26.78	26.58	26.31	26.58	26.56	0-1	1
	36	18	26.81	26.57	26.32	26.57	26.63		1
	36	37	26.80	26.50	26.32	26.48	26.64		1
	75	0	26.77	26.54	26.30	26.53	26.60		1
16QAM	1	0	27.01	26.79	26.47	26.84	26.70	0-1	1
	1	36	26.95	26.70	26.46	26.70	26.72		1
	1	74	26.96	26.57	26.44	26.56	26.86		1
	36	0	25.79	25.59	25.31	25.59	25.57	0-2	2
	36	18	25.83	25.58	25.35	25.58	25.65		2
	36	37	25.81	25.51	25.31	25.49	25.66		2
	75	0	25.78	25.56	25.31	25.55	25.62		2
64QAM	1	0	25.71	25.49	25.19	25.57	25.42	0-2	2
	1	36	25.66	25.44	25.19	25.42	25.46		2
	1	74	25.70	25.31	25.18	25.30	25.59		2
	36	0	24.75	24.58	24.26	24.56	24.55	0-3	3
	36	18	24.79	24.57	24.32	24.51	24.61		3
	36	37	24.77	24.48	24.30	24.47	24.61		3
	75	0	24.78	24.51	24.29	24.53	24.61		3
256QAM	1	0	22.50	22.25	21.98	22.35	22.20	0-5	5
	1	36	22.41	22.19	21.88	22.21	22.23		5
	1	74	22.43	22.00	21.91	22.03	22.31		5
	36	0	22.56	22.32	22.10	22.37	22.39		5
	36	18	22.56	22.20	22.10	22.31	22.43		5
	36	37	22.53	22.20	22.07	22.14	22.41		5
	75	0	22.52	22.27	22.09	22.31	22.41		5

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Table 9-90
LTE Band 41 PC2 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	27.44	27.31	27.04	27.26	27.33	0	0
	1	25	27.42	27.25	26.97	27.21	27.28		0
	1	49	27.40	27.19	26.94	27.12	27.20		0
	25	0	26.67	26.50	26.21	26.44	26.47	0-1	1
	25	12	26.66	26.49	26.20	26.42	26.48		1
	25	25	26.64	26.42	26.16	26.38	26.43		1
	50	0	26.66	26.48	26.20	26.44	26.46		1
16QAM	1	0	26.87	26.69	26.39	26.61	26.67	0-1	1
	1	25	26.83	26.65	26.34	26.56	26.65		1
	1	49	26.82	26.57	26.33	26.53	26.59		1
	25	0	25.61	25.43	25.11	25.35	25.41	0-2	2
	25	12	25.62	25.44	25.14	25.37	25.43		2
	25	25	25.58	25.36	25.10	25.32	25.39		2
	50	0	25.68	25.49	25.21	25.43	25.47		2
64QAM	1	0	25.63	25.42	25.12	25.36	25.41	0-2	2
	1	25	25.58	25.34	25.08	25.31	25.35		2
	1	49	25.56	25.33	25.04	25.27	25.32		2
	25	0	24.72	24.55	24.27	24.49	24.54	0-3	3
	25	12	24.74	24.54	24.24	24.46	24.54		3
	25	25	24.70	24.50	24.20	24.45	24.50		3
	50	0	24.66	24.50	24.20	24.43	24.47		3
256QAM	1	0	22.36	22.11	21.89	22.33	22.18	0-5	5
	1	25	22.32	22.10	21.93	22.08	22.13		5
	1	49	22.29	22.03	21.80	22.01	22.08		5
	25	0	22.45	22.26	22.01	22.23	22.33		5
	25	12	22.40	22.11	22.00	22.23	22.31		5
	25	25	22.41	21.99	21.95	22.15	22.26		5
	50	0	22.48	22.28	22.03	22.26	22.35		5

Table 9-91
LTE Band 41 PC2 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	27.39	27.31	26.97	27.27	27.28	0	0
	1	12	27.43	27.28	27.02	27.26	27.31		0
	1	24	27.44	27.32	27.04	27.26	27.35		0
	12	0	26.65	26.49	26.08	26.32	26.40	0-1	1
	12	6	26.64	26.51	26.12	26.39	26.46		1
	12	13	26.64	26.44	26.18	26.41	26.45		1
	25	0	26.64	26.48	26.14	26.42	26.45		1
16QAM	1	0	26.90	26.77	26.37	26.65	26.64	0-1	1
	1	12	26.90	26.68	26.42	26.65	26.67		1
	1	24	26.87	26.66	26.45	26.67	26.71		1
	12	0	25.69	25.55	25.18	25.38	25.48	0-2	2
	12	6	25.73	25.57	25.21	25.44	25.57		2
	12	13	25.71	25.52	25.23	25.46	25.54		2
	25	0	25.61	25.40	25.07	25.38	25.39		2
64QAM	1	0	25.58	25.50	25.09	25.34	25.37	0-2	2
	1	12	25.66	25.41	25.13	25.36	25.43		2
	1	24	25.67	25.40	25.18	25.36	25.46		2
	12	0	24.65	24.49	24.15	24.43	24.50	0-3	3
	12	6	24.69	24.53	24.18	24.45	24.55		3
	12	13	24.68	24.55	24.24	24.47	24.54		3
	25	0	24.73	24.56	24.20	24.51	24.50		3
256QAM	1	0	22.71	22.26	22.35	22.15	22.20	0-5	5
	1	12	22.69	22.24	22.36	22.13	22.19		5
	1	24	22.71	22.29	22.33	22.18	22.23		5
	12	0	22.37	21.95	22.08	22.25	22.37		5
	12	6	22.39	22.00	22.08	22.32	22.37		5
	12	13	22.35	21.95	22.04	22.30	22.38		5
	25	0	22.36	21.87	21.93	22.27	22.32		5

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Table 9-92
LTE Band 41 PC2 Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	21.36	**21.52**	21.50	21.27	21.21	0	0
	1	50	21.07	21.10	21.15	21.07	21.05		0
	1	99	21.37	21.27	21.06	20.98	20.98		0
	50	0	21.53	**21.62**	21.55	21.40	21.27	0-1	0
	50	25	21.49	21.50	21.42	21.32	21.23		0
	50	50	21.54	21.44	21.31	21.25	21.15		0
	100	0	21.47	21.48	21.49	21.28	21.20		0
16QAM	1	0	21.70	21.67	21.72	21.60	21.54	0-1	0
	1	50	21.29	21.32	21.52	21.41	21.33		0
	1	99	21.60	21.54	21.42	21.35	21.25		0
	50	0	21.55	21.54	21.46	21.37	21.28	0-2	0
	50	25	21.53	21.50	21.42	21.34	21.22		0
	50	50	21.48	21.46	21.32	21.25	21.14		0
	100	0	21.53	21.52	21.43	21.33	21.23		0
64QAM	1	0	21.44	21.44	21.47	21.35	21.30	0-2	0
	1	50	21.02	21.05	21.27	21.16	21.08		0
	1	99	21.33	21.30	21.18	21.10	21.02		0
	50	0	21.57	21.57	21.50	21.39	21.30	0-3	0
	50	25	21.55	21.53	21.43	21.33	21.24		0
	50	50	21.50	21.47	21.35	21.25	21.16		0
	100	0	21.53	21.52	21.42	21.32	21.23		0
256QAM	1	0	21.51	21.47	21.50	21.55	21.43	0-5	0
	1	50	21.45	21.31	21.46	21.36	21.31		0
	1	99	21.48	21.37	21.43	21.24	21.23		0
	50	0	21.64	21.60	21.58	21.46	21.39		0
	50	25	21.58	21.65	21.47	21.42	21.31		0
	50	50	21.54	21.53	21.41	21.35	21.26		0
	100	0	21.55	21.58	21.38	21.37	21.26		0

Table 9-93
LTE Band 41 PC2 Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	21.35	21.48	21.34	21.33	21.30	0	0
	1	36	21.29	21.29	21.16	21.12	21.10		0
	1	74	21.32	21.27	21.09	21.09	21.05		0
	36	0	21.59	21.61	21.46	21.44	21.39	0-1	0
	36	18	21.60	21.56	21.42	21.41	21.38		0
	36	37	21.56	21.51	21.34	21.34	21.31		0
	75	0	21.57	21.55	21.40	21.36	21.34		0
16QAM	1	0	21.76	21.84	21.72	21.68	21.66	0-1	0
	1	36	21.69	21.69	21.52	21.45	21.47		0
	1	74	21.68	21.65	21.45	21.46	21.41		0
	36	0	21.60	21.62	21.45	21.44	21.39	0-2	0
	36	18	21.60	21.59	21.44	21.41	21.36		0
	36	37	21.56	21.51	21.35	21.33	21.28		0
	75	0	21.57	21.58	21.43	21.37	21.33		0
64QAM	1	0	21.51	21.63	21.47	21.41	21.40	0-2	0
	1	36	21.47	21.46	21.28	21.22	21.23		0
	1	74	21.44	21.43	21.23	21.22	21.19		0
	36	0	21.62	21.61	21.47	21.45	21.38	0-3	0
	36	18	21.62	21.59	21.44	21.41	21.34		0
	36	37	21.59	21.53	21.35	21.33	21.29		0
	75	0	21.62	21.60	21.42	21.41	21.37		0
256QAM	1	0	21.37	21.57	21.34	21.38	21.45	0-5	0
	1	36	21.31	21.41	21.18	21.23	21.27		0
	1	74	21.36	21.39	21.18	21.27	21.26		0
	36	0	21.45	21.54	21.35	21.37	21.39		0
	36	18	21.48	21.53	21.34	21.34	21.37		0
	36	37	21.45	21.48	21.27	21.30	21.30		0
	75	0	21.47	21.53	21.33	21.34	21.36		0

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Table 9-94
LTE Band 41 PC2 Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	21.29	21.36	21.23	21.19	21.06	0	0
	1	25	21.06	21.30	21.14	21.15	20.99		0
	1	49	21.27	21.20	21.04	21.02	20.90		0
	25	0	21.51	21.53	21.36	21.34	21.21	0-1	0
	25	12	21.51	21.49	21.35	21.30	21.17		0
	25	25	21.49	21.45	21.29	21.27	21.13		0
	50	0	21.53	21.51	21.37	21.33	21.20		0
16QAM	1	0	21.66	21.72	21.55	21.52	21.46	0-1	0
	1	25	21.46	21.68	21.50	21.48	21.39		0
	1	49	21.62	21.58	21.43	21.39	21.29		0
	25	0	21.45	21.44	21.29	21.27	21.17	0-2	0
	25	12	21.42	21.41	21.27	21.27	21.15		0
	25	25	21.40	21.40	21.21	21.20	21.09		0
	50	0	21.54	21.53	21.37	21.33	21.24		0
64QAM	1	0	21.43	21.49	21.34	21.30	21.18	0-2	0
	1	25	21.17	21.44	21.25	21.22	21.12		0
	1	49	21.38	21.38	21.18	21.17	21.03		0
	25	0	21.58	21.60	21.43	21.39	21.27	0-3	0
	25	12	21.58	21.57	21.38	21.37	21.24		0
	25	25	21.58	21.53	21.35	21.34	21.20		0
	50	0	21.55	21.53	21.36	21.31	21.20		0
256QAM	1	0	21.29	21.45	21.23	21.26	21.20	0-5	0
	1	25	21.05	21.39	21.19	21.23	21.17		0
	1	49	21.27	21.32	21.12	21.17	21.08		0
	25	0	21.40	21.48	21.28	21.31	21.21		0
	25	12	21.38	21.46	21.27	21.29	21.20		0
	25	25	21.36	21.43	21.22	21.27	21.18		0
	50	0	21.45	21.50	21.32	21.34	21.26		0

Table 9-95
LTE Band 41 PC2 Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	21.37	21.38	21.20	21.16	21.01	0	0
	1	12	21.36	21.35	21.21	21.20	21.08		0
	1	24	21.40	21.35	21.15	21.15	20.99		0
	12	0	21.51	21.53	21.39	21.28	21.16	0-1	0
	12	6	21.57	21.56	21.40	21.32	21.22		0
	12	13	21.52	21.48	21.33	21.32	21.18		0
	25	0	21.53	21.52	21.36	21.28	21.22		0
16QAM	1	0	21.78	21.72	21.54	21.46	21.39	0-1	0
	1	12	21.77	21.73	21.58	21.51	21.46		0
	1	24	21.72	21.70	21.49	21.47	21.38		0
	12	0	21.57	21.57	21.42	21.32	21.23	0-2	0
	12	6	21.62	21.61	21.46	21.36	21.31		0
	12	13	21.58	21.56	21.38	21.37	21.26		0
	25	0	21.48	21.49	21.33	21.23	21.17		0
64QAM	1	0	21.54	21.48	21.25	21.21	21.14	0-2	0
	1	12	21.51	21.49	21.35	21.28	21.16		0
	1	24	21.50	21.45	21.27	21.24	21.15		0
	12	0	21.60	21.60	21.48	21.34	21.24	0-3	0
	12	6	21.65	21.62	21.53	21.39	21.32		0
	12	13	21.63	21.57	21.45	21.41	21.25		0
	25	0	21.63	21.60	21.45	21.31	21.28		0
256QAM	1	0	21.39	21.46	21.19	21.23	21.16	0-5	0
	1	12	21.36	21.45	21.24	21.31	21.24		0
	1	24	21.38	21.40	21.21	21.27	21.16		0
	12	0	21.50	21.58	21.37	21.33	21.25		0
	12	6	21.54	21.60	21.43	21.37	21.34		0
	12	13	21.51	21.56	21.36	21.36	21.28		0
	25	0	21.44	21.51	21.31	21.29	21.24		0

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9.4.13 LTE Uplink Carrier Aggregation Conducted Powers

Table 9-96
LTE Band 5 Maximum Uplink Carrier Aggregation Conducted Powers

	PCC									SCC									Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC UL Channel	PCC UL Frequency [MHz]	PCC DL Channel	PCC DL Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC UL Channel	SCC UL Frequency [MHz]	SCC DL Channel	SCC DL Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_5B	LTE B5	10	20525	836.5	2525	881.5	QPSK	1	0	LTE B5	5	20453	829.3	2453	874.3	QPSK	1	24	25.30	24.89

Table 9-97
LTE Band 66 Maximum Uplink Carrier Aggregation Conducted Powers

	PCC									SCC									Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC UL Channel	PCC UL Frequency [MHz]	PCC DL Channel	PCC DL Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC UL Channel	SCC UL Frequency [MHz]	SCC DL Channel	SCC DL Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_66B	LTE B66	10	132622	1775.0	67086	2175.0	QPSK	1	0	LTE B66	10	132523	1765.1	66987	2165.1	QPSK	1	49	24.92	24.29
CA_66C	LTE B66	20	132572	1770.0	67036	2170.0	QPSK	1	0	LTE B66	20	132374	1750.2	66838	2150.2	QPSK	1	99	24.94	24.55

Table 9-98
LTE Band 66 Reduced Uplink Carrier Aggregation Conducted Powers

	PCC									SCC									Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC UL Channel	PCC UL Frequency [MHz]	PCC DL Channel	PCC DL Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC UL Channel	SCC UL Frequency [MHz]	SCC DL Channel	SCC DL Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_66B	LTE B66	10	132322	1745.0	66786	2145.0	QPSK	25	0	LTE B66	10	132223	1735.1	66687	2135.1	QPSK	25	25	20.60	20.10
CA_66C	LTE B66	20	132322	1745.0	66786	2145.0	QPSK	50	0	LTE B66	20	132124	1725.2	66588	2125.2	QPSK	50	50	20.89	20.62

Table 9-99
LTE Band 41 Maximum Uplink Carrier Aggregation Conducted Powers

	PCC							SCC							Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C(1)	LTE B41 PC3	20	41490	2680.0	QPSK	1	0	LTE B41 PC3	20	41292	2660.2	QPSK	1	99	24.03	23.59
CA_41C(1)	LTE B41 PC2	20	41490	2680.0	QPSK	1	0	LTE B41 PC2	20	41292	2660.2	QPSK	1	99	27.25	27.20

Table 9-100
LTE Band 41 Reduced Uplink Carrier Aggregation Conducted Powers

	PCC							SCC							Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C(1)	LTE B41 PC3	20	40185	2549.5	0	50	0	LTE B41 PC3	20	39987	2529.7	0	50	50	22.50	21.45
CA_41C (1)	LTE B41 PC2	20	40185	2549.5	0	50	0	LTE B41 PC2	20	39987	2529.7	0	50	50	21.73	21.62

Notes:

1. This device supports uplink carrier aggregation for LTE CA_5B, LTE CA_66B, LTE CA_66C, and LTE CA_41C(1) with a maximum of two component carriers. For intraband contiguous carrier aggregation scenarios, 3GPP 36.101 Table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when non-contiguous RB allocation is implemented. The conducted powers and MPR settings in this device are permanently implemented per the above 3GPP requirements.
2. Per FCC Guidance, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.

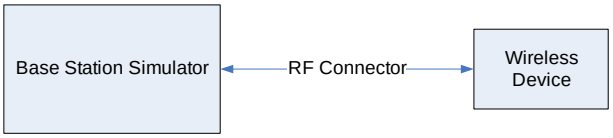

Figure 9-4
Power Measurement Setup

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9.5 WLAN Conducted Powers

Table 9-101
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
		Average	Average	Average	Average
2412	1	20.39	18.23	18.09	14.88
2417	2	N/A	N/A	N/A	17.79
2437	6	20.29	18.14	18.03	17.73
2457	10	N/A	17.98	17.84	17.99
2462	11	**20.45**	15.77	15.73	13.33

Table 9-102
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
		Average	Average	Average	Average
2412	1	18.50	17.63	17.51	14.75
2417	2	N/A	N/A	N/A	17.10
2437	6	18.55	18.43	18.12	17.77
2457	10	N/A	17.91	18.38	17.48
2462	11	**18.69**	15.89	15.86	13.38

Table 9-103
2.4 GHz WLAN Maximum Average RF Power – MIMO

2.4GHz 802.11n Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
2412	1	18.09	17.51	20.82
2437	6	18.03	18.12	21.09
2457	10	**17.84**	**18.38**	21.13
2462	11	15.73	15.86	18.81

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Table 9-104
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
		Average	Average	Average	Average
5180	36	15.08	15.17	15.11	14.66
5200	40	18.43	18.11	18.11	17.90
5220	44	18.41	18.03	18.03	17.93
5240	48	18.45	18.15	18.13	17.89
5260	52	18.23	18.33	18.34	17.77
5280	56	**18.37**	18.46	18.46	17.89
5300	60	18.36	18.45	18.47	17.98
5320	64	16.79	16.75	16.87	15.73
5500	100	18.28	18.21	18.13	17.28
5600	120	18.30	18.42	18.49	17.98
5620	124	18.21	18.46	18.41	17.90
5720	144	**18.36**	18.49	18.48	17.74
5745	149	18.06	18.11	18.18	17.85
5785	157	**18.18**	18.26	18.17	17.94
5825	165	17.91	18.48	18.14	17.96

Table 9-105
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
		Average	Average	Average	Average
5180	36	15.25	15.35	15.20	14.68
5200	40	18.21	18.16	18.15	17.98
5220	44	18.25	18.27	18.31	17.89
5240	48	18.37	18.26	18.26	17.81
5260	52	18.24	18.22	18.21	17.61
5280	56	18.27	18.34	18.33	17.72
5300	60	**18.47**	18.43	18.39	17.74
5320	64	16.78	16.77	16.72	15.98
5500	100	18.19	18.43	18.11	17.12
5600	120	18.15	18.32	18.27	17.62
5620	124	18.39	18.29	18.25	17.65
5720	144	**18.44**	18.39	18.42	17.61
5745	149	18.20	18.25	18.18	17.91
5785	157	**18.38**	18.23	18.09	17.93
5825	165	18.21	18.26	18.14	17.98

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Table 9-106
Maximum Output Powers During Conditions with 2.4 GHz and 5 GHz WLAN

5GHz (40MHz) 802.11n Conducted Power [dBm]			
Freq [MHz]	Channel	ANT1	ANT2
5190	38	9.78	9.79
5230	46	13.79	13.87
5270	54	13.88	13.68
5310	62	10.88	10.97
5GHz (80MHz) 802.11ac Conducted Power [dBm]			
Freq [MHz]	Channel	ANT1	ANT2
5530	106	9.27	9.41
5610	122	13.98	13.97
5690	138	13.91	13.94
5775	155	**13.77**	**13.51**

Table 9-107
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
		Average	Average	Average
2412	1	16.60	16.57	16.43
2437	6	16.61	16.45	16.53
2457	10	N/A	16.20	16.35
2462	11	**16.77**	15.77	15.89

Table 9-108
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
		Average	Average	Average
2412	1	16.43	16.70	16.66
2437	6	16.43	16.59	16.41
2457	10	N/A	16.91	16.48
2462	11	**16.73**	15.89	15.86

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Table 9-109
5 GHz WLAN Reduced Average RF Power – Ant 1

5GHz (40MHz) Conducted Power [dBm]			5GHz (80MHz) Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode	Freq [MHz]	Channel	IEEE Transmission Mode
		802.11n			802.11ac
		Average			Average
5190	38	12.71	5530	106	12.11
5230	46	13.79	5610	122	**13.98**
5270	54	13.88	5690	138	13.91
5310	62	**13.98**	5775	155	**13.77**

Table 9-110
5 GHz WLAN Reduced Average RF Power – Ant 2

5GHz (40MHz) Conducted Power [dBm]			5GHz (80MHz) Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode	Freq [MHz]	Channel	IEEE Transmission Mode
		802.11n			802.11ac
		Average			Average
5190	38	12.98	5530	106	12.41
5230	46	13.87	5610	122	**13.97**
5270	54	13.68	5690	138	13.94
5310	62	**13.80**	5775	155	**13.51**

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.

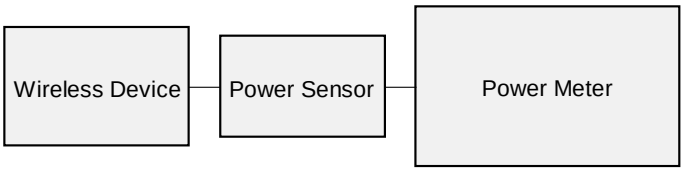

Figure 9-5
Power Measurement Setup

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9.6 Bluetooth Conducted Powers

Table 9-111
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	17.53	56.584
2441	1.0	39	**18.35**	68.376
2480	1.0	78	17.36	54.451
2402	2.0	0	11.71	14.818
2441	2.0	39	11.90	15.487
2480	2.0	78	11.87	15.385
2402	3.0	0	11.54	14.260
2441	3.0	39	11.99	15.816
2480	3.0	78	11.92	15.545

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

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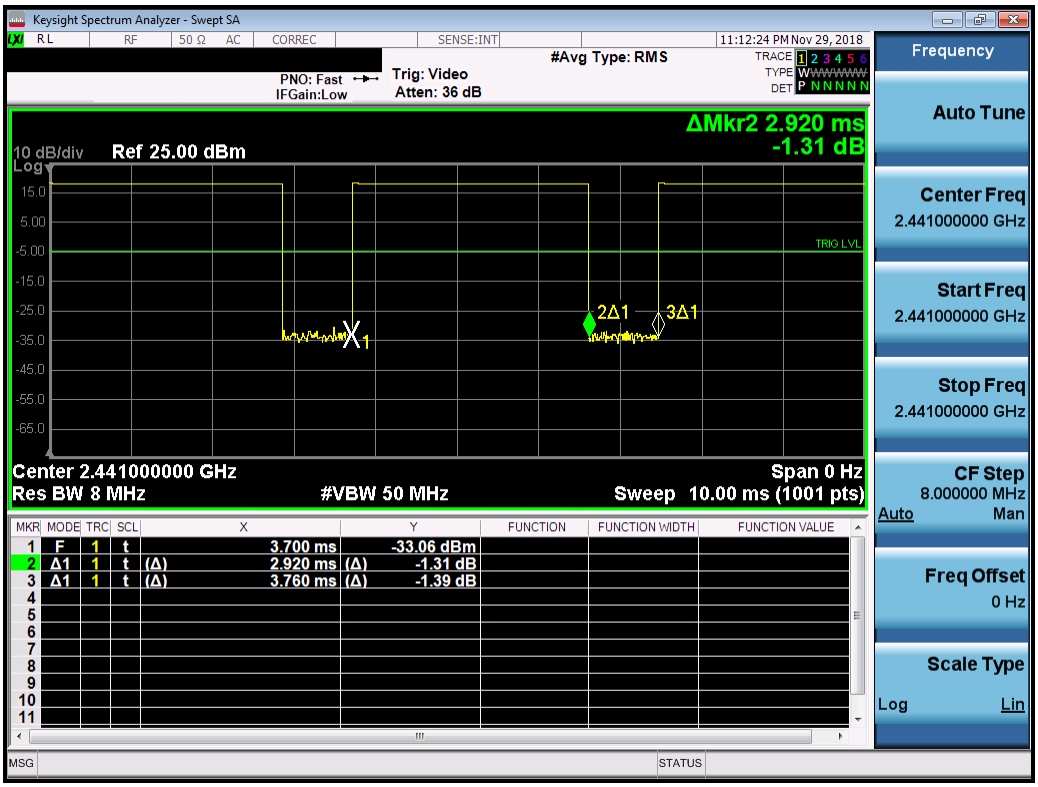

Figure 9-6
Bluetooth Transmission Plot

Equation 9-1
Bluetooth Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.92ms}{3.76ms} * 100\% = 77.7\%$$

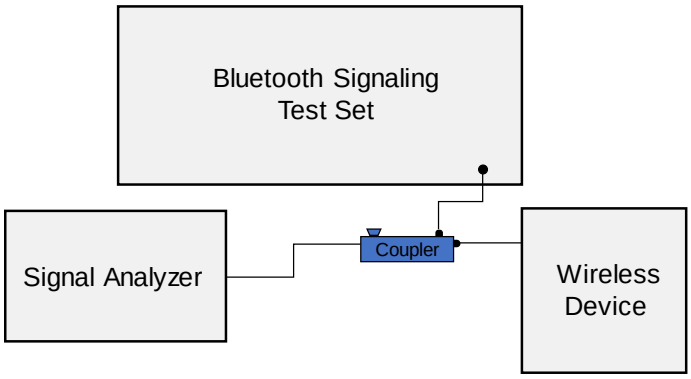

Figure 9-7
Power Measurement Setup

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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
11/13/2018	750H	20.7	680	0.870	43.661	0.888	42.305	-2.03%	3.21%
			695	0.875	43.580	0.889	42.227	-1.57%	3.20%
			740	0.894	43.490	0.893	41.994	0.11%	3.56%
			755	0.900	43.446	0.894	41.916	0.67%	3.65%
11/15/2018	750H	20.6	700	0.874	42.868	0.889	42.201	-1.69%	1.58%
			710	0.878	42.813	0.890	42.149	-1.35%	1.58%
			720	0.882	42.764	0.891	42.097	-1.01%	1.58%
			740	0.890	42.675	0.893	41.994	-0.34%	1.62%
			755	0.895	42.614	0.894	41.916	0.11%	1.67%
			770	0.901	42.564	0.895	41.838	0.67%	1.74%
			785	0.906	42.521	0.896	41.760	1.12%	1.82%
			800	0.911	42.484	0.897	41.682	1.56%	1.92%
11/15/2018	835H	18.1	820	0.898	41.835	0.899	41.578	-0.11%	0.62%
			835	0.913	41.620	0.900	41.500	1.44%	0.29%
			850	0.928	41.416	0.916	41.500	1.31%	-0.20%
11/19/2018	835H	22.4	820	0.892	42.555	0.899	41.578	-0.78%	2.35%
			835	0.907	42.361	0.900	41.500	0.78%	2.07%
			850	0.922	42.174	0.916	41.500	0.66%	1.62%
11/21/2018	1750H	22.1	1710	1.369	40.184	1.348	40.142	1.56%	0.10%
			1750	1.397	40.104	1.371	40.079	1.90%	0.06%
			1790	1.420	40.058	1.394	40.016	1.87%	0.10%
11/26/2018	1750H	20.3	1710	1.323	39.585	1.348	40.142	-1.85%	-1.39%
			1750	1.347	39.501	1.371	40.079	-1.75%	-1.44%
			1790	1.371	39.422	1.394	40.016	-1.65%	-1.48%
11/12/2018	1900H	22.2	1850	1.400	41.411	1.400	40.000	0.00%	3.53%
			1880	1.431	41.278	1.400	40.000	2.21%	3.20%
			1910	1.463	41.148	1.400	40.000	4.50%	2.87%
12/3/2018	1900H	20.5	1850	1.409	39.007	1.400	40.000	0.64%	-2.48%
			1880	1.430	38.983	1.400	40.000	2.14%	-2.54%
			1910	1.448	38.944	1.400	40.000	3.43%	-2.64%
11/16/2018	2450H	23.1	2300	1.704	39.167	1.670	39.500	2.04%	-0.84%
			2310	1.715	39.136	1.679	39.480	2.14%	-0.87%
			2400	1.814	38.779	1.756	39.289	3.30%	-1.30%
			2450	1.871	38.568	1.800	39.200	3.94%	-1.61%
			2500	1.927	38.365	1.855	39.136	3.88%	-1.97%
11/18/2018	2450H	23.4	2400	1.792	38.650	1.756	39.289	2.05%	-1.63%
			2450	1.846	38.444	1.800	39.200	2.56%	-1.93%
			2500	1.903	38.267	1.855	39.136	2.59%	-2.22%
			2550	1.960	38.081	1.909	39.073	2.67%	-2.54%
			2600	2.019	37.873	1.964	39.009	2.80%	-2.91%
			2650	2.073	37.668	2.018	38.945	2.73%	-3.28%
			2700	2.134	37.478	2.073	38.882	2.94%	-3.61%
12/5/2018	2450H	23.0	2400	1.794	39.239	1.756	39.289	2.16%	-0.13%
			2450	1.848	39.073	1.800	39.200	2.67%	-0.32%
			2500	1.905	38.885	1.855	39.136	2.70%	-0.64%
1/15/2019	2450H	21.2	2400	1.752	38.715	1.756	39.289	-0.23%	-1.46%
			2450	1.791	38.632	1.800	39.200	-0.50%	-1.45%
			2500	1.829	38.545	1.855	39.136	-1.40%	-1.51%
			2550	1.870	38.447	1.909	39.073	-2.04%	-1.60%
			2600	1.910	38.363	1.964	39.009	-2.75%	-1.66%
			2650	1.950	38.258	2.018	38.945	-3.37%	-1.76%
			2700	1.991	38.164	2.073	38.882	-3.96%	-1.85%
11/27/2018	3500H - 3700H	21.6	3500	2.924	37.356	2.913	37.929	0.38%	-1.51%
			3550	2.963	37.315	2.964	37.871	-0.03%	-1.47%
			3600	3.000	37.242	3.015	37.814	-0.50%	-1.51%
			3645	3.035	37.237	3.061	37.763	-0.85%	-1.39%
			3685	3.071	37.170	3.102	37.717	-1.00%	-1.45%
			3725	3.099	37.085	3.143	37.671	-1.40%	-1.56%
11/14/2018	5200H-5800H	18.5	5180	4.600	35.611	4.635	36.009	-0.76%	-1.11%
			5200	4.608	35.606	4.655	35.986	-1.01%	-1.06%
			5220	4.634	35.540	4.676	35.963	-0.90%	-1.18%
			5240	4.655	35.510	4.696	35.940	-0.87%	-1.20%
			5260	4.669	35.499	4.717	35.917	-1.02%	-1.16%
			5280	4.686	35.467	4.737	35.894	-1.08%	-1.19%
			5300	4.725	35.395	4.758	35.871	-0.69%	-1.33%
			5320	4.751	35.379	4.778	35.849	-0.57%	-1.31%
			5500	4.931	35.091	4.963	35.643	-0.64%	-1.55%
			5520	4.938	35.073	4.983	35.620	-0.90%	-1.54%
			5540	4.969	35.033	5.004	35.597	-0.70%	-1.58%
			5560	4.991	34.997	5.024	35.574	-0.66%	-1.62%
			5580	5.007	34.982	5.045	35.551	-0.75%	-1.60%
			5600	5.020	34.927	5.065	35.529	-0.89%	-1.69%
			5620	5.065	34.870	5.086	35.506	-0.41%	-1.79%
			5640	5.093	34.865	5.106	35.483	-0.25%	-1.74%
			5660	5.097	34.861	5.127	35.460	-0.59%	-1.69%
			5680	5.099	34.844	5.147	35.437	-0.93%	-1.67%
			5700	5.136	34.770	5.168	35.414	-0.62%	-1.82%
			5745	5.199	34.742	5.214	35.363	-0.29%	-1.76%
			5765	5.202	34.727	5.234	35.340	-0.61%	-1.73%
			5785	5.223	34.691	5.255	35.317	-0.61%	-1.77%
			5800	5.240	34.634	5.270	35.300	-0.57%	-1.89%
			5805	5.248	34.616	5.275	35.294	-0.51%	-1.92%
			5825	5.278	34.584	5.296	35.271	-0.34%	-1.95%

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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
11/19/2018	750B	20.5	680	0.935	53.487	0.958	55.804	-2.40%	-4.15%
			695	0.941	53.400	0.959	55.745	-1.88%	-4.21%
			710	0.948	53.261	0.960	55.687	-1.25%	-4.36%
			720	0.953	53.167	0.961	55.648	-0.83%	-4.46%
			740	0.962	53.023	0.963	55.570	-0.10%	-4.58%
			755	0.968	52.976	0.964	55.512	0.41%	-4.57%
			770	0.973	52.978	0.965	55.453	0.83%	-4.46%
			785	0.979	52.990	0.966	55.395	1.35%	-4.34%
			800	0.985	52.972	0.967	55.336	1.86%	-4.27%
11/12/2018	835B	21.4	820	0.963	53.354	0.969	55.258	-0.62%	-3.45%
			835	0.978	53.187	0.970	55.200	0.82%	-3.65%
			850	0.994	53.029	0.988	55.154	0.61%	-3.85%
11/26/2018	835B	20.5	820	1.004	54.134	0.969	55.258	3.61%	-2.03%
			835	1.018	53.976	0.970	55.200	4.95%	-2.22%
			850	1.034	53.818	0.988	55.154	4.66%	-2.42%
12/5/2018	835B	21.0	820	0.966	55.068	0.969	55.258	-0.31%	-0.34%
			835	0.972	55.035	0.970	55.200	0.21%	-0.30%
			850	0.979	54.997	0.988	55.154	-0.91%	-0.28%
11/19/2018	1750B	22.6	1710	1.449	51.001	1.463	53.537	-0.96%	-4.74%
			1750	1.490	50.865	1.488	53.432	0.13%	-4.80%
			1790	1.533	50.704	1.514	53.326	1.25%	-4.92%
11/21/2018	1750B	21.1	1710	1.467	51.038	1.463	53.537	0.27%	-4.67%
			1750	1.513	50.840	1.488	53.432	1.68%	-4.85%
			1790	1.561	50.676	1.514	53.326	3.10%	-4.97%
11/28/2018	1750B	22.3	1710	1.502	52.395	1.463	53.537	2.67%	-2.13%
			1750	1.548	52.232	1.488	53.432	4.03%	-2.25%
			1790	1.589	52.051	1.514	53.326	4.95%	-2.39%
12/4/2018	1750B	20.1	1710	1.494	51.286	1.463	53.537	2.12%	-4.20%
			1750	1.542	51.118	1.488	53.432	3.63%	-4.33%
			1790	1.587	50.947	1.514	53.326	4.82%	-4.46%
11/12/2018	1900B	21.0	1850	1.534	51.571	1.520	53.300	0.92%	-3.24%
			1880	1.558	51.512	1.520	53.300	2.50%	-3.35%
			1910	1.583	51.501	1.520	53.300	4.14%	-3.38%
11/14/2018	1900B	22.7	1850	1.521	51.464	1.520	53.300	0.07%	-3.44%
			1880	1.556	51.360	1.520	53.300	2.37%	-3.64%
			1910	1.591	51.249	1.520	53.300	4.67%	-3.85%
11/19/2018	1900B	23.1	1850	1.489	51.591	1.520	53.300	-2.04%	-3.21%
			1880	1.524	51.536	1.520	53.300	0.26%	-3.31%
			1910	1.555	51.448	1.520	53.300	2.30%	-3.47%
11/21/2018	1900B	22.6	1850	1.493	52.097	1.520	53.300	-1.78%	-2.26%
			1880	1.528	51.975	1.520	53.300	0.53%	-2.49%
			1910	1.562	51.884	1.520	53.300	2.76%	-2.66%
11/28/2018	1900B	21.8	1850	1.516	51.382	1.520	53.300	-0.26%	-3.60%
			1880	1.560	51.262	1.520	53.300	2.63%	-3.82%
			1910	1.590	51.164	1.520	53.300	4.61%	-4.01%
12/2/2018	1900B	22.8	1850	1.521	52.465	1.520	53.300	0.07%	-1.57%
			1880	1.554	52.359	1.520	53.300	2.24%	-1.77%
			1910	1.589	52.273	1.520	53.300	4.54%	-1.93%
12/7/2018	1900B	19.2	1850	1.544	52.812	1.520	53.300	1.58%	-0.92%
			1880	1.571	52.790	1.520	53.300	3.36%	-0.96%
			1910	1.592	52.735	1.520	53.300	4.74%	-1.06%
11/12/2018	2450B	22.3	2400	1.971	52.177	1.902	52.767	3.63%	-1.12%
			2450	2.033	52.107	1.950	52.700	4.26%	-1.13%
			2500	2.090	51.871	2.021	52.636	3.41%	-1.45%
11/14/2018	2450B	22.5	2300	1.871	51.484	1.809	52.900	3.43%	-2.68%
			2310	1.882	51.461	1.816	52.887	3.63%	-2.70%
			2320	1.892	51.425	1.826	52.873	3.61%	-2.74%
			2400	1.985	51.189	1.902	52.767	4.36%	-2.99%
			2450	2.045	51.016	1.950	52.700	4.87%	-3.20%
			2500	2.103	50.864	2.021	52.636	4.06%	-3.37%
11/19/2018	2450B	21.9	2400	1.890	51.207	1.902	52.767	-0.63%	-2.96%
			2450	1.957	51.016	1.950	52.700	0.36%	-3.20%
			2500	2.023	50.819	2.021	52.636	0.10%	-3.45%
			2550	2.092	50.650	2.092	52.573	0.00%	-3.66%
			2600	2.160	50.437	2.163	52.509	-0.14%	-3.95%
			2650	2.229	50.251	2.234	52.445	-0.22%	-4.18%
			2700	2.299	50.057	2.305	52.382	-0.26%	-4.44%
11/20/2018	2450B	23.5	2300	1.878	51.069	1.809	52.900	3.81%	-3.46%
			2310	1.887	51.033	1.816	52.887	3.91%	-3.51%
			2320	1.897	50.989	1.826	52.873	3.89%	-3.56%
11/29/2018	2450B	22.9	2400	1.975	51.058	1.902	52.767	3.84%	-3.24%
			2450	2.036	50.942	1.950	52.700	4.41%	-3.34%
			2500	2.091	50.788	2.021	52.636	3.46%	-3.51%
			2550	2.150	50.678	2.092	52.573	2.77%	-3.60%
			2600	2.210	50.506	2.163	52.509	2.17%	-3.82%
			2650	2.271	50.350	2.234	52.445	1.66%	-3.99%
			2700	2.336	50.186	2.305	52.382	1.34%	-4.19%
1/14/2019	2450B	23.5	2400	1.981	51.730	1.902	52.767	4.15%	-1.97%
			2450	2.039	51.588	1.950	52.700	4.56%	-2.11%
			2500	2.095	51.439	2.021	52.636	3.66%	-2.27%
			2550	2.155	51.316	2.092	52.573	3.01%	-2.39%
			2600	2.208	51.169	2.163	52.509	2.08%	-2.55%
			2650	2.270	50.984	2.234	52.445	1.61%	-2.79%
			2700	2.330	50.864	2.305	52.382	1.08%	-2.90%
1/17/2019	2450B	24.5	2500	2.073	50.472	2.021	52.636	2.57%	-4.11%
			2550	2.134	50.325	2.092	52.573	2.01%	-4.28%
			2600	2.195	50.186	2.163	52.509	1.48%	-4.42%
			2650	2.255	50.018	2.234	52.445	0.94%	-4.63%
			2700	2.315	49.863	2.305	52.382	0.43%	-4.81%
11/27/2018	3500B - 3700B	20.9	3500	3.176	51.130	3.314	51.321	-4.16%	-0.37%
			3550	3.237	51.035	3.372	51.254	-4.00%	-0.43%
			3600	3.290	50.938	3.431	51.186	-4.11%	-0.48%
			3645	3.348	50.889	3.483	51.125	-3.88%	-0.46%
			3685	3.395	50.786	3.530	51.070	-3.82%	-0.56%
			3725	3.439	50.749	3.577	51.016	-3.86%	-0.52%
11/11/2018	5200B-5800B	23.5	5180	5.387	49.484	5.276	49.041	2.10%	0.90%
			5200	5.410	49.441	5.299	49.014	2.09%	0.87%
			5220	5.447	49.425	5.323	48.987	2.33%	0.89%
			5240	5.482	49.424	5.346	48.960	2.54%	0.95%
			5260	5.513	49.384	5.369	48.933	2.68%	0.92%
			5280	5.522	49.373	5.393	48.906	2.39%	0.95%
			5300	5.539	49.294	5.416	48.879	2.27%	0.85%
			5320	5.570	49.223	5.439	48.851	2.41%	0.76%
			5500	5.800	48.960	5.650	48.607	2.65%	0.73%
			5520	5.838	48.899	5.673	48.580	2.91%	0.66%
			5540	5.883	48.884	5.696	48.553	3.28%	0.68%
			5560	5.909	48.858	5.720	48.526	3.30%	0.68%
			5580	5.940	48.827	5.743	48.499	3.43%	0.68%
			5600	5.957	48.810	5.766	48.471	3.31%	0.70%
			5620	5.982	48.764	5.790	48.444	3.32%	0.66%
			5640	6.011	48.726	5.813	48.417	3.41%	0.64%
			5660	6.052	48.696	5.837	48.390	3.68%	0.63%
			5680	6.080	48.675	5.860	48.363	3.75%	0.65%
			5700	6.107	48.657	5.883	48.336	3.81%	0.66%
			5745	6.166	48.589	5.936	48.275	3.87%	0.65%
			5765	6.196	48.558	5.959	48.248	3.98%	0.64%
			5785	6.232	48.527	5.982	48.220	4.18%	0.64%
			5800	6.259	48.490	6.000	48.200	4.32%	0.60%
			5805	6.258	48.452	6.006	48.193	4.20%	0.54%
			5825	6.274	48.484	6.029	48.166	4.06%	0.66%

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.

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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 10-3
System Verification Results

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)	$Deviation_{1g}$ (%)
I	750	HEAD	11/13/2018	21.3	20.5	0.200	1054	7406	1.630	8.370	8.150	-2.63%
I	750	HEAD	11/15/2018	21.8	20.6	0.200	1054	7406	1.630	8.370	8.150	-2.63%
L	835	HEAD	11/15/2018	19.8	18.1	0.200	4d047	7308	1.950	9.470	9.750	2.96%
L	835	HEAD	11/19/2018	23.3	22.4	0.200	4d047	7308	1.860	9.470	9.300	-1.80%
M	1750	HEAD	11/21/2018	20.5	21.1	0.100	1150	3287	3.790	36.500	37.900	3.84%
M	1750	HEAD	11/26/2018	20.7	21.6	0.100	1150	3287	3.570	36.500	35.700	-2.19%
E	1900	HEAD	11/12/2018	22.5	21.0	0.100	5d148	3213	3.980	40.100	39.800	-0.75%
M	1900	HEAD	12/03/2018	21.7	20.5	0.100	5d148	3287	4.200	40.100	42.000	4.74%
G	2300	HEAD	11/16/2018	22.4	23.1	0.100	1073	7410	4.770	49.200	47.700	-3.05%
G	2450	HEAD	11/16/2018	22.4	23.1	0.100	981	7410	5.320	52.300	53.200	1.72%
G	2450	HEAD	11/18/2018	23.2	23.4	0.100	981	7410	5.370	52.300	53.700	2.68%
G	2450	HEAD	12/05/2018	23.0	21.3	0.100	981	7410	5.450	52.300	54.500	4.21%
H	2450	HEAD	01/15/2019	20.9	21.2	0.100	797	7409	5.270	52.700	52.700	0.00%
G	2600	HEAD	11/18/2018	23.2	23.4	0.100	1126	7410	5.700	54.500	57.000	4.59%
H	2600	HEAD	01/15/2019	20.9	21.2	0.100	1064	7409	5.550	57.000	55.500	-2.63%
H	3500	HEAD	11/27/2018	22.7	21.6	0.100	1055	3949	6.950	66.800	69.500	4.04%
H	3700	HEAD	11/27/2018	22.7	21.6	0.100	1002	3949	7.220	67.900	72.200	6.33%
H	5250	HEAD	11/14/2018	22.3	18.7	0.050	1191	7409	3.870	78.900	77.400	-1.90%
H	5600	HEAD	11/14/2018	22.3	18.7	0.050	1191	7409	3.970	83.600	79.400	-5.02%
H	5750	HEAD	11/14/2018	22.3	18.7	0.050	1191	7409	4.030	79.100	80.600	1.90%
I	750	BODY	11/18/2018	21.4	20.4	0.200	1054	7406	1.780	8.610	8.900	3.37%
G	835	BODY	11/12/2018	21.7	21.4	0.200	4d132	7410	2.090	9.710	10.450	7.62%
I	835	BODY	11/26/2018	19.9	21.5	0.200	4d047	7406	2.100	9.710	10.500	8.14%
I	835	BODY	12/05/2018	22.2	20.6	0.200	4d047	7406	1.970	9.710	9.850	1.44%
J	1750	BODY	11/18/2018	19.9	21.0	0.100	1148	3347	3.730	37.000	37.300	0.81%
J	1750	BODY	11/21/2018	19.7	21.1	0.100	1150	3347	3.800	36.600	38.000	3.83%
J	1750	BODY	11/28/2018	20.1	20.5	0.100	1148	3347	3.880	37.000	38.800	4.86%
H	1750	BODY	12/04/2018	22.6	20.2	0.100	1148	7409	3.920	37.000	39.200	5.95%
H	1900	BODY	11/12/2018	21.8	21.0	0.100	5d148	7409	4.170	39.600	41.700	5.30%
E	1900	BODY	11/14/2018	23.9	21.3	0.100	5d148	3213	4.230	39.600	42.300	6.82%
E	1900	BODY	11/19/2018	24.4	21.8	0.100	5d148	3213	3.970	39.600	39.700	0.25%
E	1900	BODY	11/21/2018	24.3	21.2	0.100	5d148	3213	3.760	39.600	37.600	-5.05%
E	1900	BODY	11/28/2018	21.2	20.8	0.100	5d148	3213	3.890	39.600	38.900	-1.77%
H	1900	BODY	12/02/2018	21.9	21.8	0.100	5d080	7409	4.190	39.200	41.900	6.89%
J	1900	BODY	12/07/2018	19.5	19.2	0.100	5d148	3347	4.210	39.600	42.100	6.31%
K	2300	BODY	11/14/2018	21.9	22.5	0.100	1073	3319	4.850	47.700	48.500	1.68%
K	2300	BODY	11/20/2018	23.2	23.5	0.100	1073	3319	5.080	47.700	50.800	6.50%
K	2450	BODY	11/12/2018	22.7	21.0	0.100	719	3319	5.130	50.100	51.300	2.40%
K	2450	BODY	11/14/2018	21.9	22.5	0.100	719	3319	5.090	50.100	50.900	1.60%
H	2450	BODY	11/19/2018	21.3	21.7	0.100	981	7409	5.400	50.900	54.000	6.09%
K	2450	BODY	11/29/2018	22.6	22.9	0.100	797	3319	5.260	51.100	52.600	2.94%
K	2450	BODY	01/14/2019	23.3	21.6	0.100	981	3319	4.980	50.900	49.800	-2.16%
H	2600	BODY	11/19/2018	21.3	21.7	0.100	1004	7409	5.610	54.800	56.100	2.37%
K	2600	BODY	11/29/2018	22.6	22.9	0.100	1071	3319	5.670	54.200	56.700	4.61%
K	2600	BODY	01/14/2019	22.3	21.6	0.100	1004	3319	5.530	54.800	55.300	0.91%
K	2600	BODY	01/17/2019	23.4	22.5	0.100	1004	3319	5.530	54.800	55.300	0.91%
L	3500	BODY	11/27/2018	22.8	20.6	0.100	1055	3914	6.060	64.600	60.600	-6.19%
L	3700	BODY	11/27/2018	22.8	20.6	0.100	1002	3914	6.370	65.000	63.700	-2.00%
D	5250	BODY	11/11/2018	22.5	21.7	0.050	1191	7357	3.560	77.000	71.200	-7.53%
D	5600	BODY	11/11/2018	22.5	21.7	0.050	1191	7357	3.910	79.200	78.200	-1.26%
D	5750	BODY	11/11/2018	22.5	21.7	0.050	1191	7357	3.560	76.100	71.200	-6.44%

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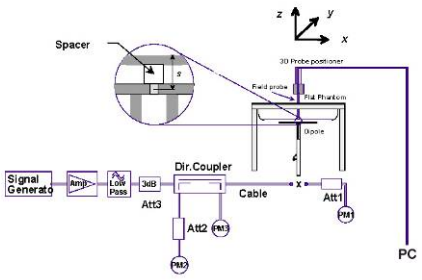

Figure 10-1
System Verification Setup Diagram

Figure 10-2
System Verification Setup Photo

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11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
CDMA BC10 (§90S) Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Ant State	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	26.0	25.00	-0.02	Right	Cheek	3	0365M	1:1	0.227	1.259	0.286	A1
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	26.0	25.00	0.10	Right	Tilt	3	0365M	1:1	0.127	1.259	0.160	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	26.0	25.00	0.16	Left	Cheek	3	0365M	1:1	0.159	1.259	0.200	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	26.0	25.00	-0.13	Left	Tilt	3	0365M	1:1	0.126	1.259	0.159	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	26.0	25.06	0.12	Right	Cheek	3	0365M	1:1	0.224	1.242	0.278	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	26.0	25.06	0.01	Right	Tilt	3	0365M	1:1	0.133	1.242	0.165	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	26.0	25.06	0.09	Left	Cheek	3	0365M	1:1	0.159	1.242	0.197	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	26.0	25.06	0.20	Left	Tilt	3	0365M	1:1	0.127	1.242	0.158	
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
CDMA BC0 (§22H) Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Ant State	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	26.0	25.15	0.17	Right	Cheek	3	0365M	1:1	0.294	1.216	**0.358**	A2
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	26.0	25.15	0.09	Right	Tilt	3	0365M	1:1	0.163	1.216	0.198	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	26.0	25.15	0.09	Left	Cheek	3	0365M	1:1	0.225	1.216	0.274	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	26.0	25.15	0.17	Left	Tilt	3	0365M	1:1	0.164	1.216	0.199	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	26.0	25.11	-0.03	Right	Cheek	3	0365M	1:1	0.248	1.227	0.304	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	26.0	25.11	-0.21	Right	Tilt	3	0365M	1:1	0.147	1.227	0.180	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	26.0	25.11	0.02	Left	Cheek	3	0365M	1:1	0.195	1.227	0.239	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	26.0	25.11	-0.12	Left	Tilt	3	0365M	1:1	0.139	1.227	0.171	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

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Table 11-3
PCS CDMA Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Ant State	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	600	PCS CDMA	RC3 / SO55	24.5	23.45	0.00	Right	Cheek	16	0371M	1:1	0.166	1.274	0.211	
1880.00	600	PCS CDMA	RC3 / SO55	24.5	23.45	-0.12	Right	Tilt	16	0371M	1:1	0.064	1.274	0.082	
1880.00	600	PCS CDMA	RC3 / SO55	24.5	23.45	0.12	Left	Cheek	16	0371M	1:1	0.234	1.274	0.298	A3
1880.00	600	PCS CDMA	RC3 / SO55	24.5	23.45	0.00	Left	Tilt	16	0371M	1:1	0.063	1.274	0.080	
1880.00	600	PCS CDMA	EVDO Rev. A	24.5	23.52	0.12	Right	Cheek	16	0371M	1:1	0.178	1.253	0.223	
1880.00	600	PCS CDMA	EVDO Rev. A	24.5	23.52	0.13	Right	Tilt	16	0371M	1:1	0.089	1.253	0.112	
1880.00	600	PCS CDMA	EVDO Rev. A	24.5	23.52	-0.15	Left	Cheek	16	0371M	1:1	0.233	1.253	0.292	
1880.00	600	PCS CDMA	EVDO Rev. A	24.5	23.52	0.14	Left	Tilt	16	0371M	1:1	0.070	1.253	0.088	
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
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	33.5	32.96	0.18	Right	Cheek	0365M	1:8.3	0.189	1.132	0.214	A4
836.60	190	GSM 850	GSM	33.5	32.96	0.01	Right	Tilt	0365M	1:8.3	0.105	1.132	0.119	
836.60	190	GSM 850	GSM	33.5	32.96	0.16	Left	Cheek	0365M	1:8.3	0.158	1.132	0.179	
836.60	190	GSM 850	GSM	33.5	32.96	0.04	Left	Tilt	0365M	1:8.3	0.117	1.132	0.132	
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
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	31.0	30.15	-0.02	Right	Cheek	0371M	1:8.3	0.082	1.216	0.100	
1880.00	661	GSM 1900	GSM	31.0	30.15	-0.04	Right	Tilt	0371M	1:8.3	0.048	1.216	0.058	
1880.00	661	GSM 1900	GSM	31.0	30.15	0.05	Left	Cheek	0371M	1:8.3	0.133	1.216	0.162	A5
1880.00	661	GSM 1900	GSM	31.0	30.15	0.20	Left	Tilt	0371M	1:8.3	0.046	1.216	0.056	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

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Table 11-6
UMTS 850 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Ant State	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	25.5	24.28	0.04	Right	Cheek	2	0365M	1:1	0.273	1.324	**0.361**	A6
836.60	4183	UMTS 850	RMC	25.5	24.28	-0.02	Right	Tilt	2	0365M	1:1	0.149	1.324	0.197	
836.60	4183	UMTS 850	RMC	25.5	24.28	0.16	Left	Cheek	2	0365M	1:1	0.206	1.324	0.273	
836.60	4183	UMTS 850	RMC	25.5	24.28	0.06	Left	Tilt	2	0365M	1:1	0.140	1.324	0.185	
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
UMTS 1750 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Ant State	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	25.0	24.22	0.02	Right	Cheek	44	0371M	1:1	0.122	1.197	0.146	
1732.40	1412	UMTS 1750	RMC	25.0	24.22	0.11	Right	Tilt	44	0371M	1:1	0.091	1.197	0.109	
1732.40	1412	UMTS 1750	RMC	25.0	24.22	0.05	Left	Cheek	44	0371M	1:1	0.204	1.197	0.244	A7
1732.40	1412	UMTS 1750	RMC	25.0	24.22	0.08	Left	Tilt	44	0371M	1:1	0.092	1.197	0.110	
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
UMTS 1900 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Ant State	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	24.5	23.62	-0.03	Right	Cheek	21	0371M	1:1	0.175	1.225	0.214	
1880.00	9400	UMTS 1900	RMC	24.5	23.62	0.03	Right	Tilt	21	0371M	1:1	0.069	1.225	0.085	
1880.00	9400	UMTS 1900	RMC	24.5	23.62	0.11	Left	Cheek	21	0371M	1:1	0.266	1.225	0.326	A8
1880.00	9400	UMTS 1900	RMC	24.5	23.62	0.00	Left	Tilt	21	0371M	1:1	0.066	1.225	0.081	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							**Head 1.6 W/kg (mW/g)** averaged over 1 gram								

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Table 11-9
LTE Band 71 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Ant State	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)	
680.50	133297	Mid	LTE Band 71	20	48	25.5	24.62	0.03	0	Right	Cheek	QPSK	1	0	0357M	1:1	0.147	1.225	0.180	A9
680.50	133297	Mid	LTE Band 71	20	48	24.5	23.78	0.04	1	Right	Cheek	QPSK	50	0	0357M	1:1	0.126	1.180	0.149	
680.50	133297	Mid	LTE Band 71	20	48	25.5	24.62	0.02	0	Right	Tilt	QPSK	1	0	0357M	1:1	0.082	1.225	0.100	
680.50	133297	Mid	LTE Band 71	20	48	24.5	23.78	0.03	1	Right	Tilt	QPSK	50	0	0357M	1:1	0.070	1.180	0.083	
680.50	133297	Mid	LTE Band 71	20	48	25.5	24.62	-0.08	0	Left	Cheek	QPSK	1	0	0357M	1:1	0.137	1.225	0.168	
680.50	133297	Mid	LTE Band 71	20	48	24.5	23.78	-0.11	1	Left	Cheek	QPSK	50	0	0357M	1:1	0.117	1.180	0.138	
680.50	133297	Mid	LTE Band 71	20	48	25.5	24.62	0.01	0	Left	Tilt	QPSK	1	0	0357M	1:1	0.076	1.225	0.093	
680.50	133297	Mid	LTE Band 71	20	48	24.5	23.78	0.05	1	Left	Tilt	QPSK	50	0	0357M	1:1	0.065	1.180	0.077	
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 12 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Ant State	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)	
707.50	23095	Mid	LTE Band 12	10	0	25.5	24.30	0.06	0	Right	Cheek	QPSK	1	49	0357M	1:1	0.193	1.318	0.254	A10
707.50	23095	Mid	LTE Band 12	10	0	24.5	23.33	0.06	1	Right	Cheek	QPSK	25	12	0357M	1:1	0.144	1.309	0.188	
707.50	23095	Mid	LTE Band 12	10	0	25.5	24.30	-0.02	0	Right	Tilt	QPSK	1	49	0357M	1:1	0.136	1.318	0.179	
707.50	23095	Mid	LTE Band 12	10	0	24.5	23.33	0.02	1	Right	Tilt	QPSK	25	12	0357M	1:1	0.100	1.309	0.131	
707.50	23095	Mid	LTE Band 12	10	0	25.5	24.30	0.01	0	Left	Cheek	QPSK	1	49	0357M	1:1	0.153	1.318	0.202	
707.50	23095	Mid	LTE Band 12	10	0	24.5	23.33	0.04	1	Left	Cheek	QPSK	25	12	0357M	1:1	0.121	1.309	0.158	
707.50	23095	Mid	LTE Band 12	10	0	25.5	24.30	0.05	0	Left	Tilt	QPSK	1	49	0357M	1:1	0.112	1.318	0.148	
707.50	23095	Mid	LTE Band 12	10	0	24.5	23.33	0.07	1	Left	Tilt	QPSK	25	12	0357M	1:1	0.079	1.309	0.103	
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 13 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Ant State	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)	
782.00	23230	Mid	LTE Band 13	10	2	25.5	24.40	0.06	0	Right	Cheek	QPSK	1	49	0357M	1:1	0.188	1.288	0.242	A11
782.00	23230	Mid	LTE Band 13	10	2	24.5	23.73	0.03	1	Right	Cheek	QPSK	25	0	0357M	1:1	0.126	1.194	0.150	
782.00	23230	Mid	LTE Band 13	10	2	25.5	24.40	0.08	0	Right	Tilt	QPSK	1	49	0357M	1:1	0.118	1.288	0.152	
782.00	23230	Mid	LTE Band 13	10	2	24.5	23.73	0.05	1	Right	Tilt	QPSK	25	0	0357M	1:1	0.078	1.194	0.093	
782.00	23230	Mid	LTE Band 13	10	2	25.5	24.40	0.05	0	Left	Cheek	QPSK	1	49	0357M	1:1	0.165	1.288	0.213	
782.00	23230	Mid	LTE Band 13	10	2	24.5	23.73	0.07	1	Left	Cheek	QPSK	25	0	0357M	1:1	0.114	1.194	0.136	
782.00	23230	Mid	LTE Band 13	10	2	25.5	24.40	0.02	0	Left	Tilt	QPSK	1	49	0357M	1:1	0.105	1.288	0.135	
782.00	23230	Mid	LTE Band 13	10	2	24.5	23.73	0.03	1	Left	Tilt	QPSK	25	0	0357M	1:1	0.091	1.194	0.109	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

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Table 11-12
LTE Band 14 Head SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Ant State	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)	
793.00	23330	Mid	LTE Band 14	10	0	25.5	24.46	-0.07	0	Right	Cheek	QPSK	1	0	0357M	1:1	0.205	1.271	0.261	A12
793.00	23330	Mid	LTE Band 14	10	0	24.5	23.63	0.02	1	Right	Cheek	QPSK	25	0	0357M	1:1	0.188	1.222	0.230	
793.00	23330	Mid	LTE Band 14	10	0	25.5	24.46	-0.07	0	Right	Tilt	QPSK	1	0	0357M	1:1	0.113	1.271	0.144	
793.00	23330	Mid	LTE Band 14	10	0	24.5	23.63	0.02	1	Right	Tilt	QPSK	25	0	0357M	1:1	0.108	1.222	0.132	
793.00	23330	Mid	LTE Band 14	10	0	25.5	24.46	-0.04	0	Left	Cheek	QPSK	1	0	0357M	1:1	0.155	1.271	0.197	
793.00	23330	Mid	LTE Band 14	10	0	24.5	23.63	0.04	1	Left	Cheek	QPSK	25	0	0357M	1:1	0.126	1.222	0.154	
793.00	23330	Mid	LTE Band 14	10	0	25.5	24.46	0.01	0	Left	Tilt	QPSK	1	0	0357M	1:1	0.108	1.271	0.137	
793.00	23330	Mid	LTE Band 14	10	0	24.5	23.63	0.01	1	Left	Tilt	QPSK	25	0	0357M	1:1	0.091	1.222	0.111	
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
LTE Band 26 (Cell) Head SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Ant State	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)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	3	25.8	24.98	-0.05	0	Right	Cheek	QPSK	1	36	0357M	1:1	0.285	1.208	0.344	A13
831.50	26865	Mid	LTE Band 26 (Cell)	15	3	24.8	24.13	0.07	1	Right	Cheek	QPSK	36	18	0357M	1:1	0.222	1.167	0.259	
831.50	26865	Mid	LTE Band 26 (Cell)	15	3	25.8	24.98	0.04	0	Right	Tilt	QPSK	1	36	0357M	1:1	0.150	1.208	0.181	
831.50	26865	Mid	LTE Band 26 (Cell)	15	3	24.8	24.13	0.05	1	Right	Tilt	QPSK	36	18	0357M	1:1	0.122	1.167	0.142	
831.50	26865	Mid	LTE Band 26 (Cell)	15	3	25.8	24.98	0.13	0	Left	Cheek	QPSK	1	36	0357M	1:1	0.197	1.208	0.238	
831.50	26865	Mid	LTE Band 26 (Cell)	15	3	24.8	24.13	0.14	1	Left	Cheek	QPSK	36	18	0357M	1:1	0.168	1.167	0.196	
831.50	26865	Mid	LTE Band 26 (Cell)	15	3	25.8	24.98	-0.02	0	Left	Tilt	QPSK	1	36	0357M	1:1	0.149	1.208	0.180	
831.50	26865	Mid	LTE Band 26 (Cell)	15	3	24.8	24.13	0.04	1	Left	Tilt	QPSK	36	18	0357M	1:1	0.125	1.167	0.146	
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
LTE Band 5 (Cell) Head SAR

