



SAR EVALUATION REPORT

Applicant Name:
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FCC ID: A3LSMG977U

APPLICANT: SAMSUNG ELECTRONICS CO., LTD.

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model: SM-G977U

Equipment Class	Band & Mode	Tx Frequency	SAR			
			1g Head (W/kg)	1g Body-Worn (W/kg)	1g Hotspot (W/kg)	10g Phablet (W/kg)
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.14	0.16	0.49	N/A
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	< 0.1	0.40	0.89	2.26
PCE	UMTS 850	826.40 - 846.60 MHz	0.22	0.28	0.61	N/A
PCE	UMTS 1750	1712.4 - 1752.6 MHz	0.13	1.11	1.37	3.06
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.13	0.87	1.39	3.27
PCE	Cell. CDMA/EVDO	824.70 - 848.31 MHz	0.30	0.30	0.91	N/A
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.13	0.84	0.96	3.04
PCE	LTE Band 12	699.7 - 715.3 MHz	0.15	0.33	0.45	N/A
PCE	LTE Band 13	779.5 - 784.5 MHz	0.18	0.24	0.45	N/A
PCE	LTE Band 14	790.5 - 795.5 MHz	0.17	0.31	0.54	N/A
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	0.18	0.31	0.64	N/A
PCE	LTE Band 26 (Cell)	814.7 - 848.3 MHz	0.19	0.24	0.51	N/A
PCE	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	0.15	0.86	1.17	2.90
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	0.16	0.80	1.29	3.26
PCE	LTE Band 30	2307.5 - 2312.5 MHz	0.15	0.45	0.73	1.94
PCE	LTE Band 7	2502.5 - 2567.5 MHz	< 0.1	0.34	0.80	2.27
CBE	LTE Band 48	3552.5 - 3697.5 MHz	< 0.1	0.18	0.42	1.08
PCE	LTE Band 41	2498.5 - 2687.5 MHz	< 0.1	0.32	0.81	2.67
PCE	LTE Band 38	2572.5 - 2617.5 MHz	N/A	N/A	N/A	N/A
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.46	0.18	0.38	N/A
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	N/A	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.11	0.30	N/A	0.94
NII	U-NII-2C	5500 - 5720 MHz	0.16	0.31	N/A	1.36
NII	U-NII-3	5745 - 5825 MHz	0.32	0.28	0.37	N/A
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.25	< 0.1	0.11	N/A
Simultaneous SAR per KDB 690783 D01v01r03:			1.17	1.51	1.59	3.98

Note: This revised Test Report (S/N: 1M1901100003-01-R1.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.

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





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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
Cell. CDMA/EVDO	Voice/Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 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 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 26 (Cell)	Voice/Data	814.7 - 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 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 48	Voice/Data	3552.5 - 3697.5 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
5G NR - n261	Data	27500 - 28350 MHz

1.2 Power Reduction for SAR

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

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conditions. Additionally, this device reduces power for some phablet conditions for some LTE bands when 5G NR is active. 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 when 5G NR is active and also during all voice or VoIP held to ear scenarios. Per FCC Guidance, the held-to-ear exposure conditions were evaluated at reduced power according to the head SAR positions described in IEEE 1528-2013. Detailed descriptions of the power reduction mechanism are included in the operational description.

1.3 Nominal and Maximum Output Power Specifications



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

1.3.1 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	33.0	33.0	32.5	30.5	28.5	28.0	26.0	24.0	23.0
	Nominal	32.0	32.0	31.5	29.5	27.5	27.0	25.0	23.0	22.0
GSM/GPRS/EDGE 1900	Maximum	30.5	30.5	29.5	27.5	25.5	27.0	25.0	23.0	22.0
	Nominal	29.5	29.5	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
UMTS Band 5 (850 MHz)	Maximum	25.8	24.8	24.8
	Nominal	24.8	23.8	23.8
UMTS Band 4 (1750 MHz)	Maximum	25.0	24.0	24.0
	Nominal	24.0	23.0	23.0
UMTS Band 2 (1900 MHz)	Maximum	25.0	24.0	24.0
	Nominal	24.0	23.0	23.0

Mode / Band		Modulated Average (dBm)
Cell. CDMA/EVDO	Maximum	25.8
	Nominal	24.8
PCS CDMA/EVDO	Maximum	25.0
	Nominal	24.0

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Mode / Band		Modulated Average (dBm)
LTE Band 12	Maximum	25.8
	Nominal	24.8
LTE Band 13	Maximum	25.8
	Nominal	24.8
LTE Band 14	Maximum	25.8
	Nominal	24.8
LTE Band 5 (Cell)	Maximum	25.8
	Nominal	24.8
LTE Band 26 (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 2 (PCS)	Maximum	25.0
	Nominal	24.0
LTE Band 30 Ant A	Maximum	24.5
	Nominal	23.5
LTE Band 30 Ant B	Maximum	24.5
	Nominal	23.5
LTE Band 7	Maximum	23.0
	Nominal	22.0
LTE Band 48	Maximum	24.0
	Nominal	23.0
LTE Band 38	Maximum	24.0
	Nominal	23.0
LTE Band 41	Maximum	25.0
	Nominal	24.0

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1.3.2



Reduced 2G/3G/4G Output Power – Hotspot Mode Active

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	26.0	23.5	22.5	27.0	25.0	23.0	22.0
	Nominal	27.5	25.0	22.5	21.5	26.0	24.0	22.0	21.0

Mode / Band		Modulated Average (dBm)		
		3GPP WCDMA	3GPP HSDPA	3GPP HSUPA
UMTS Band 4 (1750 MHz)	Maximum	20.5	19.5	19.5
	Nominal	19.5	18.5	18.5
UMTS Band 2 (1900 MHz)	Maximum	21.0	20.0	20.0
	Nominal	20.0	19.0	19.0

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 2 (PCS)	Maximum	20.5
	Nominal	19.5
LTE Band 30 Ant A	Maximum	21.0
	Nominal	20.0
LTE Band 30 Ant B	Maximum	21.0
	Nominal	20.0
LTE Band 7	Maximum	21.0
	Nominal	20.0
LTE Band 48	Maximum	21.0
	Nominal	20.0
LTE Band 38	Maximum	21.0
	Nominal	20.0
LTE Band 41	Maximum	23.0
	Nominal	22.0

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1.3.3



Reduced 2G/3G/4G Output Power – Grip Sensor and/or Earjack Active

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

Mode / Band		Modulated Average (dBm)		
		3GPP WCDMA	3GPP HSDPA	3GPP HSUPA
UMTS Band 4 (1750 MHz)	Maximum	20.5	19.5	19.5
	Nominal	19.5	18.5	18.5
UMTS Band 2 (1900 MHz)	Maximum	21.5	20.5	20.5
	Nominal	20.5	19.5	19.5

Mode / Band		Modulated Average (dBm)
PCS CDMA/EVDO	Maximum	21.0
	Nominal	20.0

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 2 (PCS)	Maximum	22.0
	Nominal	21.0
LTE Band 30 Ant A	Maximum	21.0
	Nominal	20.0
LTE Band 30 Ant B	Maximum	21.0
	Nominal	20.0
LTE Band 7	Maximum	21.0
	Nominal	20.0
LTE Band 48	Maximum	21.0
	Nominal	20.0
LTE Band 38	Maximum	21.0
	Nominal	20.0
LTE Band 41	Maximum	23.0
	Nominal	22.0

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1.3.4 Reduced 2G/3G/4G Output Power – 5G NR and Grip Sensor Active



Mode / Band		Modulated Average (dBm)
LTE Band 66 (AWS)	Maximum	19.0
	Nominal	18.0
LTE Band 4 (AWS)	Maximum	19.0
	Nominal	18.0
LTE Band 2 (PCS)	Maximum	18.5
	Nominal	17.5
LTE Band 30 Ant B	Maximum	18.5
	Nominal	17.5

1.3.5 Maximum Bluetooth and SISO/MIMO WLAN Output Power

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

Mode / Band		Modulated Average - Single Tx Chain (dBm)		
Channel		1	2 - 10	11
IEEE 802.11b (2.4 GHz)	Maximum	20.5		
	Nominal	19.5		
IEEE 802.11g (2.4 GHz)	Maximum	18.0		
	Nominal	17.0		
IEEE 802.11n (2.4 GHz)	Maximum	18.0		
	Nominal	17.0		
IEEE 802.11ax SU (2.4 GHz)	Maximum	16.0	17.0	15.5
	Nominal	15.0	16.0	14.5



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

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Mode / Band		Modulated Average - MIMO (dBm)		
		20 MHz Bandwidth		
Channel		1	2 - 10	11
IEEE 802.11g (2.4 GHz)	Maximum	21.0		
	Nominal	20.0		
IEEE 802.11n (2.4 GHz)	Maximum	21.0		
	Nominal	20.0		
IEEE 802.11ax SU (2.4 GHz)	Maximum	16.0	17.0	15.5
	Nominal	15.0	16.0	14.5

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	16.5	21.0	17.0	21.0								
	Nominal	15.5	20.0	16.0	20.0								
IEEE 802.11n (5 GHz)	Maximum	16.5	21.0	17.0	21.0	14.0	20.0	14.5	15.5	20.0			
	Nominal	15.5	20.0	16.0	20.0	13.0	19.0	13.5	14.5	19.0			
IEEE 802.11ac (5 GHz)	Maximum	16.5	21.0	17.0	21.0	14.0	20.0	14.5	15.5	20.0	13.0	14.0	19.0
	Nominal	15.5	20.0	16.0	20.0	13.0	19.0	13.5	14.5	19.0	12.0	13.0	18.0
IEEE 802.11ax SU (5 GHz)	Maximum	16.0				14.0				13.0			
	Nominal	15.0				13.0				12.0			

Mode/Band		Modulated Average (dBm)
Bluetooth	Maximum	14.0
	Nominal	13.0
Bluetooth EDR	Maximum	12.5
	Nominal	11.5
Bluetooth LE	Maximum	10.0
	Nominal	9.0

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1.3.6 Reduced SISO/MIMO WLAN Output Power



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

Mode / Band		Modulated Average (dBm)		
		Channel	1	2 - 10
IEEE 802.11b (2.4 GHz)	Maximum	17.0		
	Nominal	16.0		
IEEE 802.11g (2.4 GHz)	Maximum	17.0		
	Nominal	16.0		
IEEE 802.11n (2.4 GHz)	Maximum	17.0		
	Nominal	16.0		
IEEE 802.11ax SU (2.4 GHz)	Maximum	16.0	17.0	15.5
	Nominal	15.0	16.0	14.5

Mode / Band		Modulated Average - Single Tx Chain (dBm)					
		20 MHz Bandwidth		40 MHz Bandwidth		80 MHz Bandwidth	
	Channel	36-165		38-159		42-58	106-155
IEEE 802.11a (5 GHz)	Maximum	14.0					
	Nominal	13.0					
IEEE 802.11n (5 GHz)	Maximum	14.0	14.0				
	Nominal	13.0	13.0				
IEEE 802.11ac (5 GHz)	Maximum	14.0	14.0		13.0	14.0	
	Nominal	13.0	13.0		12.0	13.0	
IEEE 802.11ax SU (5 GHz)	Maximum	14.0	14.0		13.0		
	Nominal	13.0	13.0		12.0		

Mode / Band		Modulated Average - MIMO (dBm)		
		20 MHz Bandwidth		
	Channel	1	2 - 10	11
IEEE 802.11g (2.4 GHz)	Maximum	20.0		
	Nominal	19.0		
IEEE 802.11n (2.4 GHz)	Maximum	20.0		
	Nominal	19.0		
IEEE 802.11ax SU (2.4 GHz)	Maximum	16.0	17.0	15.5
	Nominal	15.0	16.0	14.5

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

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1.3.7

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



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

Mode / Band		Modulated Average (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		
	Nominal	16.0		
IEEE 802.11n (2.4 GHz)	Maximum	17.0		
	Nominal	16.0		
IEEE 802.11ax SU (2.4 GHz)	Maximum	16.0	17.0	15.5
	Nominal	15.0	16.0	14.5

Mode / Band		Modulated Average - Single Tx Chain (dBm)					
		20 MHz Bandwidth		40 MHz Bandwidth		80 MHz Bandwidth	
	Channel	36-165		38-159		42-58	106-155
IEEE 802.11a (5 GHz)	Maximum	14.0		14.0		14.0	
	Nominal	13.0		13.0		13.0	
IEEE 802.11n (5 GHz)	Maximum	14.0		14.0		14.0	
	Nominal	13.0		13.0		13.0	
IEEE 802.11ac (5 GHz)	Maximum	14.0		14.0		13.0	14.0
	Nominal	13.0		13.0		12.0	13.0
IEEE 802.11ax SU (5 GHz)	Maximum	14.0		14.0		13.0	
	Nominal	13.0		13.0		12.0	

Mode / Band		Modulated Average - MIMO (dBm)		
		20 MHz Bandwidth		
	Channel	1	2 - 10	11
IEEE 802.11g (2.4 GHz)	Maximum	20.0		
	Nominal	19.0		
IEEE 802.11n (2.4 GHz)	Maximum	20.0		
	Nominal	19.0		
IEEE 802.11ax SU (2.4 GHz)	Maximum	16.0	17.0	15.5
	Nominal	15.0	16.0	14.5

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

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1.3.8

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



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

Mode / Band		Modulated Average (dBm)
Channel		1-11
IEEE 802.11b (2.4 GHz)	Maximum	14.0
	Nominal	13.0
IEEE 802.11g (2.4 GHz)	Maximum	14.0
	Nominal	13.0
IEEE 802.11n (2.4 GHz)	Maximum	14.0
	Nominal	13.0
IEEE 802.11ax SU (2.4 GHz)	Maximum	14.0
	Nominal	13.0

Mode / Band		Modulated Average - Single Tx Chain (dBm)					
		20 MHz Bandwidth		40 MHz Bandwidth		80 MHz Bandwidth	
	Channel	36-165		38-159		42-58	106-155
IEEE 802.11a (5 GHz)	Maximum	14.0					
	Nominal	13.0					
IEEE 802.11n (5 GHz)	Maximum	14.0		14.0			
	Nominal	13.0		13.0			
IEEE 802.11ac (5 GHz)	Maximum	14.0		14.0		13.0	14.0
	Nominal	13.0		13.0		12.0	13.0
IEEE 802.11ax SU (5 GHz)	Maximum	14.0		14.0		13.0	
	Nominal	13.0		13.0		12.0	

Mode / Band		Modulated Average - MIMO (dBm)		
		20 MHz Bandwidth		
Channel		1	2 - 10	11
IEEE 802.11g (2.4 GHz)	Maximum	17.0		
	Nominal	16.0		
IEEE 802.11n (2.4 GHz)	Maximum	17.0		
	Nominal	16.0		
IEEE 802.11ax SU (2.4 GHz)	Maximum	16.0	17.0	15.5
	Nominal	15.0	16.0	14.5

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

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1.3.9

Maximum Output Power During Conditions with Simultaneous 5G NR and/or 2.4 GHz WLAN and/or 5 GHz WLAN



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

Mode / Band		Modulated Average (dBm)		
		Channel	1	2 - 10
IEEE 802.11b (2.4 GHz)	Maximum	17.0		
	Nominal	16.0		
IEEE 802.11g (2.4 GHz)	Maximum	17.0		
	Nominal	16.0		
IEEE 802.11n (2.4 GHz)	Maximum	17.0		
	Nominal	16.0		
IEEE 802.11ax SU (2.4 GHz)	Maximum	16.0	17.0	15.5
	Nominal	15.0	16.0	14.5

Mode / Band		Modulated Average - Single Tx Chain (dBm)				
		20 MHz Bandwidth		40 MHz Bandwidth		80 MHz Bandwidth
	Channel	36-165	38-159		42-58	106-155
IEEE 802.11a (5 GHz)	Maximum	14.0				
	Nominal	13.0				
IEEE 802.11n (5 GHz)	Maximum	14.0	14.0			
	Nominal	13.0	13.0			
IEEE 802.11ac (5 GHz)	Maximum	14.0	14.0		13.0	14.0
	Nominal	13.0	13.0		12.0	13.0
IEEE 802.11ax SU (5 GHz)	Maximum	14.0	14.0		13.0	
	Nominal	13.0	13.0		12.0	

Mode / Band		Modulated Average - MIMO (dBm)		
		20 MHz Bandwidth		
	Channel	1	2 - 10	11
IEEE 802.11g (2.4 GHz)	Maximum	20.0		
	Nominal	19.0		
IEEE 802.11n (2.4 GHz)	Maximum	20.0		
	Nominal	19.0		
IEEE 802.11ax SU (2.4 GHz)	Maximum	16.0	17.0	15.5
	Nominal	15.0	16.0	14.5

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

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1.3.10

Reduced Output Power During Conditions with Simultaneous 5G NR and/or 2.4 GHz WLAN and 5 GHz WLAN



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

Mode / Band		Modulated Average (dBm)
Channel		1-11
IEEE 802.11b (2.4 GHz)	Maximum	14.0
	Nominal	13.0
IEEE 802.11g (2.4 GHz)	Maximum	14.0
	Nominal	13.0
IEEE 802.11n (2.4 GHz)	Maximum	14.0
	Nominal	13.0
IEEE 802.11ax SU (2.4 GHz)	Maximum	14.0
	Nominal	13.0

Mode / Band		Modulated Average - Single Tx Chain (dBm)				
		20 MHz Bandwidth		40 MHz Bandwidth		80 MHz Bandwidth
Channel		36-165		38-159	42-58	106-155
IEEE 802.11a (5 GHz)	Maximum	14.0				
	Nominal	13.0				
IEEE 802.11n (5 GHz)	Maximum	14.0		14.0		
	Nominal	13.0		13.0		
IEEE 802.11ac (5 GHz)	Maximum	14.0		14.0	13.0	14.0
	Nominal	13.0		13.0	12.0	13.0
IEEE 802.11ax SU (5 GHz)	Maximum	14.0		14.0		13.0
	Nominal	13.0		13.0		12.0

Mode / Band		Modulated Average - MIMO (dBm)		
		20 MHz Bandwidth		
Channel		1	2 - 10	11
IEEE 802.11g (2.4 GHz)	Maximum	17.0		
	Nominal	16.0		
IEEE 802.11n (2.4 GHz)	Maximum	17.0		
	Nominal	16.0		
IEEE 802.11ax SU (2.4 GHz)	Maximum	16.0	17.0	15.5
	Nominal	15.0	16.0	14.5

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

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1.4 DUT Antenna Locations

The overall dimensions of this device are > 9 x 5 cm. A diagram showing the location of the device antennas can be found in Appendix F. Since the diagonal dimension of this device is > 160 mm and <200 mm, it is considered a “phablet.”

**Table 1-1
Device Edges/Sides for SAR Testing**



Mode	Back	Front	Top	Bottom	Right	Left
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
Cell. EVDO	Yes	Yes	No	Yes	Yes	Yes
PCS EVDO	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 5 (Cell)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 26 (Cell)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 66 (AWS)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 2 (PCS)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 30 Ant A	Yes	Yes	No	Yes	Yes	Yes
LTE Band 30 Ant B	Yes	Yes	No	Yes	No	Yes
LTE Band 7	Yes	Yes	No	Yes	No	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: 1. Particular DUT edges were not required to be evaluated for wireless router SAR or phablet SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v02r01 Section III and FCC KDB Publication 648474 D04v01r03. The distances between the transmit antennas and the edges of the device are included in the filing. When wireless router mode is enabled, U-NII-1, U-NII-2A, U-NII-2C operations are disabled.

2. Additional edges may have been evaluated for simultaneous transmission analysis.

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	Phablet	Notes
1	1x CDMA voice + 2.4 GHz Wi-Fi	Yes	Yes	N/A	Yes	
2	1x CDMA voice + 5 GHz Wi-Fi	Yes	Yes	N/A	Yes	
3	1x CDMA voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered
4	1x CDMA voice + 2.4 GHz Bluetooth + 5GHz Wi-Fi	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered
5	1x CDMA voice + 2.4 GHz Wi-Fi MIMO	Yes	Yes	N/A	Yes	
6	1x CDMA voice + 5 GHz Wi-Fi MIMO	Yes	Yes	N/A	Yes	
7	1x CDMA voice + 2.4 GHz Wi-Fi + 5 GHz Wi-Fi	Yes	Yes	N/A	Yes	
8	1x CDMA voice + 2.4 GHz Wi-Fi MIMO + 5 GHz Wi-Fi MIMO	Yes	Yes	N/A	Yes	
9	1x CDMA voice + 2.4 GHz Bluetooth + 5GHz Wi-Fi MIMO	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered
10	GSM voice + 2.4 GHz Wi-Fi	Yes	Yes	N/A	Yes	
11	GSM voice + 5 GHz Wi-Fi	Yes	Yes	N/A	Yes	
12	GSM voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered
13	GSM voice + 2.4 GHz Bluetooth + 5GHz Wi-Fi	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered
14	GSM voice + 2.4 GHz Wi-Fi MIMO	Yes	Yes	N/A	Yes	
15	GSM voice + 5 GHz Wi-Fi MIMO	Yes	Yes	N/A	Yes	
16	GSM voice + 2.4 GHz Wi-Fi + 5 GHz Wi-Fi	Yes	Yes	N/A	Yes	
17	GSM voice + 2.4 GHz Wi-Fi MIMO + 5 GHz Wi-Fi MIMO	Yes	Yes	N/A	Yes	
18	GSM voice + 2.4 GHz Bluetooth + 5GHz Wi-Fi MIMO	Yes^	Yes	N/A	Yes	^Bluetooth Tethering is considered
19	UMTS + 2.4 GHz Wi-Fi	Yes	Yes	Yes	Yes	
20	UMTS + 5 GHz Wi-Fi	Yes	Yes	Yes	Yes	
21	UMTS + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
22	UMTS + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
23	UMTS + 2.4 GHz Wi-Fi MIMO	Yes	Yes	Yes	Yes	
24	UMTS + 5 GHz Wi-Fi MIMO	Yes	Yes	Yes	Yes	
25	UMTS + 2.4 GHz Wi-Fi + 5 GHz Wi-Fi	Yes	Yes	Yes	Yes	
26	UMTS + 2.4 GHz Wi-Fi MIMO + 5 GHz Wi-Fi MIMO	Yes	Yes	Yes	Yes	
27	UMTS + 2.4 GHz Bluetooth + 5 GHz Wi-Fi MIMO	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
28	LTE + 5G NR	Yes	Yes	Yes	Yes	
29	LTE + 2.4 GHz Wi-Fi	Yes	Yes	Yes	Yes	
30	LTE + 2.4 GHz Wi-Fi + 5G NR	Yes	Yes	Yes	Yes	
31	LTE + 5 GHz Wi-Fi	Yes	Yes	Yes	Yes	
32	LTE + 5 GHz Wi-Fi + 5G NR	Yes	Yes	Yes	Yes	
33	LTE + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
34	LTE + 2.4 GHz Bluetooth + 5G NR	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
35	LTE + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
36	LTE + 2.4 GHz Bluetooth + 5 GHz Wi-Fi + 5G NR	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
37	LTE + 2.4 GHz Wi-Fi MIMO	Yes	Yes	Yes	Yes	
38	LTE + 2.4 GHz Wi-Fi MIMO + 5G NR	Yes	Yes	Yes	Yes	
39	LTE + 5 GHz Wi-Fi MIMO	Yes	Yes	Yes	Yes	
40	LTE + 5 GHz Wi-Fi MIMO + 5G NR	Yes	Yes	Yes	Yes	
41	LTE + 2.4 GHz Wi-Fi + 5 GHz Wi-Fi	Yes	Yes	Yes	Yes	
42	LTE + 2.4 GHz Wi-Fi + 5 GHz Wi-Fi + 5G NR	Yes	Yes	Yes	Yes	
43	LTE + 2.4 GHz Wi-Fi MIMO + 5 GHz Wi-Fi MIMO	Yes	Yes	Yes	Yes	
44	LTE + 2.4 GHz Wi-Fi MIMO + 5 GHz Wi-Fi MIMO + 5G NR	Yes	Yes	Yes	Yes	
45	LTE + 2.4 GHz Bluetooth + 5 GHz Wi-Fi MIMO	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
46	LTE + 2.4 GHz Bluetooth + 5 GHz Wi-Fi MIMO + 5G NR	Yes^	Yes	Yes^	Yes	^Bluetooth Tethering is considered
47	CDMA/EVDO data + 2.4 GHz Wi-Fi	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
48	CDMA/EVDO data + 5 GHz Wi-Fi	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
49	CDMA/EVDO data + 2.4 GHz Bluetooth	Yes^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^Bluetooth Tethering is considered
50	CDMA/EVDO data + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	Yes^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^Bluetooth Tethering is considered
51	CDMA/EVDO data + 2.4 GHz Wi-Fi MIMO	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
52	CDMA/EVDO data + 5 GHz Wi-Fi MIMO	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
53	CDMA/EVDO data + 2.4 GHz Wi-Fi + 5 GHz Wi-Fi	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
54	CDMA/EVDO data + 2.4 GHz Wi-Fi MIMO + 5 GHz Wi-Fi MIMO	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
55	CDMA/EVDO data + 2.4 GHz Bluetooth + 5 GHz Wi-Fi MIMO	Yes^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^Bluetooth Tethering is considered
56	GPRS/EDGE + 2.4 GHz Wi-Fi	N/A	N/A	Yes	Yes	
57	GPRS/EDGE + 5 GHz Wi-Fi	N/A	N/A	Yes	Yes	
58	GPRS/EDGE + 2.4 GHz Bluetooth	N/A	N/A	Yes^	Yes	^Bluetooth Tethering is considered
59	GPRS/EDGE + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	N/A	N/A	Yes^	Yes	^Bluetooth Tethering is considered
60	GPRS/EDGE + 2.4 GHz Wi-Fi MIMO	N/A	N/A	Yes	Yes	
61	GPRS/EDGE + 5 GHz Wi-Fi MIMO	N/A	N/A	Yes	Yes	
62	GPRS/EDGE + 2.4 GHz Wi-Fi + 5 GHz Wi-Fi	N/A	N/A	Yes	Yes	
63	GPRS/EDGE + 2.4 GHz Wi-Fi MIMO + 5 GHz Wi-Fi MIMO	N/A	N/A	Yes	Yes	
64	GPRS/EDGE + 2.4 GHz Bluetooth + 5 GHz Wi-Fi MIMO	N/A	N/A	Yes^	Yes	^Bluetooth Tethering is considered

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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.
10. For 5G NR, Antenna J (Patch), Antenna J (Dipole), Antenna K, and Antenna L cannot transmit simultaneously.
11. LTE + 5G NR operations are possible only with LTE B2, B4, B5, B13, and B66.

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

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

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(B) Licensed Transmitter(s)

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

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

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

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. 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.

Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is greater than 160mm and less than 200mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.



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 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 LTE Carrier Aggregation (CA) for LTE Band 5 and LTE B66 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 30 standalone operations. During some inter-band downlink carrier aggregation scenarios with Band 30 as the PCC, the transmit operations for these bands are 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 30. 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.

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

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the reported SAR for the QPSK configuration is $\leq 1.45\text{W/kg}$, per Section 5.2.4 of FCC KDB Publication 941225 D05v02r05.



This device supports 5G NR for Band n261. RF Exposure assessment and simultaneous transmission analysis for this band can be found in test report 1M1901100003-22.A3L-R1.

1.8 Guidance Applied



- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r04, D05Av01r02, D06v02r01 (2G/3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D04v01r03 (Phablet Procedures)
- FCC KDB Publication 616217 D04v01r02 (Proximity Sensor)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- May 2017 TCB Workshop Notes (LTE 4x4 Downlink MIMO)
- 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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LTE Information				
Form Factor	Portable Handset			
Frequency Range of each LTE transmission band	LTE Band 12 (699.7 - 715.3 MHz)			
	LTE Band 13 (779.5 - 784.5 MHz)			
	LTE Band 14 (790.5 - 795.5 MHz)			
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)			
	LTE Band 26 (Cell) (814.7 - 848.3 MHz)			
	LTE Band 66 (AWS) (1710.7 - 1779.3 MHz)			
	LTE Band 4 (AWS) (1710.7 - 1754.3 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 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 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
LTE Band 26 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 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 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
	High			
LTE Band 12: 1.4 MHz	699.7 (23017)	707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)	707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)	707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)	707.5 (23095)	711 (23130)	
LTE Band 13: 5 MHz	779.5 (23205)	782 (23230)	784.5 (23255)	
LTE Band 13: 10 MHz	N/A	782 (23230)	N/A	
LTE Band 14: 5 MHz	790.5 (23305)	793 (23330)	795.5 (23355)	
LTE Band 14: 10 MHz	N/A	793 (23330)	N/A	
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 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 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 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 19 (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 15. 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 15 Features are not supported: Relay, HetNet, Enhanced eCIC, 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/m³)
- 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:

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.

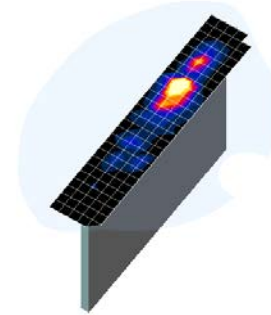




Figure 4-1 point
Sample SAR Area
Scan was

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

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

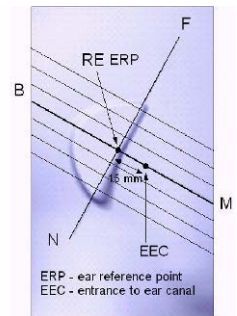


Figure 5-1
Close-Up Side view
of ERP

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 then 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

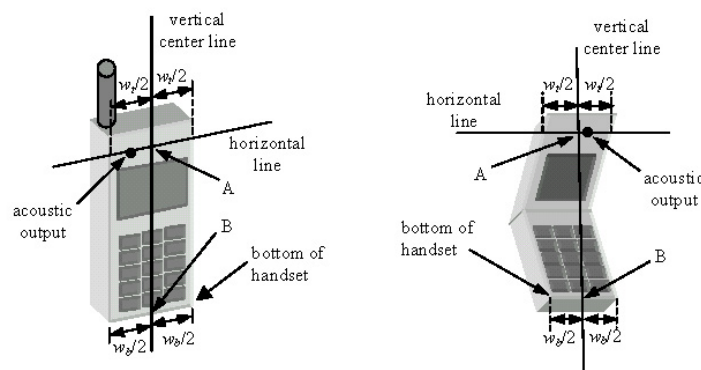


Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

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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 $\epsilon = 3$ and loss tangent $\delta = 0.02$.

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.

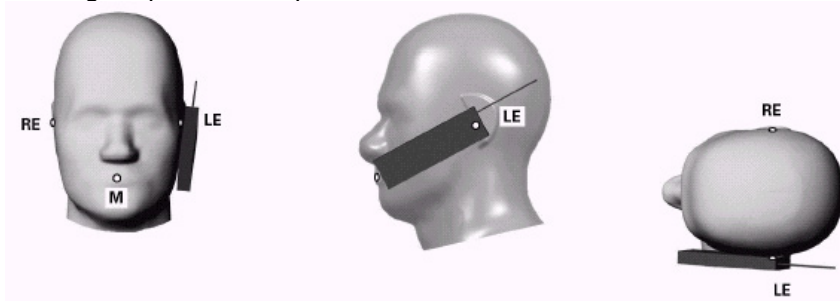




Figure 6-1 Front, Side and Top View of Cheek Position

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 with 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 / 15° 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 15 degrees.
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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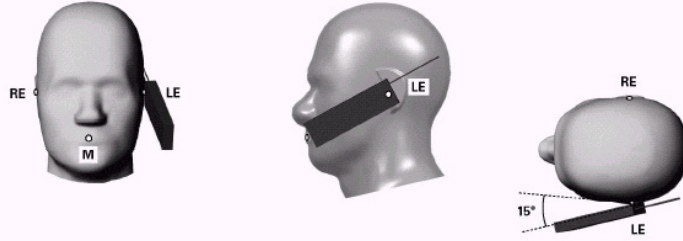


Figure 6-2 Front, Side and Top View of Ear/15° Tilt Position

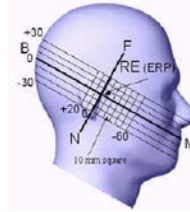


Figure 6-3 Side view w/ relevant markings

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.

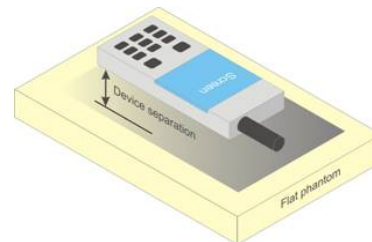




Figure 6-4 Sample Body-Worn Diagram

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 ($L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

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

6.8 Phablet Configurations

For smart phones with a display diagonal dimension > 150 mm or an overall diagonal dimension > 160 mm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that

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

6.9 Proximity Sensor Considerations

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

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

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

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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 <i>General Population</i> (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT <i>Occupational</i> (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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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 SCH₀ 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
I_{or}	dBm/1.23 MHz	-104
$\frac{Pilot E_c}{I_{or}}$	dB	-7
$\frac{Traffic E_c}{I_{or}}$	dB	-7.4

Table 8-2
Parameters for Max. Power for RC3

Parameter	Units	Value
I_{or}	dBm/1.23 MHz	-86
$\frac{Pilot E_c}{I_{or}}$	dB	-7
$\frac{Traffic E_c}{I_{or}}$	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 full rate 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+SCH_n), with FCH only as the primary mode. Otherwise, SAR is required for multiple code channel configuration (FCH + SCH_n), 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. The 1x 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 "1s". The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the

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primary mode. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest reported SAR configuration in 12.2 kbps RMC for head exposure.

8.5.3 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.

8.6 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.

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.

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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 $\frac{1}{2}$ 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. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

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. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

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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:

- 1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
- 2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

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



8.7.6 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). When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.



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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. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

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. When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

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9.1 CDMA Conducted Powers

Table 9-1
Maximum Conducted Power

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	1013	22H	824.7	24.45	24.44	24.43	24.43	24.43	24.47	24.50
	384	22H	836.52	24.54	24.48	24.43	24.50	24.48	24.50	24.51
	777	22H	848.31	24.65	24.61	24.54	24.60	24.60	24.50	24.41
PCS	25	24E	1851.25	24.05	24.12	23.96	24.02	24.04	24.28	24.30
	600	24E	1880	24.13	24.19	24.08	24.10	24.12	24.08	23.89
	1175	24E	1908.75	23.98	23.98	23.90	23.91	23.89	24.14	24.02

Table 9-2
Reduced Conducted Power – Hotspot Mode Active

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	18.97	18.96	19.28	19.34
	600	24E	1880	19.08	19.10	19.40	19.43
	1175	24E	1908.75	19.01	19.02	19.34	19.37

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**Table 9-3
Reduced Conducted Power – Grip Sensor and/or Earjack Mode Active**



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)
PCS	25	24E	1851.25	20.00	20.05	20.05	19.98	19.99	20.28	20.40
	600	24E	1880	20.10	20.14	20.12	20.11	20.08	20.43	20.43
	1175	24E	1908.75	20.01	20.14	20.00	20.06	20.02	20.41	20.40

Note:

1) 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.



**Figure 9-1
Power Measurement Setup**

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9.2 GSM Conducted Powers

Table 9-4
Maximum Conducted Power

Maximum Burst-Averaged Output Power										
Band	Channel	Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
		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	32.47	32.49	31.49	29.18	27.34	26.63	25.31	23.13	22.03
	190	32.28	32.30	31.20	29.37	27.25	26.63	25.22	23.15	22.00
	251	32.45	32.47	31.48	29.41	27.26	26.40	25.06	23.04	22.21
GSM 1900	512	29.51	29.48	28.31	26.37	24.30	25.52	23.63	21.93	20.98
	661	29.54	29.49	28.36	26.68	24.48	25.71	24.12	22.38	21.05
	810	29.44	29.41	28.48	26.19	24.32	25.63	23.94	21.97	20.92

Calculated Maximum Frame-Averaged Output Power										
Band	Channel	Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
		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	23.44	23.46	25.47	24.92	24.33	17.60	19.29	18.87	19.02
	190	23.25	23.27	25.18	25.11	24.24	17.60	19.20	18.89	18.99
	251	23.42	23.44	25.46	25.15	24.25	17.37	19.04	18.78	19.20
GSM 1900	512	20.48	20.45	22.29	22.11	21.29	16.49	17.61	17.67	17.97
	661	20.51	20.46	22.34	22.42	21.47	16.68	18.10	18.12	18.04
	810	20.41	20.38	22.46	21.93	21.31	16.60	17.92	17.71	17.91

GSM 850	Frame	22.97	22.97	25.48	25.24	24.49	17.97	18.98	18.74	18.99
GSM 1900	Avg.Targets:	20.47	20.47	22.48	22.24	21.49	16.97	17.98	17.74	17.99



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**Table 9-5
Reduced Conducted Power - Hotspot Mode Active**

Maximum Burst-Averaged Output Power									
Band	Channel	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
		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	27.40	26.00	22.46	21.36	25.33	23.58	22.01	20.85
	661	27.66	25.86	22.63	21.48	25.51	24.11	22.25	20.93
	810	27.39	25.83	22.26	21.06	25.50	23.93	21.86	20.84

Calculated Maximum Frame-Averaged Output Power									
Band	Channel	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
		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	18.37	19.98	18.20	18.35	16.30	17.56	17.75	17.84
	661	18.63	19.84	18.37	18.47	16.48	18.09	17.99	17.92
	810	18.36	19.81	18.00	18.05	16.47	17.91	17.60	17.83

GSM 1900	Frame Avg. Targets:	18.47	18.98	18.24	18.49	16.97	17.98	17.74	17.99
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**Table 9-6
Reduced Conducted Power - Grip Sensor and/or Earjack Mode Active**

Maximum Burst-Averaged Output Power										
Band	Channel	Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
		GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 1900	512	27.71	27.83	26.52	24.51	22.64	25.39	23.49	22.04	20.79
	661	27.67	27.84	26.84	24.83	22.75	25.55	23.87	22.11	20.95
	810	27.29	27.43	26.37	24.59	22.75	25.48	23.70	21.80	20.85

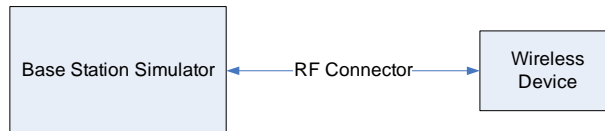
Calculated Maximum Frame-Averaged Output Power										
Band	Channel	Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
		GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 1900	512	18.68	18.80	20.50	20.25	19.63	16.36	17.47	17.78	17.78
	661	18.64	18.81	20.82	20.57	19.74	16.52	17.85	17.85	17.94
	810	18.26	18.40	20.35	20.33	19.74	16.45	17.68	17.54	17.84

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

- 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.
- 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.
- 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 9-7
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	24.75	24.80	24.93	23.92	23.93	23.71	24.20	24.27	24.14	-
99		12.2 kbps AMR	24.78	24.82	24.94	23.96	23.96	23.74	24.23	24.30	24.16	-
6	HSDPA	Subtest 1	23.81	23.87	24.02	23.03	23.00	22.81	22.93	22.96	22.83	0
6		Subtest 2	23.81	23.83	24.02	23.04	23.01	22.80	22.89	22.98	22.82	0
6		Subtest 3	23.31	23.38	23.48	22.49	22.51	22.30	22.39	22.46	22.31	0.5
6		Subtest 4	23.30	23.34	23.48	22.51	22.51	22.27	22.42	22.45	22.34	0.5
6	HSUPA	Subtest 1	23.80	23.86	24.02	23.01	23.00	22.81	23.20	23.22	23.25	0
6		Subtest 2	21.84	21.90	22.05	21.04	21.02	20.79	21.25	21.25	21.13	2
6		Subtest 3	22.85	22.87	23.00	22.05	22.04	21.84	22.23	22.26	22.15	1
6		Subtest 4	21.83	21.89	22.01	21.02	21.00	20.79	21.18	21.22	21.10	2
6		Subtest 5	23.85	23.92	24.03	23.10	23.07	22.86	23.22	23.32	23.15	0

**Table 9-8
Reduced Conducted Power – Hotspot Mode Active**

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	19.63	19.62	19.47	20.36	20.38	20.26	-
99		12.2 kbps AMR	19.65	19.60	19.46	20.40	20.45	20.35	-
6	HSDPA	Subtest 1	18.11	18.12	18.40	18.83	18.92	18.38	0
6		Subtest 2	18.28	18.04	18.55	18.47	18.46	18.24	0
6		Subtest 3	17.89	17.85	17.81	18.29	18.22	18.07	0.5
6		Subtest 4	17.70	17.77	18.03	18.12	18.31	18.00	0.5
6	HSUPA	Subtest 1	18.29	18.20	18.54	18.77	18.88	18.60	0
6		Subtest 2	16.35	16.30	16.62	16.89	16.87	16.69	2
6		Subtest 3	17.29	17.20	17.50	17.78	17.84	17.58	1
6		Subtest 4	16.18	16.12	16.42	16.77	16.86	16.59	2
6		Subtest 5	18.32	18.27	18.57	18.84	18.89	18.64	0

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**Table 9-9
Reduced Conducted Power - Grip Sensor and/or Earjack Mode Active**



Mode	3GPP 34.121 Subtest	AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
		1312	1412	1513	9262	9400	9538	
WCDMA	12.2 kbps RMC	19.63	19.62	19.47	21.37	21.39	21.25	-
	12.2 kbps AMR	19.65	19.60	19.46	21.31	21.47	21.37	-
HSDPA	Subtest 1	18.11	18.12	18.40	20.50	20.19	19.94	0
	Subtest 2	18.28	18.04	18.55	20.30	20.40	20.34	0
	Subtest 3	17.89	17.85	17.81	19.85	19.73	19.41	0.5
	Subtest 4	17.70	17.77	18.03	19.62	19.70	19.75	0.5
HSUPA	Subtest 1	18.29	18.20	18.54	20.42	20.50	20.42	0
	Subtest 2	16.35	16.30	16.62	18.47	18.44	18.46	2
	Subtest 3	17.29	17.20	17.50	19.40	19.47	19.49	1
	Subtest 4	16.18	16.12	16.42	18.41	18.43	18.49	2
	Subtest 5	18.32	18.27	18.57	20.45	20.50	20.47	0

This device does not support DC-HSDPA.