MEASUREMENT RESULTS																						
1 CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Ant State	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)	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	5	25.8	24.89	0.13	0	Right	Cheek	QPSK	1	0	0357M	1:1	0.265	1.233	0.327	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	5	24.8	24.00	0.05	1	Right	Cheek	QPSK	25	0	0357M	1:1	0.212	1.202	0.255	
2 CC Uplink	PCC	836.50	20525	Mid	LTE Band 5 (Cell)	10	5	25.8	25.30	-0.09	0	Right	Cheek	QPSK	1	0	0357M	1:1	0.306	1.122	0.343	A14
	SCC	829.30	20453	Mid		5									1	24						
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	5	25.8	24.89	-0.12	0	Right	Tilt	QPSK	1	0	0357M	1:1	0.158	1.233	0.195	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	5	24.8	24.00	0.15	1	Right	Tilt	QPSK	25	0	0357M	1:1	0.113	1.202	0.136	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	5	25.8	24.89	-0.01	0	Left	Cheek	QPSK	1	0	0357M	1:1	0.203	1.233	0.250	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	5	24.8	24.00	0.02	1	Left	Cheek	QPSK	25	0	0357M	1:1	0.159	1.202	0.191	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	5	25.8	24.89	-0.19	0	Left	Tilt	QPSK	1	0	0357M	1:1	0.150	1.233	0.185	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	5	24.8	24.00	-0.05	1	Left	Tilt	QPSK	25	0	0357M	1:1	0.118	1.202	0.142	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram											

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Table 11-15
LTE Band 66 (AWS) Head SAR

MEASUREMENT RESULTS																						
1 CC Uplink	Component Carrier	FREQUENCY MHz	FREQUENCY Ch.		Mode	Bandwidth [MHz]	Ant State	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) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
1 CC Uplink	N/A	1770.00	132572	High	LTE Band 66 (AWS)	20	27	25.0	24.55	-0.12	0	Right	Cheek	QPSK	1	0	0346M	1:1	0.142	1.109	0.157	
1 CC Uplink	N/A	1770.00	132572	High	LTE Band 66 (AWS)	20	27	24.0	23.72	0.13	1	Right	Cheek	QPSK	50	0	0346M	1:1	0.128	1.067	0.137	
1 CC Uplink	N/A	1770.00	132572	High	LTE Band 66 (AWS)	20	27	25.0	24.55	0.15	0	Right	Tilt	QPSK	1	0	0346M	1:1	0.124	1.109	0.138	
1 CC Uplink	N/A	1770.00	132572	High	LTE Band 66 (AWS)	20	27	24.0	23.72	0.05	1	Right	Tilt	QPSK	50	0	0346M	1:1	0.101	1.067	0.108	
1 CC Uplink	N/A	1770.00	132572	High	LTE Band 66 (AWS)	20	27	25.0	24.55	0.11	0	Left	Cheek	QPSK	1	0	0346M	1:1	0.317	1.109	0.352	
1 CC Uplink	N/A	1775.00	132622	High	LTE Band 66 (AWS)	10	27	25.0	24.29	0.05	0	Left	Cheek	QPSK	1	0	0346M	1:1	0.282	1.178	0.332	
1 CC Uplink	N/A	1770.00	132572	High	LTE Band 66 (AWS)	20	27	24.0	23.72	0.04	1	Left	Cheek	QPSK	50	0	0346M	1:1	0.265	1.067	0.283	
CA_66C 2 CC Uplink	PCC	1770.00	132572	High	LTE Band 66 (AWS)	20	27	25.0	24.94	0.03	0	Left	Cheek	QPSK	1	0	0346M	1:1	0.335	1.014	0.340	A15
	SCC	1750.20	132374	High	LTE Band 66 (AWS)	20									1	99						
CA_66B 2 CC Uplink	PCC	1775.00	132622	High	LTE Band 66 (AWS)	10	27	25.0	24.92	0.01	0	Left	Cheek	QPSK	1	0	0346M	1:1	0.327	1.019	0.333	
	SCC	1765.10	132523	High	LTE Band 66 (AWS)	10									1	49						
1 CC Uplink	N/A	1770.00	132572	High	LTE Band 66 (AWS)	20	27	25.0	24.55	0.13	0	Left	Tilt	QPSK	1	0	0346M	1:1	0.118	1.109	0.131	
1 CC Uplink	N/A	1770.00	132572	High	LTE Band 66 (AWS)	20	27	24.0	23.72	0.11	1	Left	Tilt	QPSK	50	0	0346M	1:1	0.115	1.067	0.123	
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 11-16
LTE Band 25 (PCS) Head SAR

MEASUREMENT RESULTS																					
FREQUENCY MHz	FREQUENCY Ch.		Mode	Bandwidth [MHz]	Ant State	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) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	24.5	23.90	0.10	0	Right	Cheek	QPSK	1	0	0346M	1:1	0.173	1.148	0.199	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	23.5	23.04	0.05	1	Right	Cheek	QPSK	50	0	0346M	1:1	0.091	1.112	0.101	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	24.5	23.90	0.07	0	Right	Tilt	QPSK	1	0	0346M	1:1	0.080	1.148	0.092	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	23.5	23.04	0.05	1	Right	Tilt	QPSK	50	0	0346M	1:1	0.047	1.112	0.052	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	24.5	23.90	-0.08	0	Left	Cheek	QPSK	1	0	0346M	1:1	0.243	1.148	0.279	A16
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	23.5	23.04	0.03	1	Left	Cheek	QPSK	50	0	0346M	1:1	0.196	1.112	0.218	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	24.5	23.90	0.14	0	Left	Tilt	QPSK	1	0	0346M	1:1	0.071	1.148	0.082	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	23.5	23.04	0.14	1	Left	Tilt	QPSK	50	0	0346M	1:1	0.046	1.112	0.051	
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 11-17
LTE Band 30 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY MHz	FREQUENCY Ch.		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) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
2310.00	27710	Mid	LTE Band 30	10	23.5	22.70	0.12	0	Right	Cheek	QPSK	1	0	0356M	1:1	0.078	1.202	0.094	A17
2310.00	27710	Mid	LTE Band 30	10	22.5	21.99	0.06	1	Right	Cheek	QPSK	25	0	0356M	1:1	0.058	1.125	0.065	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.70	0.12	0	Right	Tilt	QPSK	1	0	0356M	1:1	0.057	1.202	0.069	
2310.00	27710	Mid	LTE Band 30	10	22.5	21.99	0.10	1	Right	Tilt	QPSK	25	0	0356M	1:1	0.043	1.125	0.048	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.70	0.01	0	Left	Cheek	QPSK	1	0	0356M	1:1	0.070	1.202	0.084	
2310.00	27710	Mid	LTE Band 30	10	22.5	21.99	0.12	1	Left	Cheek	QPSK	25	0	0356M	1:1	0.059	1.125	0.066	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.70	0.13	0	Left	Tilt	QPSK	1	0	0356M	1:1	0.046	1.202	0.055	
2310.00	27710	Mid	LTE Band 30	10	22.5	21.99	-0.12	1	Left	Tilt	QPSK	25	0	0356M	1:1	0.037	1.125	0.042	
									Head 1.6 W/kg (mW/g) averaged over 1 gram										

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Table 11-18
LTE Band 7 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Antenna Config.	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.																(W/kg)		(W/kg)	
2560.00	21350	High	LTE Band 7	20	24.3	23.33	-0.13	0	Right	Cheek	Ant B	QPSK	1	0	0356M	1:1	0.121	1.250	0.151	A18
2560.00	21350	High	LTE Band 7	20	23.3	22.58	0.09	1	Right	Cheek	Ant B	QPSK	50	0	0356M	1:1	0.096	1.180	0.113	
2560.00	21350	High	LTE Band 7	20	24.3	23.33	0.08	0	Right	Tilt	Ant B	QPSK	1	0	0356M	1:1	0.093	1.250	0.116	
2560.00	21350	High	LTE Band 7	20	23.3	22.58	0.12	1	Right	Tilt	Ant B	QPSK	50	0	0356M	1:1	0.081	1.180	0.096	
2560.00	21350	High	LTE Band 7	20	24.3	23.33	0.17	0	Left	Cheek	Ant B	QPSK	1	0	0356M	1:1	0.103	1.250	0.129	
2560.00	21350	High	LTE Band 7	20	23.3	22.58	0.11	1	Left	Cheek	Ant B	QPSK	50	0	0356M	1:1	0.083	1.180	0.098	
2560.00	21350	High	LTE Band 7	20	24.3	23.33	0.06	0	Left	Tilt	Ant B	QPSK	1	0	0356M	1:1	0.058	1.250	0.073	
2560.00	21350	High	LTE Band 7	20	23.3	22.58	0.13	1	Left	Tilt	Ant B	QPSK	50	0	0356M	1:1	0.047	1.180	0.055	
2510.00	20850	Low	LTE Band 7	20	24.3	23.56	-0.15	0	Right	Cheek	Ant A	QPSK	1	99	0356M	1:1	0.066	1.186	0.078	
2510.00	20850	Low	LTE Band 7	20	23.3	22.78	0.12	1	Right	Cheek	Ant A	QPSK	50	50	0356M	1:1	0.052	1.127	0.059	
2510.00	20850	Low	LTE Band 7	20	24.3	23.56	0.12	0	Right	Tilt	Ant A	QPSK	1	99	0356M	1:1	0.029	1.186	0.034	
2510.00	20850	Low	LTE Band 7	20	23.3	22.78	0.17	1	Right	Tilt	Ant A	QPSK	50	50	0356M	1:1	0.028	1.127	0.032	
2510.00	20850	Low	LTE Band 7	20	24.3	23.56	0.12	0	Left	Cheek	Ant A	QPSK	1	99	0356M	1:1	0.041	1.186	0.049	
2510.00	20850	Low	LTE Band 7	20	23.3	22.78	0.12	1	Left	Cheek	Ant A	QPSK	50	50	0356M	1:1	0.029	1.127	0.033	
2510.00	20850	Low	LTE Band 7	20	24.3	23.56	0.09	0	Left	Tilt	Ant A	QPSK	1	99	0356M	1:1	0.040	1.186	0.047	
2510.00	20850	Low	LTE Band 7	20	23.3	22.78	0.13	1	Left	Tilt	Ant A	QPSK	50	50	0356M	1:1	0.030	1.127	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 11-19
LTE Band 48 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)	
3690.00	56640	High	LTE Band 48	20	24.0	23.20	0.17	0	Right	Cheek	QPSK	1	99	0356M	1:1.58	0.062	1.202	0.075	
3690.00	56640	High	LTE Band 48	20	23.0	22.46	0.12	1	Right	Cheek	QPSK	50	0	0356M	1:1.58	0.046	1.132	0.052	
3690.00	56640	High	LTE Band 48	20	24.0	23.20	0.14	0	Right	Tilt	QPSK	1	99	0356M	1:1.58	0.048	1.202	0.058	
3690.00	56640	High	LTE Band 48	20	23.0	22.46	0.14	1	Right	Tilt	QPSK	50	0	0356M	1:1.58	0.037	1.132	0.042	
3690.00	56640	High	LTE Band 48	20	24.0	23.20	0.12	0	Left	Cheek	QPSK	1	99	0356M	1:1.58	0.095	1.202	0.114	A19
3690.00	56640	High	LTE Band 48	20	23.0	22.46	0.12	1	Left	Cheek	QPSK	50	0	0356M	1:1.58	0.071	1.132	0.080	
3690.00	56640	High	LTE Band 48	20	24.0	23.20	0.17	0	Left	Tilt	QPSK	1	99	0356M	1:1.58	0.032	1.202	0.038	
3690.00	56640	High	LTE Band 48	20	23.0	22.46	0.11	1	Left	Tilt	QPSK	50	0	0356M	1:1.58	0.027	1.132	0.031	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

Note: Test results include LTE B48 but are for information purposes only.

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Table 11-20
LTE Band 41 Head SAR

MEASUREMENT RESULTS																					
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY MHz	FREQUENCY Ch.		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) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	25.0	23.59	0.10	0	Right	Cheek	QPSK	1	0	5125B	1:1.58	0.063	1.384	0.087	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	22.79	0.15	1	Right	Cheek	QPSK	50	0	5125B	1:1.58	0.057	1.321	0.075	
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	28.0	27.20	0.02	0	Right	Cheek	QPSK	1	0	5125B	1:2.31	0.092	1.202	0.111	
2 CC Uplink - Power Class 3	PCC	2680.00	41490	High	LTE Band 41	20	25.0	24.03	0.18	0	Right	Cheek	QPSK	1	0	5125B	1:1.58	0.076	1.250	0.095	
	SCC	2660.20	41292											1	99						
2 CC Uplink - Power Class 2	PCC	2680.00	41490	High	LTE Band 41	20	28.0	27.25	0.11	0	Right	Cheek	QPSK	1	0	5125B	1:2.31	0.102	1.189	0.121	A20
	SCC	2660.20	41292											1	99						
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	25.0	23.59	0.14	0	Right	Tilt	QPSK	1	0	5125B	1:1.58	0.061	1.384	0.084	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	22.79	0.15	1	Right	Tilt	QPSK	50	0	5125B	1:1.58	0.051	1.321	0.067	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	25.0	23.59	-0.13	0	Left	Cheek	QPSK	1	0	5125B	1:1.58	0.059	1.384	0.082	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	22.79	0.12	1	Left	Cheek	QPSK	50	0	5125B	1:1.58	0.047	1.321	0.062	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	25.0	23.59	-0.08	0	Left	Tilt	QPSK	1	0	5125B	1:1.58	0.046	1.384	0.064	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	22.79	0.12	1	Left	Tilt	QPSK	50	0	5125B	1:1.58	0.038	1.321	0.050	
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 11-21
DTS Head SAR

MEASUREMENT RESULTS																			
FREQUENCY MHz	FREQUENCY Ch.	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 W/kg	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
2412	1	802.11b	DSSS	22	17.0	16.60	0.15	Right	Cheek	1	0303M	1	99.9	0.572	0.424	1.096	1.001	0.465	
2437	6	802.11b	DSSS	22	17.0	16.61	0.13	Right	Cheek	1	0303M	1	99.9	0.643	0.472	1.094	1.001	0.517	
2462	11	802.11b	DSSS	22	17.0	16.77	0.18	Right	Cheek	1	0303M	1	99.9	0.850	0.628	1.054	1.001	**0.663**	A21
2462	11	802.11b	DSSS	22	17.0	16.77	0.12	Right	Tilt	1	0303M	1	99.9	0.766	0.556	1.054	1.001	0.587	
2462	11	802.11b	DSSS	22	17.0	16.77	0.03	Left	Cheek	1	0303M	1	99.9	0.295	0.200	1.054	1.001	0.211	
2462	11	802.11b	DSSS	22	17.0	16.77	0.20	Left	Tilt	1	0303M	1	99.9	0.386	-	1.054	1.001	-	
2462	11	802.11b	DSSS	22	17.0	16.73	0.13	Right	Cheek	2	0303M	1	99.9	0.360	0.284	1.064	1.001	0.302	
2462	11	802.11b	DSSS	22	17.0	16.73	0.12	Right	Tilt	2	0303M	1	99.9	0.437	0.364	1.064	1.001	0.388	
2462	11	802.11b	DSSS	22	17.0	16.73	0.14	Left	Cheek	2	0303M	1	99.9	0.226	0.137	1.064	1.001	0.146	
2462	11	802.11b	DSSS	22	17.0	16.73	0.10	Left	Tilt	2	0303M	1	99.9	0.433	-	1.064	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											

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Table 11-22
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	13.98	0.18	Right	Cheek	1	0294M	13.5	97.2	0.248	0.098	1.005	1.029	0.101	
5310	62	802.11n	OFDM	40	14.0	13.98	-0.03	Right	Tilt	1	0294M	13.5	97.2	0.180	-	1.005	1.029	-	
5310	62	802.11n	OFDM	40	14.0	13.98	-0.14	Left	Cheek	1	0294M	13.5	97.2	0.054	-	1.005	1.029	-	
5310	62	802.11n	OFDM	40	14.0	13.98	0.12	Left	Tilt	1	0294M	13.5	97.2	0.062	-	1.005	1.029	-	
5310	62	802.11n	OFDM	40	14.0	13.80	0.18	Right	Cheek	2	0294M	13.5	97.2	0.039	-	1.047	1.029	-	
5310	62	802.11n	OFDM	40	14.0	13.80	0.19	Right	Tilt	2	0294M	13.5	97.2	0.044	-	1.047	1.029	-	
5310	62	802.11n	OFDM	40	14.0	13.80	0.20	Left	Cheek	2	0294M	13.5	97.2	0.034	-	1.047	1.029	-	
5310	62	802.11n	OFDM	40	14.0	13.80	0.15	Left	Tilt	2	0294M	13.5	97.2	0.046	0.025	1.047	1.029	0.027	
5610	122	802.11ac	OFDM	80	14.0	13.98	0.16	Right	Cheek	1	0294M	29.3	94.4	0.313	0.126	1.005	1.059	0.134	A22
5610	122	802.11ac	OFDM	80	14.0	13.98	0.18	Right	Tilt	1	0294M	29.3	94.4	0.202	-	1.005	1.059	-	
5610	122	802.11ac	OFDM	80	14.0	13.98	0.12	Left	Cheek	1	0294M	29.3	94.4	0.076	-	1.005	1.059	-	
5610	122	802.11ac	OFDM	80	14.0	13.98	0.03	Left	Tilt	1	0294M	29.3	94.4	0.068	-	1.005	1.059	-	
5610	122	802.11ac	OFDM	80	14.0	13.97	-0.14	Right	Cheek	2	0294M	29.3	94.5	0.064	-	1.007	1.058	-	
5610	122	802.11ac	OFDM	80	14.0	13.97	-0.13	Right	Tilt	2	0294M	29.3	94.5	0.089	-	1.007	1.058	-	
5610	122	802.11ac	OFDM	80	14.0	13.97	0.20	Left	Cheek	2	0294M	29.3	94.5	0.069	-	1.007	1.058	-	
5610	122	802.11ac	OFDM	80	14.0	13.97	0.11	Left	Tilt	2	0294M	29.3	94.5	0.107	0.051	1.007	1.058	0.054	
5775	155	802.11ac	OFDM	80	14.0	13.77	0.09	Right	Cheek	1	0294M	29.3	94.4	0.339	0.123	1.054	1.059	**0.137**	
5775	155	802.11ac	OFDM	80	14.0	13.77	-0.19	Right	Tilt	1	0294M	29.3	94.4	0.206	-	1.054	1.059	-	
5775	155	802.11ac	OFDM	80	14.0	13.77	0.16	Left	Cheek	1	0294M	29.3	94.4	0.092	-	1.054	1.059	-	
5775	155	802.11ac	OFDM	80	14.0	13.77	-0.16	Left	Tilt	1	0294M	29.3	94.4	0.076	-	1.054	1.059	-	
5775	155	802.11ac	OFDM	80	14.0	13.51	-0.15	Right	Cheek	2	0294M	29.3	94.5	0.063	-	1.119	1.058	-	
5775	155	802.11ac	OFDM	80	14.0	13.51	0.16	Right	Tilt	2	0294M	29.3	94.5	0.088	-	1.119	1.058	-	
5775	155	802.11ac	OFDM	80	14.0	13.51	0.20	Left	Cheek	2	0294M	29.3	94.5	0.062	-	1.119	1.058	-	
5775	155	802.11ac	OFDM	80	14.0	13.51	0.14	Left	Tilt	2	0294M	29.3	94.5	0.089	0.042	1.119	1.058	0.050	
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 11-23
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	18.5	17.53	-0.16	Right	Cheek	0294M	1	77.7	0.289	1.250	1.287	0.465	
2441.00	39	Bluetooth	FHSS	18.5	18.35	-0.10	Right	Cheek	0294M	1	77.7	0.493	1.035	1.287	0.657	A23
2480.00	78	Bluetooth	FHSS	18.5	17.36	-0.09	Right	Cheek	0294M	1	77.7	0.406	1.300	1.287	**0.679**	
2441.00	39	Bluetooth	FHSS	18.5	18.35	-0.15	Right	Tilt	0294M	1	77.7	0.387	1.035	1.287	0.516	
2441.00	39	Bluetooth	FHSS	18.5	18.35	0.08	Left	Cheek	0294M	1	77.7	0.162	1.035	1.287	0.216	
2441.00	39	Bluetooth	FHSS	18.5	18.35	0.12	Left	Tilt	0294M	1	77.7	0.150	1.035	1.287	0.200	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								**Head 1.6 W/kg (mW/g)** averaged over 1 gram								

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11.2 Standalone Body-Worn SAR Data

Table 11-24
GSM/UMTS/CDMA Body-Worn SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Ant State	Device Serial Number	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	TDSO / SO32	26.0	25.00	0.01	15 mm	2	0365M	1:1	back	0.371	1.259	0.467	A24
836.52	384	CDMA BC0 (§22H)	TDSO / SO32	26.0	25.06	-0.04	15 mm	2	0365M	1:1	back	0.337	1.242	0.419	A26
1851.25	25	PCS CDMA	TDSO / SO32	24.5	23.59	0.03	15 mm	25	0371M	1:1	back	0.535	1.233	0.660	A28
1880.00	600	PCS CDMA	TDSO / SO32	24.5	23.53	-0.12	15 mm	25	0371M	1:1	back	0.523	1.250	0.654	
1908.75	1175	PCS CDMA	TDSO / SO32	24.5	23.39	-0.05	15 mm	25	0371M	1:1	back	0.459	1.291	0.593	
836.60	190	GSM 850	GSM	33.5	32.96	-0.05	15 mm	N/A	0365M	1:8.3	back	0.299	1.132	0.338	A30
1880.00	661	GSM 1900	GSM	31.0	30.15	-0.01	15 mm	N/A	0371M	1:8.3	back	0.415	1.216	0.505	A32
836.60	4183	UMTS 850	RMC	25.5	24.28	-0.02	15 mm	4	0365M	1:1	back	0.383	1.324	0.507	A34
1712.40	1312	UMTS 1750	RMC	25.0	24.18	0.02	15 mm	46	0371M	1:1	back	0.669	1.208	0.808	
1732.40	1412	UMTS 1750	RMC	25.0	24.22	-0.02	15 mm	46	0371M	1:1	back	0.752	1.197	0.900	
1752.60	1513	UMTS 1750	RMC	25.0	24.28	0.03	15 mm	46	0371M	1:1	back	0.775	1.180	**0.915**	A36
1852.40	9262	UMTS 1900	RMC	24.5	23.55	0.00	15 mm	25	0371M	1:1	back	0.601	1.245	0.748	
1880.00	9400	UMTS 1900	RMC	24.5	23.62	0.00	15 mm	25	0371M	1:1	back	0.604	1.225	0.740	
1907.60	9538	UMTS 1900	RMC	24.5	23.53	-0.03	15 mm	25	0371M	1:1	back	0.639	1.250	0.799	A38
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							**Body 1.6 W/kg (mW/g)** averaged over 1 gram								

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Table 11-25
LTE Body-Worn SAR

MEASUREMENT RESULTS																						
FREQUENCY			Mode	Bandwidth [MHz]	Ant State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	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)	
680.50	133297	Mid	LTE Band 71	20	48	25.5	24.62	-0.03	0	Ant A	0357M	QPSK	1	0	15 mm	back	1:1	0.271	1.225	0.332	A40
680.50	133297	Mid	LTE Band 71	20	48	24.5	23.78	0.01	1	Ant A	0357M	QPSK	50	0	15 mm	back	1:1	0.230	1.180	0.271	
707.50	23095	Mid	LTE Band 12	10	0	25.5	24.30	0.03	0	Ant A	0357M	QPSK	1	49	15 mm	back	1:1	0.316	1.318	0.416	A42
707.50	23095	Mid	LTE Band 12	10	0	24.5	23.33	0.00	1	Ant A	0357M	QPSK	25	12	15 mm	back	1:1	0.254	1.309	0.332	
782.00	23230	Mid	LTE Band 13	10	2	25.5	24.40	-0.01	0	Ant A	0357M	QPSK	1	49	15 mm	back	1:1	0.354	1.288	0.456	A44
782.00	23230	Mid	LTE Band 13	10	2	24.5	23.73	0.00	1	Ant A	0357M	QPSK	25	0	15 mm	back	1:1	0.287	1.194	0.343	
793.00	23330	Mid	LTE Band 14	10	5	25.5	24.46	-0.02	0	Ant A	0357M	QPSK	1	0	15 mm	back	1:1	0.342	1.271	0.435	A46
793.00	23330	Mid	LTE Band 14	10	5	24.5	23.63	-0.04	1	Ant A	0357M	QPSK	25	0	15 mm	back	1:1	0.285	1.222	0.348	
831.50	26865	Mid	LTE Band 26 (Cell)	15	2	25.8	24.98	0.04	0	Ant A	0357M	QPSK	1	36	15 mm	back	1:1	0.377	1.208	0.455	A48
831.50	26865	Mid	LTE Band 26 (Cell)	15	2	24.8	24.13	0.01	1	Ant A	0357M	QPSK	36	18	15 mm	back	1:1	0.310	1.167	0.362	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	24.5	23.90	0.01	0	Ant A	0346M	QPSK	1	0	15 mm	back	1:1	0.708	1.148	0.813	A54
1882.50	26365	Mid	LTE Band 25 (PCS)	20	27	24.5	23.71	0.01	0	Ant A	0346M	QPSK	1	0	15 mm	back	1:1	0.535	1.199	0.641	
1905.00	26590	High	LTE Band 25 (PCS)	20	27	24.5	23.77	0.05	0	Ant A	0346M	QPSK	1	99	15 mm	back	1:1	0.566	1.183	0.670	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	23.5	23.04	0.00	1	Ant A	0346M	QPSK	50	0	15 mm	back	1:1	0.563	1.112	0.626	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	23.5	22.99	0.02	1	Ant A	0346M	QPSK	100	0	15 mm	back	1:1	0.405	1.125	0.456	
2310.00	27710	Mid	LTE Band 30	10	N/A	23.5	22.70	0.05	0	Ant A	0356M	QPSK	1	0	15 mm	back	1:1	0.433	1.202	0.520	A56
2310.00	27710	Mid	LTE Band 30	10	N/A	22.5	21.99	0.04	1	Ant A	0356M	QPSK	25	0	15 mm	back	1:1	0.352	1.125	0.396	
2510.00	20850	Low	LTE Band 7	20	N/A	24.3	23.29	0.01	0	Ant B	0356M	QPSK	1	99	15 mm	back	1:1	0.680	1.262	0.858	A58
2535.00	21100	Mid	LTE Band 7	20	N/A	24.3	23.30	-0.03	0	Ant B	0365M	QPSK	1	0	15 mm	back	1:1	0.662	1.259	0.833	
2560.00	21350	High	LTE Band 7	20	N/A	24.3	23.33	-0.08	0	Ant B	0365M	QPSK	1	0	15 mm	back	1:1	0.580	1.250	0.725	
2560.00	21350	High	LTE Band 7	20	N/A	23.3	22.58	0.01	1	Ant B	0365M	QPSK	50	0	15 mm	back	1:1	0.501	1.180	0.591	
2560.00	21350	High	LTE Band 7	20	N/A	23.3	22.53	-0.08	1	Ant B	0365M	QPSK	100	0	15 mm	back	1:1	0.460	1.194	0.549	
2510.00	20850	Low	LTE Band 7	20	N/A	24.3	23.56	0.06	0	Ant A	0356M	QPSK	1	99	15 mm	back	1:1	0.362	1.186	0.429	
2510.00	20850	Low	LTE Band 7	20	N/A	23.3	22.78	-0.02	1	Ant A	0356M	QPSK	50	50	15 mm	back	1:1	0.304	1.127	0.343	
3690.00	56640	High	LTE Band 48	20	N/A	24.0	23.20	-0.04	0	Ant B	0356M	QPSK	1	99	15 mm	back	1:1.58	0.112	1.202	0.135	A60
3690.00	56640	High	LTE Band 48	20	N/A	23.0	22.46	0.12	1	Ant B	0356M	QPSK	50	0	15 mm	back	1:1.58	0.093	1.132	0.105	
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: Test results include LTE B48 but are for information purposes only.

Table 11-26
LTE Band 5 Body-Worn SAR

MEASUREMENT RESULTS																						
1 CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Ant State	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)	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	2	25.8	24.89	0.00	0	0357M	QPSK	1	0	15 mm	back	1:1	0.364	1.233	0.449	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	2	24.8	24.00	0.00	1	0357M	QPSK	25	0	15 mm	back	1:1	0.293	1.202	0.352	
2 CC Uplink	PCC	836.50	20525	Mid	LTE Band 5 (Cell)	10	2	25.8	25.30	-0.12	0	0357M	QPSK	1	0	15 mm	back	1:1	0.422	1.122	0.473	A50
	SCC	829.30	20453			5								1	24							
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																	Body 1.6 W/kg (mW/g) averaged over 1 gram					

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Table 11-27
LTE Band 66 Body-Worn SAR

MEASUREMENT RESULTS																						
1 CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Ant State	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)	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	27	25.0	24.35	-0.02	0	0346M	QPSK	1	0	15 mm	back	1:1	0.400	1.161	0.464	
1 CC Uplink	N/A	1745.00	132322	Mid	LTE Band 66 (AWS)	20	27	25.0	24.47	0.01	0	0346M	QPSK	1	50	15 mm	back	1:1	0.544	1.130	0.615	
1 CC Uplink	N/A	1770.00	132572	High	LTE Band 66 (AWS)	20	27	25.0	24.55	-0.03	0	0346M	QPSK	1	0	15 mm	back	1:1	0.594	1.109	0.659	
1 CC Uplink	N/A	1775.00	132622	High	LTE Band 66 (AWS)	10	27	25.0	24.29	-0.02	0	0346M	QPSK	1	0	15 mm	back	1:1	0.599	1.178	0.706	
1 CC Uplink	N/A	1770.00	132572	High	LTE Band 66 (AWS)	20	27	24.0	23.72	-0.01	1	0346M	QPSK	50	0	15 mm	back	1:1	0.487	1.067	0.520	
CA_66C 2 CC Uplink	PCC	1770.00	132572	High	LTE Band 66 (AWS)	20	27	25.0	24.94	0.14	0	0346M	QPSK	1	0	15 mm	back	1:1	0.669	1.014	0.678	
	SCC	1750.20	132374			20								1	99							
CA_66B 2 CC Uplink	PCC	1775.00	132622	High	LTE Band 66 (AWS)	10	27	25.0	24.92	-0.08	0	0346M	QPSK	1	0	15 mm	back	1:1	0.674	1.019	0.687	A52
	SCC	1765.10	132523			10								1	49							
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
LTE Band 41 Body-Worn SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	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)	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	25.0	23.59	0.05	0	5125B	QPSK	1	0	15 mm	back	1:1.58	0.323	1.384	0.447	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.0	22.79	-0.04	1	5125B	QPSK	50	0	15 mm	back	1:1.58	0.268	1.321	0.354	
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	28.0	27.20	-0.17	0	5125B	QPSK	1	0	15 mm	back	1:2.31	0.533	1.202	0.641	A62
2 CC Uplink - Power Class 3	PCC	2680.00	41490	High	LTE Band 41	20	25.0	24.03	0.11	0	5125B	QPSK	1	0	15 mm	back	1:1.58	0.374	1.250	0.468	
	SCC	2660.20	41292										1	99							
2 CC Uplink - Power Class 2	PCC	2680.00	41490	High	LTE Band 41	20	28.0	27.25	0.03	0	5125B	QPSK	1	0	15 mm	back	1:2.31	0.520	1.189	0.618	
	SCC	2660.20	41292										1	99							
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 11-29
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)	
2462	11	802.11b	DSSS	22	21.0	20.45	-0.12	15 mm	1	0303M	1	back	99.9	0.148	0.113	1.135	1.001	0.128	
2462	11	802.11b	DSSS	22	19.0	18.69	0.19	15 mm	2	0303M	1	back	99.9	0.203	0.181	1.074	1.001	**0.195**	A64
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

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Table 11-30
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)	
5280	56	802.11a	OFDM	20	18.5	18.37	0.15	15 mm	1	0294M	6	back	98.8	0.070	0.037	1.030	1.012	0.039	
5300	60	802.11a	OFDM	20	18.5	18.47	0.18	15 mm	2	0294M	6	back	98.8	0.417	0.223	1.007	1.012	**0.227**	A66
5720	144	802.11a	OFDM	20	18.5	18.36	0.14	15 mm	1	0249M	6	back	98.8	0.175	0.085	1.033	1.012	0.089	
5720	144	802.11a	OFDM	20	18.5	18.44	0.13	15 mm	2	0249M	6	back	98.8	0.462	0.188	1.014	1.012	0.193	
5785	157	802.11a	OFDM	20	18.5	18.18	0.16	15 mm	1	0249M	6	back	98.8	0.171	0.083	1.076	1.012	0.090	
5785	157	802.11a	OFDM	20	18.5	18.38	0.11	15 mm	2	0249M	6	back	98.8	0.322	0.128	1.028	1.012	0.133	
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 11-31
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)	
2441	39	Bluetooth	FHSS	18.5	18.35	0.02	15 mm	0303M	1	back	77.7	0.033	1.035	1.287	**0.044**	A68
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram									

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11.3 Standalone Hotspot SAR Data

Table 11-32
GPRS/UMTS/CDMA Hotspot SAR Data

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Ant State	Device Serial Number	# of GPRS Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	26.0	25.08	0.01	10 mm	2	0365M	N/A	1:1	back	0.419	1.236	0.518	A25
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	26.0	25.08	0.02	10 mm	2	0365M	N/A	1:1	front	0.377	1.236	0.466	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	26.0	25.08	0.00	10 mm	2	0365M	N/A	1:1	bottom	0.266	1.236	0.329	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	26.0	25.08	0.06	10 mm	2	0365M	N/A	1:1	right	0.325	1.236	0.402	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	26.0	25.08	0.00	10 mm	2	0365M	N/A	1:1	left	0.227	1.236	0.281	
824.70	1013	CDMA BC0 (§22H)	EVDO Rev. 0	26.0	25.13	0.00	10 mm	2	0365M	N/A	1:1	back	0.448	1.222	0.547	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	26.0	25.16	-0.01	10 mm	2	0365M	N/A	1:1	back	0.498	1.213	0.604	
848.31	777	CDMA BC0 (§22H)	EVDO Rev. 0	26.0	25.01	-0.03	10 mm	2	0365M	N/A	1:1	back	0.521	1.256	0.654	A27
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	26.0	25.16	0.01	10 mm	2	0365M	N/A	1:1	front	0.416	1.213	0.505	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	26.0	25.16	-0.06	10 mm	2	0365M	N/A	1:1	bottom	0.351	1.213	0.426	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	26.0	25.16	0.05	10 mm	2	0365M	N/A	1:1	right	0.325	1.213	0.394	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	26.0	25.16	0.01	10 mm	2	0365M	N/A	1:1	left	0.219	1.213	0.266	
1880.00	600	PCS CDMA	EVDO Rev. 0	20.0	18.72	-0.02	10 mm	25	0371M	N/A	1:1	back	0.483	1.343	0.649	
1880.00	600	PCS CDMA	EVDO Rev. 0	20.0	18.72	0.03	10 mm	25	0371M	N/A	1:1	front	0.418	1.343	0.561	
1851.25	25	PCS CDMA	EVDO Rev. 0	20.0	18.73	-0.04	10 mm	25	0371M	N/A	1:1	bottom	0.713	1.340	0.955	
1880.00	600	PCS CDMA	EVDO Rev. 0	20.0	18.72	-0.06	10 mm	25	0371M	N/A	1:1	bottom	0.705	1.343	0.947	
1908.75	1175	PCS CDMA	EVDO Rev. 0	20.0	18.61	-0.08	10 mm	25	0371M	N/A	1:1	bottom	0.735	1.377	1.012	A29
1880.00	600	PCS CDMA	EVDO Rev. 0	20.0	18.72	0.12	10 mm	25	0371M	N/A	1:1	right	0.063	1.343	0.085	
1880.00	600	PCS CDMA	EVDO Rev. 0	20.0	18.72	0.03	10 mm	25	0371M	N/A	1:1	left	0.103	1.343	0.138	
836.60	190	GSM 850	GPRS	30.5	29.64	-0.11	10 mm	N/A	0365M	3	1:2.76	back	0.454	1.219	0.553	
836.60	190	GSM 850	GPRS	30.5	29.64	-0.02	10 mm	N/A	0365M	3	1:2.76	front	0.424	1.219	0.517	
836.60	190	GSM 850	GPRS	30.5	29.64	-0.03	10 mm	N/A	0365M	3	1:2.76	bottom	0.256	1.219	0.312	
824.20	128	GSM 850	GPRS	30.5	29.38	-0.16	10 mm	N/A	0365M	3	1:2.76	right	0.448	1.294	0.580	
836.60	190	GSM 850	GPRS	30.5	29.64	-0.07	10 mm	N/A	0365M	3	1:2.76	right	0.561	1.219	0.684	A31
848.80	251	GSM 850	GPRS	30.5	29.49	-0.08	10 mm	N/A	0365M	3	1:2.76	right	0.529	1.262	0.668	
836.60	190	GSM 850	GPRS	30.5	29.64	-0.12	10 mm	N/A	0365M	3	1:2.76	left	0.364	1.219	0.444	
1850.20	512	GSM 1900	GPRS	25.5	24.42	-0.03	10 mm	N/A	0371M	3	1:2.76	back	0.573	1.282	0.735	
1880.00	661	GSM 1900	GPRS	25.5	24.49	-0.17	10 mm	N/A	0371M	3	1:2.76	back	0.736	1.262	0.929	
1909.80	810	GSM 1900	GPRS	25.5	24.34	-0.06	10 mm	N/A	0371M	3	1:2.76	back	0.625	1.306	0.816	
1880.00	661	GSM 1900	GPRS	25.5	24.49	-0.19	10 mm	N/A	0371M	3	1:2.76	front	0.633	1.262	0.799	
1850.20	512	GSM 1900	GPRS	25.5	24.42	0.09	10 mm	N/A	0371M	3	1:2.76	bottom	0.834	1.282	1.069	
1880.00	661	GSM 1900	GPRS	25.5	24.49	-0.19	10 mm	N/A	0371M	3	1:2.76	bottom	0.957	1.262	1.208	
1909.80	810	GSM 1900	GPRS	25.5	24.34	-0.19	10 mm	N/A	0371M	3	1:2.76	bottom	1.040	1.306	**1.358**	A33
1880.00	661	GSM 1900	GPRS	25.5	24.49	0.13	10 mm	N/A	0371M	3	1:2.76	right	0.081	1.262	0.102	
1880.00	661	GSM 1900	GPRS	25.5	24.49	-0.03	10 mm	N/A	0371M	3	1:2.76	left	0.085	1.262	0.107	
1909.80	810	GSM 1900	GPRS	25.5	24.34	-0.04	10 mm	N/A	0371M	3	1:2.76	bottom	0.946	1.306	1.235	
826.40	4132	UMTS 850	RMC	25.5	24.30	0.03	10 mm	4	0365M	N/A	1:1	back	0.445	1.318	0.587	
836.60	4183	UMTS 850	RMC	25.5	24.28	-0.01	10 mm	4	0365M	N/A	1:1	back	0.484	1.324	0.641	A35
846.60	4233	UMTS 850	RMC	25.5	24.23	0.00	10 mm	4	0365M	N/A	1:1	back	0.455	1.340	0.610	
836.60	4183	UMTS 850	RMC	25.5	24.28	0.00	10 mm	4	0356M	N/A	1:1	front	0.439	1.324	0.581	
836.60	4183	UMTS 850	RMC	25.5	24.28	-0.05	10 mm	4	0356M	N/A	1:1	bottom	0.284	1.324	0.376	
836.60	4183	UMTS 850	RMC	25.5	24.28	-0.03	10 mm	4	0356M	N/A	1:1	right	0.379	1.324	0.502	
836.60	4183	UMTS 850	RMC	25.5	24.28	0.04	10 mm	4	0356M	N/A	1:1	left	0.307	1.324	0.406	
1732.40	1412	UMTS 1750	RMC	20.0	19.12	0.01	10 mm	46	0371M	N/A	1:1	back	0.274	1.225	0.336	
1732.40	1412	UMTS 1750	RMC	20.0	19.12	0.07	10 mm	46	0371M	N/A	1:1	front	0.247	1.225	0.303	
1712.40	1312	UMTS 1750	RMC	20.0	19.09	0.07	10 mm	46	0371M	N/A	1:1	bottom	0.439	1.233	0.541	
1732.40	1412	UMTS 1750	RMC	20.0	19.12	0.13	10 mm	46	0371M	N/A	1:1	bottom	0.524	1.225	0.642	
1752.60	1513	UMTS 1750	RMC	20.0	19.20	0.03	10 mm	46	0371M	N/A	1:1	bottom	0.571	1.202	0.686	A37
1732.40	1412	UMTS 1750	RMC	20.0	19.12	-0.03	10 mm	46	0371M	N/A	1:1	right	0.046	1.225	0.056	
1732.40	1412	UMTS 1750	RMC	20.0	19.12	-0.03	10 mm	46	0371M	N/A	1:1	left	0.089	1.225	0.109	
1880.00	9400	UMTS 1900	RMC	19.5	18.29	0.14	10 mm	25	0371M	N/A	1:1	back	0.577	1.321	0.762	
1880.00	9400	UMTS 1900	RMC	19.5	18.29	0.01	10 mm	25	0371M	N/A	1:1	front	0.392	1.321	0.518	
1852.40	9262	UMTS 1900	RMC	19.5	18.30	-0.05	10 mm	25	0371M	N/A	1:1	bottom	0.691	1.318	0.911	
1880.00	9400	UMTS 1900	RMC	19.5	18.29	-0.07	10 mm	25	0371M	N/A	1:1	bottom	0.696	1.321	0.919	
1907.60	9538	UMTS 1900	RMC	19.5	18.34	0.07	10 mm	25	0371M	N/A	1:1	bottom	0.702	1.306	0.917	A39
1880.00	9400	UMTS 1900	RMC	19.5	18.29	-0.07	10 mm	25	0371M	N/A	1:1	right	0.044	1.321	0.058	
1880.00	9400	UMTS 1900	RMC	19.5	18.29	-0.18	10 mm	25	0371M	N/A	1:1	left	0.061	1.321	0.081	
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..

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Table 11-33
LTE Band 71 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Ant State	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)	
680.50	133297	Mid	LTE Band 71	20	48	25.5	24.62	0.02	0	0357M	QPSK	1	0	10 mm	back	1:1	0.398	1.225	0.488	A41
680.50	133297	Mid	LTE Band 71	20	48	24.5	23.78	-0.05	1	0357M	QPSK	50	0	10 mm	back	1:1	0.333	1.180	0.393	
680.50	133297	Mid	LTE Band 71	20	48	25.5	24.62	0.00	0	0357M	QPSK	1	0	10 mm	front	1:1	0.319	1.225	0.391	
680.50	133297	Mid	LTE Band 71	20	48	24.5	23.78	0.00	1	0357M	QPSK	50	0	10 mm	front	1:1	0.270	1.180	0.319	
680.50	133297	Mid	LTE Band 71	20	48	25.5	24.62	-0.02	0	0357M	QPSK	1	0	10 mm	bottom	1:1	0.175	1.225	0.214	
680.50	133297	Mid	LTE Band 71	20	48	24.5	23.78	0.02	1	0357M	QPSK	50	0	10 mm	bottom	1:1	0.153	1.180	0.181	
680.50	133297	Mid	LTE Band 71	20	48	25.5	24.62	0.00	0	0357M	QPSK	1	0	10 mm	right	1:1	0.155	1.225	0.190	
680.50	133297	Mid	LTE Band 71	20	48	24.5	23.78	0.01	1	0357M	QPSK	50	0	10 mm	right	1:1	0.142	1.180	0.168	
680.50	133297	Mid	LTE Band 71	20	48	25.5	24.62	0.02	0	0357M	QPSK	1	0	10 mm	left	1:1	0.167	1.225	0.205	
680.50	133297	Mid	LTE Band 71	20	48	24.5	23.78	0.01	1	0357M	QPSK	50	0	10 mm	left	1:1	0.136	1.180	0.160	
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 11-34
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Ant State	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)	
707.50	23095	Mid	LTE Band 12	10	0	25.5	24.30	-0.03	0	0357M	QPSK	1	49	10 mm	back	1:1	0.447	1.318	0.589	A43
707.50	23095	Mid	LTE Band 12	10	0	24.5	23.33	-0.03	1	0357M	QPSK	25	12	10 mm	back	1:1	0.357	1.309	0.467	
707.50	23095	Mid	LTE Band 12	10	0	25.5	24.30	0.02	0	0357M	QPSK	1	49	10 mm	front	1:1	0.361	1.318	0.476	
707.50	23095	Mid	LTE Band 12	10	0	24.5	23.33	0.00	1	0357M	QPSK	25	12	10 mm	front	1:1	0.284	1.309	0.372	
707.50	23095	Mid	LTE Band 12	10	0	25.5	24.30	-0.03	0	0357M	QPSK	1	49	10 mm	bottom	1:1	0.187	1.318	0.246	
707.50	23095	Mid	LTE Band 12	10	0	24.5	23.33	-0.05	1	0357M	QPSK	25	12	10 mm	bottom	1:1	0.141	1.309	0.185	
707.50	23095	Mid	LTE Band 12	10	0	25.5	24.30	0.03	0	0357M	QPSK	1	49	10 mm	right	1:1	0.207	1.318	0.273	
707.50	23095	Mid	LTE Band 12	10	0	24.5	23.33	0.05	1	0357M	QPSK	25	12	10 mm	right	1:1	0.189	1.309	0.247	
707.50	23095	Mid	LTE Band 12	10	0	25.5	24.30	0.02	0	0357M	QPSK	1	49	10 mm	left	1:1	0.181	1.318	0.239	
707.50	23095	Mid	LTE Band 12	10	0	24.5	23.33	0.02	1	0357M	QPSK	25	12	10 mm	left	1:1	0.161	1.309	0.211	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram												

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Table 11-35
LTE Band 13 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Ant State	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)	
782.00	23230	Mid	LTE Band 13	10	2	25.5	24.40	-0.01	0	0357M	QPSK	1	49	10 mm	back	1:1	0.419	1.288	0.540	A45
782.00	23230	Mid	LTE Band 13	10	2	24.5	23.73	-0.01	1	0357M	QPSK	25	0	10 mm	back	1:1	0.345	1.194	0.412	
782.00	23230	Mid	LTE Band 13	10	2	25.5	24.40	-0.03	0	0357M	QPSK	1	49	10 mm	front	1:1	0.349	1.288	0.450	
782.00	23230	Mid	LTE Band 13	10	2	24.5	23.73	0.02	1	0357M	QPSK	25	0	10 mm	front	1:1	0.279	1.194	0.333	
782.00	23230	Mid	LTE Band 13	10	2	25.5	24.40	-0.05	0	0357M	QPSK	1	49	10 mm	bottom	1:1	0.198	1.288	0.255	
782.00	23230	Mid	LTE Band 13	10	2	24.5	23.73	-0.03	1	0357M	QPSK	25	0	10 mm	bottom	1:1	0.157	1.194	0.187	
782.00	23230	Mid	LTE Band 13	10	2	25.5	24.40	0.04	0	0357M	QPSK	1	49	10 mm	right	1:1	0.375	1.288	0.483	
782.00	23230	Mid	LTE Band 13	10	2	24.5	23.73	-0.01	1	0357M	QPSK	25	0	10 mm	right	1:1	0.248	1.194	0.296	
782.00	23230	Mid	LTE Band 13	10	2	25.5	24.40	0.00	0	0357M	QPSK	1	49	10 mm	left	1:1	0.258	1.288	0.332	
782.00	23230	Mid	LTE Band 13	10	2	24.5	23.73	-0.01	1	0357M	QPSK	25	0	10 mm	left	1:1	0.187	1.194	0.223	
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 11-36
LTE Band 14 Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Ant State	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)	
793.00	23330	Mid	LTE Band 14	10	5	25.5	24.46	0.00	0	0357M	QPSK	1	0	10 mm	back	1:1	0.430	1.271	0.547	A47
793.00	23330	Mid	LTE Band 14	10	5	24.5	23.63	0.00	1	0357M	QPSK	25	0	10 mm	back	1:1	0.365	1.222	0.446	
793.00	23330	Mid	LTE Band 14	10	5	25.5	24.46	0.01	0	0357M	QPSK	1	0	10 mm	front	1:1	0.351	1.271	0.446	
793.00	23330	Mid	LTE Band 14	10	5	24.5	23.63	-0.01	1	0357M	QPSK	25	0	10 mm	front	1:1	0.303	1.222	0.370	
793.00	23330	Mid	LTE Band 14	10	5	25.5	24.46	0.00	0	0357M	QPSK	1	0	10 mm	bottom	1:1	0.218	1.271	0.277	
793.00	23330	Mid	LTE Band 14	10	5	24.5	23.63	0.00	1	0357M	QPSK	25	0	10 mm	bottom	1:1	0.195	1.222	0.238	
793.00	23330	Mid	LTE Band 14	10	5	25.5	24.46	0.01	0	0357M	QPSK	1	0	10 mm	right	1:1	0.342	1.271	0.435	
793.00	23330	Mid	LTE Band 14	10	5	24.5	23.63	-0.04	1	0357M	QPSK	25	0	10 mm	right	1:1	0.275	1.222	0.336	
793.00	23330	Mid	LTE Band 14	10	5	25.5	24.46	-0.02	0	0357M	QPSK	1	0	10 mm	left	1:1	0.263	1.271	0.334	
793.00	23330	Mid	LTE Band 14	10	5	24.5	23.63	0.00	1	0357M	QPSK	25	0	10 mm	left	1:1	0.204	1.222	0.249	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram												

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Table 11-37
LTE Band 26 (Cell) Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Ant State	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)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	2	25.8	24.98	0.02	0	0357M	QPSK	1	36	10 mm	back	1:1	0.447	1.208	0.540	A49
831.50	26865	Mid	LTE Band 26 (Cell)	15	2	24.8	24.13	0.04	1	0357M	QPSK	36	18	10 mm	back	1:1	0.377	1.167	0.440	
831.50	26865	Mid	LTE Band 26 (Cell)	15	2	25.8	24.98	0.18	0	0357M	QPSK	1	36	10 mm	front	1:1	0.443	1.208	0.535	
831.50	26865	Mid	LTE Band 26 (Cell)	15	2	24.8	24.13	0.03	1	0357M	QPSK	36	18	10 mm	front	1:1	0.367	1.167	0.428	
831.50	26865	Mid	LTE Band 26 (Cell)	15	2	25.8	24.98	-0.05	0	0357M	QPSK	1	36	10 mm	bottom	1:1	0.301	1.208	0.364	
831.50	26865	Mid	LTE Band 26 (Cell)	15	2	24.8	24.13	0.02	1	0357M	QPSK	36	18	10 mm	bottom	1:1	0.257	1.167	0.300	
831.50	26865	Mid	LTE Band 26 (Cell)	15	2	25.8	24.98	-0.04	0	0357M	QPSK	1	36	10 mm	right	1:1	0.356	1.208	0.430	
831.50	26865	Mid	LTE Band 26 (Cell)	15	2	24.8	24.13	0.02	1	0357M	QPSK	36	18	10 mm	right	1:1	0.310	1.167	0.362	
831.50	26865	Mid	LTE Band 26 (Cell)	15	2	25.8	24.98	0.02	0	0357M	QPSK	1	36	10 mm	left	1:1	0.278	1.208	0.336	
831.50	26865	Mid	LTE Band 26 (Cell)	15	2	24.8	24.13	-0.03	1	0357M	QPSK	36	18	10 mm	left	1:1	0.228	1.167	0.266	
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 11-38
LTE Band 5 (Cell) Hotspot SAR

MEASUREMENT RESULTS																						
1 CC Uplink	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Ant State	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)	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	2	25.8	24.89	0.00	0	0357M	QPSK	1	0	10 mm	back	1:1	0.454	1.233	0.560	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	2	24.8	24.00	-0.01	1	0357M	QPSK	25	0	10 mm	back	1:1	0.378	1.202	0.454	
2 CC Uplink	PCC	836.50	20525	Mid	LTE Band 5 (Cell)	10	2	25.8	25.30	-0.14	0	0357M	QPSK	1	0	10 mm	back	1:1	0.506	1.122	0.568	A51
	SCC	829.30	20453			5								1	24							
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	2	25.8	24.89	0.04	0	0357M	QPSK	1	0	10 mm	front	1:1	0.400	1.233	0.493	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	2	24.8	24.00	0.02	1	0357M	QPSK	25	0	10 mm	front	1:1	0.334	1.202	0.401	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	2	25.8	24.89	-0.02	0	0357M	QPSK	1	0	10 mm	bottom	1:1	0.276	1.233	0.340	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	2	24.8	24.00	-0.08	1	0357M	QPSK	25	0	10 mm	bottom	1:1	0.230	1.202	0.276	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	2	25.8	24.89	0.06	0	0357M	QPSK	1	0	10 mm	right	1:1	0.385	1.233	0.475	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	2	24.8	24.00	-0.15	1	0357M	QPSK	25	0	10 mm	right	1:1	0.303	1.202	0.364	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	2	25.8	24.89	0.05	0	0357M	QPSK	1	0	10 mm	left	1:1	0.264	1.233	0.326	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	2	24.8	24.00	0.04	1	0357M	QPSK	25	0	10 mm	left	1:1	0.217	1.202	0.261	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram											

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Table 11-39
LTE Band 66 (AWS) Hotspot SAR

MEASUREMENT RESULTS																						
1 CC Uplink	Component Carrier	FREQUENCY MHz	FREQUENCY Ch.		Mode	Bandwidth [MHz]	Ant State	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) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
1 CC Uplink	N/A	1745.00	132322	Mid	LTE Band 66 (AWS)	20	27	21.0	20.48	-0.02	0	0346M	QPSK	1	0	10 mm	back	1:1	0.431	1.127	0.486	
1 CC Uplink	N/A	1745.00	132322	Mid	LTE Band 66 (AWS)	20	27	21.0	20.62	-0.01	0	0346M	QPSK	50	0	10 mm	back	1:1	0.461	1.091	0.503	
1 CC Uplink	N/A	1745.00	132322	Mid	LTE Band 66 (AWS)	20	27	21.0	20.48	0.11	0	0346M	QPSK	1	0	10 mm	front	1:1	0.289	1.127	0.326	
1 CC Uplink	N/A	1745.00	132322	Mid	LTE Band 66 (AWS)	20	27	21.0	20.62	0.03	0	0346M	QPSK	50	0	10 mm	front	1:1	0.316	1.091	0.345	
1 CC Uplink	N/A	1745.00	132322	Mid	LTE Band 66 (AWS)	20	27	21.0	20.48	0.02	0	0346M	QPSK	1	0	10 mm	bottom	1:1	0.509	1.127	0.574	
1 CC Uplink	N/A	1745.00	132322	Mid	LTE Band 66 (AWS)	20	27	21.0	20.62	-0.02	0	0346M	QPSK	50	0	10 mm	bottom	1:1	0.532	1.091	0.580	
1 CC Uplink	N/A	1745.00	132322	Mid	LTE Band 66 (AWS)	10	27	21.0	20.10	0.05	0	0346M	QPSK	25	0	10 mm	bottom	1:1	0.574	1.230	0.706	
CA_66C 2 CC Uplink	PCC	1745.00	132322	Mid	LTE Band 66 (AWS)	20	27	21.0	20.89	0.10	0	0346M	QPSK	50	0	10 mm	bottom	1:1	0.568	1.026	0.583	
	SCC	1725.20	132124			20								50	50							
CA_66B 2 CC Uplink	PCC	1745.00	132322	Mid	LTE Band 66 (AWS)	10	27	21.0	20.60	0.04	0	0346M	QPSK	25	0	10 mm	bottom	1:1	0.652	1.096	0.715	A53
	SCC	1735.10	132223			10								25	25							
1 CC Uplink	N/A	1745.00	132322	Mid	LTE Band 66 (AWS)	20	27	21.0	20.48	-0.16	0	0346M	QPSK	1	0	10 mm	right	1:1	0.038	1.127	0.043	
1 CC Uplink	N/A	1745.00	132322	Mid	LTE Band 66 (AWS)	20	27	21.0	20.62	-0.07	0	0346M	QPSK	50	0	10 mm	right	1:1	0.042	1.091	0.046	
1 CC Uplink	N/A	1745.00	132322	Mid	LTE Band 66 (AWS)	20	27	21.0	20.48	-0.14	0	0346M	QPSK	1	0	10 mm	left	1:1	0.091	1.127	0.103	
1 CC Uplink	N/A	1745.00	132322	Mid	LTE Band 66 (AWS)	20	27	21.0	20.62	-0.09	0	0346M	QPSK	50	0	10 mm	left	1:1	0.095	1.091	0.104	
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 11-40
LTE Band 25 (PCS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY MHz	FREQUENCY Ch.		Mode	Bandwidth [MHz]	Ant State	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) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	20.0	19.46	-0.03	0	0346M	QPSK	1	0	10 mm	back	1:1	0.540	1.132	0.611	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	20.0	19.57	-0.02	0	0346M	QPSK	50	0	10 mm	back	1:1	0.541	1.104	0.597	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	20.0	19.46	-0.02	0	0346M	QPSK	1	0	10 mm	front	1:1	0.379	1.132	0.429	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	20.0	19.57	-0.01	0	0346M	QPSK	50	0	10 mm	front	1:1	0.392	1.104	0.433	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	20.0	19.46	0.00	0	0346M	QPSK	1	0	10 mm	bottom	1:1	0.745	1.132	0.843	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	27	20.0	19.17	-0.01	0	0346M	QPSK	1	0	10 mm	bottom	1:1	0.719	1.211	0.871	
1905.00	26590	High	LTE Band 25 (PCS)	20	27	20.0	19.27	-0.02	0	0346M	QPSK	1	99	10 mm	bottom	1:1	0.742	1.183	0.878	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	20.0	19.57	-0.02	0	0346M	QPSK	50	0	10 mm	bottom	1:1	0.782	1.104	0.863	A55
1882.50	26365	Mid	LTE Band 25 (PCS)	20	27	20.0	19.30	-0.03	0	0346M	QPSK	50	0	10 mm	bottom	1:1	0.753	1.175	0.885	
1905.00	26590	High	LTE Band 25 (PCS)	20	27	20.0	19.44	-0.01	0	0346M	QPSK	50	0	10 mm	bottom	1:1	0.728	1.138	0.828	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	20.0	19.45	-0.01	0	0346M	QPSK	100	0	10 mm	bottom	1:1	0.691	1.135	0.784	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	20.0	19.46	-0.01	0	0346M	QPSK	1	0	10 mm	right	1:1	0.158	1.132	0.179	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	20.0	19.57	0.04	0	0346M	QPSK	50	0	10 mm	right	1:1	0.129	1.104	0.142	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	20.0	19.46	-0.03	0	0346M	QPSK	1	0	10 mm	left	1:1	0.267	1.132	0.302	
1860.00	26140	Low	LTE Band 25 (PCS)	20	27	20.0	19.57	0.00	0	0346M	QPSK	50	0	10 mm	left	1:1	0.214	1.104	0.236	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Body 1.6 W/kg (mW/g) averaged over 1 gram								

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Table 11-41
LTE Band 30 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)	
2310.00	27710	Mid	LTE Band 30	10	19.0	18.30	0.02	0	0356M	QPSK	1	0	10 mm	back	1:1	0.335	1.175	0.394	
2310.00	27710	Mid	LTE Band 30	10	19.0	18.10	0.00	0	0356M	QPSK	25	0	10 mm	back	1:1	0.352	1.230	0.433	
2310.00	27710	Mid	LTE Band 30	10	19.0	18.30	-0.01	0	0356M	QPSK	1	0	10 mm	front	1:1	0.268	1.175	0.315	
2310.00	27710	Mid	LTE Band 30	10	19.0	18.10	-0.02	0	0356M	QPSK	25	0	10 mm	front	1:1	0.284	1.230	0.349	
2310.00	27710	Mid	LTE Band 30	10	19.0	18.30	-0.03	0	0356M	QPSK	1	0	10 mm	bottom	1:1	0.689	1.175	0.810	A57
2310.00	27710	Mid	LTE Band 30	10	19.0	18.10	0.01	0	0356M	QPSK	25	0	10 mm	bottom	1:1	0.688	1.230	0.846	
2310.00	27710	Mid	LTE Band 30	10	19.0	18.06	-0.13	0	0356M	QPSK	50	0	10 mm	bottom	1:1	0.672	1.242	0.835	
2310.00	27710	Mid	LTE Band 30	10	19.0	18.30	0.13	0	0356M	QPSK	1	0	10 mm	right	1:1	0.047	1.175	0.055	
2310.00	27710	Mid	LTE Band 30	10	19.0	18.10	0.08	0	0356M	QPSK	25	0	10 mm	right	1:1	0.053	1.230	0.065	
2310.00	27710	Mid	LTE Band 30	10	19.0	18.30	-0.12	0	0356M	QPSK	1	0	10 mm	left	1:1	0.058	1.175	0.068	
2310.00	27710	Mid	LTE Band 30	10	19.0	18.10	0.00	0	0356M	QPSK	25	0	10 mm	left	1:1	0.064	1.230	0.079	
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 11-42
LTE Band 7 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	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)	
2560.00	21350	High	LTE Band 7	20	19.0	18.09	0.12	0	Ant B	0356M	QPSK	1	0	10 mm	back	1:1	0.311	1.233	0.383	
2560.00	21350	High	LTE Band 7	20	19.0	18.14	0.01	0	Ant B	0356M	QPSK	50	0	10 mm	back	1:1	0.319	1.219	0.389	
2560.00	21350	High	LTE Band 7	20	19.0	18.09	-0.12	0	Ant B	0356M	QPSK	1	0	10 mm	front	1:1	0.218	1.233	0.269	
2560.00	21350	High	LTE Band 7	20	19.0	18.14	-0.01	0	Ant B	0356M	QPSK	50	0	10 mm	front	1:1	0.216	1.219	0.263	
2560.00	21350	High	LTE Band 7	20	19.0	18.09	-0.03	0	Ant B	0356M	QPSK	1	0	10 mm	bottom	1:1	0.609	1.233	0.751	
2510.00	20850	Low	LTE Band 7	20	19.0	17.97	-0.02	0	Ant B	0356M	QPSK	50	25	10 mm	bottom	1:1	0.636	1.268	0.806	
2535.00	21100	Mid	LTE Band 7	20	19.0	18.11	-0.01	0	Ant B	0356M	QPSK	50	0	10 mm	bottom	1:1	0.673	1.227	0.826	A59
2560.00	21350	High	LTE Band 7	20	19.0	18.14	0.01	0	Ant B	0356M	QPSK	50	0	10 mm	bottom	1:1	0.621	1.219	0.757	
2560.00	21350	High	LTE Band 7	20	19.0	18.08	-0.06	0	Ant B	0356M	QPSK	100	0	10 mm	bottom	1:1	0.644	1.236	0.796	
2560.00	21350	High	LTE Band 7	20	19.0	18.09	-0.01	0	Ant B	0356M	QPSK	1	0	10 mm	left	1:1	0.041	1.233	0.051	
2560.00	21350	High	LTE Band 7	20	19.0	18.14	0.12	0	Ant B	0356M	QPSK	50	0	10 mm	left	1:1	0.041	1.219	0.050	
2560.00	21350	High	LTE Band 7	20	19.0	18.35	0.06	0	Ant A	0356M	QPSK	1	99	10 mm	back	1:1	0.268	1.161	0.311	
2560.00	21350	High	LTE Band 7	20	19.0	18.45	0.05	0	Ant A	0356M	QPSK	50	0	10 mm	back	1:1	0.306	1.135	0.347	
2560.00	21350	High	LTE Band 7	20	19.0	18.35	0.02	0	Ant A	0356M	QPSK	1	99	10 mm	front	1:1	0.215	1.161	0.250	
2560.00	21350	High	LTE Band 7	20	19.0	18.45	-0.09	0	Ant A	0356M	QPSK	50	0	10 mm	front	1:1	0.242	1.135	0.275	
2560.00	21350	High	LTE Band 7	20	19.0	18.35	0.03	0	Ant A	0356M	QPSK	1	99	10 mm	bottom	1:1	0.367	1.161	0.426	
2560.00	21350	High	LTE Band 7	20	19.0	18.45	0.02	0	Ant A	0356M	QPSK	50	0	10 mm	bottom	1:1	0.404	1.135	0.459	
2560.00	21350	High	LTE Band 7	20	19.0	18.35	0.14	0	Ant A	0356M	QPSK	1	99	10 mm	right	1:1	0.091	1.161	0.106	
2560.00	21350	High	LTE Band 7	20	19.0	18.45	0.11	0	Ant A	0356M	QPSK	50	0	10 mm	right	1:1	0.090	1.135	0.102	
2560.00	21350	High	LTE Band 7	20	19.0	18.35	0.17	0	Ant A	0356M	QPSK	1	99	10 mm	left	1:1	0.018	1.161	0.021	
2560.00	21350	High	LTE Band 7	20	19.0	18.45	0.14	0	Ant A	0356M	QPSK	50	0	10 mm	left	1:1	0.015	1.135	0.017	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram										

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Table 11-43
LTE Band 48 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)	
3690.00	56640	High	LTE Band 48	20	21.0	20.32	0.06	0	0356M	QPSK	1	0	10 mm	back	1:1.58	0.108	1.169	0.126	
3690.00	56640	High	LTE Band 48	20	21.0	20.53	0.19	0	0356M	QPSK	50	0	10 mm	back	1:1.58	0.104	1.114	0.116	
3690.00	56640	High	LTE Band 48	20	21.0	20.32	0.12	0	0356M	QPSK	1	0	10 mm	front	1:1.58	0.114	1.169	0.133	
3690.00	56640	High	LTE Band 48	20	21.0	20.53	-0.05	0	0356M	QPSK	50	0	10 mm	front	1:1.58	0.109	1.114	0.121	
3690.00	56640	High	LTE Band 48	20	21.0	20.32	-0.06	0	0356M	QPSK	1	0	10 mm	bottom	1:1.58	0.177	1.169	0.207	A61
3690.00	56640	High	LTE Band 48	20	21.0	20.53	0.03	0	0356M	QPSK	50	0	10 mm	bottom	1:1.58	0.172	1.114	0.192	
3690.00	56640	High	LTE Band 48	20	21.0	20.32	-0.16	0	0356M	QPSK	1	0	10 mm	left	1:1.58	0.062	1.169	0.072	
3690.00	56640	High	LTE Band 48	20	21.0	20.53	-0.15	0	0356M	QPSK	50	0	10 mm	left	1:1.58	0.060	1.114	0.067	
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: Test results include LTE B48 but are for information purposes only.

Table 11-44
LTE Band 41 Hotspot SAR

MEASUREMENT RESULTS																					
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	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)	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	22.5	21.70	0.00	0	0372M	QPSK	1	0	10 mm	back	1:1.58	0.467	1.202	0.561	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	22.5	21.72	-0.03	0	0372M	QPSK	50	0	10 mm	back	1:1.58	0.496	1.197	0.594	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	22.5	21.70	-0.13	0	0372M	QPSK	1	0	10 mm	front	1:1.58	0.312	1.202	0.375	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	22.5	21.72	-0.02	0	0372M	QPSK	50	0	10 mm	front	1:1.58	0.337	1.197	0.403	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	22.5	21.45	-0.09	0	0372M	QPSK	1	99	10 mm	bottom	1:1.58	0.621	1.274	0.791	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	22.5	21.48	-0.08	0	0372M	QPSK	1	0	10 mm	bottom	1:1.58	0.636	1.265	0.805	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	22.5	21.70	-0.02	0	0372M	QPSK	1	0	10 mm	bottom	1:1.58	0.663	1.202	0.797	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	22.5	21.46	-0.07	0	0372M	QPSK	1	0	10 mm	bottom	1:1.58	0.603	1.271	0.766	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.30	-0.15	0	0372M	QPSK	1	0	10 mm	bottom	1:1.58	0.408	1.318	0.538	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	22.5	21.71	-0.04	0	0372M	QPSK	50	50	10 mm	bottom	1:1.58	0.475	1.199	0.570	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	22.5	21.45	-0.18	0	0372M	QPSK	50	0	10 mm	bottom	1:1.58	0.693	1.274	0.883	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	22.5	21.72	-0.05	0	0372M	QPSK	50	0	10 mm	bottom	1:1.58	0.684	1.197	0.819	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	22.5	21.57	-0.16	0	0372M	QPSK	50	0	10 mm	bottom	1:1.58	0.589	1.239	0.730	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	22.5	21.48	-0.15	0	0372M	QPSK	50	0	10 mm	bottom	1:1.58	0.448	1.265	0.567	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	22.5	21.69	-0.05	0	0372M	QPSK	100	0	10 mm	bottom	1:1.58	0.662	1.205	0.798	
1 CC Uplink - Power Class 2	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	22.5	21.62	0.00	0	0372M	QPSK	50	0	10 mm	bottom	1:2.31	0.478	1.225	0.586	
2 CC Uplink - Power Class 3	PCC	2549.50	40185	Low-Mid	LTE Band 41	20	22.5	22.50	-0.14	0	0372M	QPSK	50	0	10 mm	bottom	1:1.58	0.925	1.000	0.925	A63
	SCC	2529.70	39987										50	50							
2 CC Uplink - Power Class 2	PCC	2549.50	40185	Low-Mid	LTE Band 41	20	22.5	21.73	-0.06	0	5125B	QPSK	50	0	10 mm	bottom	1:2.31	0.533	1.194	0.636	
	SCC	2529.70	39987										50	50							
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	22.5	21.70	-0.07	0	0372M	QPSK	1	0	10 mm	left	1:1.58	0.270	1.202	0.325	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	22.5	21.72	-0.02	0	0372M	QPSK	50	0	10 mm	left	1:1.58	0.237	1.197	0.284	
2 CC Uplink - Power Class 3	PCC	2549.50	40185	Low-Mid	LTE Band 41	20	22.5	22.50	-0.03	0	0372M	QPSK	50	0	10 mm	bottom	1:1.58	0.883	1.000	0.883	
	SCC	2529.70	39987			20							50	50							
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.

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Table 11-45
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)	
2462	11	802.11b	DSSS	22	21.0	20.45	-0.08	10 mm	1	0303M	1	back	99.9	0.299	-	1.135	1.001	-	
2462	11	802.11b	DSSS	22	21.0	20.45	0.13	10 mm	1	0303M	1	front	99.9	0.303	-	1.135	1.001	-	
2462	11	802.11b	DSSS	22	21.0	20.45	0.17	10 mm	1	0303M	1	top	99.9	0.260	-	1.135	1.001	-	
2462	11	802.11b	DSSS	22	21.0	20.45	0.12	10 mm	1	0303M	1	left	99.9	0.363	0.307	1.135	1.001	0.349	
2462	11	802.11b	DSSS	22	19.0	18.69	0.05	10 mm	2	0303M	1	back	99.9	0.349	0.340	1.074	1.001	0.366	
2462	11	802.11b	DSSS	22	19.0	18.69	0.07	10 mm	2	0303M	1	front	99.9	0.196	-	1.074	1.001	-	
2462	11	802.11b	DSSS	22	19.0	18.69	0.21	10 mm	2	0303M	1	top	99.9	0.498	0.402	1.074	1.001	**0.432**	A65
2462	11	802.11b	DSSS	22	19.0	18.69	0.03	10 mm	2	0303M	1	left	99.9	0.065	-	1.074	1.001	-	
5785	157	802.11a	OFDM	20	18.5	18.18	0.15	10 mm	1	0249M	6	back	98.8	0.304	0.120	1.076	1.012	0.131	
5785	157	802.11a	OFDM	20	18.5	18.18	-0.17	10 mm	1	0249M	6	front	98.8	0.071	-	1.076	1.012	-	
5785	157	802.11a	OFDM	20	18.5	18.18	-0.14	10 mm	1	0249M	6	top	98.8	0.134	-	1.076	1.012	-	
5785	157	802.11a	OFDM	20	18.5	18.18	-0.18	10 mm	1	0249M	6	left	98.8	0.240	-	1.076	1.012	-	
5785	157	802.11a	OFDM	20	18.5	18.38	0.14	10 mm	2	0249M	6	back	98.8	0.507	0.290	1.028	1.012	**0.302**	A67
5785	157	802.11a	OFDM	20	18.5	18.38	0.19	10 mm	2	0249M	6	front	98.8	0.219	-	1.028	1.012	-	
5785	157	802.11a	OFDM	20	18.5	18.38	0.14	10 mm	2	0249M	6	top	98.8	0.124	-	1.028	1.012	-	
5785	157	802.11a	OFDM	20	18.5	18.38	0.04	10 mm	2	0249M	6	left	98.8	0.194	-	1.028	1.012	-	
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 11-46
DTS MIMO Hotspot 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	18.5	17.84	18.5	18.38	-0.13	10 mm	MIMO	0249M	13	back	97.3	0.598	0.353	1.164	1.028	0.422	
2457	10	802.11n	OFDM	20	18.5	17.84	18.5	18.38	-0.06	10 mm	MIMO	0249M	13	front	97.3	0.449	-	1.164	1.028	-	
2457	10	802.11n	OFDM	20	18.5	17.84	18.5	18.38	-0.15	10 mm	MIMO	0249M	13	top	97.3	0.581	-	1.164	1.028	-	
2457	10	802.11n	OFDM	20	18.5	17.84	18.5	18.38	0.17	10 mm	MIMO	0249M	13	left	97.3	0.586	0.369	1.164	1.028	0.442	
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: To achieve the 21.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18.5 dBm.

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Table 11-47
5GHz WLAN Hotspot SAR for Conditions 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)	
5775	155	802.11ac	OFDM	80	14.0	13.77	14.0	13.51	0.19	10 mm	MIMO	0157M	58.5	back	99.2	0.302	0.124	1.119	1.008	0.140	
5775	155	802.11ac	OFDM	80	14.0	13.77	14.0	13.51	-0.13	10 mm	MIMO	0157M	58.5	front	99.2	0.078	-	1.119	1.008	-	
5775	155	802.11ac	OFDM	80	14.0	13.77	14.0	13.51	0.19	10 mm	MIMO	0157M	58.5	top	99.2	0.095	-	1.119	1.008	-	
5775	155	802.11ac	OFDM	80	14.0	13.77	14.0	13.51	0.12	10 mm	MIMO	0157M	58.5	left	99.2	0.136	-	1.119	1.008	-	
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: 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 11-48
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)	
2441	39	Bluetooth	FHSS	18.5	18.35	0.10	10 mm	0303M	1	back	77.7	0.079	1.035	1.287	**0.105**	A69
2441	39	Bluetooth	FHSS	18.5	18.35	-0.01	10 mm	0303M	1	front	77.7	0.047	1.035	1.287	0.063	
2441	39	Bluetooth	FHSS	18.5	18.35	-0.10	10 mm	0303M	1	top	77.7	0.052	1.035	1.287	0.069	
2441	39	Bluetooth	FHSS	18.5	18.35	-0.06	10 mm	0303M	1	left	77.7	0.062	1.035	1.287	0.083	
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 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).

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10. 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.
11. 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.

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.

CDMA Notes:

1. Head SAR for CDMA2000 mode was tested under RC3/SO55 per FCC KDB Publication 941225 D01v03r01.
2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. EVDO Rev0 and RevA and TDSO / SO32 FCH+SCH SAR tests were not required per the 3G SAR Test Reduction Procedure in FCC KDB Publication 941225 D01v03r01.
3. CDMA Wireless Router SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 according to KDB 941225 D01v03r01 procedures for data devices. Wireless Router SAR tests for Subtype 2 of Rev.A and 1x RTT configurations were not required per the 3G SAR Test Reduction Policy in KDB Publication 941225 D01v03r01.
4. Head SAR was additionally evaluated using EVDO Rev. A to determine compliance for VoIP operations.
5. 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.
6. CDMA 1X Advanced technology was not required for SAR since the maximum allowed output powers for 1X Advanced was not more than 0.25 dB higher than the maximum powers for 1X.

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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 8.6.4.
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 and LTE Band 48 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.
6. Per KDB Publication 941225 D05Av01r02, SAR for downlink only LTE CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.
7. This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per FCC Guidance, all SAR tests were performed using Power Class 3. SAR with power class 2 at the available duty factor was additionally performed for the power class 3 configuration with the highest SAR configuration for each exposure conditions. Please see Section 14 for linearity results.
8. This device supports ULCA active with Power Class 2. Highest SAR test configuration for each exposure condition in Power Class 3 with ULCA active was repeated with Power Class 2 with ULCA active.
9. For LTE Band 5, LTE Band 66, and LTE Band 41, per FCC guidance, SAR was first measured with only a single carrier active in the uplink (carrier aggregation not active). For each exposure condition, the uplink CA scenario with two component carriers was additionally tested for the configuration with the highest SAR when carrier aggregation was not active. The SCC was configured with the closest available contiguous channel. The two component carriers were configured so the resource blocks are physically allocated side by side to achieve the maximum output power.
10. For LTE Band 7 Antenna A operations, the device was connected in a radiated downlink carrier aggregation scenario per FCC Guidance. Combination CA_2A-7A was used for LTE Band 7 Antenna A

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WLAN Notes:

1. For held-to-ear and hotspot operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. 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 8.7.5 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 8.7.6 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.

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 9.6 for the time domain plot and calculation for the duty factor of the device.
2. Head and hotspot Bluetooth SAR were evaluated for BT BR tethering applications.

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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 SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is ≤1.6 W/kg. 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.

Note: Test results include LTE B48 but are for information purposes only.

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12.3 Head SAR Simultaneous Transmission Analysis

(*) 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 12-1
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	CDMA/EVDO BC10 (§90S)	0.286	0.663	0.388	0.949	0.674	1.337
	CDMA/EVDO BC0 (§22H)	0.358	0.663	0.388	1.021	0.746	1.409
	PCS CDMA/EVDO	0.298	0.663	0.388	0.961	0.686	1.349
	GSM 850	0.214	0.663	0.388	0.877	0.602	1.265
	GSM 1900	0.162	0.663	0.388	0.825	0.550	1.213
	UMTS 850	0.361	0.663	0.388	1.024	0.749	**1.412**
	UMTS 1750	0.244	0.663	0.388	0.907	0.632	1.295
	UMTS 1900	0.326	0.663	0.388	0.989	0.714	1.377
	LTE Band 71	0.180	0.663	0.388	0.843	0.568	1.231
	LTE Band 12	0.254	0.663	0.388	0.917	0.642	1.305
	LTE Band 13	0.242	0.663	0.388	0.905	0.630	1.293
	LTE Band 14	0.261	0.663	0.388	0.924	0.649	1.312
	LTE Band 26 (Cell)	0.344	0.663	0.388	1.007	0.732	1.395
	LTE Band 5 (Cell)	0.343	0.663	0.388	1.006	0.731	1.394
	LTE Band 66 (AWS)	0.352	0.663	0.388	1.015	0.740	1.403
	LTE Band 25 (PCS)	0.279	0.663	0.388	0.942	0.667	1.330
	LTE Band 30	0.094	0.663	0.388	0.757	0.482	1.145
	LTE Band 7	0.151	0.663	0.388	0.814	0.539	1.202
	LTE Band 48	0.114	0.663	0.388	0.777	0.502	1.165
	LTE Band 41	0.121	0.663	0.388	0.784	0.509	1.172

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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	CDMA/EVDO BC10 (§90S)	0.286	0.137	0.054	0.423	0.340	0.477
	CDMA/EVDO BC0 (§22H)	0.358	0.137	0.054	0.495	0.412	0.549
	PCS CDMA/EVDO	0.298	0.137	0.054	0.435	0.352	0.489
	GSM 850	0.214	0.137	0.054	0.351	0.268	0.405
	GSM 1900	0.162	0.137	0.054	0.299	0.216	0.353
	UMTS 850	0.361	0.137	0.054	0.498	0.415	**0.552**
	UMTS 1750	0.244	0.137	0.054	0.381	0.298	0.435
	UMTS 1900	0.326	0.137	0.054	0.463	0.380	0.517
	LTE Band 71	0.180	0.137	0.054	0.317	0.234	0.371
	LTE Band 12	0.254	0.137	0.054	0.391	0.308	0.445
	LTE Band 13	0.242	0.137	0.054	0.379	0.296	0.433
	LTE Band 14	0.261	0.137	0.054	0.398	0.315	0.452
	LTE Band 26 (Cell)	0.344	0.137	0.054	0.481	0.398	0.535
	LTE Band 5 (Cell)	0.343	0.137	0.054	0.480	0.397	0.534
	LTE Band 66 (AWS)	0.352	0.137	0.054	0.489	0.406	0.543
	LTE Band 25 (PCS)	0.279	0.137	0.054	0.416	0.333	0.470
	LTE Band 30	0.094	0.137	0.054	0.231	0.148	0.285
	LTE Band 7	0.151	0.137	0.054	0.288	0.205	0.342
	LTE Band 48	0.114	0.137	0.054	0.251	0.168	0.305
	LTE Band 41	0.121	0.137	0.054	0.258	0.175	0.312

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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	CDMA/EVDO BC10 (§90S)	0.286	0.663	0.388	0.137	0.054	1.528
	CDMA/EVDO BC0 (§22H)	0.358	0.663	0.388	0.137	0.054	See Table Below
	PCS CDMA/EVDO	0.298	0.663	0.388	0.137	0.054	1.540
	GSM 850	0.214	0.663	0.388	0.137	0.054	1.456
	GSM 1900	0.162	0.663	0.388	0.137	0.054	1.404
	UMTS 850	0.361	0.663	0.388	0.137	0.054	See Table Below
	UMTS 1750	0.244	0.663	0.388	0.137	0.054	1.486
	UMTS 1900	0.326	0.663	0.388	0.137	0.054	1.568
	LTE Band 71	0.180	0.663	0.388	0.137	0.054	1.422
	LTE Band 12	0.254	0.663	0.388	0.137	0.054	1.496
	LTE Band 13	0.242	0.663	0.388	0.137	0.054	1.484
	LTE Band 14	0.261	0.663	0.388	0.137	0.054	1.503
	LTE Band 26 (Cell)	0.344	0.663	0.388	0.137	0.054	1.586
	LTE Band 5 (Cell)	0.343	0.663	0.388	0.137	0.054	1.585
	LTE Band 66 (AWS)	0.352	0.663	0.388	0.137	0.054	**1.594**
	LTE Band 25 (PCS)	0.279	0.663	0.388	0.137	0.054	1.521
	LTE Band 30	0.094	0.663	0.388	0.137	0.054	1.336
	LTE Band 7	0.151	0.663	0.388	0.137	0.054	1.393
	LTE Band 48	0.114	0.663	0.388	0.137	0.054	1.356
	LTE Band 41	0.121	0.663	0.388	0.137	0.054	1.363

Simult Tx	Configuration	CDMA BC0 (§22H) 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	Right Cheek	0.358	0.663	0.302	0.137	0.054*	**1.514**
	Right Tilt	0.198	0.587	0.388	0.137*	0.054*	1.364
	Left Cheek	0.274	0.211	0.146	0.137*	0.054*	0.822
	Left Tilt	0.199	0.663*	0.388*	0.137*	0.054	1.441

Simult Tx	Configuration	EVDO BC0 (§22H) 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	Right Cheek	0.304	0.663	0.302	0.137	0.054*	**1.460**
	Right Tilt	0.180	0.587	0.388	0.137*	0.054*	1.346
	Left Cheek	0.239	0.211	0.146	0.137*	0.054*	0.787
	Left Tilt	0.171	0.663*	0.388*	0.137*	0.054	1.413

Simult Tx	Configuration	UMTS 850 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	Right Cheek	0.361	0.663	0.302	0.137	0.054*	**1.517**
	Right Tilt	0.197	0.587	0.388	0.137*	0.054*	1.363
	Left Cheek	0.273	0.211	0.146	0.137*	0.054*	0.821
	Left Tilt	0.185	0.663*	0.388*	0.137*	0.054	1.427

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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	CDMA/EVDO BC10 (§90S)	0.286	0.679	0.965
	CDMA/EVDO BC0 (§22H)	0.358	0.679	1.037
	PCS CDMA/EVDO	0.298	0.679	0.977
	GSM 850	0.214	0.679	0.893
	GSM 1900	0.162	0.679	0.841
	UMTS 850	0.361	0.679	**1.040**
	UMTS 1750	0.244	0.679	0.923
	UMTS 1900	0.326	0.679	1.005
	LTE Band 71	0.180	0.679	0.859
	LTE Band 12	0.254	0.679	0.933
	LTE Band 13	0.242	0.679	0.921
	LTE Band 14	0.261	0.679	0.940
	LTE Band 26 (Cell)	0.344	0.679	1.023
	LTE Band 5 (Cell)	0.343	0.679	1.022
	LTE Band 66 (AWS)	0.352	0.679	1.031
	LTE Band 25 (PCS)	0.279	0.679	0.958
	LTE Band 30	0.094	0.679	0.773
	LTE Band 7	0.151	0.679	0.830
	LTE Band 48	0.114	0.679	0.793
	LTE Band 41	0.121	0.679	0.800

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Table 12-5
Simultaneous Transmission Scenario with Bluetooth and 5GHz Antenna 1 WLAN (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	CDMA/EVDO BC10 (§90S)	0.286	0.679	0.137	1.102
	CDMA/EVDO BC0 (§22H)	0.358	0.679	0.137	1.174
	PCS CDMA/EVDO	0.298	0.679	0.137	1.114
	GSM 850	0.214	0.679	0.137	1.030
	GSM 1900	0.162	0.679	0.137	0.978
	UMTS 850	0.361	0.679	0.137	**1.177**
	UMTS 1750	0.244	0.679	0.137	1.060
	UMTS 1900	0.326	0.679	0.137	1.142
	LTE Band 71	0.180	0.679	0.137	0.996
	LTE Band 12	0.254	0.679	0.137	1.070
	LTE Band 13	0.242	0.679	0.137	1.058
	LTE Band 14	0.261	0.679	0.137	1.077
	LTE Band 26 (Cell)	0.344	0.679	0.137	1.160
	LTE Band 5 (Cell)	0.343	0.679	0.137	1.159
	LTE Band 66 (AWS)	0.352	0.679	0.137	1.168
	LTE Band 25 (PCS)	0.279	0.679	0.137	1.095
	LTE Band 30	0.094	0.679	0.137	0.910
	LTE Band 7	0.151	0.679	0.137	0.967
	LTE Band 48	0.114	0.679	0.137	0.930
	LTE Band 41	0.121	0.679	0.137	0.937

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Table 12-6
Simultaneous Transmission Scenario with Bluetooth and 5GHz Antenna 2 WLAN (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	CDMA/EVDO BC10 (§90S)	0.286	0.679	0.054	1.019
	CDMA/EVDO BC0 (§22H)	0.358	0.679	0.054	1.091
	PCS CDMA/EVDO	0.298	0.679	0.054	1.031
	GSM 850	0.214	0.679	0.054	0.947
	GSM 1900	0.162	0.679	0.054	0.895
	UMTS 850	0.361	0.679	0.054	**1.094**
	UMTS 1750	0.244	0.679	0.054	0.977
	UMTS 1900	0.326	0.679	0.054	1.059
	LTE Band 71	0.180	0.679	0.054	0.913
	LTE Band 12	0.254	0.679	0.054	0.987
	LTE Band 13	0.242	0.679	0.054	0.975
	LTE Band 14	0.261	0.679	0.054	0.994
	LTE Band 26 (Cell)	0.344	0.679	0.054	1.077
	LTE Band 5 (Cell)	0.343	0.679	0.054	1.076
	LTE Band 66 (AWS)	0.352	0.679	0.054	1.085
	LTE Band 25 (PCS)	0.279	0.679	0.054	1.012
	LTE Band 30	0.094	0.679	0.054	0.827
	LTE Band 7	0.151	0.679	0.054	0.884
	LTE Band 48	0.114	0.679	0.054	0.847
	LTE Band 41	0.121	0.679	0.054	0.854

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Table 12-7
Simultaneous Transmission Scenario with Bluetooth and 5GHz 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	CDMA/EVDO BC10 (§90S)	0.286	0.679	0.137	0.054	1.156
	CDMA/EVDO BC0 (§22H)	0.358	0.679	0.137	0.054	1.228
	PCS CDMA/EVDO	0.298	0.679	0.137	0.054	1.168
	GSM 850	0.214	0.679	0.137	0.054	1.084
	GSM 1900	0.162	0.679	0.137	0.054	1.032
	UMTS 850	0.361	0.679	0.137	0.054	**1.231**
	UMTS 1750	0.244	0.679	0.137	0.054	1.114
	UMTS 1900	0.326	0.679	0.137	0.054	1.196
	LTE Band 71	0.180	0.679	0.137	0.054	1.050
	LTE Band 12	0.254	0.679	0.137	0.054	1.124
	LTE Band 13	0.242	0.679	0.137	0.054	1.112
	LTE Band 14	0.261	0.679	0.137	0.054	1.131
	LTE Band 26 (Cell)	0.344	0.679	0.137	0.054	1.214
	LTE Band 5 (Cell)	0.343	0.679	0.137	0.054	1.213
	LTE Band 66 (AWS)	0.352	0.679	0.137	0.054	1.222
	LTE Band 25 (PCS)	0.279	0.679	0.137	0.054	1.149
	LTE Band 30	0.094	0.679	0.137	0.054	0.964
	LTE Band 7	0.151	0.679	0.137	0.054	1.021
	LTE Band 48	0.114	0.679	0.137	0.054	0.984
	LTE Band 41	0.121	0.679	0.137	0.054	0.991

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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	CDMA BC10 (§90S)	0.467	0.128	0.195	0.595	0.662	0.790
	CDMA BC0 (§22H)	0.419	0.128	0.195	0.547	0.614	0.742
	PCS CDMA	0.660	0.128	0.195	0.788	0.855	0.983
	GSM 850	0.338	0.128	0.195	0.466	0.533	0.661
	GSM 1900	0.505	0.128	0.195	0.633	0.700	0.828
	UMTS 850	0.507	0.128	0.195	0.635	0.702	0.830
	UMTS 1750	0.915	0.128	0.195	1.043	1.110	**1.238**
	UMTS 1900	0.799	0.128	0.195	0.927	0.994	1.122
	LTE Band 71	0.332	0.128	0.195	0.460	0.527	0.655
	LTE Band 12	0.416	0.128	0.195	0.544	0.611	0.739
	LTE Band 13	0.456	0.128	0.195	0.584	0.651	0.779
	LTE Band 14	0.435	0.128	0.195	0.563	0.630	0.758
	LTE Band 26 (Cell)	0.455	0.128	0.195	0.583	0.650	0.778
	LTE Band 5 (Cell)	0.473	0.128	0.195	0.601	0.668	0.796
	LTE Band 66 (AWS)	0.706	0.128	0.195	0.834	0.901	1.029
	LTE Band 25 (PCS)	0.813	0.128	0.195	0.941	1.008	1.136
	LTE Band 30	0.520	0.128	0.195	0.648	0.715	0.843
	LTE Band 7	0.858	0.128	0.195	0.986	1.053	1.181
	LTE Band 48	0.135	0.128	0.195	0.263	0.330	0.458
	LTE Band 41	0.641	0.128	0.195	0.769	0.836	0.964

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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	CDMA BC10 (§90S)	0.467	0.090	0.227	0.557	0.694	0.784
	CDMA BC0 (§22H)	0.419	0.090	0.227	0.509	0.646	0.736
	PCS CDMA	0.660	0.090	0.227	0.750	0.887	0.977
	GSM 850	0.338	0.090	0.227	0.428	0.565	0.655
	GSM 1900	0.505	0.090	0.227	0.595	0.732	0.822
	UMTS 850	0.507	0.090	0.227	0.597	0.734	0.824
	UMTS 1750	0.915	0.090	0.227	1.005	1.142	**1.232**
	UMTS 1900	0.799	0.090	0.227	0.889	1.026	1.116
	LTE Band 71	0.332	0.090	0.227	0.422	0.559	0.649
	LTE Band 12	0.416	0.090	0.227	0.506	0.643	0.733
	LTE Band 13	0.456	0.090	0.227	0.546	0.683	0.773
	LTE Band 14	0.435	0.090	0.227	0.525	0.662	0.752
	LTE Band 26 (Cell)	0.455	0.090	0.227	0.545	0.682	0.772
	LTE Band 5 (Cell)	0.473	0.090	0.227	0.563	0.700	0.790
	LTE Band 66 (AWS)	0.706	0.090	0.227	0.796	0.933	1.023
	LTE Band 25 (PCS)	0.813	0.090	0.227	0.903	1.040	1.130
	LTE Band 30	0.520	0.090	0.227	0.610	0.747	0.837
	LTE Band 7	0.858	0.090	0.227	0.948	1.085	1.175
	LTE Band 48	0.135	0.090	0.227	0.225	0.362	0.452
	LTE Band 41	0.641	0.090	0.227	0.731	0.868	0.958

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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	CDMA BC10 (§90S)	0.467	0.128	0.195	0.090	0.227	1.107
	CDMA BC0 (§22H)	0.419	0.128	0.195	0.090	0.227	1.059
	PCS CDMA	0.660	0.128	0.195	0.090	0.227	1.300
	GSM 850	0.338	0.128	0.195	0.090	0.227	0.978
	GSM 1900	0.505	0.128	0.195	0.090	0.227	1.145
	UMTS 850	0.507	0.128	0.195	0.090	0.227	1.147
	UMTS 1750	0.915	0.128	0.195	0.090	0.227	**1.555**
	UMTS 1900	0.799	0.128	0.195	0.090	0.227	1.439
	LTE Band 71	0.332	0.128	0.195	0.090	0.227	0.972
	LTE Band 12	0.416	0.128	0.195	0.090	0.227	1.056
	LTE Band 13	0.456	0.128	0.195	0.090	0.227	1.096
	LTE Band 14	0.435	0.128	0.195	0.090	0.227	1.075
	LTE Band 26 (Cell)	0.455	0.128	0.195	0.090	0.227	1.095
	LTE Band 5 (Cell)	0.473	0.128	0.195	0.090	0.227	1.113
	LTE Band 66 (AWS)	0.706	0.128	0.195	0.090	0.227	1.346
	LTE Band 25 (PCS)	0.813	0.128	0.195	0.090	0.227	1.453
	LTE Band 30	0.520	0.128	0.195	0.090	0.227	1.160
	LTE Band 7	0.858	0.128	0.195	0.090	0.227	1.498
	LTE Band 48	0.135	0.128	0.195	0.090	0.227	0.775
	LTE Band 41	0.641	0.128	0.195	0.090	0.227	1.281

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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	CDMA BC10 (§90S)	0.467	0.044	0.511
	CDMA BC0 (§22H)	0.419	0.044	0.463
	PCS CDMA	0.660	0.044	0.704
	GSM 850	0.338	0.044	0.382
	GSM 1900	0.505	0.044	0.549
	UMTS 850	0.507	0.044	0.551
	UMTS 1750	0.915	0.044	**0.959**
	UMTS 1900	0.799	0.044	0.843
	LTE Band 71	0.332	0.044	0.376
	LTE Band 12	0.416	0.044	0.460
	LTE Band 13	0.456	0.044	0.500
	LTE Band 14	0.435	0.044	0.479
	LTE Band 26 (Cell)	0.455	0.044	0.499
	LTE Band 5 (Cell)	0.473	0.044	0.517
	LTE Band 66 (AWS)	0.706	0.044	0.750
	LTE Band 25 (PCS)	0.813	0.044	0.857
	LTE Band 30	0.520	0.044	0.564
	LTE Band 7	0.858	0.044	0.902
	LTE Band 48	0.135	0.044	0.179
	LTE Band 41	0.641	0.044	0.685

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Table 12-12
Simultaneous Transmission Scenario with Bluetooth and 5GHz Antenna 1 WLAN (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	CDMA BC10 (§90S)	0.467	0.044	0.090	0.601
	CDMA BC0 (§22H)	0.419	0.044	0.090	0.553
	PCS CDMA	0.660	0.044	0.090	0.794
	GSM 850	0.338	0.044	0.090	0.472
	GSM 1900	0.505	0.044	0.090	0.639
	UMTS 850	0.507	0.044	0.090	0.641
	UMTS 1750	0.915	0.044	0.090	**1.049**
	UMTS 1900	0.799	0.044	0.090	0.933
	LTE Band 71	0.332	0.044	0.090	0.466
	LTE Band 12	0.416	0.044	0.090	0.550
	LTE Band 13	0.456	0.044	0.090	0.590
	LTE Band 14	0.435	0.044	0.090	0.569
	LTE Band 26 (Cell)	0.455	0.044	0.090	0.589
	LTE Band 5 (Cell)	0.473	0.044	0.090	0.607
	LTE Band 66 (AWS)	0.706	0.044	0.090	0.840
	LTE Band 25 (PCS)	0.813	0.044	0.090	0.947
	LTE Band 30	0.520	0.044	0.090	0.654
	LTE Band 7	0.858	0.044	0.090	0.992
	LTE Band 48	0.135	0.044	0.090	0.269
	LTE Band 41	0.641	0.044	0.090	0.775

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Table 12-13
Simultaneous Transmission Scenario with Bluetooth and 5GHz Antenna 2 WLAN (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	CDMA BC10 (§90S)	0.467	0.044	0.227	0.738
	CDMA BC0 (§22H)	0.419	0.044	0.227	0.690
	PCS CDMA	0.660	0.044	0.227	0.931
	GSM 850	0.338	0.044	0.227	0.609
	GSM 1900	0.505	0.044	0.227	0.776
	UMTS 850	0.507	0.044	0.227	0.778
	UMTS 1750	0.915	0.044	0.227	**1.186**
	UMTS 1900	0.799	0.044	0.227	1.070
	LTE Band 71	0.332	0.044	0.227	0.603
	LTE Band 12	0.416	0.044	0.227	0.687
	LTE Band 13	0.456	0.044	0.227	0.727
	LTE Band 14	0.435	0.044	0.227	0.706
	LTE Band 26 (Cell)	0.455	0.044	0.227	0.726
	LTE Band 5 (Cell)	0.473	0.044	0.227	0.744
	LTE Band 66 (AWS)	0.706	0.044	0.227	0.977
	LTE Band 25 (PCS)	0.813	0.044	0.227	1.084
	LTE Band 30	0.520	0.044	0.227	0.791
	LTE Band 7	0.858	0.044	0.227	1.129
	LTE Band 48	0.135	0.044	0.227	0.406
	LTE Band 41	0.641	0.044	0.227	0.912

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Table 12-14
Simultaneous Transmission Scenario with Bluetooth and 5GHz 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	CDMA BC10 (§90S)	0.467	0.044	0.090	0.227	0.828
	CDMA BC0 (§22H)	0.419	0.044	0.090	0.227	0.780
	PCS CDMA	0.660	0.044	0.090	0.227	1.021
	GSM 850	0.338	0.044	0.090	0.227	0.699
	GSM 1900	0.505	0.044	0.090	0.227	0.866
	UMTS 850	0.507	0.044	0.090	0.227	0.868
	UMTS 1750	0.915	0.044	0.090	0.227	**1.276**
	UMTS 1900	0.799	0.044	0.090	0.227	1.160
	LTE Band 71	0.332	0.044	0.090	0.227	0.693
	LTE Band 12	0.416	0.044	0.090	0.227	0.777
	LTE Band 13	0.456	0.044	0.090	0.227	0.817
	LTE Band 14	0.435	0.044	0.090	0.227	0.796
	LTE Band 26 (Cell)	0.455	0.044	0.090	0.227	0.816
	LTE Band 5 (Cell)	0.473	0.044	0.090	0.227	0.834
	LTE Band 66 (AWS)	0.706	0.044	0.090	0.227	1.067
	LTE Band 25 (PCS)	0.813	0.044	0.090	0.227	1.174
	LTE Band 30	0.520	0.044	0.090	0.227	0.881
	LTE Band 7	0.858	0.044	0.090	0.227	1.219
	LTE Band 48	0.135	0.044	0.090	0.227	0.496
	LTE Band 41	0.641	0.044	0.090	0.227	1.002

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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
Hotspot SAR	EVDO BC10 (§90S)	0.518	0.349	0.432	0.867	0.950
	EVDO BC0 (§22H)	0.654	0.349	0.432	1.003	1.086
	PCS EVDO	1.012	0.349	0.432	1.361	**1.444**
	GPRS 850	0.684	0.349	0.432	1.033	1.116
	GPRS 1900	1.358	0.349	0.432	See Table Below	See Table Below
	UMTS 850	0.641	0.349	0.432	0.990	1.073
	UMTS 1750	0.686	0.349	0.432	1.035	1.118
	UMTS 1900	0.919	0.349	0.432	1.268	1.351
	LTE Band 71	0.488	0.349	0.432	0.837	0.920
	LTE Band 12	0.589	0.349	0.432	0.938	1.021
	LTE Band 13	0.540	0.349	0.432	0.889	0.972
	LTE Band 14	0.547	0.349	0.432	0.896	0.979
	LTE Band 26 (Cell)	0.540	0.349	0.432	0.889	0.972
	LTE Band 5 (Cell)	0.568	0.349	0.432	0.917	1.000
	LTE Band 66 (AWS)	0.715	0.349	0.432	1.064	1.147
	LTE Band 25 (PCS)	0.885	0.349	0.432	1.234	1.317
	LTE Band 30	0.846	0.349	0.432	1.195	1.278
	LTE Band 7	0.826	0.349	0.432	1.175	1.258
	LTE Band 48	0.207	0.349	0.432	0.556	0.639
	LTE Band 41	0.925	0.349	0.432	1.274	1.357

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.929	0.349*	1.278
	Front	0.799	0.349*	1.148
	Top	-	0.349*	0.349
	Bottom	1.358	-	**1.358**
	Right	0.102	-	0.102
	Left	0.107	0.349	0.456

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.929	0.366	1.295
	Front	0.799	0.432*	1.231
	Top	-	0.432	0.432
	Bottom	1.358	-	**1.358**
	Right	0.102	-	0.102
	Left	0.107	0.432*	0.539

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Table 12-16
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO (Hotspot at 1.0 cm)

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
Hotspot SAR	EVDO BC10 (§90S)	0.518	0.442	0.960
	EVDO BC0 (§22H)	0.654	0.442	1.096
	PCS EVDO	1.012	0.442	1.454
	GPRS 850	0.684	0.442	1.126
	GPRS 1900	1.358	0.442	See Table Below
	UMTS 850	0.641	0.442	1.083
	UMTS 1750	0.686	0.442	1.128
	UMTS 1900	0.919	0.442	1.361
	LTE Band 71	0.488	0.442	0.930
	LTE Band 12	0.589	0.442	1.031
	LTE Band 13	0.540	0.442	0.982
	LTE Band 14	0.547	0.442	0.989
	LTE Band 26 (Cell)	0.540	0.442	0.982
	LTE Band 5 (Cell)	0.568	0.442	1.010
	LTE Band 66 (AWS)	0.715	0.442	1.157
	LTE Band 25 (PCS)	0.885	0.442	1.327
	LTE Band 30	0.846	0.442	1.288
	LTE Band 7	0.826	0.442	1.268
	LTE Band 48	0.207	0.442	0.649
	LTE Band 41	0.925	0.442	1.367

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.929	0.422	1.351
	Front	0.799	0.442*	1.241
	Top	-	0.442*	0.442
	Bottom	1.358	-	**1.358**
	Right	0.102	-	0.102
	Left	0.107	0.442	0.549

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Table 12-17
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	EVDO BC10 (§90S)	0.518	0.131	0.302	0.649	0.820	0.951
	EVDO BC0 (§22H)	0.654	0.131	0.302	0.785	0.956	1.087
	PCS EVDO	1.012	0.131	0.302	1.143	1.314	1.445
	GPRS 850	0.684	0.131	0.302	0.815	0.986	1.117
	GPRS 1900	1.358	0.131	0.302	**1.489**	See Table Below	See Table Below
	UMTS 850	0.641	0.131	0.302	0.772	0.943	1.074
	UMTS 1750	0.686	0.131	0.302	0.817	0.988	1.119
	UMTS 1900	0.919	0.131	0.302	1.050	1.221	1.352
	LTE Band 71	0.488	0.131	0.302	0.619	0.790	0.921
	LTE Band 12	0.589	0.131	0.302	0.720	0.891	1.022
	LTE Band 13	0.540	0.131	0.302	0.671	0.842	0.973
	LTE Band 14	0.547	0.131	0.302	0.678	0.849	0.980
	LTE Band 26 (Cell)	0.540	0.131	0.302	0.671	0.842	0.973
	LTE Band 5 (Cell)	0.568	0.131	0.302	0.699	0.870	1.001
	LTE Band 66 (AWS)	0.715	0.131	0.302	0.846	1.017	1.148
	LTE Band 25 (PCS)	0.885	0.131	0.302	1.016	1.187	1.318
	LTE Band 30	0.846	0.131	0.302	0.977	1.148	1.279
	LTE Band 7	0.826	0.131	0.302	0.957	1.128	1.259
	LTE Band 48	0.207	0.131	0.302	0.338	0.509	0.640
	LTE Band 41	0.925	0.131	0.302	1.056	1.227	1.358

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
Hotspot SAR	Back	0.929	0.131	0.302	1.060	1.231	**1.362**
	Front	0.799	0.131*	0.302*	0.930	1.101	1.232
	Top	-	0.131*	0.302*	0.131	0.302	0.433
	Bottom	1.358	-	-	1.358	1.358	1.358
	Right	0.102	-	-	0.102	0.102	0.102
	Left	0.107	0.131*	0.302*	0.238	0.409	0.540

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Table 12-18
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 MIMO SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.518	0.442	0.140	1.100
	EVDO BC0 (§22H)	0.654	0.442	0.140	1.236
	PCS EVDO	1.012	0.442	0.140	**1.594**
	GPRS 850	0.684	0.442	0.140	1.266
	GPRS 1900	1.358	0.442	0.140	See Table Below
	UMTS 850	0.641	0.442	0.140	1.223
	UMTS 1750	0.686	0.442	0.140	1.268
	UMTS 1900	0.919	0.442	0.140	1.501
	LTE Band 71	0.488	0.442	0.140	1.070
	LTE Band 12	0.589	0.442	0.140	1.171
	LTE Band 13	0.540	0.442	0.140	1.122
	LTE Band 14	0.547	0.442	0.140	1.129
	LTE Band 26 (Cell)	0.540	0.442	0.140	1.122
	LTE Band 5 (Cell)	0.568	0.442	0.140	1.150
	LTE Band 66 (AWS)	0.715	0.442	0.140	1.297
	LTE Band 25 (PCS)	0.885	0.442	0.140	1.467
	LTE Band 30	0.846	0.442	0.140	1.428
	LTE Band 7	0.826	0.442	0.140	1.408
	LTE Band 48	0.207	0.442	0.140	0.789
	LTE Band 41	0.925	0.442	0.140	1.507

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.929	0.422	0.140	**1.491**
	Front	0.799	0.442*	0.140*	1.381
	Top	-	0.442*	0.140*	0.582
	Bottom	1.358	-	-	1.358
	Right	0.102	-	-	0.102
	Left	0.107	0.442	0.140*	0.689

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Table 12-19
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	EVDO BC10 (§90S)	0.518	0.105	0.623
	EVDO BC0 (§22H)	0.654	0.105	0.759
	PCS EVDO	1.012	0.105	1.117
	GPRS 850	0.684	0.105	0.789
	GPRS 1900	1.358	0.105	**1.463**
	UMTS 850	0.641	0.105	0.746
	UMTS 1750	0.686	0.105	0.791
	UMTS 1900	0.919	0.105	1.024
	LTE Band 71	0.488	0.105	0.593
	LTE Band 12	0.589	0.105	0.694
	LTE Band 13	0.540	0.105	0.645
	LTE Band 14	0.547	0.105	0.652
	LTE Band 26 (Cell)	0.540	0.105	0.645
	LTE Band 5 (Cell)	0.568	0.105	0.673
	LTE Band 66 (AWS)	0.715	0.105	0.820
	LTE Band 25 (PCS)	0.885	0.105	0.990
	LTE Band 30	0.846	0.105	0.951
	LTE Band 7	0.826	0.105	0.931
	LTE Band 48	0.207	0.105	0.312
	LTE Band 41	0.925	0.105	1.030

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Table 12-20
Simultaneous Transmission Scenario with Bluetooth and 5GHz Antenna 1 WLAN (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	EVDO BC10 (§90S)	0.518	0.105	0.131	0.754
	EVDO BC0 (§22H)	0.654	0.105	0.131	0.890
	PCS EVDO	1.012	0.105	0.131	1.248
	GPRS 850	0.684	0.105	0.131	0.920
	GPRS 1900	1.358	0.105	0.131	**1.594**
	UMTS 850	0.641	0.105	0.131	0.877
	UMTS 1750	0.686	0.105	0.131	0.922
	UMTS 1900	0.919	0.105	0.131	1.155
	LTE Band 71	0.488	0.105	0.131	0.724
	LTE Band 12	0.589	0.105	0.131	0.825
	LTE Band 13	0.540	0.105	0.131	0.776
	LTE Band 14	0.547	0.105	0.131	0.783
	LTE Band 26 (Cell)	0.540	0.105	0.131	0.776
	LTE Band 5 (Cell)	0.568	0.105	0.131	0.804
	LTE Band 66 (AWS)	0.715	0.105	0.131	0.951
	LTE Band 25 (PCS)	0.885	0.105	0.131	1.121
	LTE Band 30	0.846	0.105	0.131	1.082
	LTE Band 7	0.826	0.105	0.131	1.062
	LTE Band 48	0.207	0.105	0.131	0.443
	LTE Band 41	0.925	0.105	0.131	1.161

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Table 12-21
Simultaneous Transmission Scenario with Bluetooth and 5GHz Antenna 2 WLAN (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	EVDO BC10 (§90S)	0.518	0.105	0.302	0.925
	EVDO BC0 (§22H)	0.654	0.105	0.302	1.061
	PCS EVDO	1.012	0.105	0.302	**1.419**
	GPRS 850	0.684	0.105	0.302	1.091
	GPRS 1900	1.358	0.105	0.302	See Table Below
	UMTS 850	0.641	0.105	0.302	1.048
	UMTS 1750	0.686	0.105	0.302	1.093
	UMTS 1900	0.919	0.105	0.302	1.326
	LTE Band 71	0.488	0.105	0.302	0.895
	LTE Band 12	0.589	0.105	0.302	0.996
	LTE Band 13	0.540	0.105	0.302	0.947
	LTE Band 14	0.547	0.105	0.302	0.954
	LTE Band 26 (Cell)	0.540	0.105	0.302	0.947
	LTE Band 5 (Cell)	0.568	0.105	0.302	0.975
	LTE Band 66 (AWS)	0.715	0.105	0.302	1.122
	LTE Band 25 (PCS)	0.885	0.105	0.302	1.292
	LTE Band 30	0.846	0.105	0.302	1.253
	LTE Band 7	0.826	0.105	0.302	1.233
	LTE Band 48	0.207	0.105	0.302	0.614
	LTE Band 41	0.925	0.105	0.302	1.332

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	1+3	1+2+3
Hotspot SAR	Back	0.929	0.105	0.302	1.034	1.231	1.336
	Front	0.799	0.063	0.302*	0.862	1.101	1.164
	Top	-	0.069	0.302*	0.069	0.302	0.371
	Bottom	1.358	-	-	1.358	1.358	**1.358**
	Right	0.102	-	-	0.102	0.102	0.102
	Left	0.107	0.083	0.302*	0.190	0.409	0.492

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Table 12-22
Simultaneous Transmission Scenario with Bluetooth and 5GHz 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	EVDO BC10 (§90S)	0.518	0.105	0.131	0.302	1.056
	EVDO BC0 (§22H)	0.654	0.105	0.131	0.302	1.192
	PCS EVDO	1.012	0.105	0.131	0.302	**1.550**
	GPRS 850	0.684	0.105	0.131	0.302	1.222
	GPRS 1900	1.358	0.105	0.131	0.302	See Table Below
	UMTS 850	0.641	0.105	0.131	0.302	1.179
	UMTS 1750	0.686	0.105	0.131	0.302	1.224
	UMTS 1900	0.919	0.105	0.131	0.302	1.457
	LTE Band 71	0.488	0.105	0.131	0.302	1.026
	LTE Band 12	0.589	0.105	0.131	0.302	1.127
	LTE Band 13	0.540	0.105	0.131	0.302	1.078
	LTE Band 14	0.547	0.105	0.131	0.302	1.085
	LTE Band 26 (Cell)	0.540	0.105	0.131	0.302	1.078
	LTE Band 5 (Cell)	0.568	0.105	0.131	0.302	1.106
	LTE Band 66 (AWS)	0.715	0.105	0.131	0.302	1.253
	LTE Band 25 (PCS)	0.885	0.105	0.131	0.302	1.423
	LTE Band 30	0.846	0.105	0.131	0.302	1.384
	LTE Band 7	0.826	0.105	0.131	0.302	1.364
	LTE Band 48	0.207	0.105	0.131	0.302	0.745
	LTE Band 41	0.925	0.105	0.131	0.302	1.463

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
Hotspot SAR	Back	0.929	0.105	0.131	0.302	**1.467**
	Front	0.799	0.063	0.131*	0.302*	1.295
	Top	-	0.069	0.131*	0.302*	0.502
	Bottom	1.358	-	-	-	1.358
	Right	0.102	-	-	-	0.102
	Left	0.107	0.083	0.131*	0.302*	0.623

12.6 Simultaneous Transmission Conclusion

The above numerical summed SAR results for all the worst-case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is 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 6.3.4.1.2.

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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

Table 13-1
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS															
Band	FREQUENCY		Mode	Service	# of Time Slots	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	1909.80	810	GSM 1900	GPRS	3	bottom	10 mm	1.040	0.946	1.10	N/A	N/A	N/A	N/A
2600	2549.50	40185	LTE Band 41, ULCA, 20MHz Bandwidth	QPSK, 50 RB, 0 RB Offset	N/A	bottom	10 mm	0.925	0.883	1.05	N/A	N/A	N/A	N/A
	2529.70	39987		QPSK, 50 RB, 50 RB Offset										
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram							

13.2 Measurement Uncertainty

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

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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.

Per FCC Guidance, several bands/modes were combined to be treated as a single aggregate band. For CDMA BC0 and BC10, the highest reported SAR configuration per exposure condition was considered for point SAR measurements. Additionally, LTE bands 12 and 13 were considered as an aggregated band to select single point measurement configurations. The wireless configuration and exposure condition combinations were divided evenly among the two bands (i.e., the number of required single point measurements (at least 20) apply to the aggregated band). All other bands were treated independently.

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

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Table 14-1
UMTS/CDMA Supplemental Head SAR Data

Supplemental Head SAR Data									
UMTS 850		UMTS 1750		UMTS 1900		CDMA BC0		CDMA BC1	
RMC		RMC		RMC		RC3/SO55		RC3/SO55	
Test Position	Right Cheek	Test Position	Left Cheek	Test Position	Left Cheek	Test Position	Right Cheek	Test Position	Left Cheek
Frequency (MHz)	836.60	Frequency (MHz)	1732.40	Frequency (MHz)	1880.00	Frequency (MHz)	836.52	Frequency (MHz)	1880.00
Channel	4183	Channel	1412	Channel	9400	Channel	384	Channel	600
Measured 1g SAR (W/kg)	0.273	Measured 1g SAR (W/kg)	0.204	Measured 1g SAR (W/kg)	0.266	Measured 1g SAR (W/kg)	0.294	Measured 1g SAR (W/kg)	0.234
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)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 2)	0.309	Auto-tune (State 44)	0.310	Auto-tune (State 21)	0.346	Auto-tune (State 3)	0.337	Auto-tune (State 16)	0.299
Default (State 0)	0.305	Default (State 0)	0.223	Default (State 0)	0.279	Default (State 0)	0.324	Default (State 0)	0.246
State 0	0.305	State 0	0.223	State 0	0.279	State 0	0.324	State 0	0.246
State 1	0.295	State 4	0.216	State 4	0.245	State 2	0.335	State 5	0.215
State 2	0.313	State 7	0.210	State 6	0.234	State 3	0.337	State 7	0.200
State 5	0.303	State 10	0.197	State 9	0.212	State 9	0.265	State 11	0.158
State 10	0.209	State 11	0.191	State 11	0.180	State 11	0.181	State 12	0.139
State 11	0.169	State 13	0.172	State 13	0.139	State 13	0.099	State 16	0.292
State 16	0.144	State 14	0.159	State 16	0.321	State 16	0.154	State 17	0.283
State 18	0.199	State 17	0.225	State 17	0.314	State 19	0.215	State 18	0.301
State 21	0.206	State 21	0.272	State 21	0.343	State 22	0.221	State 22	0.311
State 22	0.199	State 24	0.282	State 23	0.329	State 23	0.219	State 25	0.314
State 25	0.162	State 27	0.298	State 24	0.326	State 25	0.188	State 27	0.314
State 27	0.102	State 30	0.202	State 26	0.335	State 29	0.046	State 31	0.247
State 28	0.062	State 33	0.232	State 29	0.320	State 32	0.163	State 32	0.261
State 29	0.044	State 36	0.265	State 32	0.294	State 39	0.230	State 34	0.258
State 33	0.151	State 39	0.278	State 33	0.294	State 41	0.204	State 36	0.258
State 37	0.216	State 42	0.296	State 36	0.286	State 44	0.073	State 37	0.258
State 42	0.146	State 44	0.317	State 38	0.281	State 46	0.033	State 43	0.229
State 47	0.017	State 45	0.310	State 41	0.272	State 47	0.019	State 45	0.201
State 51	0.301	State 48	0.211	State 44	0.237	State 51	0.328	State 48	0.216
State 52	0.144	State 55	0.210	State 45	0.223	State 54	0.322	State 53	0.261
State 53	0.152	State 57	0.219	State 54	0.273	State 56	0.161	State 55	0.265
State 57	0.297	State 58	0.230	State 56	0.279	State 57	0.326	State 58	0.289

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Table 14-2
LTE Supplemental Head SAR Data

LTE Band 71		LTE Band 12		LTE Band 13		LTE Band 14		LTE Band 5		LTE Band 26		LTE Band 66		LTE Band 25	
QPSK, 20MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 49 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 49 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 15MHz Bandwidth, 1 RB, 36 RB Offsets		QPSK, 20MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 20MHz Bandwidth, 1 RB, 0 RB Offsets	
Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Left Cheek	Test Position	Left Cheek
Frequency (MHz)	680.50	Frequency (MHz)	707.50	Frequency (MHz)	782.00	Frequency (MHz)	793.00	Frequency (MHz)	836.50	Frequency (MHz)	831.50	Frequency (MHz)	1770.00	Frequency (MHz)	1860.00
Channel	133297	Channel	23095	Channel	23230	Channel	23330	Channel	20525	Channel	26865	Channel	132572	Channel	26140
Measured 1g SAR (W/kg)	0.147	Measured 1g SAR (W/kg)	0.193	Measured 1g SAR (W/kg)	0.188	Measured 1g SAR (W/kg)	0.205	Measured 1g SAR (W/kg)	0.265	Measured 1g SAR (W/kg)	0.285	Measured 1g SAR (W/kg)	0.317	Measured 1g SAR (W/kg)	0.243
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)		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 48)	0.169	Auto-tune (State 0)	0.229	Auto-tune (State 2)	0.220	Auto-tune (State 0)	0.226	Auto-tune (State 5)	0.306	Auto-tune (State 3)	0.316	Auto-tune (State 27)	0.391	Auto-tune (State 27)	0.311
Default (State 0)	0.166	Default (State 0)	0.230	Default (State 0)	0.216	Default (State 0)	0.222	Default (State 0)	0.280	Default (State 0)	0.300	Default (State 0)	0.287	Default (State 0)	0.233
State 0	0.166	State 0	0.230	State 0	0.216	State 0	0.222	State 0	0.280	State 0	0.300	State 0	0.287	State 0	0.233
State 1	0.167	State 1	0.223	State 1	0.215	State 2	0.218	State 1	0.275	State 3	0.319	State 1	0.287	State 3	0.209
State 2	0.158	State 2	0.230	State 2	0.216	State 3	0.214	State 3	0.296	State 5	0.317	State 4	0.267	State 5	0.207
State 5	0.151	State 10	0.153	State 8	0.195	State 4	0.213	State 5	0.310	State 8	0.305	State 5	0.268	State 8	0.194
State 8	0.134	State 12	0.099	State 17	0.084	State 6	0.200	State 6	0.286	State 9	0.282	State 9	0.252	State 10	0.169
State 9	0.118	State 14	0.061	State 20	0.124	State 11	0.127	State 10	0.224	State 12	0.156	State 11	0.231	State 12	0.137
State 15	0.025	State 22	0.085	State 24	0.112	State 12	0.095	State 13	0.112	State 14	0.090	State 15	0.155	State 14	0.106
State 16	0.032	State 27	0.025	State 33	0.089	State 14	0.056	State 19	0.168	State 17	0.114	State 16	0.316	State 17	0.262
State 21	0.041	State 40	0.081	State 34	0.128	State 22	0.115	State 23	0.169	State 21	0.180	State 19	0.354	State 23	0.301
State 22	0.044	State 45	0.011	State 39	0.123	State 24	0.116	State 26	0.107	State 25	0.152	State 20	0.358	State 27	0.316
State 25	0.030	State 46	0.007	State 50	0.089	State 26	0.070	State 30	0.018	State 30	0.019	State 21	0.361	State 28	0.311
State 28	0.008	State 51	0.228	State 56	0.089	State 29	0.018	State 31	0.010	State 31	0.010	State 25	0.391	State 35	0.244
State 29	0.005	State 59	0.064	State 57	0.212	State 36	0.114	State 35	0.176	State 36	0.187	State 27	0.393	State 40	0.241
State 32	0.034					State 38	0.121	State 38	0.183	State 39	0.191	State 31	0.222	State 41	0.237
State 33	0.033					State 41	0.105	State 42	0.120	State 41	0.164	State 32	0.307	State 44	0.216
State 37	0.045					State 44	0.029	State 44	0.049	State 45	0.033	State 37	0.337	State 46	0.189
State 48	0.169					State 48	0.213	State 49	0.110	State 47	0.012	State 40	0.339	State 48	0.205
State 51	0.169					State 53	0.076	State 52	0.111	State 50	0.121	State 43	0.352	State 52	0.260
State 52	0.031					State 54	0.209	State 55	0.109	State 53	0.124	State 49	0.266	State 54	0.221
State 53	0.034					State 56	0.076	State 56	0.117	State 54	0.293	State 53	0.302	State 56	0.234
State 57	0.168					State 57	0.216	State 59	0.119	State 56	0.121	State 58	0.309	State 59	0.243

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Table 14-3
UMTS/CDMA Supplemental Body SAR Data

Supplemental Body SAR Data									
UMTS 850		UMTS 1750		UMTS 1900		CDMA BC0		CDMA BC1	
RMC		RMC		RMC		EVDO Rev. 0		EVDO Rev. 0	
Test Position	Back Side	Test Position	Back Side	Test Position	Bottom Edge	Test Position	Back Side	Test Position	Bottom Edge
Spacing	10 mm	Spacing	15 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	836.60	Frequency (MHz)	1752.60	Frequency (MHz)	1880.00	Frequency (MHz)	848.31	Frequency (MHz)	1908.75
Channel	4183	Channel	1513	Channel	9400	Channel	777	Channel	1175
Measured 1g SAR (W/kg)	0.484	Measured 1g SAR (W/kg)	0.775	Measured 1g SAR (W/kg)	0.696	Measured 1g SAR (W/kg)	0.521	Measured 1g SAR (W/kg)	0.735
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)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 4)	0.651	Auto-tune (State 46)	0.983	Auto-tune (State 25)	1.143	Auto-tune (State 2)	0.856	Auto-tune (State 25)	1.017
Default (State 0)	0.595	Default (State 0)	0.600	Default (State 0)	0.843	Default (State 0)	0.795	Default (State 0)	0.818
State 0	0.595	State 0	0.600	State 0	0.843	State 0	0.795	State 0	0.818
State 2	0.647	State 1	0.606	State 3	0.757	State 1	0.794	State 3	0.680
State 4	0.647	State 3	0.589	State 5	0.746	State 2	0.856	State 6	0.646
State 7	0.609	State 7	0.575	State 8	0.717	State 3	0.850	State 8	0.644
State 10	0.469	State 9	0.562	State 10	0.650	State 4	0.851	State 12	0.476
State 11	0.382	State 12	0.506	State 15	0.382	State 7	0.779	State 16	0.813
State 14	0.152	State 16	0.632	State 16	0.887	State 13	0.237	State 17	0.799
State 19	0.400	State 17	0.613	State 18	0.982	State 17	0.414	State 20	0.906
State 24	0.338	State 23	0.773	State 21	1.015	State 19	0.475	State 23	0.937
State 27	0.188	State 27	0.822	State 25	1.138	State 22	0.464	State 25	1.027
State 31	0.029	State 29	0.691	State 30	1.107	State 28	0.182	State 26	0.996
State 32	0.288	State 35	0.708	State 33	0.826	State 33	0.436	State 31	0.843
State 34	0.399	State 36	0.711	State 35	0.861	State 34	0.508	State 35	0.771
State 36	0.412	State 39	0.744	State 37	0.863	State 35	0.504	State 39	0.765
State 43	0.205	State 41	0.771	State 42	0.868	State 40	0.478	State 43	0.738
State 46	0.057	State 46	0.984	State 44	0.860	State 45	0.140	State 45	0.686
State 47	0.033	State 48	0.572	State 50	0.758	State 46	0.094	State 47	0.577
State 49	0.266	State 49	0.528	State 53	0.821	State 48	0.775	State 52	0.799
State 52	0.273	State 52	0.619	State 54	0.790	State 50	0.431	State 55	0.733
State 55	0.267	State 56	0.597	State 55	0.800	State 55	0.782	State 57	0.737
State 58	0.273	State 59	0.632	State 58	0.882	State 57	0.790	State 58	0.808

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Table 14-4
LTE Supplemental Body SAR Data

Supplemental Body SAR Data															
LTE Band 71		LTE Band 12		LTE Band 13		LTE Band 14		LTE Band 5		LTE Band 26		LTE Band 66		LTE Band 25	
QPSK, 20MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 49 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 49 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 15MHz Bandwidth, 1 RB, 36 RB Offsets		QPSK, 20MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 20MHz Bandwidth, 50 RB, 0 RB Offsets	
Test Position	Back Side	Test Position	Back Side	Test Position	Back Side	Test Position	Back Side	Test Position	Back Side	Test Position	Back Side	Test Position	Back Side	Test Position	Bottom Edge
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	15 mm	Spacing	10 mm
Frequency (MHz)	680.50	Frequency (MHz)	707.50	Frequency (MHz)	782.00	Frequency (MHz)	793.00	Frequency (MHz)	836.50	Frequency (MHz)	831.50	Frequency (MHz)	1770.00	Frequency (MHz)	1882.50
Channel	133297	Channel	23095	Channel	23230	Channel	23330	Channel	20525	Channel	26865	Channel	132572	Channel	26365
Measured 1g SAR (W/kg)	0.398	Measured 1g SAR (W/kg)	0.447	Measured 1g SAR (W/kg)	0.419	Measured 1g SAR (W/kg)	0.430	Measured 1g SAR (W/kg)	0.454	Measured 1g SAR (W/kg)	0.447	Measured 1g SAR (W/kg)	0.594	Measured 1g SAR (W/kg)	0.753
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)		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 48)	0.664	Auto-tune (State 0)	0.583	Auto-tune (State 2)	0.568	Auto-tune (State 5)	0.611	Auto-tune (State 2)	0.690	Auto-tune (State 2)	0.779	Auto-tune (State 27)	0.774	Auto-tune (State 27)	1.170
Default (State 0)	0.690	Default (State 0)	0.588	Default (State 0)	0.540	Default (State 5)	0.613	Default (State 0)	0.629	Default (State 0)	0.674	Default (State 0)	0.609	Default (State 0)	0.791
State 0	0.690	State 0	0.588	State 0	0.540	State 0	0.594	State 0	0.629	State 0	0.674	State 0	0.609	State 0	0.791
State 2	0.563	State 1	0.586	State 1	0.534	State 2	0.623	State 2	0.696	State 1	0.670	State 2	0.586	State 1	0.795
State 9	0.309	State 6	0.521	State 2	0.567	State 3	0.624	State 8	0.675	State 2	0.778	State 6	0.575	State 3	0.736
State 19	0.339	State 9	0.440	State 6	0.543	State 5	0.613	State 9	0.627	State 3	0.753	State 8	0.577	State 6	0.706
State 20	0.339	State 13	0.193	State 13	0.201	State 8	0.572	State 15	0.129	State 6	0.766	State 13	0.475	State 8	0.700
State 22	0.321	State 15	0.097	State 19	0.307	State 10	0.443	State 16	0.251	State 7	0.761	State 14	0.436	State 9	0.665
State 28	0.070	State 21	0.251	State 21	0.304	State 14	0.154	State 18	0.363	State 13	0.314	State 17	0.609	State 11	0.592
State 33	0.275	State 23	0.211	State 26	0.154	State 16	0.200	State 20	0.378	State 17	0.264	State 19	0.708	State 13	0.491
State 34	0.355	State 31	0.011	State 30	0.029	State 18	0.272	State 22	0.384	State 18	0.391	State 20	0.714	State 17	0.848
State 36	0.359	State 34	0.256	State 45	0.049	State 21	0.290	State 24	0.373	State 22	0.411	State 22	0.739	State 19	0.977
State 40	0.298	State 38	0.242	State 49	0.213	State 25	0.257	State 26	0.234	State 23	0.403	State 27	0.768	State 27	1.172
State 43	0.120	State 43	0.077	State 54	0.536	State 30	0.033	State 29	0.066	State 27	0.151	State 28	0.716	State 30	1.097
State 44	0.076					State 33	0.210	State 34	0.383	State 30	0.043	State 33	0.623	State 32	0.815
State 47	0.023					State 37	0.305	State 38	0.405	State 37	0.436	State 40	0.714	State 38	0.850
State 48	0.685					State 39	0.316	State 40	0.397	State 38	0.437	State 42	0.748	State 42	0.849
State 49	0.263					State 42	0.200	State 41	0.338	State 41	0.349	State 47	0.598	State 45	0.824
State 51	0.630					State 44	0.081	State 44	0.103	State 42	0.240	State 49	0.532	State 47	0.721
State 53	0.276					State 48	0.580	State 48	0.619	State 49	0.262	State 51	0.610	State 49	0.772
State 54	0.623					State 50	0.211	State 50	0.257	State 50	0.276	State 53	0.630	State 52	0.859
State 58	0.260					State 54	0.577	State 56	0.259	State 52	0.270	State 55	0.572	State 54	0.774
State 59	0.277					State 57	0.586	State 57	0.631	State 55	0.263	State 59	0.627	State 58	0.869

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14.2 LTE Band 41 Power Class 2 and Power Class 3 Linearity

This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per May 2017 TCB Workshop Notes based on the device behavior, all SAR tests were performed using Power Class 3. SAR with Power Class 2 at the highest power and available duty factor was additionally performed for the Power Class 3 configuration with the highest SAR for each exposure condition. The linearity between the Power Class 2 and Power Class 3 SAR results and the respective frame averaged powers was calculated to determine that the results were linear. When ULCA is active, the linearity between the Power Class 2 with ULCA active and Power Class 3 with ULCA active SAR results and the respective frame averaged powers was calculated to determine that the results were linear. Per May 2017 TCB Workshop, no additional SAR measurements were required since the linearity between power classes was < 10% and all reported SAR values were < 1.4 W/kg for 1g and < 3.5 W/kg for 10g.