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



**Figure 9-3
Power Measurement Setup**

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9.4 LTE Conducted Powers

9.4.1 LTE Band 12

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

LTE Band 12 10 MHz Bandwidth						
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			23095 (707.5 MHz) Conducted Power [dBm]			
QPSK	1	0	24.83	0	0	
	1	25	24.60		0	
	1	49	24.74		0	
	16QAM	25	0	23.90	0-1	1
		25	12	23.88		1
		25	25	23.88		1
		50	0	23.89		1
1		0	24.07	0-1		1
1		25	24.03			1
1		49	23.99			1
64QAM	25	0	22.88	0-2	2	
	25	12	22.87		2	
	25	25	22.85		2	
	50	0	22.88		2	
	1	0	23.08		0-2	2
	1	25	22.92			2
	1	49	22.99			2
256QAM	25	0	21.89	0-3	3	
	25	12	21.88		3	
	25	25	21.82		3	
	50	0	21.89		3	
	1	0	19.96		0-5	5
	1	25	19.90			5
	1	49	19.85			5
25	0	19.88	5			
25	12	19.84	5			
25	25	19.84	5			
50	0	19.86	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 9-11
LTE Band 12 Conducted Powers - 5 MHz Bandwidth

LTE Band 12 5 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			23035 (701.5 MHz) Conducted Power [dBm]	23095 (707.5 MHz) Conducted Power [dBm]	23155 (713.5 MHz) Conducted Power [dBm]			
QPSK	1	0	24.69	24.54	24.53	0	0	
	1	12	24.72	24.63	24.68		0	
	1	24	24.76	24.63	24.45		0	
	16QAM	12	0	23.84	23.68	23.70	0-1	1
		12	6	23.88	23.76	23.73		1
		12	13	23.80	23.75	23.77		1
		25	0	23.89	23.72	23.69		1
1		0	24.04	23.94	23.86	0-1		1
1		12	24.15	24.00	24.02			1
1		24	24.06	23.97	24.01			1
64QAM	12	0	22.86	22.66	22.69	0-2	2	
	12	6	22.86	22.78	22.77		2	
	12	13	22.89	22.71	22.72		2	
	25	0	22.80	22.71	22.75		2	
	1	0	22.89	22.76	22.84		0-2	2
	1	12	22.99	22.88	22.91			2
	1	24	22.98	22.91	22.88			2
256QAM	12	0	21.90	21.69	21.66	0-3	3	
	12	6	21.92	21.79	21.74		3	
	12	13	21.86	21.75	21.77		3	
	25	0	21.86	21.74	21.72		3	
	1	0	19.89	19.69	19.77		0-5	5
	1	12	19.85	19.81	19.83			5
	1	24	19.81	19.78	19.78			5
12	0	19.88	19.70	19.68	5			
12	6	19.89	19.97	19.72	5			
12	13	19.83	19.77	19.74	5			
25	0	19.88	19.75	19.73	5			





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

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23025 (700.5 MHz)	23095 (707.5 MHz)	23165 (714.5 MHz)		
Conducted Power [dBm]							
QPSK	1	0	24.67	24.57	24.55	0	0
	1	7	24.66	24.56	24.64		0
	1	14	24.44	24.51	24.48		0
	8	0	23.62	23.60	23.59	0-1	1
	8	4	23.71	23.74	23.69		1
	8	7	23.68	23.63	23.67		1
16QAM	15	0	23.80	23.75	23.80	0-1	1
	1	0	24.06	23.86	23.89		1
	1	7	24.09	24.00	23.95		1
	1	14	24.04	24.03	24.05	0-2	1
	8	0	22.89	22.69	22.68		2
	8	4	22.87	22.77	22.79		2
64QAM	8	7	22.81	22.71	22.76	0-2	2
	15	0	22.86	22.70	22.75		2
	1	0	22.98	22.83	22.85		0-2
	1	7	22.96	22.88	22.86	2	
	1	14	22.98	22.96	22.86	2	
	256QAM	8	0	21.89	21.65	21.62	0-3
8		4	21.87	21.77	21.73	3	
8		7	21.80	21.67	21.75	3	
15		0	21.87	21.73	21.75	0-5	3
1		0	19.88	19.77	19.78		5
1		7	19.83	19.82	19.82		5
256QAM	1	14	19.83	19.74	19.82	0-5	5
	8	0	19.89	19.70	19.75		5
	8	4	19.90	19.80	19.84		5
	8	7	19.85	19.82	19.80	5	
	15	0	19.93	19.77	19.84	5	

Table 9-13
LTE Band 12 Conducted Powers -1.4 MHz Bandwidth

LTE Band 12 1.4 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			23017 (699.7 MHz)	23095 (707.5 MHz)	23173 (715.3 MHz)			
Conducted Power [dBm]								
QPSK	1	0	24.77	24.61	24.52	0	0	
	1	2	24.87	24.63	24.55		0	
	1	5	24.78	24.53	24.33		0	
	3	0	24.70	24.56	24.42	0-1	0	
	3	2	24.74	24.62	24.42		0	
	3	3	24.65	24.57	24.34		0	
16QAM	6	0	23.87	23.74	23.59	0-1	1	
	1	0	24.01	23.92	23.88		1	
	1	2	24.17	23.29	23.98		1	
	1	5	24.07	23.96	23.81	0-1	1	
	3	0	23.86	23.74	23.62		1	
	3	2	23.93	23.68	23.72		1	
64QAM	3	3	23.81	23.63	23.62	0-2	1	
	6	0	22.80	22.67	22.88		2	
	1	0	22.92	22.85	22.70		0-2	2
	1	2	22.98	22.84	22.84	2		
	1	5	22.87	22.76	22.80	2		
	256QAM	3	0	22.86	22.72	22.60	0-2	2
3		2	22.96	22.75	22.80	2		
3		3	22.88	22.70	22.77	2		
6		0	21.76	21.66	21.60	0-3	3	
1		0	20.00	19.92	19.85		0-5	5
1		2	20.05	19.99	19.94			5
1	5	20.09	19.89	19.91	5			
256QAM	3	0	20.01	19.88	19.82	0-5	5	
	3	2	20.04	19.92	19.95		5	
	3	3	19.95	19.88	19.92		5	
	6	0	19.97	19.82	19.85	5		

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LTE Band 13



Table 9-14
LTE Band 13 Conducted Powers - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23230 (782.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	25.11	0	0
	1	25	24.96		0
	1	49	24.89		0
	25	0	24.18	0-1	1
	25	12	24.16		1
	25	25	24.07		1
16QAM	50	0	24.16	0-2	1
	1	0	24.38		1
	1	25	24.21		1
	1	49	24.08	0-1	1
	25	0	23.13		2
	25	12	23.13		2
64QAM	25	25	23.06	0-2	2
	50	0	23.11		2
	1	0	23.33		0-2
	1	25	23.17	2	
	1	49	23.08	0-3	
	25	0	22.15		3
25	12	22.12	3		
256QAM	25	25	22.04	0-3	3
	50	0	22.11		3
	1	0	20.32		0-5
	1	25	20.17	5	
	1	49	20.02	5	
	25	0	20.23	5	
25	12	20.16	5		
25	25	20.10	5		
256QAM	50	0	20.15	0-5	5
	1	0	20.32		5
	1	25	20.17		5
	1	49	20.02	5	
	25	0	20.23	5	
	25	12	20.16	5	

Table 9-15
LTE Band 13 Conducted Powers - 5 MHz Bandwidth

LTE Band 13 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23230 (782.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	25.08	0	0
	1	12	25.15		0
	1	24	24.81		0
	12	0	24.17	0-1	1
	12	6	24.07		1
	12	13	23.99		1
16QAM	25	0	24.05	0-1	1
	1	0	24.30		1
	1	12	24.18		1
	1	24	24.10	0-2	1
	12	0	23.37		2
	12	6	23.30		2
64QAM	12	13	23.25	0-2	2
	25	0	23.29		2
	1	0	23.29		0-2
	1	12	22.87	2	
	1	24	22.91	2	
	256QAM	12	0	22.44	0-3
12		6	22.36	3	
12		13	22.30	3	
25		0	22.29	0-5	3
1		0	20.30		5
1		12	20.21		5
256QAM	1	24	20.10	0-5	5
	12	0	20.24		5
	12	6	20.13		5
	12	13	20.10	0-5	5
	25	0	20.14		5
	25	0	20.14		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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LTE Band 14



Table 9-16
LTE Band 14 Conducted Powers - 10 MHz Bandwidth

LTE Band 14 10 MHz Bandwidth						
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			23330 (793.0 MHz)			
			Conducted Power [dBm]			
QPSK	1	0	24.83	0	0	
	1	25	24.58		0	
	1	49	24.71		0	
	25	0	23.91	0-1	1	
	25	12	23.86		1	
	25	25	23.80		1	
16QAM	50	0	23.86	0-1	1	
	1	0	24.30		1	
	1	25	24.13		1	
	1	49	23.96	0-2	1	
	25	0	23.00		2	
	25	12	22.95		2	
64QAM	25	25	22.88	0-2	2	
	50	0	22.92		2	
	1	0	23.29		2	
	1	25	23.07	0-2	2	
	1	49	23.00		2	
	25	0	22.00		0-3	3
25	12	21.96	3			
25	25	21.85	3			
256QAM	50	0	21.93	0-3	3	
	1	0	20.20		0-5	5
	1	25	20.00			5
	1	49	19.93	5		
	25	0	19.99	5		
	25	12	19.94	5		
25	25	19.85	5			
	50	0	19.97		5	

Table 9-17
LTE Band 14 Conducted Powers - 5 MHz Bandwidth

LTE Band 14 5 MHz Bandwidth						
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			23330 (793.0 MHz)			
			Conducted Power [dBm]			
QPSK	1	0	24.80	0	0	
	1	12	24.90		0	
	1	24	24.65		0	
	12	0	24.11	0-1	1	
	12	6	24.17		1	
	12	13	24.20		1	
16QAM	25	0	24.11	0-1	1	
	1	0	24.03		1	
	1	12	24.04		1	
	1	24	24.10	0-2	1	
	12	0	23.15		2	
	12	6	23.46		2	
64QAM	12	13	23.23	0-2	2	
	25	0	23.12		2	
	1	0	23.16		2	
	1	12	23.28	0-2	2	
	1	24	23.23		2	
	12	0	22.13		0-3	3
12	6	22.19	3			
12	13	22.15	3			
256QAM	25	0	22.14	0-3	3	
	1	0	19.97		0-5	5
	1	12	20.07			5
	1	24	20.07	5		
	12	0	19.93	5		
	12	6	19.98	5		
12	13	20.00	5			
	25	0	20.01		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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LTE Band 5 (Cell)

Table 9-18
LTE Band 5 (Cell) Conducted Powers - 10 MHz Bandwidth

LTE Band 5 (Cell) 10 MHz Bandwidth						
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			20525 (836.5 MHz)			
			Conducted Power [dBm]			
QPSK	1	0	24.94	0	0	
	1	25	24.77		0	
	1	49	24.75		0	
	25	0	23.98	0-1	1	
	25	12	23.94		1	
	25	25	23.87		1	
16QAM	50	0	23.96	0-1	1	
	1	0	24.17		1	
	1	25	24.10		1	
	1	49	24.10	0-2	1	
	25	0	22.98		2	
	25	12	22.91		2	
64QAM	25	25	22.86	0-2	2	
	50	0	22.92		2	
	1	0	23.15		2	
	1	25	23.06	0-2	2	
	1	49	23.02		2	
	25	0	21.94		0-3	3
25	12	21.92	3			
25	25	21.86	3			
256QAM	50	0	21.94	0-3	3	
	1	0	20.19		0-5	5
	1	25	20.01			5
	1	49	20.02	0-5		5
	25	0	19.93		5	
	25	12	19.94		5	
256QAM	25	25	19.84	0-5	5	
	50	0	19.95		5	
	1	0	19.95		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 9-19
LTE Band 5 (Cell) Conducted Powers - 5 MHz Bandwidth

LTE Band 5 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20425 (826.5 MHz)	20525 (836.5 MHz)	20625 (846.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.90	24.90	24.92	0	0
	1	12	24.93	24.88	24.93		0
	1	24	24.93	24.93	24.94		0
	12	0	24.02	24.08	24.10	0-1	1
	12	6	24.14	24.05	24.17		1
	12	13	24.13	24.13	24.22		1
16QAM	25	0	24.14	24.10	24.12	0-1	1
	1	0	24.22	24.27	24.35		1
	1	12	24.26	24.22	24.33		1
	1	24	24.31	24.41	24.31	0-2	1
	12	0	23.06	23.07	23.12		2
	12	6	23.18	23.17	23.26		2
64QAM	12	13	23.21	23.21	23.25	0-2	2
	25	0	23.10	23.07	23.12		2
	1	0	23.18	23.21	23.26		0-3
	1	12	23.17	23.24	23.25	2	
	1	24	23.25	23.09	23.50	2	
	256QAM	12	0	22.06	22.07	22.10	0-3
12		6	22.19	22.12	22.18	3	
12		13	22.23	22.19	22.27	3	
25		0	22.11	22.04	22.17	0-5	3
1		0	19.83	19.79	20.23		5
1		12	19.93	19.92	20.07		5
256QAM	1	24	19.85	20.00	20.02	0-5	5
	12	0	19.65	19.67	19.80		5
	12	6	19.78	19.76	19.94		5
	12	13	19.86	19.85	19.95	5	
	25	0	19.82	19.86	19.96	5	





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Table 9-20
LTE Band 5 (Cell) Conducted Powers - 3 MHz Bandwidth

LTE Band 5 (Cell) 3 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			20415 (825.5 MHz)	20525 (836.5 MHz)	20635 (847.5 MHz)			
Conducted Power [dBm]								
QPSK	1	0	24.78	24.92	24.85	0	0	
	1	7	24.88	24.93	24.86		0	
	1	14	24.94	24.94	24.93		0	
	8	0	24.03	24.09	24.00	0-1	1	
	8	4	24.11	24.18	24.16		1	
	8	7	24.08	24.21	24.12		1	
16QAM	15	0	24.11	24.15	24.04	0-1	1	
	1	0	24.10	24.26	24.19		1	
	1	7	24.05	24.33	24.28		1	
	8	0	23.21	23.12	23.11	0-2	2	
	8	4	23.27	23.27	23.32		2	
	8	7	23.17	23.24	23.21		2	
64QAM	15	0	23.15	23.19	23.09	0-2	2	
	1	0	23.14	23.06	23.26		2	
	1	7	23.25	23.38	23.04		2	
	8	0	22.09	22.09	22.09	0-3	3	
	8	4	22.19	22.25	22.19		3	
	8	7	22.25	22.24	22.15		3	
256QAM	15	0	22.09	22.17	22.12	0-3	3	
	1	0	19.83	19.76	19.86		0-5	5
	1	7	19.79	19.80	19.99			5
	1	14	19.84	20.16	20.05	5		
	8	0	19.77	19.78	19.87	5		
	8	4	19.83	19.80	19.96	5		
8	7	19.88	19.63	19.97	5			
15	0	19.75	19.86	19.96	5			

Table 9-21
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	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			20407 (824.7 MHz)	20525 (836.5 MHz)	20643 (848.3 MHz)			
Conducted Power [dBm]								
QPSK	1	0	24.74	24.81	24.84	0	0	
	1	2	24.85	24.81	24.83		0	
	1	5	24.80	24.87	24.85		0	
	3	0	24.84	24.82	24.83	0-1	0	
	3	2	24.94	24.93	24.92		0	
	3	3	24.88	24.86	24.92		0	
16QAM	6	0	24.05	23.98	24.03	0-1	1	
	1	0	23.99	24.21	24.16		1	
	1	2	24.36	24.12	24.15		1	
	3	0	24.01	23.91	24.03	0-2	1	
	3	2	24.05	23.88	24.11		1	
	3	3	23.94	24.10	24.03		1	
64QAM	6	0	23.00	22.94	23.14	0-2	2	
	1	0	22.98	22.87	23.30		2	
	1	2	23.05	23.12	23.20		2	
	3	0	22.96	23.19	23.20	0-2	2	
	3	2	23.08	23.11	23.05		2	
	3	3	23.02	23.00	23.19		2	
256QAM	6	0	21.99	21.96	21.92	0-3	3	
	1	0	19.79	19.89	20.10		0-5	5
	1	2	19.88	19.84	20.06			5
	1	5	19.87	19.87	20.01	5		
	3	0	19.76	19.78	19.96	5		
	3	2	19.68	19.87	20.08	5		
3	3	19.86	19.83	20.00	5			
6	0	19.82	19.73	19.79	5			

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LTE Band 26 (Cell)

Table 9-22
LTE Band 26 (Cell) Conducted Powers - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26865 (831.5 MHz) Conducted Power [dBm]		
QPSK	1	0	25.00	0	0
	1	36	24.99		0
	1	74	24.97		0
	36	0	24.16	0-1	1
	36	18	24.12		1
	36	37	24.07		1
	75	0	24.10		1
16QAM	1	0	24.08	0-1	1
	1	36	23.99		1
	1	74	24.04		1
	36	0	23.03	0-2	2
	36	18	22.97		2
	36	37	23.02		2
	75	0	22.91		2
64QAM	1	0	22.99	0-2	2
	1	36	22.96		2
	1	74	22.95		2
	36	0	21.99	0-3	3
	36	18	21.83		3
	36	37	21.83		3
	75	0	21.89		3
256QAM	1	0	19.92	0-5	5
	1	36	19.95		5
	1	74	19.92		5
	36	0	20.01		5
	36	18	20.05		5
	36	37	19.83		5
	75	0	19.93		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 9-23
LTE Band 26 (Cell) Conducted Powers - 10 MHz Bandwidth

LTE Band 26 (Cell) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26740 (819.0 MHz)	26865 (831.5 MHz)	26990 (844.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	25.28	25.21	25.14	0	0
	1	25	25.03	25.05	24.94		0
	1	49	25.07	24.90	24.98		0
	25	0	24.18	24.10	24.05	0-1	1
	25	12	24.17	24.02	24.03		1
	25	25	24.13	24.05	23.98		1
	50	0	24.11	24.02	24.03		1
16QAM	1	0	24.26	24.02	24.04	0-1	1
	1	25	24.32	23.88	23.95		1
	1	49	24.36	23.82	23.96		1
	25	0	23.12	23.09	23.12	0-2	2
	25	12	23.20	23.11	23.13		2
	25	25	23.11	23.08	23.10		2
	50	0	23.09	23.02	23.02		2
64QAM	1	0	23.08	22.91	23.10	0-2	2
	1	25	22.83	22.94	22.91		2
	1	49	22.77	22.89	22.86		2
	25	0	21.73	21.90	21.86	0-3	3
	25	12	21.76	21.90	21.91		3
	25	25	21.48	21.88	21.90		3
	50	0	21.80	21.92	21.86		3
256QAM	1	0	19.89	19.86	19.91	0-5	5
	1	25	19.81	19.95	19.91		5
	1	49	19.54	19.91	19.95		5
	25	0	19.75	19.83	19.90		5
	25	12	19.74	20.00	19.93		5
	25	25	19.62	19.91	19.82		5
	50	0	19.71	19.99	19.79		5



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Table 9-24
LTE Band 26 (Cell) Conducted Powers - 5 MHz Bandwidth

LTE Band 26 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26715 (816.5 MHz)	26865 (831.5 MHz)	27015 (846.5 MHz)		
Conducted Power [dBm]							
QPSK	1	0	25.06	24.88	24.98	0	0
	1	12	25.10	24.87	25.02		0
	1	24	25.14	24.98	25.05		0
	12	0	24.14	24.01	23.95	0-1	1
	12	6	24.16	24.02	24.04		1
	12	13	24.13	24.00	23.98		1
16QAM	25	0	24.17	23.95	23.98	0-1	1
	1	0	24.49	24.07	24.05		1
	1	12	24.21	24.08	24.06		1
	1	24	24.19	24.15	24.08	0-2	1
	12	0	23.32	23.09	23.01		2
	12	6	23.42	23.08	23.07		2
64QAM	12	13	23.28	23.23	23.02	0-2	2
	25	0	23.21	23.20	23.04		2
	1	0	22.70	22.98	22.73		0-2
	1	12	22.77	22.87	22.84	2	
	1	24	22.75	22.85	22.83	2	
	256QAM	12	0	21.50	21.79	21.42	0-3
12		6	21.71	21.85	21.75	3	
12		13	21.82	21.79	21.65	3	
25		0	21.67	21.65	21.73	0-5	3
1		0	19.72	19.95	19.68		5
1		12	19.92	19.88	19.75		5
256QAM	1	24	19.70	19.81	19.70	0-5	5
	12	0	19.64	19.78	19.70		5
	12	6	19.70	19.68	19.74		5
	12	13	19.74	19.42	19.77	5	
	25	0	19.84	19.83	19.68	5	

Table 9-25
LTE Band 26 (Cell) Conducted Powers - 3 MHz Bandwidth

LTE Band 26 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26705 (815.5 MHz)	26865 (831.5 MHz)	27025 (847.5 MHz)		
Conducted Power [dBm]							
QPSK	1	0	24.89	24.93	24.88	0	0
	1	7	24.90	24.96	24.85		0
	1	14	24.86	24.96	24.80		0
	8	0	23.98	23.99	23.97	0-1	1
	8	4	24.14	24.06	23.90		1
	8	7	24.13	24.02	23.93		1
16QAM	15	0	24.05	23.99	23.92	0-1	1
	1	0	23.97	24.16	23.77		1
	1	7	23.97	24.15	23.73		1
	1	14	23.95	24.19	23.67	0-2	1
	8	0	23.25	23.05	23.10		2
	8	4	23.22	23.10	23.02		2
64QAM	8	7	23.04	23.09	23.09	0-2	2
	15	0	23.03	23.10	23.00		2
	1	0	22.77	22.65	22.80		0-2
	1	7	22.89	22.76	22.79	2	
	1	14	22.83	22.67	22.68	2	
	256QAM	8	0	21.75	21.88	21.74	0-3
8		4	21.68	21.75	21.53	3	
8		7	21.33	21.63	21.57	3	
15		0	21.89	21.87	21.79	0-5	3
1		0	19.81	19.73	19.76		5
1		7	19.92	19.92	19.87		5
256QAM	1	14	19.88	19.77	19.72	0-5	5
	8	0	19.78	19.63	19.82		5
	8	4	19.89	19.81	19.76		5
	8	7	19.90	19.73	19.70	5	
	15	0	19.87	19.81	19.63	5	





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Table 9-26
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	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26697 (814.7 MHz)	26865 (831.5 MHz)	27033 (848.3 MHz)		
Conducted Power [dBm]							
QPSK	1	0	24.95	25.01	24.81	0	0
	1	2	25.05	25.11	24.88		0
	1	5	24.95	25.10	24.80		0
	3	0	24.96	24.77	24.73		0
	3	2	25.02	24.94	24.83		0
	3	3	24.98	24.82	24.78		0
	6	0	23.98	24.11	23.94	0-1	1
16QAM	1	0	24.27	23.89	23.83	0-1	1
	1	2	24.37	23.88	23.89		1
	1	5	24.33	23.72	23.78		1
	3	0	24.11	23.74	23.93		1
	3	2	23.98	23.83	23.93		1
	3	3	24.10	23.92	23.85		1
	6	0	23.26	23.10	23.05	0-2	2
64QAM	1	0	22.72	22.67	22.76	0-2	2
	1	2	22.86	22.76	22.92		2
	1	5	22.78	22.69	22.89		2
	3	0	22.68	22.59	22.74		2
	3	2	22.80	22.69	22.76		2
	3	3	22.74	22.66	22.69		2
	6	0	21.80	21.71	21.77	0-3	3
256QAM	1	0	19.80	19.66	19.82	0-5	5
	1	2	19.91	19.57	19.91		5
	1	5	19.90	19.73	19.86		5
	3	0	19.75	19.74	19.82		5
	3	2	19.96	19.84	19.84		5
	3	3	19.73	19.79	19.85		5
	6	0	19.84	19.73	19.74	5	

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LTE Band 66 (AWS)

Table 9-27
LTE Band 66 (AWS) Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.40	24.32	24.35	0	0
	1	50	24.32	24.17	24.05		0
	1	99	24.51	24.13	24.08		0
	50	0	23.57	23.36	23.30	0-1	1
	50	25	23.52	23.34	23.31		1
	50	50	23.44	23.29	23.26		1
16QAM	100	0	23.52	23.33	23.28	0-1	1
	1	0	23.67	23.56	23.48		1
	1	50	23.58	23.45	23.36		1
	1	99	23.63	23.52	23.42	0-2	1
	50	0	22.59	22.38	22.31		2
	50	25	22.50	22.36	22.28		2
64QAM	50	50	22.42	22.31	22.28	0-2	2
	100	0	22.49	22.31	22.30		2
	1	0	22.72	22.53	22.47		2
	1	50	22.60	22.46	22.33	0-3	2
	1	99	22.64	22.46	22.36		2
	50	0	21.58	21.36	21.34		3
256QAM	50	25	21.51	21.34	21.31	0-3	3
	50	50	21.43	21.31	21.33		3
	100	0	21.46	21.31	21.30		3
	1	0	19.60	19.45	19.36	0-5	5
	1	50	19.41	19.32	19.23		5
	1	99	19.45	19.29	19.28		5
256QAM	50	0	19.53	19.37	19.27	0-5	5
	50	25	19.45	19.32	19.33		5
	50	50	19.34	19.28	19.34		5
	100	0	19.46	19.36	19.28	5	

Table 9-28
LTE Band 66 (AWS) Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132047 (1717.5 MHz)	132322 (1745.0 MHz)	132597 (1772.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.27	23.98	24.40	0	0
	1	36	24.15	24.03	24.37		0
	1	74	24.28	24.10	24.27		0
	36	0	23.42	23.01	23.42	0-1	1
	36	18	23.46	23.21	23.25		1
	36	37	23.41	23.23	23.41		1
16QAM	75	0	23.51	23.25	23.49	0-1	1
	1	0	23.60	23.31	23.58		1
	1	36	23.43	23.25	23.65		1
	1	74	23.41	22.98	23.40	0-2	1
	36	0	22.31	22.04	22.43		2
	36	18	22.38	22.21	22.42		2
64QAM	36	37	22.30	22.19	22.41	0-2	2
	75	0	22.37	22.20	22.40		2
	1	0	22.35	22.31	22.46		0-3
	1	36	22.30	22.20	22.46	2	
	1	74	22.32	22.19	22.40	2	
	256QAM	36	0	21.34	21.12	21.45	0-3
36		18	21.30	21.22	21.50	3	
36		37	21.37	21.20	21.45	3	
75		0	21.34	21.22	21.44	0-5	3
1		0	19.28	19.10	19.37		5
1		36	19.26	19.28	19.43		5
256QAM	1	74	19.27	19.48	19.37	0-5	5
	36	0	19.39	19.21	19.32		5
	36	18	19.34	19.23	19.42		5
	36	37	19.39	19.19	19.44	5	
	75	0	19.30	19.29	19.43	5	



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Table 9-29
LTE Band 66 (AWS) Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132022 (1715.0 MHz)	132322 (1745.0 MHz)	132622 (1775.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.16	24.25	24.24	0	0
	1	25	24.23	24.34	24.35		0
	1	49	24.36	24.32	24.24		0
	25	0	23.27	23.37	23.11	0-1	1
	25	12	23.38	23.51	23.43		1
	25	25	23.32	23.41	23.47		1
16QAM	50	0	23.41	23.41	23.50	0-1	1
	1	0	23.24	23.46	23.32		1
	1	25	23.30	23.59	23.57		1
	1	49	23.31	23.47	23.47	0-2	1
	25	0	22.32	22.36	22.29		2
	25	12	22.25	22.35	22.31		2
64QAM	25	25	22.28	22.35	22.33	0-2	2
	50	0	22.30	22.33	22.37		2
	1	0	22.25	22.30	22.32		0-2
	1	25	22.26	22.31	22.38	2	
	1	49	22.22	22.48	22.39	2	
	256QAM	25	0	21.22	21.28	21.38	0-3
25		12	21.27	21.44	21.32	3	
25		25	21.22	21.37	21.26	3	
50		0	21.26	21.32	21.38	0-5	3
1		0	19.19	19.22	19.17		5
1		25	19.45	19.03	19.47		5
256QAM	1	49	19.16	19.27	19.22	0-5	5
	25	0	19.31	19.29	19.34		5
	25	12	19.35	19.32	19.25		5
	25	25	19.30	19.30	19.28	5	
	50	0	19.16	19.33	19.31	5	

Table 9-30
LTE Band 66 (AWS) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131997 (1712.5 MHz)	132322 (1745.0 MHz)	132647 (1777.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.38	24.24	23.96	0	0
	1	12	24.36	24.37	24.02		0
	1	24	24.42	24.38	24.14		0
	12	0	23.22	23.41	23.40	0-1	1
	12	6	23.39	23.31	23.03		1
	12	13	23.62	23.44	23.11		1
16QAM	25	0	23.51	23.26	23.01	0-1	1
	1	0	23.60	23.43	23.25		1
	1	12	23.64	23.17	23.34		1
	12	24	23.52	23.30	23.44	0-2	1
	12	0	22.30	22.28	21.92		2
	12	6	22.40	22.37	22.13		2
64QAM	12	13	22.48	22.27	22.11	0-2	2
	25	0	22.45	22.31	22.08		2
	1	0	22.34	22.26	21.89		0-2
	1	12	22.47	22.30	21.83	2	
	1	24	22.43	22.39	22.11	2	
	256QAM	12	0	21.35	21.13	21.14	0-3
12		6	21.52	21.18	21.17	3	
12		13	21.41	21.26	21.15	3	
25		0	21.39	21.30	21.03	0-5	3
1		0	19.19	19.41	19.16		5
1		12	19.32	19.32	19.05		5
256QAM	1	24	19.30	19.23	19.05	0-5	5
	12	0	19.27	19.12	19.11		5
	12	6	19.37	19.32	19.20		5
	12	13	19.36	19.36	19.13	5	
	25	0	19.35	19.24	19.09	5	



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Table 9-31
LTE Band 66 (AWS) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131987 (1711.5 MHz)	132322 (1745.0 MHz)	132657 (1778.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.41	24.36	24.39	0	0
	1	7	24.50	24.31	24.48		0
	1	14	24.53	24.30	24.53		0
	8	0	23.28	23.27	23.47	0-1	1
	8	4	23.26	23.46	23.60		1
	8	7	23.35	23.45	23.52		1
16QAM	15	0	23.15	23.46	23.62	0-1	1
	1	0	23.62	23.66	23.35		1
	1	7	23.46	23.49	23.38		1
	8	0	22.56	22.27	22.47	0-2	2
	8	4	22.65	22.42	22.60		2
	8	7	22.46	22.44	22.61		2
64QAM	15	0	22.05	22.28	22.51	0-2	2
	1	0	22.52	22.43	22.55		2
	1	7	22.63	22.66	22.66		2
	1	14	22.47	22.33	22.54	0-3	2
	8	0	21.32	21.26	21.73		3
	8	4	21.43	21.33	21.43		3
256QAM	8	7	21.47	21.17	21.54	0-3	3
	15	0	21.41	21.44	21.34		3
	1	0	19.51	19.48	19.44		0-5
	1	7	19.44	19.24	19.68	5	
	1	14	19.49	19.31	19.59	5	
	8	0	19.41	19.40	19.55	5	
8	4	19.47	19.31	19.42	5		
8	7	19.60	19.17	19.38	5		
15	0	19.51	19.30	19.50	5		

Table 9-32
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	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			131979 (1710.7 MHz)	132322 (1745.0 MHz)	132665 (1779.3 MHz)			
			Conducted Power [dBm]					
QPSK	1	0	24.23	24.21	24.47	0	0	
	1	2	24.37	24.20	24.52		0	
	1	5	24.29	24.28	24.56		0	
	3	0	24.31	24.17	24.45	0-1	0	
	3	2	24.30	24.20	24.57		0	
	3	3	24.30	24.23	24.48		0	
16QAM	6	0	23.43	23.19	23.65	0-1	1	
	1	0	23.43	23.36	23.54		1	
	1	2	23.49	23.22	23.20		1	
	3	0	23.26	23.22	23.26	0-1	1	
	3	2	23.47	23.45	23.38		1	
	3	3	23.38	23.36	23.73		1	
64QAM	6	0	22.25	22.23	22.78	0-2	2	
	1	0	22.33	22.31	22.66		2	
	1	2	22.42	22.38	22.73		2	
	3	0	22.12	22.19	22.25	0-2	2	
	3	2	22.06	22.49	22.41		2	
	3	3	22.13	22.21	22.60		2	
256QAM	6	0	21.40	21.34	21.54	0-3	3	
	1	0	19.18	19.49	19.72		0-5	5
	1	2	19.26	19.16	19.27			5
	1	5	19.27	19.16	19.43	5		
	3	0	19.17	19.36	19.47	5		
	3	2	19.28	19.27	19.51	5		
3	3	19.11	19.31	19.34	5			
6	0	19.17	19.14	19.52	5			



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Table 9-33
LTE Band 66 (AWS) Reduced Conducted Powers - 20 MHz Bandwidth – Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.49	20.28	20.20	0	0
	1	50	20.32	20.02	19.96		0
	1	99	20.27	20.11	19.97		0
	50	0	20.50	20.32	20.28	0-1	0
	50	25	20.48	20.27	20.33		0
	50	50	20.44	20.24	20.29		0
16QAM	100	0	20.47	20.19	20.19	0-1	0
	1	0	20.43	20.17	20.38		0
	1	50	20.30	20.03	20.37		0
	1	99	20.32	20.12	20.35	0-2	0
	50	0	20.50	20.36	20.21		0
	50	25	20.49	20.32	20.25		0
64QAM	50	50	20.43	20.27	20.22	0-2	0
	100	0	20.49	20.27	20.23		0
	1	0	20.49	20.50	20.46		0-2
	1	50	20.45	20.36	20.47	0	
	1	99	20.49	20.39	20.30	0	
	256QAM	50	0	20.48	20.37	20.30	0-3
50		25	20.44	20.32	20.33	0	
50		50	20.48	20.27	20.26	0	
100		0	20.47	20.29	20.35	0-5	0
1		0	19.46	19.35	19.49		1
1		50	19.33	19.13	19.13		1
256QAM	1	99	19.30	19.29	19.23	0-5	1
	50	0	19.50	19.33	19.26		1
	50	25	19.47	19.32	19.25		1
	50	50	19.45	19.22	19.27	1	
	100	0	19.48	19.29	19.27	1	

Table 9-34
LTE Band 66 (AWS) Reduced Conducted Powers - 15 MHz Bandwidth– Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132047 (1717.5 MHz)	132322 (1745.0 MHz)	132597 (1772.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.43	20.20	20.23	0	0
	1	36	20.39	20.22	20.24		0
	1	74	20.36	20.23	20.09		0
	36	0	20.53	20.33	20.34	0-1	0
	36	18	20.46	20.32	20.28		0
	36	37	20.45	20.29	20.27		0
16QAM	75	0	20.50	20.32	20.29	0-1	0
	1	0	20.50	20.51	20.41		0
	1	36	20.57	20.43	20.38		0
	1	74	20.54	20.42	20.29	0-2	0
	36	0	20.51	20.31	20.30		0
	36	18	20.48	20.32	20.28		0
64QAM	36	37	20.40	20.29	20.26	0-2	0
	75	0	20.46	20.30	20.27		0
	1	0	20.59	20.56	20.49		0-2
	1	36	20.59	20.39	20.43	0	
	1	74	20.52	20.45	20.30	0	
	256QAM	36	0	20.47	20.45	20.45	0-3
36		18	20.60	20.42	20.39	0	
36		37	20.54	20.36	20.39	0	
75		0	20.58	20.40	20.38	0-5	0
1		0	19.18	19.08	19.12		1
1		36	19.51	19.40	19.47		1
256QAM	1	74	19.54	19.37	19.41	0-5	1
	36	0	19.60	19.45	19.46		1
	36	18	19.55	19.41	19.46		1
	36	37	19.52	19.38	19.41	1	
	75	0	19.60	19.45	19.45	1	



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Table 9-35
LTE Band 66 (AWS) Reduced Conducted Powers - 10 MHz Bandwidth– Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132022 (1715.0 MHz)	132322 (1745.0 MHz)	132622 (1775.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.27	20.38	20.03	0	0
	1	25	20.16	20.47	20.08		0
	1	49	20.24	20.46	20.05		0
	25	0	20.32	20.35	20.11	0-1	0
	25	12	20.33	20.12	20.12		0
	25	25	20.53	20.08	20.08		0
16QAM	50	0	20.37	20.14	20.10	0-1	0
	1	0	20.38	20.15	20.17		0
	1	25	20.33	20.12	20.10		0
	1	49	20.40	20.15	20.16	0-2	0
	25	0	20.36	20.15	20.11		0
	25	12	20.34	20.12	20.09		0
64QAM	25	25	20.36	20.15	20.11	0-2	0
	50	0	20.49	20.21	20.21		0
	1	0	20.47	20.21	20.18		0-3
	1	25	20.49	20.26	20.25	0	
	1	49	20.44	20.25	20.24	0	
	256QAM	25	0	20.49	20.26	20.25	0-3
25		12	20.44	20.25	20.24	0	
25		25	20.40	20.17	20.11	0	
50		0	20.40	20.17	20.38	0-5	0
1		0	19.59	19.35	19.21		1
1		25	19.51	19.37	19.35		1
256QAM	1	49	19.43	19.33	19.36	0-5	1
	25	0	19.50	19.26	19.29		1
	25	12	19.46	19.29	19.28		1
	25	25	19.43	19.24	19.27	1	
	50	0	19.47	19.27	19.25	1	

Table 9-36
LTE Band 66 (AWS) Reduced Conducted Powers - 5 MHz Bandwidth– Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131997 (1712.5 MHz)	132322 (1745.0 MHz)	132647 (1777.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.25	20.00	19.93	0	0
	1	12	20.27	20.03	19.96		0
	1	24	20.33	20.05	20.03		0
	12	0	20.36	20.12	20.10	0-1	0
	12	6	20.43	20.17	20.14		0
	12	13	20.38	20.11	20.14		0
16QAM	25	0	20.38	20.13	20.13	0-1	0
	1	0	20.57	20.29	20.32		0
	1	12	20.48	20.32	20.27		0
	1	24	20.57	20.34	20.35	0-2	0
	12	0	20.47	20.17	20.14		0
	12	6	20.45	20.19	20.18		0
64QAM	12	13	20.49	20.19	20.15	0-2	0
	25	0	20.41	20.09	20.11		0
	1	0	20.50	20.23	20.19		0-3
	1	12	20.57	20.28	20.19	0	
	1	24	20.55	20.28	20.27	0	
	256QAM	12	0	20.47	20.17	20.16	0-3
12		6	20.45	20.17	20.17	0	
12		13	20.45	20.19	20.18	0	
25		0	20.40	20.16	20.12	0-5	0
1		0	19.66	19.25	19.34		1
1		12	19.61	19.41	19.36		1
256QAM	1	24	19.66	19.46	19.42	0-5	1
	12	0	19.53	19.32	19.26		1
	12	6	19.56	19.34	19.34		1
	12	13	19.54	19.32	19.31	1	
	25	0	19.52	19.34	19.29	1	



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Table 9-37
LTE Band 66 (AWS) Reduced Conducted Powers - 3 MHz Bandwidth– Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131987 (1711.5 MHz)	132322 (1745.0 MHz)	132657 (1778.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.22	19.93	19.90	0	0
	1	7	20.23	19.93	19.90		0
	1	14	20.20	19.94	19.89		0
	8	0	20.27	20.05	20.01	0-1	0
	8	4	20.31	20.06	19.99		0
	8	7	20.26	20.02	20.03		0
	15	0	20.33	20.11	20.05		0
16QAM	1	0	20.55	20.24	20.20	0-1	0
	1	7	20.57	20.26	20.26		0
	1	14	20.54	20.31	20.21		0
	8	0	20.42	20.14	20.14	0-2	0
	8	4	20.42	20.18	20.15		0
	8	7	20.35	20.16	20.12		0
	15	0	20.34	20.11	20.08		0
64QAM	1	0	20.43	20.17	20.12	0-2	0
	1	7	20.45	20.12	20.12		0
	1	14	20.39	20.18	20.16		0
	8	0	20.44	20.15	20.11	0-3	0
	8	4	20.42	20.20	20.12		0
	8	7	20.38	20.16	20.12		0
	15	0	20.33	20.12	20.09		0
256QAM	1	0	19.50	19.23	19.36	0-5	1
	1	7	19.56	19.51	19.31		1
	1	14	19.48	19.43	19.31		1
	8	0	19.57	19.08	19.26		1
	8	4	19.49	19.22	19.32		1
	8	7	19.50	19.31	19.32		1
	15	0	19.47	19.25	19.28		1

Table 9-38
LTE Band 66 (AWS) Reduced Conducted Powers -1.4 MHz Bandwidth– Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131979 (1710.7 MHz)	132322 (1745.0 MHz)	132665 (1779.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.14	20.04	19.95	0	0
	1	2	20.21	20.13	20.02		0
	1	5	20.15	20.11	20.01		0
	3	0	20.13	20.04	20.00		0
	3	2	20.21	20.14	20.03		0
	3	3	20.16	20.06	19.97		0
	6	0	20.29	20.20	20.15		0-1
16QAM	1	0	20.37	20.24	20.31	0-1	0
	1	2	20.38	20.32	20.37		0
	1	5	20.40	20.22	20.32		0
	3	0	20.40	20.22	20.32		0
	3	2	20.25	20.14	20.23		0
	3	3	20.32	20.17	20.27		0
	6	0	20.25	20.17	20.24		0-2
64QAM	1	0	20.32	20.16	20.26	0-2	0
	1	2	20.39	20.28	20.33		0
	1	5	20.34	20.21	20.26		0
	3	0	20.33	20.20	20.29		0
	3	2	20.35	20.23	20.32		0
	3	3	20.31	20.13	20.27		0
	6	0	20.18	20.09	20.15		0-3
256QAM	1	0	19.51	19.20	19.19	0-5	1
	1	2	19.60	19.31	19.28		1
	1	5	19.51	19.23	19.21		1
	3	0	19.57	19.27	19.26		1
	3	2	19.63	19.30	19.31		1
	3	3	19.51	19.26	19.23		1
	6	0	19.13	19.17	19.18		1