LTE Band 41 SAR testing with power class 2 at the highest power and available duty factor was additionally performed for the power class 3 configuration with the highest SAR for each exposure condition.

Table 14-5
LTE Band 41 Single Carrier Head Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25	28
Measured Output Power (dBm)	23.59	27.2
Measured SAR (W/kg)	0.063	0.0923
Measured Power (mW)	228.56	524.81
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	144.68	227.24
% deviation from expected linearity		-6.72%

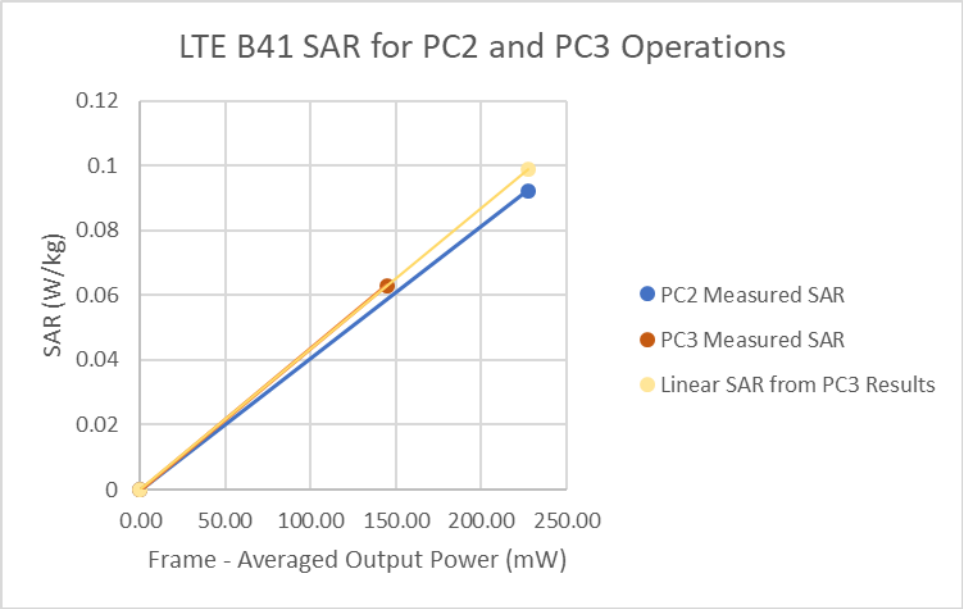

Figure 14-1
LTE Band 41 Single Carrier Head Linearity

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Table 14-6
LTE Band 41 ULCA Head Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25	28
Measured Output Power (dBm)	24.03	27.25
Measured SAR (W/kg)	0.076	0.102
Measured Power (mW)	252.93	530.88
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	160.10	229.87
% deviation from expected linearity		-6.52%

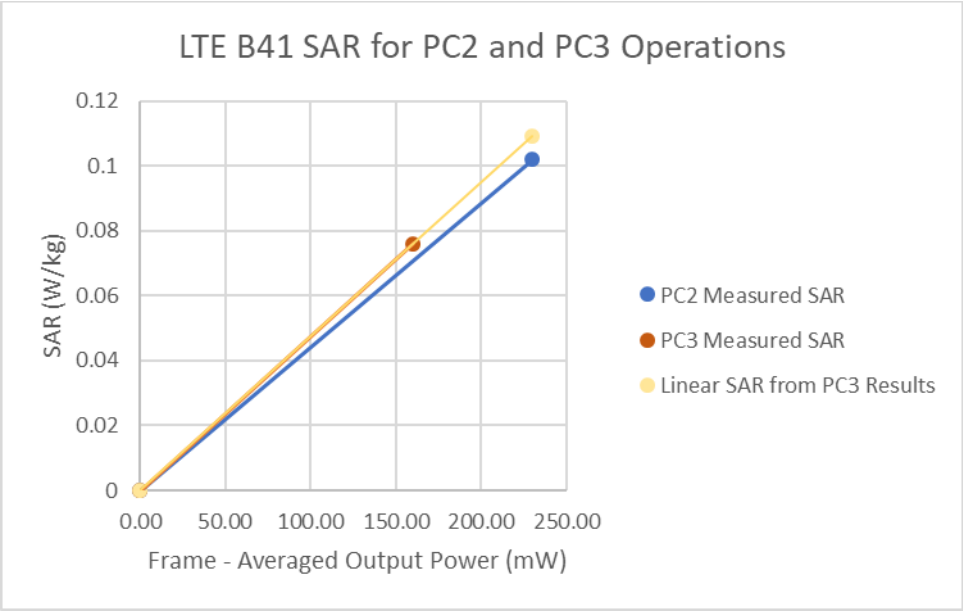

Figure 14-2
LTE Band 41 ULCA Head Linearity

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Table 14-7
LTE Band 41 Single Carrier Body-Worn Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25	28
Measured Output Power (dBm)	23.59	27.2
Measured SAR (W/kg)	0.323	0.533
Measured Power (mW)	228.56	524.81
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	144.68	227.24
% deviation from expected linearity		5.06%

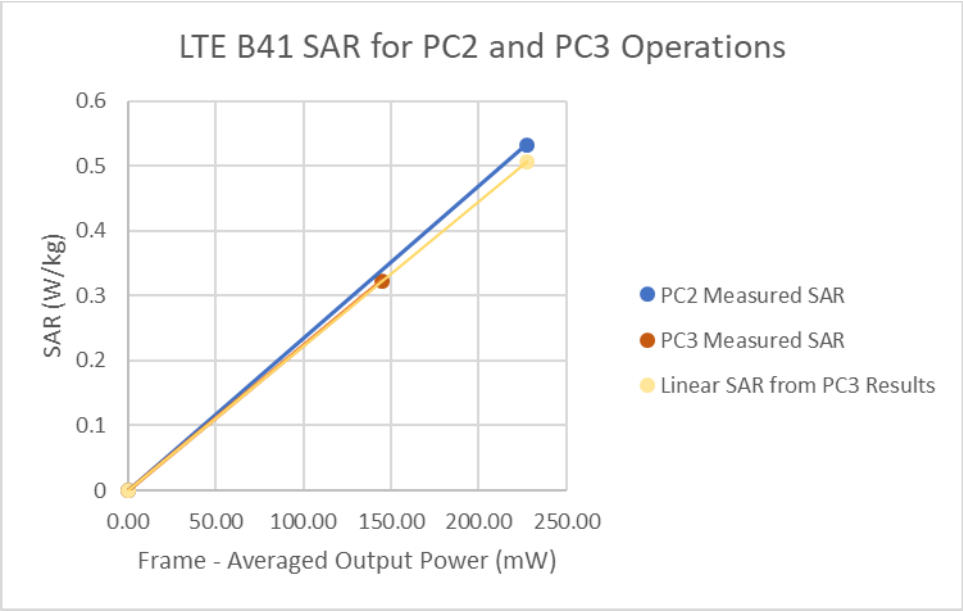

Figure 14-3
LTE Band 41 Single Carrier Body-Worn Linearity

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Table 14-8
LTE Band 41 ULCA Body-Worn Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25	28
Measured Output Power (dBm)	24.03	27.25
Measured SAR (W/kg)	0.374	0.52
Measured Power (mW)	252.93	530.88
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	160.10	229.87
% deviation from expected linearity		-3.16%

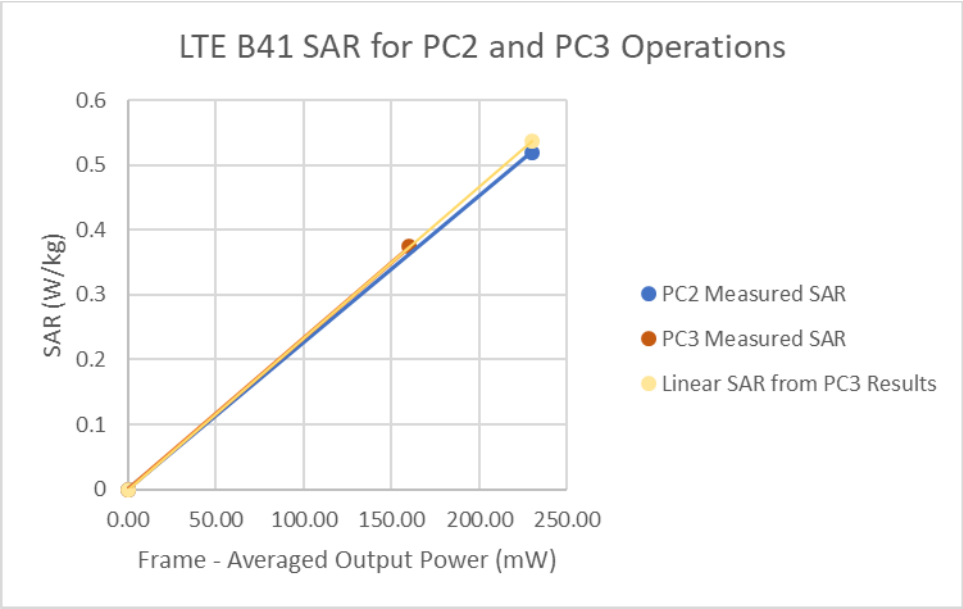

Figure 14-4
LTE Band 41 ULCA Body-Worn Linearity

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Table 14-9
LTE Band 41 Single Carrier Hotspot Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	22.5	22.5
Measured Output Power (dBm)	21.45	21.62
Measured SAR (W/kg)	0.693	0.478
Measured Power (mW)	139.64	145.21
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	88.39	62.88
% deviation from expected linearity		-3.04%

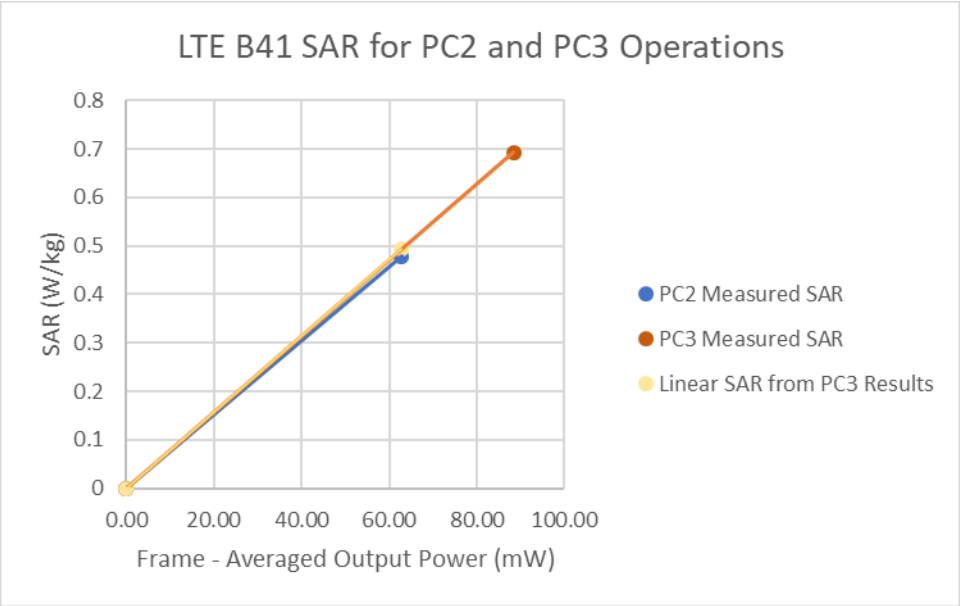

Figure 14-5
LTE Band 41 Single Carrier Hotspot Linearity

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Table 14-10
LTE Band 41 ULCA Hotspot Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	22.5	22.5
Measured Output Power (dBm)	22.5	21.73
Measured SAR (W/kg)	0.925	0.533
Measured Power (mW)	177.83	148.94
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	112.57	64.49
% deviation from expected linearity		0.58%

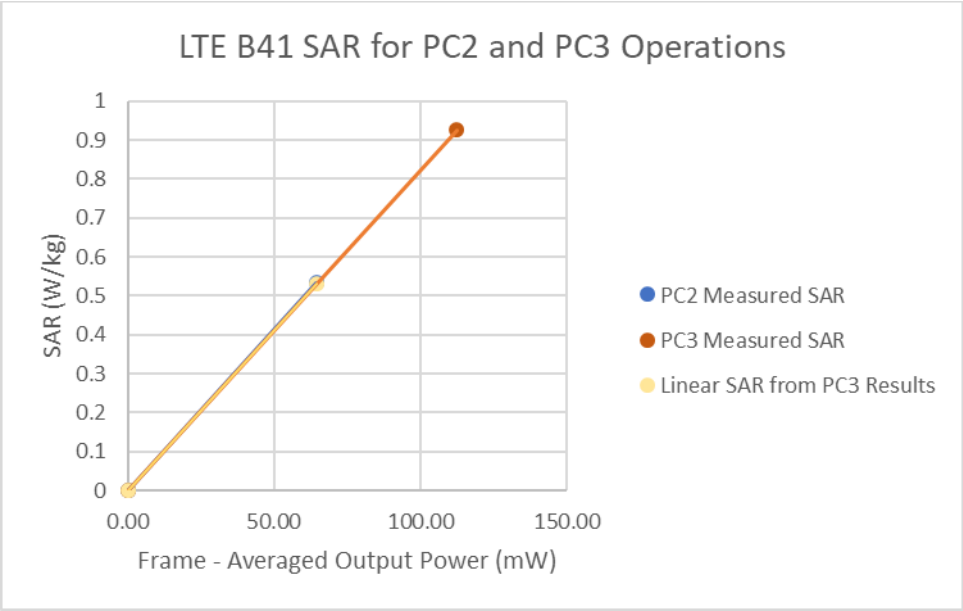

Figure 14-6
LTE Band 41 ULCA Hotspot Linearity

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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	E4404B	Spectrum Analyzer	N/A	N/A	N/A	MY45113238
Agilent	8753E	(30kHz-6GHz) Network Analyzer	9/28/2018	Annual	9/28/2019	JP38020182
Agilent	8753ES	S-Parameter Network Analyzer	2/8/2018	Annual	2/8/2019	US39170122
Agilent	8753ES	Network Analyzer	2/21/2018	Annual	2/21/2019	MY40001472
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	3/21/2017	Biennial	3/21/2019	MY45090700
Agilent	E4440A	PSA Series Spectrum Analyzer	11/14/2018	Annual	11/14/2019	MY46186272
Agilent	E5515C	Wireless Communications Test Set	1/24/2018	Annual	1/24/2019	GB44400860
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB44450273
Agilent	N5182A	MXG Vector Signal Generator	1/24/2018	Annual	1/24/2019	MY47420651
Agilent	N5182A	MXG Vector Signal Generator	4/18/2018	Annual	4/18/2019	MY47420800
Agilent	N5182A	MXG Vector Signal Generator	6/15/2018	Annual	6/15/2019	MY47420837
Agilent	N5182A	MXG Vector Signal Generator	11/28/2018	Annual	11/28/2019	MY47420603
Agilent	N5182A-506	MXG Vector Signal Generator	6/19/2018	Annual	6/19/2019	MY48180366
Agilent	N9020A	MXA Signal Analyzer	1/24/2018	Annual	1/24/2019	US46470561
Agilent	N9030A	PXA Signal Analyzer (44GHz)	5/25/2018	Annual	5/25/2019	MY52350166
Amplifier Research	150A100C	Amplifier	CBT	N/A	CBT	350132
Anritsu	MA24106A	USB Power Sensor	7/17/2018	Annual	7/17/2019	1827527
Anritsu	MA24106A	USB Power Sensor	1/19/2018	Annual	1/19/2019	1349509
Anritsu	MA2411B	Pulse Power Sensor	3/2/2018	Annual	3/2/2019	1339018
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1126066
Anritsu	ML2495A	Power Meter	10/21/2018	Annual	10/21/2019	941001
Anritsu	ML2495A	Power Meter	11/20/2018	Annual	11/20/2019	1039008
Anritsu	MT8820C	Radio Communication Analyzer	3/20/2018	Annual	3/20/2019	6201144419
Anritsu	MT8821C	Radio Communication Analyzer	7/24/2018	Annual	7/24/2019	6201664756
Anritsu	MT8821C	Radio Communication Analyzer	7/26/2018	Annual	7/26/2019	6201144418
Anritsu	MT8821C	Radio Communication Analyzer	11/6/2018	Annual	11/6/2019	6200901190
Anritsu	MT8862A	Wireless Connectivity Test Set	7/3/2018	Annual	7/3/2019	6261782395
Control Company	4040	Therm./ Clock/ Humidity Monitor	1/8/2018	Annual	1/8/2019	160574418
Control Company	4040	Therm./ Clock/ Humidity Monitor	10/9/2018	Biennial	10/9/2020	181647812
Control Company	4352	Ultra Long Stem Thermometer	1/8/2018	Annual	1/8/2019	160508097
Control Company	4352	Ultra Long Stem Thermometer	6/6/2018	Biennial	6/6/2020	181334694
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	U3401A	Digital Multimeter	5/17/2018	Annual	5/17/2019	MY57201470
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
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
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
Rohde & Schwarz	CMU200	Base Station Simulator	5/18/2018	Annual	5/18/2019	109892
Rohde & Schwarz	CMW500	Radio Communication Tester	4/5/2018	Annual	4/5/2019	128633
Rohde & Schwarz	CMW500	Radio Communication Tester	4/20/2018	Annual	4/20/2019	128635
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/15/2018	Annual	5/15/2019	1070
SPEAG	D750V3	750 MHz Dipole	3/7/2017	Biennial	3/7/2019	1054
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	4d047
SPEAG	D835V2	835 MHz SAR Dipole	1/15/2018	Annual	1/15/2019	4d132
SPEAG	D1750V2	1750 MHz SAR Dipole	10/22/2018	Annual	10/22/2019	1150
SPEAG	D1750V2	1750 MHz SAR Dipole	5/9/2017	Biennial	5/9/2019	1148
SPEAG	D1900V2	1900 MHz SAR Dipole	2/7/2018	Annual	2/7/2019	5d148
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Annual	10/23/2019	5d080
SPEAG	D2300V2	2300 MHz SAR Dipole	8/13/2018	Annual	8/13/2019	1073
SPEAG	D2450V2	2450 MHz SAR Dipole	8/16/2018	Annual	8/16/2019	981
SPEAG	D2450V2	2450 MHz SAR Dipole	9/11/2017	Biennial	9/11/2019	797
SPEAG	D2450V2	2450 MHz SAR Dipole	8/17/2017	Biennial	8/17/2019	719
SPEAG	D2600V2	2600 MHz SAR Dipole	8/13/2018	Annual	8/13/2019	1126
SPEAG	D2600V2	2600 MHz SAR Dipole	9/13/2016	Triennial	9/13/2019	1071
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	D3500V2	3500 MHz SAR Dipole	8/15/2018	Annual	8/15/2019	1055
SPEAG	D3700V2	3700 MHz SAR Dipole	9/13/2018	Annual	9/13/2019	1002
SPEAG	D5GHzV2	5 GHz SAR Dipole	9/21/2016	Triennial	9/21/2019	1191
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/22/2018	Annual	5/22/2019	859
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/3/2018	Annual	10/3/2019	1558
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/18/2018	Annual	10/18/2019	1333
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/9/2018	Annual	2/9/2019	1272
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/11/2018	Annual	7/11/2019	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/18/2018	Annual	6/18/2019	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/15/2018	Annual	2/15/2019	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/7/2018	Annual	3/7/2019	1368
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/11/2018	Annual	4/11/2019	1407
SPEAG	ES3DV3	SAR Probe	10/22/2018	Annual	10/22/2019	3287
SPEAG	ES3DV3	SAR Probe	2/13/2018	Annual	2/13/2019	3213
SPEAG	ES3DV3	SAR Probe	3/27/2018	Annual	3/27/2019	3347
SPEAG	ES3DV3	SAR Probe	3/13/2018	Annual	3/13/2019	3319
SPEAG	EX3DV4	SAR Probe	5/22/2018	Annual	5/22/2019	7406
SPEAG	EX3DV4	SAR Probe	8/23/2018	Annual	8/23/2019	7308
SPEAG	EX3DV4	SAR Probe	7/20/2018	Annual	7/20/2019	7410
SPEAG	EX3DV4	SAR Probe	8/24/2018	Annual	8/24/2019	3949
SPEAG	EX3DV4	SAR Probe	6/25/2018	Annual	6/25/2019	7409
SPEAG	EX3DV4	SAR Probe	4/18/2018	Annual	4/18/2019	7357
SPEAG	EX3DV4	SAR Probe	2/14/2018	Annual	2/14/2019	3914

Each equipment item 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.

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16 MEASUREMENT UNCERTAINTIES

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	

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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]

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APPENDIX A: SAR TEST DATA

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PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0365M

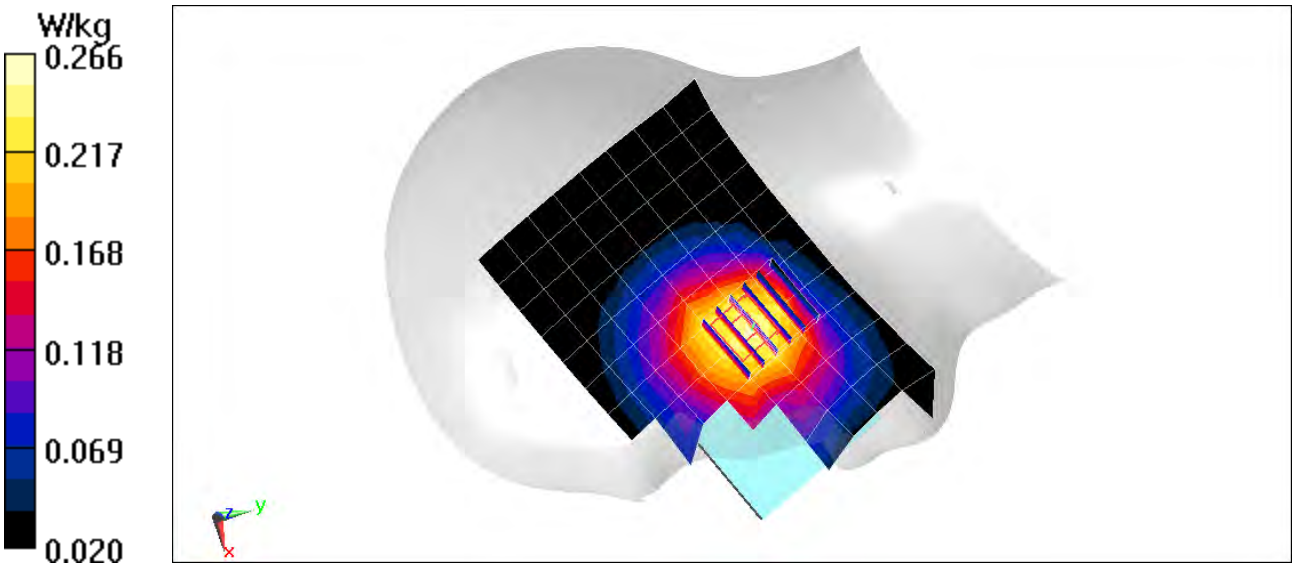
Communication System: UID 0, Cellular CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.898 S/m; ε_r = 41.834; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 11-15-2018; Ambient Temp: 19.8°C; Tissue Temp: 18.1°C

Probe: EX3DV4 - SN7308; ConvF(9.96, 9.96, 9.96) @ 820.1 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; SEMCAD X Version 14.6.12 (7450)

Mode: Cell. CDMA, Rule Part 90S, 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 = 15.69 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.285 W/kg
SAR(1 g) = 0.227 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0365M

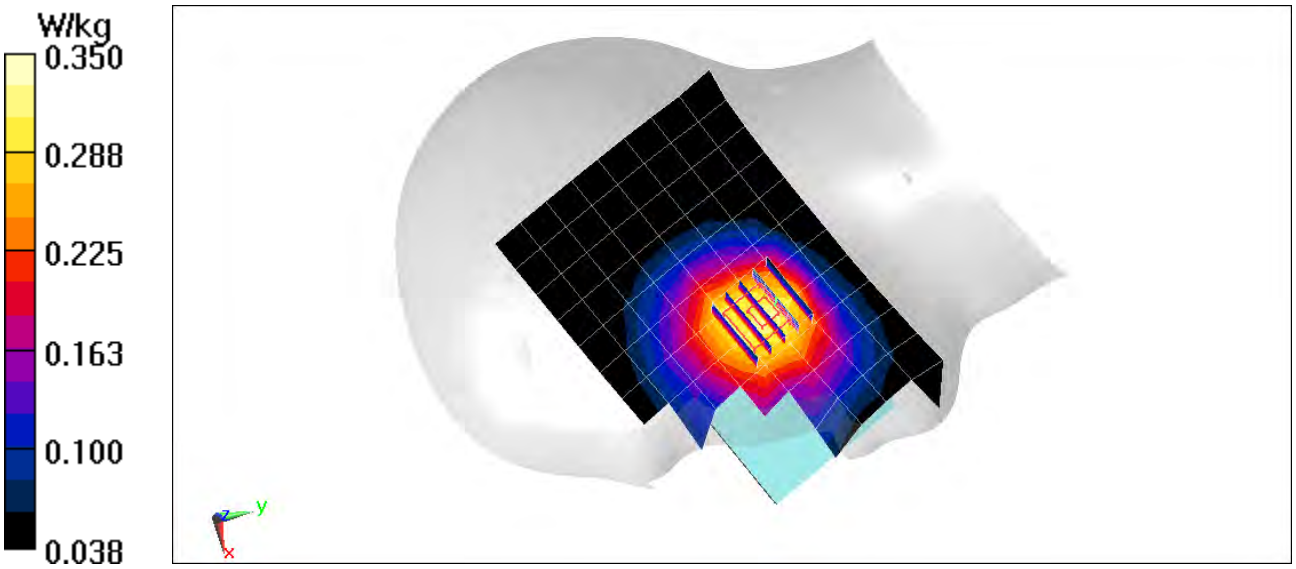
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.915 S/m; ε_r = 41.599; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 11-15-2018; Ambient Temp: 19.8°C; Tissue Temp: 18.1°C

Probe: EX3DV4 - SN7308; ConvF(9.96, 9.96, 9.96) @ 836.52 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; SEMCAD X Version 14.6.12 (7450)

Mode: Cell. CDMA, Rule Part 22H, Right Head, Cheek, 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 = 18.45 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.381 W/kg
SAR(1 g) = 0.294 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0371M

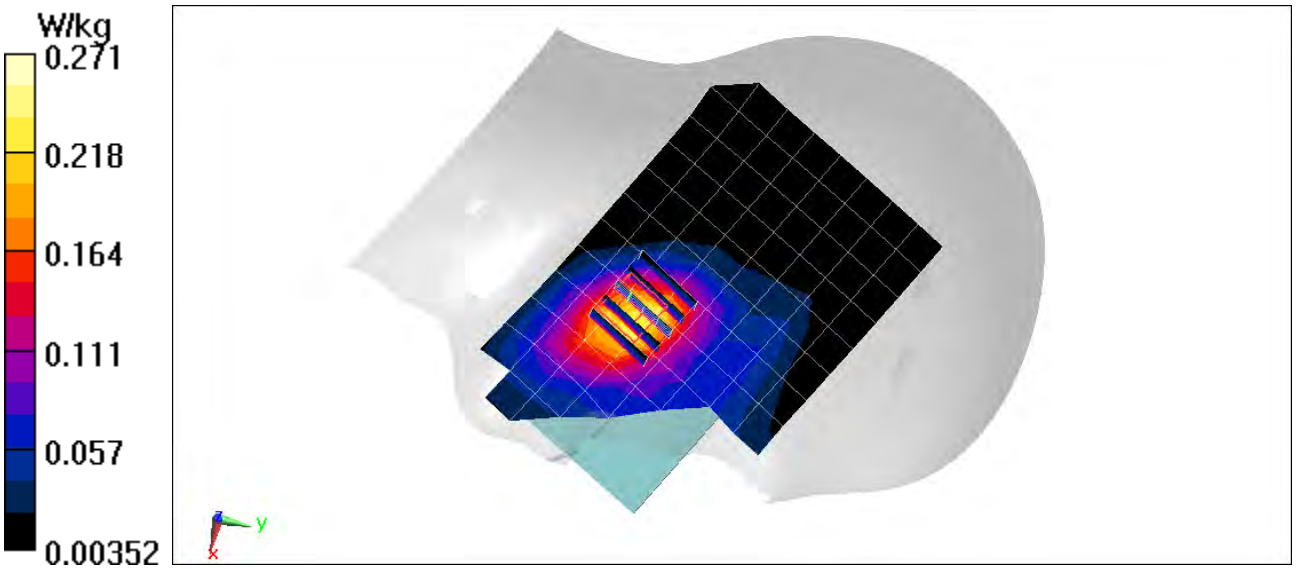
Communication System: UID 0, PCS CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.43 S/m; ε_r = 38.983; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 12-03-2018; Ambient Temp: 21.7°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3287; ConvF(5.24, 5.24, 5.24) @ 1880 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

Mode: PCS CDMA, Left Head, Cheek, 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 = 12.95 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.362 W/kg
SAR(1 g) = 0.234 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0365M

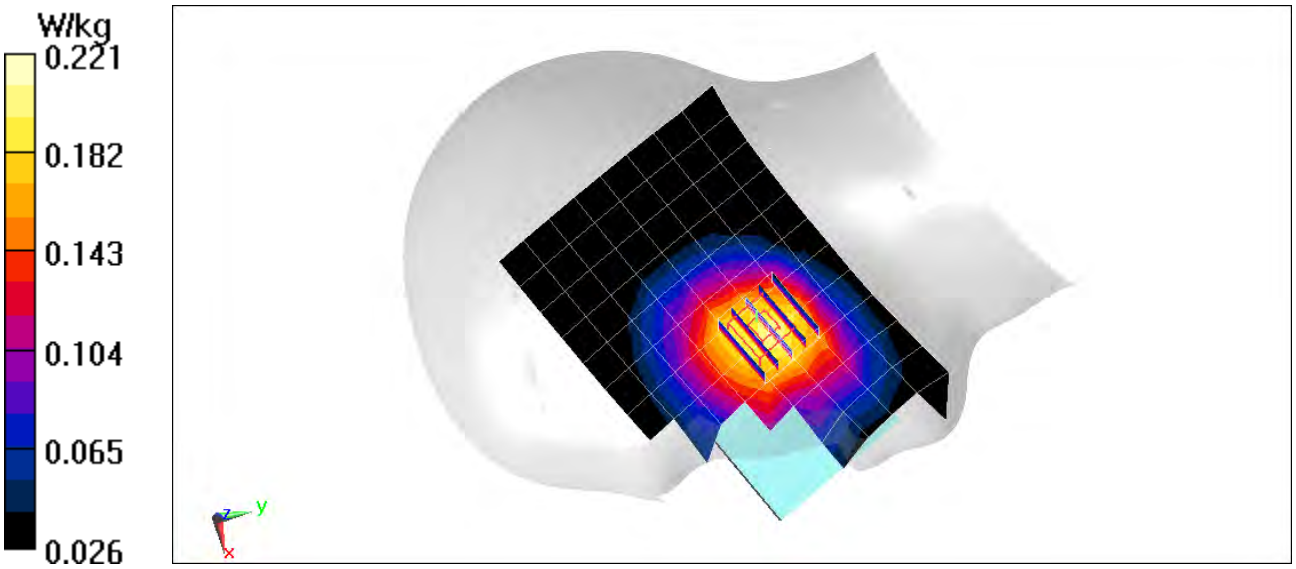
Communication System: UID 0, GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.915 S/m; ε_r = 41.598; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 11-15-2018; Ambient Temp: 19.8°C; Tissue Temp: 18.1°C

Probe: EX3DV4 - SN7308; ConvF(9.96, 9.96, 9.96) @ 836.6 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; 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 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.47 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.239 W/kg
SAR(1 g) = 0.189 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0371M

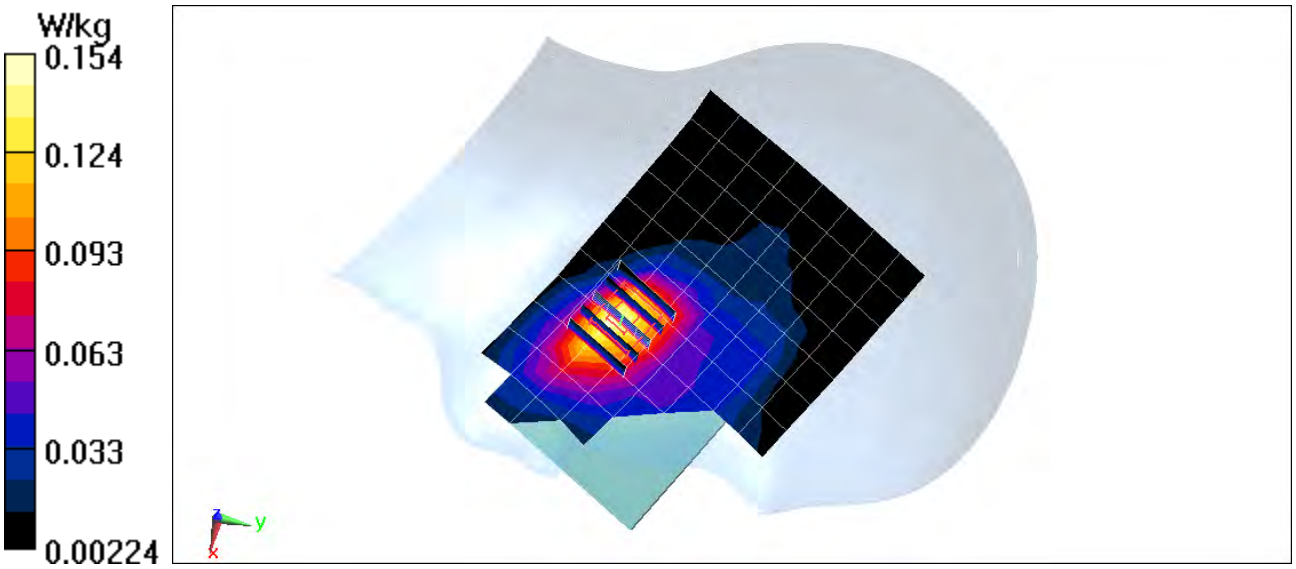
Communication System: UID 0, GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.431 S/m; ε_r = 41.278; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 11-12-2018; Ambient Temp: 22.5°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3213; ConvF(5.3, 5.3, 5.3) @ 1880 MHz; Calibrated: 2/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

Mode: GSM 1900, Left Head, Cheek, 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 = 10.15 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.204 W/kg
SAR(1 g) = 0.133 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0365M

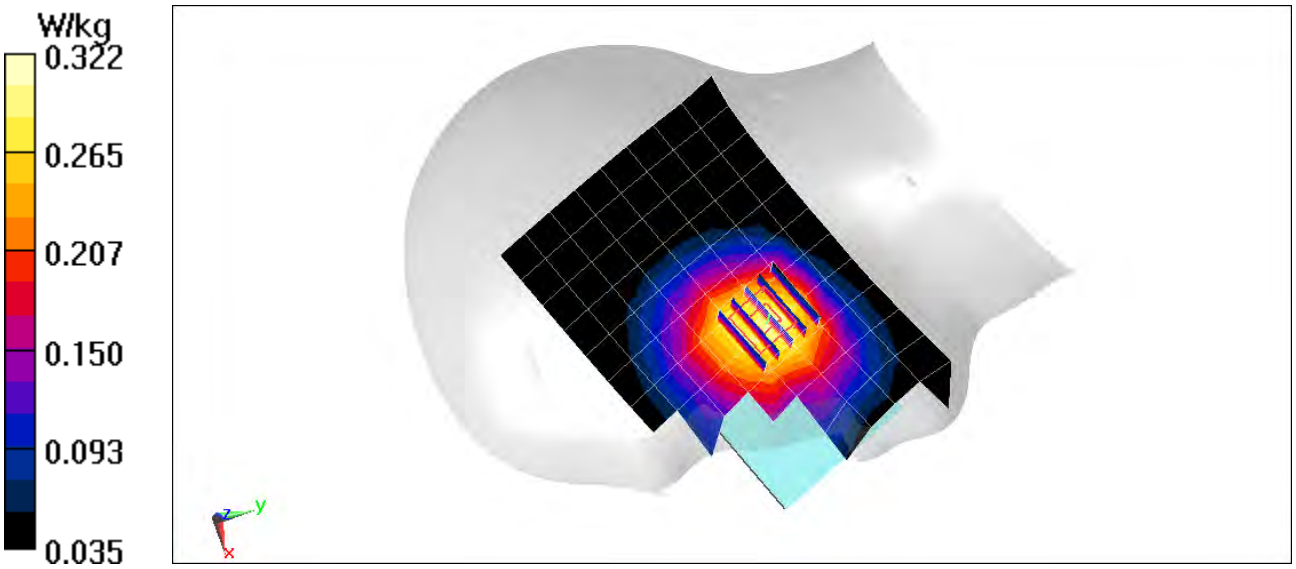
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.915 S/m; ε_r = 41.598; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 11-15-2018; Ambient Temp: 19.8°C; Tissue Temp: 18.1°C

Probe: EX3DV4 - SN7308; ConvF(9.96, 9.96, 9.96) @ 836.6 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; 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 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.86 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.348 W/kg
SAR(1 g) = 0.273 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0371M

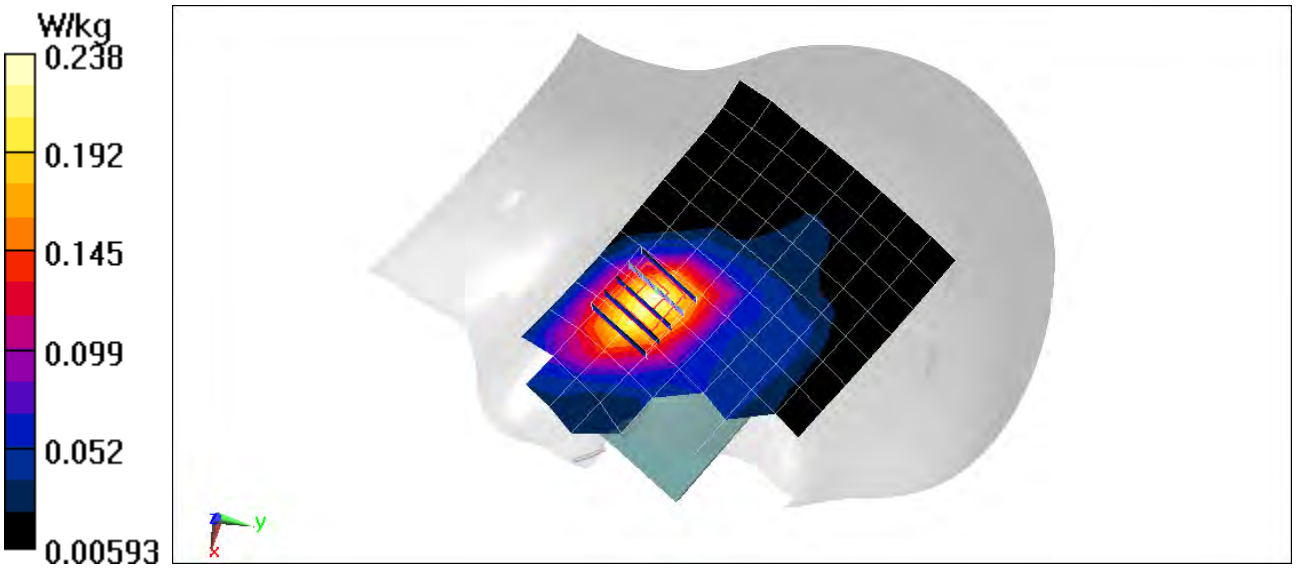
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1732.4 MHz; σ = 1.385 S/m; ε_r = 40.139; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 11-21-2018; Ambient Temp: 20.5°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3287; ConvF(5.48, 5.48, 5.48) @ 1732.4 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; 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 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.57 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.305 W/kg
SAR(1 g) = 0.204 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0371M

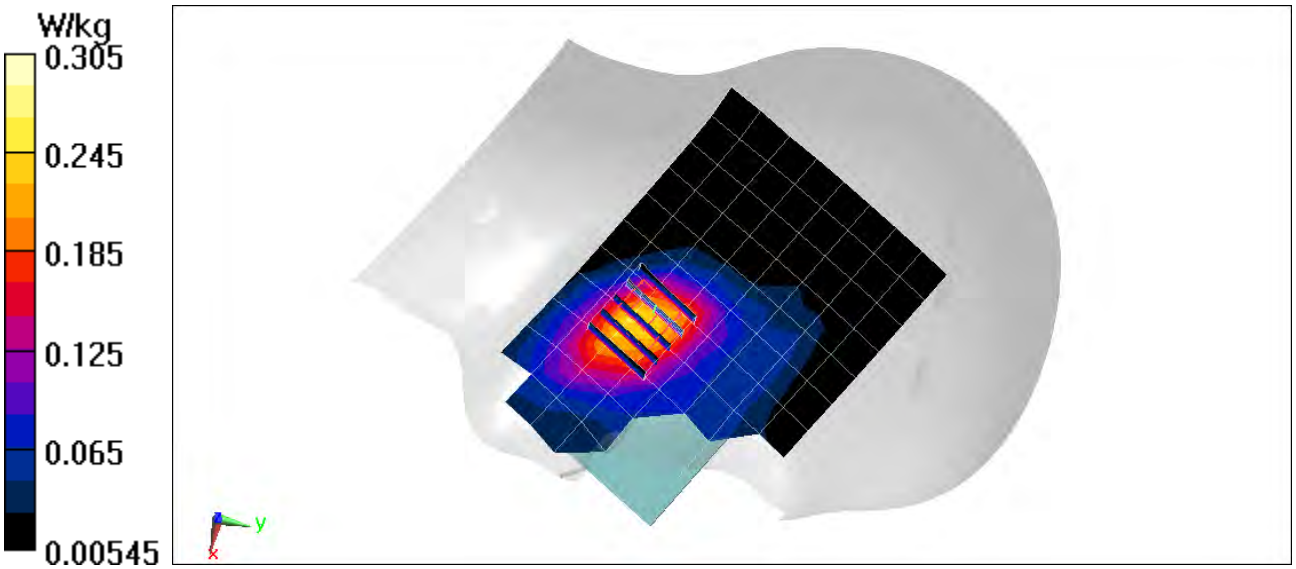
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.43 S/m; ε_r = 38.983; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 12-03-2018; Ambient Temp: 21.7°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3287; ConvF(5.24, 5.24, 5.24) @ 1880 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; 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 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.25 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.409 W/kg
SAR(1 g) = 0.266 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

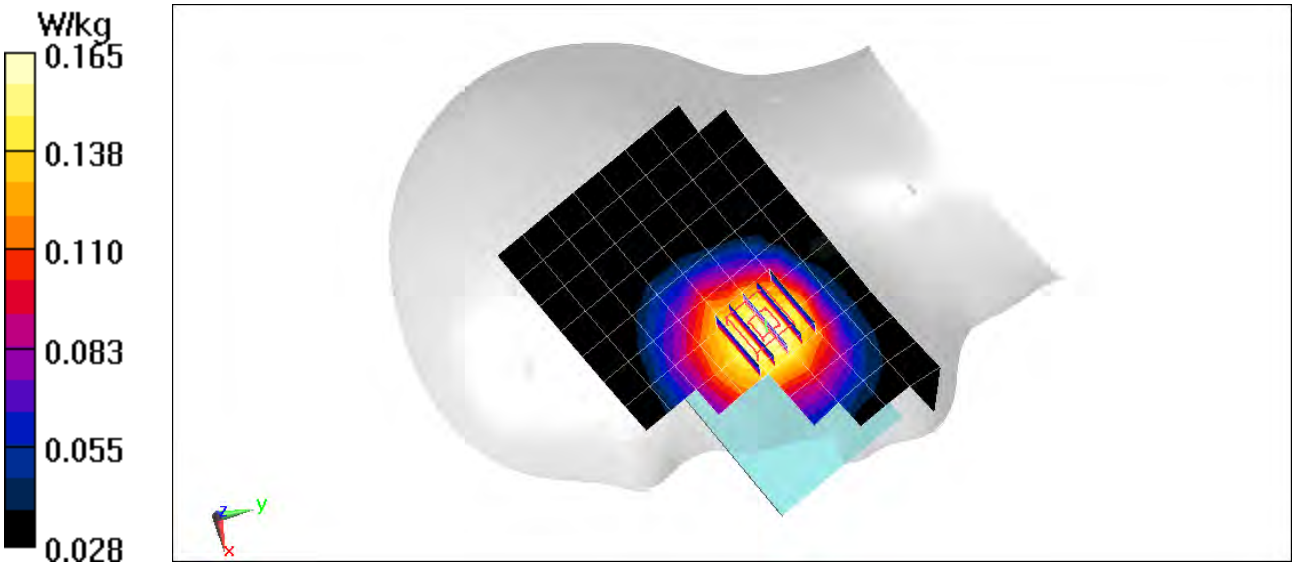
Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 680.5 MHz; σ = 0.87 S/m; ε_r = 43.658; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 11-13-2018; Ambient Temp: 21.3°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7406; ConvF(10.09, 10.09, 10.09) @ 680.5 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 71, Right Head, Cheek, Mid.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 = 13.60 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.174 W/kg
SAR(1 g) = 0.147 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

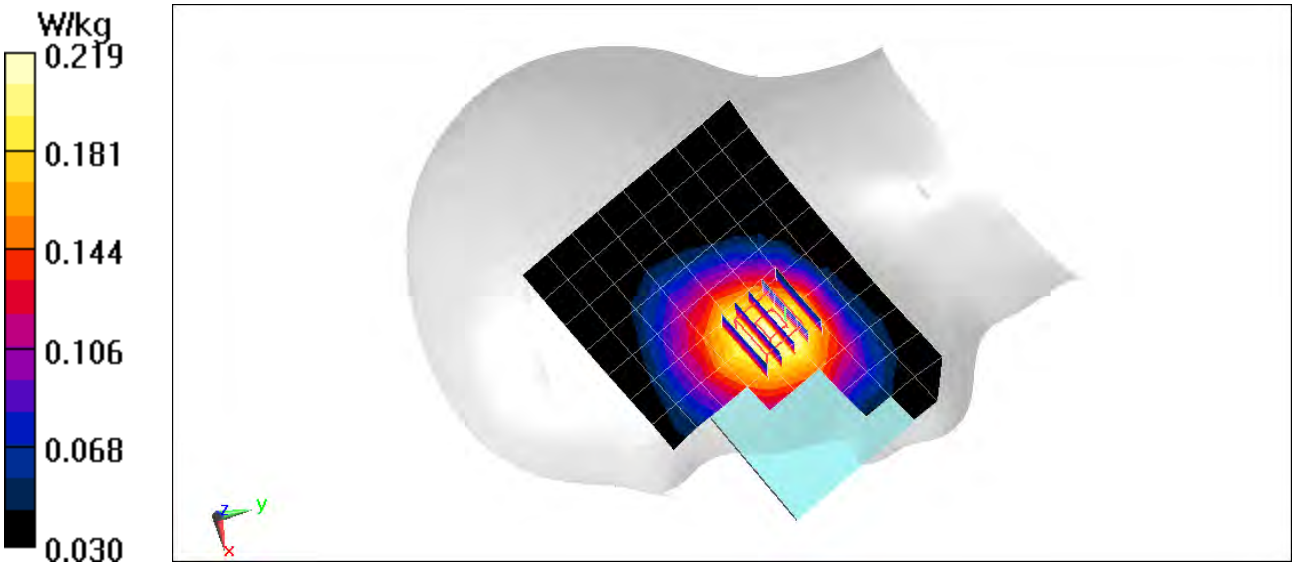
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.877 S/m; ε_r = 42.827; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 11-15-2018; Ambient Temp: 21.8°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(10.09, 10.09, 10.09) @ 707.5 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 12, Right Head, Cheek, 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 = 15.41 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.234 W/kg
SAR(1 g) = 0.193 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

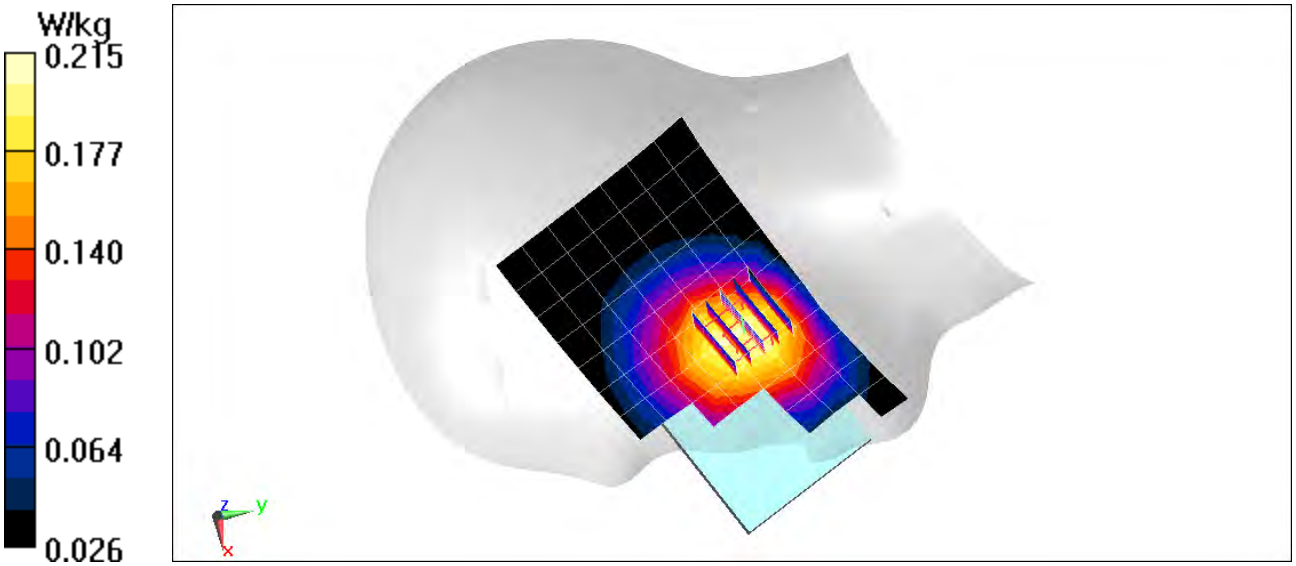
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 782 MHz; σ = 0.905 S/m; ε_r = 42.53; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 11-15-2018; Ambient Temp: 21.8°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(10.09, 10.09, 10.09) @ 782 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10;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 = 15.06 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.227 W/kg
SAR(1 g) = 0.188 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

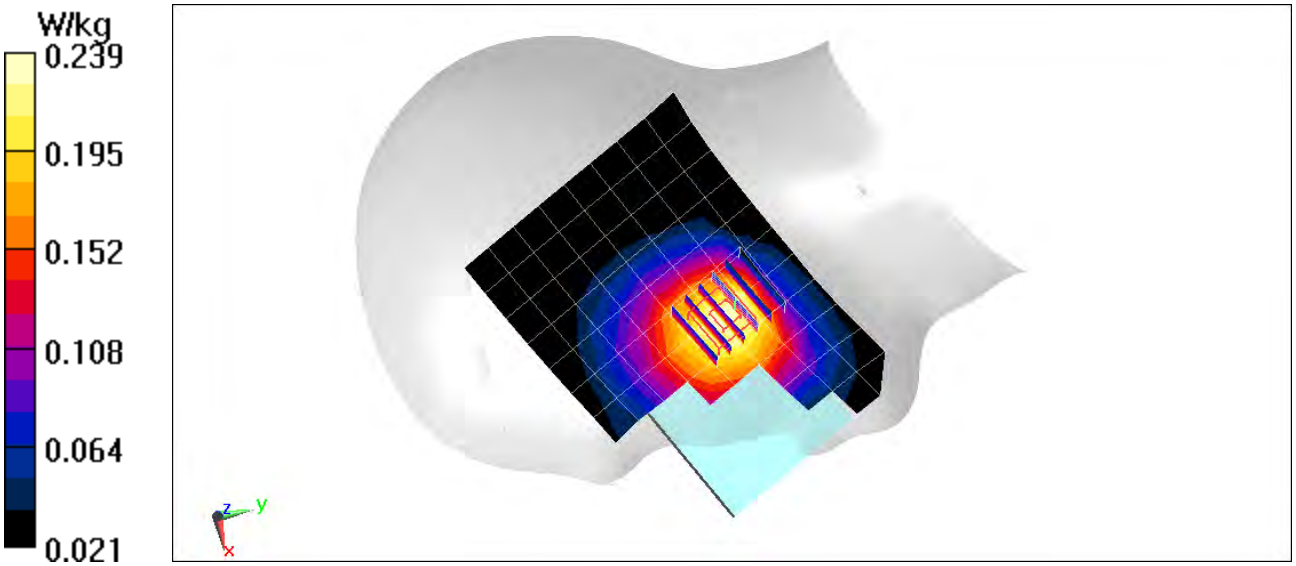
Communication System: UID 0, LTE Band 14; Frequency: 793 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 793 MHz; σ = 0.909 S/m; ε_r = 42.501; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 11-15-2018; Ambient Temp: 21.8°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(10.09, 10.09, 10.09) @ 793 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 14, 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 (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.73 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.267 W/kg
SAR(1 g) = 0.205 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

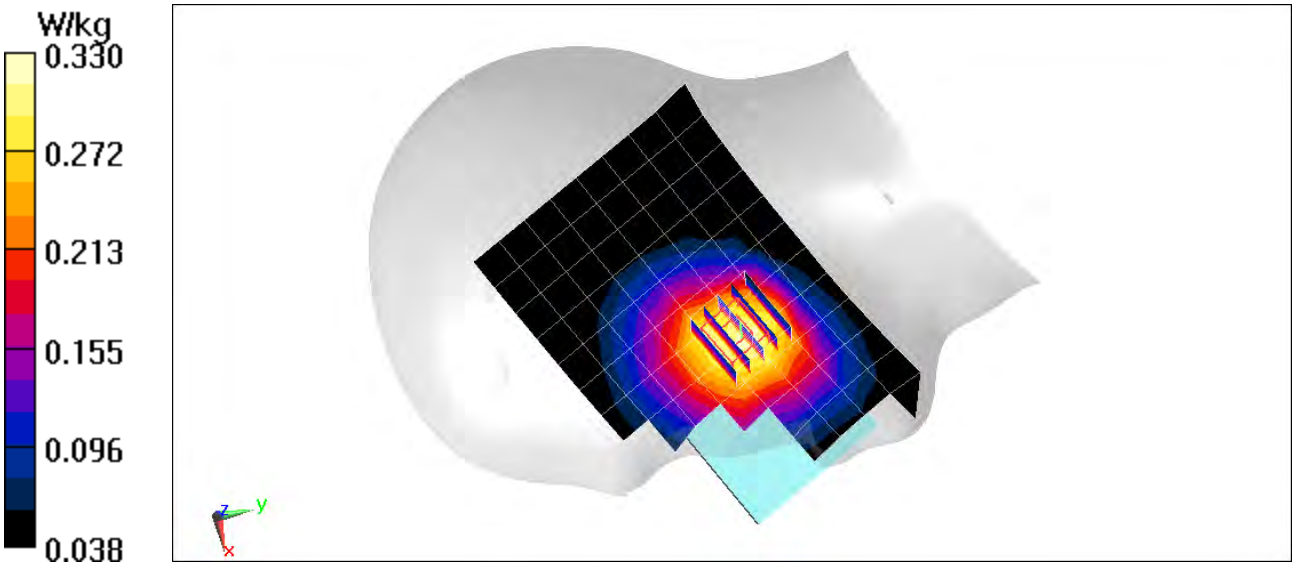
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.903 S/m; ε_r = 42.406; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 11-19-2018; Ambient Temp: 23.3°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7308; ConvF(9.96, 9.96, 9.96) @ 831.5 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;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 26 (Cell.), Right Head, Cheek, Mid.ch,
15 MHz Bandwidth, QPSK, 1 RB, 36 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 = 18.67 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.358 W/kg
SAR(1 g) = 0.285 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

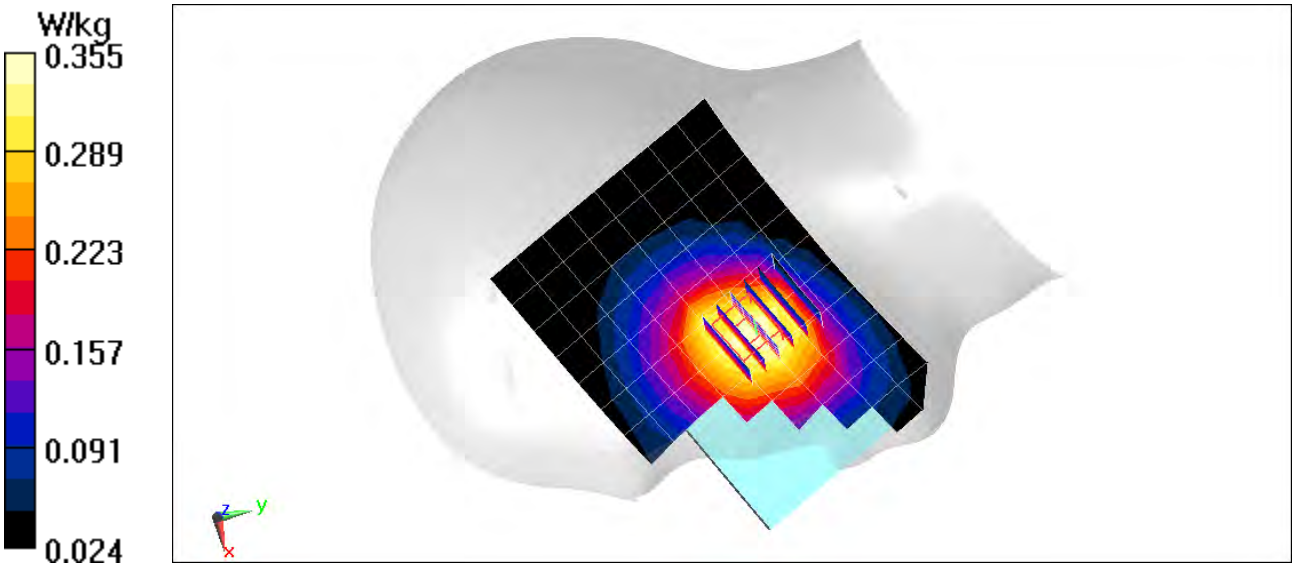
Communication System: UID 0, LTE Band 5 (Cell.); Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.909 S/m; ε_r = 42.342; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 11-19-2018; Ambient Temp: 23.3°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7308; ConvF(9.96, 9.96, 9.96) @ 836.5 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;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 5 (Cell.), ULCA Right Head, Cheek, Mid.ch,
PCC: 10 MHz Bandwidth, QPSK, Ch. 20525, 1 RB, 0 RB Offset
SCC: 5 MHz Bandwidth, QPSK, Ch. 20453, 1 RB, 24 RB Offset

Area Scan (9x12x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.98 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.383 W/kg
SAR(1 g) = 0.306 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0346M

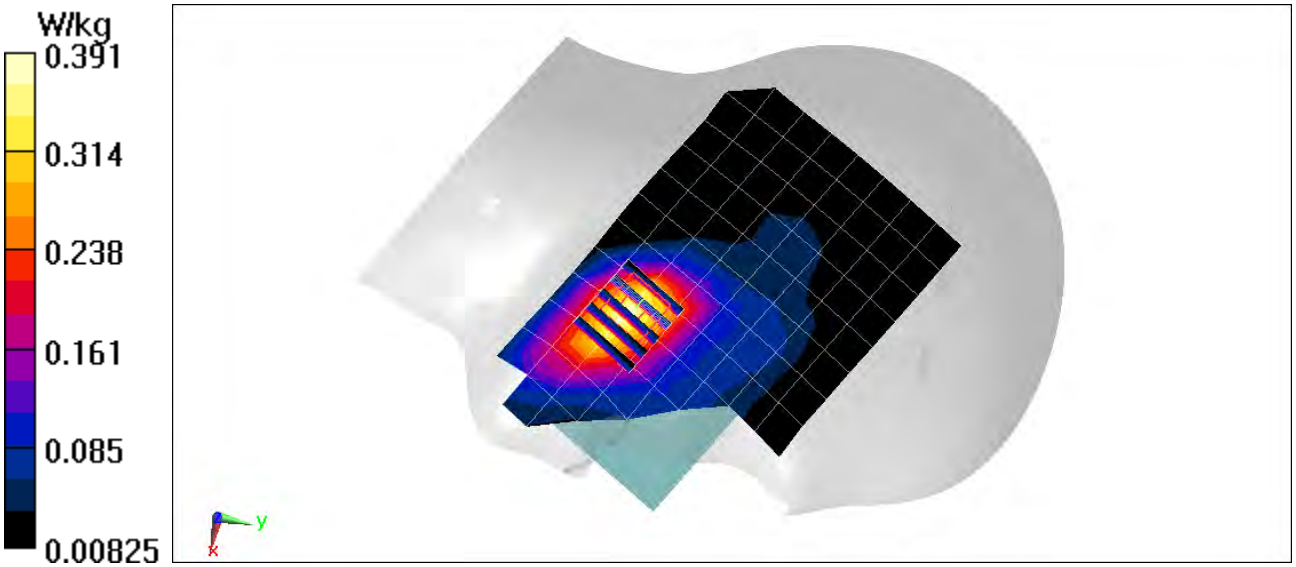
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1770 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1770 MHz; σ = 1.359 S/m; ε_r = 39.462; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 11-26-2018; Ambient Temp: 20.7°C; Tissue Temp: 21.6°C