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Table 9-39
LTE Band 66 (AWS) Reduced Conducted Powers - 20 MHz Bandwidth – Grip Sensor and/or Earjack Mode
and 5G NR active

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	18.70	18.69	18.54	0	0
	1	50	18.67	18.60	18.43		0
	1	99	19.00	18.60	18.38		0
	50	0	18.94	18.85	18.66	0-1	0
	50	25	18.90	18.82	18.71		0
	50	50	18.86	18.77	18.64		0
16QAM	100	0	18.80	18.79	18.65	0-1	0
	1	0	18.95	18.75	18.81		0
	1	50	18.83	18.60	18.74		0
	1	99	18.91	18.65	18.77	0-2	0
	50	0	18.88	18.86	18.71		0
	50	25	18.83	18.86	18.65		0
64QAM	50	50	18.79	18.77	18.63	0-2	0
	100	0	18.83	18.77	18.68		0
	1	0	18.88	18.90	18.83		0-3
	1	50	18.80	18.86	18.74	0	
	1	99	18.91	18.83	18.65	0	
	256QAM	50	0	18.88	18.87	18.73	0-3
50		25	18.86	18.86	18.76	0	
50		50	18.79	18.80	18.71	0	
100		0	18.84	18.81	18.73	0-5	0
1		0	18.96	18.90	18.72		0
1		50	18.84	18.81	18.64		0
256QAM	1	99	18.90	18.84	18.65	0-5	0
	50	0	18.93	18.80	18.70		0
	50	25	18.89	18.86	18.76		0
	50	50	18.84	18.81	18.71	0	
	100	0	18.85	18.82	18.79	0	

Table 9-40
LTE Band 66 (AWS) Reduced Conducted Powers - 15 MHz Bandwidth– Grip Sensor and/or Earjack Mode
and 5G NR active

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132047 (1717.5 MHz)	132322 (1745.0 MHz)	132597 (1772.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	18.86	18.83	18.75	0	0
	1	36	18.76	18.72	18.76		0
	1	74	18.73	18.65	18.63		0
	36	0	18.96	18.91	18.86	0-1	0
	36	18	18.88	18.87	18.84		0
	36	37	18.87	18.89	18.82		0
16QAM	75	0	18.96	18.91	18.86	0-1	0
	1	0	18.99	18.91	18.92		0
	1	36	19.00	18.96	18.93		0
	36	0	18.92	18.91	18.81	0-2	0
	36	18	18.96	18.90	18.88		0
	36	37	18.88	18.86	18.86		0
64QAM	75	0	18.98	18.89	18.84	0-2	0
	1	0	19.00	18.96	18.85		0
	1	36	18.91	18.97	18.91		0
	1	74	19.00	18.96	18.87	0-3	0
	36	0	18.84	18.95	18.90		0
	36	18	18.97	18.92	18.88		0
256QAM	36	37	18.93	18.85	18.87	0-3	0
	75	0	18.96	18.94	18.89		0
	1	0	18.97	18.96	18.90		0-5
	1	36	18.98	18.95	18.97	0	
	1	74	18.97	18.89	18.81	0	
	36	0	18.96	18.94	18.87	0	
36	18	18.97	18.90	18.86	0		
36	37	18.93	18.91	18.86	0		
75	0	18.97	18.89	18.89	0		



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Table 9-41
LTE Band 66 (AWS) Reduced Conducted Powers - 10 MHz Bandwidth– Grip Sensor and/or Earjack Mode
and 5G NR active

LTE Band 66 (AWS)							
10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132022 (1715.0 MHz)	132322 (1745.0 MHz)	132622 (1775.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	18.81	18.55	18.51	0	0
	1	25	18.72	18.54	18.61		0
	1	49	18.76	18.58	18.55		0
	25	0	18.91	18.72	18.74	0-1	0
	25	12	18.89	18.69	18.72		0
	25	25	18.86	18.67	18.69		0
16QAM	50	0	18.88	18.74	18.71	0-1	0
	1	0	18.93	18.84	18.96		0
	1	25	19.00	18.76	18.86		0
	1	49	18.94	18.93	18.94	0-2	0
	25	0	18.90	18.73	18.73		0
	25	12	18.91	18.70	18.76		0
64QAM	25	25	18.83	18.68	18.68	0-2	0
	50	0	18.90	18.70	18.71		0
	1	0	18.90	18.89	18.80		0-3
	1	25	18.95	18.81	18.82	0	
	1	49	18.91	18.84	18.83	0	
	256QAM	25	0	19.00	18.76	18.74	0-3
25		12	18.89	18.71	18.71	0	
25		25	18.82	18.64	18.68	0	
50		0	18.91	18.71	18.75	0-5	0
1		0	18.93	18.82	18.81		0
1		25	18.95	18.76	18.77		0
256QAM	1	49	18.91	18.77	18.81	0-5	0
	25	0	18.94	18.74	18.72		0
	25	12	18.96	18.75	18.72		0
	25	25	18.88	18.69	18.74	0	
	50	0	18.93	18.75	18.73	0	

Table 9-42
LTE Band 66 (AWS) Reduced Conducted Powers - 5 MHz Bandwidth– Grip Sensor and/or Earjack Mode
and 5G NR active

LTE Band 66 (AWS)							
5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131997 (1712.5 MHz)	132322 (1745.0 MHz)	132647 (1777.5 MHz)		
Conducted Power [dBm]							
QPSK	1	0	18.69	18.61	18.56	0	0
	1	12	18.63	18.63	18.63		0
	1	24	18.67	18.69	18.66		0
	12	0	18.78	18.73	18.69	0-1	0
	12	6	18.80	18.80	18.74		0
	12	13	18.77	18.75	18.72		0
16QAM	25	0	18.74	18.72	18.74	0-1	0
	1	0	18.94	18.90	18.91		0
	1	12	18.98	18.96	18.94		0
	1	24	18.93	18.99	18.95	0-2	0
	12	0	18.88	18.81	18.83		0
	12	6	18.83	18.81	18.84		0
64QAM	12	13	18.84	18.82	18.82	0-2	0
	25	0	18.79	18.74	18.70		0
	1	0	18.92	18.86	18.92		0-3
	1	12	18.94	18.90	18.82	0	
	1	24	18.89	18.90	18.93	0	
	256QAM	12	0	18.82	18.75	18.83	0-3
12		6	18.90	18.77	18.82	0	
12		13	18.81	18.78	18.78	0	
25		0	18.73	18.72	18.77	0-5	0
1		0	18.83	18.79	18.86		0
1		12	18.90	18.82	18.75		0
256QAM	1	24	18.88	18.88	18.91	0-5	0
	12	0	18.79	18.73	18.73		0
	12	6	18.84	18.84	18.77		0
	12	13	18.80	18.75	18.80	0	
	25	0	18.77	18.72	18.73	0	





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Table 9-43
LTE Band 66 (AWS) Reduced Conducted Powers - 3 MHz Bandwidth– Grip Sensor and/or Earjack Mode
and 5G NR active

LTE Band 66 (AWS)							
3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131987 (1711.5 MHz)	132322 (1745.0 MHz)	132657 (1778.5 MHz)		
Conducted Power [dBm]							
QPSK	1	0	18.78	18.57	18.61	0	0
	1	7	18.73	18.61	18.58		0
	1	14	18.65	18.61	18.64		0
	8	0	18.85	18.73	18.70	0-1	0
	8	4	18.86	18.74	18.72		0
	8	7	18.83	18.69	18.66		0
16QAM	15	0	18.82	18.69	18.73	0-1	0
	1	0	18.92	19.00	18.78		0
	1	7	18.96	18.94	18.92		0
	1	14	18.93	18.90	18.87	0-2	0
	8	0	19.00	18.71	18.77		0
	8	4	18.98	18.86	18.82		0
64QAM	8	7	18.95	18.81	18.81	0-2	0
	15	0	18.86	18.76	18.74		0
	1	0	18.97	18.87	18.87		0-2
	1	7	18.96	18.86	18.86	0	
	1	14	18.99	18.80	18.85	0	
	256QAM	8	0	18.89	18.81	18.78	0-3
8		4	18.89	18.77	18.73	0	
8		7	18.94	18.74	18.78	0	
15		0	18.89	18.85	18.75	0-5	0
1		0	18.92	18.78	18.82		0
1		7	18.95	18.76	18.88		0
256QAM	1	14	18.85	18.79	18.82	0-5	0
	8	0	18.94	18.74	18.74		0
	8	4	18.88	18.76	18.68		0
	8	7	18.86	18.75	18.77	0	
	15	0	18.86	18.77	18.72	0	

Table 9-44
LTE Band 66 (AWS) Reduced Conducted Powers -1.4 MHz Bandwidth– Grip Sensor and/or Earjack Mode
and 5G NR active

LTE Band 66 (AWS)							
1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131979 (1710.7 MHz)	132322 (1745.0 MHz)	132665 (1779.3 MHz)		
Conducted Power [dBm]							
QPSK	1	0	18.67	18.57	18.56	0	0
	1	2	18.78	18.60	18.64		0
	1	5	18.79	18.55	18.52		0
	3	0	18.72	18.61	18.55	0-1	0
	3	2	18.76	18.60	18.61		0
	3	3	18.74	18.55	18.53		0
16QAM	6	0	18.77	18.65	18.68	0-1	0
	1	0	18.92	18.73	18.89		0
	1	5	19.00	18.79	18.87		0
	3	0	18.91	18.71	18.74	0-1	0
	3	2	18.97	18.71	18.76		0
	3	3	18.91	18.75	18.69		0
64QAM	6	0	18.87	18.71	18.68	0-2	0
	1	0	18.93	18.78	18.66		0
	1	2	18.99	18.71	18.86		0
	1	5	18.91	18.77	18.75	0-2	0
	3	0	18.92	18.72	18.72		0
	3	2	18.97	18.81	18.82		0
256QAM	3	3	18.91	18.71	18.75	0-3	0
	6	0	18.89	18.67	18.68		0
	1	0	18.73	18.81	18.69		0-5
	1	2	18.93	18.81	18.87	0	
	1	5	18.97	18.76	18.76	0	
	3	0	18.96	18.77	18.74	0	
3	2	18.94	18.86	18.85	0		
3	3	18.96	18.80	18.79	0		
6	0	18.86	18.71	18.62	0		

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LTE Band 2 (PCS)

Table 9-45
LTE Band 2 (PCS) Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 2 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18700 (1860.0 MHz)	18900 (1880.0 MHz)	19100 (1900.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.74	23.80	23.58	0	0
	1	50	23.81	23.69	23.68		0
	1	99	23.74	23.50	23.40		0
	50	0	22.94	22.77	22.46	0-1	1
	50	25	22.98	22.83	22.54		1
	50	50	22.96	22.59	22.53		1
16QAM	100	0	22.92	22.78	22.76	0-1	1
	1	0	22.81	22.66	22.75		1
	1	50	22.77	22.70	22.78		1
	1	99	22.87	22.61	22.38	0-2	1
	50	0	21.85	21.64	21.37		2
	50	25	21.88	21.70	21.42		2
64QAM	50	50	21.91	21.46	21.31	0-2	2
	100	0	21.87	21.70	21.29		2
	1	0	21.85	21.65	22.15		2
	1	50	21.93	21.75	22.25	0-3	2
	1	99	21.85	21.70	21.83		2
	50	0	20.89	20.67	20.87		3
256QAM	50	25	20.88	20.75	20.58	0-3	3
	50	50	20.92	20.52	20.55		3
	100	0	20.88	20.71	20.43		3
	1	0	18.83	18.73	18.78	0-5	5
	1	50	18.85	18.70	18.89		5
	1	99	18.85	18.66	18.87		5
50	0	18.88	18.68	18.76	5		
50	25	18.86	18.71	18.75	5		
50	50	18.98	18.86	18.70	5		
100	0	18.80	18.71	18.75	5		

Table 9-46
LTE Band 2 (PCS) Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 2 (PCS) 15 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			18675 (1857.5 MHz)	18900 (1880.0 MHz)	19125 (1902.5 MHz)			
			Conducted Power [dBm]					
QPSK	1	0	23.74	23.63	23.46	0	0	
	1	36	23.72	23.63	23.50		0	
	1	74	23.82	23.26	23.19		0	
	36	0	22.95	22.77	22.66	0-1	1	
	36	18	22.98	22.80	22.68		1	
	36	37	23.03	22.83	22.66		1	
16QAM	75	0	22.99	22.76	22.69	0-1	1	
	1	0	23.17	22.94	22.86		1	
	1	36	23.03	22.99	22.79		1	
	1	74	23.20	22.55	22.50	0-2	1	
	36	0	21.95	21.79	21.64		2	
	36	18	21.98	21.81	21.69		2	
64QAM	36	37	21.99	21.88	21.74	0-2	2	
	75	0	21.94	21.76	21.71		2	
	1	0	22.13	21.93	21.84		0-3	2
	1	36	22.01	21.96	21.78	2		
	1	74	22.17	21.58	21.91	2		
	36	0	21.00	20.75	20.64	0-3	3	
36	18	21.03	20.89	20.72	3			
36	37	21.08	20.87	20.85	3			
256QAM	75	0	21.02	20.81	20.70	0-3	3	
	1	0	19.02	18.80	18.67		0-5	5
	1	36	18.95	18.73	18.67			5
	1	74	18.72	18.79	18.64	5		
	36	0	18.93	18.69	18.59	5		
	36	18	18.92	18.78	18.71	5		
36	37	18.96	18.80	18.68	5			
75	0	18.95	18.76	18.67	5			



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Table 9-47
LTE Band 2 (PCS) Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 2 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18650 (1855.0 MHz)	18900 (1880.0 MHz)	19150 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.68	23.62	23.71	0	0
	1	25	23.68	23.80	23.62		0
	1	49	23.85	23.61	23.40		0
	25	0	22.84	22.67	22.56	0-1	1
	25	12	22.86	22.74	22.59		1
	25	25	22.84	22.62	22.55		1
16QAM	50	0	22.93	22.52	22.58	0-1	1
	1	0	22.96	22.86	22.74		1
	1	25	22.78	22.92	22.66		1
	1	49	22.82	22.89	22.71	0-2	1
	25	0	21.90	21.67	21.60		2
	25	12	21.88	21.71	21.57		2
64QAM	25	25	21.81	21.65	21.58	0-2	2
	50	0	21.82	21.63	21.55		2
	1	0	21.81	21.78	21.68		0-2
	1	25	22.05	21.83	21.64	2	
	1	49	21.97	21.84	21.58	2	
	256QAM	25	0	20.86	20.66	20.55	0-3
25		12	20.87	20.72	20.58	3	
25		25	20.85	20.65	20.48	3	
50		0	20.87	20.68	20.64	0-5	3
1		0	18.84	18.64	18.67		5
1		25	18.92	18.43	18.58		5
256QAM	1	49	18.84	18.70	18.59	0-5	5
	25	0	18.81	18.65	18.55		5
	25	12	18.87	18.63	18.54		5
	25	25	18.81	18.60	18.55	5	
	50	0	18.82	18.58	18.51	5	

Table 9-48
LTE Band 2 (PCS) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 2 (PCS) 5 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			18625 (1852.5 MHz)	18900 (1880.0 MHz)	19175 (1907.5 MHz)			
			Conducted Power [dBm]					
QPSK	1	0	23.69	23.72	23.71	0	0	
	1	12	23.63	23.84	23.70		0	
	1	24	23.81	23.77	23.42		0	
	12	0	22.81	22.85	22.59	0-1	1	
	12	6	22.92	22.84	22.74		1	
	12	13	22.88	22.73	22.70		1	
16QAM	25	0	22.85	22.63	22.63	0-1	1	
	1	0	22.97	22.69	22.84		0-1	1
	1	12	23.10	22.85	22.84			1
	1	24	23.09	23.03	22.59	0-2		1
	12	0	21.87	21.70	21.27		2	
	12	6	21.91	21.67	21.71		2	
64QAM	12	13	21.98	21.77	21.67	0-2	2	
	25	0	21.96	21.66	21.64		2	
	1	0	21.99	21.78	21.67		0-2	2
	1	12	22.06	21.82	21.78	2		
	1	24	22.02	21.84	21.57	2		
	256QAM	12	0	20.90	20.61	20.70	0-3	3
12		6	20.95	20.77	20.67	3		
12		13	20.94	20.65	20.74	3		
25		0	20.88	20.61	20.71	0-5	3	
1		0	18.89	18.67	18.66		5	
1		12	18.88	18.72	18.65		5	
256QAM	1	24	18.93	18.74	18.70	0-5	5	
	12	0	18.77	18.52	18.60		5	
	12	6	18.90	18.55	18.66		5	
	12	13	18.85	18.61	18.66	5		
	25	0	18.82	18.58	18.62	5		



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Table 9-49
LTE Band 2 (PCS) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 2 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18615 (1851.5 MHz)	18900 (1880.0 MHz)	19185 (1908.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.77	23.79	23.60	0	0
	1	7	23.70	23.50	23.32		0
	1	14	23.92	23.57	23.22		0
	8	0	22.91	22.54	22.64	0-1	1
	8	4	22.96	22.64	22.67		1
	8	7	22.97	22.60	22.65		1
16QAM	15	0	22.98	22.51	22.61	0-1	1
	1	0	23.01	22.81	22.64		1
	1	7	23.07	22.83	22.41		1
	1	14	23.15	22.80	22.33	0-2	1
	8	0	22.03	21.65	21.69		2
	8	4	22.05	21.68	21.64		2
64QAM	8	7	21.95	21.72	21.66	0-2	2
	15	0	21.96	21.58	21.48		2
	1	0	22.02	21.70	21.40		0-2
	1	7	22.05	21.77	21.51	2	
	1	14	22.14	21.74	21.29	2	
	256QAM	8	0	20.89	20.58	20.60	0-3
8		4	20.98	20.62	20.71	3	
8		7	20.95	20.63	20.66	3	
15		0	20.91	20.59	20.68	0-5	3
1		0	18.58	18.59	18.59		5
1		7	18.89	18.64	18.64		5
256QAM	1	14	18.93	18.63	18.70	0-5	5
	8	0	18.93	18.58	18.58		5
	8	4	18.86	18.62	18.69		5
	8	7	18.87	18.59	18.65	5	
	15	0	18.88	18.59	18.62	5	

Table 9-50
LTE Band 2 (PCS) Maximum Conducted Powers -1.4 MHz Bandwidth

LTE Band 2 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18607 (1850.7 MHz)	18900 (1880.0 MHz)	19193 (1909.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.61	23.68	23.27	0	0
	1	2	23.74	23.69	23.32		0
	1	5	23.73	23.74	23.16		0
	3	0	23.60	23.72	23.22	0-1	0
	3	2	23.60	23.83	23.22		0
	3	3	23.75	23.75	23.14		0
16QAM	6	0	22.77	22.65	22.70	0-1	1
	1	0	22.92	22.78	22.60		1
	1	2	22.99	22.76	22.49		1
	1	5	23.02	22.67	22.32	0-1	1
	3	0	22.80	22.55	22.37		1
	3	2	22.87	22.63	22.40		1
64QAM	3	3	22.87	22.58	22.33	0-2	1
	6	0	21.85	21.49	21.73		2
	1	0	21.97	21.54	21.64		0-2
	1	2	22.02	21.69	21.62	2	
	1	5	21.99	21.67	21.58	2	
	256QAM	3	0	21.83	21.52	21.45	0-3
3		2	21.85	21.55	21.52	2	
3		3	21.82	21.58	21.43	2	
6		0	20.83	20.49	20.77	0-5	3
1		0	18.85	18.58	18.81		5
1		2	18.86	18.78	18.79		5
256QAM	1	5	18.83	18.72	18.84	0-5	5
	3	0	18.87	18.55	18.72		5
	3	2	18.96	18.78	18.90		5
	3	3	18.83	18.94	18.80	5	
	6	0	18.76	18.61	18.61	5	



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Table 9-51
LTE Band 2 (PCS) Reduced Conducted Powers - 20 MHz Bandwidth – Hotspot Mode Active

LTE Band 2 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18700 (1860.0 MHz)	18900 (1880.0 MHz)	19100 (1900.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	19.19	19.04	19.02	0	0
	1	50	19.12	19.00	19.05		0
	1	99	19.06	18.98	19.00		0
	50	0	19.34	19.11	19.20	0-1	0
	50	25	19.31	19.14	19.19		0
	50	50	19.33	19.17	19.23		0
16QAM	100	0	19.18	19.18	19.15	0-1	0
	1	0	19.40	19.30	19.20		0
	1	50	19.34	19.27	19.23		0
	50	0	19.24	19.03	19.15	0-2	0
	50	25	19.26	19.11	19.12		0
	50	50	19.26	19.10	19.20		0
64QAM	100	0	19.26	19.10	19.15	0-2	0
	1	0	19.40	19.27	19.17		0
	1	50	19.34	19.25	19.25		0
	50	0	19.27	19.06	19.29	0-3	0
	50	25	19.26	19.10	19.27		0
	50	50	19.28	19.37	19.23		0
256QAM	100	0	19.26	19.06	19.24	0-5	0
	1	0	19.27	19.20	19.07		0.5
	1	50	19.24	19.13	19.17		0.5
	50	0	19.27	19.05	19.15	0.5	
	50	25	19.31	19.09	18.86	0.5	
	50	50	19.27	19.01	18.97	0.5	
100	0	19.27	19.00	19.07	0.5		

Table 9-52
LTE Band 2 (PCS) Reduced Conducted Powers - 15 MHz Bandwidth – Hotspot Mode Active

LTE Band 2 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18675 (1857.5 MHz)	18900 (1880.0 MHz)	19125 (1902.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	19.32	19.12	19.17	0	0
	1	36	19.26	19.24	19.14		0
	1	74	19.25	19.17	19.13		0
	36	0	19.44	19.16	19.27	0-1	0
	36	18	19.45	19.18	19.35		0
	36	37	19.48	19.21	19.31		0
16QAM	75	0	19.44	19.17	19.27	0-1	0
	1	0	19.37	19.33	19.31		0
	1	36	19.39	19.24	19.35		0
	36	0	19.42	19.14	19.26	0-2	0
	36	18	19.43	19.21	19.22		0
	36	37	19.36	19.19	19.29		0
64QAM	75	0	19.46	19.15	19.34	0-2	0
	75	0	19.38	19.22	19.22		0
	1	0	19.25	19.15	19.22		0
	36	0	19.16	19.18	19.21	0-3	0
	36	18	19.39	19.21	19.20		0
	36	37	19.42	19.18	19.23		0
256QAM	75	0	19.43	19.19	19.27	0-5	0
	36	18	19.45	19.24	19.26		0
	36	37	19.41	19.28	19.37		0
	1	0	19.20	19.09	19.38	0-5	0.5
	1	36	19.36	19.24	19.24		0.5
	1	74	19.43	19.14	19.24		0.5
36	0	19.42	19.18	19.22	0.5		
36	18	19.41	19.17	19.25	0.5		
75	0	19.45	19.24	19.24	0.5		
75	0	19.27	19.19	19.24	0.5		



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Table 9-53
LTE Band 2 (PCS) Reduced Conducted Powers - 10 MHz Bandwidth – Hotspot Mode Active

LTE Band 2 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18650 (1855.0 MHz)	18900 (1880.0 MHz)	19150 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	19.21	19.12	19.26	0	0
	1	25	19.28	19.24	19.23		0
	1	49	19.24	19.16	19.23		0
	25	0	19.49	19.32	19.34	0-1	0
	25	12	19.48	19.33	19.40		0
	25	25	19.41	19.30	19.31		0
16QAM	50	0	19.44	19.29	19.37	0-1	0
	1	0	19.57	19.24	19.50		0
	1	25	19.45	19.34	19.40		0
	1	49	19.42	19.20	19.37	0-2	0
	25	0	19.35	19.68	19.29		0
	25	12	19.38	19.22	19.43		0
64QAM	25	25	19.28	19.21	19.24	0-2	0
	50	0	19.35	19.24	19.33		0
	1	0	19.40	19.24	19.56		0-2
	1	25	19.44	19.38	19.48	0	
	1	49	19.41	19.48	19.41	0	
	256QAM	25	0	19.36	19.19	19.32	0-3
25		12	19.39	19.20	19.26	0	
25		25	19.28	19.18	19.27	0	
50		0	19.38	19.18	19.37	0-5	0
1		0	19.35	19.22	19.44		0.5
1		25	19.45	19.28	19.27		0.5
256QAM	1	49	19.27	19.20	19.34	0-5	0.5
	25	0	19.42	19.27	19.34		0.5
	25	12	19.39	19.22	19.36		0.5
	25	25	19.31	19.20	19.26	0-5	0.5
	50	0	19.38	19.21	19.38		0.5

Table 9-54
LTE Band 2 (PCS) Reduced Conducted Powers - 5 MHz Bandwidth – Hotspot Mode Active

LTE Band 2 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18625 (1852.5 MHz)	18900 (1880.0 MHz)	19175 (1907.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	19.24	19.16	19.21	0	0
	1	12	19.29	19.19	19.21		0
	1	24	19.25	19.27	19.29		0
	12	0	19.37	19.24	19.27	0-1	0
	12	6	19.47	19.39	19.31		0
	12	13	19.41	19.26	19.36		0
16QAM	25	0	19.40	19.35	19.28	0-1	0
	1	0	19.46	19.37	19.31		0
	1	12	19.47	19.50	19.36		0
	1	24	19.69	19.33	19.40	0-2	0
	12	0	19.37	19.36	19.27		0
	12	6	19.49	19.29	19.26		0
64QAM	12	13	19.40	19.31	19.32	0-2	0
	25	0	19.36	19.20	19.26		0
	1	0	19.28	19.26	19.18		0-2
	1	12	19.54	19.44	19.33	0	
	1	24	19.48	19.33	19.40	0	
	256QAM	12	0	19.43	19.31	19.27	0-3
12		6	19.42	19.30	19.32	0	
12		13	19.36	19.30	19.32	0	
25		0	19.42	19.26	19.27	0-5	0
1		0	19.28	19.32	19.23		0.5
1		12	19.32	19.37	19.19		0.5
256QAM	1	24	19.42	19.37	19.25	0-5	0.5
	12	0	19.31	19.22	19.30		0.5
	12	6	19.28	19.21	19.16		0.5
	12	13	19.38	19.25	19.19	0-5	0.5
	25	0	19.32	19.29	19.31		0.5



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Table 9-55
LTE Band 2 (PCS) Reduced Conducted Powers - 3 MHz Bandwidth – Hotspot Mode Active

LTE Band 2 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18615 (1851.5 MHz)	18900 (1880.0 MHz)	19185 (1908.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	19.11	18.97	19.03	0	0
	1	7	19.14	19.00	19.02		0
	1	14	19.18	18.95	19.16		0
	8	0	19.19	19.04	19.13	0-1	0
	8	4	19.36	19.03	19.21		0
	8	7	19.24	19.03	19.13		0
16QAM	15	0	19.33	19.13	19.25	0-1	0
	1	0	19.29	19.19	19.22		0
	1	7	19.34	19.26	19.24		0
	8	0	19.23	19.14	19.13	0-2	0
	8	4	19.31	19.12	19.23		0
	8	7	19.30	19.11	19.18		0
64QAM	15	0	19.34	19.10	19.22	0-2	0
	1	0	19.21	19.29	19.20		0
	1	7	19.33	19.19	19.28		0
	1	14	19.42	19.29	19.28	0-3	0
	8	0	19.21	19.06	19.06		0
	8	4	19.28	19.14	19.07		0
256QAM	8	7	19.24	19.01	19.11	0-3	0
	15	0	19.21	19.13	19.16		0
	1	0	19.17	19.12	19.21		0-5
	1	7	19.36	19.41	19.22	0.5	
	1	14	19.42	19.12	19.18	0.5	
	8	0	19.17	19.00	19.01	0.5	
8	4	19.29	19.18	19.03	0.5		
8	7	19.26	18.95	19.00	0.5		
256QAM	15	0	19.26	19.00	19.06	0-5	0.5

Table 9-56
LTE Band 2 (PCS) Reduced Conducted Powers -1.4 MHz Bandwidth- Hotspot Mode Active

LTE Band 2 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18607 (1850.7 MHz)	18900 (1880.0 MHz)	19193 (1909.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	19.07	18.86	18.96	0	0
	1	2	19.15	19.01	19.05		0
	1	5	19.05	18.98	19.00		0
	3	0	19.08	18.92	18.97	0-1	0
	3	2	19.15	18.91	19.06		0
	3	3	19.13	18.87	19.01		0
16QAM	6	0	19.27	19.06	19.10	0-1	0
	1	0	19.24	19.27	19.16		0
	1	2	19.34	19.35	19.24		0
	1	5	19.44	19.32	19.12	0-1	0
	3	0	19.26	19.08	19.08		0
	3	2	19.35	19.11	19.17		0
64QAM	3	3	19.26	19.13	19.24	0-2	0
	6	0	19.28	19.02	19.21		0
	1	0	19.23	19.20	19.21		0
	1	2	19.26	19.24	19.23	0-2	0
	1	5	19.27	19.22	19.21		0
	3	0	19.24	19.19	19.13		0
256QAM	3	2	19.27	19.19	19.12	0-3	0
	3	3	19.28	19.13	19.20		0
	6	0	19.30	19.03	19.19		0
	1	0	19.03	19.23	19.24	0-5	0.5
	1	2	19.22	19.14	19.17		0.5
	1	5	19.22	19.26	19.23		0.5
3	0	19.23	19.18	19.15	0.5		
3	2	19.25	19.14	19.27	0.5		
3	3	19.29	19.13	19.22	0.5		
256QAM	6	0	19.17	19.01	19.12	0-5	0.5



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Table 9-57
LTE Band 2 (PCS) Reduced Conducted Powers - 20 MHz Bandwidth - Grip Sensor and/or Earjack Mode Active

LTE Band 2 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18700 (1860.0 MHz)	18900 (1880.0 MHz)	19100 (1900.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	21.19	21.13	21.36	0	0
	1	50	21.19	21.03	21.15		0
	1	99	21.16	21.03	21.13		0
	50	0	21.38	21.23	21.13	0-1	0
	50	25	21.38	21.25	21.32		0
	50	50	21.37	21.29	21.39		0
16QAM	100	0	21.35	21.25	21.34	0-1	0
	1	0	21.45	21.47	21.27		0
	1	50	21.40	21.27	21.40		0
	1	99	21.40	21.21	21.38	0-2	0
	50	0	21.37	21.10	21.23		0
	50	25	21.37	21.23	21.23		0
64QAM	50	50	21.38	20.70	21.00	0-2	0
	100	0	21.29	21.19	21.19		0
	1	0	21.41	21.28	21.23		0-3
	1	50	21.39	21.15	21.28	0	
	1	99	21.30	21.13	21.29	0	
	256QAM	50	0	21.36	20.96	21.37	0-3
50		25	21.34	20.83	21.23	0	
50		50	21.37	20.90	21.39	0	
100		0	21.25	20.93	21.21	0-5	0
1		0	19.40	19.27	19.30		2
1		50	19.35	19.29	19.23		2
256QAM	1	99	19.35	19.15	19.24	0-5	2
	50	0	19.37	19.13	18.80		2
	50	25	19.34	19.11	18.91		2
	50	50	19.41	18.80	18.93	2	
	100	0	19.35	18.99	18.90	2	

Table 9-58
LTE Band 2 (PCS) Reduced Conducted Powers - 15 MHz Bandwidth - Grip Sensor and/or Earjack Mode Active

LTE Band 2 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18675 (1857.5 MHz)	18900 (1880.0 MHz)	19125 (1902.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	21.34	21.23	21.38	0	0
	1	36	21.28	21.21	21.30		0
	1	74	21.38	21.23	21.29		0
	36	0	21.47	21.31	21.39	0-1	0
	36	18	21.45	21.32	21.46		0
	36	37	21.52	21.41	21.54		0
16QAM	75	0	21.53	21.43	21.39	0-1	0
	1	0	21.69	21.41	21.63		0
	1	36	21.39	21.54	21.47		0-2
	1	74	21.37	21.35	21.51	0	
	36	0	21.41	21.23	21.31	0	
	64QAM	36	18	21.48	21.32	21.30	0-2
36		37	21.48	21.34	21.43	0	
75		0	21.36	21.32	21.34	0	
1		0	21.41	21.60	21.49	0-2	0
1		36	21.37	21.33	21.41		0
1		74	21.41	21.35	21.53		0
256QAM	36	0	21.44	21.27	21.61	0-3	0
	36	18	21.54	21.36	21.32		0
	36	37	21.41	21.37	21.41		0
	75	0	21.40	21.22	21.36	0-5	0
	1	0	19.70	19.70	19.46		2
	1	36	19.69	19.65	19.37		2
256QAM	1	74	19.55	19.34	19.45	0-5	2
	36	0	19.48	19.23	19.32		2
	36	18	19.45	19.34	19.29		2
	36	37	19.60	19.25	19.38	2	
	75	0	19.50	19.38	19.26	2	



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Table 9-59
LTE Band 2 (PCS) Reduced Conducted Powers - 10 MHz Bandwidth - Grip Sensor and/or Earjack Mode
Active

LTE Band 2 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18650 (1855.0 MHz)	18900 (1880.0 MHz)	19150 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	21.29	21.08	21.28	0	0
	1	25	21.42	21.11	21.32		0
	1	49	21.38	21.12	21.27		0
	25	0	21.33	21.31	21.33	0-1	0
	25	12	21.45	21.29	21.41		0
	25	25	21.39	21.28	21.30		0
16QAM	50	0	21.42	21.31	21.41	0-1	0
	1	0	21.37	21.24	21.39		0
	1	25	21.32	21.34	21.35		0
	1	49	21.43	21.25	21.37	0-2	0
	25	0	21.42	21.27	21.12		0
	25	12	21.41	21.25	21.28		0
64QAM	25	25	21.39	21.21	21.26	0-2	0
	50	0	21.37	21.25	21.28		0
	1	0	21.36	21.36	21.44		0-3
	1	25	21.61	21.46	21.44	0	
	1	49	21.41	21.22	21.37	0	
	256QAM	25	0	21.34	21.25	21.26	0-3
25		12	21.43	21.19	21.26	0	
25		25	21.38	21.25	21.32	0	
50		0	21.49	21.23	21.28	0-5	0
1		0	19.35	19.54	19.35		2
1		25	19.12	19.28	19.46		2
256QAM	1	49	19.29	19.14	19.36	0-5	2
	25	0	19.27	19.28	19.41		2
	25	12	19.40	19.27	19.34		2
	25	25	19.33	19.10	19.12	2	
	50	0	19.48	19.27	19.27	2	

Table 9-60
LTE Band 2 (PCS) Reduced Conducted Powers - 5 MHz Bandwidth - Grip Sensor and/or Earjack Mode
Active

LTE Band 2 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18625 (1852.5 MHz)	18900 (1880.0 MHz)	19175 (1907.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	21.26	21.12	21.14	0	0
	1	12	21.30	21.24	21.32		0
	1	24	21.39	21.19	21.25		0
	12	0	21.40	21.21	21.21	0-1	0
	12	6	21.45	21.27	21.44		0
	12	13	21.51	21.33	21.36		0
16QAM	25	0	21.47	21.25	21.35	0-1	0
	1	0	21.41	21.37	21.23		0
	1	12	21.48	21.28	21.39		0
	1	24	21.47	21.27	21.26	0-2	0
	12	0	21.45	21.28	21.23		0
	12	6	21.43	21.25	21.41		0
64QAM	12	13	21.41	21.28	21.28	0-2	0
	25	0	21.50	21.22	21.39		0
	1	0	21.29	21.37	21.43		0-3
	1	12	21.40	21.42	21.31	0	
	1	24	21.39	21.56	21.45	0	
	256QAM	12	0	21.43	21.15	21.27	0-3
12		6	21.50	21.22	21.23	0	
12		13	21.42	21.28	21.28	0	
25		0	21.44	21.26	21.29	0-5	0
1		0	19.51	19.22	19.34		2
1		12	19.45	19.23	19.25		2
256QAM	1	24	19.37	19.54	19.47	0-5	2
	12	0	19.46	19.23	19.33		2
	12	6	19.41	19.21	19.15		2
	12	13	19.35	19.21	19.25	2	
	25	0	19.44	19.13	19.33	2	



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Table 9-61
LTE Band 2 (PCS) Reduced Conducted Powers - 3 MHz Bandwidth - Grip Sensor and/or Earjack Mode
Active

LTE Band 2 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18615 (1851.5 MHz)	18900 (1880.0 MHz)	19185 (1908.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	21.38	21.16	21.21	0	0
	1	7	21.34	21.20	21.19		0
	1	14	21.41	21.29	21.24		0
	8	0	21.44	21.21	21.38	0-1	0
	8	4	21.47	21.33	21.38		0
	8	7	21.42	21.30	21.45		0
16QAM	15	0	21.43	21.44	21.44	0-1	0
	1	0	21.45	21.27	21.38		0
	1	7	21.36	21.37	21.35		0
	1	14	21.45	21.37	21.28	0-2	0
	8	0	21.38	21.28	21.26		0
	8	4	21.42	21.29	21.41		0
64QAM	8	7	21.53	21.40	21.33	0-2	0
	15	0	21.36	21.34	21.33		0
	1	0	21.49	21.23	21.49		0-2
	1	7	21.45	21.38	21.44	0	
	1	14	21.77	21.49	21.41	0	
	256QAM	8	0	21.34	21.15	21.26	0-3
8		4	21.40	21.32	21.44	0	
8		7	21.47	21.27	21.53	0	
15		0	21.42	21.33	21.67	0-5	0
1		0	19.34	19.30	19.37		2
1		7	19.57	19.40	19.35		2
256QAM	1	14	19.32	19.41	19.38	0-5	2
	8	0	19.46	19.26	19.25		2
	8	4	19.39	19.27	19.23		2
	8	7	19.41	19.24	19.24	2	
	15	0	19.37	19.29	19.36	2	

Table 9-62
LTE Band 2 (PCS) Reduced Conducted Powers - 1.4 MHz Bandwidth- Grip Sensor and/or Earjack Mode
Active

LTE Band 2 (PCS) 1.4 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			18607 (1850.7 MHz)	18900 (1880.0 MHz)	19193 (1909.3 MHz)			
			Conducted Power [dBm]					
QPSK	1	0	21.34	21.22	21.22	0	0	
	1	2	21.35	21.27	21.29		0	
	1	5	21.38	21.24	21.33		0	
	3	0	21.36	21.24	21.28	0-1	0	
	3	2	21.44	21.28	21.34		0	
	3	3	21.43	21.24	21.25		0	
16QAM	6	0	21.47	21.38	21.39	0-1	0	
	1	0	21.43	21.49	21.38		0	
	1	2	21.45	21.41	21.47		0	
	1	5	21.49	21.38	21.47	0-1	0	
	3	0	21.46	21.42	21.36		0	
	3	2	21.22	21.41	21.27		0	
64QAM	3	3	21.45	21.44	21.39	0-2	0	
	6	0	21.31	21.43	21.35		0	
	1	0	21.42	21.27	21.48		0-2	0
	1	2	21.37	21.28	21.21	0		
	1	5	21.29	21.22	21.31	0		
	256QAM	3	0	21.44	21.33	21.27	0-2	0
3		2	21.38	21.40	21.29	0		
3		3	21.43	21.44	21.33	0		
6		0	21.42	21.33	21.45	0-3	0	
1		0	19.47	19.46	19.11		0-5	2
1		2	19.50	19.31	19.27			2
1	5	19.44	19.37	19.13	2			
256QAM	3	0	19.48	19.46	19.32	0-5	2	
	3	2	19.46	19.43	19.45		2	
	3	3	19.42	19.42	19.39		2	
	6	0	19.29	19.28	19.32	0-5	2	



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Table 9-63
LTE Band 2 (PCS) Reduced Conducted Powers - 20 MHz Bandwidth - Grip Sensor and/or Earjack Mode
and 5G NR active

LTE Band 2 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18700 (1860.0 MHz)	18900 (1880.0 MHz)	19100 (1900.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	18.13	17.97	17.92	0	0
	1	50	18.03	17.88	17.96		0
	1	99	18.01	17.88	17.90		0
	50	0	18.23	18.09	18.18	0-1	0
	50	25	18.20	18.06	18.22		0
	50	50	18.22	18.11	18.15		0
16QAM	100	0	18.12	18.09	18.12	0-1	0
	1	0	18.36	18.24	18.11		0
	1	50	18.29	18.18	18.17		0
	1	99	18.29	18.07	18.10	0-2	0
	50	0	18.14	17.98	18.09		0
	50	25	18.15	18.01	18.20		0
64QAM	50	50	18.14	18.03	18.20	0-2	0
	100	0	18.11	18.03	18.06		0
	1	0	18.33	18.24	18.07		0-3
	1	50	18.20	18.12	18.15	0	
	1	99	18.24	18.06	18.11	0	
	256QAM	50	0	18.21	18.02	18.11	0-3
50		25	18.21	18.04	18.02	0	
50		50	18.18	18.05	18.22	0	
100		0	18.07	18.01	18.09	0-5	0
1		0	18.23	18.17	18.08		0
1		50	18.17	18.10	18.13		0
256QAM	1	99	18.16	17.97	18.10	0-5	0
	50	0	18.19	18.00	18.08		0
	50	25	18.24	18.05	18.07		0
	50	50	18.20	18.03	18.18	0	
	100	0	18.16	18.05	18.09	0	

Table 9-64
LTE Band 2 (PCS) Reduced Conducted Powers - 15 MHz Bandwidth - Grip Sensor and/or Earjack Mode
and 5G NR active

LTE Band 2 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18675 (1857.5 MHz)	18900 (1880.0 MHz)	19125 (1902.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	18.31	18.24	18.22	0	0
	1	36	18.26	18.15	18.22		0
	1	74	18.39	18.19	18.31		0
	36	0	18.41	18.29	18.33	0-1	0
	36	18	18.43	18.30	18.37		0
	36	37	18.43	18.32	18.37		0
16QAM	75	0	18.45	18.30	18.36	0-1	0
	1	0	18.46	18.48	18.43		0
	1	36	18.48	18.42	18.44		0
	1	74	18.50	18.45	18.48	0-2	0
	36	0	18.31	18.19	18.35		0
	36	18	18.44	18.26	18.46		0
64QAM	36	37	18.40	18.22	18.41	0-2	0
	75	0	18.41	18.25	18.38		0
	1	0	18.49	18.47	18.44		0-3
	1	36	18.47	18.40	18.42	0	
	1	74	18.50	18.42	18.45	0	
	256QAM	36	0	18.43	18.22	18.41	0-3
36		18	18.47	18.30	18.41	0	
36		37	18.46	18.31	18.45	0	
75		0	18.41	18.24	18.43	0-5	0
1		0	18.49	18.49	18.50		0
1		36	18.33	18.38	18.44		0
256QAM	1	74	18.41	18.34	18.45	0-5	0
	36	0	18.38	18.26	18.23		0
	36	18	18.42	18.27	18.40		0
	36	37	18.44	18.38	18.41	0	
	75	0	18.44	18.27	18.42	0	