Probe: ES3DV3 - SN3287; ConvF(5.48, 5.48, 5.48) @ 1770 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), ULCA, Left Head, Cheek, High.ch,
PCC: 20 MHz Bandwidth, QPSK, Ch. 132572, 1 RB, 0 RB Offset
SCC: 20 MHz Bandwidth, QPSK, Ch. 132374, 1 RB, 99 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 = 17.03 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.499 W/kg
SAR(1 g) = 0.335 W/kg



DUT: A3LSMG970U; Type: Portable Handset; Serial: 0346M

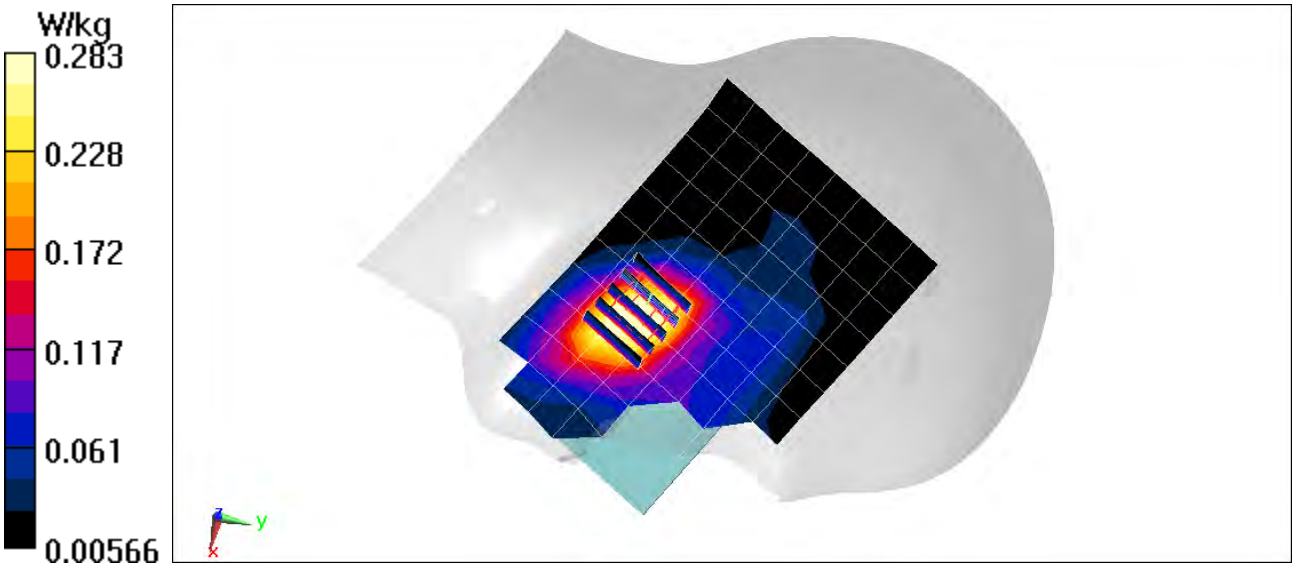
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1860 MHz; σ = 1.416 S/m; ε_r = 38.999; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 12-03-2018; Ambient Temp: 21.7°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3287; ConvF(5.24, 5.24, 5.24) @ 1860 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 25 (PCS), Left Head, Cheek, Low.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 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 = 14.47 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.371 W/kg
SAR(1 g) = 0.243 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0356M

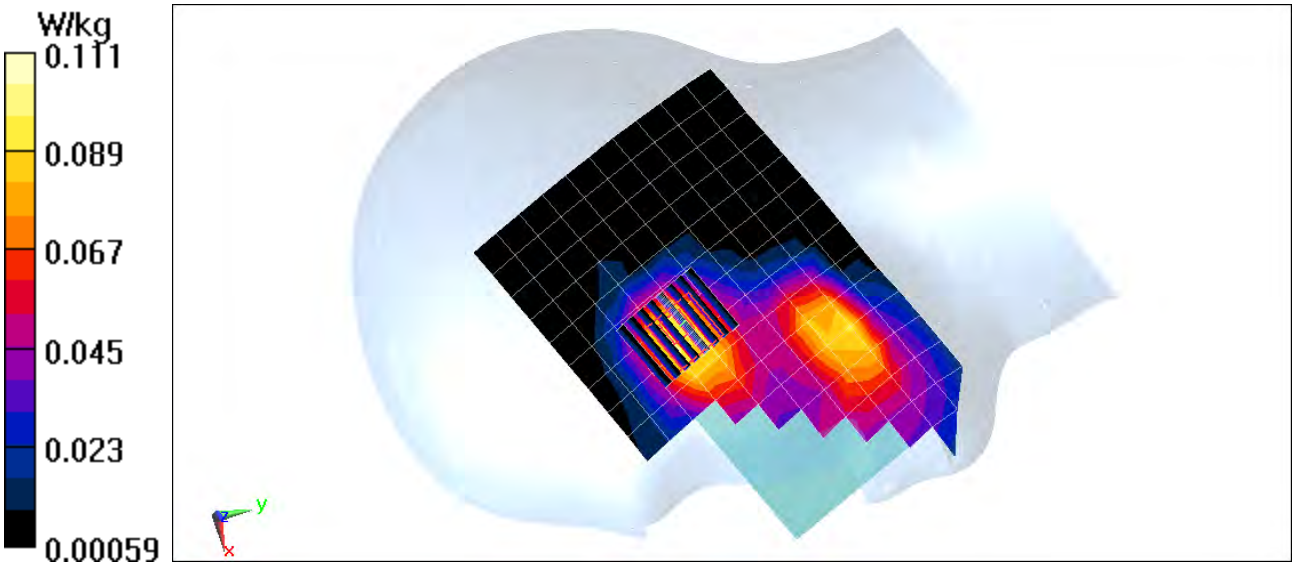
Communication System: UID 0, LTE Band 30; Frequency: 2310 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2310 MHz; σ = 1.715 S/m; ε_r = 39.136; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 11-16-2018; Ambient Temp: 22.4°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 2310 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;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 30, Right Head, Cheek, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.234 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.129 W/kg
SAR(1 g) = 0.078 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0356M

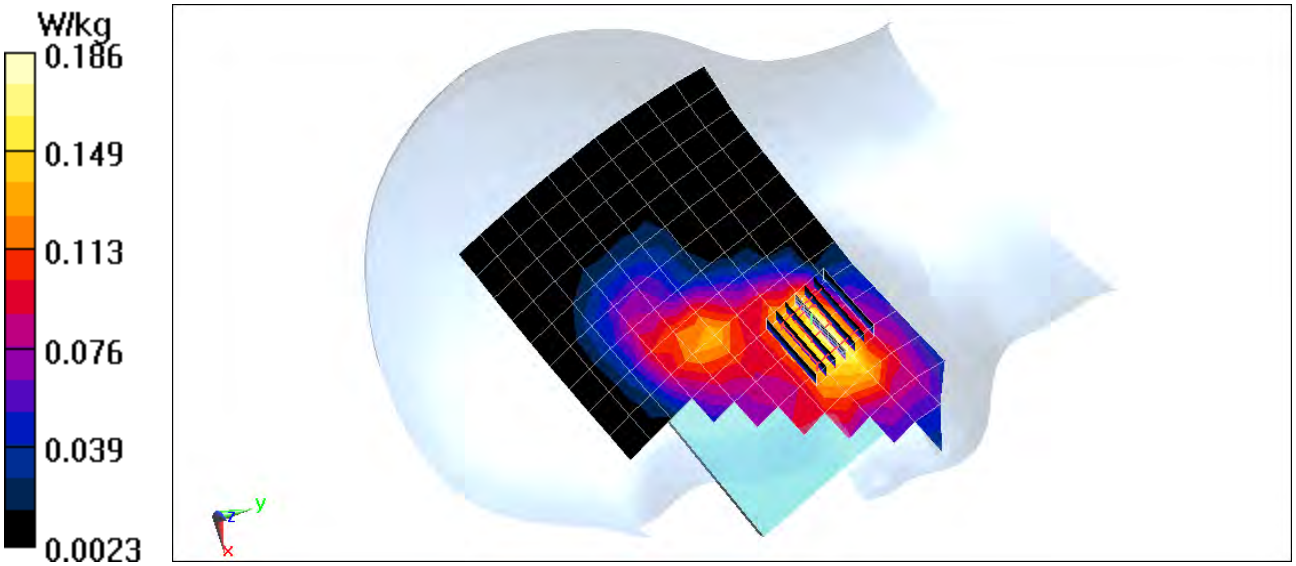
Communication System: UID 0, _LTE Band 7; Frequency: 2560 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2560 MHz; σ = 1.972 S/m; ε_r = 38.039; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 11-18-2018; Ambient Temp: 23.2°C; Tissue Temp: 23.4°C

Probe: EX3DV4 - SN7410; ConvF(7.24, 7.24, 7.24) @ 2560 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;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 7, Antenna B, Right Head, Cheek, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.775 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.228 W/kg
SAR(1 g) = 0.121 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0356M

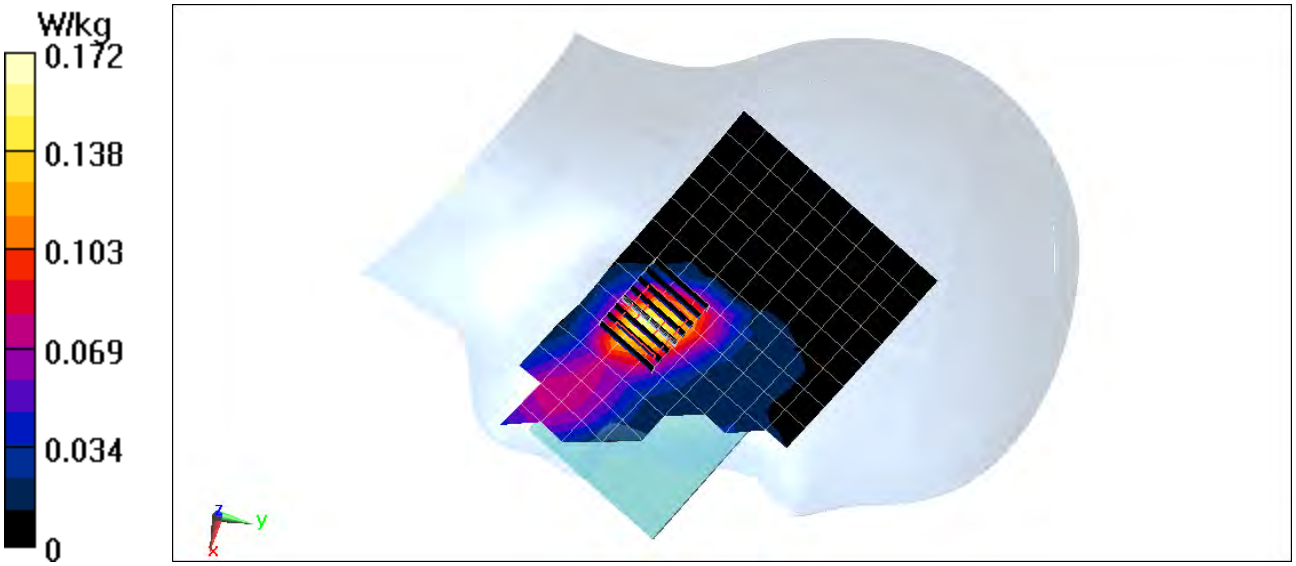
Communication System: UID 0, LTE Band 48; Frequency: 3690 MHz; Duty Cycle: 1:1.58
Medium: 3500 - 3700 Head Medium parameters used (interpolated):
f = 3690 MHz; σ = 3.074 S/m; ε_r = 37.159; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 11-27-2018; Ambient Temp: 22.7°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN3949; ConvF(7.24, 7.24, 7.24) @ 3690 MHz; Calibrated: 8/24/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 48, Left Head, Cheek, High.ch,
QPSK, 20 MHz Bandwidth, 1 RB, 99 RB Offset

Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x8x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 6.277 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.248 W/kg
SAR(1 g) = 0.095 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 5125B

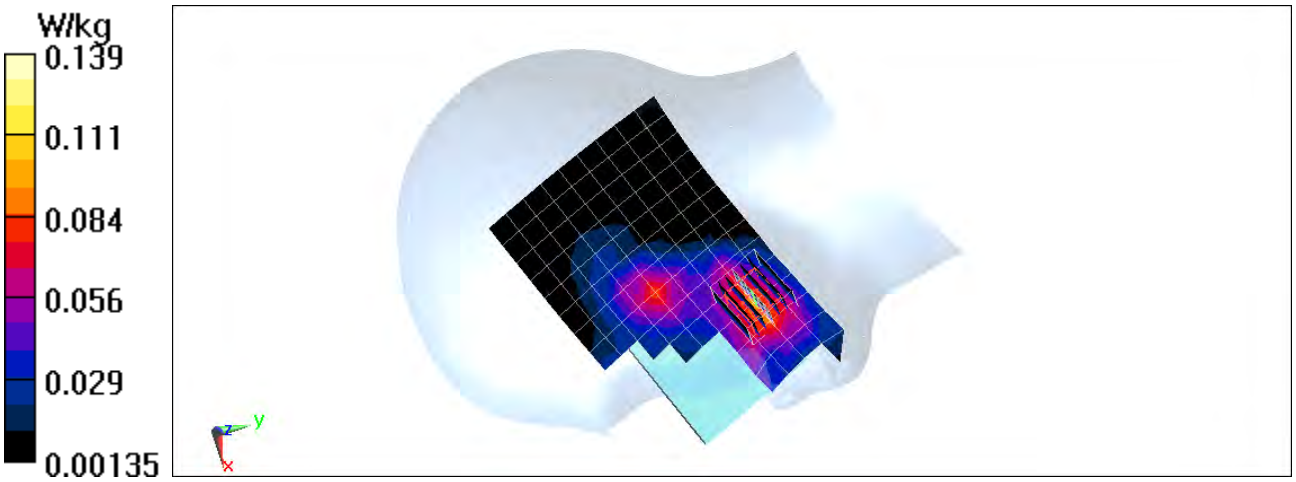
Communication System: UID 0, _LTE Band 41 (Class 2); Frequency: 2680 MHz; Duty Cycle: 1:2.31
Medium: 2450 MHz Head Medium parameters used (interpolated):
f = 2680 MHz; σ = 1.975 S/m; ε_r = 38.202; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-15-2019; Ambient Temp: 20.9°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7409; ConvF(6.98, 6.98, 6.98) @ 2680 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: LTE Band 41 PC2, ULCA, Right Head, Cheek, High.ch,
PCC: 20 MHz Bandwidth, QPSK, Ch. 41490, 1 RB, 0 RB Offset
SCC: 20 MHz Bandwidth, QPSK, Ch. 41292, 1 RB, 99 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 = 8.049 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.184 W/kg
SAR(1 g) = 0.102 W/kg



DUT: A3LSMG970U; Type: Portable Handset; Serial: 0303M

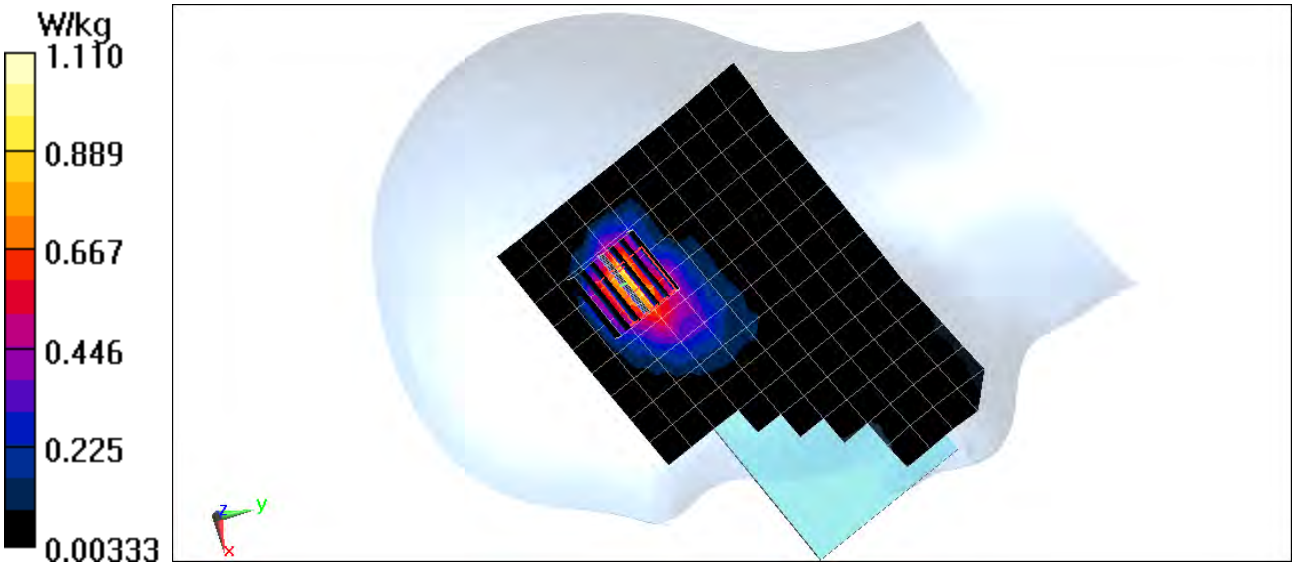
Communication System: UID 0, _IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2462 MHz; σ = 1.884 S/m; ε_r = 38.519; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 11-16-2018; Ambient Temp: 22.4°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7410; ConvF(7.5, 7.5, 7.5) @ 2462 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;SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11b, Antenna 1, 22 MHz Bandwidth,
Right Head, Cheek, 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 = 4.124 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.628 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0294M

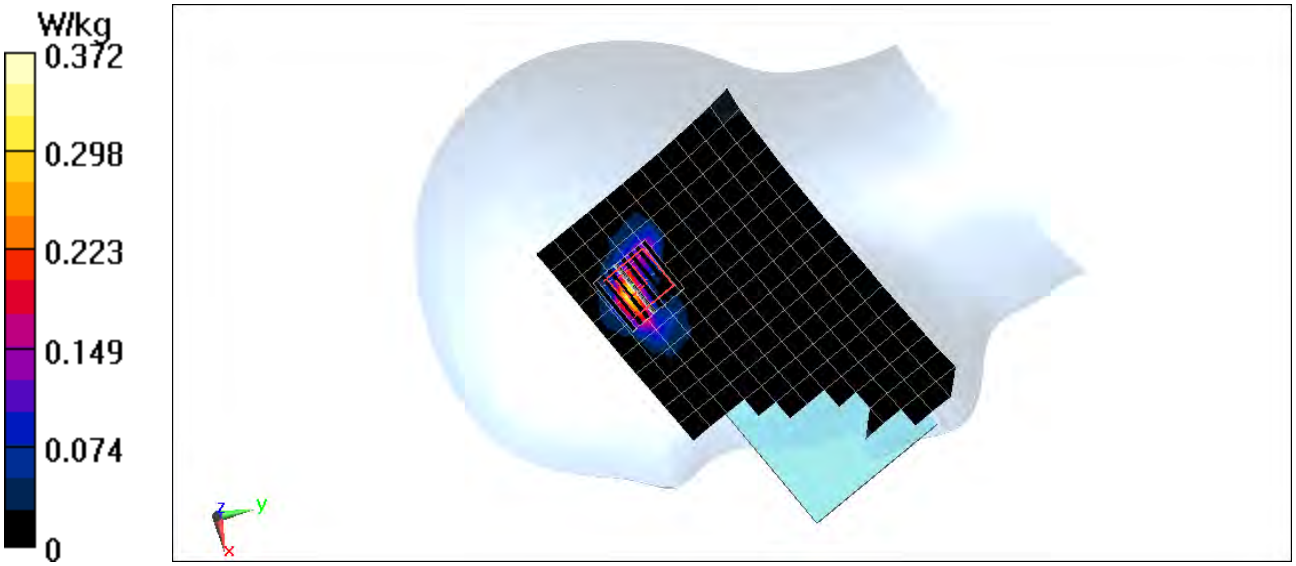
Communication System: UID 0, 802.11ac 5.2-5.8 GHz Band; Frequency: 5610 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head Medium parameters used (interpolated):
f = 5610 MHz; σ = 5.042 S/m; ε_r = 34.898; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 11-14-2018; Ambient Temp: 22.3°C; Tissue Temp: 18.7°C

Probe: EX3DV4 - SN7409; ConvF(4.77, 4.77, 4.77) @ 5610 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;SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11ac, U-NII-2C, 80 MHz Bandwidth,
Antenna 1, Right Head, Cheek, Ch 122, 29.3 Mbps

Area Scan (12x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 1.638 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.941 W/kg
SAR(1 g) = 0.126 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0294M

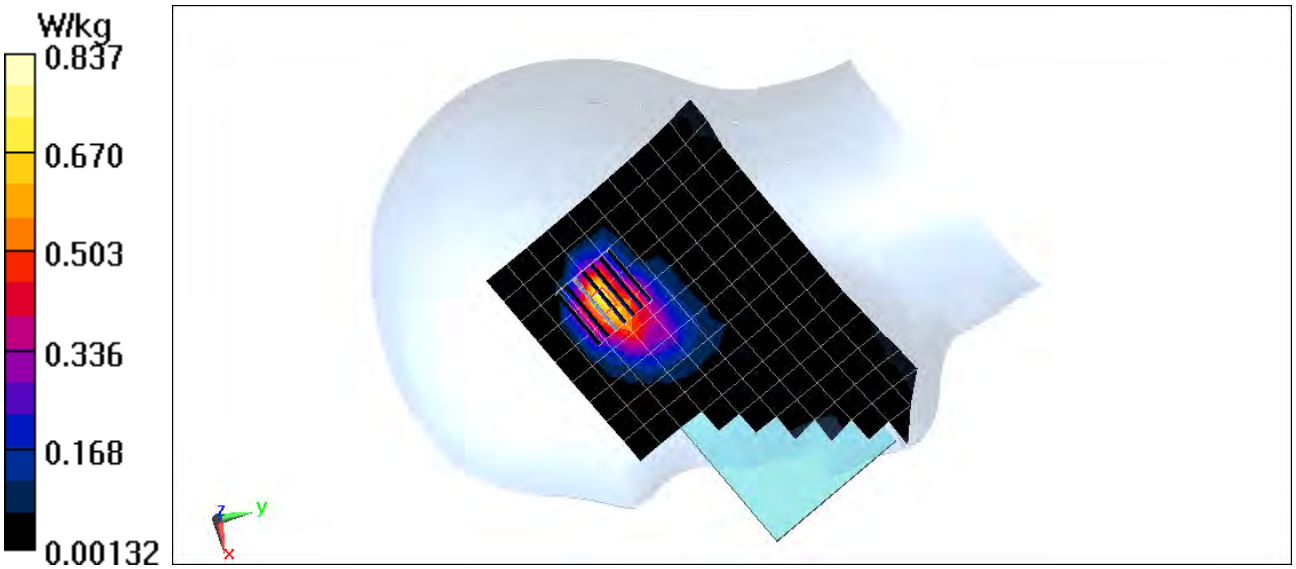
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.287
Medium: 2450 Head Medium parameters used (interpolated):
f = 2441 MHz; σ = 1.838 S/m; ε_r = 39.103; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-05-2018; Ambient Temp: 23.0°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN7410; ConvF(7.5, 7.5, 7.5) @ 2441 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;SEMCAD X Version 14.6.12 (7450)

Mode: Bluetooth, Right Head, Cheek, Ch 39, 1Mbps

Area Scan (11x19x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.54 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.493 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0365M

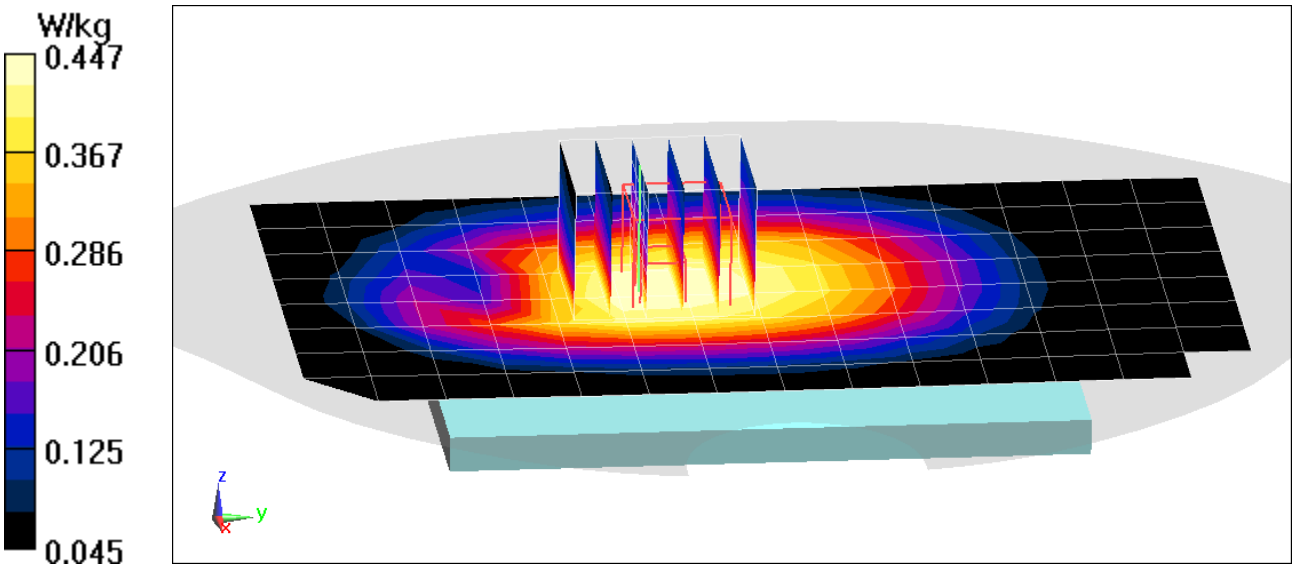
Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.966 S/m; ε_r = 55.068; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-05-2018; Ambient Temp: 22.2°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 820.1 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: Cell. CDMA BC10, Rule Part 90S, Body SAR, Back side, 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 = 19.62 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.494 W/kg
SAR(1 g) = 0.371 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0365M

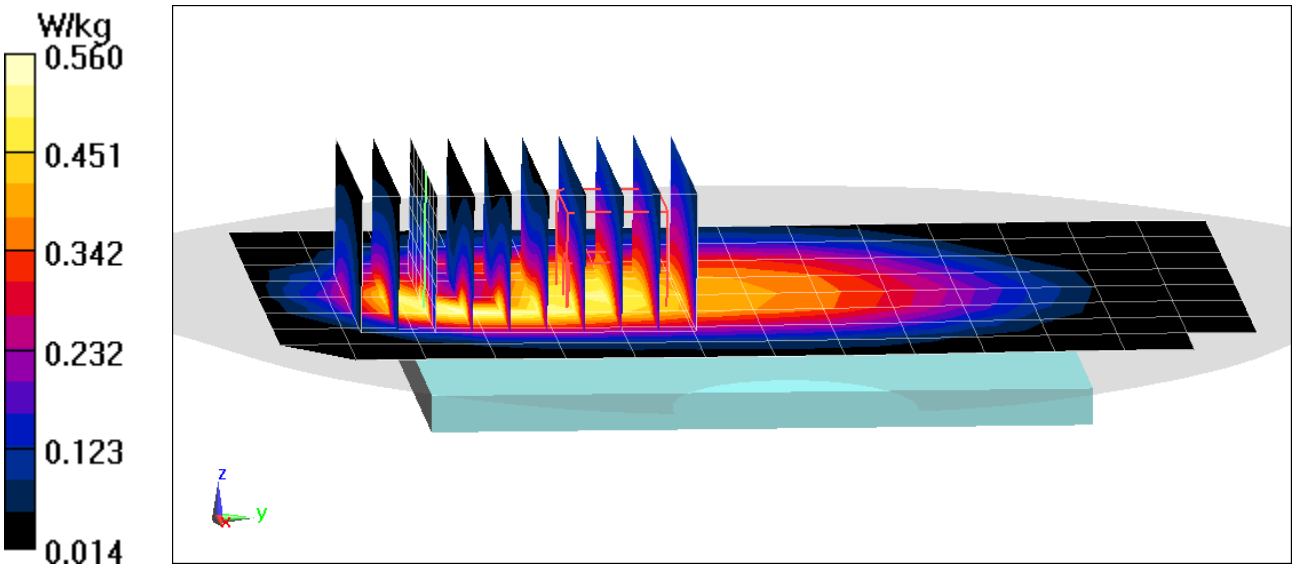
Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 1.004 S/m; ε_r = 54.133; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-26-2018; Ambient Temp: 19.9°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 820.1 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: Cell. EVDO BC10, Rule Part 90S, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (8x10x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.08 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.673 W/kg
SAR(1 g) = 0.419 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0365M

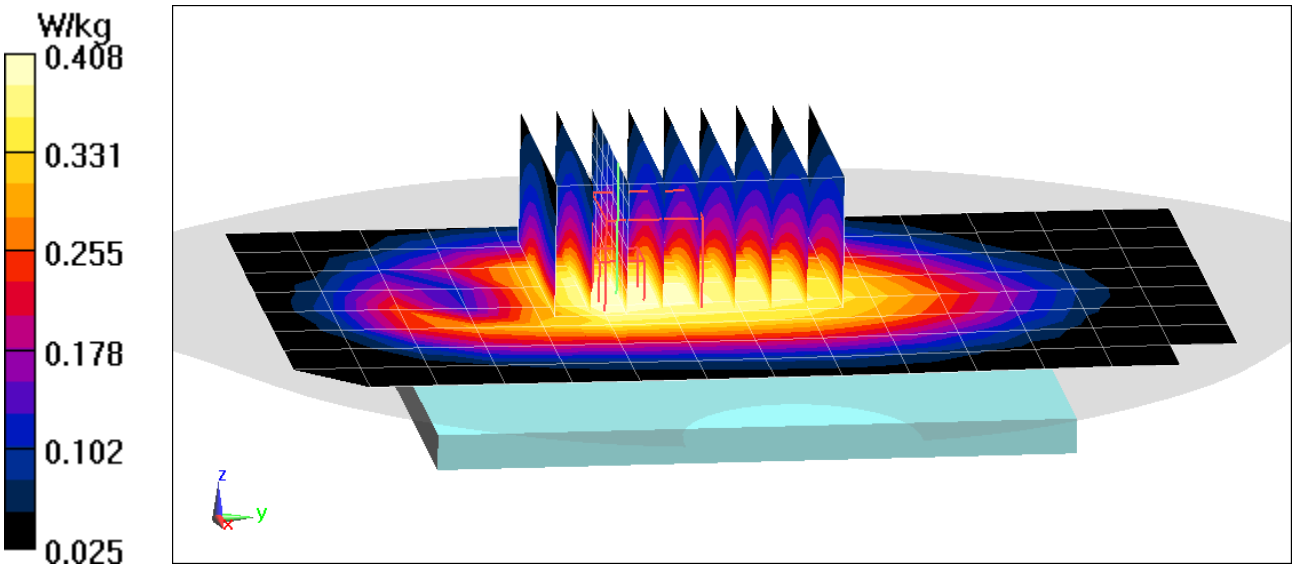
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 1.02 S/m; ε_r = 53.96; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-26-2018; Ambient Temp: 19.9°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 836.52 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: Cell. CDMA, Rule Part 22H, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (8x9x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.48 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.455 W/kg
SAR(1 g) = 0.337 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0365M

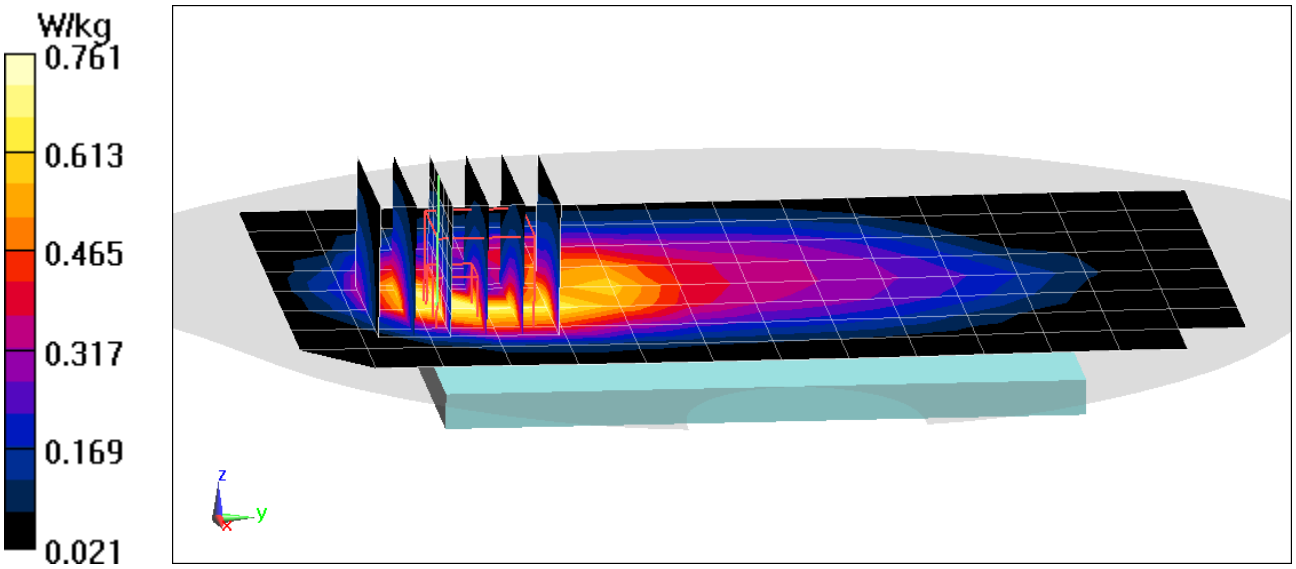
Communication System: UID 0, CDMA; Frequency: 848.31 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 848.31 MHz; σ = 1.032 S/m; ε_r = 53.836; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-26-2018; Ambient Temp: 19.9°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 848.31 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: Cell. EVDO, Rule Part 22H, Body SAR, Back side, High.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 = 23.50 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.911 W/kg
SAR(1 g) = 0.521 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0371M

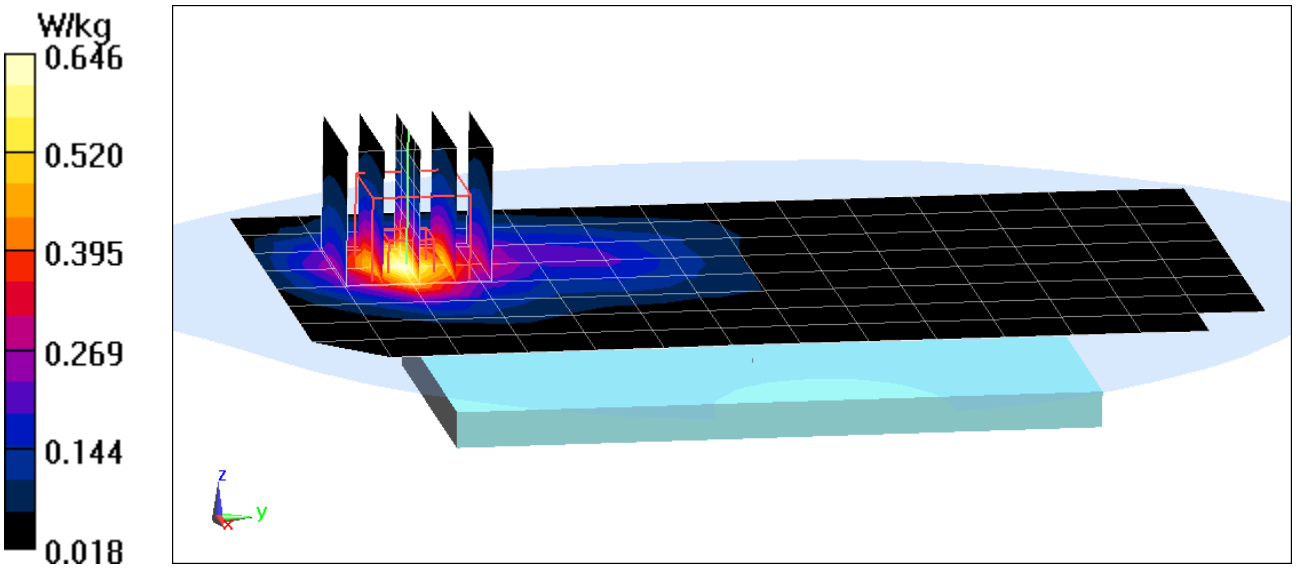
Communication System: UID 0, CDMA; Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1851.25 MHz; σ = 1.518 S/m; ε_r = 51.377; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-28-2018; Ambient Temp: 21.2°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3213; ConvF(4.88, 4.88, 4.88) @ 1851.25 MHz; Calibrated: 2/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: PCS CDMA, Body SAR, Back side, Low.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 = 20.15 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.844 W/kg
SAR(1 g) = 0.535 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0371M

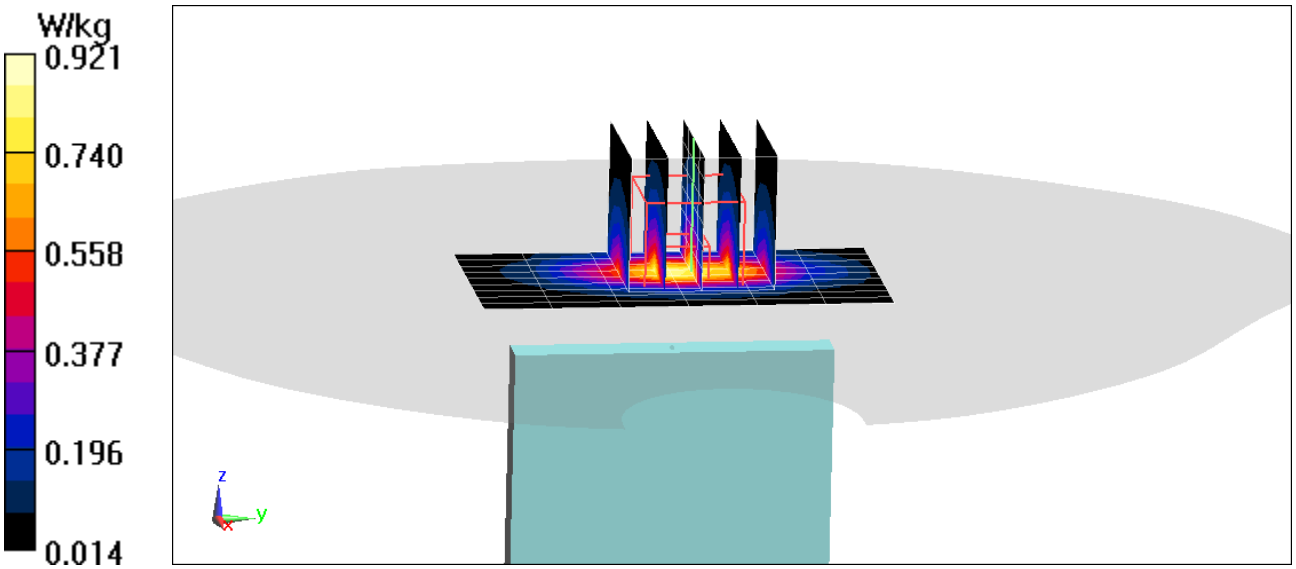
Communication System: UID 0, CDMA, Frequency: 1908.75 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1908.75 MHz; σ = 1.591 S/m; ε_r = 52.737; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-07-2018; Ambient Temp: 19.5°C; Tissue Temp: 19.2°C

Probe: ES3DV3 - SN3347; ConvF(4.94, 4.94, 4.94) @ 1908.75 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: PCS EVDO, Body SAR, Bottom Edge, High.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 = 23.30 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.735 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0365M

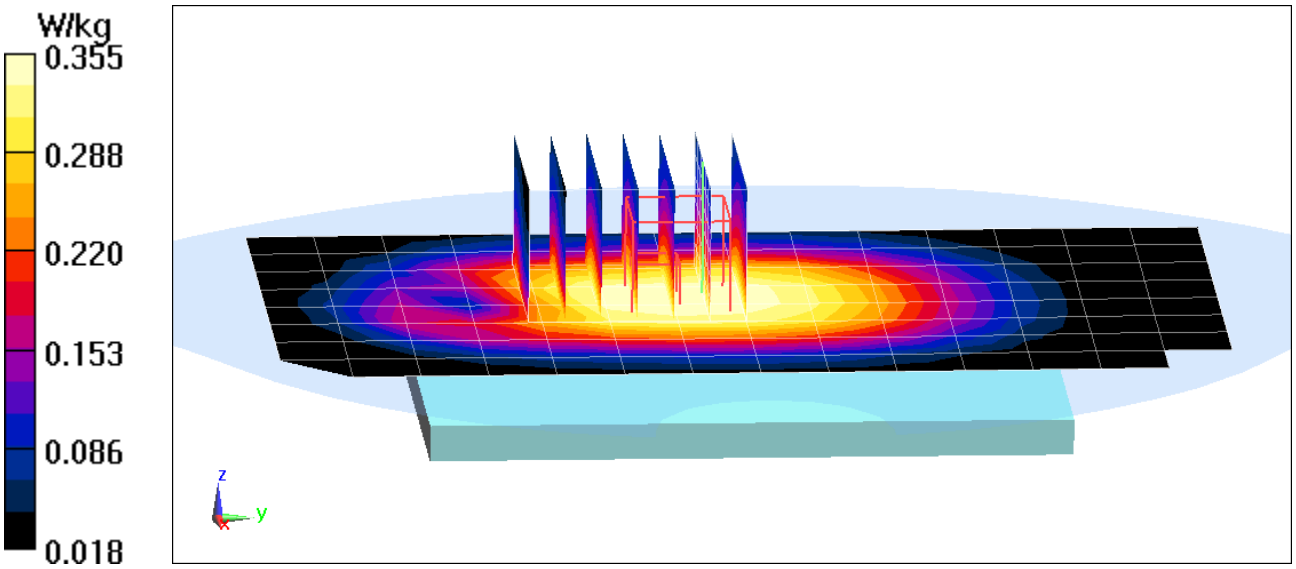
Communication System: UID 0, GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.98 S/m; ε_r = 53.17; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-12-2018; Ambient Temp: 21.7°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(9.63, 9.63, 9.63) @ 836.6 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;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 (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.72 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.385 W/kg
SAR(1 g) = 0.299 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0365M

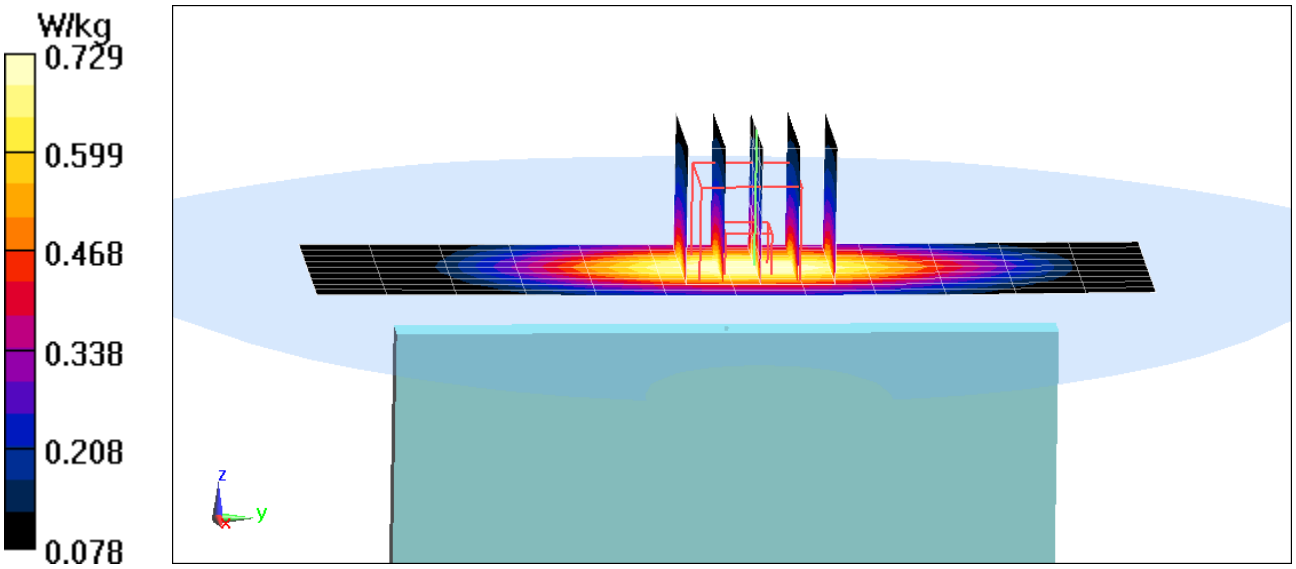
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:2.76
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.98 S/m; ε_r = 53.17; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-12-2018; Ambient Temp: 21.7°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(9.63, 9.63, 9.63) @ 836.6 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;SEMCAD X Version 14.6.12 (7450)

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

Area Scan (10x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.75 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.825 W/kg
SAR(1 g) = 0.561 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0371M

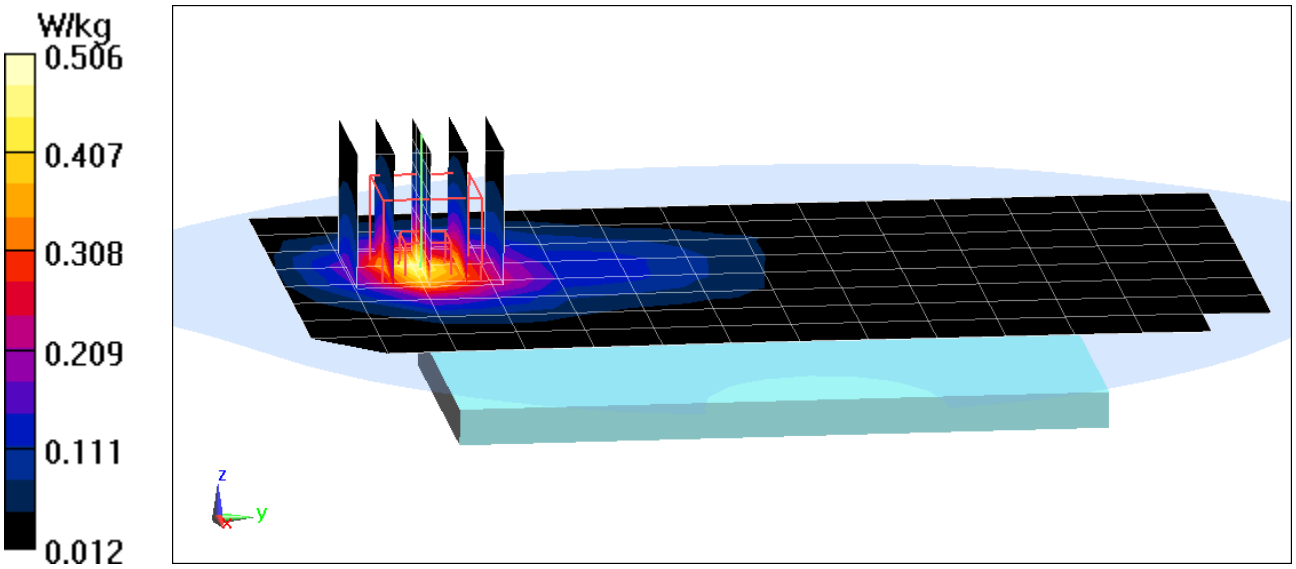
Communication System: UID 0, GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.556 S/m; ε_r = 51.36; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-14-2018; Ambient Temp: 23.9°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3213; ConvF(4.88, 4.88, 4.88) @ 1880 MHz; Calibrated: 2/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10;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 = 17.54 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.666 W/kg
SAR(1 g) = 0.415 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0371M

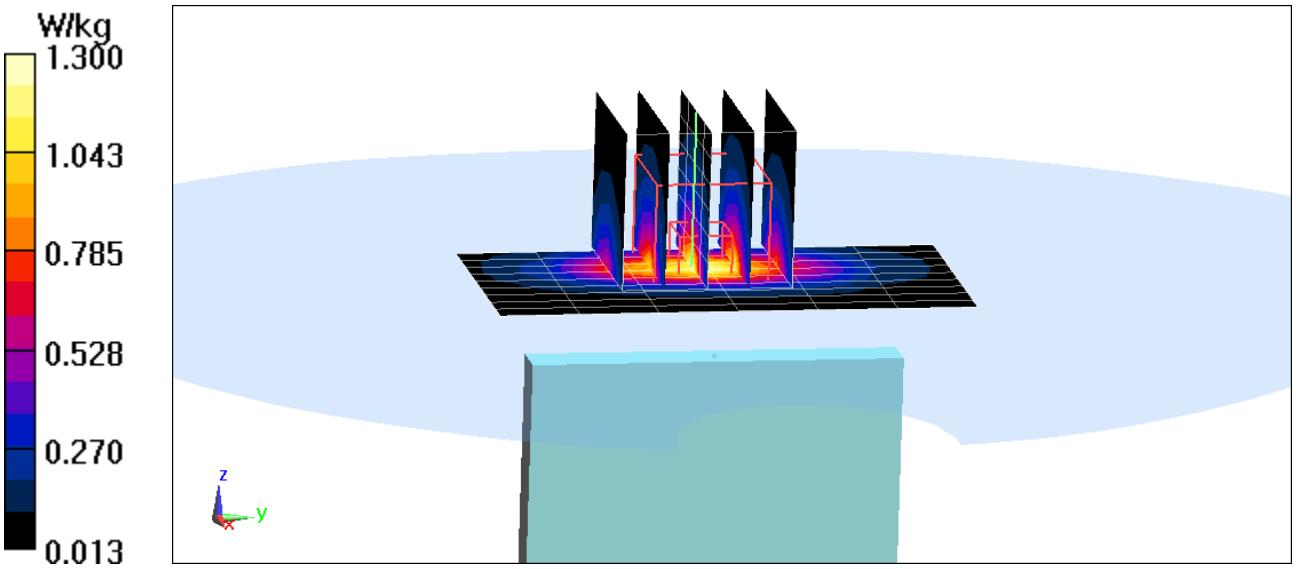
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 1909.8 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body Medium parameters used:
f = 1910 MHz; σ = 1.591 S/m; ε_r = 51.249; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-14-2018; Ambient Temp: 23.9°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3213; ConvF(4.88, 4.88, 4.88) @ 1909.8 MHz; Calibrated: 2/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

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

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.28 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 1.83 W/kg
SAR(1 g) = 1.04 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0365M

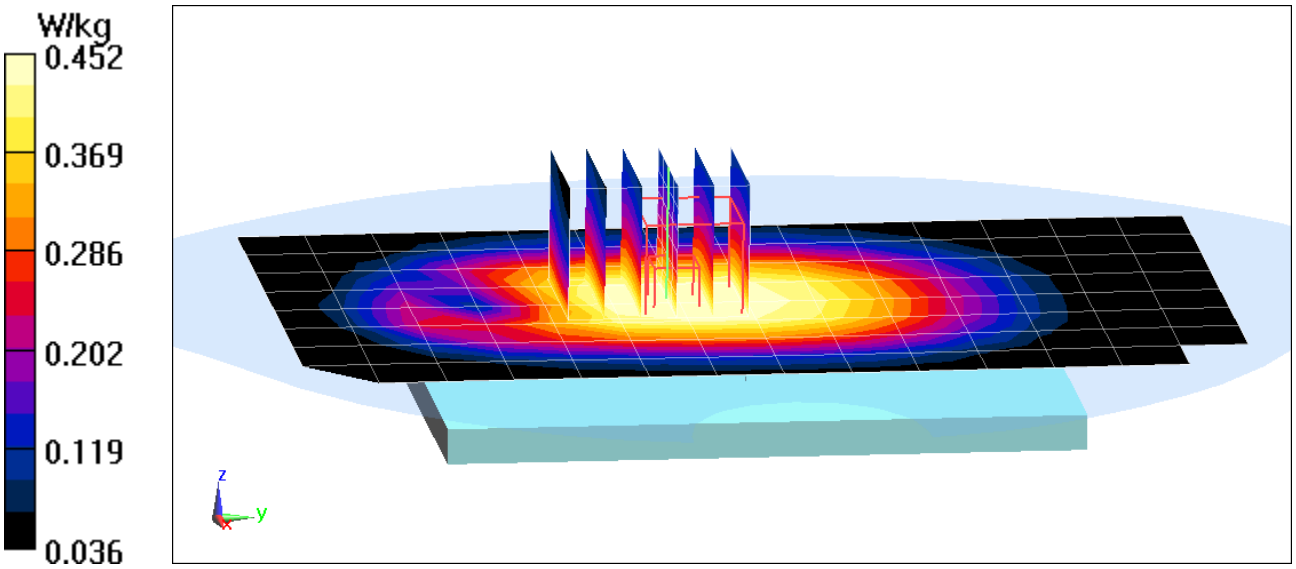
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.98 S/m; ε_r = 53.17; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-12-2018; Ambient Temp: 21.7°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(9.63, 9.63, 9.63) @ 836.6 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;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 (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.05 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.489 W/kg
SAR(1 g) = 0.383 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0365M

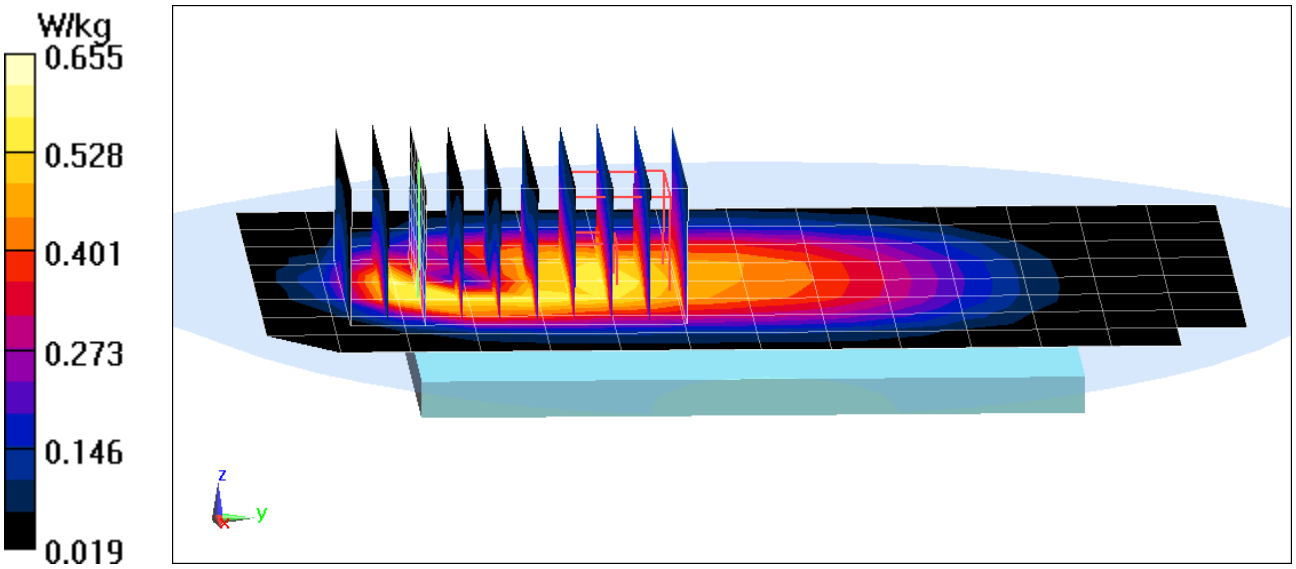
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.98 S/m; ε_r = 53.17; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-12-2018; Ambient Temp: 21.7°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(9.63, 9.63, 9.63) @ 836.6 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;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 (8x10x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.18 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.782 W/kg
SAR(1 g) = 0.484 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0371M

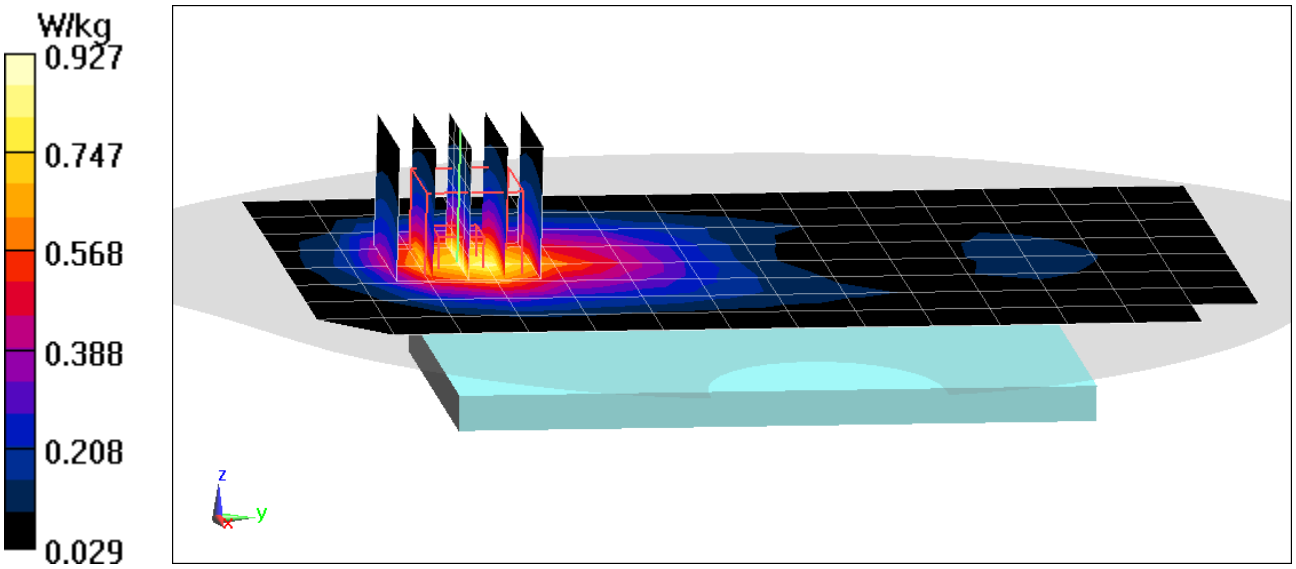
Communication System: UID 0, UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1752.6 MHz; σ = 1.493 S/m; ε_r = 50.855; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-18-2018; Ambient Temp: 19.9°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3347; ConvF(5.17, 5.17, 5.17) @ 1752.6 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1750, Body SAR, Back side, High.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 = 24.26 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.775 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0371M

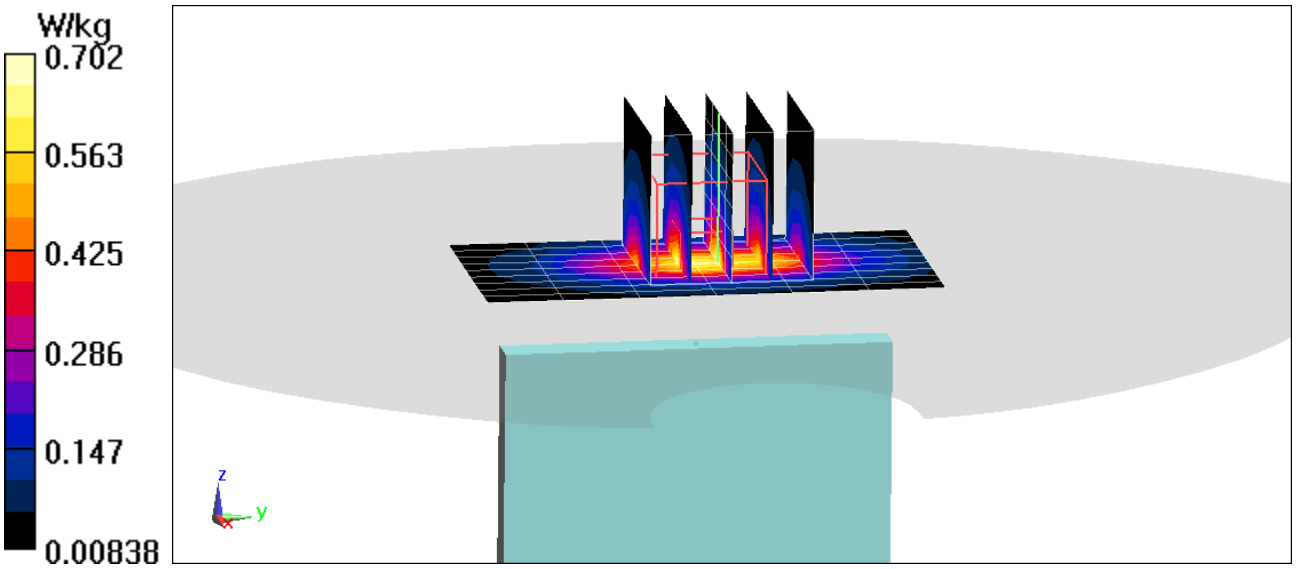
Communication System: UID 0, UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1752.6 MHz; σ = 1.551 S/m; ε_r = 52.22; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-28-2018; Ambient Temp: 20.1°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3347; ConvF(5.17, 5.17, 5.17) @ 1752.6 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1750, Body SAR, Bottom Edge, High.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 = 20.61 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.974 W/kg
SAR(1 g) = 0.571 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0371M

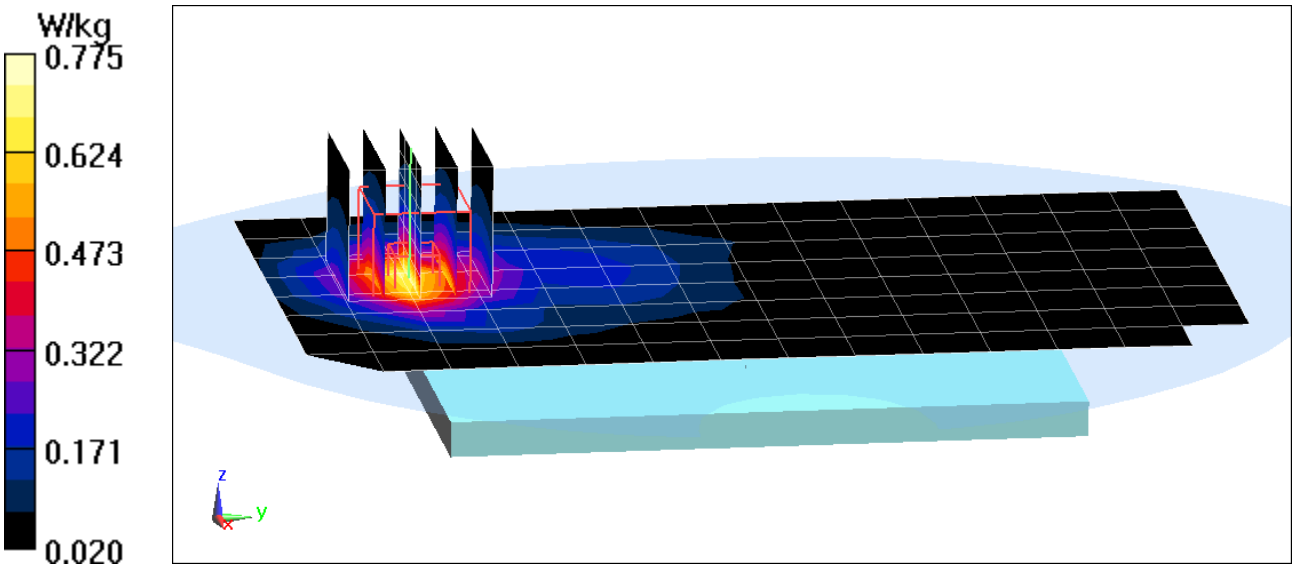
Communication System: UID 0, UMTS; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1907.6 MHz; σ = 1.553 S/m; ε_r = 51.455; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-19-2018; Ambient Temp: 24.4°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3213; ConvF(4.88, 4.88, 4.88) @ 1907.6 MHz; Calibrated: 2/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1900, Body SAR, Back side, High.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 = 21.84 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.639 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0371M

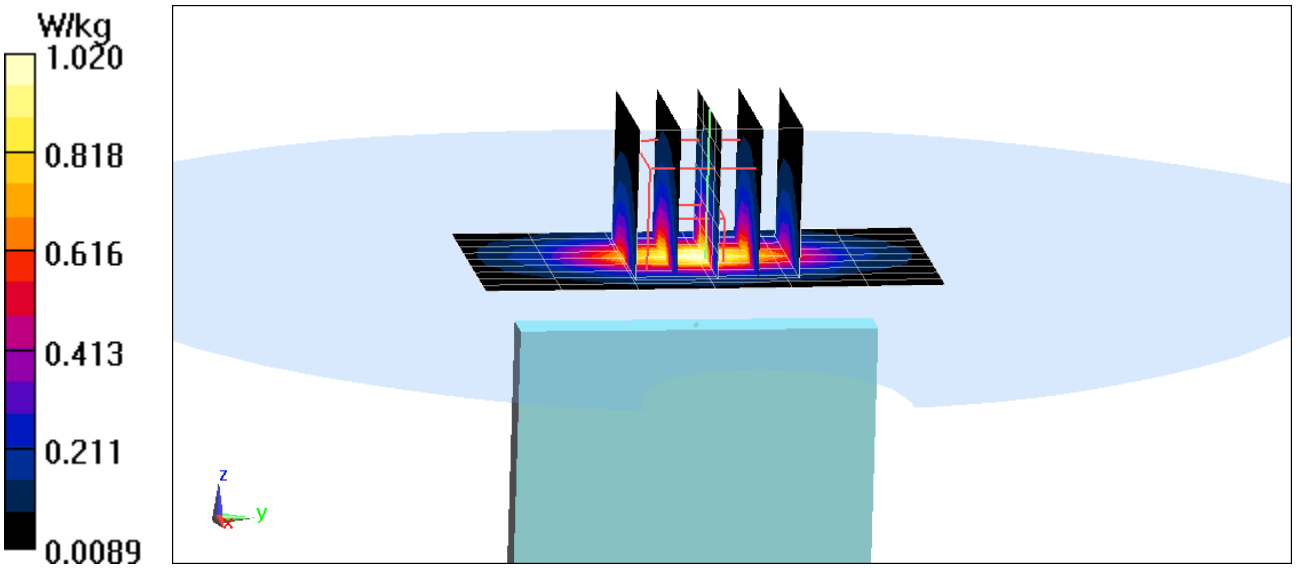
Communication System: UID 0, _UMTS; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1907.6 MHz; σ = 1.586 S/m; ε_r = 52.28; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-02-2018; Ambient Temp: 21.9°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN7409; ConvF(7.6, 7.6, 7.6) @ 1907.6 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;SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1900, Body SAR, Bottom Edge, High.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 = 21.67 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.30 W/kg
SAR(1 g) = 0.702 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

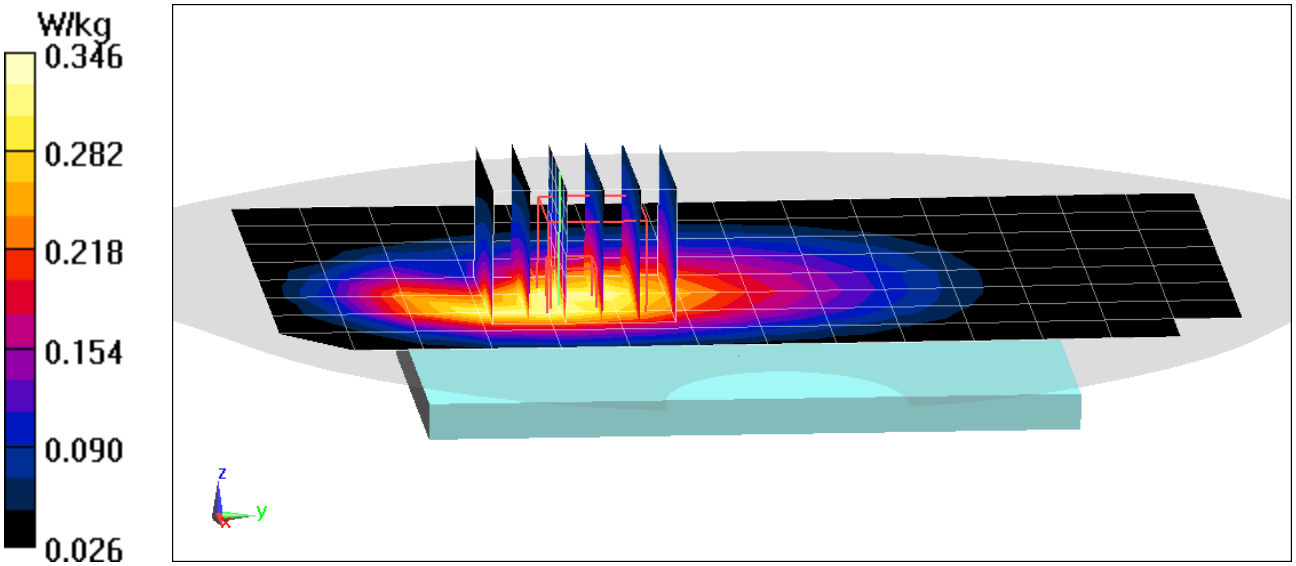
Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 680.5 MHz; σ = 0.935 S/m; ε_r = 53.484; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-18-2018; Ambient Temp: 21.4°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7406; ConvF(9.91, 9.91, 9.91) @ 680.5 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V5.0 Back Right; Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 71, Body SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.50 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.390 W/kg
SAR(1 g) = 0.271 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

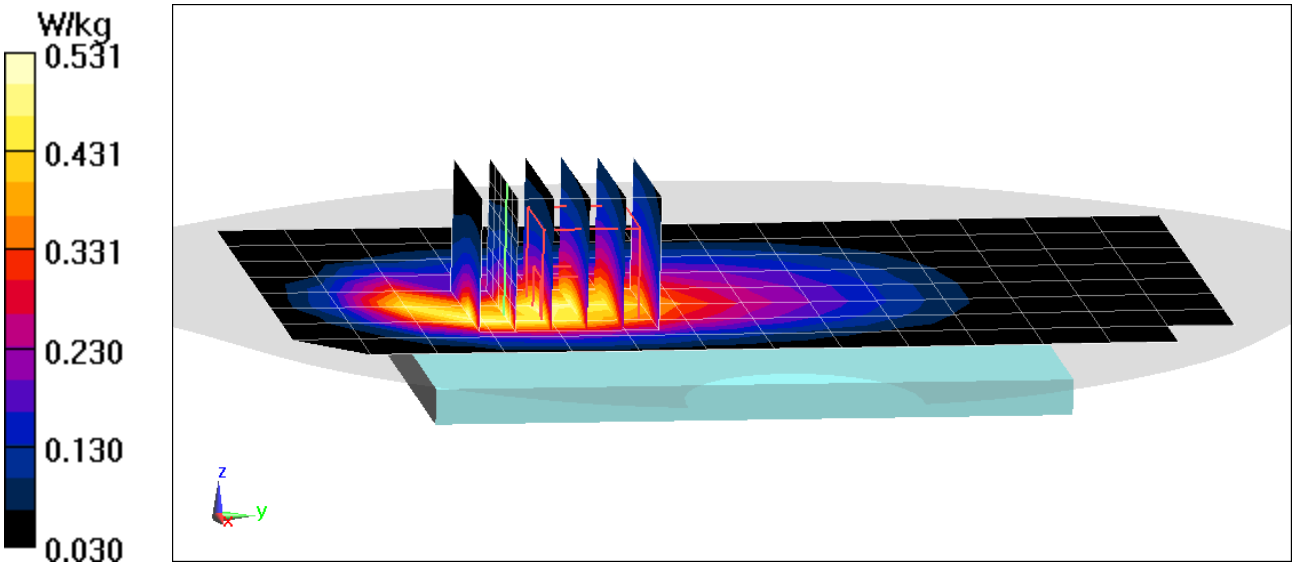
Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 680.5 MHz; σ = 0.935 S/m; ε_r = 53.484; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-18-2018; Ambient Temp: 21.4°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7406; ConvF(9.91, 9.91, 9.91) @ 680.5 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V5.0 Back Right; Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 71, Body SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.17 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.627 W/kg
SAR(1 g) = 0.398 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

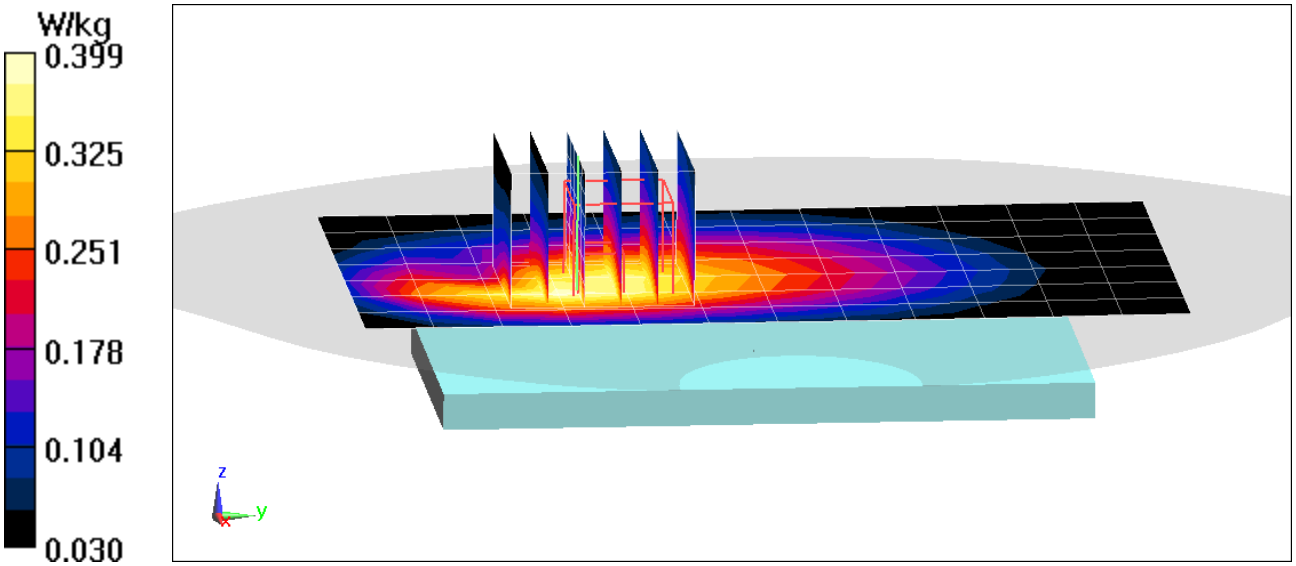
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.947 S/m; ε_r = 53.285; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-18-2018; Ambient Temp: 21.4°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7406; ConvF(9.91, 9.91, 9.91) @ 707.5 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V5.0 Back Right; Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 12, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 49 RB Offset

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.62 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.444 W/kg
SAR(1 g) = 0.316 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

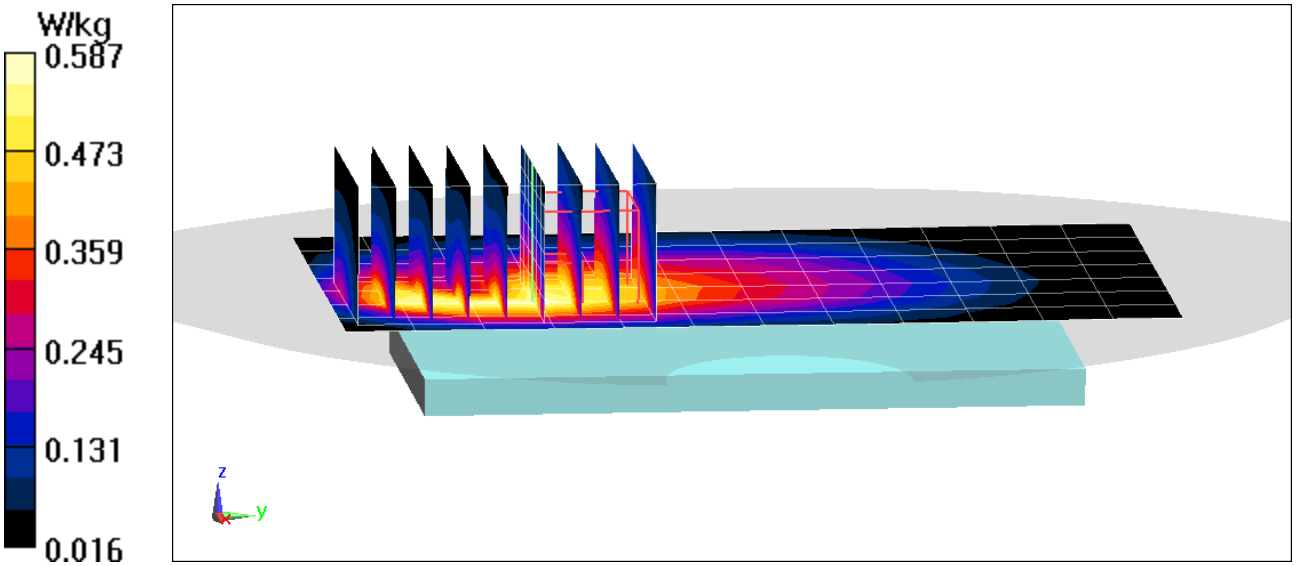
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.947 S/m; ε_r = 53.285; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-18-2018; Ambient Temp: 21.4°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7406; ConvF(9.91, 9.91, 9.91) @ 707.5 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V5.0 Back Right; Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 12, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 49 RB Offset

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x9x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.09 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.697 W/kg
SAR(1 g) = 0.447 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

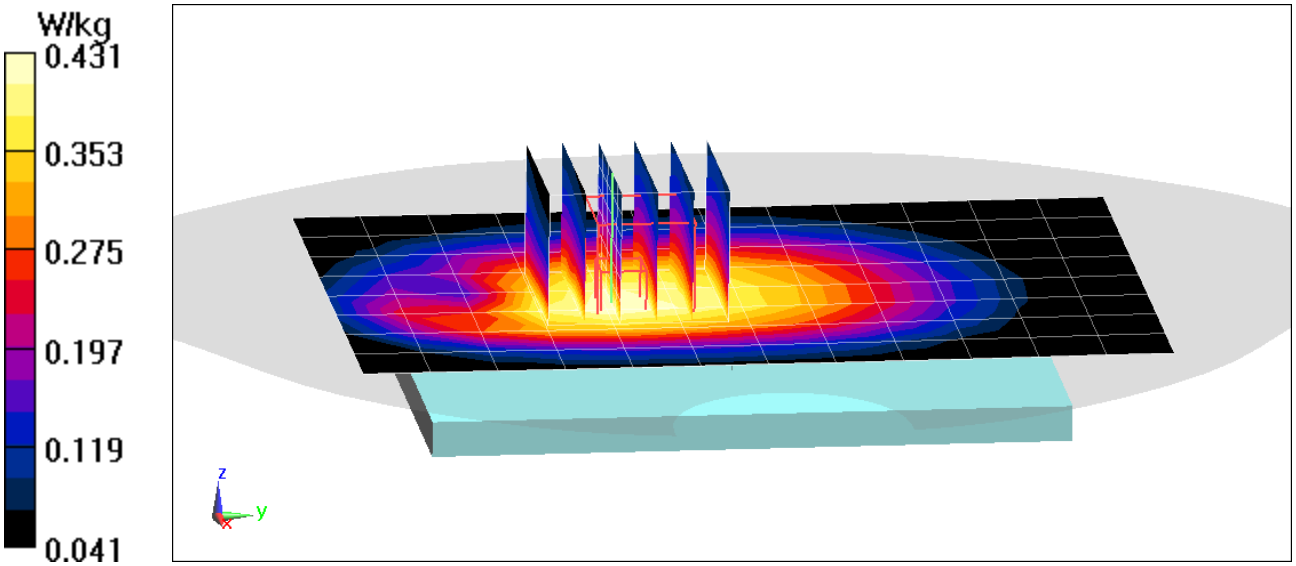
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 782 MHz; σ = 0.978 S/m; ε_r = 52.988; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-18-2018; Ambient Temp: 21.4°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7406; ConvF(9.91, 9.91, 9.91) @ 782 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V5.0 Back Right; Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10;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 (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.46 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.478 W/kg
SAR(1 g) = 0.354 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

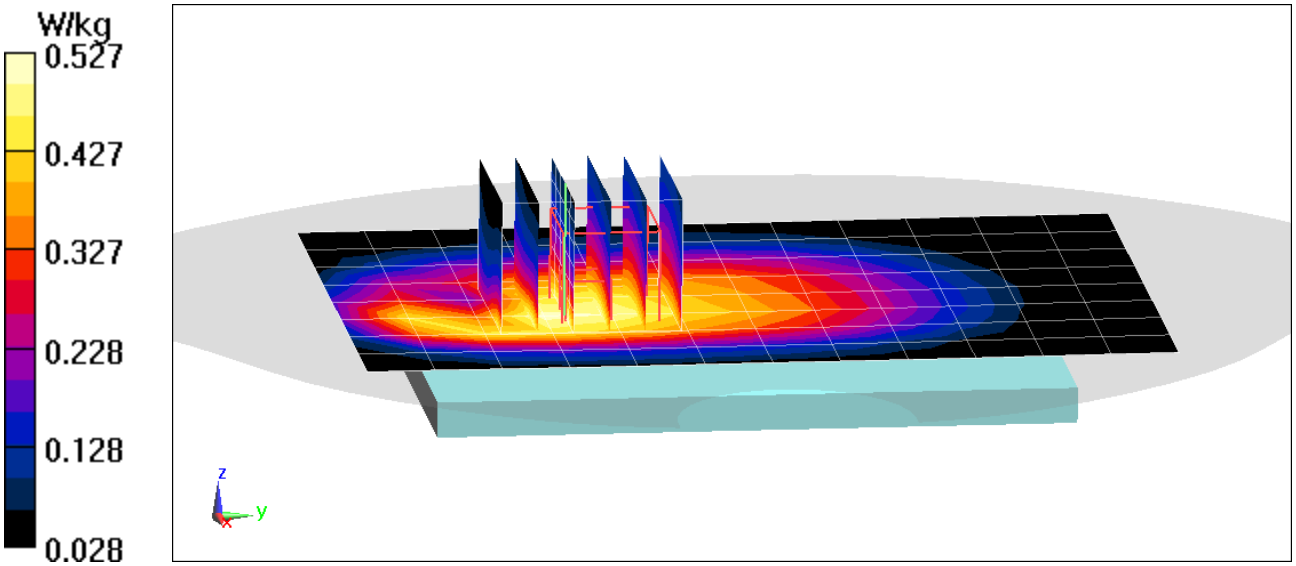
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 782 MHz; σ = 0.978 S/m; ε_r = 52.988; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-18-2018; Ambient Temp: 21.4°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7406; ConvF(9.91, 9.91, 9.91) @ 782 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V5.0 Back Right; Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10;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 (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.03 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.588 W/kg
SAR(1 g) = 0.419 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

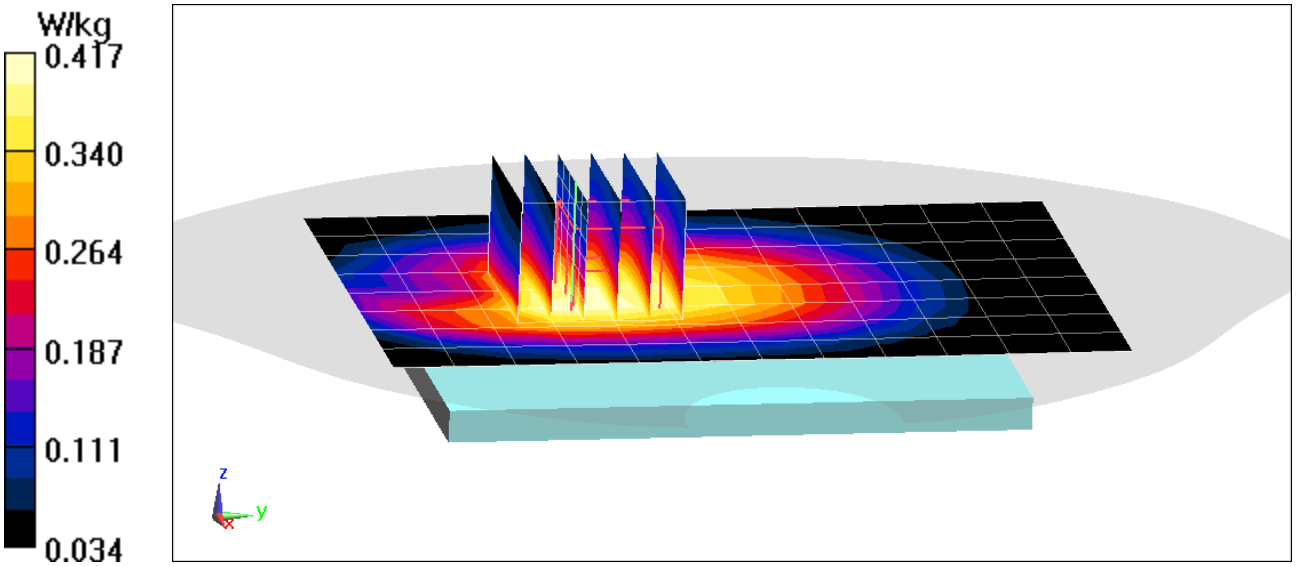
Communication System: UID 0, LTE Band 14; Frequency: 793 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 793 MHz; σ = 0.982 S/m; ε_r = 52.98; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-18-2018; Ambient Temp: 21.4°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7406; ConvF(9.91, 9.91, 9.91) @ 793 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V5.0 Back Right; Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 14, 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 (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.00 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.457 W/kg
SAR(1 g) = 0.342 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

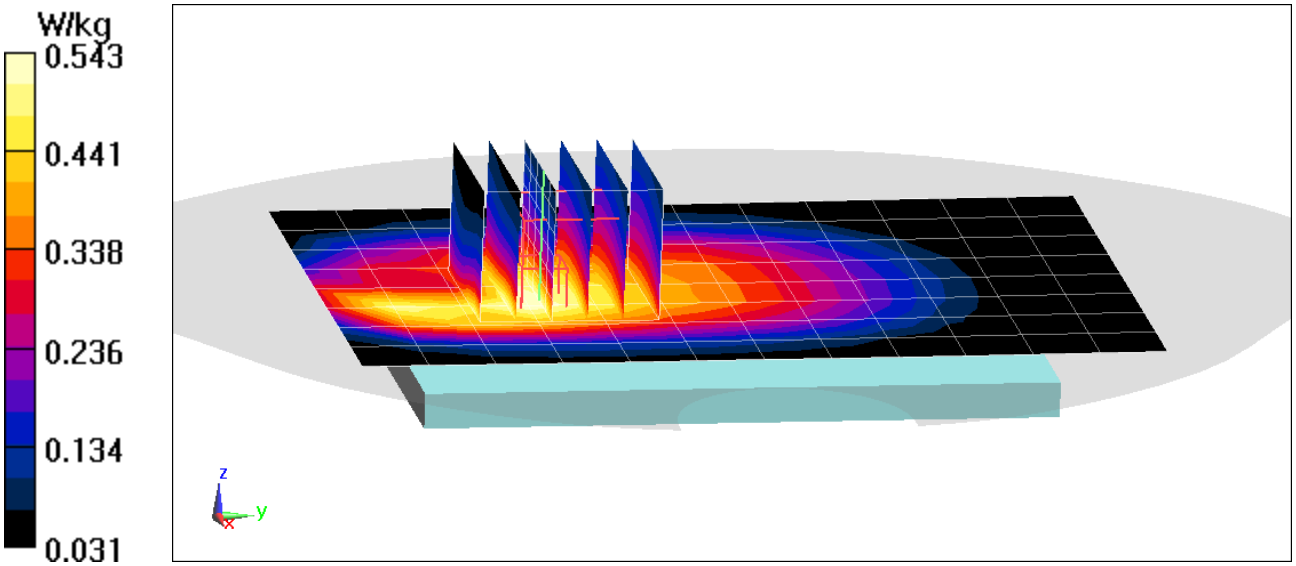
Communication System: UID 0, LTE Band 14; Frequency: 793 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 793 MHz; σ = 0.982 S/m; ε_r = 52.98; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-18-2018; Ambient Temp: 21.4°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7406; ConvF(9.91, 9.91, 9.91) @ 793 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V5.0 Back Right; Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 14, 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 (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.49 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.617 W/kg
SAR(1 g) = 0.430 W/kg



DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

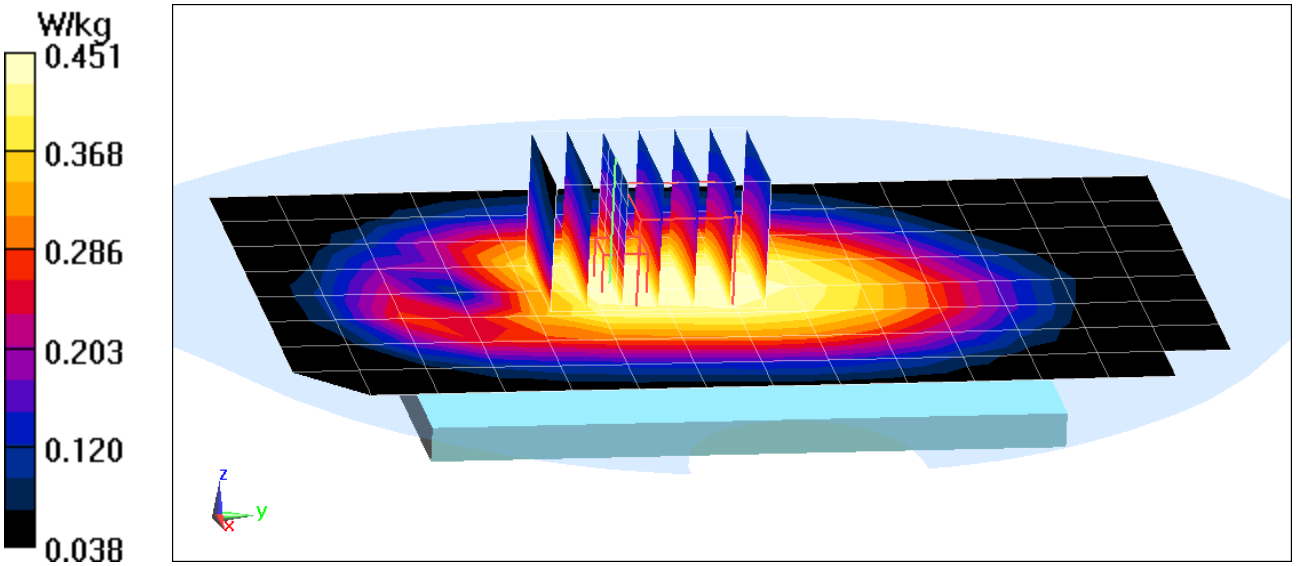
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.975 S/m; ε_r = 53.226; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-12-2018; Ambient Temp: 21.7°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(9.63, 9.63, 9.63) @ 831.5 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;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 26 (Cell.), Body SAR, Back side, Mid.ch,
15 MHz Bandwidth, QPSK, 1 RB, 36 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.99 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.489 W/kg
SAR(1 g) = 0.377 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

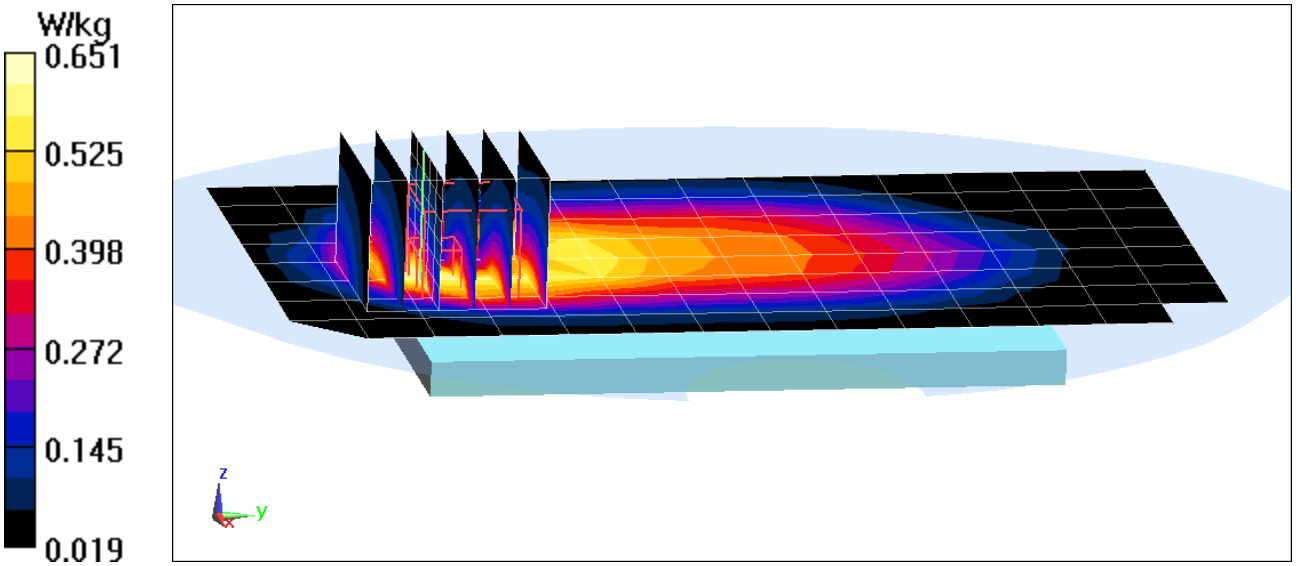
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.975 S/m; ε_r = 53.226; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-12-2018; Ambient Temp: 21.7°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(9.63, 9.63, 9.63) @ 831.5 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;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 26 (Cell.), Body SAR, Back side, Mid.ch,
15 MHz Bandwidth, QPSK, 1 RB, 36 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.29 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.782 W/kg
SAR(1 g) = 0.447 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

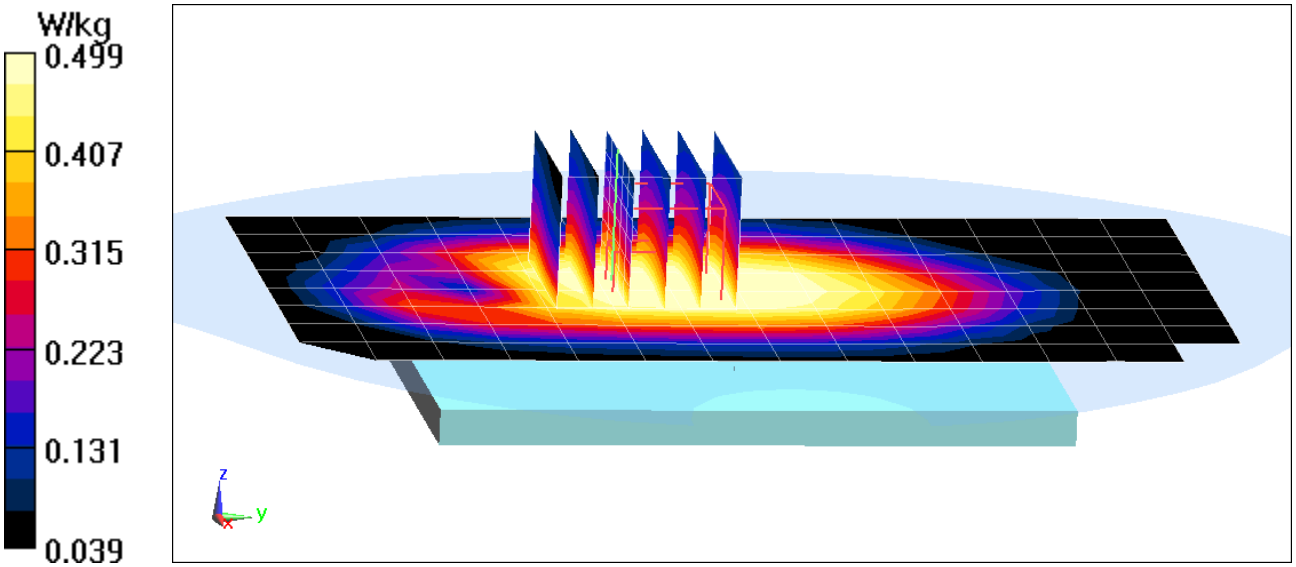
Communication System: UID 0, LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.98 S/m; ε_r = 53.171; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-12-2018; Ambient Temp: 21.7°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(9.63, 9.63, 9.63) @ 836.5 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;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 5 (Cell.), ULCA, Body SAR, Back side, Mid.ch,
PCC: 10 MHz Bandwidth, QPSK, Ch. 20525, 1 RB, 0 RB Offset
SCC: 5 MHz Bandwidth, QPSK, Ch. 20453, 1 RB, 24 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.32 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.540 W/kg
SAR(1 g) = 0.422 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0357M

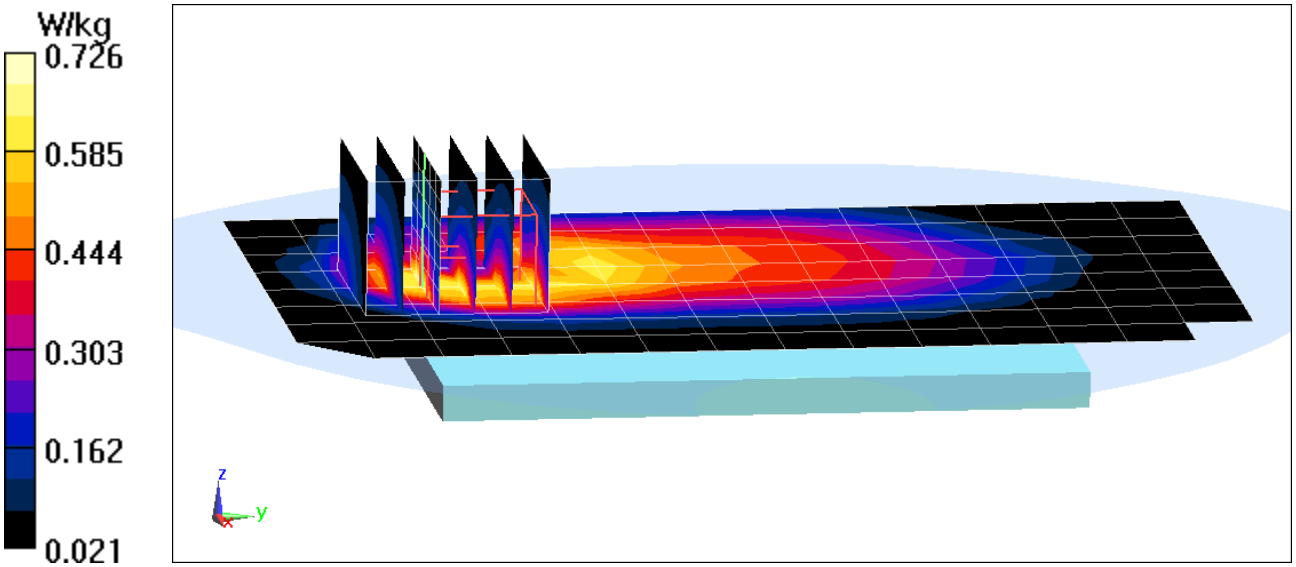
Communication System: UID 0, LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.98 S/m; ε_r = 53.171; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-12-2018; Ambient Temp: 21.7°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(9.63, 9.63, 9.63) @ 836.5 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;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 5 (Cell.), ULCA, Body SAR, Back side, Mid.ch,
PCC: 10 MHz Bandwidth, QPSK, Ch. 20525, 1 RB, 0 RB Offset
SCC: 5 MHz Bandwidth, QPSK, Ch. 20453, 1 RB, 24 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.83 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.879 W/kg
SAR(1 g) = 0.506 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0346M

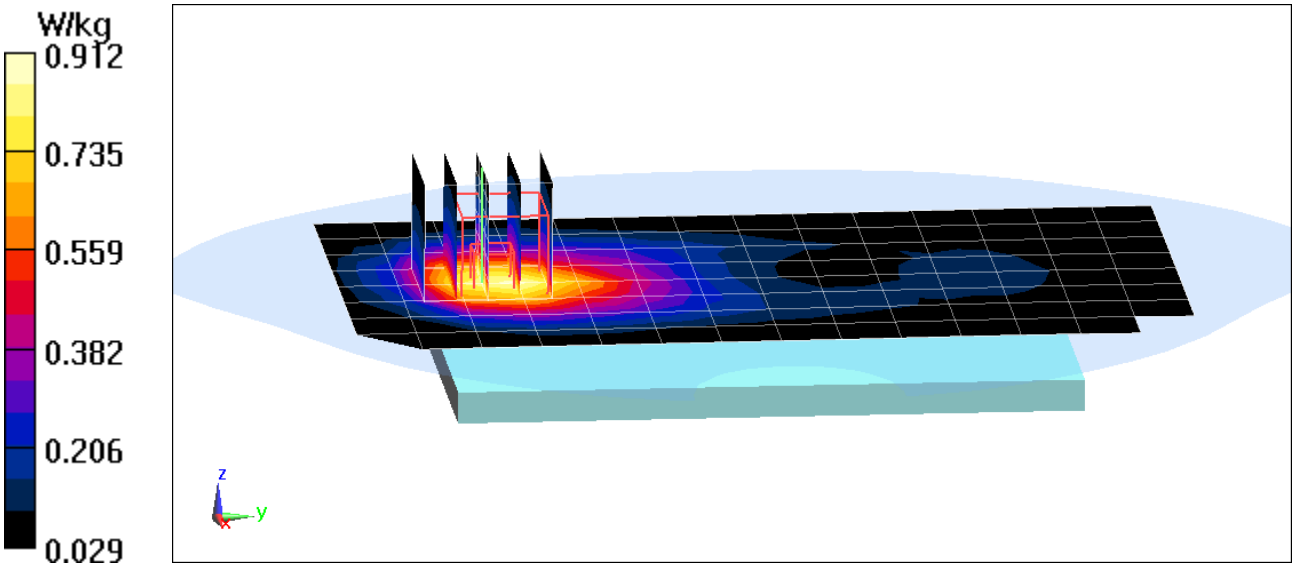
Communication System: UID 0, _LTE Band 66 (AWS); Frequency: 1775 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1775 MHz; σ = 1.57 S/m; ε_r = 51.011; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-04-2018; Ambient Temp: 22.6°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7409; ConvF(7.91, 7.91, 7.91) @ 1775 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), Body SAR, Back side, High.ch,
PCC: 10 MHz Bandwidth, QPSK, Ch. 132622, 1 RB, 0 RB Offset
SCC: 10 MHz Bandwidth, QPSK, Ch. 132523, 1 RB, 49 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 = 21.45 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.674 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0346M

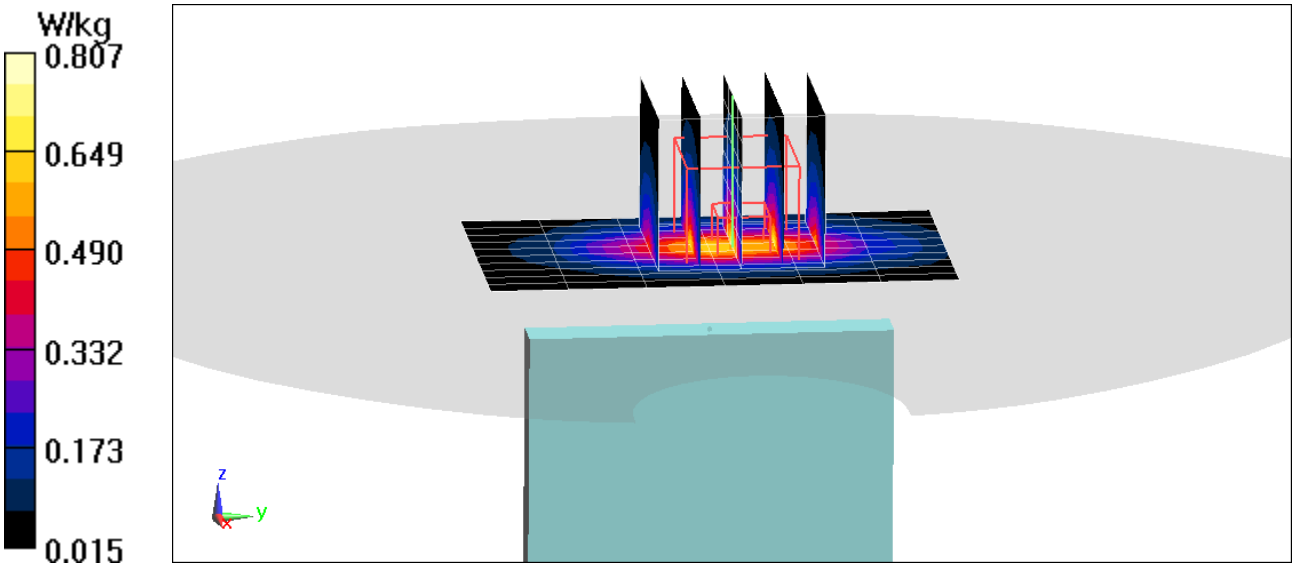
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1745 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1745 MHz; σ = 1.507 S/m; ε_r = 50.865; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-21-2018; Ambient Temp: 19.7°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3347; ConvF(5.17, 5.17, 5.17) @ 1745 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), ULCA, Body SAR, Bottom Edge, Mid.ch,
PCC: 10 MHz Bandwidth, QPSK, Ch. 132322, 25 RB, 0 RB Offset
SCC: 10 MHz Bandwidth, QPSK, Ch. 132223, 25 RB, 25 RB Offset

Area Scan (11x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.42 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.652 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0346M

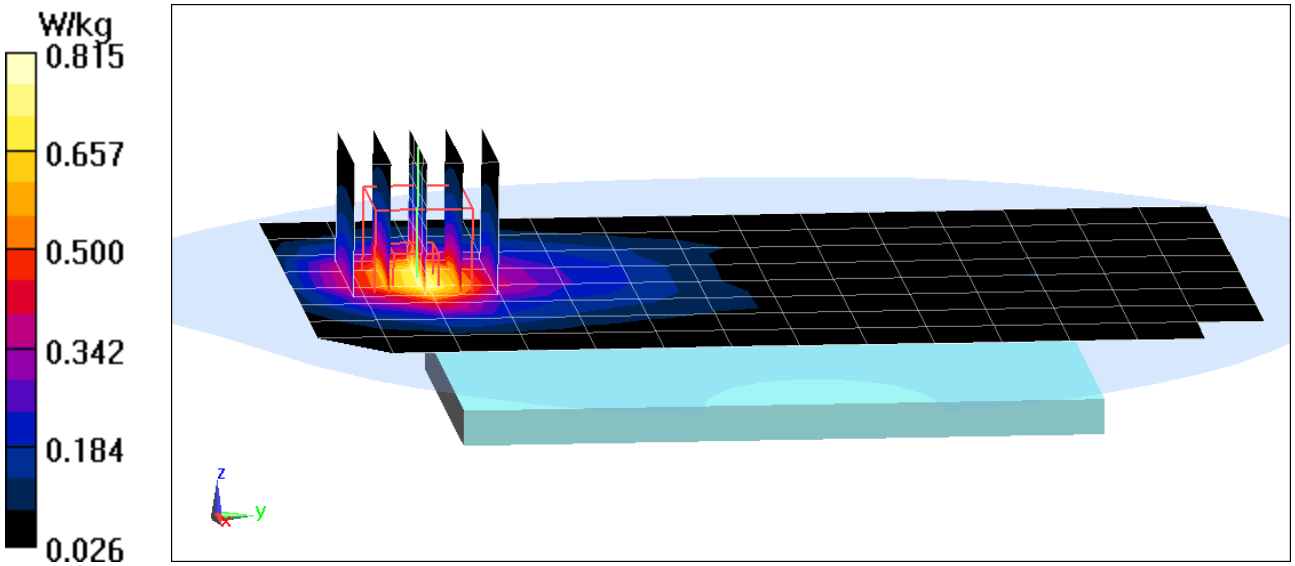
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1860 MHz; σ = 1.505 S/m; ε_r = 52.056; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-21-2018; Ambient Temp: 24.3°C; Tissue Temp: 21.2°C

Probe: ES3DV3 - SN3213; ConvF(4.88, 4.88, 4.88) @ 1860 MHz; Calibrated: 2/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 25 (PCS), Body SAR, Back side, Low.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.78 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.708 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0346M

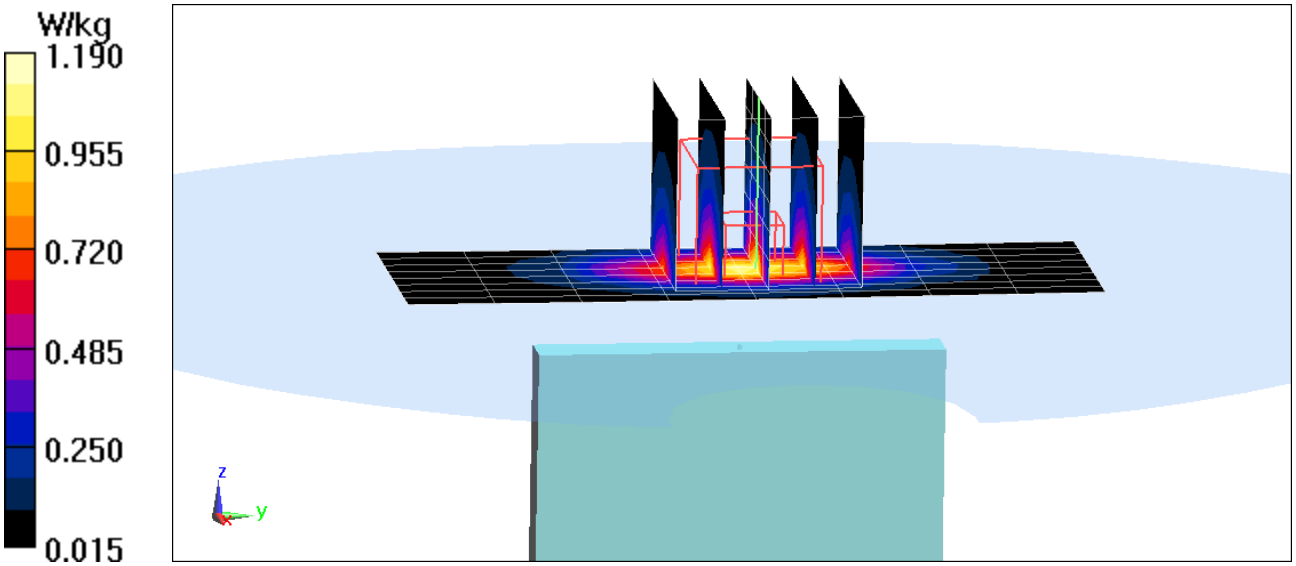
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1860 MHz; σ = 1.542 S/m; ε_r = 51.551; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-12-2018; Ambient Temp: 21.8°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(7.6, 7.6, 7.6) @ 1860 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 25 (PCS), Body SAR, Bottom Edge, Low.ch, 20 MHz Bandwidth, QPSK, 50 RB, 0 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 = 23.71 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.41 W/kg
SAR(1 g) = 0.782 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0356M

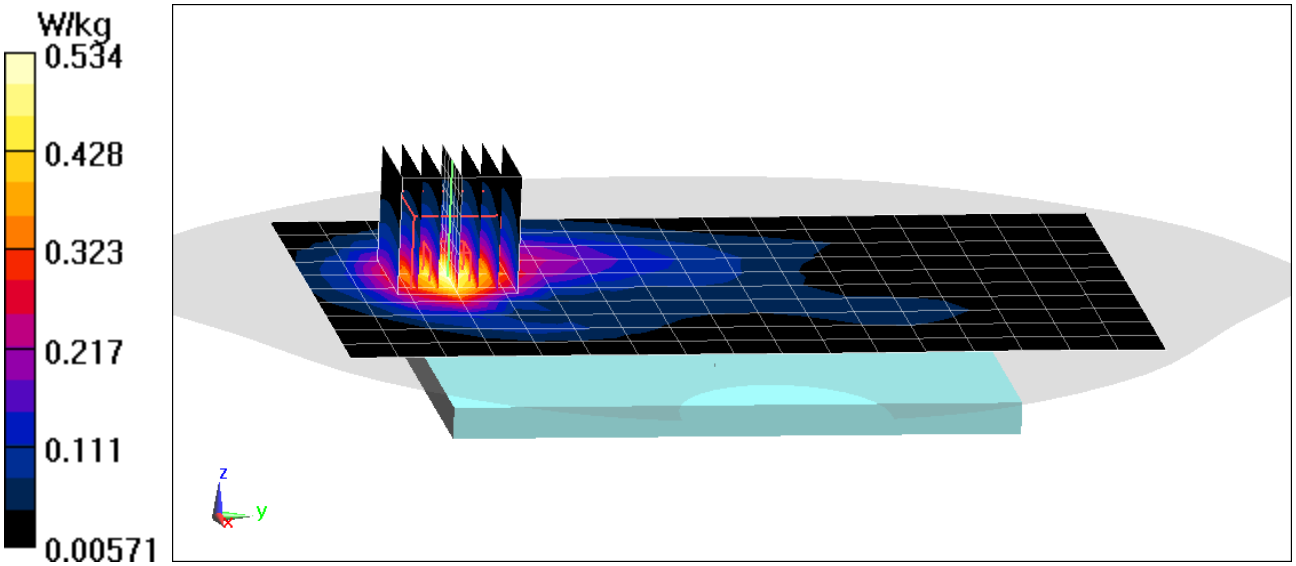
Communication System: UID 0, LTE Band 30; Frequency: 2310 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2310 MHz; σ = 1.882 S/m; ε_r = 51.461; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-14-2018; Ambient Temp: 21.9°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3319; ConvF(4.63, 4.63, 4.63) @ 2310 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 30, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.26 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.759 W/kg
SAR(1 g) = 0.433 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0356M

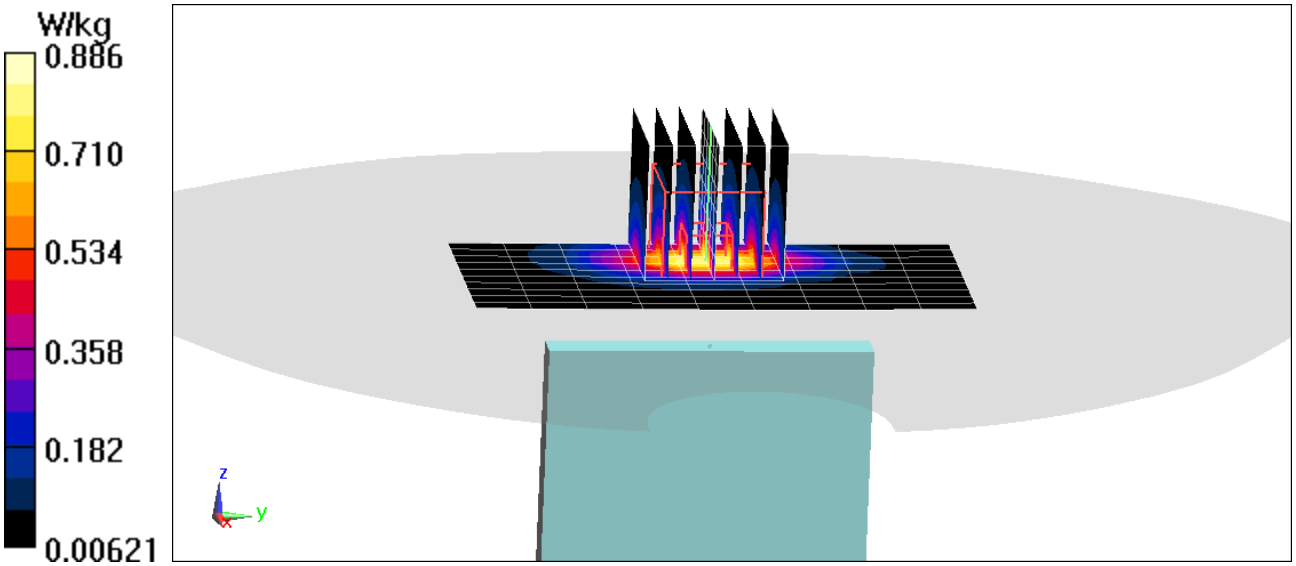
Communication System: UID 0, LTE Band 30; Frequency: 2310 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2310 MHz; σ = 1.887 S/m; ε_r = 51.033; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-20-2018; Ambient Temp: 23.2°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3319; ConvF(4.63, 4.63, 4.63) @ 2310 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 30, Body SAR, Bottom Edge, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (11x10x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.86 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.689 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0356M

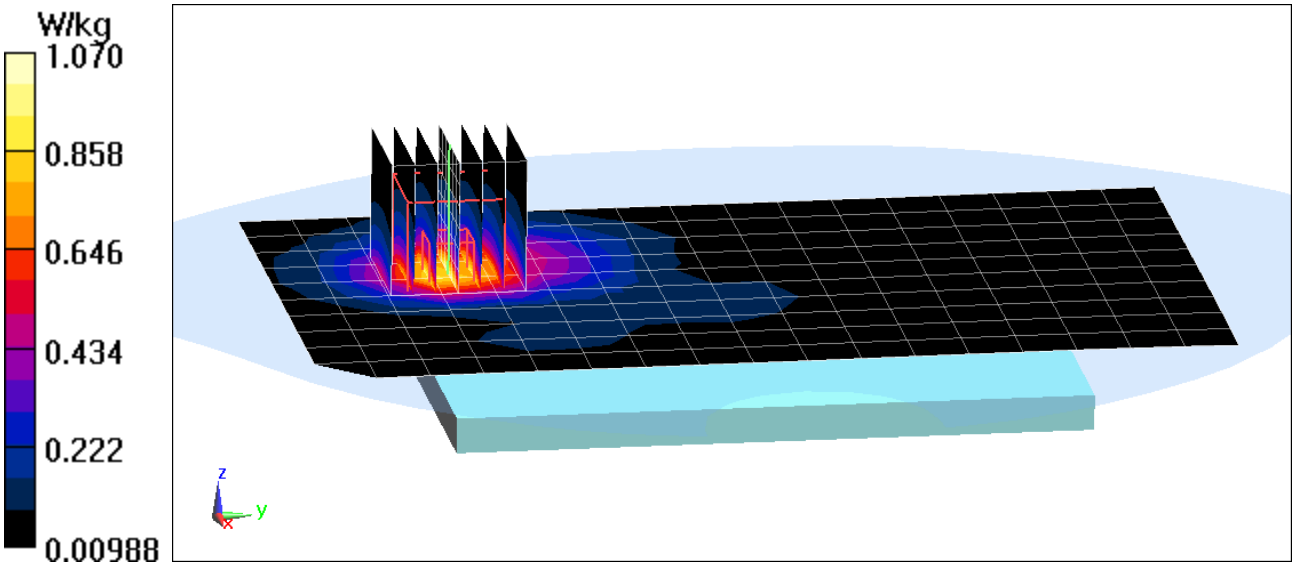
Communication System: UID 0, LTE Band 7; Frequency: 2510 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2510 MHz; σ = 2.037 S/m; ε_r = 50.785; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-19-2018; Ambient Temp: 21.3°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2510 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 7, Antenna B, Body SAR, Back side, Low.ch, 20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.07 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.680 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0356M

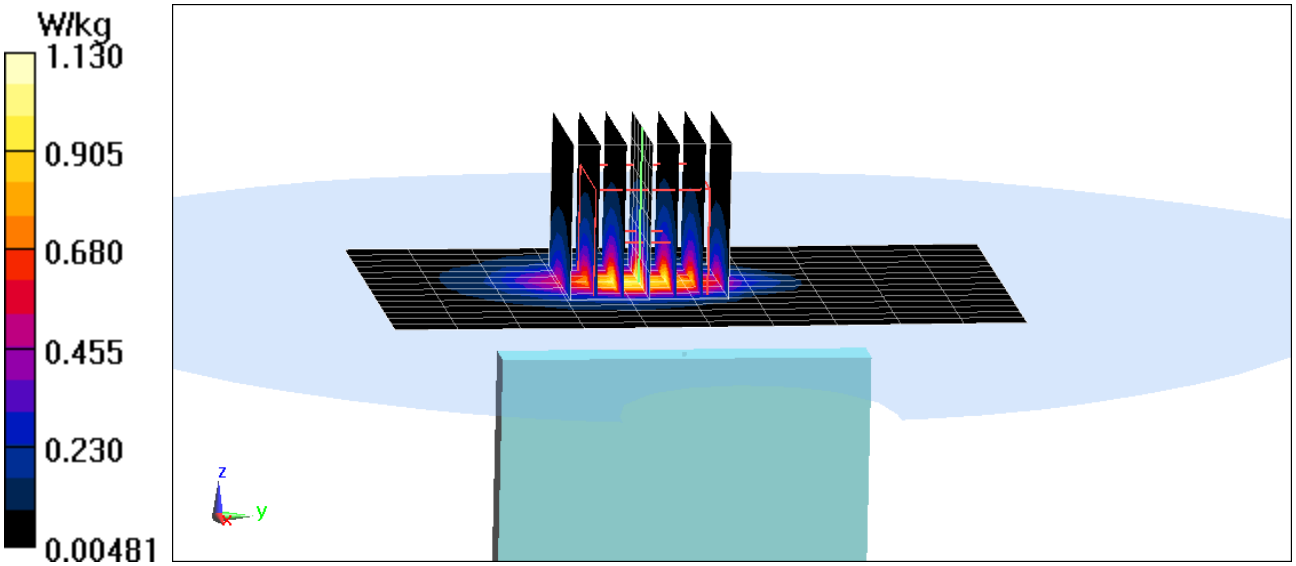
Communication System: UID 0, _LTE Band 7; Frequency: 2535 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2535 MHz; σ = 2.071 S/m; ε_r = 50.701; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-19-2018; Ambient Temp: 21.3°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7409; ConvF(7.07, 7.07, 7.07) @ 2535 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 7, Antenna B, Body SAR, Bottom Edge, Mid.ch, 20 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset

Area Scan (15x11x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.17 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 0.673 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0356M

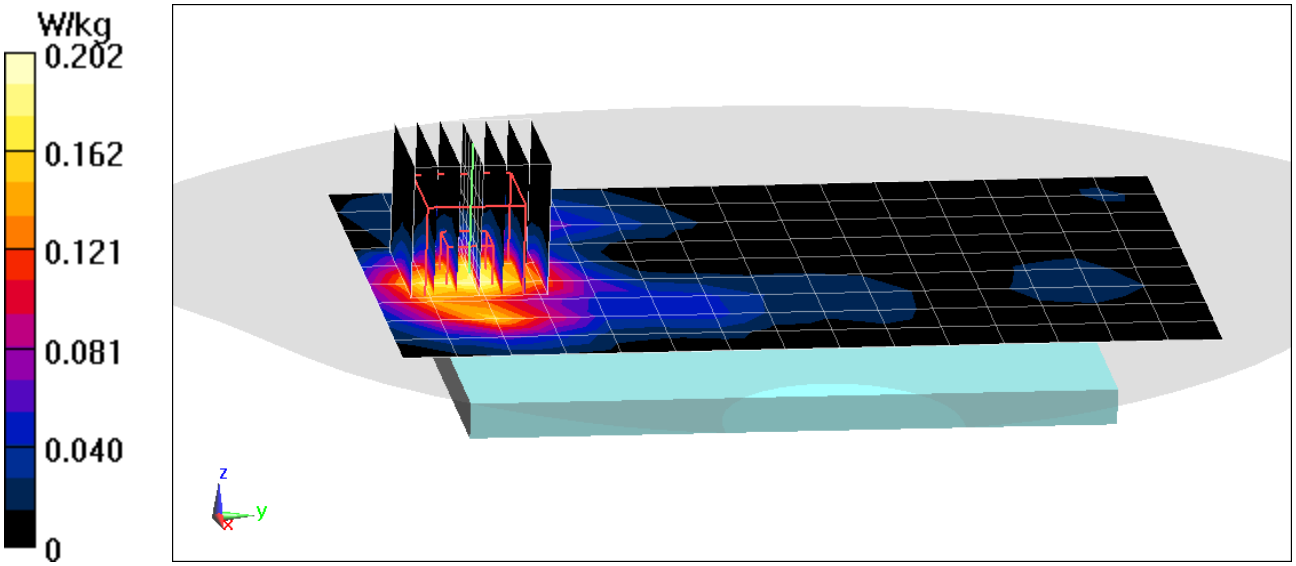
Communication System: UID 0, LTE Band 48; Frequency: 3690 MHz; Duty Cycle: 1:1.58
Medium: 3500-3700 Body Medium parameters used (interpolated):
f = 3690 MHz; σ = 3.401 S/m; ε_r = 50.781; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-27-2018; Ambient Temp: 22.8°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3914; ConvF(6.64, 6.64, 6.64) @ 3690 MHz; Calibrated: 2/14/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1966
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 48, Body SAR, Back side, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset

Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 5.993 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.342 W/kg
SAR(1 g) = 0.112 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0356M

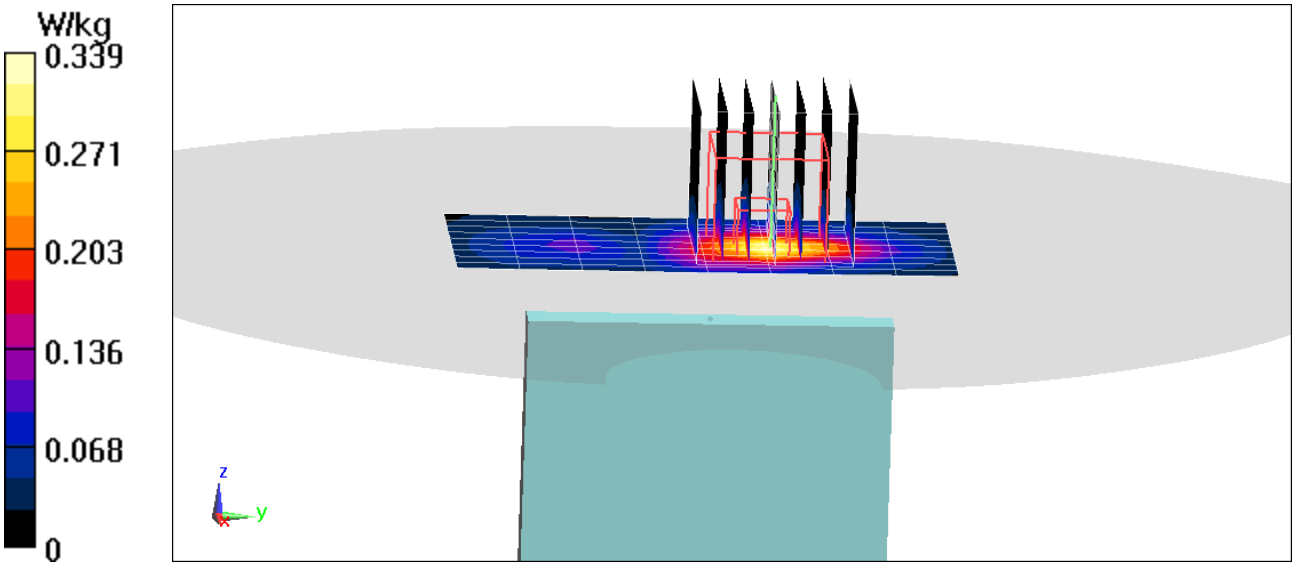
Communication System: UID 0, LTE Band 48; Frequency: 3690 MHz; Duty Cycle: 1:1.58
Medium: 3500-3700 Body Medium parameters used (interpolated):
f = 3690 MHz; σ = 3.401 S/m; ε_r = 50.781; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-27-2018; Ambient Temp: 22.8°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3914; ConvF(6.64, 6.64, 6.64) @ 3690 MHz; Calibrated: 2/14/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1966
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 48, Body SAR, Bottom Edge, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 7.578 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.486 W/kg
SAR(1 g) = 0.177 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 5125B