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Table 9-65
LTE Band 2 (PCS) Reduced Conducted Powers - 10 MHz Bandwidth - Grip Sensor and/or Earjack Mode and 5G NR active

LTE Band 2 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18650 (1855.0 MHz)	18900 (1880.0 MHz)	19150 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	18.17	18.01	18.21	0	0
	1	25	18.32	18.12	18.27		0
	1	49	18.29	18.28	18.21		0
	25	0	18.47	18.13	18.36	0-1	0
	25	12	18.46	18.25	18.39		0
	25	25	18.39	18.24	18.33		0
16QAM	50	0	18.42	18.28	18.38	0-1	0
	1	0	18.48	18.30	18.49		0
	1	25	18.45	18.50	18.44		0
	1	49	18.50	18.44	18.45	0-2	0
	25	0	18.36	18.23	18.28		0
	25	12	18.32	18.23	18.29		0
64QAM	25	25	18.28	18.17	18.24	0-2	0
	50	0	18.36	18.16	18.28		0
	1	0	18.45	18.37	18.48		0-3
	1	25	18.49	18.42	18.35	0	
	1	49	18.46	18.31	18.45	0	
	256QAM	25	0	18.46	18.19	18.29	0-3
25		12	18.38	18.21	18.33	0	
25		25	18.29	18.27	18.21	0	
50		0	18.42	18.06	18.31	0-5	0
1		0	18.45	18.34	18.42		0
1		25	18.41	18.33	18.38		0
256QAM	1	49	18.41	18.30	18.37	0-5	0
	25	0	18.38	18.09	18.30		0
	25	12	18.41	18.28	18.32		0
	25	25	18.38	18.21	18.15	0	
	50	0	18.40	18.29	18.25	0	

Table 9-66
LTE Band 2 (PCS) Reduced Conducted Powers - 5 MHz Bandwidth - Grip Sensor and/or Earjack Mode and 5G NR active

LTE Band 2 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18625 (1852.5 MHz)	18900 (1880.0 MHz)	19175 (1907.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	18.31	18.13	18.15	0	0
	1	12	18.32	18.16	18.41		0
	1	24	18.32	18.15	18.20		0
	12	0	18.39	18.24	18.24	0-1	0
	12	6	18.47	18.31	18.27		0
	12	13	18.42	18.33	18.32		0
16QAM	25	0	18.47	18.29	18.28	0-1	0
	1	0	18.50	18.49	18.42		0
	1	12	18.50	18.44	18.46		0
	1	24	18.42	18.43	18.45	0-2	0
	12	0	18.34	18.19	18.12		0
	12	6	18.45	18.26	18.25		0
64QAM	12	13	18.41	18.22	18.26	0-2	0
	25	0	18.32	18.21	18.18		0
	1	0	18.41	18.41	18.38		0-3
	1	12	18.50	18.47	18.45	0	
	1	24	18.49	18.38	18.37	0	
	256QAM	12	0	18.29	18.24	18.16	0-3
12		6	18.42	18.21	18.25	0	
12		13	18.45	18.25	18.24	0	
25		0	18.42	18.21	18.19	0-5	0
1		0	18.33	18.37	18.26		0
1		12	18.46	18.34	18.29		0
256QAM	1	24	18.31	18.37	18.21	0-5	0
	12	0	18.27	18.24	18.15		0
	12	6	18.41	18.22	18.22		0
	12	13	18.38	18.22	18.25	0	
	25	0	18.33	18.26	18.21	0	





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Table 9-67
LTE Band 2 (PCS) Reduced Conducted Powers - 3 MHz Bandwidth - Grip Sensor and/or Earjack Mode and 5G NR active

LTE Band 2 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18615 (1851.5 MHz)	18900 (1880.0 MHz)	19185 (1908.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	18.15	17.94	17.98	0	0
	1	7	18.09	17.97	17.97		0
	1	14	18.25	18.01	18.03		0
	8	0	18.17	18.01	18.11	0-1	0
	8	4	18.28	18.11	18.16		0
	8	7	18.32	18.16	18.19		0
16QAM	15	0	18.19	18.11	18.23	0-1	0
	1	0	18.16	18.26	18.05		0
	1	7	18.32	18.44	18.33		0
	1	14	18.31	18.40	18.31	0-2	0
	8	0	18.21	18.11	18.14		0
	8	4	18.12	18.21	18.18		0
64QAM	8	7	18.29	18.03	18.23	0-2	0
	15	0	18.21	18.21	18.09		0
	1	0	18.27	18.12	18.27		0-2
	1	7	18.29	18.06	18.21	0	
	1	14	18.39	18.29	18.11	0	
	256QAM	8	0	18.24	18.01	18.14	0-3
8		4	18.31	17.87	18.10	0	
8		7	18.22	18.02	18.20	0	
15		0	18.29	18.21	18.16	0-5	0
1		0	18.25	18.08	18.10		0
1		7	18.18	18.01	17.97		0
256QAM	1	14	18.29	18.01	18.38	0-5	0
	8	0	18.22	18.11	18.02		0
	8	4	18.25	18.11	18.08		0
	8	7	18.18	18.01	18.17	0	
	15	0	18.21	18.05	18.06	0	

Table 9-68
LTE Band 2 (PCS) Reduced Conducted Powers -1.4 MHz Bandwidth- Grip Sensor and/or Earjack Mode and 5G NR active

LTE Band 2 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			18607 (1850.7 MHz)	18900 (1880.0 MHz)	19193 (1909.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	18.04	17.82	18.02	0	0
	1	2	18.22	18.04	18.03		0
	1	5	18.06	18.02	18.05		0
	3	0	18.05	17.87	18.00	0-1	0
	3	2	18.20	17.98	18.07		0
	3	3	18.08	17.92	17.97		0
16QAM	6	0	18.26	18.04	18.02	0-1	0
	1	0	18.27	18.18	18.03		0
	1	2	18.32	18.20	18.20		0
	1	5	18.45	18.05	18.20	0-1	0
	3	0	18.23	18.23	18.08		0
	3	2	18.29	18.06	18.30		0
64QAM	3	3	18.26	18.12	18.16	0-2	0
	6	0	18.26	18.05	18.23		0
	1	0	18.06	18.01	18.08		0-2
	1	2	18.49	18.25	18.15	0	
	1	5	18.15	18.18	18.28	0	
	256QAM	3	0	18.42	18.14	18.18	0-3
3		2	18.36	18.22	18.14	0	
3		3	18.33	18.09	18.15	0	
6		0	18.12	17.93	18.02	0-5	0
1		0	18.03	18.21	17.95		0
1		2	18.20	18.29	18.08		0
256QAM	1	5	18.48	18.06	18.32	0-5	0
	3	0	18.21	18.05	18.04		0
	3	2	18.48	18.35	18.17		0
	3	3	18.50	18.07	18.15	0	
	6	0	18.23	18.01	18.22	0	

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LTE Band 30 Antenna B

Table 9-69
LTE Band 30 Antenna B Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	23.72	0	0
	1	25	23.63		0
	1	49	23.75		0
	25	0	22.96	0-1	1
	25	12	22.80		1
	25	25	22.87		1
	50	0	22.85		1
16QAM	1	0	23.19	0-1	1
	1	25	22.92		1
	1	49	22.74		1
	25	0	21.93	0-2	2
	25	12	21.94		2
	25	25	21.84		2
	50	0	21.95		2
64QAM	1	0	22.06	0-2	2
	1	25	21.86		2
	1	49	21.90		2
	25	0	20.98	0-3	3
	25	12	20.88		3
	25	25	20.63		3
	50	0	20.65		3
256QAM	1	0	19.13	0-5	5
	1	25	18.85		5
	1	49	18.80		5
	25	0	18.94		5
	25	12	18.86		5
	25	25	18.91		5
	50	0	18.84		5

Table 9-70
LTE Band 30 Antenna B Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 30 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	23.82	0	0
	1	12	23.84		0
	1	24	23.85		0
	12	0	23.08	0-1	1
	12	6	22.94		1
	12	13	23.01		1
	25	0	22.99		1
16QAM	1	0	23.06	0-1	1
	1	12	23.14		1
	1	24	23.03		1
	12	0	22.14	0-2	2
	12	6	22.06		2
	12	13	21.95		2
	25	0	21.93		2
64QAM	1	0	22.09	0-2	2
	1	12	21.84		2
	1	24	21.96		2
	12	0	21.00	0-3	3
	12	6	21.02		3
	12	13	20.87		3
	25	0	20.92		3
256QAM	1	0	19.08	0-5	5
	1	12	19.00		5
	1	24	18.89		5
	12	0	18.82		5
	12	6	18.94		5
	12	13	18.92		5
	25	0	18.82		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 9-71
LTE Band 30 Antenna B Reduced Conducted Powers - 10 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	19.91	0	0
	1	25	19.83		0
	1	49	19.74		0
	25	0	20.02	0-1	0
	25	12	20.00		0
	25	25	19.90		0
16QAM	50	0	19.90	0-1	0
	1	0	20.17		0
	1	25	20.10		0
	1	49	20.07	0-2	0
	25	0	19.99		0
	25	12	19.89		0
64QAM	25	25	19.93	0-2	0
	50	0	19.90		0
	1	0	20.21		0-2
	1	25	20.08	0	
	1	49	20.06	0	
	256QAM	25	0	19.44	0-3
25		12	19.44	0	
25		25	19.56	0	
50		0	19.47	0-5	0
1		0	18.34		1.5
1		25	17.98		1.5
256QAM	1	49	17.88	0-5	1.5
	25	0	17.99		1.5
	25	12	18.04		1.5
	25	25	18.08	1.5	
	50	0	17.89	1.5	

Table 9-72
LTE Band 30 Antenna B Reduced Conducted Powers - 5 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 30 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	20.18	0	0
	1	12	20.17		0
	1	24	20.06		0
	12	0	20.25	0-1	0
	12	6	20.26		0
	12	13	20.19		0
16QAM	25	0	20.18	0-1	0
	1	0	20.26		0
	1	12	20.36		0
	1	24	20.34	0-2	0
	12	0	20.37		0
	12	6	20.30		0
64QAM	12	13	20.08	0-2	0
	25	0	20.25		0
	1	0	20.41		0-2
	1	12	20.37	0	
	1	24	20.38	0	
	256QAM	12	0	19.78	0-3
12		6	19.70	0	
12		13	19.71	0	
25		0	19.69	0-5	0
1		0	18.32		1.5
1		12	18.43		1.5
256QAM	1	24	18.25	0-5	1.5
	12	0	18.25		1.5
	12	6	18.19		1.5
	12	13	18.00	1.5	
	25	0	18.14	1.5	

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 9-73

LTE Band 30 Antenna B Reduced Conducted Powers - 10 MHz Bandwidth - Grip Sensor and/or Earjack Mode and 5G NR active



LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	18.11	0	0
	1	25	18.09		0
	1	49	18.06		0
	25	0	18.17	0-1	0
	25	12	18.08		0
	25	25	18.11		0
16QAM	50	0	18.10	0-1	0
	1	0	18.13		0
	1	25	18.07		0
	1	49	18.09	0-2	0
	25	0	18.16		0
	25	12	18.21		0
64QAM	25	25	18.11	0-2	0
	50	0	18.09		0
	1	0	18.22		0
	1	25	18.20	0-3	0
	1	49	18.19		0
	25	0	18.17		0
256QAM	25	12	18.14	0-3	0
	25	25	18.09		0
	50	0	18.14		0
	1	0	18.00	0-5	0
	1	25	17.91		0
	1	49	17.92		0
256QAM	25	0	18.24	0-5	0
	25	12	18.17		0
	25	25	18.11		0
	50	0	18.22	0	

Table 9-74

LTE Band 30 Antenna B Reduced Conducted Powers - 5 MHz Bandwidth - Grip Sensor and/or Earjack Mode and 5G NR active

LTE Band 30 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	18.11	0	0
	1	12	18.12		0
	1	24	18.00		0
	12	0	18.22	0-1	0
	12	6	18.19		0
	12	13	18.16		0
16QAM	25	0	18.11	0-1	0
	1	0	18.16		0
	1	12	18.20		0
	1	24	18.09	0-2	0
	12	0	18.14		0
	12	6	18.22		0
64QAM	12	13	18.11	0-2	0
	25	0	18.10		0
	1	0	18.30		0
	1	12	18.29	0-3	0
	1	24	18.15		0
	12	0	18.22		0
256QAM	12	6	18.27	0-3	0
	12	13	18.11		0
	25	0	18.22		0
	1	0	18.07	0-5	0
	1	12	17.97		0
	1	24	17.89		0
256QAM	12	0	18.24	0-5	0
	12	6	18.28		0
	12	13	18.08		0
	25	0	18.23	0	

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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LTE Band 30 Antenna A

Table 9-75
LTE Band 30 Antenna A Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	23.92	0	0
	1	25	23.81		0
	1	49	23.82		0
	25	0	22.97	0-1	1
	25	12	22.95		1
	25	25	22.70		1
	50	0	22.96		1
16QAM	1	0	23.28	0-1	1
	1	25	23.24		1
	1	49	23.20		1
	25	0	22.00	0-2	2
	25	12	21.86		2
	25	25	21.81		2
	50	0	21.94		2
64QAM	1	0	22.24	0-2	2
	1	25	22.13		2
	1	49	22.13		2
	25	0	20.96	0-3	3
	25	12	20.97		3
	25	25	20.92		3
	50	0	20.94		3
256QAM	1	0	19.16	0-5	5
	1	25	19.03		5
	1	49	19.04		5
	25	0	18.75		5
	25	12	18.82		5
	25	25	18.93		5
	50	0	19.01		5

Table 9-76
LTE Band 30 Antenna A Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 30 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	23.91	0	0
	1	12	23.90		0
	1	24	23.80		0
	12	0	23.06	0-1	1
	12	6	23.01		1
	12	13	22.98		1
	25	0	22.99		1
16QAM	1	0	23.46	0-1	1
	1	12	23.37		1
	1	24	23.25		1
	12	0	22.17	0-2	2
	12	6	22.10		2
	12	13	22.03		2
	25	0	22.01		2
64QAM	1	0	22.31	0-2	2
	1	12	22.26		2
	1	24	22.13		2
	12	0	21.10	0-3	3
	12	6	21.09		3
	12	13	21.00		3
	25	0	20.86		3
256QAM	1	0	19.22	0-5	5
	1	12	19.15		5
	1	24	19.11		5
	12	0	18.97		5
	12	6	18.96		5
	12	13	18.92		5
	25	0	18.97		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 9-77

LTE Band 30 Antenna A Reduced Conducted Powers - 10 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode Active



LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	20.32	0	0
	1	25	20.16		0
	1	49	20.24		0
	25	0	20.31	0-1	0
	25	12	20.34		0
	25	25	20.24		0
16QAM	50	0	20.20	0-1	0
	1	0	20.60		0
	1	25	20.44		0
	1	49	20.53	0-2	0
	25	0	20.30		0
	25	12	20.25		0
64QAM	25	25	20.20	0-2	0
	50	0	20.23		0
	1	0	20.54		0-3
	1	25	20.46	0	
	1	49	20.37	0	
	256QAM	25	0	20.29	0-3
25		12	20.28	0	
25		25	20.23	0	
50		0	20.26	0-5	0
1		0	18.84		1.5
1		25	18.92		1.5
256QAM	1	49	18.92	0-5	1.5
	25	0	18.76		1.5
	25	12	18.68		1.5
	25	25	18.57	1.5	
	50	0	18.61	1.5	

Table 9-78

LTE Band 30 Antenna A Reduced Conducted Powers - 5 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 30 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	20.29	0	0
	1	12	20.17		0
	1	24	20.05		0
	12	0	20.27	0-1	0
	12	6	20.22		0
	12	13	20.20		0
16QAM	25	0	20.21	0-1	0
	1	0	20.55		0
	1	12	20.54		0
	1	24	20.46	0-2	0
	12	0	20.38		0
	12	6	20.19		0
64QAM	12	13	20.18	0-2	0
	25	0	20.17		0
	1	0	20.46		0-3
	1	12	20.44	0	
	1	24	20.36	0	
	256QAM	12	0	20.35	0-3
12		6	20.25	0	
12		13	20.19	0	
25		0	20.30	0-5	0
1		0	18.84		1.5
1		12	18.20		1.5
256QAM	1	24	18.77	0-5	1.5
	12	0	18.61		1.5
	12	6	18.59		1.5
	12	13	18.42	1.5	
	25	0	18.72	1.5	

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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LTE Band 7

Table 9-79
LTE Band 7 Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 7 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			20850 (2510.0 MHz)	21100 (2535.0 MHz)	21350 (2560.0 MHz)			
Conducted Power [dBm]								
QPSK	1	0	22.36	22.46	22.32	0	0	
	1	50	22.33	22.49	22.20		0	
	1	99	22.40	22.37	22.20		0	
	50	0	21.50	21.74	21.50	0-1	1	
	50	25	21.51	21.69	21.39		1	
	50	50	21.49	21.58	21.34		1	
16QAM	100	0	21.48	21.64	21.40	0-1	1	
	1	0	21.63	21.75	21.66		1	
	1	50	21.64	21.70	21.49		1	
	1	99	21.68	21.61	21.54	0-2	1	
	50	0	20.50	20.70	20.49		2	
	50	25	20.50	20.62	20.40		2	
64QAM	50	50	20.46	20.54	20.30	0-2	2	
	100	0	20.47	20.59	20.41		2	
	1	0	20.57	20.70	20.64		0-2	2
	1	50	20.61	20.66	20.52	2		
	1	99	20.62	20.60	20.51	2		
	256QAM	50	0	19.46	19.69	19.51	0-3	3
50		25	19.48	19.67	19.42	3		
50		50	19.49	19.54	19.36	3		
100		0	19.50	19.57	19.42	0-3	3	
1		0	17.12	17.39	17.33		0-5	5
1		50	17.18	17.35	17.05			5
1	99	17.24	17.27	17.01	5			
50	0	17.13	17.48	17.24	5			
50	25	17.13	17.45	17.10	5			
50	50	17.16	17.37	16.96	5			
100	0	17.13	17.44	17.15	5			

Table 9-80
LTE Band 7 Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 7 15 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			20825 (2507.5 MHz)	21100 (2535.0 MHz)	21375 (2562.5 MHz)			
Conducted Power [dBm]								
QPSK	1	0	22.23	22.49	22.39	0	0	
	1	36	22.31	22.57	22.18		0	
	1	74	22.32	22.33	22.14		0	
	36	0	21.44	21.72	21.45	0-1	1	
	36	18	21.56	21.64	21.39		1	
	36	37	21.45	21.56	21.29		1	
16QAM	75	0	21.48	21.68	21.37	0-1	1	
	1	0	21.51	21.82	21.72		0-1	1
	1	36	21.52	21.88	21.50			1
	1	74	21.76	21.67	21.52	0-2		1
	36	0	20.41	20.77	20.44		2	
	36	18	20.43	20.73	20.35		2	
64QAM	36	37	20.46	20.62	20.26	0-2	2	
	75	0	20.44	20.68	20.28		2	
	1	0	20.49	20.77	20.70		0-2	2
	1	36	20.51	20.65	20.49	0-2		2
	1	74	20.60	20.69	20.32			2
	256QAM	36	0	19.45	19.73		19.48	0-3
36		18	19.73	19.76	19.39	3		
36		37	19.47	19.63	19.33	3		
75		0	19.49	19.66	19.38	0-3	3	
1		0	17.03	17.14	17.48		0-5	5
1		36	17.03	17.20	17.39			5
1	74	17.14	17.29	17.12	5			
36	0	17.02	17.25	17.38	5			
36	18	17.10	17.28	17.46	5			
36	37	17.13	17.14	17.38	5			
75	0	16.99	17.22	17.41	5			



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Table 9-81
LTE Band 7 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 7 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20800 (2505.0 MHz)	21100 (2535.0 MHz)	21400 (2565.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	22.15	22.50	22.10	0	0
	1	25	22.11	22.43	22.02		0
	1	49	22.07	22.39	22.07		0
	25	0	21.24	21.62	21.21	0-1	1
	25	12	21.28	21.56	21.38		1
	25	25	21.17	21.52	21.20		1
16QAM	50	0	21.33	21.51	21.18	0-1	1
	1	0	21.40	21.57	21.22		1
	1	25	21.42	21.83	21.19		1
	1	49	21.44	21.68	21.23	0-2	1
	25	0	20.27	20.55	20.18		2
	25	12	20.28	20.59	20.15		2
64QAM	25	25	20.22	20.53	20.07	0-2	2
	50	0	20.20	20.56	20.18		2
	1	0	20.36	20.81	20.33		0-2
	1	25	20.21	20.63	20.32	2	
	1	49	20.45	20.72	20.32	2	
	256QAM	25	0	19.25	19.63	19.19	0-3
25		12	19.24	19.55	19.16	3	
25		25	19.21	19.53	19.02	3	
50		0	19.21	19.56	19.13	0-5	3
1		0	17.24	17.34	17.42		5
1		25	17.14	17.28	17.45		5
256QAM	1	49	17.22	17.27	17.47	0-5	5
	25	0	17.19	17.32	17.42		5
	25	12	17.18	17.27	17.41		5
	25	25	17.09	17.13	17.36	5	
	50	0	17.14	17.26	17.39	5	

Table 9-82
LTE Band 7 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 7 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20775 (2502.5 MHz)	21100 (2535.0 MHz)	21425 (2567.5 MHz)		
Conducted Power [dBm]							
QPSK	1	0	22.06	22.38	22.02	0	0
	1	12	22.18	22.42	22.11		0
	1	24	22.21	22.49	22.15		0
	12	0	21.20	21.50	21.14	0-1	1
	12	6	21.35	21.57	21.25		1
	12	13	21.32	21.69	21.20		1
16QAM	25	0	21.25	21.56	21.16	0-1	1
	1	0	21.32	21.78	21.37		1
	1	12	21.48	21.85	21.26		1
	1	24	21.55	21.79	21.43	0-2	1
	12	0	20.21	20.55	20.27		2
	12	6	20.43	20.58	20.26		2
64QAM	12	13	20.25	20.68	20.28	0-2	2
	25	0	20.27	20.54	20.16		2
	1	0	20.30	20.62	20.34		0-2
	1	12	20.44	20.83	20.38	2	
	1	24	20.62	20.69	20.45	2	
	256QAM	12	0	19.19	19.54	19.17	0-3
12		6	19.34	19.61	19.25	3	
12		13	19.36	19.59	19.19	3	
25		0	19.27	19.50	19.13	0-5	3
1		0	17.14	17.24	17.41		5
1		12	17.23	17.34	17.54		5
256QAM	1	24	17.19	17.32	17.55	0-5	5
	12	0	17.11	17.24	17.36		5
	12	6	17.25	17.33	17.39		5
	12	13	17.22	17.30	17.41	5	
	25	0	17.15	17.27	17.35	5	



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Table 9-83

LTE Band 7 Reduced Conducted Powers - 20 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20850 (2510.0 MHz)	21100 (2535.0 MHz)	21350 (2560.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	20.30	20.48	20.28	0	0
	1	50	20.31	20.38	20.17		0
	1	99	20.35	20.29	20.14		0
	50	0	20.48	20.63	20.47	0-1	0
	50	25	20.50	20.58	20.37		0
	50	50	20.46	20.49	20.30		0
	100	0	20.35	20.44	20.41		0
16QAM	1	0	20.57	20.70	20.60	0-1	0
	1	50	20.66	20.71	20.49		0
	1	99	20.65	20.60	20.50		0
	50	0	20.47	20.61	20.44	0-2	0
	50	25	20.53	20.57	20.37		0
	50	50	20.44	20.48	20.29		0
	100	0	20.46	20.58	20.35		0
64QAM	1	0	20.56	20.70	20.62	0-2	0
	1	50	20.62	20.63	20.49		0
	1	99	20.63	20.54	20.45		0
	50	0	19.48	19.62	19.51	0-3	1
	50	25	19.50	19.61	19.39		1
	50	50	19.50	19.47	19.30		1
	100	0	19.52	19.55	19.39		1
256QAM	1	0	17.04	17.19	17.32	0-5	3
	1	50	17.15	17.53	17.29		3
	1	99	17.20	17.22	17.11		3
	50	0	17.10	17.30	17.23	0-5	3
	50	25	17.14	17.29	17.10		3
	50	50	17.17	17.21	17.00		3
	100	0	17.09	17.22	17.10		3

Table 9-84

LTE Band 7 Reduced Conducted Powers - 15 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 7 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20825 (2507.5 MHz)	21100 (2535.0 MHz)	21375 (2562.5 MHz)		
Conducted Power [dBm]							
QPSK	1	0	20.18	20.18	20.19	0	0
	1	36	20.08	20.08	20.28		0
	1	74	20.08	20.17	20.37		0
	36	0	20.15	20.29	20.34	0-1	0
	36	18	20.22	20.28	20.40		0
	36	37	20.22	20.17	20.42		0
	75	0	20.34	20.37	20.53		0
16QAM	1	0	20.48	20.43	20.53	0-1	0
	1	36	20.45	20.40	20.55		0
	1	74	20.51	20.45	20.68		0
	36	0	20.39	20.43	20.27	0-2	0
	36	18	20.41	20.38	20.35		0
	36	37	20.40	20.29	20.35		0
	75	0	20.33	20.46	20.46		0
64QAM	1	0	20.63	20.59	20.40	0-2	0
	1	36	20.59	20.43	20.50		0
	1	74	20.53	20.58	20.53		0
	36	0	19.46	19.52	19.38	0-3	1
	36	18	19.54	19.48	19.47		1
	36	37	19.50	19.38	19.43		1
	75	0	19.49	19.42	19.37		1
256QAM	1	0	16.93	16.93	16.95	0-5	3
	1	36	16.85	16.88	17.01		3
	1	74	16.87	16.97	17.28		3
	36	0	16.86	16.99	17.09	0-5	3
	36	18	16.86	16.98	17.02		3
	36	37	16.88	16.84	17.07		3
	75	0	16.85	16.93	17.12		3





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Table 9-85
LTE Band 7 Reduced Conducted Powers - 10 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 7 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20800 (2505.0 MHz)	21100 (2535.0 MHz)	21400 (2565.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	20.08	20.03	20.25	0	0
	1	25	20.02	19.92	20.27		0
	1	49	20.20	20.15	20.48		0
	25	0	20.15	20.15	20.48	0-1	0
	25	12	20.12	20.10	20.45		0
	25	25	20.09	20.03	20.44		0
	50	0	20.05	20.17	20.49		0
16QAM	1	0	20.17	20.25	20.53	0-1	0
	1	25	20.06	20.22	20.55		0
	1	49	20.16	20.20	20.68		0
	25	0	20.14	20.28	20.15	0-2	0
	25	12	20.26	20.23	20.08		0
	25	25	20.20	20.12	19.76		0
	50	0	20.18	20.24	20.31		0
64QAM	1	0	20.25	20.24	20.32	0-2	0
	1	25	20.20	20.19	20.44		0
	1	49	20.22	20.33	20.39		0
	25	0	19.20	19.46	19.38	0-3	1
	25	12	19.23	19.37	19.47		1
	25	25	19.19	19.16	19.43		1
	50	0	19.14	19.30	19.37		1
256QAM	1	0	17.00	17.05	16.99	0-5	3
	1	25	16.83	17.02	16.97		3
	1	49	17.01	16.97	17.00		3
	25	0	16.92	17.08	17.03	0-5	3
	25	12	17.02	17.12	16.98		3
	25	25	16.91	16.98	16.95		3
	50	0	16.95	17.02	16.92		3

Table 9-86
LTE Band 7 Reduced Conducted Powers - 5 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 7 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20775 (2502.5 MHz)	21100 (2535.0 MHz)	21425 (2567.5 MHz)		
Conducted Power [dBm]							
QPSK	1	0	20.23	20.24	20.18	0	0
	1	12	20.40	19.67	20.37		0
	1	24	20.42	20.24	20.24		0
	12	0	20.28	20.19	20.39	0-1	0
	12	6	20.41	20.33	20.53		0
	12	13	20.38	20.31	20.51		0
	25	0	20.36	20.31	20.51		0
16QAM	1	0	20.35	20.22	20.42	0-1	0
	1	12	20.10	20.29	20.49		0
	1	24	20.22	20.29	20.49		0
	12	0	19.87	19.93	20.13	0-2	0
	12	6	20.00	20.15	20.35		0
	12	13	20.19	20.11	20.31		0
	25	0	20.29	20.19	20.39		0
64QAM	1	0	20.45	20.33	20.22	0-2	0
	1	12	20.51	20.32	20.38		0
	1	24	20.50	20.33	20.37		0
	12	0	19.33	19.19	19.16	0-3	1
	12	6	19.48	19.17	19.30		1
	12	13	19.46	19.31	19.32		1
	25	0	19.38	19.00	19.18		1
256QAM	1	0	16.77	16.83	16.86	0-5	3
	1	12	16.92	16.88	17.15		3
	1	24	16.92	16.93	17.06		3
	12	0	16.80	16.80	16.91	0-5	3
	12	6	16.97	16.96	17.04		3
	12	13	16.95	16.90	17.00		3
	25	0	16.93	16.84	16.92		3

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LTE Band 48

Table 9-87
LTE Band 48 Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 48 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			55340 (3560.0 MHz)	55773 (3603.3 MHz)	56207 (3646.7 MHz)	56640 (3690.0 MHz)		
Conducted Power [dBm]								
QPSK	1	0	22.62	22.96	23.00	23.03	0	0
	1	50	22.50	22.98	23.00	22.95		0
	1	99	22.60	23.09	23.12	23.02		0
	50	0	21.86	22.25	22.26	22.28	0-1	1
	50	25	21.86	22.26	22.30	22.28		1
	50	50	21.87	22.25	22.31	22.26		1
	100	0	21.84	22.24	22.30	22.27		1
16QAM	1	0	21.69	21.94	22.02	22.03	0-1	1
	1	50	21.57	21.96	22.04	22.00		1
	1	99	21.61	22.03	22.13	22.05		1
	50	0	20.82	21.24	21.22	21.28	0-2	2
	50	25	20.86	21.26	21.30	21.27		2
	50	50	20.85	21.22	21.30	21.25		2
	100	0	20.84	21.25	21.28	21.25		2
64QAM	1	0	20.43	20.65	20.74	20.81	0-2	2
	1	50	20.31	20.69	20.78	20.75		2
	1	99	20.40	20.80	20.86	20.80		2
	50	0	19.88	20.27	20.28	20.26	0-3	3
	50	25	19.90	20.31	20.34	20.30		3
	50	50	19.89	20.25	20.35	20.26		3
	100	0	19.84	20.26	20.28	20.24		3
256QAM	1	0	17.67	17.95	17.98	18.00	0-5	5
	1	50	17.53	17.98	18.00	17.93		5
	1	99	17.64	18.09	18.10	18.00		5
	50	0	17.91	18.32	18.25	18.29		5
	50	25	17.94	18.33	18.33	18.29		5
	50	50	17.92	18.29	18.31	18.28		5
	100	0	17.87	18.26	18.26	18.24		5

Table 9-88
LTE Band 48 Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 48 15 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			55315 (3557.5 MHz)	55765 (3602.5 MHz)	56215 (3647.5 MHz)	56665 (3692.5 MHz)		
Conducted Power [dBm]								
QPSK	1	0	22.54	22.90	23.02	22.93	0	0
	1	36	22.53	22.85	22.97	22.86		0
	1	74	22.55	22.92	23.04	22.85		0
	36	0	21.68	22.25	22.12	22.18	0-1	1
	36	18	21.66	22.12	22.11	22.07		1
	36	37	21.60	22.02	22.31	21.99		1
	75	0	21.86	22.27	22.21	22.08		1
16QAM	1	0	21.66	22.03	22.09	22.01	0-1	1
	1	36	21.63	21.98	22.11	22.02		1
	1	74	21.62	22.03	22.09	22.01		1
	36	0	20.99	21.21	21.17	21.13	0-2	2
	36	18	20.99	21.18	21.24	20.94		2
	36	37	21.01	21.18	21.00	20.94		2
	75	0	21.09	21.15	21.29	21.08		2
64QAM	1	0	20.50	20.98	20.99	20.80	0-2	2
	1	36	20.48	20.95	20.91	20.70		2
	1	74	20.57	21.05	21.06	20.80		2
	36	0	20.00	20.26	20.21	19.98	0-3	3
	36	18	20.11	20.25	20.11	20.16		3
	36	37	20.03	20.20	20.11	19.98		3
	75	0	19.96	20.26	20.30	20.29		3
256QAM	1	0	17.50	17.68	18.23	18.26	0-5	5
	1	36	17.52	17.78	18.29	18.23		5
	1	74	17.59	17.96	18.35	18.15		5
	36	0	17.65	18.14	18.40	18.35		5
	36	18	17.87	18.00	18.35	18.30		5
	36	37	17.90	17.79	18.31	18.21		5
	75	0	17.88	17.90	18.32	18.29		5



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Table 9-89
LTE Band 48 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 48 10 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			55290 (3555.0 MHz)	55773 (3601.7 MHz)	56207 (3648.3 MHz)	56690 (3695.0 MHz)		
			Conducted Power [dBm]					
QPSK	1	0	22.43	22.71	22.89	23.04	0	0
	1	25	22.56	22.90	22.90	23.05		0
	1	49	22.57	23.00	22.92	23.07		0
	25	0	21.83	21.89	22.04	22.29	0-1	1
	25	12	21.86	22.00	22.08	22.33		1
	25	25	21.74	22.06	22.10	22.35		1
16QAM	50	0	21.80	22.05	22.14	22.39	0-1	1
	1	0	21.52	21.86	21.95	22.20		1
	1	25	21.56	21.96	22.06	22.31		1
	1	49	21.68	21.87	21.98	22.23	0-2	1
	25	0	20.46	20.83	20.97	21.22		2
	25	12	20.76	20.95	21.02	21.27		2
64QAM	25	25	20.79	20.88	20.99	21.24	0-2	2
	50	0	20.72	21.05	21.10	21.35		2
	1	0	20.29	20.71	20.63	20.88		0-2
	1	25	20.32	20.64	20.80	21.05	2	
	1	49	20.44	20.79	20.73	20.98	2	
	256QAM	25	0	19.59	20.01	20.10	20.35	0-3
25		12	19.62	20.09	20.24	20.49	3	
25		25	19.77	20.05	20.12	20.37	3	
50		0	19.88	20.09	20.56	20.81	0-5	3
1		0	17.89	17.78	18.06	18.31		5
1		25	17.86	17.98	18.17	18.42		5
256QAM	1	49	18.01	17.90	18.29	18.54	0-5	5
	25	0	18.05	18.05	18.58	18.04		5
	25	12	18.02	18.20	18.33	18.12		5
	25	25	18.10	18.15	18.29	18.13	5	
	50	0	18.09	18.09	18.33	18.15	5	

Table 9-90
LTE Band 48 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 48 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			55265 (3552.5 MHz)	55773 (3600.8 MHz)	56207 (3649.2 MHz)	56715 (3697.5 MHz)			
			Conducted Power [dBm]						
QPSK	1	0	22.31	22.78	22.90	22.93	0	0	
	1	12	22.40	22.84	22.94	23.04		0	
	1	24	22.43	22.86	22.98	22.92		0	
	12	0	21.52	22.00	22.11	22.24	0-1	1	
	12	6	21.65	22.06	22.11	22.15		1	
	12	13	21.64	22.06	22.03	22.23		1	
16QAM	25	0	21.65	22.10	22.09	22.15	0-1	1	
	1	0	21.45	21.91	21.86	22.08		1	
	1	12	21.54	21.97	21.92	22.15		0-1	1
	1	24	21.57	21.97	21.85	22.08	1		
	12	0	20.51	20.97	21.06	21.12	0-2		2
	12	6	20.56	21.00	20.96	21.04		2	
12	13	20.55	21.01	21.07	21.04	2			
64QAM	25	0	20.60	21.08	21.05	21.13	0-2	2	
	1	0	20.41	20.51	20.51	20.62		0-2	2
	1	12	20.55	20.62	20.67	20.76			2
	1	24	20.56	20.65	20.80	20.88	0-3		2
	12	0	19.87	20.00	19.97	20.26		3	
	12	6	19.93	20.09	20.14	20.05		3	
256QAM	12	13	19.94	20.10	19.97	20.07	0-3	3	
	25	0	19.87	20.05	20.18	20.27		3	
	1	0	17.37	17.93	17.81	17.94		0-5	5
	1	12	17.42	18.01	18.00	18.30	5		
	1	24	17.42	17.97	18.19	18.01	5		
	256QAM	12	0	17.64	18.22	18.44	18.24	0-5	5
12		6	17.71	18.28	18.14	18.25	5		
12		13	17.70	18.27	18.23	18.24	5		
25		0	17.64	18.19	18.18	18.20	5		



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Table 9-91
LTE Band 48 Reduced Conducted Powers - 20 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode
Active

LTE Band 48 20 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			55340 (3560.0 MHz)	55773 (3603.3 MHz)	56207 (3646.7 MHz)	56640 (3690.0 MHz)		
			Conducted Power [dBm]					
QPSK	1	0	19.72	19.71	20.11	20.08	0	0
	1	50	19.58	19.75	20.13	20.00		0
	1	99	19.66	19.76	20.33	20.07		0
	50	0	19.85	19.96	20.28	20.25	0-1	0
	50	25	19.85	19.97	20.33	20.23		0
	50	50	19.87	19.92	20.34	20.22		0
16QAM	100	0	19.85	19.97	20.31	20.20	0-1	0
	1	0	19.76	19.70	20.16	20.09		0
	1	50	19.62	19.75	20.16	20.05		0
	1	99	19.70	19.86	20.26	20.11	0-2	0
	50	0	19.84	19.97	20.25	20.25		0
	50	25	19.86	19.95	20.32	20.23		0
64QAM	50	50	19.88	19.94	20.33	20.20	0-2	0
	100	0	19.87	19.95	20.31	20.22		0
	1	0	19.50	19.41	19.87	19.80		0-2
	1	50	19.37	19.44	19.89	19.76	0	
	1	99	19.45	19.59	19.97	19.80	0	
	256QAM	50	0	19.89	20.00	20.29	20.30	0-3
50		25	19.90	20.02	20.36	20.26	0	
50		50	19.87	19.96	20.36	20.26	0	
100		0	19.83	19.96	20.31	20.22	0-5	0
1		0	17.69	17.60	18.07	17.98		2
1		50	17.57	17.62	18.08	17.95		2
256QAM	1	99	17.65	17.75	18.19	17.98	0-5	2
	50	0	17.92	18.01	18.34	18.30		2
	50	25	17.92	18.01	18.41	18.29		2
	50	50	17.92	17.98	18.42	18.24	2	
	100	0	17.88	17.95	18.34	18.22	2	

Table 9-92
LTE Band 48 Reduced Conducted Powers - 15 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode
Active

LTE Band 48 15 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			55315 (3557.5 MHz)	55765 (3602.5 MHz)	56215 (3647.5 MHz)	56665 (3692.5 MHz)		
			Conducted Power [dBm]					
QPSK	1	0	19.47	19.96	19.78	20.19	0	0
	1	36	19.49	19.95	19.81	20.11		0
	1	74	19.52	20.05	19.91	20.16		0
	36	0	19.59	20.24	19.94	20.30	0-1	0
	36	18	19.60	20.19	19.98	20.29		0
	36	37	19.63	20.17	20.01	20.31		0
16QAM	75	0	19.66	20.21	20.04	20.39	0-1	0
	1	0	19.61	20.02	19.87	20.31		0
	1	36	19.60	19.98	19.85	20.29		0
	1	74	19.64	20.12	19.97	20.34	0-2	0
	36	0	19.55	20.14	19.86	20.31		0
	36	18	19.57	20.10	19.94	20.34		0
64QAM	36	37	19.56	20.08	19.95	20.33	0-2	0
	75	0	19.64	20.20	20.02	20.40		0
	1	0	19.19	19.75	19.61	19.99		0-2
	1	36	19.22	19.71	19.58	19.98	0	
	1	74	19.25	19.80	19.67	20.06	0	
	256QAM	36	0	19.56	20.17	19.97	20.39	0-3
36		18	19.63	20.18	19.97	20.41	0	
36		37	19.60	20.15	20.00	20.38	0	
75		0	19.66	20.21	20.06	20.40	0-5	0
1		0	17.42	17.93	17.78	18.29		2
1		36	17.41	17.94	17.76	18.25		2
256QAM	1	74	17.57	18.04	17.84	18.32	0-5	2
	36	0	17.60	18.25	17.98	18.51		2
	36	18	17.64	18.22	18.01	18.50		2
	36	37	17.63	18.20	18.02	18.48	2	
	75	0	17.67	18.24	18.03	18.50	2	





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Table 9-93
LTE Band 48 Reduced Conducted Powers - 10 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode
Active

LTE Band 48 10 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			55290 (3555.0 MHz)	55773 (3601.7 MHz)	56207 (3648.3 MHz)	56690 (3695.0 MHz)		
Conducted Power [dBm]								
QPSK	1	0	19.65	19.51	19.98	20.03	0	0
	1	25	19.79	19.68	20.15	20.16		0
	1	49	19.83	19.67	20.16	20.16		0
	25	0	19.90	19.75	20.24	20.25	0-1	0
	25	12	19.97	19.81	20.30	20.30		0
	25	25	20.03	19.85	20.34	20.37		0
16QAM	50	0	19.99	19.84	20.29	20.27	0-1	0
	1	0	19.82	19.71	20.10	20.11		0
	1	25	19.92	19.78	20.29	20.26		0
	1	49	19.93	19.88	20.28	20.25	0-2	0
	25	0	19.88	19.78	20.27	20.25		0
	25	12	19.94	19.87	20.30	20.29		0
64QAM	25	25	19.98	19.88	20.35	20.36	0-2	0
	50	0	19.96	19.88	20.33	20.33		0
	1	0	19.51	19.39	19.73	19.77		0-2
	1	25	19.64	19.47	19.97	19.92	0	
	1	49	19.67	19.54	19.93	19.93	0	
	256QAM	25	0	19.83	19.72	20.19	20.24	0-3
25		12	19.88	19.82	20.25	20.25	0	
25		25	19.94	19.81	20.28	20.28	0	
50		0	19.93	19.89	20.33	20.34	0-5	0
1		0	17.70	17.61	18.04	18.10		2
1		25	17.81	17.72	18.28	18.29		2
256QAM	1	49	17.79	17.80	18.24	18.26	0-5	2
	25	0	17.96	17.85	18.35	18.38		2
	25	12	18.02	17.93	18.39	18.41		2
	25	25	18.09	17.92	18.44	18.45	2	
	50	0	18.06	17.94	18.46	18.48	2	

Table 9-94
LTE Band 48 Reduced Conducted Powers - 5 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode
Active

LTE Band 48 5 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			55265 (3552.5 MHz)	55773 (3600.8 MHz)	56207 (3649.2 MHz)	56715 (3697.5 MHz)		
Conducted Power [dBm]								
QPSK	1	0	19.74	19.72	20.12	20.00	0	0
	1	12	19.87	19.81	20.14	20.08		0
	1	24	19.85	19.82	20.16	20.08		0
	12	0	19.96	19.91	20.28	20.17	0-1	0
	12	6	20.05	19.98	20.36	20.23		0
	12	13	20.02	19.97	20.28	20.22		0
16QAM	25	0	20.01	19.99	20.32	20.24	0-1	0
	1	0	19.84	19.87	20.22	20.14		0
	1	12	19.96	19.96	20.28	20.23		0
	1	24	19.96	19.94	20.29	20.21	0-2	0
	12	0	19.85	19.89	20.17	20.08		0
	12	6	19.92	19.95	20.27	20.19		0
64QAM	12	13	19.89	19.89	20.24	20.18	0-2	0
	25	0	19.98	20.03	20.34	20.26		0
	1	0	19.55	19.52	19.86	19.79		0-3
	1	12	19.66	19.61	19.96	19.89	0	
	1	24	19.67	19.62	19.95	19.87	0	
	256QAM	12	0	19.89	19.86	20.19	20.13	0-3
12		6	19.95	19.91	20.27	20.21	0	
12		13	19.92	19.94	20.22	20.15	0	
25		0	19.95	19.94	20.27	20.21	0-5	0
1		0	17.80	17.84	18.16	18.10		2
1		12	17.91	17.96	18.26	18.23		2
256QAM	1	24	17.88	17.90	18.23	18.19	0-5	2
	12	0	18.09	18.10	18.45	18.41		2
	12	6	18.16	18.20	18.51	18.48		2
	12	13	18.16	18.18	18.47	18.42	2	
	25	0	18.09	18.11	18.43	18.36	2	

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LTE Band 41

Table 9-95
LTE Band 41 Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth										
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)			
Conducted Power [dBm]										
QPSK	1	0	24.43	24.78	24.68	24.28	24.43	0	0	
	1	50	24.25	24.69	24.50	24.16	24.47		0	
	1	99	24.16	24.68	24.31	23.97	24.59		0	
	16QAM	50	0	23.54	23.74	23.73	23.62	23.64	0-1	1
		50	25	23.51	23.65	23.70	23.58	23.69		1
		50	50	23.46	23.56	23.59	23.49	23.71		1
64QAM		100	0	23.48	23.63	23.65	23.56	23.66	0-1	1
		1	0	23.50	23.57	23.69	23.62	23.50		1
		1	50	23.27	23.40	23.54	23.39	23.50		1
	256QAM	1	99	23.25	23.37	23.36	23.23	23.60	0-2	1
		50	0	22.55	22.66	22.69	22.59	22.65		2
		50	25	22.50	22.59	22.68	22.60	22.69		2
64QAM		50	50	22.47	22.48	22.57	22.49	22.71	0-2	2
		100	0	22.51	22.57	22.67	22.57	22.68		2
		1	0	22.23	22.19	22.38	22.29	22.23		2
	16QAM	1	50	22.05	22.08	22.17	22.14	22.24	0-2	2
		1	99	21.90	22.10	22.00	21.95	22.38		2
		50	0	21.61	21.70	21.72	21.68	21.72		3
256QAM		50	25	21.54	21.64	21.65	21.61	21.71	0-3	3
		50	50	21.49	21.52	21.55	21.52	21.75		3
		100	0	21.50	21.58	21.61	21.57	21.69		3
	16QAM	1	0	19.34	19.32	19.43	19.38	19.32	0-5	5
		1	50	19.14	19.24	19.25	19.23	19.34		5
		1	99	19.05	19.22	19.07	19.04	19.47		5
256QAM		50	0	19.63	19.71	19.74	19.69	19.70	0-5	5
		50	25	19.54	19.65	19.69	19.60	19.74		5
		50	50	19.49	19.47	19.56	19.56	19.77		5
	100	0	19.49	19.56	19.59	19.56	19.68	5		

Table 9-96
LTE Band 41 Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth										
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)			
Conducted Power [dBm]										
QPSK	1	0	24.04	24.49	24.36	24.22	24.24	0	0	
	1	36	23.95	24.43	24.45	24.10	24.27		0	
	1	74	23.96	24.27	24.20	24.05	24.36		0	
	16QAM	36	0	23.13	23.64	23.67	23.52	23.42	0-1	1
		36	18	23.15	23.65	23.69	23.51	23.50		1
		36	37	23.15	23.52	23.64	23.40	23.45		1
64QAM		75	0	23.16	23.63	23.59	23.47	23.47	0-1	1
		1	0	23.07	23.59	23.56	23.50	23.32		1
		1	36	22.97	23.52	23.58	23.35	23.30		1
	256QAM	1	74	22.98	23.40	23.57	23.22	23.41	0-1	1
		36	0	22.06	22.61	22.68	22.44	22.35		2
		36	18	22.15	22.59	22.67	22.40	22.40		2
16QAM		36	37	22.08	22.48	21.73	22.34	22.40	0-2	2
		75	0	22.16	22.63	22.66	22.45	22.45		2
		1	0	21.85	22.31	22.40	22.19	22.05		2
	64QAM	1	36	21.56	22.21	22.62	22.05	22.07	0-2	2
		1	74	21.71	22.21	22.31	21.97	22.21		2
		36	0	21.19	21.66	21.69	21.48	21.41		3
256QAM		36	18	21.24	21.65	21.59	21.47	21.45	0-3	3
		36	37	21.19	21.54	21.59	21.43	21.45		3
		75	0	21.24	21.63	21.55	21.46	21.48		3
	16QAM	1	0	18.93	19.43	19.66	19.27	19.48	0-5	5
		1	36	18.82	19.34	19.67	19.16	19.31		5
		1	74	18.90	19.22	19.49	19.05	19.38		5
256QAM		36	0	19.22	19.77	19.59	19.48	19.45	0-5	5
		36	18	19.17	19.66	19.48	19.46	19.43		5
		36	37	19.12	19.58	19.56	19.38	19.44		5
	75	0	19.20	19.68	19.64	19.42	19.45	5		



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Table 9-97
LTE Band 41 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
Conducted Power [dBm]									
QPSK	1	0	24.13	24.52	24.47	24.23	24.41	0	0
	1	25	24.12	24.65	24.35	24.21	24.40		0
	1	49	24.05	24.58	24.23	24.21	24.39		0
	25	0	23.30	23.73	23.50	23.53	23.54	0-1	1
	25	12	23.29	23.77	23.53	23.53	23.56		1
	25	25	23.24	23.69	23.45	23.47	23.52		1
16QAM	50	0	23.31	23.77	23.55	23.57	23.57	0-1	1
	1	0	23.21	23.65	23.46	23.50	23.50		1
	1	25	23.16	23.62	23.48	23.42	23.47		1
	1	49	23.10	23.69	23.45	23.42	23.42	0-2	1
	25	0	22.35	22.84	22.58	22.58	22.57		2
	25	12	22.30	22.79	22.56	22.57	22.57		2
64QAM	25	25	22.24	22.71	22.48	22.51	22.51	0-2	2
	50	0	22.28	22.77	22.50	22.55	22.56		2
	1	0	21.95	22.54	22.26	22.17	22.25		0-2
	1	25	21.85	22.35	22.17	22.16	22.18	2	
	1	49	21.80	22.33	22.08	22.07	22.12	2	
	256QAM	25	0	21.28	21.75	21.55	21.53	21.54	0-3
25		12	21.27	21.76	21.51	21.51	21.54	3	
25		25	21.18	21.75	21.43	21.48	21.49	3	
50		0	21.32	21.80	21.58	21.58	21.58	0-5	3
1		0	19.10	19.54	19.35	19.23	19.34		5
1		25	19.00	19.44	19.24	19.22	19.26		5
256QAM	1	49	18.98	19.45	19.19	19.20	19.25	0-5	5
	25	0	19.35	19.82	19.57	19.47	19.55		5
	25	12	19.32	19.79	19.32	19.53	19.54		5
	25	25	19.25	19.72	19.48	19.57	19.48	0-5	5
	50	0	19.37	19.82	19.56	19.60	19.60		5

Table 9-98
LTE Band 41 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth										
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)			
Conducted Power [dBm]										
QPSK	1	0	24.11	24.39	24.34	24.19	24.39	0	0	
	1	12	24.11	24.40	24.34	24.19	24.47		0	
	1	24	24.10	24.45	24.38	24.23	24.44		0	
	16QAM	12	0	23.22	23.45	23.44	23.51	23.51	0-1	1
		12	6	23.23	23.54	23.46	23.47	23.61		1
		12	13	23.21	23.52	23.48	23.51	23.55		1
64QAM		25	0	23.50	23.51	23.45	23.50	23.52	0-1	1
		1	0	23.15	23.47	23.48	23.38	23.41		1
		1	12	23.15	23.49	23.45	23.48	23.49		0-1
	1	24	23.16	23.46	23.47	23.47	23.45	1		
	12	0	22.20	22.43	22.42	22.46	22.44	0-2	2	
	12	6	22.14	22.45	22.45	22.42	22.54		2	
12	13	22.13	22.48	22.38	22.45	22.49	2			
256QAM	25	0	22.28	22.57	22.48	22.56	22.55	0-2	2	
	1	0	22.21	22.20	22.18	22.15	22.17		2	
	1	12	21.88	22.25	22.15	22.17	22.23		0-2	2
	1	24	21.87	22.31	22.19	22.16	22.25	2		
	12	0	21.23	21.70	21.40	21.43	21.49	0-3		3
	12	6	21.17	21.56	21.46	21.42	21.52		3	
12	13	21.16	21.48	21.41	21.52	21.53	3			
256QAM	25	0	21.20	21.53	21.37	21.51	21.48	0-3	3	
	1	0	19.02	19.35	19.28	19.24	19.29		0-5	5
	1	12	19.11	19.23	19.29	19.27	19.38			5
	1	24	19.04	19.23	19.24	19.31	19.34	0-5		5
	12	0	19.41	19.67	19.47	19.53	19.58		5	
	12	6	19.37	19.66	19.55	19.54	19.61		5	
256QAM	12	13	19.38	19.63	19.55	19.55	19.62	0-5	5	
	25	0	19.33	19.56	19.46	19.52	19.55		5	



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Table 9-99

LTE Band 41 Reduced Conducted Powers - 20 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 41 20 MHz Bandwidth										
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)			
Conducted Power [dBm]										
QPSK	1	0	21.69	21.80	21.98	21.73	21.88	0	0	
	1	50	21.51	21.69	21.80	21.61	21.92		0	
	1	99	21.42	21.66	21.61	21.42	21.77		0	
	16QAM	50	0	21.68	22.00	22.03	21.82	21.56	0-1	0
		50	25	21.65	21.95	22.00	21.78	21.61		0
		50	50	21.60	21.83	21.87	21.69	21.63		0
64QAM		100	0	21.62	21.79	21.96	21.76	21.58	0-1	0
		1	0	21.64	21.79	21.99	21.82	21.42		0
		1	50	21.41	21.70	21.86	21.59	21.42		0
	256QAM	1	99	21.39	21.69	21.88	21.43	21.52	0-2	0
		50	0	21.68	22.04	21.99	21.79	21.42		0
		50	25	21.63	21.95	21.98	21.80	21.46		0
64QAM		50	50	21.60	21.83	21.87	21.69	21.48	0-2	0
		100	0	21.64	21.93	21.98	21.77	21.45		0
		1	0	21.36	21.59	21.68	21.49	21.00		0
	256QAM	1	50	21.48	21.46	21.47	21.54	21.01	0-2	0
		1	99	21.39	21.43	21.30	21.65	21.15		0
		50	0	20.73	21.03	21.02	21.13	20.80		1
64QAM		50	25	20.66	20.98	20.95	21.06	20.79	0-3	1
		50	50	20.61	20.87	20.83	20.97	20.65		1
		100	0	20.62	20.92	20.91	21.02	20.84		1
	256QAM	1	0	18.60	18.68	18.73	18.83	18.77	0-5	3
		1	50	18.40	18.56	18.55	18.68	18.79		3
		1	99	18.31	18.59	18.37	18.49	18.92		3
64QAM		50	0	18.89	19.12	19.00	19.14	18.78	0-5	3
		50	25	18.80	19.00	18.99	19.05	18.76		3
		50	50	18.75	18.90	18.86	18.99	18.65		3
	256QAM	100	0	18.76	18.95	18.89	19.01	18.77	0-5	3

Table 9-100

LTE Band 41 Reduced Conducted Powers - 15 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 41 15 MHz Bandwidth										
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)			
Conducted Power [dBm]										
QPSK	1	0	21.75	21.72	21.64	21.65	21.63	0	0	
	1	36	21.78	21.70	21.44	21.71	21.88		0	
	1	74	21.59	21.62	21.16	21.44	21.89		0	
	16QAM	36	0	21.86	21.84	21.75	21.94	21.70	0-1	0
		36	18	21.90	21.86	21.66	21.82	21.74		0
		36	37	21.90	21.72	21.57	21.77	21.74		0
64QAM		75	0	21.84	21.86	21.62	21.85	21.71	0-1	0
		1	0	21.87	21.61	21.70	21.75	21.41		0
		1	36	21.71	21.74	21.52	21.61	21.37		0
	256QAM	1	74	21.68	21.55	21.25	21.59	21.48	0-2	0
		36	0	21.94	21.90	21.74	21.81	21.62		0
		36	18	21.87	21.81	21.69	21.84	21.75		0
64QAM		36	37	21.86	21.73	21.63	21.77	21.70	0-2	0
		75	0	21.80	21.83	21.65	21.78	21.66		0
		1	0	21.82	21.62	21.53	21.75	21.04		0
	256QAM	1	36	21.65	21.48	21.54	21.45	21.09	0-2	0
		1	74	21.63	21.68	21.27	21.61	21.10		0
		36	0	20.88	20.94	20.68	20.88	20.67		1
64QAM		36	18	20.86	20.86	20.69	20.79	20.68	0-3	1
		36	37	20.87	20.82	20.59	20.76	20.70		1
		75	0	20.83	20.82	20.62	20.77	20.71		1
	256QAM	1	0	18.55	18.54	18.69	18.71	18.16	0-5	3
		1	36	18.46	18.56	18.61	18.55	18.14		3
		1	74	18.48	18.50	18.64	18.38	18.25		3
64QAM		36	0	18.78	18.91	18.91	18.88	18.52	0-5	3
		36	18	18.90	18.87	18.90	18.87	18.51		3
		36	37	18.78	18.79	18.94	18.79	18.49		3
	256QAM	75	0	18.82	18.83	19.00	18.88	18.48	0-5	3



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Table 9-101



LTE Band 41 Reduced Conducted Powers - 10 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 41 10 MHz Bandwidth										
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)			
Conducted Power [dBm]										
QPSK	1	0	21.57	21.60	21.85	21.55	21.48	0	0	
	1	25	21.55	21.55	21.64	21.59	21.31		0	
	1	49	21.52	21.44	21.65	21.51	21.41		0	
	16QAM	25	0	21.64	21.70	21.88	21.74	21.62	0-1	0
		25	12	21.59	21.71	21.94	21.68	21.67		0
		25	25	21.66	21.61	21.85	21.66	21.52		0
64QAM		50	0	21.76	21.71	21.84	21.73	21.68	0-1	0
		1	0	21.54	21.61	21.88	21.61	21.36		0
		1	25	21.54	21.50	21.59	21.60	21.29		0
	256QAM	1	49	21.43	21.51	21.62	21.60	21.43	0-2	0
		25	0	21.69	21.82	21.80	21.73	21.68		0
		25	12	21.71	21.80	21.87	21.77	21.60		0
64QAM		25	25	21.71	21.72	21.85	21.72	21.60	0-2	0
		50	0	21.61	21.83	21.91	21.75	21.76		0
		1	0	21.69	21.63	21.83	21.55	21.12		0
	256QAM	1	25	21.58	21.69	21.81	21.63	21.16	0-2	0
		1	49	21.50	21.86	21.63	21.52	21.15		0
		25	0	20.74	20.84	20.95	20.70	20.65		1
64QAM		25	12	20.69	20.73	20.85	20.67	20.58	0-3	1
		25	25	20.72	20.71	20.83	20.68	20.62		1
		50	0	20.71	20.75	20.87	20.75	20.69		1
	256QAM	1	0	18.37	18.60	18.66	18.50	18.74	0-5	3
		1	25	18.35	18.52	18.59	18.46	18.73		3
		1	49	18.35	18.43	18.54	18.35	18.63		3
64QAM		25	0	18.70	18.93	18.88	18.87	19.04	0-5	3
		25	12	18.70	18.82	18.91	18.78	19.01		3
		25	25	18.64	18.72	18.83	18.70	18.95		3
	256QAM	50	0	18.72	18.84	18.87	18.81	19.05	0-5	3

Table 9-102

LTE Band 41 Reduced Conducted Powers - 5 MHz Bandwidth - Hotspot/Grip Sensor and/or Earjack Mode Active

LTE Band 41 5 MHz Bandwidth										
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)			
Conducted Power [dBm]										
QPSK	1	0	21.58	21.62	21.73	21.63	21.61	0	0	
	1	12	21.64	21.60	21.71	21.61	21.69		0	
	1	24	21.69	21.70	21.85	21.63	21.67		0	
	16QAM	12	0	21.79	21.69	21.72	21.88	21.41	0-1	0
		12	6	21.75	21.78	21.72	21.93	21.48		0
		12	13	21.78	21.77	21.71	21.91	21.47		0
64QAM		25	0	21.80	21.87	21.75	21.83	21.47	0-1	0
		1	0	21.58	21.63	21.62	21.64	21.30		0
		1	12	21.63	21.60	21.60	21.70	21.37		0
	256QAM	1	24	21.56	21.59	21.62	21.63	21.34	0-2	0
		12	0	21.77	21.74	21.82	21.79	21.44		0
		12	6	21.79	21.81	21.74	21.93	21.51		0
64QAM		12	13	21.76	21.80	21.79	21.88	21.49	0-2	0
		25	0	21.86	21.77	21.74	21.87	21.47		0
		1	0	21.68	21.62	21.48	21.61	21.11		0
	256QAM	1	12	21.66	21.70	21.38	21.60	21.11	0-2	0
		1	24	21.59	21.71	21.39	21.70	21.16		0
		12	0	20.84	20.84	20.77	20.87	20.52		1
64QAM		12	6	20.83	20.88	20.82	20.92	20.54	0-3	1
		12	13	20.84	20.90	20.87	20.88	20.54		1
		25	0	20.79	20.83	20.73	20.82	20.53		1
	256QAM	1	0	18.49	18.56	18.61	18.47	18.12	0-5	3
		1	12	18.45	18.55	18.61	18.49	18.07		3
		1	24	18.45	18.57	18.59	18.46	18.07		3
64QAM		12	0	18.76	18.92	18.85	18.85	18.58	0-5	3
		12	6	18.80	18.87	18.90	18.76	18.58		3
		12	13	18.78	18.89	18.93	18.79	18.57		3
	256QAM	25	0	18.72	18.84	18.79	18.68	18.62	0-5	3

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9.4.5 LTE Uplink Carrier Aggregation Conducted Powers

Table 9-103
LTE Uplink Carrier Aggregation Maximum Conducted Powers

Combination	PCC									SCC						Power				
	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	24.89	24.94

Combination	PCC									SCC						Power				
	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_66C	LTE B66	20	132072	1720.0	66536	2120.0	QPSK	1	99	LTE B66	20	132270	1739.8	66734	2139.8	QPSK	1	0	24.98	24.51
CA_66B	LTE B66	10	132022	1715.0	66486	2115.0	QPSK	1	49	LTE B66	10	132121	1724.9	66585	2124.9	QPSK	1	0	24.82	24.36

Table 9-104

LTE Uplink Carrier Aggregation Reduced Conducted Powers – Hotspot/Grip Sensor and/or Earjack Mode Active

Combination	PCC									SCC						Power				
	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_66C	LTE B66	20	132072	1720.0	66536	2120.0	QPSK	50	50	LTE B66	20	132270	1739.8	66734	2139.8	QPSK	50	0	20.75	20.44
CA_66B	LTE B66	10	132022	1715.0	66486	2115.0	QPSK	25	25	LTE B66	10	132121	1724.9	66585	2124.9	QPSK	25	0	20.78	20.53

Notes:

1. This device supports uplink carrier aggregation for LTE CA_5B, LTE CA_66B, and LTE CA_66C 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 9-105
2.4 GHz WLAN Maximum Average RF Power – Ant 1

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax SU
		Average	Average	Average	Average
2412	1	20.18	17.77	17.52	15.63
2437	6	20.23	17.86	17.53	16.78
2462	11	20.00	17.85	17.80	15.41

Table 9-106
2.4 GHz WLAN Maximum Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax SU
		Average	Average	Average	Average
2412	1	20.25	17.60	17.42	15.66
2437	6	20.25	17.56	17.49	16.65
2462	11	20.05	17.67	17.60	15.42

Table 9-107
2.4 GHz WLAN Maximum Average RF Power – MIMO

2.4GHz 802.11n Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
2412	1	17.52	17.42	20.48
2437	6	17.53	17.49	20.52
2462	11	17.80	17.60	20.71



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Table 9-108
5 GHz WLAN Maximum Average RF Power – Ant 1

5GHz (20MHz) Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11a	802.11n	802.11ac	802.11ax SU
		Average	Average	Average	Average
5180	36	16.44	16.32	16.31	15.86
5200	40	17.63	17.54	17.99	15.93
5220	44	17.66	17.52	17.93	15.76
5240	48	17.54	17.51	17.92	15.81
5260	52	17.63	17.63	17.98	15.66
5280	56	17.68	17.59	17.99	15.62
5300	60	17.68	17.56	17.62	15.67
5320	64	16.86	16.76	16.94	15.59
5500	100	17.60	17.83	17.89	15.62
5600	120	17.90	17.80	17.84	15.58
5620	124	17.84	17.70	17.72	15.59
5720	144	17.54	17.50	17.98	15.56
5745	149	17.56	17.94	17.56	15.96
5785	157	17.53	17.99	17.99	15.85
5825	165	17.68	17.73	17.71	15.55

Table 9-109
5 GHz WLAN Maximum Average RF Power – Ant 2

5GHz (20MHz) Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11a	802.11n	802.11ac	802.11ax SU
		Average	Average	Average	Average
5180	36	16.15	16.11	16.06	15.81
5200	40	17.75	17.92	17.92	15.77
5220	44	17.72	17.89	17.97	15.72
5240	48	17.73	17.94	17.98	15.73
5260	52	17.54	17.72	17.75	15.55
5280	56	17.61	17.83	17.71	15.66
5300	60	17.61	17.81	17.90	15.68
5320	64	16.64	16.71	16.53	15.65
5500	100	17.73	17.88	17.87	15.79
5600	120	17.55	17.82	17.73	15.70
5620	124	17.50	17.82	17.67	15.62
5720	144	17.59	17.84	17.83	15.69
5745	149	17.86	17.62	17.65	15.98
5785	157	17.89	17.50	17.58	15.85
5825	165	17.59	17.73	17.68	15.60



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Table 9-110
5 GHz WLAN Maximum Average RF Power – MIMO

5GHz (20MHz) 802.11n Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
5180	36	12.85	12.82	15.85
5200	40	17.54	17.92	20.74
5220	44	17.52	17.89	20.72
5240	48	17.51	17.94	20.74
5260	52	17.63	17.72	20.69
5280	56	17.59	17.83	20.72
5300	60	17.56	17.81	20.70
5320	64	13.73	13.09	16.43
5500	100	17.83	17.88	20.87
5600	120	17.80	17.82	20.82
5620	124	17.70	17.82	20.77
5720	144	17.50	17.84	20.68
5745	149	17.94	17.62	20.79
5785	157	17.99	17.50	20.76
5825	165	17.73	17.73	20.74

Table 9-111
Maximum Output Powers During Conditions with 2.4 GHz and 5 GHz WLAN

2.4GHz 802.11n Conducted Power [dBm]			
Freq [MHz]	Channel	ANT1	ANT2
2412	1	16.61	16.49
2437	6	16.52	16.35
2462	11	16.94	16.82
5GHz (40MHz) 802.11n Conducted Power [dBm]			
Freq [MHz]	Channel	ANT1	ANT2
5190	38	10.62	10.81
5230	46	13.86	13.63
5270	54	13.74	13.88
5310	62	10.75	10.78
5GHz (80MHz) 802.11ac Conducted Power [dBm]			
Freq [MHz]	Channel	ANT1	ANT2
5210	42	9.52	9.57
5290	58	9.79	9.63
5530	106	10.40	10.64
5610	122	13.72	13.95
5690	138	13.85	13.72
5775	155	13.50	13.65



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Table 9-112
2.4 GHz WLAN Reduced Average RF Power – Ant 1



2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax SU
		Average	Average	Average	Average
2412	1	16.77	16.63	16.61	15.80
2437	6	16.92	16.54	16.52	16.33
2462	11	16.83	16.73	16.94	15.23

Table 9-113
2.4 GHz WLAN Reduced Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ax SU
		Average	Average	Average	Average
2412	1	16.55	16.64	16.49	15.84
2437	6	16.80	16.54	16.35	16.64
2462	11	16.80	16.94	16.82	15.10

Table 9-114
5 GHz WLAN Reduced Average RF Power – Ant 1

5GHz (40MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11n	802.11ac	802.11ax SU
		Average	Average	Average
5190	38	13.70	13.82	13.57
5230	46	13.86	13.92	13.59
5270	54	13.74	13.66	13.84
5310	62	13.94	13.82	13.72
5510	102	13.80	13.78	13.92
5590	118	13.87	13.82	13.78
5630	126	13.89	13.85	13.72
5710	142	13.64	13.60	13.80
5755	151	13.59	13.49	13.87
5795	159	13.86	13.79	13.58



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5GHz (80MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11ac	802.11ax SU
		Average	Average
5210	42	12.51	12.71
5290	58	12.68	12.73
5530	106	13.42	12.89
5610	122	13.72	12.56
5690	138	13.85	12.94
5775	155	13.50	12.38

Table 9-115
5 GHz WLAN Reduced Average RF Power – Ant 2

5GHz (40MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11n	802.11ac	802.11ax SU
		Average	Average	Average
5190	38	13.73	13.63	13.85
5230	46	13.63	13.63	13.96
5270	54	13.88	13.91	13.73
5310	62	13.89	13.93	13.63
5510	102	13.70	13.67	13.92
5590	118	13.85	13.84	13.62
5630	126	13.67	13.68	13.65
5710	142	13.60	13.54	13.82
5755	151	13.93	13.94	13.77
5795	159	13.70	13.67	13.96

5GHz (80MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	IEEE Transmission Mode
		802.11ac	802.11ax SU
		Average	Average
5210	42	12.75	12.69
5290	58	12.77	12.93
5530	106	13.71	12.50
5610	122	13.95	12.85
5690	138	13.72	12.96
5775	155	13.65	12.43

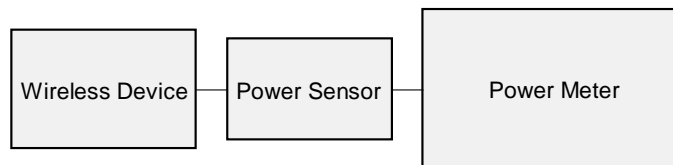
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**Table 9-116
5 GHz WLAN Reduced Average RF Power – MIMO**



5GHz (40MHz) 802.11n Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
5190	38	10.62	10.81	13.73
5230	46	13.86	13.63	16.76
5270	54	13.74	13.88	16.82
5310	62	10.75	10.78	13.78
5GHz (80MHz) 802.11ac Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
5210	42	9.52	9.57	12.56
5290	58	9.79	9.63	12.72
5530	106	10.40	10.64	13.53
5610	122	13.72	13.95	16.85
5690	138	13.85	13.72	16.80
5775	155	13.50	13.65	16.59

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 9-117
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	13.46	22.158
2441	1.0	39	13.60	22.890
2480	1.0	78	13.75	23.721
2402	2.0	0	11.78	15.066
2441	2.0	39	12.36	17.231
2480	2.0	78	11.38	13.740
2402	3.0	0	11.88	15.409
2441	3.0	39	12.44	17.534
2480	3.0	78	11.41	13.822

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

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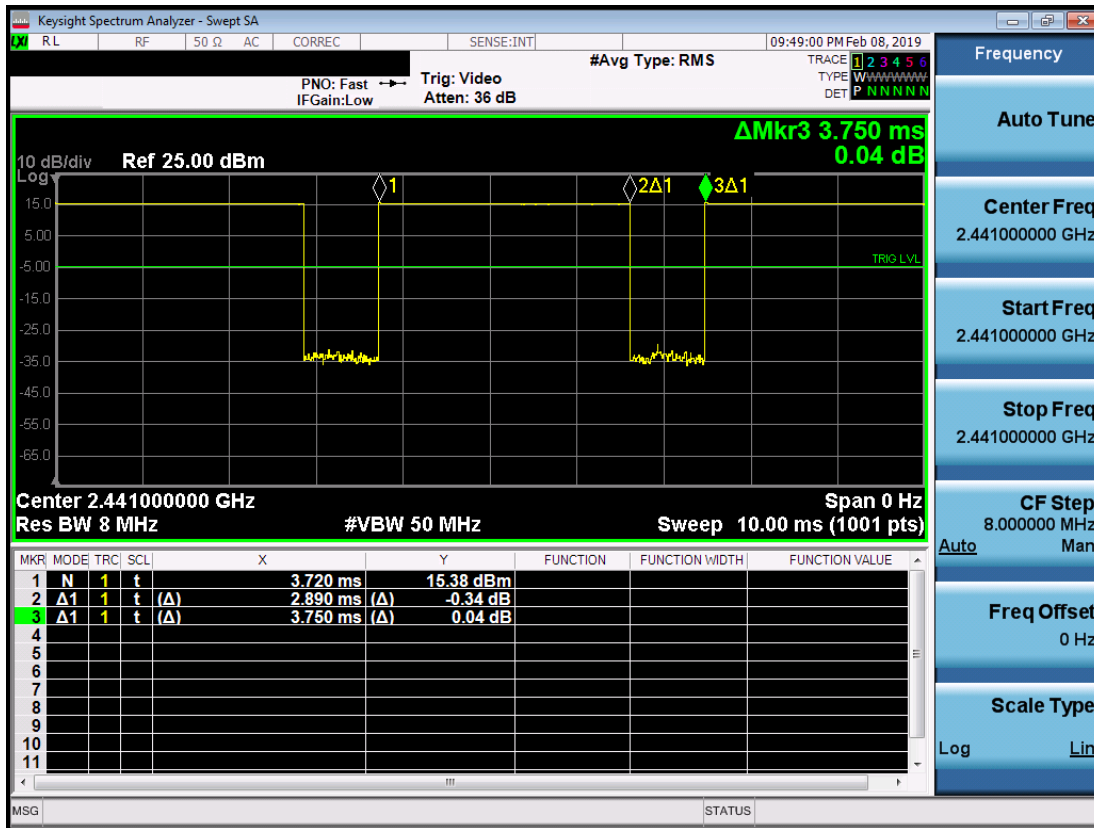


Figure 9-6
Bluetooth Transmission Plot

Equation 9-1
Bluetooth Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.89ms}{3.75ms} * 100\% = 77.1\%$$

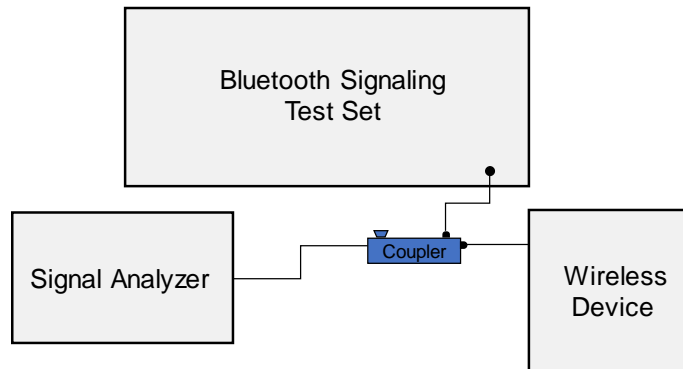


Figure 9-7
Power Measurement Setup



FCC ID: A3LSMG977U	PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT	SAMSUNG	Approved by: Quality Manager
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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
1/28/2019	750H	20.8	695	0.859	42.436	0.889	42.227	-3.37%	0.49%
			700	0.861	42.418	0.889	42.201	-3.15%	0.51%
			710	0.864	42.381	0.890	42.149	-2.92%	0.55%
			720	0.868	42.354	0.891	42.097	-2.58%	0.61%
			725	0.870	42.338	0.891	42.071	-2.36%	0.63%
			740	0.875	42.294	0.893	41.994	-2.02%	0.71%
			755	0.880	42.241	0.894	41.916	-1.57%	0.78%
			770	0.885	42.187	0.895	41.838	-1.12%	0.83%
			785	0.890	42.131	0.896	41.760	-0.67%	0.89%
1/23/2019	835H	21.2	800	0.896	42.077	0.897	41.682	-0.11%	0.95%
			820	0.938	40.599	0.899	41.578	4.34%	-2.35%
			835	0.942	40.568	0.900	41.500	4.67%	-2.25%
2/1/2019	835H	21.1	850	0.946	40.539	0.916	41.500	3.28%	-2.32%
			820	0.922	41.042	0.899	41.578	2.56%	-1.29%
2/13/2019	835H	21.0	835	0.928	40.992	0.900	41.500	3.11%	-1.22%
			850	0.933	40.934	0.916	41.500	1.86%	-1.36%
2/4/2019	1750H	21.1	820	0.915	41.258	0.899	41.578	1.78%	-0.77%
			835	0.920	41.219	0.900	41.500	2.22%	-0.68%
			850	0.926	41.177	0.916	41.500	1.09%	-0.78%
3/4/2019	1750H	21.5	1710	1.366	41.930	1.348	40.142	1.34%	4.45%
			1750	1.387	41.854	1.371	40.079	1.17%	4.43%
			1790	1.410	41.786	1.394	40.016	1.15%	4.42%
2/4/2019	1900H	21.1	1710	1.361	39.054	1.348	40.142	0.96%	-2.71%
			1750	1.404	38.865	1.371	40.079	2.41%	-3.03%
			1790	1.444	38.659	1.394	40.016	3.59%	-3.39%
2/6/2019	1900H	21.5	1850	1.399	38.617	1.400	40.000	-0.07%	-3.46%
			1880	1.417	38.578	1.400	40.000	1.21%	-3.55%
			1910	1.436	38.536	1.400	40.000	2.57%	-3.66%
3/2/2019	2300H	21.9	1850	1.401	39.085	1.400	40.000	0.07%	-2.29%
			1880	1.418	39.011	1.400	40.000	1.29%	-2.47%
			1910	1.435	38.956	1.400	40.000	2.50%	-2.61%
1/29/2019	2450H	21.1	2300	1.747	41.349	1.670	39.500	4.61%	4.68%
			2310	1.760	41.362	1.679	39.480	4.82%	4.77%
			2320	1.766	41.385	1.687	39.460	4.68%	4.88%
			2400	1.790	38.607	1.756	39.289	1.94%	-1.74%
			2450	1.830	38.536	1.800	39.200	1.67%	-1.69%
			2500	1.864	38.478	1.855	39.136	0.49%	-1.68%
			2550	1.899	38.411	1.909	39.073	-0.52%	-1.69%
2/11/2019	2450H	21.1	2600	1.932	38.324	1.964	39.009	-1.63%	-1.76%
			2650	1.966	38.254	2.018	38.945	-2.58%	-1.77%
			2700	2.003	38.165	2.073	38.882	-3.38%	-1.84%
3/7/2019	2450H	20.4	2400	1.810	39.292	1.756	39.289	3.08%	0.01%
			2450	1.849	39.238	1.800	39.200	2.72%	0.10%
			2500	1.888	39.156	1.855	39.136	1.78%	0.05%
			2400	1.776	39.602	1.756	39.289	1.14%	0.80%
			2450	1.816	39.498	1.800	39.200	0.89%	0.76%
			2500	1.856	39.429	1.855	39.136	0.05%	0.75%
			2550	1.897	39.331	1.909	39.073	-0.63%	0.66%
2/7/2019	3500H-3700H	20.4	2600	1.939	39.250	1.964	39.009	-1.27%	0.62%
			2650	1.978	39.169	2.018	38.945	-1.98%	0.58%
			2700	2.022	39.069	2.073	38.882	-2.46%	0.48%
			3500	2.908	37.921	2.913	37.929	-0.17%	-0.02%
			3550	2.939	37.861	2.964	37.871	-0.84%	-0.03%
			3600	2.986	37.782	3.015	37.814	-0.96%	-0.08%
			3645	3.027	37.730	3.061	37.763	-1.11%	-0.09%
01/28/2019	5200H-5800H	19.7	3685	3.047	37.760	3.102	37.717	-1.77%	0.11%
			3725	3.094	37.646	3.143	37.671	-1.56%	-0.07%
			5240	4.689	36.050	4.696	35.940	-0.15%	0.31%
			5260	4.710	36.011	4.717	35.917	-0.15%	0.26%
			5300	4.753	35.960	4.758	35.871	-0.11%	0.25%
			5320	4.761	35.934	4.778	35.849	-0.36%	0.24%
			5500	4.952	35.663	4.963	35.643	-0.22%	0.06%
			5600	5.063	35.531	5.065	35.529	-0.04%	0.01%
			5620	5.098	35.477	5.086	35.506	0.24%	-0.08%
			5640	5.123	35.469	5.106	35.483	0.33%	-0.04%
			5660	5.145	35.454	5.127	35.460	0.35%	-0.02%
			5680	5.168	35.401	5.147	35.437	0.41%	-0.10%
			5700	5.184	35.362	5.168	35.414	0.31%	-0.15%
			5745	5.242	35.361	5.214	35.363	0.54%	-0.01%
			5765	5.268	35.275	5.234	35.340	0.65%	-0.18%
5785	5.292	35.261	5.255	35.317	0.70%	-0.16%			

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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
2/5/2019	750B	22.5	700	0.965	54.229	0.959	55.726	0.63%	-2.69%
			710	0.968	54.204	0.960	55.687	0.83%	-2.66%
			740	0.980	54.125	0.963	55.570	1.77%	-2.60%
			755	0.986	54.082	0.964	55.512	2.28%	-2.58%
			770	0.992	54.041	0.965	55.453	2.80%	-2.55%
			785	0.998	54.010	0.966	55.395	3.31%	-2.50%
			800	1.004	53.983	0.967	55.336	3.83%	-2.45%
1/23/2019	835B	20.3	820	0.957	53.543	0.969	55.258	-1.24%	-3.10%
			835	0.971	53.402	0.970	55.200	0.10%	-3.26%
			850	0.990	53.252	0.988	55.154	0.20%	-3.45%
1/28/2019	835B	18.9	820	0.960	53.174	0.969	55.258	-0.93%	-3.77%
			835	0.977	53.010	0.970	55.200	0.72%	-3.97%
			850	0.994	52.831	0.988	55.154	0.61%	-4.21%
1/30/2019	835B	21.6	820	0.964	53.089	0.969	55.258	-0.52%	-3.93%
			835	0.979	52.937	0.970	55.200	0.93%	-4.10%
			850	0.994	52.782	0.988	55.154	0.61%	-4.30%
2/11/2019	835B	20.8	820	0.952	53.129	0.969	55.258	-1.75%	-3.85%
			835	0.968	52.959	0.970	55.200	-0.21%	-4.06%
			850	0.984	52.797	0.988	55.154	-0.40%	-4.27%
2/25/2019	835B	20.0	820	0.969	54.417	0.969	55.258	0.00%	-1.52%
			835	0.984	54.264	0.970	55.200	1.44%	-1.70%
			850	1.001	54.171	0.988	55.154	1.32%	-1.78%
1/21/2019	1750B	20.9	1710	1.461	51.904	1.463	53.537	-0.14%	-3.05%
			1750	1.488	51.840	1.488	53.432	0.00%	-2.98%
			1790	1.513	51.791	1.514	53.326	-0.07%	-2.88%
2/7/2019	1750B	19.3	1710	1.478	51.097	1.463	53.537	1.03%	-4.56%
			1750	1.509	51.017	1.488	53.432	1.41%	-4.52%
			1790	1.537	50.925	1.514	53.326	1.52%	-4.50%
3/11/2019	1750B	20.8	1710	1.460	51.020	1.463	53.537	-0.21%	-4.70%
			1750	1.503	50.840	1.488	53.432	1.01%	-4.85%
			1790	1.545	50.679	1.514	53.326	2.05%	-4.96%
1/28/2019	1900B	24.1	1850	1.520	54.410	1.520	53.300	0.00%	2.08%
			1880	1.555	54.304	1.520	53.300	2.30%	1.88%
			1910	1.589	54.218	1.520	53.300	4.54%	1.72%
2/8/2019	1900B	22.0	1850	1.516	52.702	1.520	53.300	-0.26%	-1.12%
			1880	1.548	52.609	1.520	53.300	1.84%	-1.30%
			1910	1.583	52.502	1.520	53.300	4.14%	-1.50%
2/24/2019	1900B	22.0	1850	1.497	51.158	1.520	53.300	-1.51%	-4.02%
			1880	1.532	51.019	1.520	53.300	0.79%	-4.28%
			1910	1.573	50.936	1.520	53.300	3.49%	-4.44%
2/27/2019	1900B	21.1	1850	1.499	51.828	1.520	53.300	-1.38%	-2.76%
			1880	1.532	51.722	1.520	53.300	0.79%	-2.96%
			1910	1.567	51.612	1.520	53.300	3.09%	-3.17%
2/22/2019	2300B	22.7	2300	1.863	51.469	1.809	52.900	2.99%	-2.71%
			2310	1.874	51.445	1.816	52.887	3.19%	-2.73%
			2320	1.886	51.425	1.826	52.873	3.29%	-2.74%
1/27/2019	2450B	23.1	2400	1.972	51.266	1.902	52.767	3.68%	-2.84%
			2450	2.028	51.137	1.950	52.700	4.00%	-2.97%
			2500	2.087	50.995	2.021	52.636	3.27%	-3.12%
1/29/2019	2450B	20.5	2400	1.979	50.802	1.902	52.767	4.05%	-3.72%
			2450	2.035	50.649	1.950	52.700	4.36%	-3.89%
			2500	2.095	50.512	2.021	52.636	3.66%	-4.04%