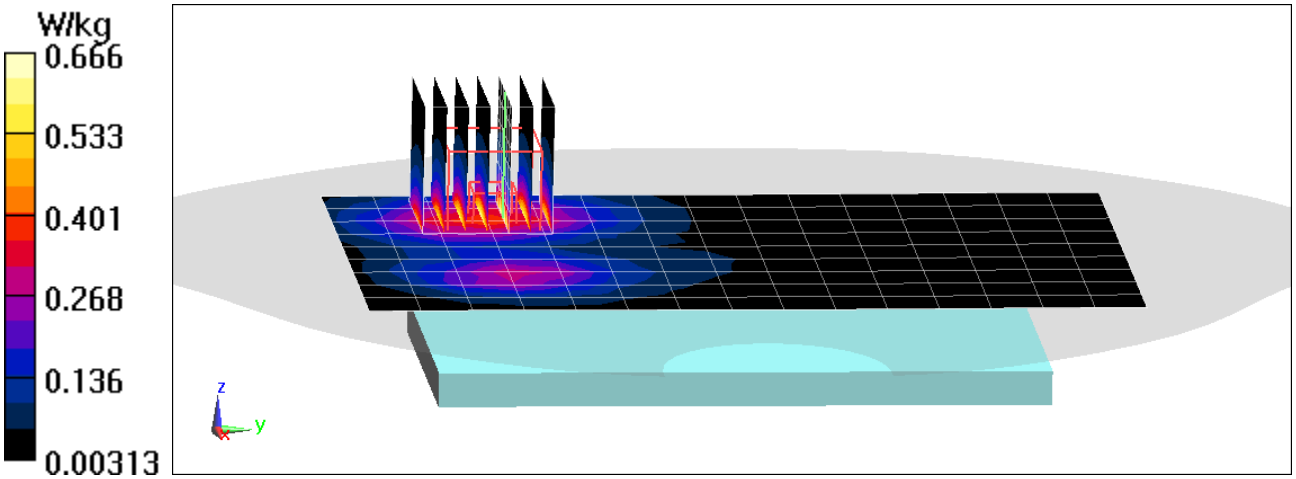
Communication System: UID 0, _LTE Band 41 (Class 2); Frequency: 2680 MHz; Duty Cycle: 1:2.31
Medium: 2450 Body Medium parameters used (interpolated):
f = 2680 MHz; σ = 2.306 S/m; ε_r = 50.912; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-14-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.6°C

Probe: ES3DV3 - SN3319; ConvF(4.33, 4.33, 4.33) @ 2680 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 41 PC2, Body SAR, Back side, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.94 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.533 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0372M

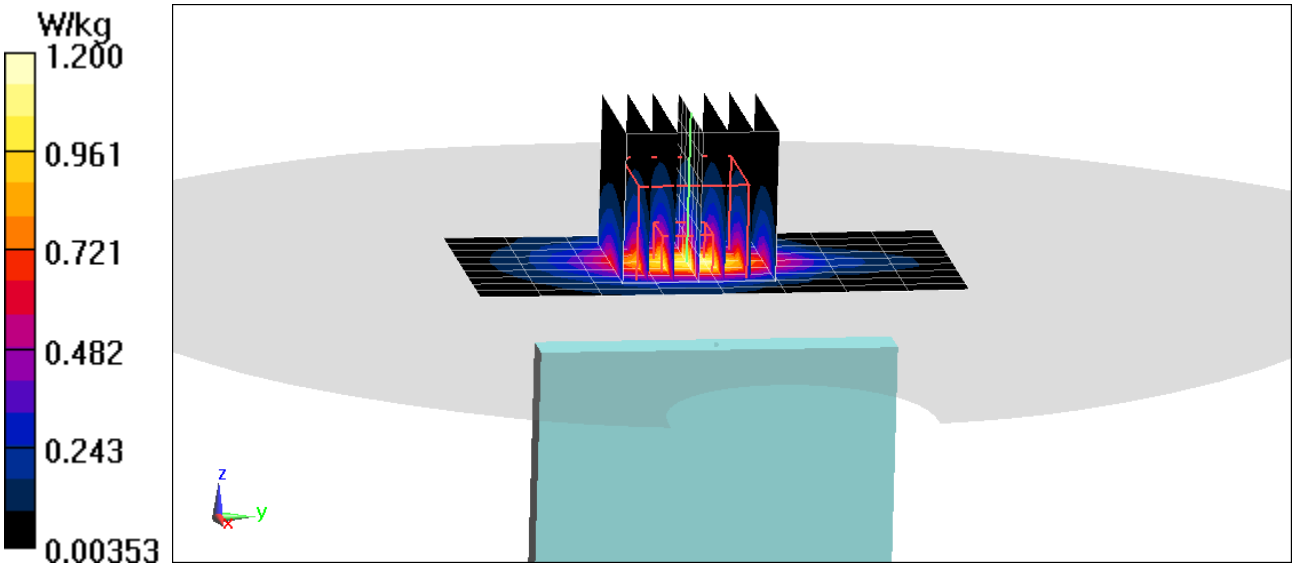
Communication System: UID 0, LTE Band 41 (Class 3); Frequency: 2549.5 MHz; Duty Cycle: 1:1.58
Medium: 2450 Body Medium parameters used:
f = 2550 MHz; σ = 2.15 S/m; ε_r = 50.678; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-29-2018; Ambient Temp: 22.6°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3319; ConvF(4.33, 4.33, 4.33) @ 2549.5 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 41, ULCA, Body SAR, Bottom Edge, Low-Mid.ch
PCC: 20 MHz Bandwidth, QPSK, Ch. 40185, 50 RB, 0 RB Offset
SCC: 20 MHz Bandwidth, QPSK, Ch. 39987, 50 RB, 50 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 = 22.39 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 1.89 W/kg
SAR(1 g) = 0.925 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0303M

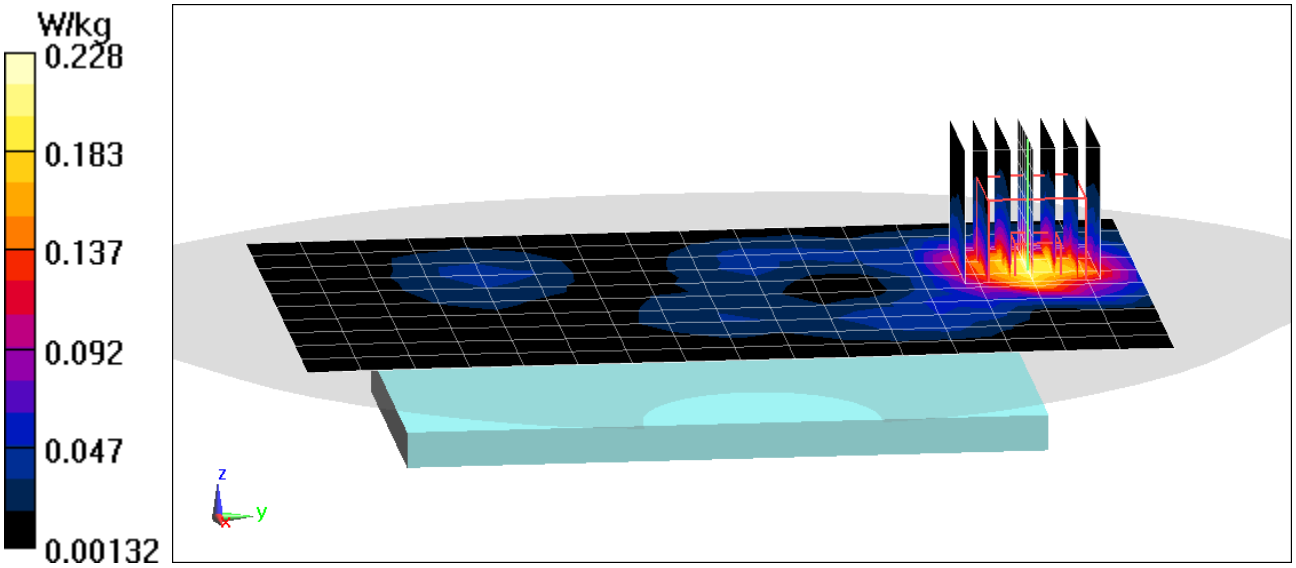
Communication System: UID 0, _IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 2.047 S/m; ε_r = 52.05; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-12-2018; Ambient Temp: 22.7°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2462 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11b, Antenna 2,
22 MHz Bandwidth, Body SAR, Ch 11, 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 = 8.805 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.366 W/kg
SAR(1 g) = 0.181 W/kg



DUT: A3LSMG970U; Type: Portable Handset; Serial: 0303M

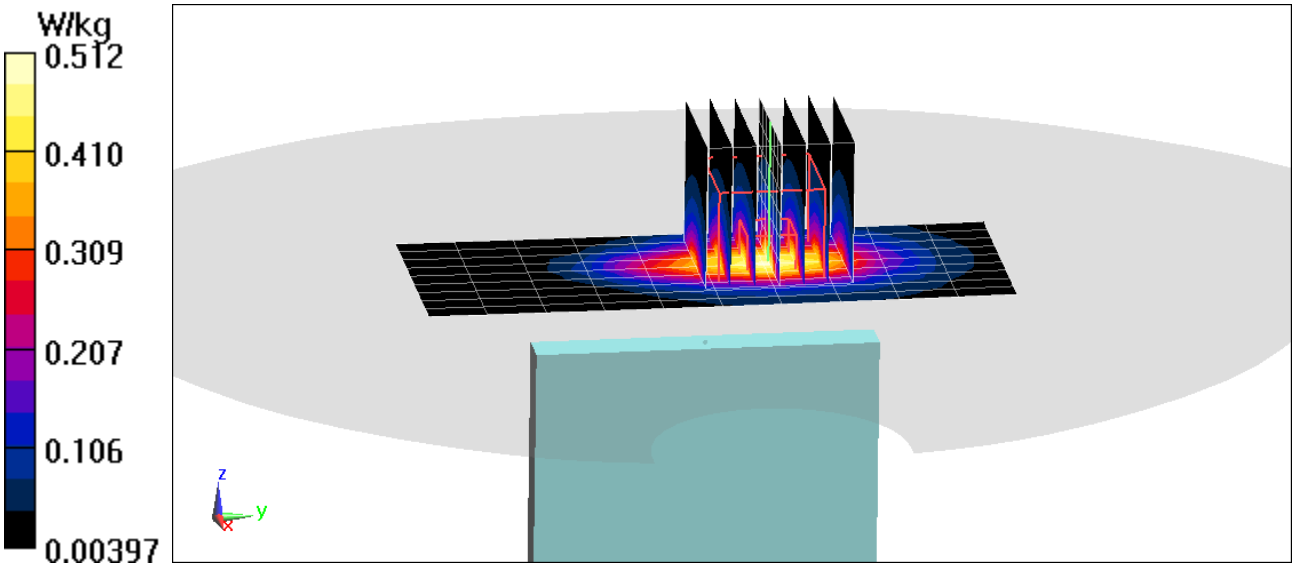
Communication System: UID 0, _IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 2.047 S/m; ε_r = 52.05; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-12-2018; Ambient Temp: 22.7°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2462 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11b, Antenna 2, 22 MHz Bandwidth,
Body SAR, Ch 11, 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 = 12.66 V/m; Power Drift = 0.21 dB
Peak SAR (extrapolated) = 0.785 W/kg
SAR(1 g) = 0.402 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0294M

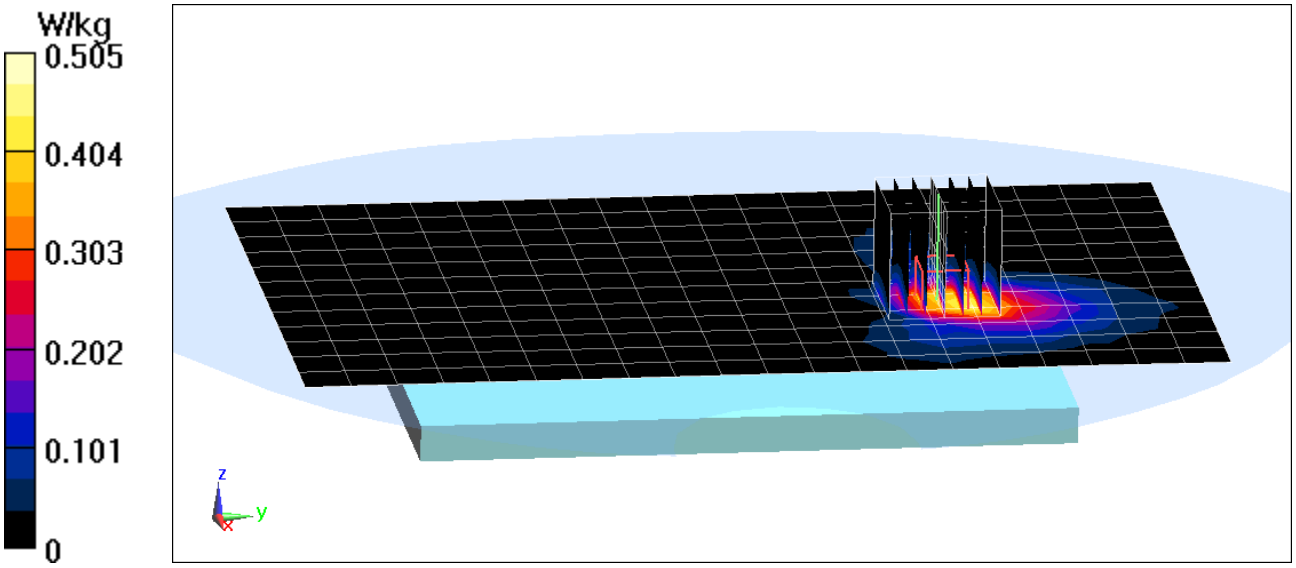
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5300 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5300 MHz; σ = 5.539 S/m; ε_r = 49.294; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-11-2018; Ambient Temp: 22.5°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7357; ConvF(4.78, 4.78, 4.78) @ 5300 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;SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a, UNII-2A, Antenna 2,
20 MHz Bandwidth, Body SAR, Ch 60, 6 Mbps, Back Side

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 = 6.755 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.789 W/kg
SAR(1 g) = 0.223 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0294M

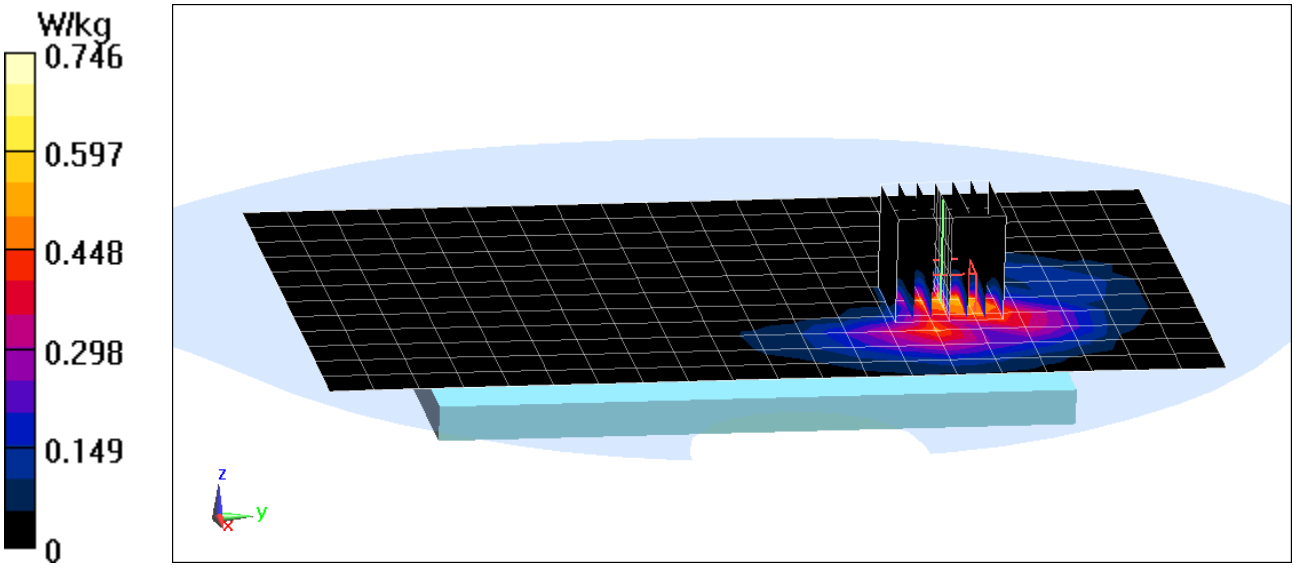
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5785 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5785 MHz; σ = 6.232 S/m; ε_r = 48.527; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-11-2018; Ambient Temp: 22.5°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7357; ConvF(4.21, 4.21, 4.21) @ 5785 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;SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a, UNII-3, Antenna 2,
20 MHz Bandwidth, Body SAR, Ch 157, 6 Mbps, Back Side

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 = 7.165 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.290 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0303M

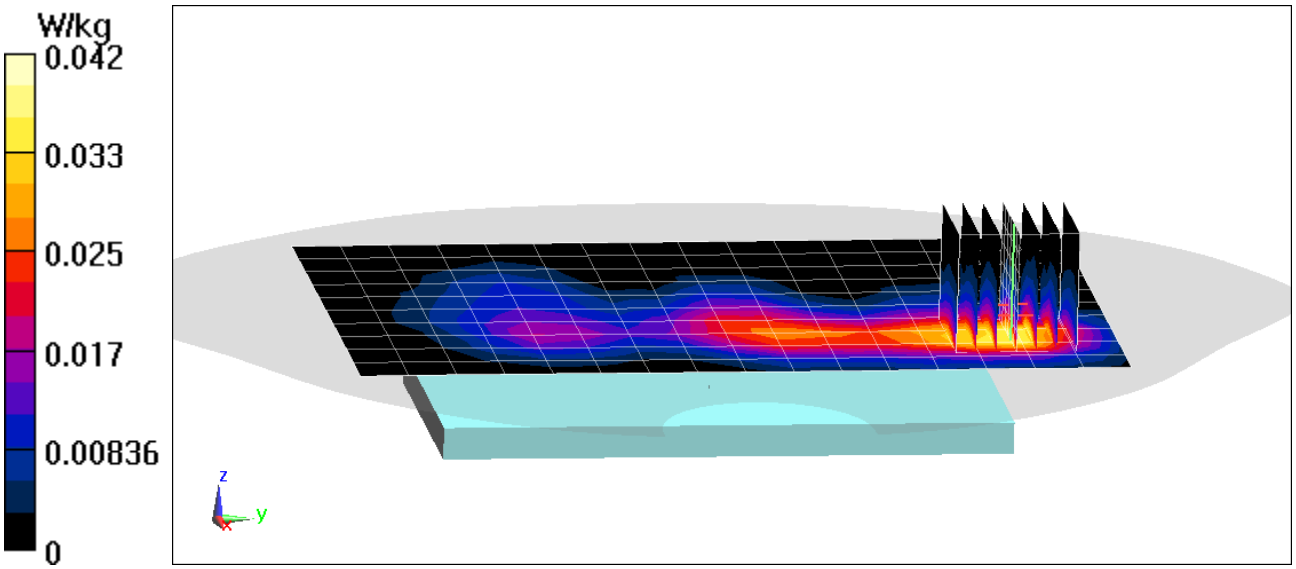
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.287
Medium: 2450 Body Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.034 S/m; ε_r = 51.047; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-14-2018; Ambient Temp: 21.9°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2441 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: Bluetooth, Body SAR, Ch 39, 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 = 4.354 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.0640 W/kg
SAR(1 g) = 0.033 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG970U; Type: Portable Handset; Serial: 0303M

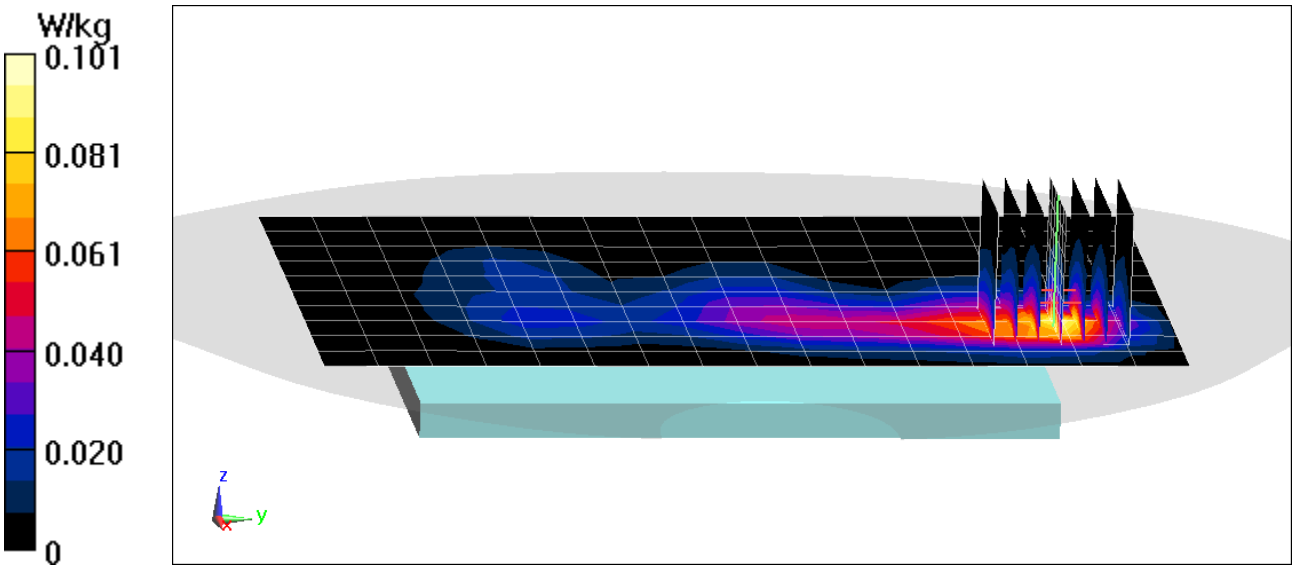
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.287
Medium: 2450 Body Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.034 S/m; ε_r = 51.047; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-14-2018; Ambient Temp: 21.9°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2441 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

Mode: Bluetooth, Body SAR, Ch 39, 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 = 6.662 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.154 W/kg
SAR(1 g) = 0.079 W/kg



APPENDIX B: SYSTEM VERIFICATION

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PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1054

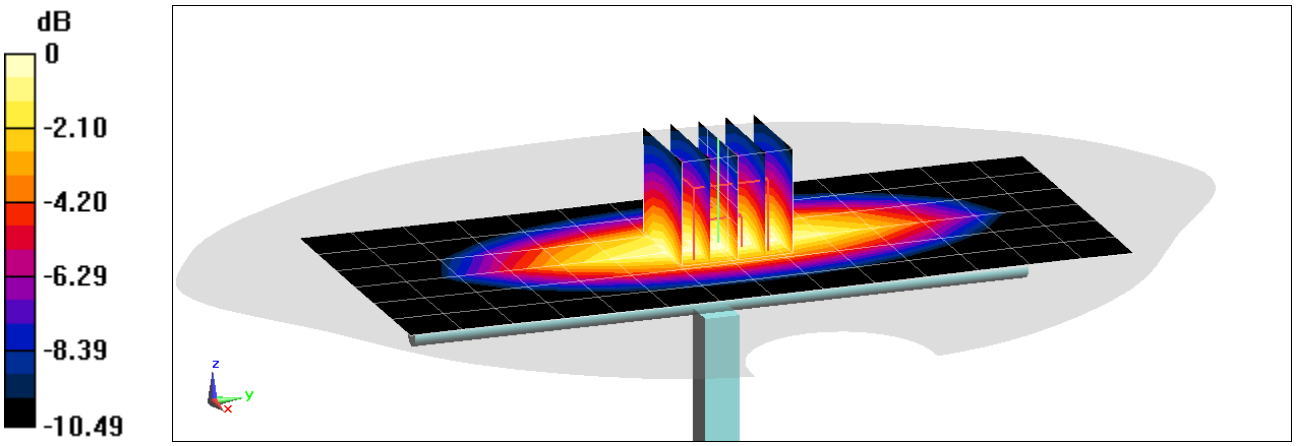
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Head; Medium parameters used (interpolated):
f = 750 MHz; σ = 0.898 S/m; ε_r = 43.461; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-13-2018; Ambient Temp: 21.3°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7406; ConvF(10.09, 10.09, 10.09) @ 750 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10;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) = 2.46 W/kg
SAR(1 g) = 1.63 W/kg
Deviation(1 g) = -2.63%



0 dB = 2.19 W/kg = 3.40 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d047

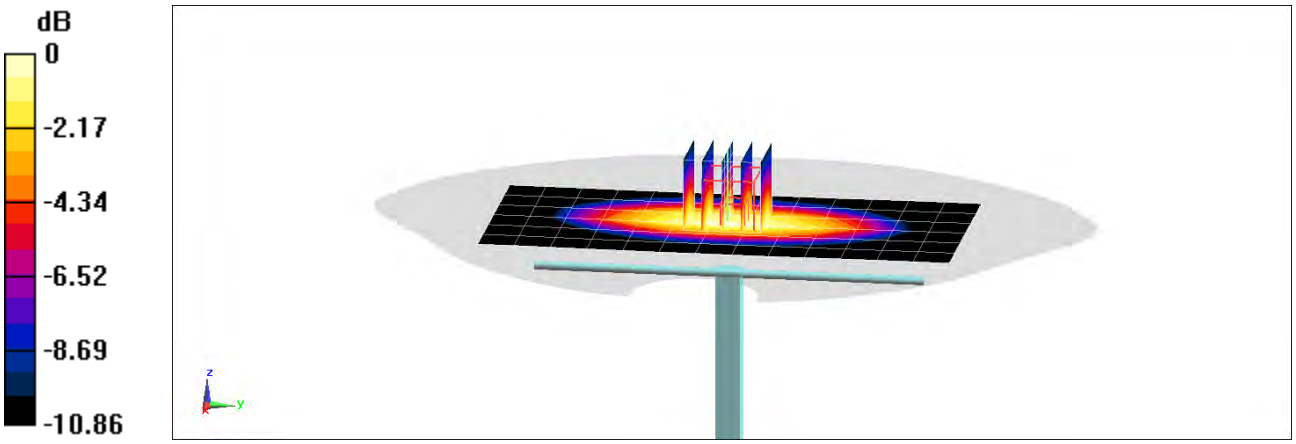
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.913 S/m; ε_r = 41.62; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-15-2018; Ambient Temp: 19.8°C; Tissue Temp: 18.1°C

Probe: EX3DV4 - SN7308; ConvF(9.96, 9.96, 9.96) @ 835 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;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) = 2.94 W/kg
SAR(1 g) = 1.95 W/kg
Deviation(1 g) = 2.96%



0 dB = 2.60 W/kg = 4.15 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1150

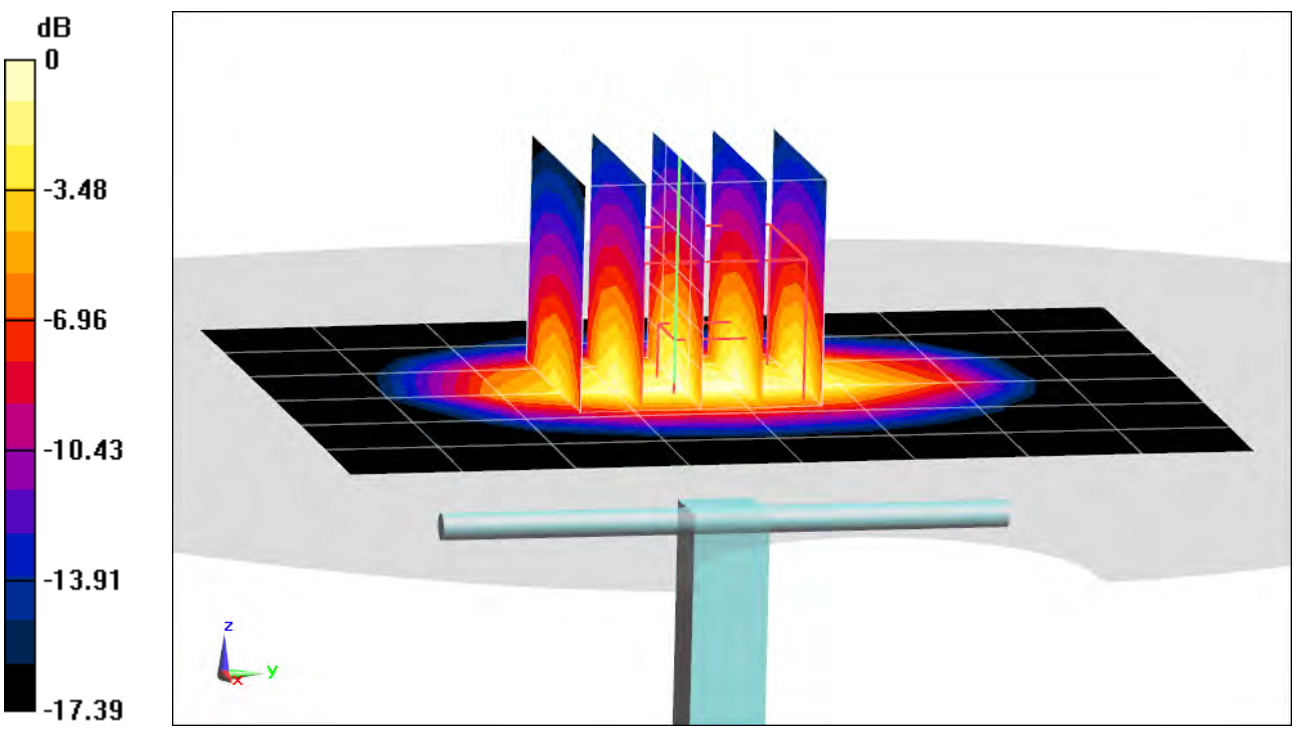
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head; Medium parameters used:
f = 1750 MHz; σ = 1.397 S/m; ε_r = 40.104; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-21-2018; Ambient Temp: 20.5°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3287; ConvF(5.48, 5.48, 5.48) @ 1750 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10;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) = 6.80 W/kg
SAR(1 g) = 3.79 W/kg
Deviation(1 g) = 3.84%



0 dB = 4.67 W/kg = 6.69 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d148

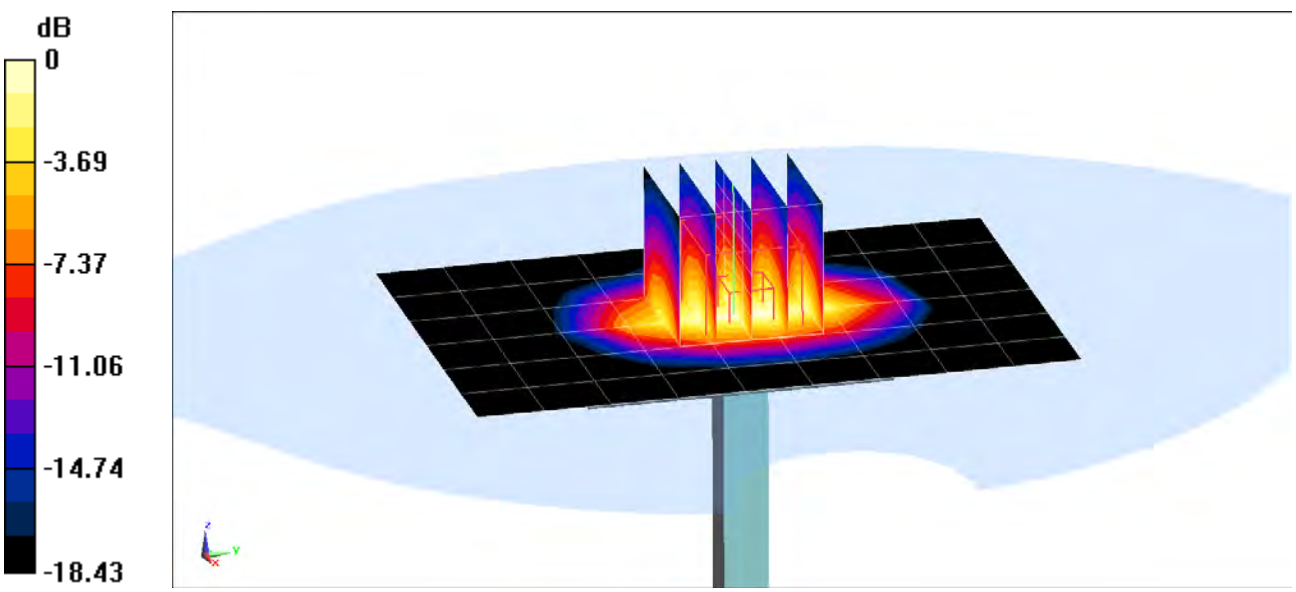
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.452 S/m; ε_r = 41.191; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-12-2018; Ambient Temp: 22.5°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3213; ConvF(5.3, 5.3, 5.3) @ 1900 MHz; Calibrated: 2/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.43 W/kg
SAR(1 g) = 3.98 W/kg
Deviation(1 g) = -0.75%



0 dB = 5.04 W/kg = 7.02 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d148

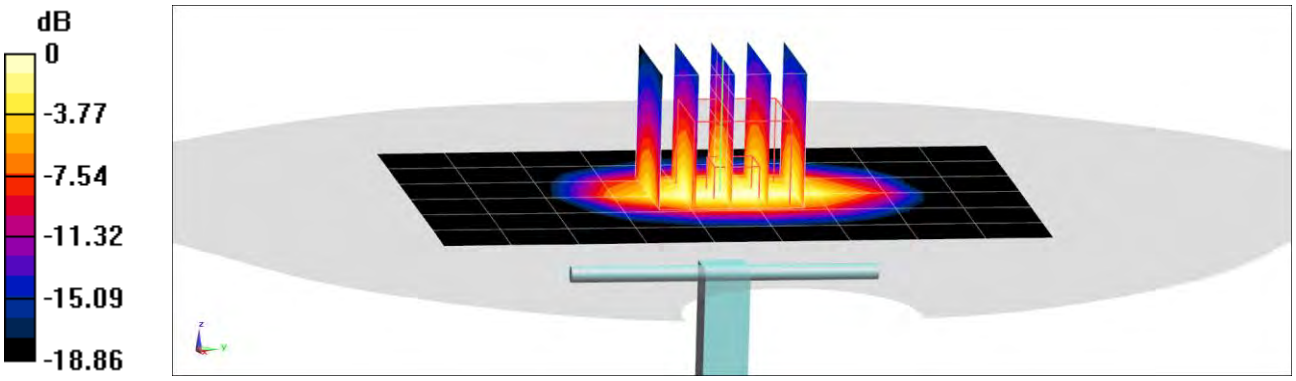
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.442 S/m; ε_r = 38.957; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-03-2018; Ambient Temp: 21.7°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3287; ConvF(5.24, 5.24, 5.24) @ 1900 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.65 W/kg
SAR(1 g) = 4.2 W/kg
Deviation(1 g) = 4.74%



0 dB = 5.21 W/kg = 7.17 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2300 MHz; Type: D2300V2; Serial: 1073

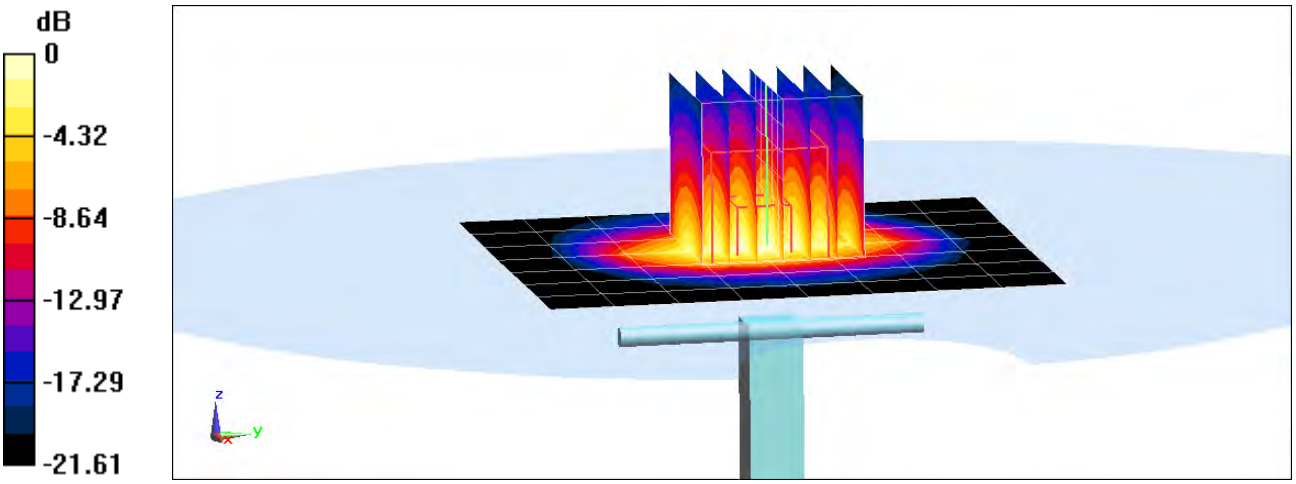
Communication System: UID 0, CW; Frequency: 2300 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2300 MHz; σ = 1.704 S/m; ε_r = 39.167; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-16-2018; Ambient Temp: 22.4°C; Tissue Temp: 23.1°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 2300 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;SEMCAD X Version 14.6.12 (7450)

2300 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) = 9.69 W/kg
SAR(1 g) = 4.77 W/kg
Deviation(1 g) = -3.05%



0 dB = 7.82 W/kg = 8.93 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 981

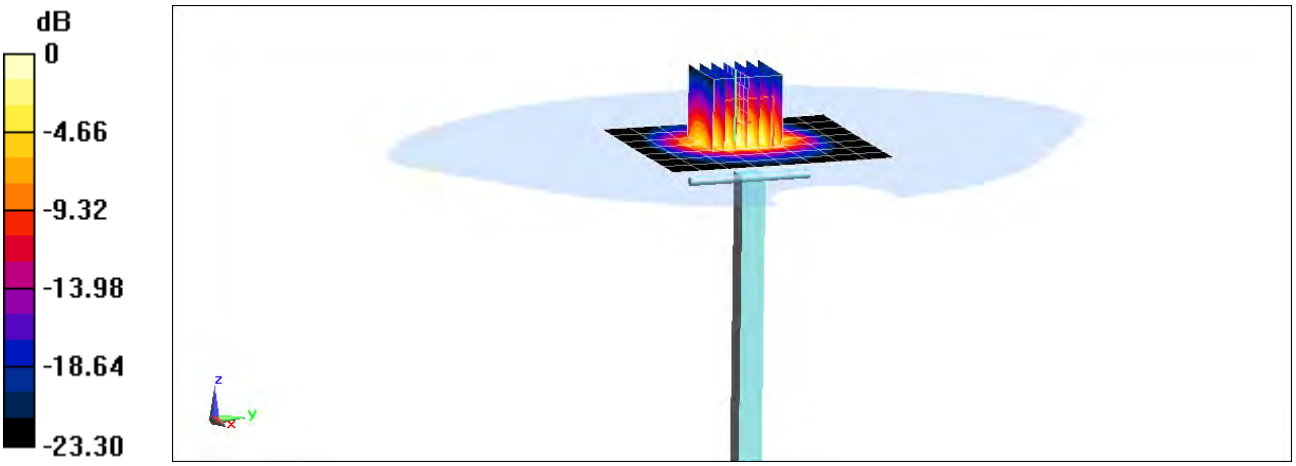
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.848 S/m; ε_r = 39.073; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-05-2018; Ambient Temp: 23.0°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN7410; ConvF(7.5, 7.5, 7.5) @ 2450 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;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) = 5.45 W/kg
Deviation(1 g) = 4.21%;



0 dB = 9.20 W/kg = 9.64 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 797

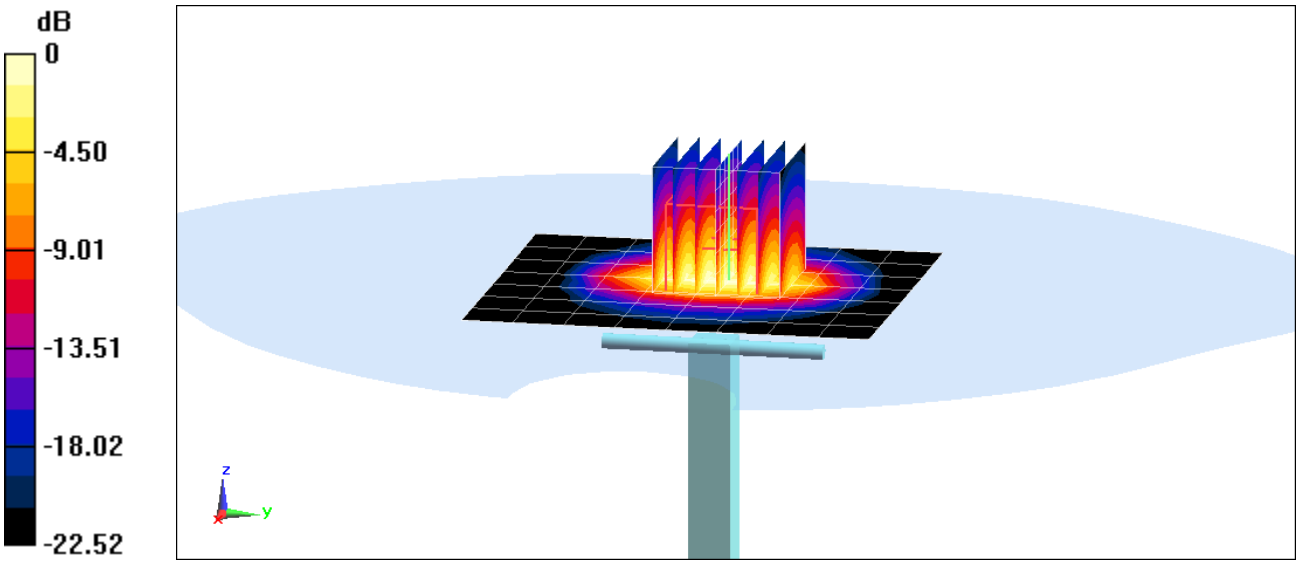
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 MHz Head Medium parameters used:
f = 2450 MHz; σ = 1.791 S/m; ε_r = 38.632; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-15-2019; Ambient Temp: 20.9°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7409; ConvF(7.23, 7.23, 7.23) @ 2450 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)

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) = 11.1 W/kg
SAR(1 g) = 5.27 W/kg
Deviation(1 g) = 0.00%



0 dB = 8.84 W/kg = 9.46 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1126

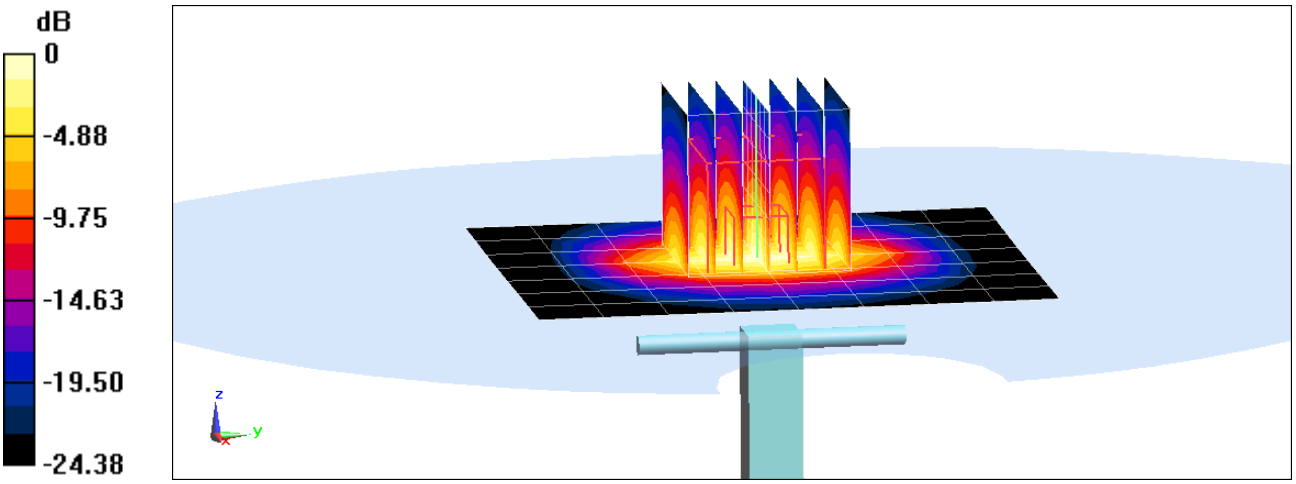
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2600 MHz; σ = 2.019 S/m; ε_r = 37.873; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-18-2018; Ambient Temp: 23.2°C; Tissue Temp: 23.4°C

Probe: EX3DV4 - SN7410; ConvF(7.24, 7.24, 7.24) @ 2600 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;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) = 5.7 W/kg
Deviation(1 g) = 4.59%



0 dB = 10.0 W/kg = 10.00 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1064

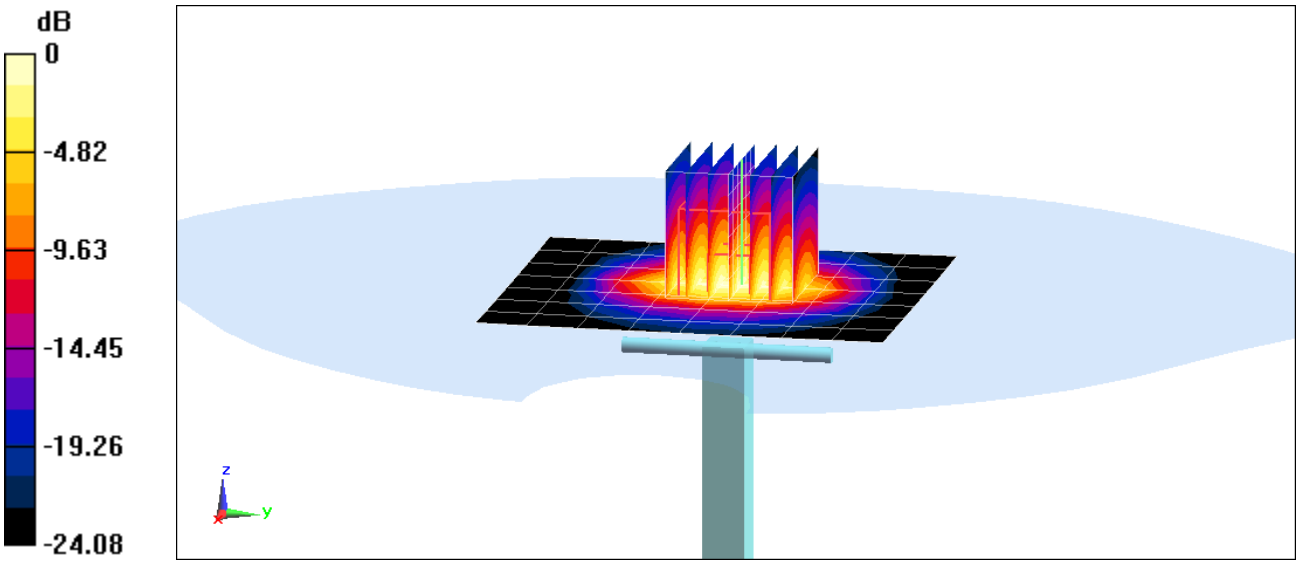
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 MHz Head Medium parameters used:
f = 2600 MHz; σ = 1.91 S/m; ε_r = 38.363; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-15-2019; Ambient Temp: 20.9°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7409; ConvF(6.98, 6.98, 6.98) @ 2600 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)

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) = 12.2 W/kg
SAR(1 g) = 5.55 W/kg
Deviation(1 g) = -2.63%



0 dB = 9.50 W/kg = 9.78 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 3500 MHz; Type: D3500V2; Serial: 1055

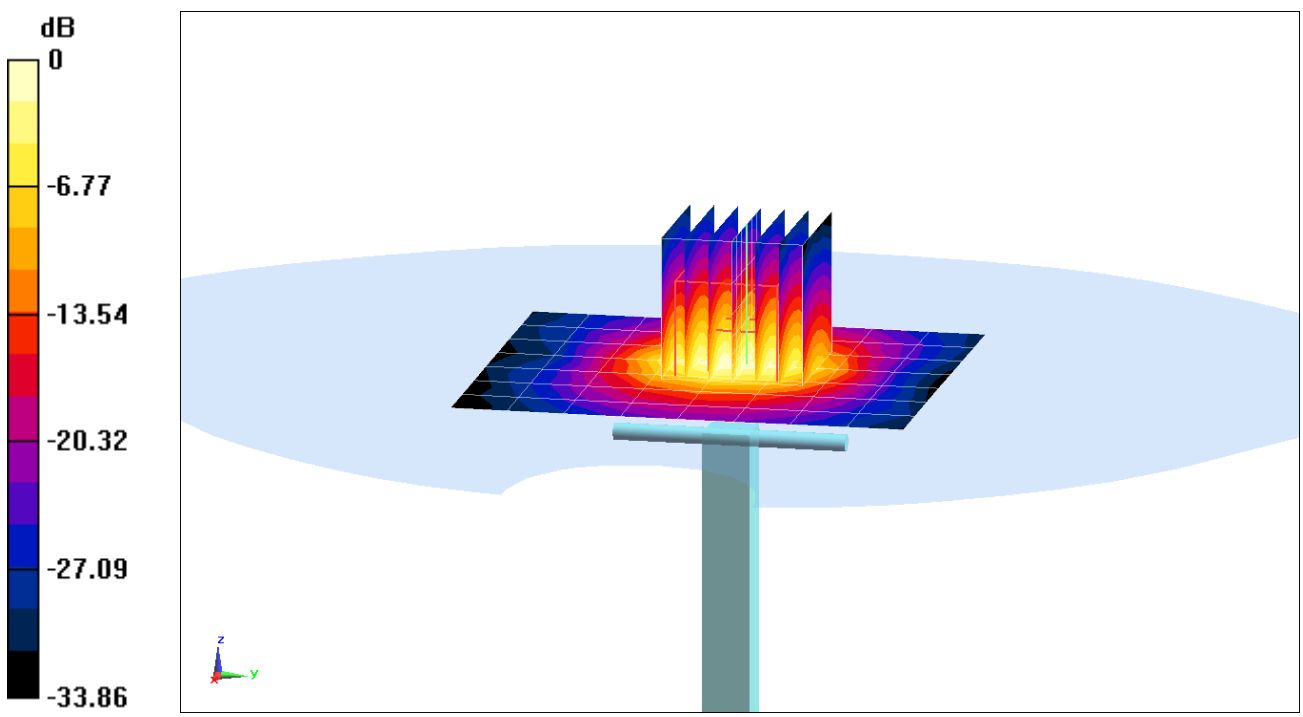
Communication System: UID 0, CW; Frequency: 3500 MHz; Duty Cycle: 1:1
Medium: 3500 - 3700 Head; Medium parameters used:
f = 3500 MHz; σ = 2.924 S/m; ε_r = 37.356; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-27-2018; Ambient Temp: 22.7°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN3949; ConvF(7.36, 7.36, 7.36) @ 3500 MHz; Calibrated: 8/24/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

3500 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 19.6 W/kg
SAR(1 g) = 6.95 W/kg
Deviation(1 g) = 4.04%



0 dB = 13.6 W/kg = 11.34 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 3700 MHz; Type: D3700V2; Serial: 1002

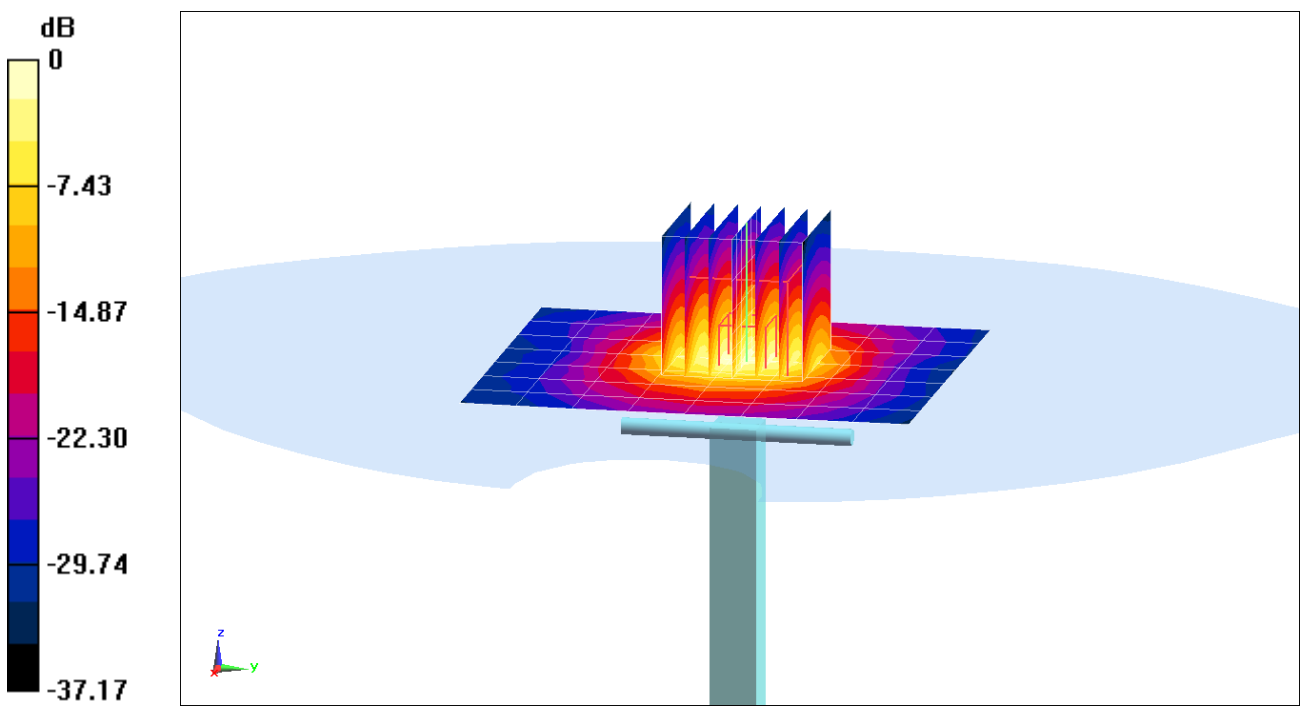
Communication System: UID 0, CW; Frequency: 3700 MHz; Duty Cycle: 1:1
Medium: 3500 - 3700 Head; Medium parameters used (interpolated):
f = 3700 MHz; σ = 3.081 S/m; ε_r = 37.138; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-27-2018; Ambient Temp: 22.7°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN3949; ConvF(7.24, 7.24, 7.24) @ 3700 MHz; Calibrated: 8/24/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

3700 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 22.3 W/kg
SAR(1 g) = 7.22 W/kg
Deviation(1 g) = 6.33%



0 dB = 15.0 W/kg = 11.76 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

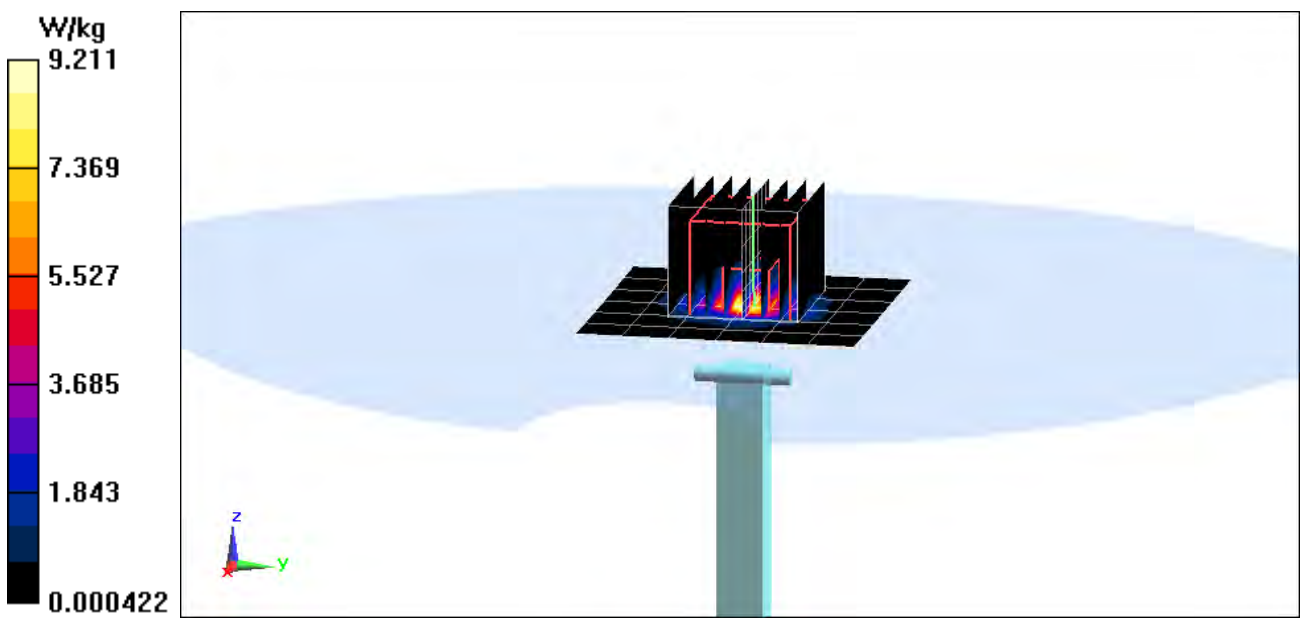
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5250 MHz; σ = 4.662 S/m; ε_r = 35.504; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-14-2018; Ambient Temp: 22.3°C; Tissue Temp: 18.7°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;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) = 16.0 W/kg
SAR(1 g) = 3.87 W/kg
Deviation(1 g) = -1.90%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

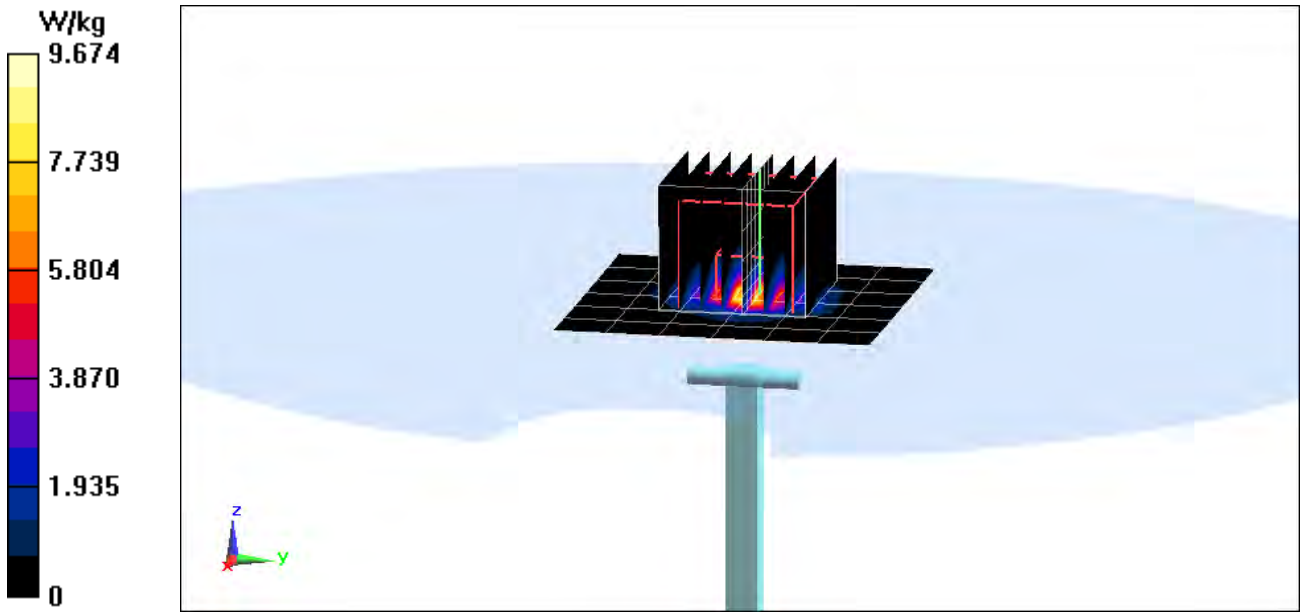
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used:
f = 5600 MHz; σ = 5.02 S/m; ε_r = 34.927; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-14-2018; Ambient Temp: 22.3°C; Tissue Temp: 18.7°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;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) = 17.6 W/kg
SAR(1 g) = 3.97 W/kg
Deviation(1 g) = -5.02%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

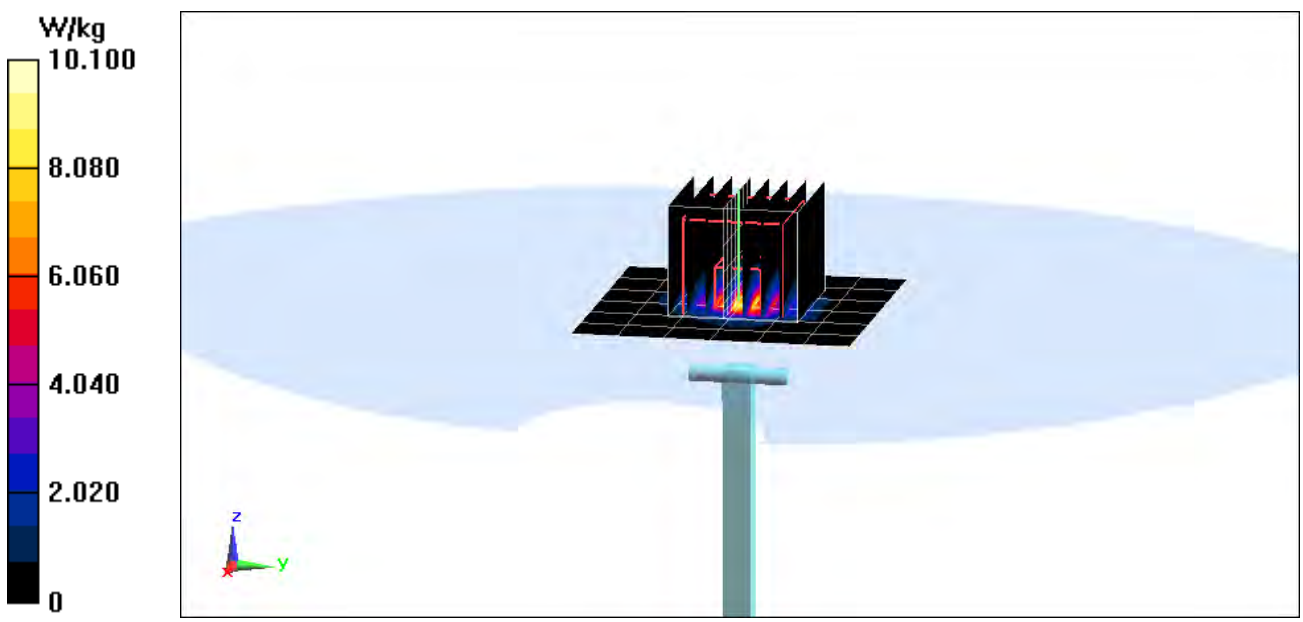
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5 GHz Head; Medium parameters used (interpolated):
f = 5750 MHz; σ = 5.2 S/m; ε_r = 34.738; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-14-2018; Ambient Temp: 22.3°C; Tissue Temp: 18.7°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;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) = 18.5 W/kg
SAR(1 g) = 4.03 W/kg
Deviation(1 g) = 1.90%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1054