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**Table 10-3
Measured Tissue Properties – Body (Continued)**

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
2/5/2019	2450B	23.2	2400	1.975	52.118	1.902	52.767	3.84%	-1.23%
			2450	2.035	51.977	1.950	52.700	4.36%	-1.37%
			2500	2.091	51.817	2.021	52.636	3.46%	-1.56%
			2550	2.152	51.661	2.092	52.573	2.87%	-1.73%
			2600	2.212	51.487	2.163	52.509	2.27%	-1.95%
			2650	2.273	51.324	2.234	52.445	1.75%	-2.14%
			2700	2.337	51.166	2.305	52.382	1.39%	-2.32%
2/11/2019	2450B	22.8	2400	1.979	52.094	1.902	52.767	4.05%	-1.28%
			2450	2.037	51.969	1.950	52.700	4.46%	-1.39%
			2500	2.094	51.812	2.021	52.636	3.61%	-1.57%
			2550	2.151	51.663	2.092	52.573	2.82%	-1.73%
			2600	2.212	51.524	2.163	52.509	2.27%	-1.88%
			2650	2.270	51.366	2.234	52.445	1.61%	-2.08%
			2700	2.331	51.220	2.305	52.382	1.13%	-2.22%
2/25/2019	2300B-2600B	21.5	2300	1.856	52.134	1.809	52.900	2.60%	-1.45%
			2310	1.867	52.123	1.816	52.887	2.81%	-1.44%
			2320	1.879	52.105	1.826	52.873	2.90%	-1.45%
			2400	1.967	51.870	1.902	52.767	3.42%	-1.70%
			2450	2.028	51.750	1.950	52.700	4.00%	-1.80%
			2500	2.085	51.592	2.021	52.636	3.17%	-1.98%
			2550	2.150	51.458	2.092	52.573	2.77%	-2.12%
			2600	2.207	51.329	2.163	52.509	2.03%	-2.25%
			2650	2.269	51.131	2.234	52.445	1.57%	-2.51%
			2700	2.329	51.011	2.305	52.382	1.04%	-2.62%
3/25/2019	2450B	23.4	2400	1.958	50.815	1.902	52.767	2.94%	-3.70%
			2450	2.017	50.682	1.950	52.700	3.44%	-3.83%
			2500	2.075	50.542	2.021	52.636	2.67%	-3.98%
2/4/2019	3500B-3700B	20.5	3500	3.165	51.186	3.314	51.321	-4.50%	-0.26%
			3550	3.219	51.065	3.372	51.254	-4.54%	-0.37%
			3600	3.279	50.922	3.431	51.186	-4.43%	-0.52%
			3645	3.341	50.835	3.483	51.125	-4.08%	-0.57%
			3685	3.373	50.791	3.530	51.070	-4.45%	-0.55%
			3725	3.438	50.703	3.577	51.016	-3.89%	-0.61%
			5240	5.409	47.322	5.346	48.960	1.18%	-3.35%
02/06/2019	5200B-5800B	20.6	5260	5.445	47.302	5.369	48.933	1.42%	-3.33%
			5280	5.474	47.299	5.393	48.906	1.50%	-3.29%
			5300	5.499	47.205	5.416	48.879	1.53%	-3.42%
			5320	5.528	47.194	5.439	48.851	1.64%	-3.39%
			5500	5.778	46.833	5.650	48.607	2.27%	-3.65%
			5520	5.817	46.806	5.673	48.580	2.54%	-3.65%
			5540	5.847	46.768	5.696	48.553	2.65%	-3.68%
			5560	5.875	46.713	5.720	48.526	2.71%	-3.74%
			5580	5.907	46.668	5.743	48.499	2.86%	-3.78%
			5600	5.926	46.639	5.766	48.471	2.77%	-3.79%
			5620	5.960	46.600	5.790	48.444	2.94%	-3.81%
			5640	6.000	46.547	5.813	48.417	3.22%	-3.86%
			5660	6.024	46.476	5.837	48.390	3.20%	-3.96%
			5680	6.064	46.469	5.860	48.363	3.48%	-3.92%
			5700	6.082	46.459	5.883	48.336	3.38%	-3.88%
			5745	6.156	46.347	5.936	48.275	3.71%	-3.99%
			5765	6.196	46.304	5.959	48.248	3.98%	-4.03%
			5180	5.356	48.136	5.276	49.041	1.52%	-1.85%
			5200	5.386	48.077	5.299	49.014	1.64%	-1.91%
			5220	5.416	48.031	5.323	48.987	1.75%	-1.95%
			5240	5.451	47.979	5.346	48.960	1.96%	-2.00%
5260	5.468	47.943	5.369	48.933	1.84%	-2.02%			
5280	5.483	47.937	5.393	48.906	1.67%	-1.98%			
5300	5.521	47.884	5.416	48.879	1.94%	-2.04%			
5320	5.543	47.859	5.439	48.851	1.91%	-2.03%			
5500	5.798	47.478	5.650	48.607	2.62%	-2.32%			
5520	5.833	47.466	5.673	48.580	2.82%	-2.29%			
5540	5.889	47.400	5.696	48.553	3.39%	-2.37%			
5560	5.914	47.344	5.720	48.526	3.39%	-2.44%			
5580	5.931	47.343	5.743	48.499	3.27%	-2.38%			
5600	5.942	47.297	5.766	48.471	3.05%	-2.42%			
5620	5.980	47.260	5.790	48.444	3.28%	-2.44%			
5640	6.031	47.188	5.813	48.417	3.75%	-2.54%			
5660	6.056	47.109	5.837	48.390	3.75%	-2.65%			
5680	6.092	47.111	5.860	48.363	3.96%	-2.59%			
5700	6.110	47.098	5.883	48.336	3.86%	-2.56%			
5745	6.181	46.995	5.936	48.275	4.13%	-2.65%			
5765	6.219	46.923	5.959	48.248	4.36%	-2.75%			
5785	6.241	46.918	5.982	48.220	4.33%	-2.70%			
5800	6.268	46.896	6.000	48.200	4.47%	-2.71%			
5805	6.280	46.885	6.006	48.193	4.56%	-2.71%			
5825	6.314	46.875	6.029	48.166	4.73%	-2.68%			

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 $\pm 10\%$ of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in Appendix E.

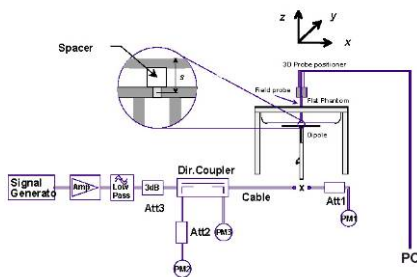
**Table 10-4
System Verification Results – 1g**

System Verification												
TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR _{1g} (W/kg)	1 W Target SAR _{1g} (W/kg)	1 W Normalized SAR _{1g} (W/kg)	Deviation _{1g} (%)
G	750	HEAD	01/28/2019	21.5	20.8	0.200	1161	7410	1.610	8.030	8.050	0.25%
G	835	HEAD	01/23/2019	23.5	21.2	0.200	4d133	7410	1.990	9.430	9.950	5.51%
G	835	HEAD	02/01/2019	22.6	21.1	0.200	4d047	7410	2.000	9.470	10.000	5.60%
G	835	HEAD	02/13/2019	22.2	21.0	0.200	4d133	7410	1.980	9.430	9.900	4.98%
H	1750	HEAD	02/04/2019	22.3	21.1	0.100	1008	7409	3.790	36.200	37.900	4.70%
D	1750	HEAD	03/04/2019	22.0	21.5	0.100	1150	7357	3.590	36.500	35.900	-1.64%
G	1900	HEAD	02/04/2019	21.5	21.1	0.100	5d149	7410	3.950	39.300	39.500	0.51%
G	1900	HEAD	02/06/2019	22.6	21.5	0.100	5d149	7410	4.090	39.300	40.900	4.07%
E	2300	HEAD	03/02/2019	20.5	20.3	0.100	1064	3589	4.570	47.600	45.700	-3.99%
G	2450	HEAD	01/29/2019	23.2	21.1	0.100	981	7410	5.190	52.300	51.900	-0.76%
H	2450	HEAD	02/11/2019	20.9	21.1	0.100	797	7409	5.470	52.700	54.700	3.80%
E	2450	HEAD	03/07/2019	21.8	20.4	0.100	719	3589	5.260	51.900	52.600	1.35%
G	2600	HEAD	01/29/2019	23.2	21.1	0.100	1004	7410	5.530	55.900	55.300	-1.07%
E	2600	HEAD	03/07/2019	21.8	20.4	0.100	1004	3589	5.590	55.900	55.900	0.00%
H	3500	HEAD	02/07/2019	21.7	20.4	0.100	1059	3949	6.540	64.600	65.400	1.24%
H	3700	HEAD	02/07/2019	21.7	20.4	0.100	1018	3949	6.340	65.800	63.400	-3.65%
H	5250	HEAD	01/28/2019	19.8	19.5	0.050	1191	7409	3.790	78.900	75.800	-3.93%
H	5600	HEAD	01/28/2019	19.8	19.5	0.050	1191	7409	4.010	83.600	80.200	-4.07%
H	5750	HEAD	01/28/2019	19.8	19.5	0.050	1191	7409	3.890	79.100	77.800	-1.64%
E	750	BODY	02/05/2019	24.0	22.0	0.200	1054	3589	1.750	8.610	8.750	1.63%
D	835	BODY	01/23/2019	22.1	20.3	0.200	4d047	7357	1.990	9.710	9.950	2.47%
D	835	BODY	01/28/2019	22.1	19.3	0.200	4d047	7357	1.940	9.710	9.700	-0.10%
D	835	BODY	01/30/2019	22.1	21.6	0.200	4d133	7357	2.080	9.750	10.400	6.67%
D	835	BODY	02/11/2019	21.9	20.8	0.200	4d047	7357	2.020	9.710	10.100	4.02%
D	835	BODY	02/25/2019	21.4	20.0	0.200	4d047	7357	2.070	9.710	10.350	6.59%
J	1750	BODY	02/07/2019	22.1	19.5	0.100	1150	7488	3.900	36.600	39.000	6.56%
G	1750	BODY	03/11/2019	21.3	20.8	0.100	1150	7410	3.770	36.600	37.700	3.01%
E	1900	BODY	01/28/2019	20.9	24.1	0.100	5d080	3332	4.210	39.200	42.100	7.40%
J	1900	BODY	02/08/2019	21.1	20.7	0.100	5d149	7488	4.100	39.400	41.000	4.06%
J	1900	BODY	02/24/2019	21.7	21.5	0.100	5d149	7488	4.180	39.400	41.800	6.09%
J	1900	BODY	02/27/2019	23.3	21.1	0.100	5d149	7488	4.140	39.400	41.400	5.08%
K	2300	BODY	02/25/2019	22.6	21.0	0.100	1073	3319	5.000	47.700	50.000	4.82%
K	2450	BODY	01/27/2019	22.2	22.9	0.100	981	3319	5.220	50.900	52.200	2.55%
K	2450	BODY	01/29/2019	22.6	20.5	0.100	981	3319	5.060	50.900	50.600	-0.59%
K	2450	BODY	02/05/2019	22.7	22.9	0.100	981	3319	4.950	50.900	49.500	-2.75%
K	2450	BODY	02/25/2019	22.6	21.0	0.100	981	3319	5.160	50.900	51.600	1.38%
K	2450	BODY	03/25/2019	23.3	23.1	0.100	719	7417	5.050	50.100	50.500	0.80%
K	2600	BODY	02/05/2019	22.7	22.9	0.100	1004	3319	5.620	54.800	56.200	2.55%
K	2600	BODY	02/25/2019	22.6	21.0	0.100	1004	3319	5.650	54.800	56.500	3.10%
L	3500	BODY	02/04/2019	20.7	20.3	0.100	1059	3914	6.000	65.100	60.000	-7.83%
L	3700	BODY	02/04/2019	20.7	20.3	0.100	1018	3914	5.990	64.300	59.900	-6.84%
L	5250	BODY	02/22/2019	22.6	20.8	0.050	1191	7308	3.640	77.000	72.800	-5.45%
L	5600	BODY	02/22/2019	22.6	20.8	0.050	1191	7308	3.850	79.200	77.000	-2.78%
L	5750	BODY	02/22/2019	22.6	20.8	0.050	1191	7308	3.600	76.100	72.000	-5.39%

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**Table 10-5
System Verification Results – 10g**

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 _{10g} (W/kg)	1 W Target SAR _{10g} (W/kg)	1 W Normalized SAR _{10g} (W/kg)	Deviation _{10g} (%)
J	1750	BODY	01/21/2019	21.5	20.9	0.100	1008	3347	1.920	19.900	19.200	-3.52%
G	1750	BODY	03/11/2019	21.3	20.8	0.100	1150	7410	1.980	19.400	19.800	2.06%
E	1900	BODY	01/28/2019	20.9	24.1	0.100	5d080	3332	2.170	20.600	21.700	5.34%
J	1900	BODY	02/27/2019	23.3	21.1	0.100	5d149	7488	2.080	20.700	20.800	0.48%
K	2300	BODY	02/22/2019	23.2	21.7	0.100	1073	3319	2.210	23.200	22.100	-4.74%
K	2450	BODY	02/11/2019	21.9	21.1	0.100	981	3319	2.330	24.200	23.300	-3.72%
K	2450	BODY	02/25/2019	22.6	21.0	0.100	981	3319	2.370	24.200	23.700	-2.07%
K	2600	BODY	02/11/2019	21.9	21.1	0.100	1004	3319	2.290	24.700	22.900	-7.29%
K	2600	BODY	02/25/2019	22.6	21.0	0.100	1004	3319	2.480	24.700	24.800	0.40%
L	3500	BODY	02/04/2019	20.7	20.3	0.100	1059	3914	2.260	24.200	22.600	-6.61%
L	3700	BODY	02/04/2019	20.7	20.3	0.100	1018	3914	2.190	23.100	21.900	-5.19%
L	5250	BODY	02/06/2019	21.3	20.6	0.050	1057	7308	0.990	21.100	19.800	-6.16%
L	5600	BODY	02/06/2019	21.3	20.6	0.050	1057	7308	1.070	22.300	21.400	-4.04%
L	5750	BODY	02/06/2019	21.3	20.6	0.050	1057	7308	0.975	21.200	19.500	-8.02%



**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
GSM 850 Head SAR**



MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.0	32.28	-0.09	Right	Cheek	2563B	1:8.3	0.116	1.180	0.137	A1
836.60	190	GSM 850	GSM	33.0	32.28	0.11	Right	Tilt	2563B	1:8.3	0.059	1.180	0.070	
836.60	190	GSM 850	GSM	33.0	32.28	0.05	Left	Cheek	2563B	1:8.3	0.089	1.180	0.105	
836.60	190	GSM 850	GSM	33.0	32.28	0.12	Left	Tilt	2563B	1:8.3	0.063	1.180	0.074	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

**Table 11-2
GSM 1900 Head SAR**

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GSM	30.5	29.54	0.09	Right	Cheek	2559B	1:8.3	0.053	1.247	0.066	
1880.00	661	GSM 1900	GSM	30.5	29.54	0.16	Right	Tilt	2559B	1:8.3	0.035	1.247	0.044	
1880.00	661	GSM 1900	GSM	30.5	29.54	0.07	Left	Cheek	2559B	1:8.3	0.064	1.247	0.080	A2
1880.00	661	GSM 1900	GSM	30.5	29.54	0.13	Left	Tilt	2559B	1:8.3	0.029	1.247	0.036	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

**Table 11-3
UMTS 850 Head SAR**

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	4183	UMTS 850	RMC	25.8	24.80	8	0.04	Right	Cheek	2563B	1:1	0.173	1.259	0.218	A3
836.60	4183	UMTS 850	RMC	25.8	24.80	8	0.12	Right	Tilt	2563B	1:1	0.102	1.259	0.128	
836.60	4183	UMTS 850	RMC	25.8	24.80	8	-0.14	Left	Cheek	2563B	1:1	0.130	1.259	0.164	
836.60	4183	UMTS 850	RMC	25.8	24.80	8	0.03	Left	Tilt	2563B	1:1	0.097	1.259	0.122	
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 11-4
UMTS 1750 Head SAR**



MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1732.40	1412	UMTS 1750	RMC	25.0	23.93	31	0.17	Right	Cheek	1284B	1:1	0.084	1.279	0.107	
1732.40	1412	UMTS 1750	RMC	25.0	23.93	31	0.18	Right	Tilt	1284B	1:1	0.072	1.279	0.092	
1732.40	1412	UMTS 1750	RMC	25.0	23.93	31	0.13	Left	Cheek	1284B	1:1	0.100	1.279	0.128	A4
1732.40	1412	UMTS 1750	RMC	25.0	23.93	31	0.17	Left	Tilt	1284B	1:1	0.078	1.279	0.100	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram							

**Table 11-5
UMTS 1900 Head SAR**

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	9400	UMTS 1900	RMC	25.0	24.27	17	0.13	Right	Cheek	2559B	1:1	0.081	1.183	0.096	
1880.00	9400	UMTS 1900	RMC	25.0	24.27	17	0.09	Right	Tilt	2559B	1:1	0.057	1.183	0.067	
1880.00	9400	UMTS 1900	RMC	25.0	24.27	17	0.00	Left	Cheek	2559B	1:1	0.110	1.183	0.130	A5
1880.00	9400	UMTS 1900	RMC	25.0	24.27	17	0.12	Left	Tilt	2559B	1:1	0.043	1.183	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 11-6
Cell. CDMA Head SAR**

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.52	384	Cell. CDMA	RC3 / SO55	25.8	24.48	2	-0.17	Right	Cheek	2559B	1:1	0.223	1.355	0.302	
836.52	384	Cell. CDMA	RC3 / SO55	25.8	24.48	2	0.15	Right	Tilt	2559B	1:1	0.109	1.355	0.148	
836.52	384	Cell. CDMA	RC3 / SO55	25.8	24.48	2	0.12	Left	Cheek	2559B	1:1	0.166	1.355	0.225	
836.52	384	Cell. CDMA	RC3 / SO55	25.8	24.48	2	0.13	Left	Tilt	2559B	1:1	0.110	1.355	0.149	
836.52	384	Cell. CDMA	EVDO Rev. A	25.8	24.51	2	0.08	Right	Cheek	2559B	1:1	0.224	1.346	0.302	A6
836.52	384	Cell. CDMA	EVDO Rev. A	25.8	24.51	2	0.07	Right	Tilt	2559B	1:1	0.127	1.346	0.171	
836.52	384	Cell. CDMA	EVDO Rev. A	25.8	24.51	2	-0.14	Left	Cheek	2559B	1:1	0.163	1.346	0.219	
836.52	384	Cell. CDMA	EVDO Rev. A	25.8	24.51	2	0.13	Left	Tilt	2559B	1:1	0.106	1.346	0.143	
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 11-7
PCS CDMA Head SAR**

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.19	17	0.13	Right	Cheek	2559B	1:1	0.071	1.205	0.086	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.19	17	0.13	Right	Tilt	2559B	1:1	0.047	1.205	0.057	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.19	17	-0.12	Left	Cheek	2559B	1:1	0.101	1.205	0.122	A7
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.19	17	-0.05	Left	Tilt	2559B	1:1	0.030	1.205	0.036	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	23.89	17	0.17	Right	Cheek	2559B	1:1	0.065	1.291	0.084	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	23.89	17	0.08	Right	Tilt	2559B	1:1	0.049	1.291	0.063	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	23.89	17	0.13	Left	Cheek	2559B	1:1	0.100	1.291	0.129	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	23.89	17	0.13	Left	Tilt	2559B	1:1	0.035	1.291	0.045	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram						

**Table 11-8
LTE Band 12 Head SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
707.50	23095	Md	LTE Band 12	10	25.8	24.83	76	0.07	0	Right	Cheek	QPSK	1	0	2567B	1:1	0.120	1.250	0.150	A8
707.50	23095	Md	LTE Band 12	10	24.8	23.90	76	0.09	1	Right	Cheek	QPSK	25	0	2567B	1:1	0.094	1.230	0.116	
707.50	23095	Md	LTE Band 12	10	25.8	24.83	76	0.18	0	Right	Tilt	QPSK	1	0	2567B	1:1	0.077	1.250	0.096	
707.50	23095	Md	LTE Band 12	10	24.8	23.90	76	0.07	1	Right	Tilt	QPSK	25	0	2567B	1:1	0.066	1.230	0.081	
707.50	23095	Md	LTE Band 12	10	25.8	24.83	76	-0.05	0	Left	Cheek	QPSK	1	0	2567B	1:1	0.104	1.250	0.130	
707.50	23095	Md	LTE Band 12	10	24.8	23.90	76	0.07	1	Left	Cheek	QPSK	25	0	2567B	1:1	0.083	1.230	0.102	
707.50	23095	Md	LTE Band 12	10	25.8	24.83	76	0.03	0	Left	Tilt	QPSK	1	0	2567B	1:1	0.078	1.250	0.098	
707.50	23095	Md	LTE Band 12	10	24.8	23.90	76	-0.01	1	Left	Tilt	QPSK	25	0	2567B	1:1	0.060	1.230	0.074	
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 13 Head SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
782.00	23230	Mid	LTE Band 13	10	25.8	25.11	1	0.09	0	Right	Cheek	QPSK	1	0	2567B	1:1	0.151	1.172	0.177	A9
782.00	23230	Mid	LTE Band 13	10	24.8	24.18	1	-0.09	1	Right	Cheek	QPSK	25	0	2567B	1:1	0.145	1.153	0.167	
782.00	23230	Mid	LTE Band 13	10	25.8	25.11	1	0.05	0	Right	Tilt	QPSK	1	0	2567B	1:1	0.076	1.172	0.089	
782.00	23230	Mid	LTE Band 13	10	24.8	24.18	1	0.09	1	Right	Tilt	QPSK	25	0	2567B	1:1	0.072	1.153	0.083	
782.00	23230	Mid	LTE Band 13	10	25.8	25.11	1	-0.12	0	Left	Cheek	QPSK	1	0	2567B	1:1	0.111	1.172	0.130	
782.00	23230	Mid	LTE Band 13	10	24.8	24.18	1	0.08	1	Left	Cheek	QPSK	25	0	2567B	1:1	0.109	1.153	0.126	
782.00	23230	Mid	LTE Band 13	10	25.8	25.11	1	0.02	0	Left	Tilt	QPSK	1	0	2567B	1:1	0.075	1.172	0.088	
782.00	23230	Mid	LTE Band 13	10	24.8	24.18	1	0.04	1	Left	Tilt	QPSK	25	0	2567B	1:1	0.075	1.153	0.086	
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 14 Head SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
793.00	23330	Mid	LTE Band 14	10	25.8	24.83	1	0.01	0	Right	Cheek	QPSK	1	0	2567B	1:1	0.135	1.250	0.169	A10
793.00	23330	Mid	LTE Band 14	10	24.8	23.91	1	0.06	1	Right	Cheek	QPSK	25	0	2567B	1:1	0.113	1.227	0.139	
793.00	23330	Mid	LTE Band 14	10	25.8	24.83	1	0.01	0	Right	Tilt	QPSK	1	0	2567B	1:1	0.060	1.250	0.075	
793.00	23330	Mid	LTE Band 14	10	24.8	23.91	1	-0.04	1	Right	Tilt	QPSK	25	0	2567B	1:1	0.052	1.227	0.064	
793.00	23330	Mid	LTE Band 14	10	25.8	24.83	1	0.10	0	Left	Cheek	QPSK	1	0	2567B	1:1	0.114	1.250	0.143	
793.00	23330	Mid	LTE Band 14	10	24.8	23.91	1	0.01	1	Left	Cheek	QPSK	25	0	2567B	1:1	0.098	1.227	0.120	
793.00	23330	Mid	LTE Band 14	10	25.8	24.83	1	-0.17	0	Left	Tilt	QPSK	1	0	2567B	1:1	0.070	1.250	0.088	
793.00	23330	Mid	LTE Band 14	10	24.8	23.91	1	0.12	1	Left	Tilt	QPSK	25	0	2567B	1:1	0.065	1.227	0.080	
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 5 (Cell) Head SAR**

MEASUREMENT RESULTS																						
1 CC Uplink 2 CC Uplink	Component Carrier	FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
		MHz	Ch.															(W/kg)		(W/kg)		
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.8	24.94	5	-0.14	0	Right	Cheek	QPSK	1	0	2531B	1:1	0.145	1.219	0.177	A11
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.8	23.98	5	0.04	1	Right	Cheek	QPSK	25	0	2531B	1:1	0.114	1.208	0.138	
2 CC Uplink	PCC	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.8	24.89	5	-0.01	0	Right	Cheek	QPSK	1	0	2531B	1:1	0.144	1.233	0.178	
	SCC	829.30	20453	Mid	LTE Band 5 (Cell)	5																
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.8	24.94	5	-0.07	0	Right	Tilt	QPSK	1	0	2531B	1:1	0.087	1.219	0.106	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.8	23.98	5	0.12	1	Right	Tilt	QPSK	25	0	2531B	1:1	0.068	1.208	0.082	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.8	24.94	5	-0.17	0	Left	Cheek	QPSK	1	0	2531B	1:1	0.110	1.219	0.134	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.8	23.98	5	0.09	1	Left	Cheek	QPSK	25	0	2531B	1:1	0.084	1.208	0.101	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.8	24.94	5	0.01	0	Left	Tilt	QPSK	1	0	2531B	1:1	0.091	1.219	0.111	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.8	23.98	5	0.04	1	Left	Tilt	QPSK	25	0	2531B	1:1	0.077	1.208	0.093	
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 26 (Cell) Head SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.8	25.00	5	0.06	0	Right	Cheek	QPSK	1	0	2567B	1:1	0.161	1.202	0.194	A12
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.8	24.16	5	0.06	1	Right	Cheek	QPSK	36	0	2567B	1:1	0.131	1.159	0.152	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.8	25.00	5	0.03	0	Right	Tilt	QPSK	1	0	2567B	1:1	0.097	1.202	0.117	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.8	24.16	5	0.05	1	Right	Tilt	QPSK	36	0	2567B	1:1	0.079	1.159	0.092	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.8	25.00	5	-0.09	0	Left	Cheek	QPSK	1	0	2567B	1:1	0.123	1.202	0.148	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.8	24.16	5	0.12	1	Left	Cheek	QPSK	36	0	2567B	1:1	0.093	1.159	0.108	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.8	25.00	5	0.04	0	Left	Tilt	QPSK	1	0	2567B	1:1	0.098	1.202	0.118	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.8	24.16	5	0.10	1	Left	Tilt	QPSK	36	0	2567B	1:1	0.082	1.159	0.095	
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 66 (AWS) Head SAR**

MEASUREMENT RESULTS																						
1 CC Uplink 2 CC Uplink	Component Carrier	FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
		MHz	Ch.															(W/kg)		(W/kg)		
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.51	30	0.13	0	Right	Cheek	QPSK	1	99	2574B	1:1	0.093	1.119	0.104	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.57	30	0.04	1	Right	Cheek	QPSK	50	0	2574B	1:1	0.081	1.104	0.089	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.51	30	0.16	0	Right	Tilt	QPSK	1	99	2574B	1:1	0.063	1.119	0.070	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.57	30	0.18	1	Right	Tilt	QPSK	50	0	2574B	1:1	0.049	1.104	0.054	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.51	30	0.13	0	Left	Cheek	QPSK	1	99	2574B	1:1	0.115	1.119	0.129	
1 CC Uplink	N/A	1715.00	132022	Low	LTE Band 66 (AWS)	10	25.0	24.36	30	0.06	0	Left	Cheek	QPSK	1	49	2574B	1:1	0.131	1.159	0.152	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.57	30	0.05	1	Left	Cheek	QPSK	50	0	2574B	1:1	0.094	1.104	0.104	
CA_66C 2 CC Uplink	PCC	1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.98	30	0.21	0	Left	Cheek	QPSK	1	99	2574B	1:1	0.135	1.005	0.136	
	SCC	1739.80	132270	Low	LTE Band 66 (AWS)										1	0						
CA_66B 2 CC Uplink	PCC	1715.00	132022	Low	LTE Band 66 (AWS)	10	25.0	24.82	30	0.05	0	Left	Cheek	QPSK	1	49	2574B	1:1	0.142	1.042	0.148	A13
	SCC	1724.90	132121	Low	LTE Band 66 (AWS)	10									1	0						
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	25.0	24.51	30	0.19	0	Left	Tilt	QPSK	1	99	2574B	1:1	0.057	1.119	0.064	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	24.0	23.57	30	0.20	1	Left	Tilt	QPSK	50	0	2574B	1:1	0.044	1.104	0.049	
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 2 (PCS) Head SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
1860.00	18700	Low	LTE Band 2 (PCS)	20	25.0	23.81	17	-0.14	0	Right	Cheek	QPSK	1	50	2574B	1:1	0.072	1.315	0.095	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	22.98	17	-0.03	1	Right	Cheek	QPSK	50	25	2574B	1:1	0.061	1.265	0.077	
1860.00	18700	Low	LTE Band 2 (PCS)	20	25.0	23.81	17	0.21	0	Right	Tilt	QPSK	1	50	2574B	1:1	0.050	1.315	0.066	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	22.98	17	0.04	1	Right	Tilt	QPSK	50	25	2574B	1:1	0.040	1.265	0.051	
1860.00	18700	Low	LTE Band 2 (PCS)	20	25.0	23.81	17	0.07	0	Left	Cheek	QPSK	1	50	2574B	1:1	0.119	1.315	0.156	A14
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	22.98	17	0.03	1	Left	Cheek	QPSK	50	25	2574B	1:1	0.091	1.265	0.115	
1860.00	18700	Low	LTE Band 2 (PCS)	20	25.0	23.81	17	0.14	0	Left	Tilt	QPSK	1	50	2574B	1:1	0.035	1.315	0.046	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	22.98	17	0.13	1	Left	Tilt	QPSK	50	25	2574B	1:1	0.028	1.265	0.035	
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 30 Antenna A 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)		
2310.00	27710	Mid	LTE Band 30	10	24.5	23.92	0.20	0	Right	Cheek	Ant A	QPSK	1	0	1283B	1:1	0.050	1.143	0.057	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.97	0.04	1	Right	Cheek	Ant A	QPSK	25	0	1283B	1:1	0.044	1.130	0.050	
2310.00	27710	Mid	LTE Band 30	10	24.5	23.92	0.15	0	Right	Tilt	Ant A	QPSK	1	0	1283B	1:1	0.020	1.143	0.023	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.97	0.19	1	Right	Tilt	Ant A	QPSK	25	0	1283B	1:1	0.016	1.130	0.018	
2310.00	27710	Mid	LTE Band 30	10	24.5	23.92	-0.20	0	Left	Cheek	Ant A	QPSK	1	0	1283B	1:1	0.024	1.143	0.027	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.97	0.17	1	Left	Cheek	Ant A	QPSK	25	0	1283B	1:1	0.018	1.130	0.020	
2310.00	27710	Mid	LTE Band 30	10	24.5	23.92	0.13	0	Left	Tilt	Ant A	QPSK	1	0	1283B	1:1	0.022	1.143	0.025	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.97	0.16	1	Left	Tilt	Ant A	QPSK	25	0	1283B	1:1	0.017	1.130	0.019	
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 30 Antenna B 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)		
2310.00	27710	Mid	LTE Band 30	10	24.5	23.75	0.15	0	Right	Cheek	Ant B	QPSK	1	49	1283B	1:1	0.092	1.189	0.109	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.96	0.15	1	Right	Cheek	Ant B	QPSK	25	0	1283B	1:1	0.075	1.132	0.085	
2310.00	27710	Mid	LTE Band 30	10	24.5	23.75	0.03	0	Right	Tilt	Ant B	QPSK	1	49	1283B	1:1	0.094	1.189	0.112	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.96	0.19	1	Right	Tilt	Ant B	QPSK	25	0	1283B	1:1	0.062	1.132	0.070	
2310.00	27710	Mid	LTE Band 30	10	24.5	23.75	0.12	0	Left	Cheek	Ant B	QPSK	1	49	1283B	1:1	0.125	1.189	0.149	A15
2310.00	27710	Mid	LTE Band 30	10	23.5	22.96	0.07	1	Left	Cheek	Ant B	QPSK	25	0	1283B	1:1	0.102	1.132	0.115	
2310.00	27710	Mid	LTE Band 30	10	24.5	23.75	0.11	0	Left	Tilt	Ant B	QPSK	1	49	1283B	1:1	0.060	1.189	0.071	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.96	-0.06	1	Left	Tilt	Ant B	QPSK	25	0	1283B	1:1	0.051	1.132	0.058	
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 7 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)		
2535.00	21100	Mid	LTE Band 7	20	23.0	22.49	0.16	0	Right	Cheek	QPSK	1	50	2573B	1:1	0.074	1.125	0.083	A16
2535.00	21100	Mid	LTE Band 7	20	22.0	21.74	0.05	1	Right	Cheek	QPSK	50	0	2573B	1:1	0.061	1.062	0.065	
2535.00	21100	Mid	LTE Band 7	20	23.0	22.49	-0.15	0	Right	Tilt	QPSK	1	50	2573B	1:1	0.073	1.125	0.082	
2535.00	21100	Mid	LTE Band 7	20	22.0	21.74	0.18	1	Right	Tilt	QPSK	50	0	2573B	1:1	0.058	1.062	0.062	
2535.00	21100	Mid	LTE Band 7	20	23.0	22.49	0.13	0	Left	Cheek	QPSK	1	50	2573B	1:1	0.069	1.125	0.078	
2535.00	21100	Mid	LTE Band 7	20	22.0	21.74	0.13	1	Left	Cheek	QPSK	50	0	2573B	1:1	0.057	1.062	0.061	
2535.00	21100	Mid	LTE Band 7	20	23.0	22.49	0.17	0	Left	Tilt	QPSK	1	50	2573B	1:1	0.043	1.125	0.048	
2535.00	21100	Mid	LTE Band 7	20	22.0	21.74	0.14	1	Left	Tilt	QPSK	50	0	2573B	1:1	0.033	1.062	0.035	
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 11-18
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)		
3646.70	56207	Mid-High	LTE Band 48	20	24.0	23.12	0.08	0	Right	Cheek	QPSK	1	99	2573B	1:1.58	0.016	1.225	0.020	
3646.70	56207	Mid-High	LTE Band 48	20	23.0	22.31	0.14	1	Right	Cheek	QPSK	50	50	2573B	1:1.58	0.011	1.172	0.013	
3646.70	56207	Mid-High	LTE Band 48	20	24.0	23.12	0.14	0	Right	Tilt	QPSK	1	99	2573B	1:1.58	0.047	1.225	0.058	
3646.70	56207	Mid-High	LTE Band 48	20	23.0	22.31	0.15	1	Right	Tilt	QPSK	50	50	2573B	1:1.58	0.036	1.172	0.042	
3646.70	56207	Mid-High	LTE Band 48	20	24.0	23.12	0.16	0	Left	Cheek	QPSK	1	99	2573B	1:1.58	0.050	1.225	0.061	A17
3646.70	56207	Mid-High	LTE Band 48	20	23.0	22.31	0.15	1	Left	Cheek	QPSK	50	50	2573B	1:1.58	0.038	1.172	0.045	
3646.70	56207	Mid-High	LTE Band 48	20	24.0	23.12	0.14	0	Left	Tilt	QPSK	1	99	2573B	1:1.58	0.026	1.225	0.032	
3646.70	56207	Mid-High	LTE Band 48	20	23.0	22.31	0.15	1	Left	Tilt	QPSK	50	50	2573B	1:1.58	0.021	1.172	0.025	
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 41 Head SAR**

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
2549.50	40185	Low-Mid	LTE Band 41	20	25.0	24.78	0.14	0	Right	Cheek	QPSK	1	0	1283B	1:1.58	0.066	1.052	0.069	A18
2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.74	0.20	1	Right	Cheek	QPSK	50	0	1283B	1:1.58	0.057	1.062	0.061	
2549.50	40185	Low-Mid	LTE Band 41	20	25.0	24.78	0.19	0	Right	Tilt	QPSK	1	0	1283B	1:1.58	0.066	1.052	0.069	
2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.74	-0.07	1	Right	Tilt	QPSK	50	0	1283B	1:1.58	0.053	1.062	0.056	
2549.50	40185	Low-Mid	LTE Band 41	20	25.0	24.78	0.17	0	Left	Cheek	QPSK	1	0	1283B	1:1.58	0.061	1.052	0.064	
2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.74	0.21	1	Left	Cheek	QPSK	50	0	1283B	1:1.58	0.053	1.062	0.056	
2549.50	40185	Low-Mid	LTE Band 41	20	25.0	24.78	0.14	0	Left	Tilt	QPSK	1	0	1283B	1:1.58	0.042	1.052	0.044	
2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.74	0.19	1	Left	Tilt	QPSK	50	0	1283B	1:1.58	0.030	1.062	0.032	
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 11-20
DTS Head SAR**

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2437	6	802.11b	DSSS	22	17.0	16.92	0.17	Right	Cheek	1	2555B	1	100.0	0.746	0.448	1.019	1.000	0.457	A19
2437	6	802.11b	DSSS	22	17.0	16.92	0.11	Right	Tilt	1	2555B	1	100.0	0.668	0.430	1.019	1.000	0.438	
2437	6	802.11b	DSSS	22	17.0	16.92	0.01	Left	Cheek	1	2555B	1	100.0	0.132	-	1.019	1.000	-	
2437	6	802.11b	DSSS	22	17.0	16.92	0.12	Left	Tilt	1	2555B	1	100.0	0.128	-	1.019	1.000	-	
2437	6	802.11b	DSSS	22	17.0	16.80	0.19	Right	Cheek	2	2555B	1	100.0	0.057	0.026	1.047	1.000	0.027	
2437	6	802.11b	DSSS	22	17.0	16.80	0.16	Right	Tilt	2	2555B	1	100.0	0.030	-	1.047	1.000	-	
2437	6	802.11b	DSSS	22	17.0	16.80	0.13	Left	Cheek	2	2555B	1	100.0	0.023	-	1.047	1.000	-	
2437	6	802.11b	DSSS	22	17.0	16.80	0.18	Left	Tilt	2	2555B	1	100.0	0.013	-	1.047	1.000	-	
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 11-21
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	13.94	0.19	Right	Cheek	1	2555B	13.5	98.5	0.192	-	1.014	1.015	-	
5310	62	802.11n	OFDM	40	14.0	13.94	0.16	Right	Tilt	1	2555B	13.5	98.5	0.210	0.103	1.014	1.015	0.106	
5310	62	802.11n	OFDM	40	14.0	13.94	-0.19	Left	Cheek	1	2555B	13.5	98.5	0.098	-	1.014	1.015	-	
5310	62	802.11n	OFDM	40	14.0	13.94	-0.21	Left	Tilt	1	2555B	13.5	98.5	0.119	-	1.014	1.015	-	
5310	62	802.11n	OFDM	40	14.0	13.89	0.19	Right	Cheek	2	2555B	13.5	98.5	0.108	-	1.026	1.015	-	
5310	62	802.11n	OFDM	40	14.0	13.89	0.00	Right	Tilt	2	2555B	13.5	98.5	0.126	0.041	1.026	1.015	0.043	
5310	62	802.11n	OFDM	40	14.0	13.89	-0.05	Left	Cheek	2	2555B	13.5	98.5	0.032	-	1.026	1.015	-	
5310	62	802.11n	OFDM	40	14.0	13.89	0.04	Left	Tilt	2	2555B	13.5	98.5	0.036	-	1.026	1.015	-	
5690	138	802.11ac	OFDM	80	14.0	13.85	0.19	Right	Cheek	1	2555B	29.3	95.2	0.299	0.145	1.035	1.050	0.158	
5690	138	802.11ac	OFDM	80	14.0	13.85	-0.14	Right	Tilt	1	2555B	29.3	95.2	0.238	-	1.035	1.050	-	
5690	138	802.11ac	OFDM	80	14.0	13.85	0.00	Left	Cheek	1	2555B	29.3	95.2	0.158	-	1.035	1.050	-	
5690	138	802.11ac	OFDM	80	14.0	13.85	0.17	Left	Tilt	1	2555B	29.3	95.2	0.171	-	1.035	1.050	-	
5610	122	802.11ac	OFDM	80	14.0	13.95	0.11	Right	Cheek	2	2555B	29.3	97.1	0.119	-	1.012	1.030	-	
5610	122	802.11ac	OFDM	80	14.0	13.95	0.07	Right	Tilt	2	2555B	29.3	97.1	0.144	0.055	1.012	1.030	0.057	
5610	122	802.11ac	OFDM	80	14.0	13.95	-0.21	Left	Cheek	2	2555B	29.3	97.1	0.064	-	1.012	1.030	-	
5610	122	802.11ac	OFDM	80	14.0	13.95	0.19	Left	Tilt	2	2555B	29.3	97.1	0.073	-	1.012	1.030	-	
5775	155	802.11ac	OFDM	80	14.0	13.50	-0.12	Right	Cheek	1	2555B	29.3	95.2	0.501	-	1.122	1.050	-	
5775	155	802.11ac	OFDM	80	14.0	13.50	0.15	Right	Tilt	1	2555B	29.3	95.2	0.647	0.275	1.122	1.050	0.324	A20
5775	155	802.11ac	OFDM	80	14.0	13.50	-0.16	Left	Cheek	1	2555B	29.3	95.2	0.201	-	1.122	1.050	-	
5775	155	802.11ac	OFDM	80	14.0	13.50	-0.18	Left	Tilt	1	2555B	29.3	95.2	0.183	-	1.122	1.050	-	
5775	155	802.11ac	OFDM	80	14.0	13.65	0.16	Right	Cheek	2	2555B	29.3	97.1	0.085	0.028	1.084	1.030	0.031	
5775	155	802.11ac	OFDM	80	14.0	13.65	0.18	Right	Tilt	2	2555B	29.3	97.1	0.081	-	1.084	1.030	-	
5775	155	802.11ac	OFDM	80	14.0	13.65	-0.16	Left	Cheek	2	2555B	29.3	97.1	0.053	-	1.084	1.030	-	
5775	155	802.11ac	OFDM	80	14.0	13.65	0.17	Left	Tilt	2	2555B	29.3	97.1	0.057	-	1.084	1.030	-	
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 11-22
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)	
2480.00	78	Bluetooth	FHSS	14.0	13.75	0.12	Right	Cheek	2558B	1	77.1	0.146	1.059	1.297	0.201	
2480.00	78	Bluetooth	FHSS	14.0	13.75	-0.17	Right	Tilt	2558B	1	77.1	0.185	1.059	1.297	0.254	A21
2480.00	78	Bluetooth	FHSS	14.0	13.75	0.14	Left	Cheek	2558B	1	77.1	0.048	1.059	1.297	0.066	
2480.00	78	Bluetooth	FHSS	14.0	13.75	0.09	Left	Tilt	2558B	1	77.1	0.044	1.059	1.297	0.060	
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 11-23
GSM/UMTS/CDMA Body-Worn SAR Data**

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	Spacing	Device Serial Number	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.0	32.28	N/A	0.03	15 mm	2563B	1:8.3	back	0.133	1.180	0.157	A22
1880.00	661	GSM 1900	GSM	30.5	29.54	N/A	-0.07	15 mm	2559B	1:8.3	back	0.321	1.247	0.400	A24
836.60	4183	UMTS 850	RMC	25.8	24.80	34	0.03	15 mm	2563B	1:1	back	0.222	1.259	0.279	A26
1712.40	1312	UMTS 1750	RMC	25.0	23.92	27	-0.03	15 mm	2559B	1:1	back	0.783	1.282	1.004	
1732.40	1412	UMTS 1750	RMC	25.0	23.93	27	-0.02	15 mm	2559B	1:1	back	0.783	1.279	1.001	
1752.60	1513	UMTS 1750	RMC	25.0	23.71	27	-0.01	15 mm	2559B	1:1	back	0.826	1.346	1.112	A28
1852.40	9262	UMTS 1900	RMC	25.0	24.20	17	-0.07	15 mm	2559B	1:1	back	0.563	1.202	0.677	
1880.00	9400	UMTS 1900	RMC	25.0	24.27	17	0.03	15 mm	2559B	1:1	back	0.675	1.183	0.799	
1907.60	9538	UMTS 1900	RMC	25.0	24.14	17	-0.02	15 mm	2559B	1:1	back	0.715	1.219	0.872	A30
836.52	384	Cell. CDMA	TDSO / SO32	25.8	24.48	1	0.00	15 mm	2563B	1:1	back	0.222	1.355	0.301	A32
1851.25	25	PCS CDMA	TDSO / SO32	25.0	24.04	17	-0.02	15 mm	2559B	1:1	back	0.674	1.247	0.840	A34
1880.00	600	PCS CDMA	TDSO / SO32	25.0	24.12	17	-0.05	15 mm	2559B	1:1	back	0.532	1.225	0.652	
1908.75	1175	PCS CDMA	TDSO / SO32	25.0	23.89	17	0.01	15 mm	2559B	1:1	back	0.533	1.291	0.688	
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 11-26
DTS MIMO Body-Worn 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)	
2462	11	802.11n	OFDM	20	18.0	17.80	18.0	17.60	-0.03	15 mm	MIMO	2555B	13	back	99.3	0.149	0.121	1.096	1.007	0.134	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram										

For channel 11 to achieve the 21 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18 dBm.

**Table 11-27
DTS MIMO Body-Worn 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)	
2462	11	802.11n	OFDM	20	17.0	16.94	17.0	16.82	0.16	15 mm	MIMO	2555B	13	back	99.3	0.120	0.088	1.042	1.007	0.092	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram										

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



**Table 11-28
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)	
5300	60	802.11a	OFDM	20	18.0	17.68	0.19	15 mm	1	2555B	6	back	99.3	0.270	0.079	1.076	1.007	0.086	
5300	60	802.11a	OFDM	20	18.0	17.61	0.00	15 mm	2	2555B	6	back	99.7	0.534	0.269	1.094	1.003	0.295	
5600	120	802.11a	OFDM	20	18.0	17.90	-0.06	15 mm	1	2555B	6	back	99.3	0.353	0.176	1.023	1.007	0.181	
5500	100	802.11a	OFDM	20	18.0	17.73	-0.17	15 mm	2	2555B	6	back	99.7	0.618	0.293	1.064	1.003	0.313	
5825	165	802.11a	OFDM	20	18.0	17.68	-0.05	15 mm	1	2555B	6	back	99.3	0.331	0.141	1.076	1.007	0.153	
5785	157	802.11a	OFDM	20	18.0	17.89	0.02	15 mm	2	2555B	6	back	99.7	0.597	0.271	1.026	1.003	0.279	
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
NII MIMO Body-Worn SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
5280	56	802.11n	OFDM	20	18.0	17.59	18.0	17.83	-0.20	15 mm	MIMO	9631B	13	back	99.3	0.860	0.282	1.099	1.007	0.312	
5500	100	802.11n	OFDM	20	18.0	17.83	18.0	17.88	-0.01	15 mm	MIMO	9631B	13	back	99.3	0.792	0.340	1.040	1.007	0.356	A60
5745	149	802.11n	OFDM	20	18.0	17.94	18.0	17.62	0.19	15 mm	MIMO	9631B	13	back	99.3	0.729	0.329	1.091	1.007	0.361	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram										

For channels 56, 100, and 149, to achieve the 21 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18 dBm.

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**Table 11-30
NII MIMO Body-Worn 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)	(W/kg)		
5270	54	802.11n	OFDM	40	14.0	13.74	14.0	13.88	0.07	15 mm	MIMO	2555B	27	back	98.7	0.256	0.121	1.062	1.013	0.130	
5610	122	802.11ac	OFDM	80	14.0	13.72	14.0	13.95	-0.07	15 mm	MIMO	2555B	58.5	back	94.4	0.338	0.156	1.067	1.059	0.176	
5775	155	802.11ac	OFDM	80	14.0	13.50	14.0	13.65	-0.18	15 mm	MIMO	2555B	58.5	back	94.4	0.349	0.149	1.122	1.059	0.177	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT										Body											
Spatial Peak										1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population										averaged over 1 gram											

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 11-31
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)	(W/kg)				
2480	78	Bluetooth	FHSS	14.0	13.75	-0.11	15 mm	2555B	1	back	77.1	0.025	1.059	1.297	0.034	A62		
ANSI / IEEE C95.1 1992 - SAFETY LIMIT										Body								
Spatial Peak										1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population										averaged over 1 gram								



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**Table 11-33
LTE Band 12 Hotspot SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
707.50	23095	Md	LTE Band 12	10	25.8	24.83	33	-0.03	0	2567B	QPSK	1	0	10 mm	back	1:1	0.358	1.250	0.448	A37
707.50	23095	Md	LTE Band 12	10	24.8	23.90	33	0.01	1	2567B	QPSK	25	0	10 mm	back	1:1	0.289	1.230	0.355	
707.50	23095	Md	LTE Band 12	10	25.8	24.83	33	0.03	0	2567B	QPSK	1	0	10 mm	front	1:1	0.230	1.250	0.288	
707.50	23095	Md	LTE Band 12	10	24.8	23.90	33	0.04	1	2567B	QPSK	25	0	10 mm	front	1:1	0.187	1.230	0.230	
707.50	23095	Md	LTE Band 12	10	25.8	24.83	33	-0.06	0	2567B	QPSK	1	0	10 mm	bottom	1:1	0.172	1.250	0.215	
707.50	23095	Md	LTE Band 12	10	24.8	23.90	33	-0.01	1	2567B	QPSK	25	0	10 mm	bottom	1:1	0.140	1.230	0.172	
707.50	23095	Md	LTE Band 12	10	25.8	24.83	33	0.02	0	2567B	QPSK	1	0	10 mm	right	1:1	0.343	1.250	0.429	
707.50	23095	Md	LTE Band 12	10	24.8	23.90	33	-0.05	1	2567B	QPSK	25	0	10 mm	right	1:1	0.267	1.230	0.328	
707.50	23095	Md	LTE Band 12	10	25.8	24.83	33	0.03	0	2567B	QPSK	1	0	10 mm	left	1:1	0.227	1.250	0.284	
707.50	23095	Md	LTE Band 12	10	24.8	23.90	33	-0.01	1	2567B	QPSK	25	0	10 mm	left	1:1	0.172	1.230	0.212	
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 13 Hotspot SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
782.00	23230	Md	LTE Band 13	10	25.8	25.11	1	0.00	0	2567B	QPSK	1	0	10 mm	back	1:1	0.386	1.172	0.452	A39
782.00	23230	Md	LTE Band 13	10	24.8	24.18	1	0.01	1	2567B	QPSK	25	0	10 mm	back	1:1	0.311	1.153	0.359	
782.00	23230	Md	LTE Band 13	10	25.8	25.11	1	-0.02	0	2567B	QPSK	1	0	10 mm	front	1:1	0.333	1.172	0.390	
782.00	23230	Md	LTE Band 13	10	24.8	24.18	1	-0.01	1	2567B	QPSK	25	0	10 mm	front	1:1	0.270	1.153	0.311	
782.00	23230	Md	LTE Band 13	10	25.8	25.11	1	-0.04	0	2567B	QPSK	1	0	10 mm	bottom	1:1	0.301	1.172	0.353	
782.00	23230	Md	LTE Band 13	10	24.8	24.18	1	-0.10	1	2567B	QPSK	25	0	10 mm	bottom	1:1	0.235	1.153	0.271	
782.00	23230	Md	LTE Band 13	10	25.8	25.11	1	-0.10	0	2567B	QPSK	1	0	10 mm	right	1:1	0.224	1.172	0.263	
782.00	23230	Md	LTE Band 13	10	24.8	24.18	1	-0.04	1	2567B	QPSK	25	0	10 mm	right	1:1	0.192	1.153	0.221	
782.00	23230	Md	LTE Band 13	10	25.8	25.11	1	0.12	0	2567B	QPSK	1	0	10 mm	left	1:1	0.090	1.172	0.105	
782.00	23230	Md	LTE Band 13	10	24.8	24.18	1	0.02	1	2567B	QPSK	25	0	10 mm	left	1:1	0.077	1.153	0.089	
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 14 Hotspot SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
793.00	23330	Mid	LTE Band 14	10	25.8	24.83	1	-0.03	0	2567B	QPSK	1	0	10 mm	back	1:1	0.433	1.250	0.541	A41
793.00	23330	Mid	LTE Band 14	10	24.8	23.91	1	-0.03	1	2567B	QPSK	25	0	10 mm	back	1:1	0.381	1.227	0.467	
793.00	23330	Mid	LTE Band 14	10	25.8	24.83	1	-0.03	0	2567B	QPSK	1	0	10 mm	front	1:1	0.361	1.250	0.451	
793.00	23330	Mid	LTE Band 14	10	24.8	23.91	1	-0.06	1	2567B	QPSK	25	0	10 mm	front	1:1	0.331	1.227	0.406	
793.00	23330	Mid	LTE Band 14	10	25.8	24.83	1	-0.05	0	2567B	QPSK	1	0	10 mm	bottom	1:1	0.276	1.250	0.345	
793.00	23330	Mid	LTE Band 14	10	24.8	23.91	1	0.01	1	2567B	QPSK	25	0	10 mm	bottom	1:1	0.255	1.227	0.313	
793.00	23330	Mid	LTE Band 14	10	25.8	24.83	1	-0.06	0	2567B	QPSK	1	0	10 mm	right	1:1	0.255	1.250	0.319	
793.00	23330	Mid	LTE Band 14	10	24.8	23.91	1	-0.05	1	2567B	QPSK	25	0	10 mm	right	1:1	0.217	1.227	0.266	
793.00	23330	Mid	LTE Band 14	10	25.8	24.83	1	0.15	0	2567B	QPSK	1	0	10 mm	left	1:1	0.089	1.250	0.111	
793.00	23330	Mid	LTE Band 14	10	24.8	23.91	1	0.01	1	2567B	QPSK	25	0	10 mm	left	1:1	0.072	1.227	0.088	
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 5 (Cell) Hotspot SAR**

MEASUREMENT RESULTS																						
1 CC Uplink 2 CC Uplink	Component Carrier	FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
		MHz	Ch.															(W/kg)		(W/kg)		
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.8	24.94	1	-0.04	0	2567B	QPSK	1	0	10 mm	back	1:1	0.521	1.219	0.635	A43
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.8	23.98	1	0.03	1	2567B	QPSK	25	0	10 mm	back	1:1	0.436	1.208	0.527	
2 CC Uplink	PCC	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.8	24.89	1	0.09	0	2567B	QPSK	1	0	10 mm	back	1:1	0.502	1.233	0.619	
	SCC	829.30	20453	Mid	LTE Band 5 (Cell)	5								1	24							
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.8	24.94	1	0.00	0	2567B	QPSK	1	0	10 mm	front	1:1	0.420	1.219	0.512	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.8	23.98	1	0.01	1	2567B	QPSK	25	0	10 mm	front	1:1	0.355	1.208	0.429	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.8	24.94	1	-0.09	0	2567B	QPSK	1	0	10 mm	bottom	1:1	0.328	1.219	0.400	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.8	23.98	1	0.03	1	2567B	QPSK	25	0	10 mm	bottom	1:1	0.265	1.208	0.320	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.8	24.94	1	0.08	0	2567B	QPSK	1	0	10 mm	right	1:1	0.159	1.219	0.194	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.8	23.98	1	0.01	1	2567B	QPSK	25	0	10 mm	right	1:1	0.138	1.208	0.167	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	25.8	24.94	1	0.05	0	2567B	QPSK	1	0	10 mm	left	1:1	0.093	1.219	0.113	
1 CC Uplink	N/A	836.50	20525	Mid	LTE Band 5 (Cell)	10	24.8	23.98	1	0.01	1	2567B	QPSK	25	0	10 mm	left	1:1	0.071	1.208	0.086	
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]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.8	25.00	1	-0.06	0	1292B	QPSK	1	0	10 mm	back	1:1	0.423	1.202	0.508	A45
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.8	24.16	1	0.02	1	1292B	QPSK	36	0	10 mm	back	1:1	0.340	1.159	0.394	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.8	25.00	1	-0.04	0	1292B	QPSK	1	0	10 mm	front	1:1	0.391	1.202	0.470	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.8	24.16	1	-0.01	1	1292B	QPSK	36	0	10 mm	front	1:1	0.313	1.159	0.363	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.8	25.00	1	0.12	0	1292B	QPSK	1	0	10 mm	bottom	1:1	0.296	1.202	0.356	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.8	24.16	1	0.09	1	1292B	QPSK	36	0	10 mm	bottom	1:1	0.242	1.159	0.280	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.8	25.00	1	0.06	0	1292B	QPSK	1	0	10 mm	right	1:1	0.199	1.202	0.239	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.8	24.16	1	0.03	1	1292B	QPSK	36	0	10 mm	right	1:1	0.145	1.159	0.168	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.8	25.00	1	0.10	0	1292B	QPSK	1	0	10 mm	left	1:1	0.121	1.202	0.145	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.8	24.16	1	0.02	1	1292B	QPSK	36	0	10 mm	left	1:1	0.088	1.159	0.102	
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 66 (AWS) Hotspot SAR**

MEASUREMENT RESULTS																						
1 CC Uplink / 2 CC Uplink	Component Carrier	FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
		MHz	Ch.															(W/kg)		(W/kg)		
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	21.0	20.49	29	0.05	0	2559B	QPSK	1	0	10 mm	back	1:1	0.579	1.125	0.651	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	21.0	20.50	29	-0.03	0	2559B	QPSK	50	0	10 mm	back	1:1	0.595	1.122	0.668	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	21.0	20.49	29	0.05	0	2559B	QPSK	1	0	10 mm	front	1:1	0.459	1.125	0.516	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	21.0	20.50	29	0.15	0	2559B	QPSK	50	0	10 mm	front	1:1	0.823	1.122	0.699	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	21.0	20.49	29	-0.03	0	2559B	QPSK	1	0	10 mm	bottom	1:1	0.968	1.125	1.089	
1 CC Uplink	N/A	1745.00	132322	Mid	LTE Band 66 (AWS)	20	21.0	20.28	29	0.11	0	2559B	QPSK	1	0	10 mm	bottom	1:1	0.956	1.180	1.128	
1 CC Uplink	N/A	1770.00	132572	High	LTE Band 66 (AWS)	20	21.0	20.20	29	0.02	0	2559B	QPSK	1	0	10 mm	bottom	1:1	0.906	1.202	1.089	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	21.0	20.50	29	0.01	0	2559B	QPSK	50	0	10 mm	bottom	1:1	1.010	1.122	1.133	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	21.0	20.44	29	0.03	0	2559B	QPSK	50	50	10 mm	bottom	1:1	0.989	1.138	1.125	
1 CC Uplink	N/A	1715.00	132022	Low	LTE Band 66 (AWS)	10	21.0	20.53	29	0.05	0	2559B	QPSK	25	25	10 mm	bottom	1:1	0.967	1.114	1.077	
1 CC Uplink	N/A	1745.00	132322	Mid	LTE Band 66 (AWS)	20	21.0	20.32	29	0.03	0	2559B	QPSK	50	0	10 mm	bottom	1:1	0.955	1.169	1.116	
1 CC Uplink	N/A	1770.00	132572	High	LTE Band 66 (AWS)	20	21.0	20.33	29	0.01	0	2559B	QPSK	50	25	10 mm	bottom	1:1	0.890	1.167	1.039	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	21.0	20.47	29	0.01	0	2559B	QPSK	100	0	10 mm	bottom	1:1	1.000	1.130	1.130	
CA_66C 2 CC Uplink	PCC	1720.00	132072	Low	LTE Band 66 (AWS)	20	21.0	20.75	29	0.09	0	2559B	QPSK	50	50	10 mm	bottom	1:1	1.100	1.059	1.165	A47
	SCC	1739.80	132270	Low	LTE Band 66 (AWS)	20																
CA_66B 2 CC Uplink	PCC	1715.00	132022	Low	LTE Band 66 (AWS)	10	21.0	20.78	29	-0.01	0	2559B	QPSK	25	25	10 mm	bottom	1:1	1.040	1.052	1.094	
	SCC	1724.90	132121	Low	LTE Band 66 (AWS)	10																
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	21.0	20.49	29	-0.07	0	2559B	QPSK	1	0	10 mm	right	1:1	0.073	1.125	0.082	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	21.0	20.50	29	-0.06	0	2559B	QPSK	50	0	10 mm	right	1:1	0.071	1.122	0.080	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	21.0	20.49	29	0.17	0	2559B	QPSK	1	0	10 mm	left	1:1	0.083	1.125	0.093	
1 CC Uplink	N/A	1720.00	132072	Low	LTE Band 66 (AWS)	20	21.0	20.50	29	-0.12	0	2559B	QPSK	50	0	10 mm	left	1:1	0.082	1.122	0.092	
CA_66C 2 CC Uplink	PCC	1720.00	132072	Low	LTE Band 66 (AWS)	20	21.0	20.75	29	-0.02	0	2559B	QPSK	50	50	10 mm	bottom	1:1	0.969	1.059	1.026	
	SCC	1739.80	132270	Low	LTE Band 66 (AWS)	20																
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 11-39
LTE Band 2 (PCS) Hotspot SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
1860.00	18700	Low	LTE Band 2 (PCS)	20	20.5	19.19	17	-0.11	0	1289B	QPSK	1	0	10 mm	back	1:1	0.240	1.352	0.324	
1860.00	18700	Low	LTE Band 2 (PCS)	20	20.5	19.34	17	-0.03	0	1289B	QPSK	50	0	10 mm	back	1:1	0.343	1.306	0.448	
1860.00	18700	Low	LTE Band 2 (PCS)	20	20.5	19.19	17	-0.06	0	1289B	QPSK	1	0	10 mm	front	1:1	0.331	1.352	0.448	
1860.00	18700	Low	LTE Band 2 (PCS)	20	20.5	19.34	17	-0.04	0	1289B	QPSK	50	0	10 mm	front	1:1	0.325	1.306	0.424	
1860.00	18700	Low	LTE Band 2 (PCS)	20	20.5	19.19	17	-0.05	0	1289B	QPSK	1	0	10 mm	bottom	1:1	0.828	1.352	1.119	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	20.5	19.04	17	-0.09	0	1289B	QPSK	1	0	10 mm	bottom	1:1	0.894	1.400	1.252	
1900.00	19100	High	LTE Band 2 (PCS)	20	20.5	19.05	17	-0.04	0	1289B	QPSK	1	50	10 mm	bottom	1:1	0.906	1.396	1.265	
1860.00	18700	Low	LTE Band 2 (PCS)	20	20.5	19.34	17	-0.04	0	1289B	QPSK	50	0	10 mm	bottom	1:1	0.847	1.306	1.106	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	20.5	19.17	17	-0.04	0	1289B	QPSK	50	50	10 mm	bottom	1:1	0.949	1.358	1.289	A49
1900.00	19100	High	LTE Band 2 (PCS)	20	20.5	19.23	17	-0.05	0	1289B	QPSK	50	50	10 mm	bottom	1:1	0.926	1.340	1.241	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	20.5	19.18	17	-0.05	0	1289B	QPSK	100	0	10 mm	bottom	1:1	0.926	1.355	1.255	
1860.00	18700	Low	LTE Band 2 (PCS)	20	20.5	19.19	17	-0.07	0	1289B	QPSK	1	0	10 mm	right	1:1	0.057	1.352	0.077	
1860.00	18700	Low	LTE Band 2 (PCS)	20	20.5	19.34	17	-0.14	0	1289B	QPSK	50	0	10 mm	right	1:1	0.059	1.306	0.077	
1860.00	18700	Low	LTE Band 2 (PCS)	20	20.5	19.19	17	0.02	0	1289B	QPSK	1	0	10 mm	left	1:1	0.075	1.352	0.101	
1860.00	18700	Low	LTE Band 2 (PCS)	20	20.5	19.34	17	0.02	0	1289B	QPSK	50	0	10 mm	left	1:1	0.073	1.306	0.095	
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 30 Antenna A 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)		
2310.00	27710	Mid	LTE Band 30	10	21.0	20.32	-0.03	0	Ant A	1283B	QPSK	1	0	10 mm	back	1:1	0.390	1.169	0.456	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.34	0.16	0	Ant A	1283B	QPSK	25	12	10 mm	back	1:1	0.376	1.164	0.438	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.32	-0.07	0	Ant A	1283B	QPSK	1	0	10 mm	front	1:1	0.276	1.169	0.323	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.34	-0.08	0	Ant A	1283B	QPSK	25	12	10 mm	front	1:1	0.272	1.164	0.317	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.32	-0.07	0	Ant A	1283B	QPSK	1	0	10 mm	bottom	1:1	0.619	1.169	0.724	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.34	-0.07	0	Ant A	1283B	QPSK	25	12	10 mm	bottom	1:1	0.624	1.164	0.726	A51
2310.00	27710	Mid	LTE Band 30	10	21.0	20.32	0.11	0	Ant A	1283B	QPSK	1	0	10 mm	right	1:1	0.072	1.169	0.084	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.34	-0.01	0	Ant A	1283B	QPSK	25	12	10 mm	right	1:1	0.074	1.164	0.086	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.32	0.12	0	Ant A	1283B	QPSK	1	0	10 mm	left	1:1	0.006	1.169	0.007	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.34	0.13	0	Ant A	1283B	QPSK	25	12	10 mm	left	1:1	0.004	1.164	0.005	
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 Antenna B 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)		
2310.00	27710	Mid	LTE Band 30	10	21.0	19.91	0.04	0	Ant B	1283B	QPSK	1	0	10 mm	back	1:1	0.266	1.285	0.342	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.02	-0.01	0	Ant B	1283B	QPSK	25	0	10 mm	back	1:1	0.268	1.253	0.336	
2310.00	27710	Mid	LTE Band 30	10	21.0	19.91	0.06	0	Ant B	1283B	QPSK	1	0	10 mm	front	1:1	0.222	1.285	0.285	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.02	0.00	0	Ant B	1283B	QPSK	25	0	10 mm	front	1:1	0.230	1.253	0.288	
2310.00	27710	Mid	LTE Band 30	10	21.0	19.91	0.02	0	Ant B	1283B	QPSK	1	0	10 mm	bottom	1:1	0.471	1.285	0.605	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.02	0.00	0	Ant B	1283B	QPSK	25	0	10 mm	bottom	1:1	0.492	1.253	0.616	
2310.00	27710	Mid	LTE Band 30	10	21.0	19.91	0.09	0	Ant B	1283B	QPSK	1	0	10 mm	right	1:1	0.063	1.285	0.081	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.02	0.04	0	Ant B	1283B	QPSK	25	0	10 mm	right	1:1	0.066	1.253	0.083	
2310.00	27710	Mid	LTE Band 30	10	21.0	19.91	-0.07	0	Ant B	1283B	QPSK	1	0	10 mm	left	1:1	0.126	1.285	0.162	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.02	-0.04	0	Ant B	1283B	QPSK	25	0	10 mm	left	1:1	0.129	1.253	0.162	
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]	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)		
2535.00	21100	Mid	LTE Band 7	20	21.0	20.48	0.14	0	2573B	QPSK	1	0	10 mm	back	1:1	0.353	1.127	0.398	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.63	-0.02	0	2573B	QPSK	50	0	10 mm	back	1:1	0.371	1.089	0.404	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.48	0.02	0	2573B	QPSK	1	0	10 mm	front	1:1	0.332	1.127	0.374	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.63	0.04	0	2573B	QPSK	50	0	10 mm	front	1:1	0.337	1.089	0.367	
2510.00	20850	Low	LTE Band 7	20	21.0	20.35	-0.04	0	2573B	QPSK	1	99	10 mm	bottom	1:1	0.603	1.161	0.700	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.48	-0.09	0	2573B	QPSK	1	0	10 mm	bottom	1:1	0.617	1.127	0.695	
2560.00	21350	High	LTE Band 7	20	21.0	20.28	-0.02	0	2573B	QPSK	1	0	10 mm	bottom	1:1	0.678	1.180	0.800	A53
2535.00	21100	Mid	LTE Band 7	20	21.0	20.63	-0.05	0	2573B	QPSK	50	0	10 mm	bottom	1:1	0.636	1.089	0.693	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.44	-0.03	0	2573B	QPSK	100	0	10 mm	bottom	1:1	0.636	1.138	0.724	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.48	0.00	0	2573B	QPSK	1	0	10 mm	left	1:1	0.172	1.127	0.194	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.63	0.03	0	2573B	QPSK	50	0	10 mm	left	1:1	0.176	1.089	0.192	
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)		
3646.70	56207	Mid-High	LTE Band 48	20	21.0	20.33	0.02	0	2573B	QPSK	1	99	10 mm	back	1:1.58	0.189	1.167	0.221	
3646.70	56207	Mid-High	LTE Band 48	20	21.0	20.34	-0.04	0	2573B	QPSK	50	50	10 mm	back	1:1.58	0.193	1.164	0.225	
3646.70	56207	Mid-High	LTE Band 48	20	21.0	20.33	-0.13	0	2573B	QPSK	1	99	10 mm	front	1:1.58	0.133	1.167	0.155	
3646.70	56207	Mid-High	LTE Band 48	20	21.0	20.34	-0.07	0	2573B	QPSK	50	50	10 mm	front	1:1.58	0.136	1.164	0.158	
3646.70	56207	Mid-High	LTE Band 48	20	21.0	20.33	-0.08	0	2573B	QPSK	1	99	10 mm	bottom	1:1.58	0.353	1.167	0.412	
3646.70	56207	Mid-High	LTE Band 48	20	21.0	20.34	-0.09	0	2573B	QPSK	50	50	10 mm	bottom	1:1.58	0.357	1.164	0.416	A55
3646.70	56207	Mid-High	LTE Band 48	20	21.0	20.33	0.12	0	2573B	QPSK	1	99	10 mm	left	1:1.58	0.057	1.167	0.067	
3646.70	56207	Mid-High	LTE Band 48	20	21.0	20.34	0.08	0	2573B	QPSK	50	50	10 mm	left	1:1.58	0.058	1.164	0.068	
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 11-44
LTE Band 41 Hotspot SAR**

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
2593.00	40620	Mid	LTE Band 41	20	23.0	21.98	0.01	0	1283B	QPSK	1	0	10 mm	back	1:1.58	0.339	1.265	0.429	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.03	0.00	0	1283B	QPSK	50	0	10 mm	back	1:1.58	0.355	1.250	0.444	
2593.00	40620	Mid	LTE Band 41	20	23.0	21.98	-0.02	0	1283B	QPSK	1	0	10 mm	front	1:1.58	0.262	1.265	0.331	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.03	-0.10	0	1283B	QPSK	50	0	10 mm	front	1:1.58	0.266	1.250	0.333	
2506.00	39750	Low	LTE Band 41	20	23.0	21.69	-0.07	0	1283B	QPSK	1	0	10 mm	bottom	1:1.58	0.598	1.352	0.808	A57
2549.50	40185	Low-Mid	LTE Band 41	20	23.0	21.80	-0.07	0	1283B	QPSK	1	0	10 mm	bottom	1:1.58	0.581	1.318	0.766	
2593.00	40620	Mid	LTE Band 41	20	23.0	21.98	-0.09	0	1283B	QPSK	1	0	10 mm	bottom	1:1.58	0.481	1.265	0.608	
2636.50	41055	Mid-High	LTE Band 41	20	23.0	21.73	-0.09	0	1283B	QPSK	1	0	10 mm	bottom	1:1.58	0.340	1.340	0.456	
2680.00	41490	High	LTE Band 41	20	23.0	21.92	0.17	0	1283B	QPSK	1	50	10 mm	bottom	1:1.58	0.472	1.282	0.605	
2506.00	39750	Low	LTE Band 41	20	23.0	21.68	-0.07	0	1283B	QPSK	50	0	10 mm	bottom	1:1.58	0.588	1.355	0.797	
2549.50	40185	Low-Mid	LTE Band 41	20	23.0	22.00	-0.10	0	1283B	QPSK	50	0	10 mm	bottom	1:1.58	0.581	1.259	0.731	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.03	-0.06	0	1283B	QPSK	50	0	10 mm	bottom	1:1.58	0.499	1.250	0.624	
2636.50	41055	Mid-High	LTE Band 41	20	23.0	21.82	-0.06	0	1283B	QPSK	50	0	10 mm	bottom	1:1.58	0.355	1.312	0.466	
2680.00	41490	High	LTE Band 41	20	23.0	21.63	0.16	0	1283B	QPSK	50	50	10 mm	bottom	1:1.58	0.508	1.371	0.696	
2593.00	40620	Mid	LTE Band 41	20	23.0	21.96	0.16	0	1283B	QPSK	100	0	10 mm	bottom	1:1.58	0.446	1.271	0.567	
2593.00	40620	Mid	LTE Band 41	20	23.0	21.98	-0.13	0	1283B	QPSK	1	0	10 mm	left	1:1.58	0.173	1.265	0.219	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.03	0.01	0	1283B	QPSK	50	0	10 mm	left	1:1.58	0.175	1.250	0.219	
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 11-45
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)	
2437	6	802.11b	DSSS	22	20.5	20.23	-0.08	10 mm	1	2555B	1	back	100.0	0.246	0.227	1.064	1.000	0.242	
2437	6	802.11b	DSSS	22	20.5	20.23	-0.14	10 mm	1	2555B	1	front	100.0	0.170	-	1.064	1.000	-	
2437	6	802.11b	DSSS	22	20.5	20.23	0.15	10 mm	1	2555B	1	top	100.0	0.183	-	1.064	1.000	-	
2437	6	802.11b	DSSS	22	20.5	20.23	0.01	10 mm	1	2555B	1	left	100.0	0.263	0.224	1.064	1.000	0.238	
2437	6	802.11b	DSSS	22	20.5	20.25	0.14	10 mm	2	2555B	1	back	100.0	0.377	0.356	1.059	1.000	0.377	A59
2437	6	802.11b	DSSS	22	20.5	20.25	0.21	10 mm	2	2555B	1	front	100.0	0.030	-	1.059	1.000	-	
2437	6	802.11b	DSSS	22	20.5	20.25	0.19	10 mm	2	2555B	1	top	100.0	0.042	-	1.059	1.000	-	
2437	6	802.11b	DSSS	22	20.5	20.25	0.08	10 mm	2	2555B	1	left	100.0	0.077	-	1.059	1.000	-	
5825	165	802.11a	OFDM	20	18.0	17.68	-0.12	10 mm	1	2555B	6	back	99.3	0.476	0.223	1.076	1.007	0.242	
5825	165	802.11a	OFDM	20	18.0	17.68	-0.21	10 mm	1	2555B	6	front	99.3	0.081	-	1.076	1.007	-	
5825	165	802.11a	OFDM	20	18.0	17.68	0.17	10 mm	1	2555B	6	top	99.3	0.275	-	1.076	1.007	-	
5825	165	802.11a	OFDM	20	18.0	17.68	-0.16	10 mm	1	2555B	6	left	99.3	0.302	-	1.076	1.007	-	
5785	157	802.11a	OFDM	20	18.0	17.89	0.10	10 mm	2	2555B	6	back	99.7	0.765	0.357	1.026	1.003	0.367	
5785	157	802.11a	OFDM	20	18.0	17.89	0.00	10 mm	2	2555B	6	front	99.7	0.027	-	1.026	1.003	-	
5785	157	802.11a	OFDM	20	18.0	17.89	-0.19	10 mm	2	2555B	6	top	99.7	0.176	-	1.026	1.003	-	
5785	157	802.11a	OFDM	20	18.0	17.89	-0.17	10 mm	2	2555B	6	left	99.7	0.446	-	1.026	1.003	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body											
Spatial Peak								1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population								averaged over 1 gram											

**Table 11-46
WLAN 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)	
2462	11	802.11n	OFDM	20	18.0	17.80	18.0	17.60	0.18	10 mm	MIMO	2555B	13	back	99.3	0.286	0.247	1.096	1.007	0.273	
2462	11	802.11n	OFDM	20	18.0	17.80	18.0	17.60	0.15	10 mm	MIMO	2555B	13	front	99.3	0.070	-	1.096	1.007	-	
2462	11	802.11n	OFDM	20	18.0	17.80	18.0	17.60	0.17	10 mm	MIMO	2555B	13	top	99.3	0.061	-	1.096	1.007	-	
2462	11	802.11n	OFDM	20	18.0	17.80	18.0	17.60	0.14	10 mm	MIMO	2555B	13	left	99.3	0.121	-	1.096	1.007	-	
5745	149	802.11n	OFDM	20	18.0	17.94	18.0	17.62	-0.11	10 mm	MIMO	9631B	13	back	99.3	0.987	0.478	1.091	1.007	0.525	A61
5745	149	802.11n	OFDM	20	18.0	17.94	18.0	17.62	0.08	10 mm	MIMO	9631B	13	front	99.3	0.109	-	1.091	1.007	-	
5745	149	802.11n	OFDM	20	18.0	17.94	18.0	17.62	0.09	10 mm	MIMO	9631B	13	top	99.3	0.265	-	1.091	1.007	-	
5745	149	802.11n	OFDM	20	18.0	17.94	18.0	17.62	-0.14	10 mm	MIMO	9631B	13	left	99.3	0.650	0.263	1.091	1.007	0.289	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body													
Spatial Peak								1.6 W/kg (mW/g)													
Uncontrolled Exposure/General Population								averaged over 1 gram													

For channels 11 and 149, to achieve the 21 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18 dBm.



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Table 11-47
WLAN MIMO 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)	
2462	11	802.11n	OFDM	20	17.0	16.94	17.0	16.82	0.03	10 mm	MIMO	2555B	13	back	99.3	0.248	0.170	1.042	1.007	0.178	
2462	11	802.11n	OFDM	20	17.0	16.94	17.0	16.82	0.14	10 mm	MIMO	2555B	13	front	99.3	0.058	-	1.042	1.007	-	
2462	11	802.11n	OFDM	20	17.0	16.94	17.0	16.82	0.15	10 mm	MIMO	2555B	13	top	99.3	0.055	-	1.042	1.007	-	
2462	11	802.11n	OFDM	20	17.0	16.94	17.0	16.82	0.13	10 mm	MIMO	2555B	13	left	99.3	0.087	0.078	1.042	1.007	0.082	
5775	155	802.11ac	OFDM	80	14.0	13.50	14.0	13.65	0.16	10 mm	MIMO	2555B	58.5	back	94.4	0.439	0.217	1.122	1.059	0.258	
5775	155	802.11ac	OFDM	80	14.0	13.50	14.0	13.65	-0.15	10 mm	MIMO	2555B	58.5	front	94.4	0.056	-	1.122	1.059	-	
5775	155	802.11ac	OFDM	80	14.0	13.50	14.0	13.65	0.19	10 mm	MIMO	2555B	58.5	top	94.4	0.152	-	1.122	1.059	-	
5775	155	802.11ac	OFDM	80	14.0	13.50	14.0	13.65	0.14	10 mm	MIMO	2555B	58.5	left	94.4	0.338	0.117	1.122	1.059	0.139	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram											

DTS and 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 NII MIMO and 5 GHz WIFI was not transmitting during DTS MIMO.