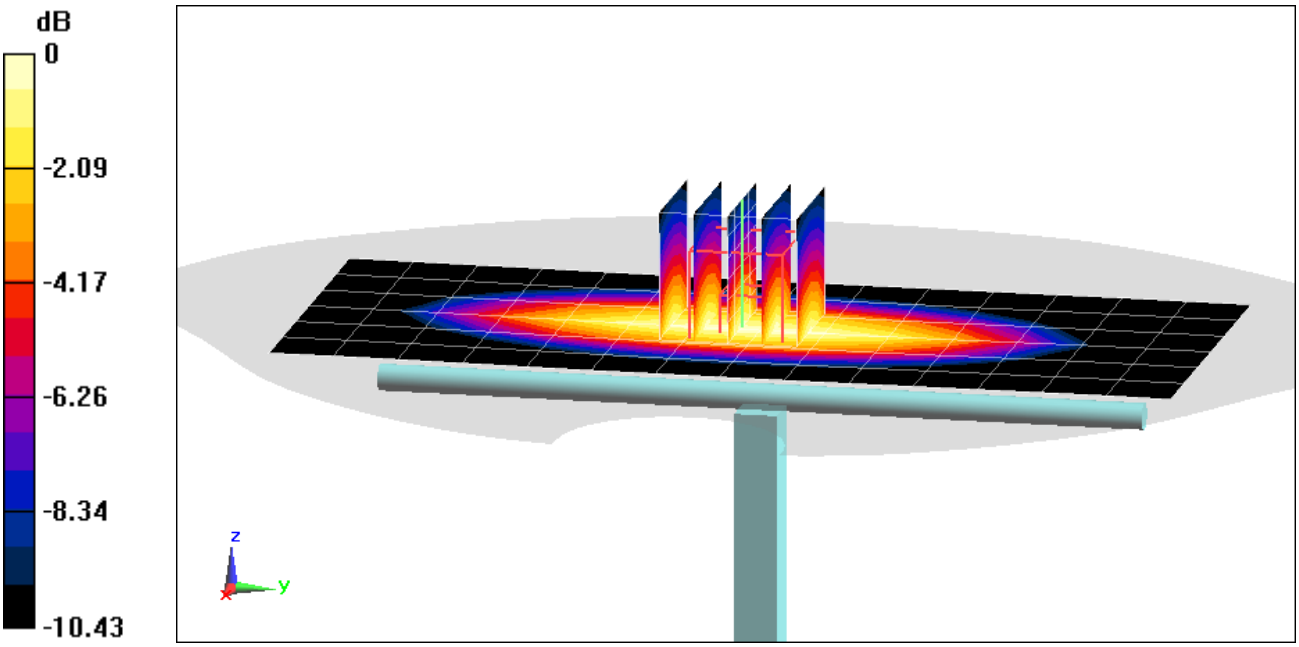
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used (interpolated):
f = 750 MHz; σ = 0.966 S/m; ε_r = 52.992; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-18-2018; Ambient Temp: 21.4°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7406; ConvF(9.91, 9.91, 9.91) @ 750 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V5.0 Back Right; Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10;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) = 2.75 W/kg
SAR(1 g) = 1.78 W/kg
Deviation(1 g) = 3.37%



0 dB = 2.42 W/kg = 3.84 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d132

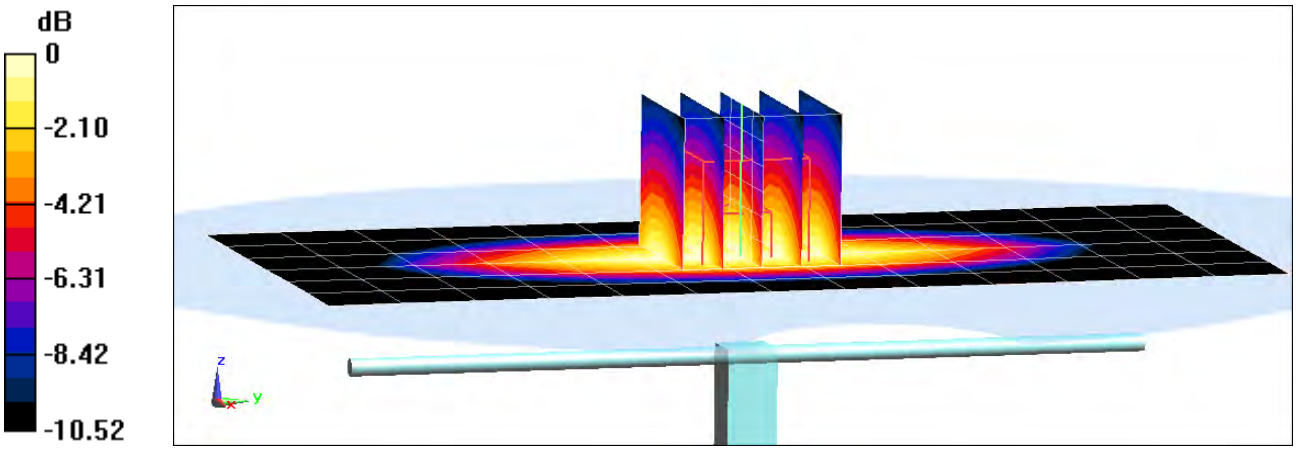
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.978 S/m; ε_r = 53.187; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-12-2018; Ambient Temp: 21.7°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(9.63, 9.63, 9.63) @ 835 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;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) = 3.13 W/kg
SAR(1 g) = 2.09 W/kg
Deviation(1 g) = 7.62%



0 dB = 2.69 W/kg = 4.30 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d047

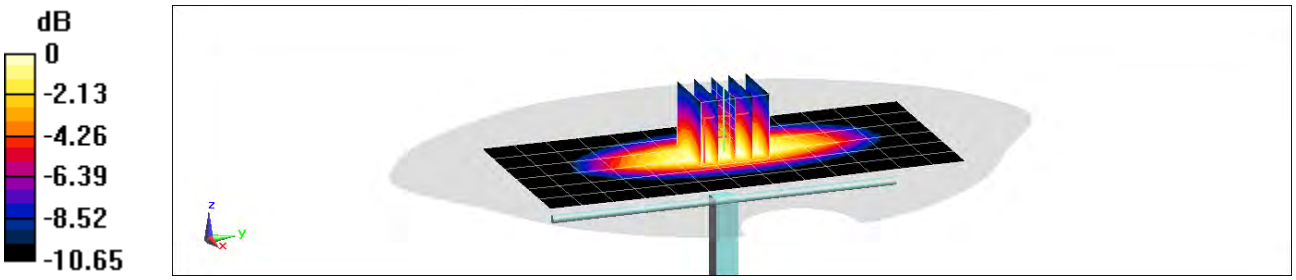
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used:
f = 835 MHz; σ = 1.018 S/m; ε_r = 53.976; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-26-2018; Ambient Temp: 19.9°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 835 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10;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) = 3.17 W/kg
SAR(1 g) = 2.1 W/kg
Deviation(1 g) = 8.14%



0 dB = 2.80 W/kg = 4.47 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1150

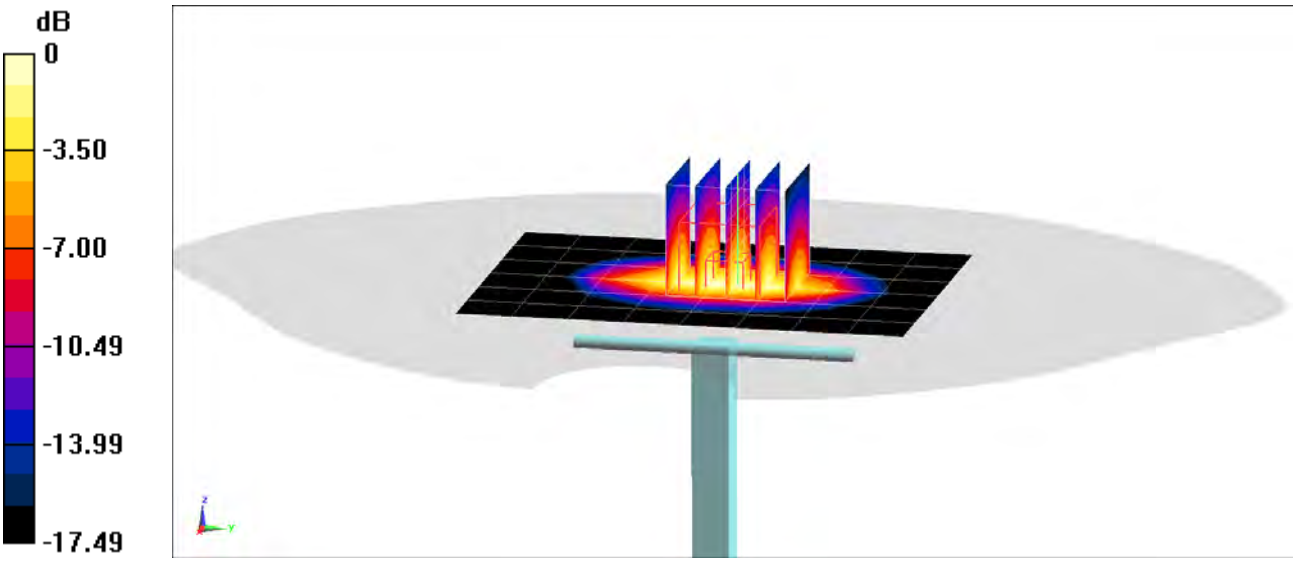
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.513 S/m; ε_r = 50.84; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-21-2018; Ambient Temp: 19.7°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3347; ConvF(5.17, 5.17, 5.17) @ 1750 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10;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) = 6.73 W/kg
SAR(1 g) = 3.8 W/kg
Deviation(1 g) = 3.83%



0 dB = 4.76 W/kg = 6.78 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1148

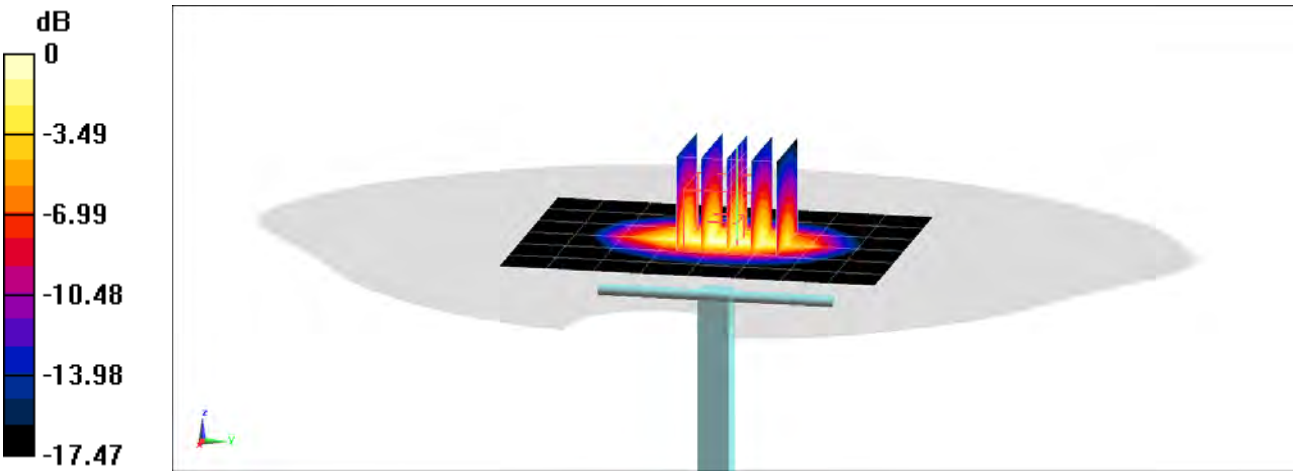
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.548 S/m; ε_r = 52.232; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-28-2018; Ambient Temp: 20.1°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3347; ConvF(5.17, 5.17, 5.17) @ 1750 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10;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) = 6.86 W/kg
SAR(1 g) = 3.88 W/kg
Deviation(1 g) = 4.86%



0 dB = 4.82 W/kg = 6.83 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1148

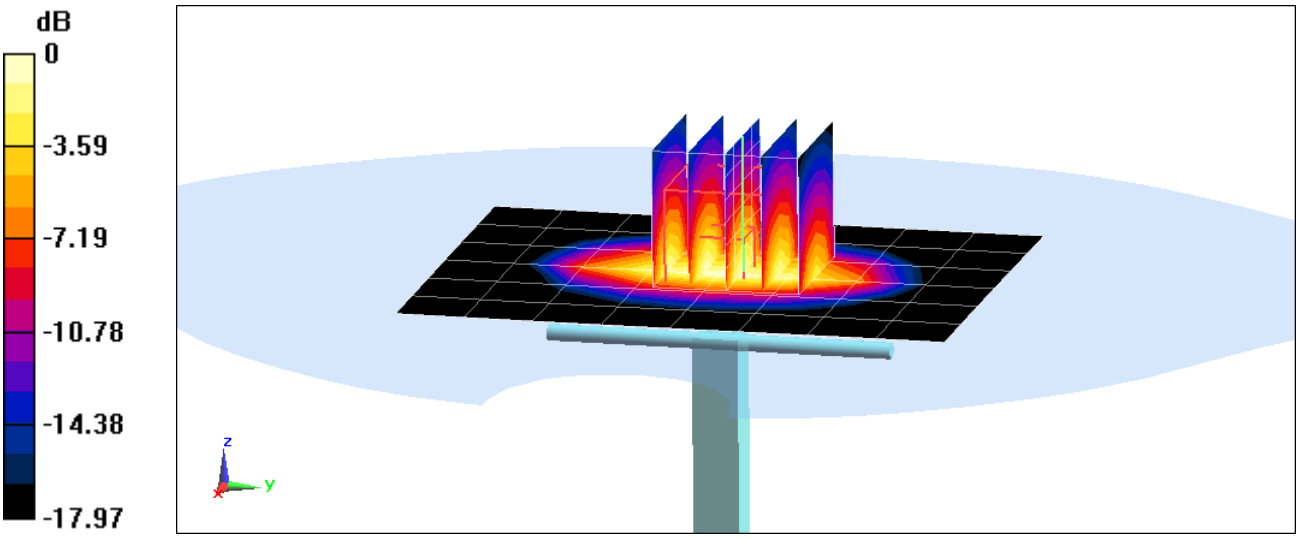
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body; Medium parameters used:
f = 1750 MHz; σ = 1.542 S/m; ε_r = 51.118; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-04-2018; Ambient Temp: 22.6°C; Tissue Temp: 20.2°C

Probe: EX3DV4 - SN7409; ConvF(7.91, 7.91, 7.91) @ 1750 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;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) = 7.23 W/kg
SAR(1 g) = 3.92 W/kg
Deviation(1 g) = 5.95%



0 dB = 5.99 W/kg = 7.77 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d148

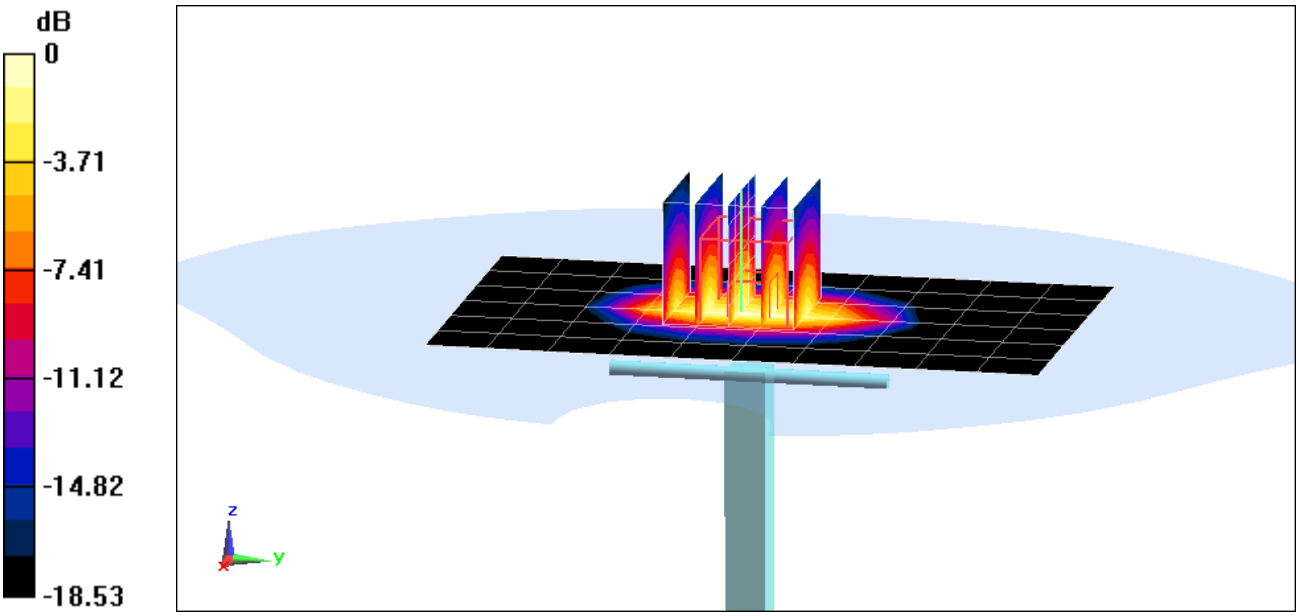
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.575 S/m; ε_r = 51.505; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-12-2018; Ambient Temp: 21.8°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7409; ConvF(7.6, 7.6, 7.6) @ 1900 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;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) = 7.79 W/kg
SAR(1 g) = 4.17 W/kg
Deviation(1 g) = 5.30%



0 dB = 6.51 W/kg = 8.14 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d148

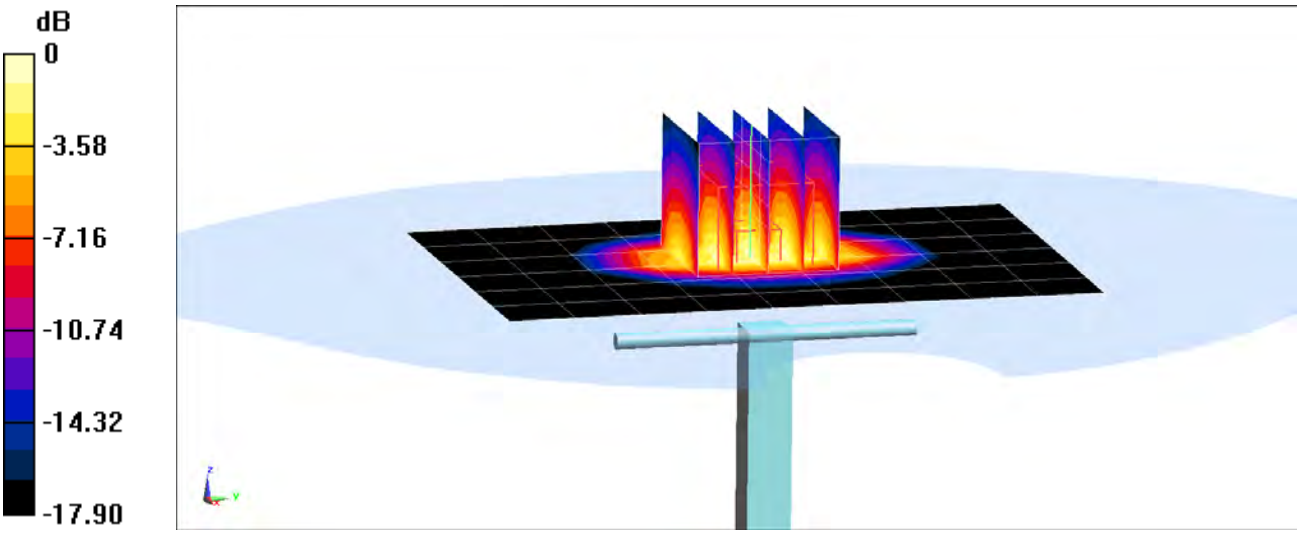
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.579 S/m; ε_r = 51.286; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-14-2018; Ambient Temp: 23.9°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3213; ConvF(4.88, 4.88, 4.88) @ 1900 MHz; Calibrated: 2/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.46 W/kg
SAR(1 g) = 4.23 W/kg
Deviation(1 g) = 6.82%



0 dB = 5.36 W/kg = 7.29 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

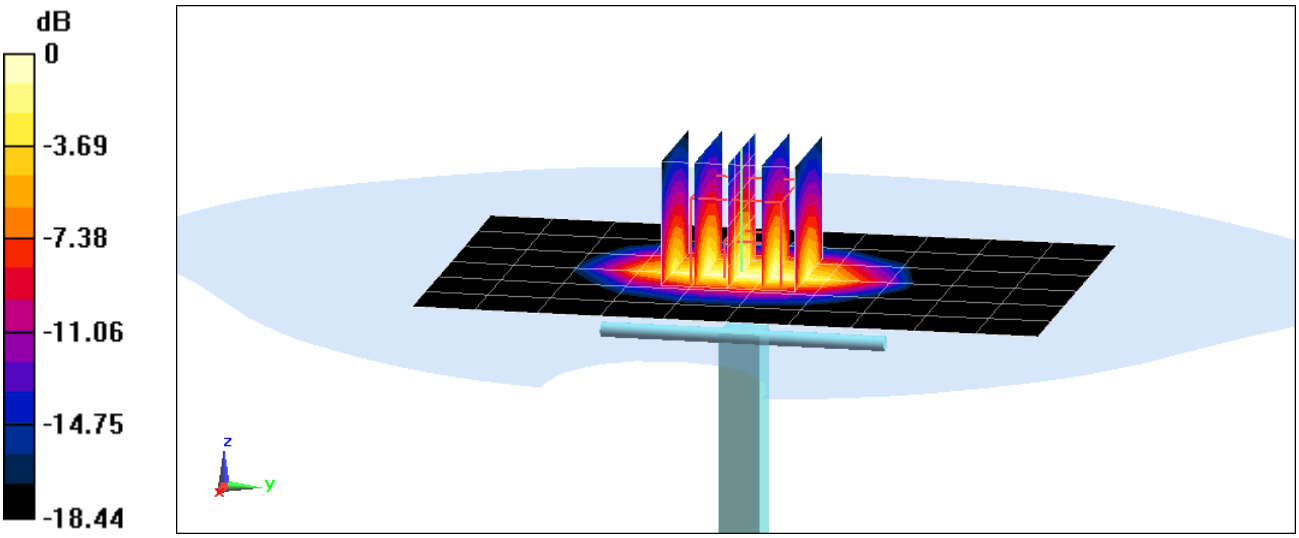
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body; Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.577 S/m; ε_r = 52.302; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-02-2018; Ambient Temp: 21.9°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN7409; ConvF(7.6, 7.6, 7.6) @ 1900 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;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) = 7.87 W/kg
SAR(1 g) = 4.19 W/kg
Deviation(1 g) = 6.89%



0 dB = 6.58 W/kg = 8.18 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d148

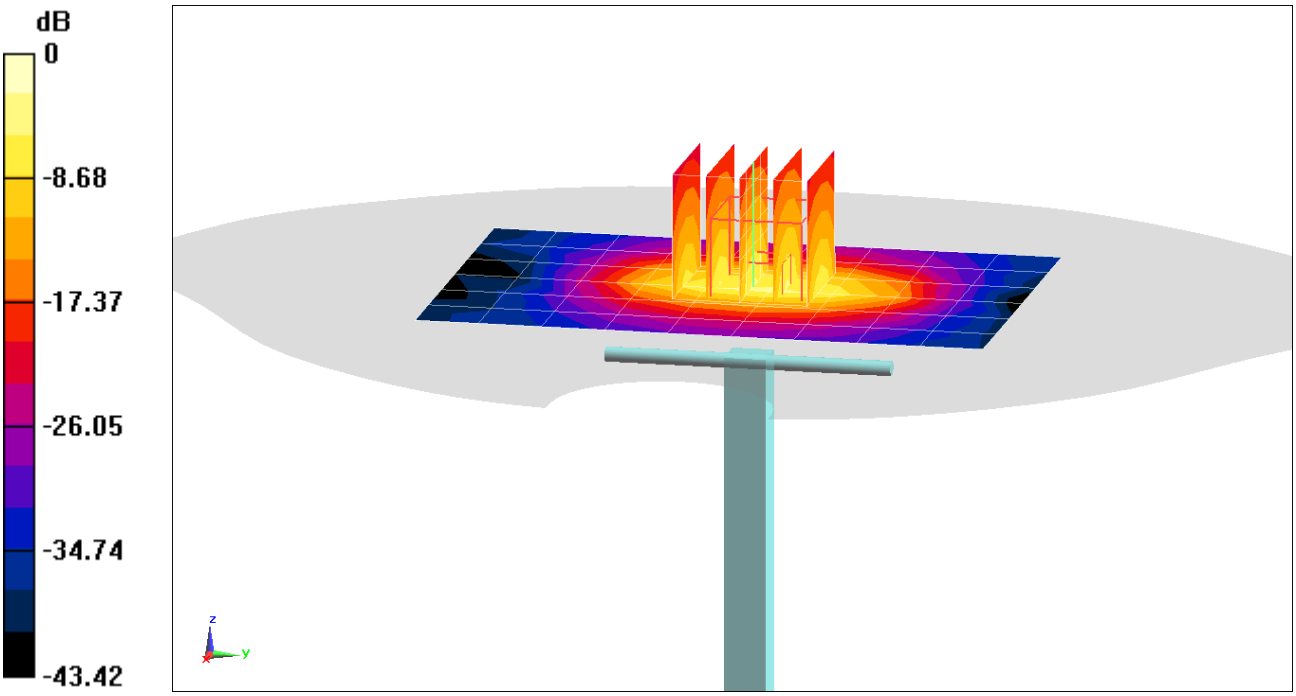
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.585 S/m; ε_r = 52.753; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-07-2018; Ambient Temp: 19.5°C; Tissue Temp: 19.2°C

Probe: ES3DV3 - SN3347; ConvF(4.94, 4.94, 4.94) @ 1900 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.60 W/kg
SAR(1 g) = 4.21 W/kg
Deviation(1 g) = 6.31%



0 dB = 15.0 W/kg = 11.76 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2300 MHz; Type: D2300V2; Serial: 1073

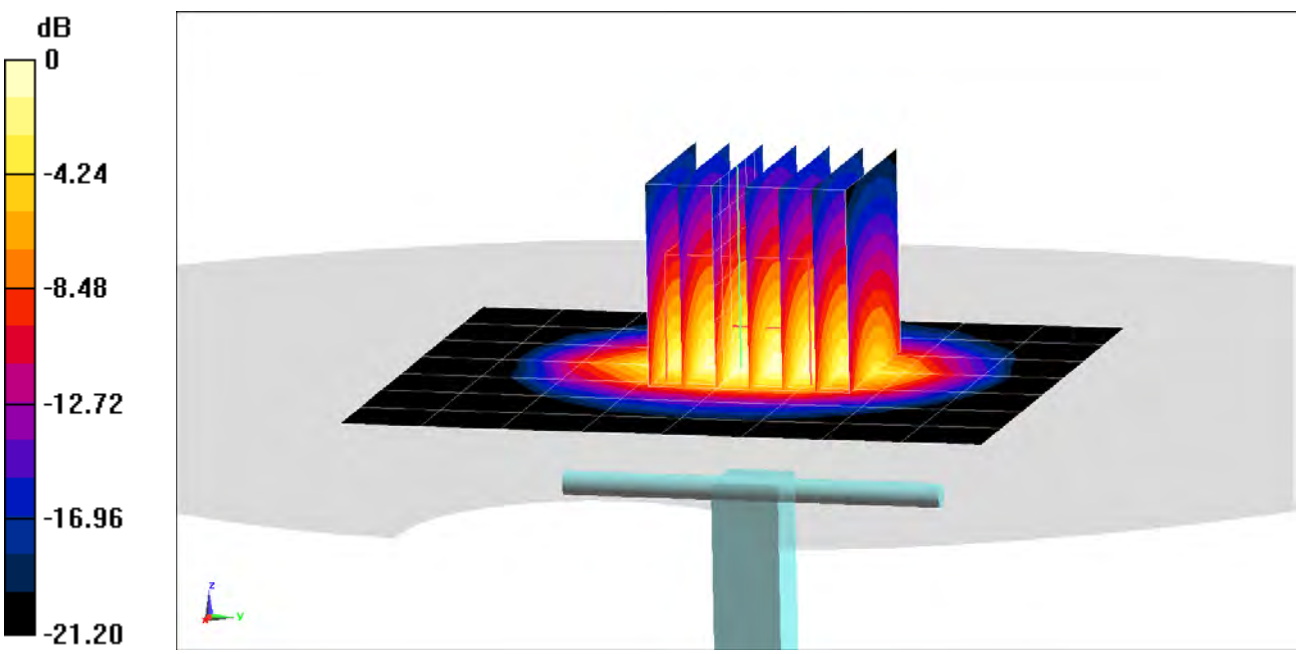
Communication System: UID 0, CW; Frequency: 2300 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2300 MHz; σ = 1.878 S/m; ε_r = 51.069; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-20-2018; Ambient Temp: 23.2°C; Tissue Temp: 23.5°C

Probe: ES3DV3 - SN3319; ConvF(4.63, 4.63, 4.63) @ 2300 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

2300 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) = 10.0 W/kg
SAR(1 g) = 5.08 W/kg
Deviation(1 g) = 6.50%



0 dB = 6.54 W/kg = 8.16 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 719

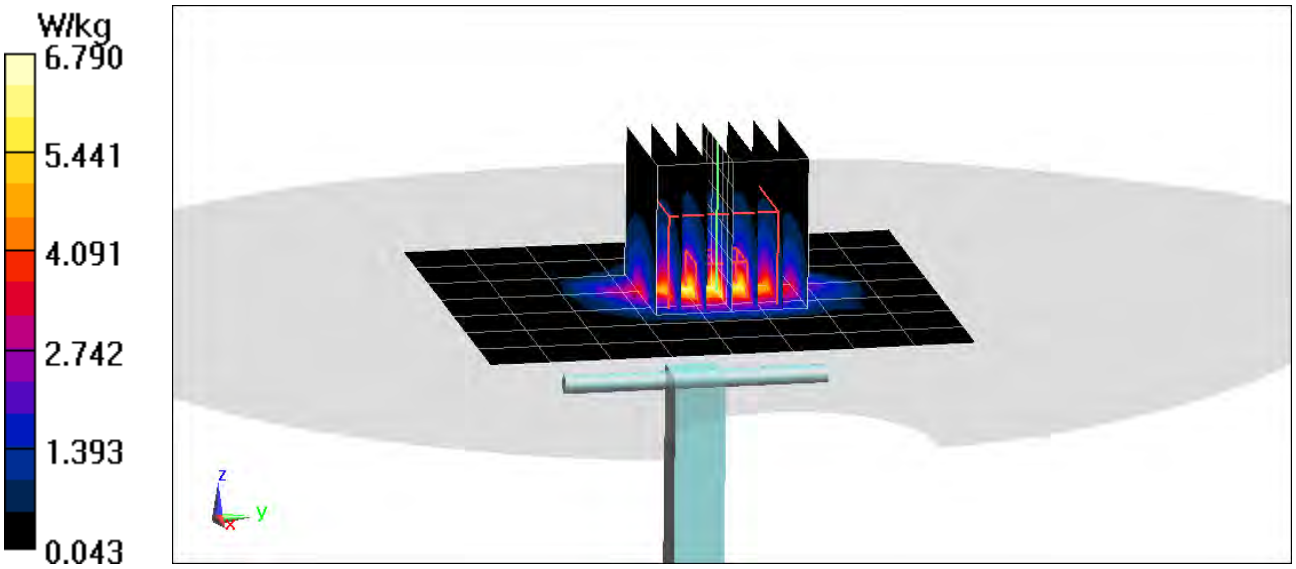
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.033 S/m; ε_r = 52.107; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-12-2018; Ambient Temp: 22.7°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2450 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10;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) = 5.13 W/kg
Deviation(1 g) = 2.40%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 981

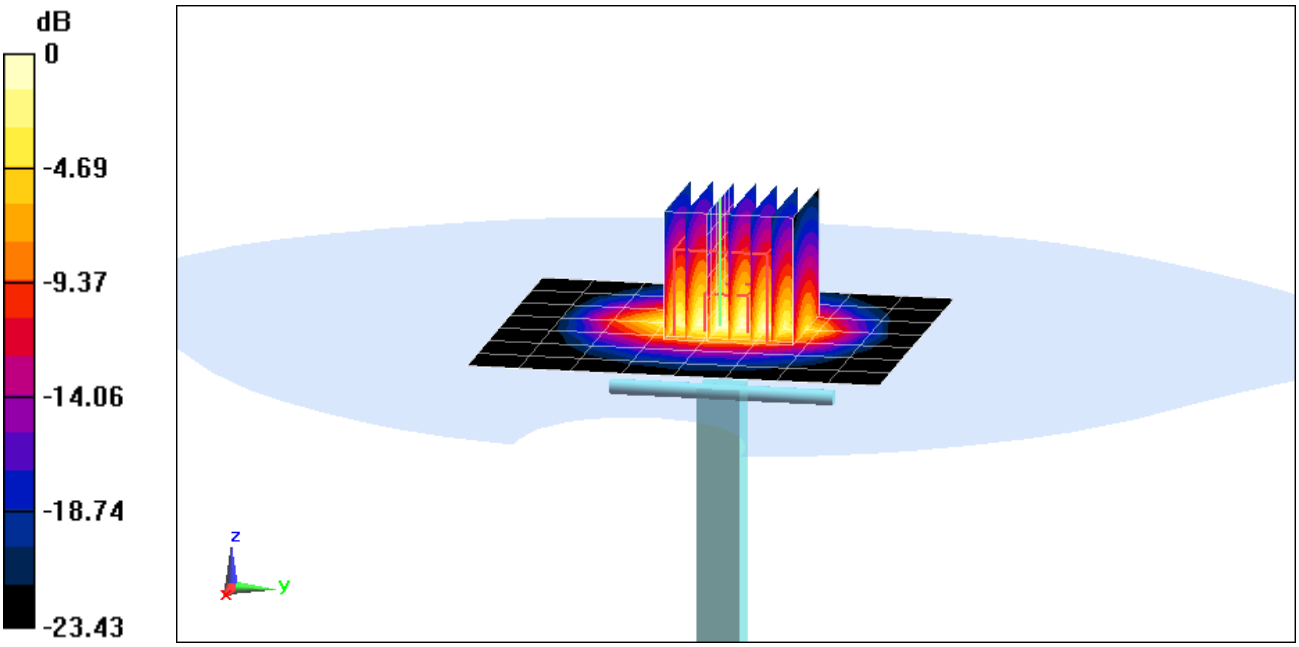
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2450 MHz; σ = 1.957 S/m; ε_r = 51.016; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-19-2018; Ambient Temp: 21.3°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7409; ConvF(7.24, 7.24, 7.24) @ 2450 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;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) = 5.4 W/kg
Deviation(1 g) = 6.09%



0 dB = 9.17 W/kg = 9.62 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 797

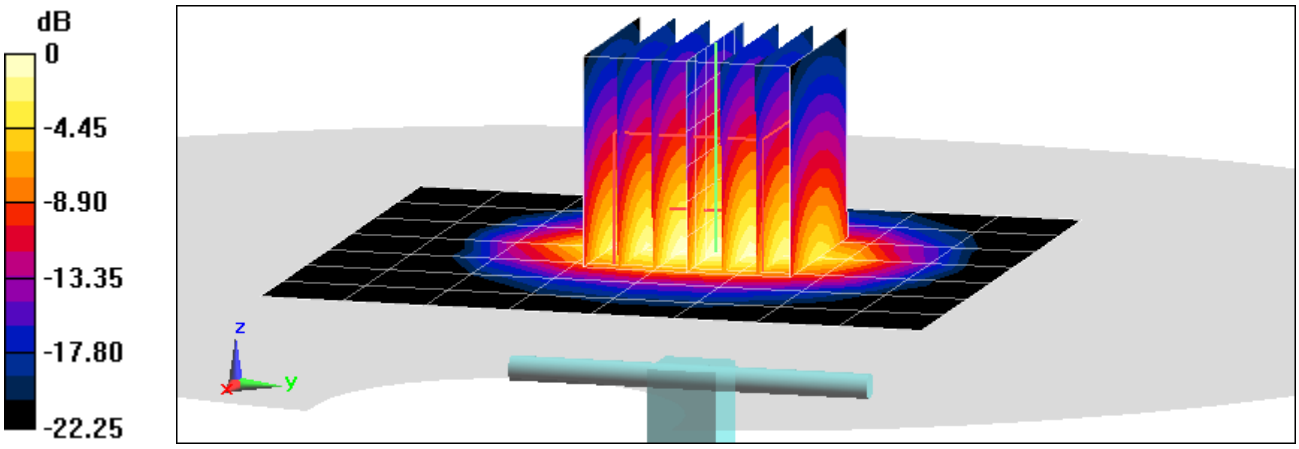
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.036 S/m; ε_r = 50.942; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-29-2018; Ambient Temp: 22.6°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2450 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10;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) = 11.0 W/kg
SAR(1 g) = 5.26 W/kg
Deviation(1 g) = 2.94%



0 dB = 6.98 W/kg = 8.44 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 981

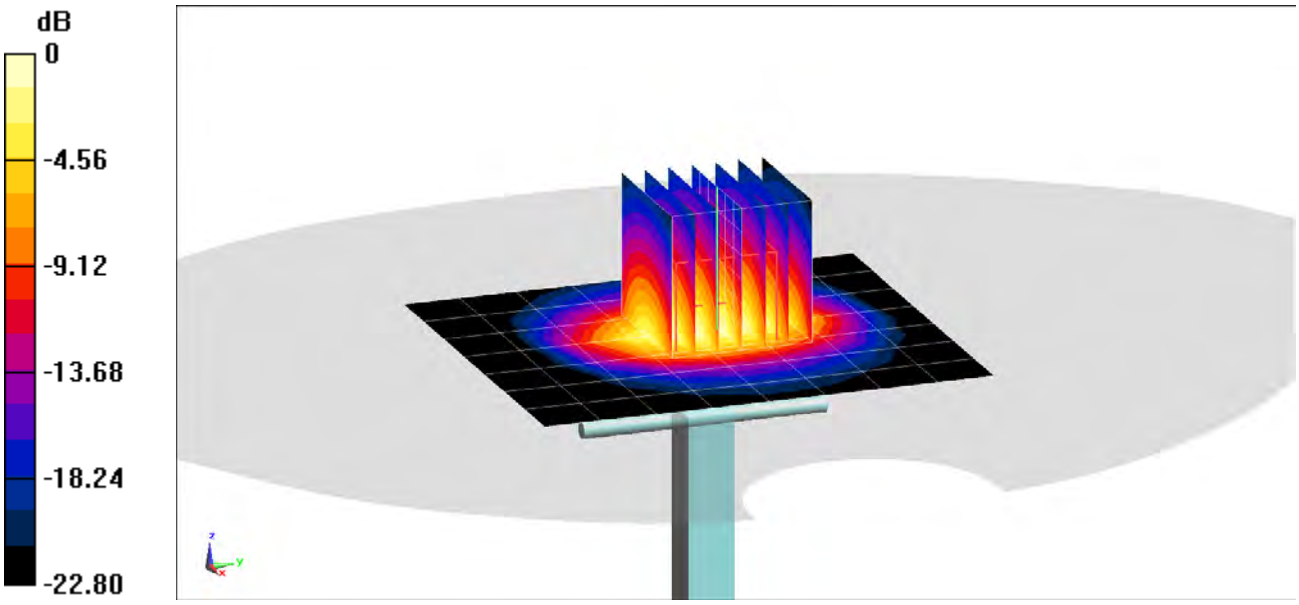
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.039 S/m; ε_r = 51.588; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-14-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.6°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2450 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
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) = 10.5 W/kg
SAR(1 g) = 4.98 W/kg
Deviation(1 g) = -2.16%



0 dB = 6.59 W/kg = 8.19 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1004

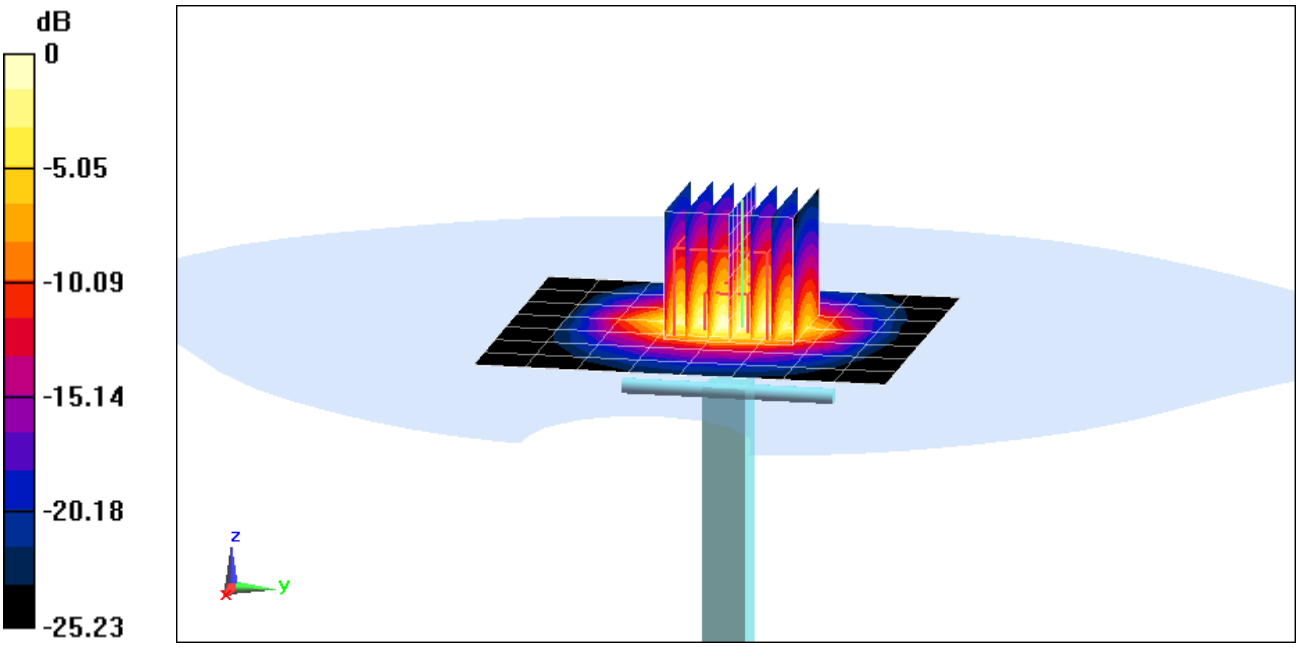
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used:
f = 2600 MHz; σ = 2.16 S/m; ε_r = 50.437; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-19-2018; Ambient Temp: 21.3°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7409; ConvF(7.07, 7.07, 7.07) @ 2600 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10;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) = 12.5 W/kg
SAR(1 g) = 5.61 W/kg
Deviation(1 g) = 2.37%



0 dB = 9.64 W/kg = 9.84 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1071

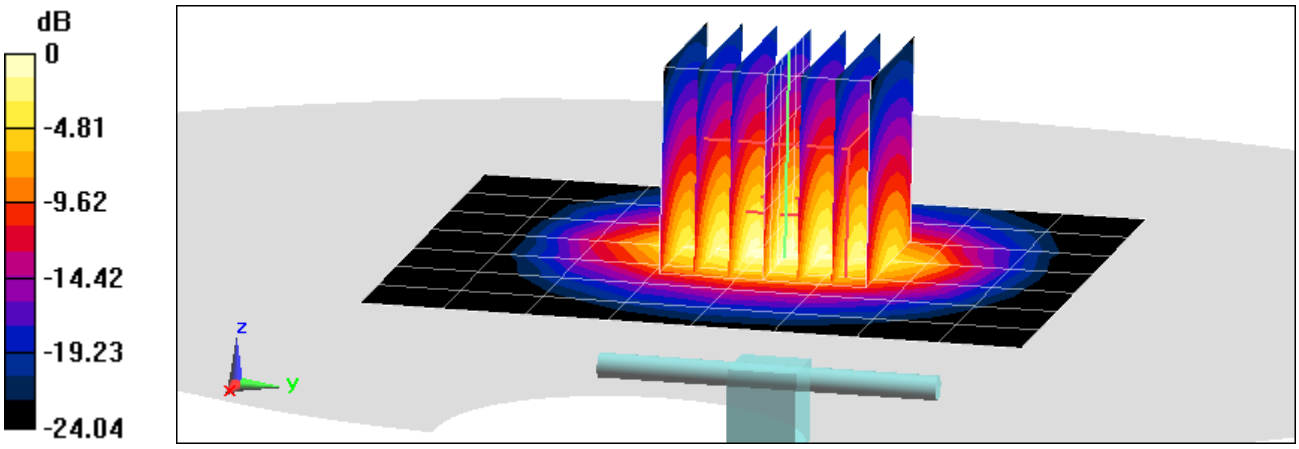
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2600 MHz; σ = 2.21 S/m; ε_r = 50.505; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-29-2018; Ambient Temp: 22.6°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3319; ConvF(4.33, 4.33, 4.33) @ 2600 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10;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) = 12.5 W/kg
SAR(1 g) = 5.67 W/kg
Deviation(1 g) = 4.61%



0 dB = 7.49 W/kg = 8.74 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 3500 MHz; Type: D3500V2; Serial: 1055

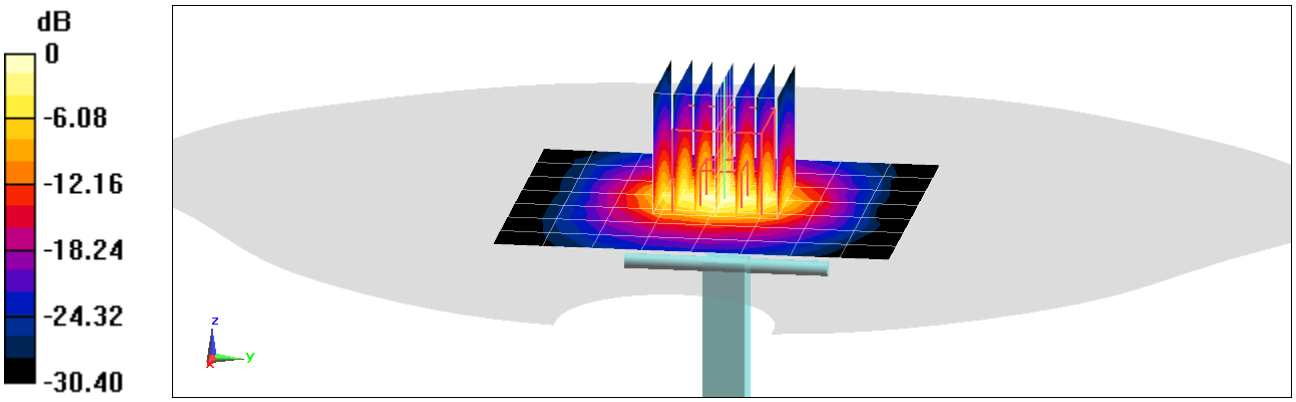
Communication System: UID 0, CW; Frequency: 3500 MHz; Duty Cycle: 1:1
Medium: 3500-3700 Body Medium parameters used:
f = 3500 MHz; σ = 3.176 S/m; ε_r = 51.13; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-27-2018; Ambient Temp: 22.8°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3914; ConvF(6.81, 6.81, 6.81) @ 3500 MHz; Calibrated: 2/14/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1966
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

3500 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 16.3 W/kg
SAR(1 g) = 6.06 W/kg
Deviation(1 g) = -6.19%



0 dB = 11.8 W/kg = 10.72 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 3700 MHz; Type: D3700V2; Serial: 1002

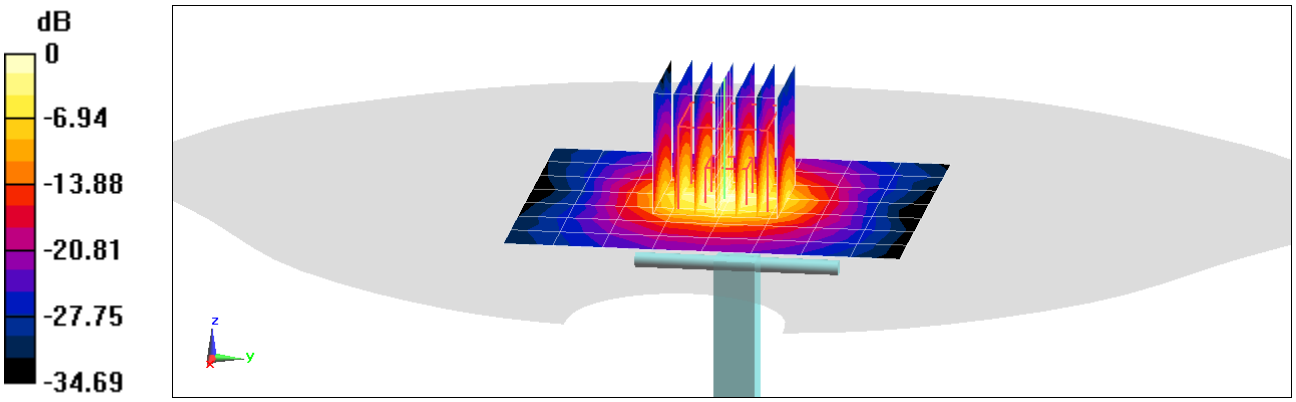
Communication System: UID 0, CW; Frequency: 3700 MHz; Duty Cycle: 1:1
Medium: 3500-3700 Body Medium parameters used (interpolated):
f = 3700 MHz; σ = 3.412 S/m; ε_r = 50.772; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-27-2018; Ambient Temp: 22.8°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3914; ConvF(6.64, 6.64, 6.64) @ 3700 MHz; Calibrated: 2/14/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1966
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.12 (7450)

3700 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 6.37 W/kg
Deviation(1 g) = -2.00%



0 dB = 12.7 W/kg = 11.04 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

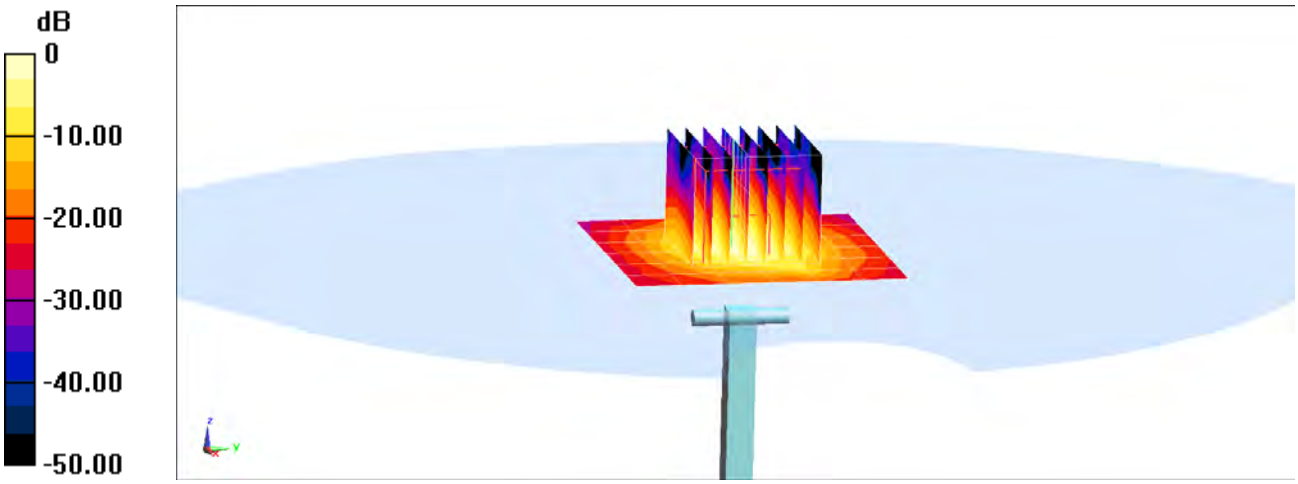
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used (interpolated):
f = 5250 MHz; σ = 5.498 S/m; ε_r = 49.404; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-11-2018; Ambient Temp: 22.5°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7357; ConvF(4.78, 4.78, 4.78) @ 5250 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;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) = 14.3 W/kg
SAR(1 g) = 3.56 W/kg
Deviation(1 g) = -7.53%



0 dB = 8.56 W/kg = 9.32 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

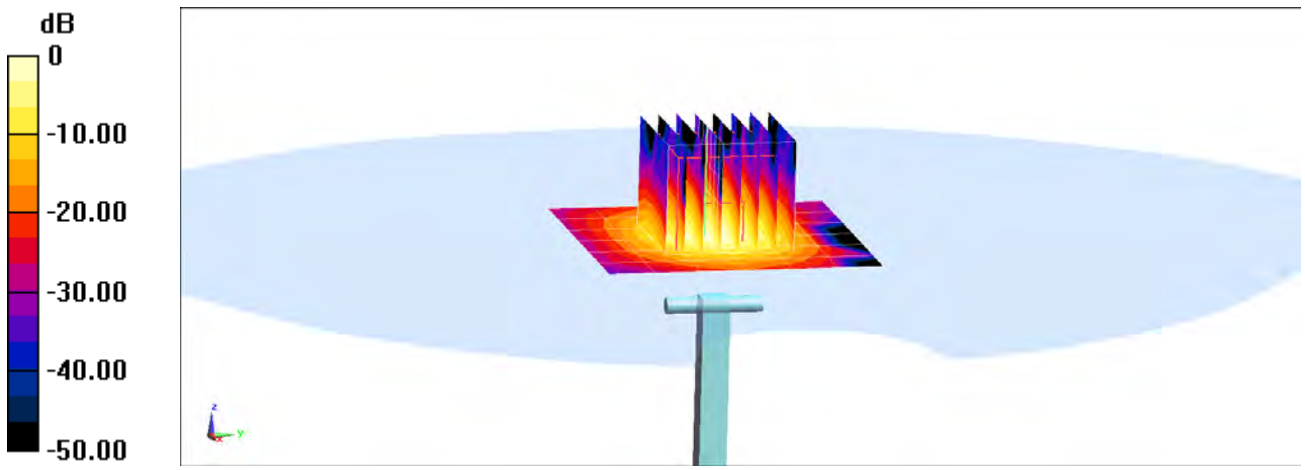
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5600 MHz; σ = 5.957 S/m; ε_r = 48.81; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-11-2018; Ambient Temp: 22.5°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7357; ConvF(4.2, 4.2, 4.2) @ 5600 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;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) = 17.3 W/kg
SAR(1 g) = 3.91 W/kg
Deviation(1 g) = -1.26%



0 dB = 9.79 W/kg = 9.91 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

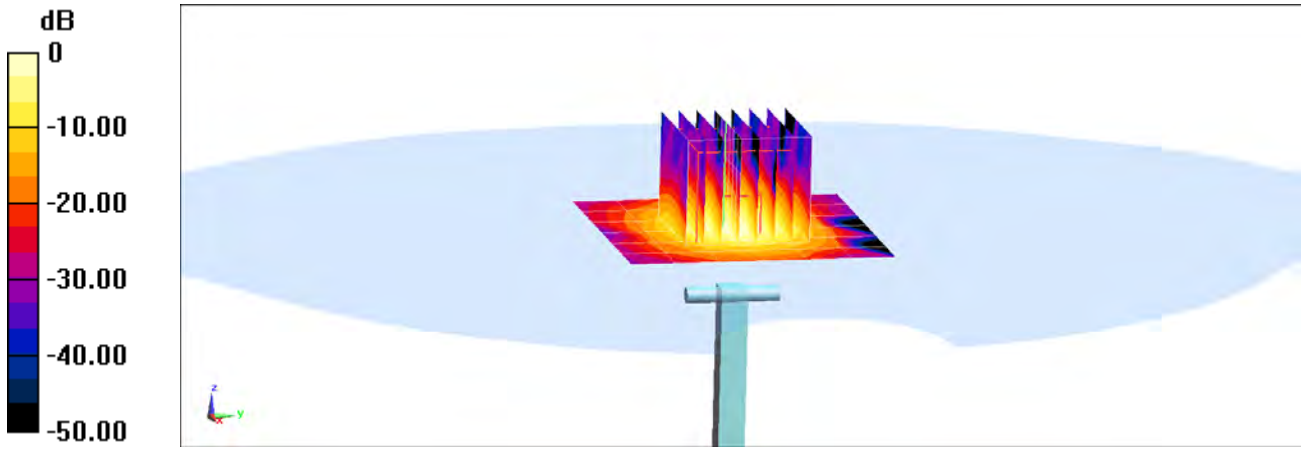
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used (interpolated):
f = 5750 MHz; σ = 6.174 S/m; ε_r = 48.581; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-11-2018; Ambient Temp: 22.5°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7357; ConvF(4.21, 4.21, 4.21) @ 5750 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;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) = 16.5 W/kg
SAR(1 g) = 3.56 W/kg
Deviation(1 g) = -6.44%



0 dB = 8.92 W/kg = 9.50 dBW/kg

APPENDIX C: PROBE CALIBRATION

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Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
Servizio svizzero di taratura
S 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: D5GHzV2-1191_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

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

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 cm³ (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 cm³ (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 cm³ (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 cm³ (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 cm³ (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 cm³ (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 cm³ (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 cm³ (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 cm³ (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 cm³ (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)

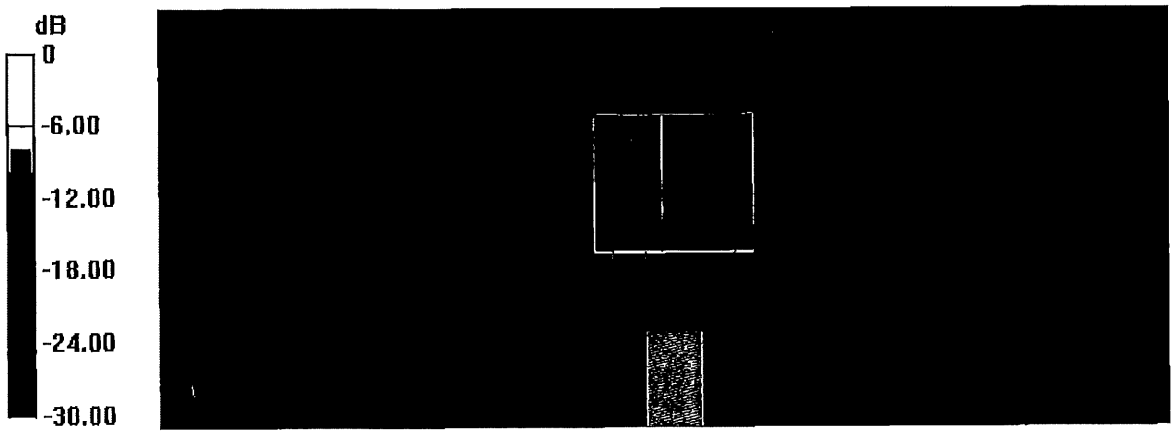
DASY52 Configuration:

- 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

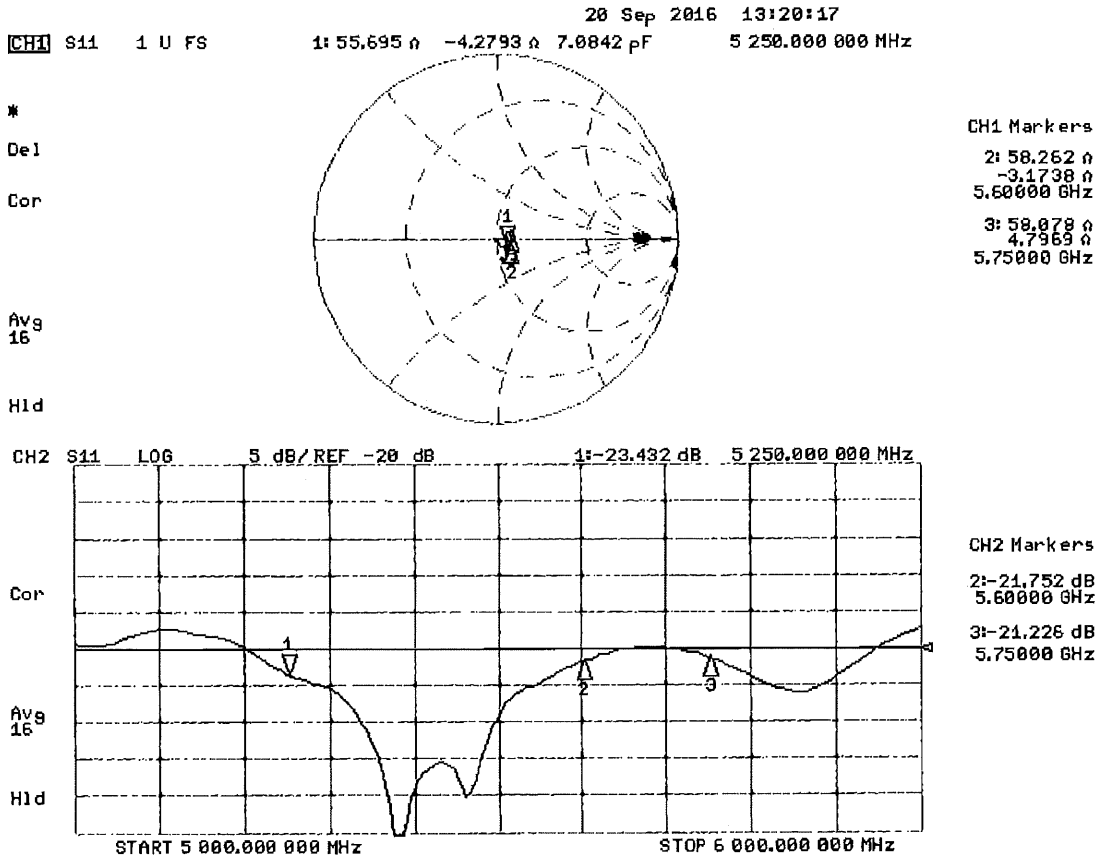
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5600 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 69.34 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 32.9 W/kg
SAR(1 g) = 8.45 W/kg; SAR(10 g) = 2.41 W/kg
Maximum value of SAR (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)

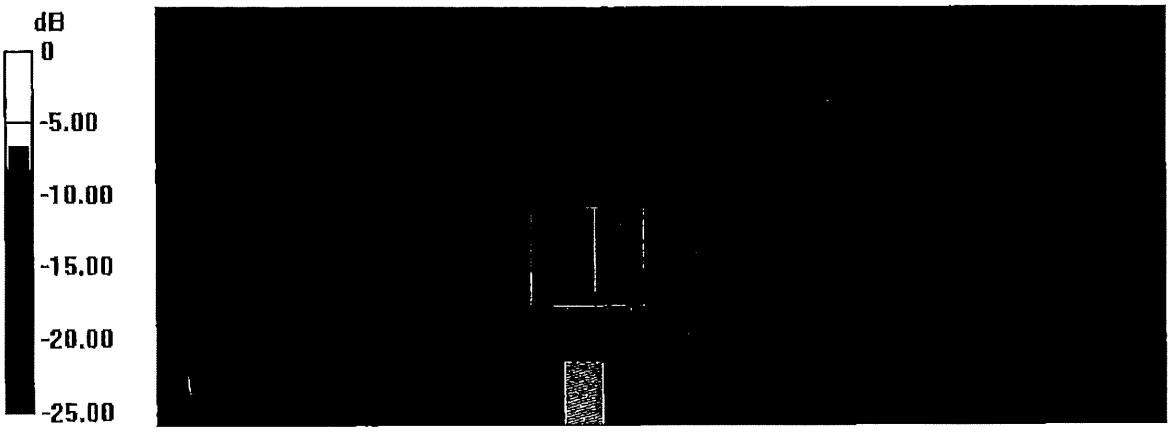
DASY52 Configuration:

- 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