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)	
2480	78	Bluetooth	FHSS	14.0	13.75	-0.10	10 mm	2555B	1	back	77.1	0.082	1.059	1.297	0.113	A63
2480	78	Bluetooth	FHSS	14.0	13.75	0.05	10 mm	2555B	1	front	77.1	0.057	1.059	1.297	0.078	
2480	78	Bluetooth	FHSS	14.0	13.75	0.13	10 mm	2555B	1	top	77.1	0.057	1.059	1.297	0.078	
2480	78	Bluetooth	FHSS	14.0	13.75	-0.10	10 mm	2555B	1	left	77.1	0.077	1.059	1.297	0.106	
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 11-52
LTE Band 2 (PCS) Phablet SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
1860.00	18700	Low	LTE Band 2 (PCS)	20	25.0	23.81	17	0.04	0	2574B	QPSK	1	50	7 mm	back	1:1	0.892	1.315	1.173	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	22.98	17	0.00	1	2574B	QPSK	50	25	7 mm	back	1:1	0.733	1.265	0.927	
1860.00	18700	Low	LTE Band 2 (PCS)	20	25.0	23.81	17	0.01	0	2574B	QPSK	1	50	5 mm	front	1:1	1.020	1.315	1.341	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	22.98	17	-0.06	1	2574B	QPSK	50	25	5 mm	front	1:1	0.825	1.265	1.044	
1860.00	18700	Low	LTE Band 2 (PCS)	20	25.0	23.81	17	-0.03	0	2574B	QPSK	1	50	9 mm	bottom	1:1	1.390	1.315	1.828	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	22.98	17	-0.04	1	2574B	QPSK	50	25	9 mm	bottom	1:1	1.140	1.265	1.442	
1860.00	18700	Low	LTE Band 2 (PCS)	20	25.0	23.81	17	-0.11	0	2574B	QPSK	1	50	0 mm	right	1:1	0.301	1.315	0.396	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	22.98	17	-0.10	1	2574B	QPSK	50	25	0 mm	right	1:1	0.245	1.265	0.310	
1860.00	18700	Low	LTE Band 2 (PCS)	20	25.0	23.81	17	-0.18	0	2574B	QPSK	1	50	0 mm	left	1:1	0.355	1.315	0.467	
1860.00	18700	Low	LTE Band 2 (PCS)	20	24.0	22.98	17	-0.14	1	2574B	QPSK	50	25	0 mm	left	1:1	0.291	1.265	0.368	
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.0	21.19	17	-0.06	0	2574B	QPSK	1	0	0 mm	back	1:1	2.170	1.205	2.615	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	22.0	21.13	17	-0.09	0	2574B	QPSK	1	0	0 mm	back	1:1	2.320	1.222	2.835	
1900.00	19100	High	LTE Band 2 (PCS)	20	22.0	21.36	17	-0.07	0	2574B	QPSK	1	0	0 mm	back	1:1	2.350	1.159	2.724	
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.0	21.38	17	-0.11	0	2574B	QPSK	50	0	0 mm	back	1:1	2.270	1.153	2.617	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	22.0	21.29	17	0.00	0	2574B	QPSK	50	50	0 mm	back	1:1	2.460	1.178	2.898	
1900.00	19100	High	LTE Band 2 (PCS)	20	22.0	21.39	17	0.08	0	2574B	QPSK	50	50	0 mm	back	1:1	2.420	1.151	2.785	
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.0	21.35	17	0.06	0	2574B	QPSK	100	0	0 mm	back	1:1	2.300	1.161	2.670	
1900.00	19100	High	LTE Band 2 (PCS)	20	22.0	21.36	17	-0.04	0	2574B	QPSK	1	0	0 mm	front	1:1	1.410	1.159	1.634	
1900.00	19100	High	LTE Band 2 (PCS)	20	22.0	21.39	17	-0.01	0	2574B	QPSK	50	50	0 mm	front	1:1	1.460	1.151	1.680	
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.0	21.19	17	0.03	0	2574B	QPSK	1	0	0 mm	bottom	1:1	2.670	1.205	3.217	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	22.0	21.13	17	0.04	0	2574B	QPSK	1	0	0 mm	bottom	1:1	2.600	1.222	3.177	
1900.00	19100	High	LTE Band 2 (PCS)	20	22.0	21.36	17	0.01	0	2574B	QPSK	1	0	0 mm	bottom	1:1	2.470	1.159	2.863	
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.0	21.38	17	0.01	0	2574B	QPSK	50	0	0 mm	bottom	1:1	2.730	1.153	3.148	
1880.00	18900	Mid	LTE Band 2 (PCS)	20	22.0	21.29	17	0.00	0	2574B	QPSK	50	50	0 mm	bottom	1:1	2.770	1.178	3.263	A69
1900.00	19100	High	LTE Band 2 (PCS)	20	22.0	21.39	17	-0.01	0	2574B	QPSK	50	50	0 mm	bottom	1:1	2.620	1.151	3.016	
1860.00	18700	Low	LTE Band 2 (PCS)	20	22.0	21.35	17	-0.03	0	2574B	QPSK	100	0	0 mm	bottom	1:1	2.740	1.161	3.181	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Phablet 4.0 W/kg (mW/g) averaged over 10 grams										

**Table 11-53
LTE Band 2 Phablet SAR for Conditions with 5G NR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Ant State	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
1860.00	18700	Low	LTE Band 2 (PCS)	20	18.5	18.13	17	-0.04	0	1289B	QPSK	1	0	0 mm	back	1:1	0.998	1.089	1.087	
1860.00	18700	Low	LTE Band 2 (PCS)	20	18.5	18.23	17	0.01	0	1289B	QPSK	50	0	0 mm	back	1:1	1.030	1.064	1.096	
1860.00	18700	Low	LTE Band 2 (PCS)	20	18.5	18.13	17	0.08	0	1289B	QPSK	1	0	0 mm	front	1:1	0.454	1.089	0.494	
1860.00	18700	Low	LTE Band 2 (PCS)	20	18.5	18.23	17	0.07	0	1289B	QPSK	50	0	0 mm	front	1:1	0.449	1.064	0.478	
1860.00	18700	Low	LTE Band 2 (PCS)	20	18.5	18.13	17	-0.05	0	1289B	QPSK	1	0	0 mm	bottom	1:1	1.240	1.089	1.350	
1860.00	18700	Low	LTE Band 2 (PCS)	20	18.5	18.23	17	-0.03	0	1289B	QPSK	50	0	0 mm	bottom	1:1	1.280	1.064	1.362	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Phablet 4.0 W/kg (mW/g) averaged over 10 grams										



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Table 11-54
LTE Band 30 Antenna A Phablet SAR

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 (10g)	Scaling Factor	Reported SAR (10g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
2310.00	27710	Mid	LTE Band 30	10	24.5	23.92	0.02	0	Ant A	1283B	QPSK	1	0	7 mm	back	1:1	0.677	1.143	0.774	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.97	0.06	1	Ant A	1283B	QPSK	25	0	7 mm	back	1:1	0.539	1.130	0.609	
2310.00	27710	Mid	LTE Band 30	10	24.5	23.92	-0.06	0	Ant A	1283B	QPSK	1	0	5 mm	front	1:1	0.697	1.143	0.797	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.97	-0.07	1	Ant A	1283B	QPSK	25	0	5 mm	front	1:1	0.553	1.130	0.625	
2310.00	27710	Mid	LTE Band 30	10	24.5	23.92	-0.10	0	Ant A	1283B	QPSK	1	0	9 mm	bottom	1:1	0.904	1.143	1.033	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.97	-0.15	1	Ant A	1283B	QPSK	25	0	9 mm	bottom	1:1	0.739	1.130	0.835	
2310.00	27710	Mid	LTE Band 30	10	24.5	23.92	-0.11	0	Ant A	1283B	QPSK	1	0	0 mm	right	1:1	0.452	1.143	0.517	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.97	0.09	1	Ant A	1283B	QPSK	25	0	0 mm	right	1:1	0.361	1.130	0.408	
2310.00	27710	Mid	LTE Band 30	10	24.5	23.92	-0.15	0	Ant A	1283B	QPSK	1	0	0 mm	left	1:1	0.027	1.143	0.031	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.97	-0.18	1	Ant A	1283B	QPSK	25	0	0 mm	left	1:1	0.024	1.130	0.027	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.32	0.00	0	Ant A	1283B	QPSK	1	0	0 mm	back	1:1	1.040	1.169	1.216	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.34	0.14	0	Ant A	1283B	QPSK	25	12	0 mm	back	1:1	1.150	1.164	1.339	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.32	-0.03	0	Ant A	1283B	QPSK	1	0	0 mm	front	1:1	0.754	1.169	0.881	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.34	0.01	0	Ant A	1283B	QPSK	25	12	0 mm	front	1:1	0.766	1.164	0.892	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.32	-0.14	0	Ant A	1283B	QPSK	1	0	0 mm	bottom	1:1	0.748	1.169	0.874	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.34	-0.10	0	Ant A	1283B	QPSK	25	12	0 mm	bottom	1:1	0.739	1.164	0.860	
																Phablet 4.0 W/kg (mW/g) averaged over 10 grams				

Table 11-55
LTE Band 30 Antenna B Phablet 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 (10g)	Scaling Factor	Reported SAR (10g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
2310.00	27710	Mid	LTE Band 30	10	24.5	23.75	0.00	0	Ant B	1283B	QPSK	1	49	7 mm	back	1:1	0.489	1.189	0.581	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.96	-0.02	1	Ant B	1283B	QPSK	25	0	7 mm	back	1:1	0.402	1.132	0.455	
2310.00	27710	Mid	LTE Band 30	10	24.5	23.75	0.03	0	Ant B	1283B	QPSK	1	49	5 mm	front	1:1	0.551	1.189	0.655	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.96	0.08	1	Ant B	1283B	QPSK	25	0	5 mm	front	1:1	0.455	1.132	0.515	
2310.00	27710	Mid	LTE Band 30	10	24.5	23.75	-0.07	0	Ant B	1283B	QPSK	1	49	9 mm	bottom	1:1	0.690	1.189	0.820	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.96	-0.08	1	Ant B	1283B	QPSK	25	0	9 mm	bottom	1:1	0.560	1.132	0.634	
2310.00	27710	Mid	LTE Band 30	10	24.5	23.75	-0.04	0	Ant B	1283B	QPSK	1	49	0 mm	right	1:1	0.337	1.189	0.401	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.96	0.03	1	Ant B	1283B	QPSK	25	0	0 mm	right	1:1	0.281	1.132	0.318	
2310.00	27710	Mid	LTE Band 30	10	24.5	23.75	-0.08	0	Ant B	1283B	QPSK	1	49	0 mm	left	1:1	0.961	1.189	1.143	
2310.00	27710	Mid	LTE Band 30	10	23.5	22.96	-0.06	1	Ant B	1283B	QPSK	25	0	0 mm	left	1:1	0.792	1.132	0.897	
2310.00	27710	Mid	LTE Band 30	10	21.0	19.91	0.07	0	Ant B	1283B	QPSK	1	0	0 mm	back	1:1	1.370	1.285	1.760	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.02	0.17	0	Ant B	1283B	QPSK	25	0	0 mm	back	1:1	1.510	1.253	1.892	
2310.00	27710	Mid	LTE Band 30	10	21.0	19.91	0.03	0	Ant B	1283B	QPSK	1	0	0 mm	front	1:1	1.270	1.285	1.632	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.02	0.06	0	Ant B	1283B	QPSK	25	0	0 mm	front	1:1	1.320	1.253	1.654	
2310.00	27710	Mid	LTE Band 30	10	21.0	19.91	-0.09	0	Ant B	1283B	QPSK	1	0	0 mm	bottom	1:1	1.490	1.285	1.915	
2310.00	27710	Mid	LTE Band 30	10	21.0	20.02	-0.05	0	Ant B	1283B	QPSK	25	0	0 mm	bottom	1:1	1.550	1.253	1.942	A70
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Phablet 4.0 W/kg (mW/g) averaged over 10 grams				

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Table 11-56
LTE Band 30 Antenna B Phablet SAR for Conditions with 5G NR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
2310.00	27710	Mid	LTE Band 30	10	18.5	18.11	0.10	0	1286B	QPSK	1	0	0 mm	back	1:1	1.040	1.094	1.138	
2310.00	27710	Mid	LTE Band 30	10	18.5	18.17	0.10	0	1286B	QPSK	25	0	0 mm	back	1:1	1.080	1.079	1.165	
2310.00	27710	Mid	LTE Band 30	10	18.5	18.11	0.15	0	1286B	QPSK	1	0	0 mm	front	1:1	0.886	1.094	0.969	
2310.00	27710	Mid	LTE Band 30	10	18.5	18.17	0.12	0	1286B	QPSK	25	0	0 mm	front	1:1	0.930	1.079	1.003	
2310.00	27710	Mid	LTE Band 30	10	18.5	18.11	-0.21	0	1286B	QPSK	1	0	0 mm	bottom	1:1	0.906	1.094	0.991	
2310.00	27710	Mid	LTE Band 30	10	18.5	18.17	-0.16	0	1286B	QPSK	25	0	0 mm	bottom	1:1	0.947	1.079	1.022	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Phablet 4.0 W/kg (mW/g) averaged over 10 grams										

Table 11-57
LTE Band 7 Phablet SAR



MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
2535.00	21100	Mid	LTE Band 7	20	23.0	22.49	-0.07	0	2573B	QPSK	1	50	7 mm	back	1:1	0.420	1.125	0.473	
2535.00	21100	Mid	LTE Band 7	20	22.0	21.74	-0.01	0	2573B	QPSK	50	0	7 mm	back	1:1	0.346	1.062	0.367	
2535.00	21100	Mid	LTE Band 7	20	23.0	22.49	0.12	0	2573B	QPSK	1	50	5 mm	front	1:1	0.605	1.125	0.681	
2535.00	21100	Mid	LTE Band 7	20	22.0	21.74	0.15	0	2573B	QPSK	50	0	5 mm	front	1:1	0.492	1.062	0.523	
2535.00	21100	Mid	LTE Band 7	20	23.0	22.49	-0.04	0	2573B	QPSK	1	50	9 mm	bottom	1:1	0.544	1.125	0.612	
2535.00	21100	Mid	LTE Band 7	20	22.0	21.74	-0.04	0	2573B	QPSK	50	0	9 mm	bottom	1:1	0.442	1.062	0.469	
2535.00	21100	Mid	LTE Band 7	20	23.0	22.49	-0.12	0	2573B	QPSK	1	50	0 mm	left	1:1	0.873	1.125	0.982	
2535.00	21100	Mid	LTE Band 7	20	22.0	21.74	-0.14	0	2573B	QPSK	50	0	0 mm	left	1:1	0.720	1.062	0.765	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.48	-0.07	0	2573B	QPSK	1	0	0 mm	back	1:1	1.590	1.127	1.792	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.63	0.00	0	2573B	QPSK	50	0	0 mm	back	1:1	1.640	1.089	1.786	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.48	0.01	0	2573B	QPSK	1	0	0 mm	front	1:1	1.650	1.127	1.860	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.63	0.09	0	2573B	QPSK	50	0	0 mm	front	1:1	1.710	1.089	1.862	
2510.00	20850	Low	LTE Band 7	20	21.0	20.35	-0.15	0	2573B	QPSK	1	99	0 mm	bottom	1:1	1.940	1.161	2.252	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.48	-0.09	0	2573B	QPSK	1	0	0 mm	bottom	1:1	1.940	1.127	2.186	
2560.00	21350	High	LTE Band 7	20	21.0	20.28	-0.13	0	2573B	QPSK	1	0	0 mm	bottom	1:1	1.920	1.180	2.266	
2510.00	20850	Low	LTE Band 7	20	21.0	20.50	-0.14	0	2573B	QPSK	50	25	0 mm	bottom	1:1	2.020	1.122	2.266	A71
2535.00	21100	Mid	LTE Band 7	20	21.0	20.63	-0.12	0	2573B	QPSK	50	0	0 mm	bottom	1:1	1.990	1.089	2.167	
2560.00	21350	High	LTE Band 7	20	21.0	20.47	-0.14	0	2573B	QPSK	50	0	0 mm	bottom	1:1	1.980	1.130	2.237	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.44	-0.15	0	2573B	QPSK	100	0	0 mm	bottom	1:1	1.940	1.138	2.208	
2510.00	20850	Low	LTE Band 7	20	21.0	20.50	0.19	0	2573B	QPSK	50	25	0 mm	bottom	1:1	1.940	1.122	2.177	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Phablet 4.0 W/kg (mW/g) averaged over 10 grams										

Note: Blue entry represents variability measurement.

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**Table 11-58
LTE Band 48 Phablet SAR**

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
3646.70	56207	Mid-High	LTE Band 48	20	24.0	23.12	0.01	0	2573B	QPSK	1	99	7 mm	back	1:1.58	0.236	1.225	0.289	
3646.70	56207	Mid-High	LTE Band 48	20	23.0	22.31	0.05	1	2573B	QPSK	50	50	7 mm	back	1:1.58	0.199	1.172	0.233	
3646.70	56207	Mid-High	LTE Band 48	20	24.0	23.12	0.05	0	2573B	QPSK	1	99	5 mm	front	1:1.58	0.283	1.225	0.347	
3646.70	56207	Mid-High	LTE Band 48	20	23.0	22.31	0.05	1	2573B	QPSK	50	50	5 mm	front	1:1.58	0.233	1.172	0.273	
3646.70	56207	Mid-High	LTE Band 48	20	24.0	23.12	0.02	0	2573B	QPSK	1	99	9 mm	bottom	1:1.58	0.248	1.225	0.304	
3646.70	56207	Mid-High	LTE Band 48	20	23.0	22.31	-0.01	1	2573B	QPSK	50	50	9 mm	bottom	1:1.58	0.202	1.172	0.237	
3646.70	56207	Mid-High	LTE Band 48	20	24.0	23.12	-0.01	0	2573B	QPSK	1	99	0 mm	left	1:1.58	0.376	1.225	0.461	
3646.70	56207	Mid-High	LTE Band 48	20	23.0	22.31	0.18	1	2573B	QPSK	50	50	0 mm	left	1:1.58	0.311	1.172	0.364	
3646.70	56207	Mid-High	LTE Band 48	20	21.0	20.33	-0.12	0	2573B	QPSK	1	99	0 mm	back	1:1.58	0.913	1.167	1.065	
3646.70	56207	Mid-High	LTE Band 48	20	21.0	20.34	-0.12	0	2573B	QPSK	50	50	0 mm	back	1:1.58	0.931	1.164	1.084	A72
3646.70	56207	Mid-High	LTE Band 48	20	21.0	20.33	-0.14	0	2573B	QPSK	1	99	0 mm	front	1:1.58	0.587	1.167	0.685	
3646.70	56207	Mid-High	LTE Band 48	20	21.0	20.34	-0.12	0	2573B	QPSK	50	50	0 mm	front	1:1.58	0.588	1.164	0.684	
3646.70	56207	Mid-High	LTE Band 48	20	21.0	20.33	-0.17	0	2573B	QPSK	1	99	0 mm	bottom	1:1.58	0.788	1.167	0.920	
3646.70	56207	Mid-High	LTE Band 48	20	21.0	20.34	-0.14	0	2573B	QPSK	50	50	0 mm	bottom	1:1.58	0.821	1.164	0.956	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Phablet 4.0 W/kg (mW/g) averaged over 10 grams										

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**Table 11-59
LTE Band 41 Phablet SAR**

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
2549.50	40185	Low-Mid	LTE Band 41	20	25.0	24.78	0.03	0	1283B	QPSK	1	0	7 mm	back	1:1.58	0.386	1.052	0.406	
2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.74	-0.06	1	1283B	QPSK	50	0	7 mm	back	1:1.58	0.324	1.062	0.344	
2549.50	40185	Low-Mid	LTE Band 41	20	25.0	24.78	0.07	0	1283B	QPSK	1	0	5 mm	front	1:1.58	0.539	1.052	0.567	
2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.74	0.07	1	1283B	QPSK	50	0	5 mm	front	1:1.58	0.437	1.062	0.464	
2549.50	40185	Low-Mid	LTE Band 41	20	25.0	24.78	0.01	0	1283B	QPSK	1	0	9 mm	bottom	1:1.58	0.326	1.052	0.343	
2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.74	-0.01	1	1283B	QPSK	50	0	9 mm	bottom	1:1.58	0.268	1.062	0.285	
2549.50	40185	Low-Mid	LTE Band 41	20	25.0	24.78	-0.06	0	1283B	QPSK	1	0	0 mm	left	1:1.58	0.835	1.052	0.878	
2549.50	40185	Low-Mid	LTE Band 41	20	24.0	23.74	-0.07	1	1283B	QPSK	50	0	0 mm	left	1:1.58	0.682	1.062	0.724	
2506.00	39750	Low	LTE Band 41	20	23.0	21.69	-0.21	0	1283B	QPSK	1	0	0 mm	back	1:1.58	1.240	1.352	1.676	
2549.50	40185	Low-Mid	LTE Band 41	20	23.0	21.80	-0.16	0	1283B	QPSK	1	0	0 mm	back	1:1.58	1.230	1.318	1.621	
2593.00	40620	Mid	LTE Band 41	20	23.0	21.98	-0.11	0	1283B	QPSK	1	0	0 mm	back	1:1.58	1.210	1.265	1.531	
2636.50	41055	Mid-High	LTE Band 41	20	23.0	21.73	0.00	0	1283B	QPSK	1	0	0 mm	back	1:1.58	1.350	1.340	1.809	
2680.00	41490	High	LTE Band 41	20	23.0	21.92	-0.03	0	1283B	QPSK	1	50	0 mm	back	1:1.58	1.550	1.282	1.987	
2506.00	39750	Low	LTE Band 41	20	23.0	21.68	-0.20	0	1283B	QPSK	50	0	0 mm	back	1:1.58	1.270	1.355	1.721	
2549.50	40185	Low-Mid	LTE Band 41	20	23.0	22.00	-0.16	0	1283B	QPSK	50	0	0 mm	back	1:1.58	1.290	1.259	1.624	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.03	-0.10	0	1283B	QPSK	50	0	0 mm	back	1:1.58	1.230	1.250	1.538	
2636.50	41055	Mid-High	LTE Band 41	20	23.0	21.82	0.01	0	1283B	QPSK	50	0	0 mm	back	1:1.58	1.410	1.312	1.850	
2680.00	41490	High	LTE Band 41	20	23.0	21.63	-0.01	0	1283B	QPSK	50	50	0 mm	back	1:1.58	1.700	1.371	2.331	
2593.00	40620	Mid	LTE Band 41	20	23.0	21.96	-0.12	0	1283B	QPSK	100	0	0 mm	back	1:1.58	1.760	1.271	2.237	
2506.00	39750	Low	LTE Band 41	20	23.0	21.69	0.04	0	1283B	QPSK	1	0	0 mm	front	1:1.58	1.140	1.352	1.541	
2549.50	40185	Low-Mid	LTE Band 41	20	23.0	21.80	-0.14	0	1283B	QPSK	1	0	0 mm	front	1:1.58	1.260	1.318	1.661	
2593.00	40620	Mid	LTE Band 41	20	23.0	21.98	-0.12	0	1283B	QPSK	1	0	0 mm	front	1:1.58	1.330	1.265	1.682	
2636.50	41055	Mid-High	LTE Band 41	20	23.0	21.73	-0.21	0	1283B	QPSK	1	0	0 mm	front	1:1.58	1.300	1.340	1.742	
2680.00	41490	High	LTE Band 41	20	23.0	21.92	-0.12	0	1283B	QPSK	1	50	0 mm	front	1:1.58	1.450	1.282	1.859	
2506.00	39750	Low	LTE Band 41	20	23.0	21.68	-0.06	0	1283B	QPSK	50	0	0 mm	front	1:1.58	1.160	1.355	1.572	
2549.50	40185	Low-Mid	LTE Band 41	20	23.0	22.00	-0.18	0	1283B	QPSK	50	0	0 mm	front	1:1.58	1.310	1.259	1.649	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.03	-0.04	0	1283B	QPSK	50	0	0 mm	front	1:1.58	1.370	1.250	1.713	
2636.50	41055	Mid-High	LTE Band 41	20	23.0	21.82	-0.12	0	1283B	QPSK	50	0	0 mm	front	1:1.58	1.340	1.312	1.758	
2680.00	41490	High	LTE Band 41	20	23.0	21.63	-0.13	0	1283B	QPSK	50	50	0 mm	front	1:1.58	1.580	1.371	2.166	
2593.00	40620	Mid	LTE Band 41	20	23.0	21.96	-0.02	0	1283B	QPSK	100	0	0 mm	front	1:1.58	1.330	1.271	1.690	
2506.00	39750	Low	LTE Band 41	20	23.0	21.69	-0.18	0	1283B	QPSK	1	0	0 mm	bottom	1:1.58	1.210	1.352	1.636	
2549.50	40185	Low-Mid	LTE Band 41	20	23.0	21.80	-0.19	0	1283B	QPSK	1	0	0 mm	bottom	1:1.58	1.180	1.318	1.555	
2593.00	40620	Mid	LTE Band 41	20	23.0	21.98	-0.13	0	1283B	QPSK	1	0	0 mm	bottom	1:1.58	1.770	1.265	2.239	
2636.50	41055	Mid-High	LTE Band 41	20	23.0	21.73	-0.17	0	1283B	QPSK	1	0	0 mm	bottom	1:1.58	1.730	1.340	2.318	
2680.00	41490	High	LTE Band 41	20	23.0	21.92	-0.14	0	1283B	QPSK	1	50	0 mm	bottom	1:1.58	1.860	1.282	2.385	
2506.00	39750	Low	LTE Band 41	20	23.0	21.68	-0.17	0	1283B	QPSK	50	0	0 mm	bottom	1:1.58	1.250	1.355	1.694	
2549.50	40185	Low-Mid	LTE Band 41	20	23.0	22.00	-0.16	0	1283B	QPSK	50	0	0 mm	bottom	1:1.58	1.230	1.259	1.549	
2593.00	40620	Mid	LTE Band 41	20	23.0	22.03	-0.17	0	1283B	QPSK	50	0	0 mm	bottom	1:1.58	1.860	1.250	2.325	
2636.50	41055	Mid-High	LTE Band 41	20	23.0	21.82	-0.13	0	1283B	QPSK	50	0	0 mm	bottom	1:1.58	1.810	1.312	2.375	
2680.00	41490	High	LTE Band 41	20	23.0	21.63	-0.18	0	1283B	QPSK	50	50	0 mm	bottom	1:1.58	1.950	1.371	2.673	A73
2593.00	40620	Mid	LTE Band 41	20	23.0	21.96	-0.19	0	1283B	QPSK	100	0	0 mm	bottom	1:1.58	1.790	1.271	2.275	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT									Phablet										
Spatial Peak									4.0 W/kg (mW/g)										
Uncontrolled Exposure/General Population									averaged over 10 grams										



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**Table 11-60
WLAN Phablet SAR**

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5300	60	802.11a	OFDM	20	18.0	17.68	0.00	0 mm	1	2555B	6	back	99.3	4.468	0.420	1.076	1.007	0.455	
5300	60	802.11a	OFDM	20	18.0	17.68	0.00	0 mm	1	2555B	6	front	99.3	0.870	-	1.076	1.007	-	
5300	60	802.11a	OFDM	20	18.0	17.68	0.16	0 mm	1	2555B	6	top	99.3	1.080	-	1.076	1.007	-	
5300	60	802.11a	OFDM	20	18.0	17.68	0.12	0 mm	1	2555B	6	left	99.3	2.359	-	1.076	1.007	-	
5300	60	802.11a	OFDM	20	18.0	17.61	0.14	0 mm	2	2555B	6	back	99.7	5.100	0.853	1.094	1.003	0.936	
5300	60	802.11a	OFDM	20	18.0	17.61	0.00	0 mm	2	2555B	6	front	99.7	0.657	-	1.094	1.003	-	
5300	60	802.11a	OFDM	20	18.0	17.61	0.19	0 mm	2	2555B	6	top	99.7	0.554	-	1.094	1.003	-	
5300	60	802.11a	OFDM	20	18.0	17.61	-0.17	0 mm	2	2555B	6	left	99.7	2.364	-	1.094	1.003	-	
5600	120	802.11a	OFDM	20	18.0	17.90	0.00	0 mm	1	2555B	6	back	99.3	7.800	0.954	1.023	1.007	0.983	
5600	120	802.11a	OFDM	20	18.0	17.90	0.00	0 mm	1	2555B	6	front	99.3	2.257	-	1.023	1.007	-	
5600	120	802.11a	OFDM	20	18.0	17.90	0.19	0 mm	1	2555B	6	top	99.3	2.353	-	1.023	1.007	-	
5600	120	802.11a	OFDM	20	18.0	17.90	0.14	0 mm	1	2555B	6	left	99.3	3.459	-	1.023	1.007	-	
5500	100	802.11a	OFDM	20	18.0	17.73	-0.14	0 mm	2	2555B	6	back	99.7	9.165	1.270	1.064	1.003	1.355	
5500	100	802.11a	OFDM	20	18.0	17.73	0.00	0 mm	2	2555B	6	front	99.7	0.539	-	1.064	1.003	-	
5500	100	802.11a	OFDM	20	18.0	17.73	0.06	0 mm	2	2555B	6	top	99.7	0.583	-	1.064	1.003	-	
5500	100	802.11a	OFDM	20	18.0	17.73	0.19	0 mm	2	2555B	6	left	99.7	2.327	0.251	1.064	1.003	0.268	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams											

**Table 11-61
WLAN Phablet SAR for Conditions with 5G NR**

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5310	62	802.11n	OFDM	40	14.0	13.94	-0.01	0 mm	1	2555B	13.5	back	98.5	1.970	0.231	1.014	1.015	0.238	
5310	62	802.11n	OFDM	40	14.0	13.94	0.18	0 mm	1	2555B	13.5	front	98.5	0.532	-	1.014	1.015	-	
5310	62	802.11n	OFDM	40	14.0	13.94	0.00	0 mm	1	2555B	13.5	top	98.5	0.898	-	1.014	1.015	-	
5310	62	802.11n	OFDM	40	14.0	13.94	0.14	0 mm	1	2555B	13.5	left	98.5	1.220	-	1.014	1.015	-	
5310	62	802.11n	OFDM	40	14.0	13.89	-0.06	0 mm	2	2555B	13.5	back	98.5	3.624	0.366	1.026	1.015	0.381	
5310	62	802.11n	OFDM	40	14.0	13.89	0.07	0 mm	2	2555B	13.5	front	98.5	0.242	-	1.026	1.015	-	
5310	62	802.11n	OFDM	40	14.0	13.89	0.15	0 mm	2	2555B	13.5	top	98.5	0.216	-	1.026	1.015	-	
5310	62	802.11n	OFDM	40	14.0	13.89	-0.01	0 mm	2	2555B	13.5	left	98.5	1.005	-	1.026	1.015	-	
5690	138	802.11ac	OFDM	80	14.0	13.85	0.04	0 mm	1	2555B	29.3	back	95.2	4.596	0.514	1.035	1.050	0.559	
5690	138	802.11ac	OFDM	80	14.0	13.85	0.18	0 mm	1	2555B	29.3	front	95.2	1.224	-	1.035	1.050	-	
5690	138	802.11ac	OFDM	80	14.0	13.85	0.02	0 mm	1	2555B	29.3	top	95.2	1.785	-	1.035	1.050	-	
5690	138	802.11ac	OFDM	80	14.0	13.85	0.21	0 mm	1	2555B	29.3	left	95.2	1.742	-	1.035	1.050	-	
5610	122	802.11ac	OFDM	80	14.0	13.95	0.05	0 mm	2	2555B	29.3	back	97.1	4.809	0.596	1.012	1.030	0.621	
5610	122	802.11ac	OFDM	80	14.0	13.95	0.17	0 mm	2	2555B	29.3	front	97.1	0.221	-	1.012	1.030	-	
5610	122	802.11ac	OFDM	80	14.0	13.95	0.14	0 mm	2	2555B	29.3	top	97.1	0.168	-	1.012	1.030	-	
5610	122	802.11ac	OFDM	80	14.0	13.95	0.02	0 mm	2	2555B	29.3	left	97.1	1.030	-	1.012	1.030	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams											

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**Table 11-62
WLAN MIMO Phablet SAR**

MEASUREMENT RESULTS																					
FREQUENCY MHz	Ch.	Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
																W/kg	(W/kg)		(W/kg)	(W/kg)	
5280	56	802.11n	OFDM	20	18.0	17.59	18.0	17.83	0.12	0 mm	MIMO	2555B	13	back	99.3	8.030	1.180	1.099	1.007	1.306	
5280	56	802.11n	OFDM	20	18.0	17.59	18.0	17.83	0.00	0 mm	MIMO	2555B	13	front	99.3	2.271	0.266	1.099	1.007	0.294	
5280	56	802.11n	OFDM	20	18.0	17.59	18.0	17.83	-0.15	0 mm	MIMO	2555B	13	top	99.3	1.881	-	1.099	1.007	-	
5280	56	802.11n	OFDM	20	18.0	17.59	18.0	17.83	0.13	0 mm	MIMO	2555B	13	left	99.3	5.610	0.749	1.099	1.007	0.829	
5500	100	802.11n	OFDM	20	18.0	17.83	18.0	17.88	0.18	0 mm	MIMO	2555B	13	back	99.3	12.984	1.760	1.040	1.007	1.843	
5600	120	802.11n	OFDM	20	18.0	17.80	18.0	17.82	0.16	0 mm	MIMO	2555B	13	back	99.3	15.576	2.020	1.047	1.007	2.130	A74
5720	144	802.11n	OFDM	20	18.0	17.50	18.0	17.84	0.19	0 mm	MIMO	2555B	13	back	99.3	17.416	1.940	1.122	1.007	2.192	
5500	100	802.11n	OFDM	20	18.0	17.83	18.0	17.88	0.00	0 mm	MIMO	2555B	13	front	99.3	2.478	0.347	1.040	1.007	0.363	
5500	100	802.11n	OFDM	20	18.0	17.83	18.0	17.88	-0.15	0 mm	MIMO	2555B	13	top	99.3	2.213	-	1.040	1.007	-	
5500	100	802.11n	OFDM	20	18.0	17.83	18.0	17.88	-0.14	0 mm	MIMO	2555B	13	left	99.3	4.830	0.679	1.040	1.007	0.711	
5600	120	802.11n	OFDM	20	18.0	17.80	18.0	17.82	-0.19	0 mm	MIMO	2555B	13	back	99.3	14.575	2.010	1.047	1.007	2.119	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Phablet 4.0 W/kg (mW/g) averaged over 10 grams									

Note: For channels 56, 100, 120, and 144, to achieve the 21 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18 dBm.
Blue entry represents variability measurement.

**Table 11-63
WLAN MIMO Phablet SAR for Conditions with 5G NR**



MEASUREMENT RESULTS																					
FREQUENCY MHz	Ch.	Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
																W/kg	(W/kg)		(W/kg)	(W/kg)	
5270	54	802.11n	OFDM	40	14.0	13.74	14.0	13.88	0.10	0 mm	MIMO	2555B	27	back	98.7	3.196	0.480	1.062	1.013	0.516	
5270	54	802.11n	OFDM	40	14.0	13.74	14.0	13.88	-0.09	7 mm	MIMO	2555B	27	back	98.7	0.560	0.095	1.062	1.013	0.102	
5270	54	802.11n	OFDM	40	14.0	13.74	14.0	13.88	-0.05	0 mm	MIMO	2555B	27	front	98.7	0.668	-	1.062	1.013	-	
5270	54	802.11n	OFDM	40	14.0	13.74	14.0	13.88	-0.03	0 mm	MIMO	2555B	27	top	98.7	0.945	-	1.062	1.013	-	
5270	54	802.11n	OFDM	40	14.0	13.74	14.0	13.88	-0.03	0 mm	MIMO	2555B	27	left	98.7	1.719	0.232	1.062	1.013	0.250	
5610	122	802.11ac	OFDM	80	14.0	13.72	14.0	13.95	-0.01	0 mm	MIMO	2555B	58.5	back	94.4	5.723	0.785	1.067	1.059	0.887	
5610	122	802.11ac	OFDM	80	14.0	13.72	14.0	13.95	0.07	7 mm	MIMO	2555B	58.5	back	94.4	0.615	0.108	1.067	1.059	0.122	
5610	122	802.11ac	OFDM	80	14.0	13.72	14.0	13.95	0.17	0 mm	MIMO	2555B	58.5	front	94.4	0.907	-	1.067	1.059	-	
5610	122	802.11ac	OFDM	80	14.0	13.72	14.0	13.95	0.13	0 mm	MIMO	2555B	58.5	top	94.4	1.648	-	1.067	1.059	-	
5610	122	802.11ac	OFDM	80	14.0	13.72	14.0	13.95	-0.02	0 mm	MIMO	2555B	58.5	left	94.4	1.823	0.242	1.067	1.059	0.273	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Phablet 4.0 W/kg (mW/g) averaged over 10 grams									

Note: For channels 54 and 122, to achieve the 17 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 14 dBm.

11.5 SAR Test Notes

General Notes:

- 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.
- Batteries are fully charged at the beginning of the SAR measurements.
- Liquid tissue depth was at least 15.0 cm for all frequencies.
- 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.
- SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.

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6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB Publication 648474 D04v01r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was ≤ 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were required.
8. Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 13 for variability analysis.
9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 6.7 for more details).
10. Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is > 160 mm and < 200 mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.
11. This device supports dynamic antenna tuning for some bands. Per FCC Guidance, SAR was measured according to the normally required SAR measurement configurations with tuner active. The auto-tune state determined by the device was verified before and after each SAR measurement and is listed in tables above. Please see Section 14 for supplemental data.
12. This device utilizes power reduction for some wireless modes and technologies, as outlined in Section 1.3. The maximum output power allowed for each transmitter and exposure condition was evaluated for SAR compliance based on expected use conditions and simultaneous transmission scenarios.
13. Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds below.
14. Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6 (See Section 6.9 for more information).

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 $> \frac{1}{2}$ 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.

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- 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 $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel was used.
- 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.

UMTS Notes:



- 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.
- 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 $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel was used.

LTE Notes:

- 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.
- 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.
- 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).
- Per FCC KDB Publication 447498 D01v06, when the reported LTE Band 41/48 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.
- 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.
- 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.
- For LTE Band 5 and LTE Band 66, 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.
- For LTE Band 30 Antenna A operations, the device was connected in a radiated downlink carrier aggregation scenario per FCC Guidance. Combination CA_2A-30A for LTE Band 30 Antenna A.

WLAN Notes:

- For held-to-ear, and hotspot, and phablet 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



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

Bluetooth Notes

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests test mode type. Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 100% transmission duty factor to determine compliance. See Section 9.6 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.

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.

Simultaneous transmission analysis including 5G NR combinations is addressed in RF Exposure report: 1M1901100003-22-R1.A3L

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12.3 Head SAR Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	GSM 850	0.137	0.457	0.027	0.594	0.164	0.621
	GSM 1900	0.080	0.457	0.027	0.537	0.107	0.564
	UMTS 850	0.218	0.457	0.027	0.675	0.245	0.702
	UMTS 1750	0.128	0.457	0.027	0.585	0.155	0.612
	UMTS 1900	0.130	0.457	0.027	0.587	0.157	0.614
	Cell. CDMA/EVDO	0.302	0.457	0.027	0.759	0.329	0.786
	PCS CDMA/EVDO	0.129	0.457	0.027	0.586	0.156	0.613
	LTE Band 12	0.150	0.457	0.027	0.607	0.177	0.634
	LTE Band 13	0.177	0.457	0.027	0.634	0.204	0.661
	LTE Band 14	0.169	0.457	0.027	0.626	0.196	0.653
	LTE Band 5 (Cell)	0.178	0.457	0.027	0.635	0.205	0.662
	LTE Band 26 (Cell)	0.194	0.457	0.027	0.651	0.221	0.678
	LTE Band 66 (AWS)	0.152	0.457	0.027	0.609	0.179	0.636
	LTE Band 2 (PCS)	0.156	0.457	0.027	0.613	0.183	0.640
	LTE Band 30	0.149	0.457	0.027	0.606	0.176	0.633
	LTE Band 7	0.083	0.457	0.027	0.540	0.110	0.567
	LTE Band 48	0.061	0.457	0.027	0.518	0.088	0.545
LTE Band 41	0.069	0.457	0.027	0.526	0.096	0.553	



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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	GSM 850	0.137	0.324	0.057	0.461	0.194	0.518
	GSM 1900	0.080	0.324	0.057	0.404	0.137	0.461
	UMTS 850	0.218	0.324	0.057	0.542	0.275	0.599
	UMTS 1750	0.128	0.324	0.057	0.452	0.185	0.509
	UMTS 1900	0.130	0.324	0.057	0.454	0.187	0.511
	Cell. CDMA/EVDO	0.302	0.324	0.057	0.626	0.359	0.683
	PCS CDMA/EVDO	0.129	0.324	0.057	0.453	0.186	0.510
	LTE Band 12	0.150	0.324	0.057	0.474	0.207	0.531
	LTE Band 13	0.177	0.324	0.057	0.501	0.234	0.558
	LTE Band 14	0.169	0.324	0.057	0.493	0.226	0.550
	LTE Band 5 (Cell)	0.178	0.324	0.057	0.502	0.235	0.559
	LTE Band 26 (Cell)	0.194	0.324	0.057	0.518	0.251	0.575
	LTE Band 66 (AWS)	0.152	0.324	0.057	0.476	0.209	0.533
	LTE Band 2 (PCS)	0.156	0.324	0.057	0.480	0.213	0.537
	LTE Band 30	0.149	0.324	0.057	0.473	0.206	0.530
	LTE Band 7	0.083	0.324	0.057	0.407	0.140	0.464
	LTE Band 48	0.061	0.324	0.057	0.385	0.118	0.442
LTE Band 41	0.069	0.324	0.057	0.393	0.126	0.450	





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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	GSM 850	0.137	0.457	0.027	0.324	0.057	1.002
	GSM 1900	0.080	0.457	0.027	0.324	0.057	0.945
	UMTS 850	0.218	0.457	0.027	0.324	0.057	1.083
	UMTS 1750	0.128	0.457	0.027	0.324	0.057	0.993
	UMTS 1900	0.130	0.457	0.027	0.324	0.057	0.995
	Cell. CDMA/EVDO	0.302	0.457	0.027	0.324	0.057	1.167
	PCS CDMA/EVDO	0.129	0.457	0.027	0.324	0.057	0.994
	LTE Band 12	0.150	0.457	0.027	0.324	0.057	1.015
	LTE Band 13	0.177	0.457	0.027	0.324	0.057	1.042
	LTE Band 14	0.169	0.457	0.027	0.324	0.057	1.034
	LTE Band 5 (Cell)	0.178	0.457	0.027	0.324	0.057	1.043
	LTE Band 26 (Cell)	0.194	0.457	0.027	0.324	0.057	1.059
	LTE Band 66 (AWS)	0.152	0.457	0.027	0.324	0.057	1.017
	LTE Band 2 (PCS)	0.156	0.457	0.027	0.324	0.057	1.021
	LTE Band 30	0.149	0.457	0.027	0.324	0.057	1.014
	LTE Band 7	0.083	0.457	0.027	0.324	0.057	0.948
	LTE Band 48	0.061	0.457	0.027	0.324	0.057	0.926
LTE Band 41	0.069	0.457	0.027	0.324	0.057	0.934	

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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	GSM 850	0.137	0.254	0.391
	GSM 1900	0.080	0.254	0.334
	UMTS 850	0.218	0.254	0.472
	UMTS 1750	0.128	0.254	0.382
	UMTS 1900	0.130	0.254	0.384
	Cell. CDMA/EVDO	0.302	0.254	0.556
	PCS CDMA/EVDO	0.129	0.254	0.383
	LTE Band 12	0.150	0.254	0.404
	LTE Band 13	0.177	0.254	0.431
	LTE Band 14	0.169	0.254	0.423
	LTE Band 5 (Cell)	0.178	0.254	0.432
	LTE Band 26 (Cell)	0.194	0.254	0.448
	LTE Band 66 (AWS)	0.152	0.254	0.406
	LTE Band 2 (PCS)	0.156	0.254	0.410
	LTE Band 30	0.149	0.254	0.403
	LTE Band 7	0.083	0.254	0.337
	LTE Band 48	0.061	0.254	0.315
	LTE Band 41	0.069	0.254	0.323

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**Table 12-5
Simultaneous Transmission Scenario with Bluetooth and 5 GHz 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)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Head SAR	GSM 850	0.137	0.254	0.324	0.057	0.772
	GSM 1900	0.080	0.254	0.324	0.057	0.715
	UMTS 850	0.218	0.254	0.324	0.057	0.853
	UMTS 1750	0.128	0.254	0.324	0.057	0.763
	UMTS 1900	0.130	0.254	0.324	0.057	0.765
	Cell. CDMA/EVDO	0.302	0.254	0.324	0.057	0.937
	PCS CDMA/EVDO	0.129	0.254	0.324	0.057	0.764
	LTE Band 12	0.150	0.254	0.324	0.057	0.785
	LTE Band 13	0.177	0.254	0.324	0.057	0.812
	LTE Band 14	0.169	0.254	0.324	0.057	0.804
	LTE Band 5 (Cell)	0.178	0.254	0.324	0.057	0.813
	LTE Band 26 (Cell)	0.194	0.254	0.324	0.057	0.829
	LTE Band 66 (AWS)	0.152	0.254	0.324	0.057	0.787
	LTE Band 2 (PCS)	0.156	0.254	0.324	0.057	0.791
	LTE Band 30	0.149	0.254	0.324	0.057	0.784
	LTE Band 7	0.083	0.254	0.324	0.057	0.718
	LTE Band 48	0.061	0.254	0.324	0.057	0.696
	LTE Band 41	0.069	0.254	0.324	0.057	0.704

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12.4 Body-Worn Simultaneous Transmission Analysis



Table 12-6
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Body-Worn	GSM 850	0.157	0.109	0.177	0.266	0.334	0.443
	GSM 1900	0.400	0.109	0.177	0.509	0.577	0.686
	UMTS 850	0.279	0.109	0.177	0.388	0.456	0.565
	UMTS 1750	1.112	0.109	0.177	1.221	1.289	1.398
	UMTS 1900	0.872	0.109	0.177	0.981	1.049	1.158
	Cell. CDMA	0.301	0.109	0.177	0.410	0.478	0.587
	PCS CDMA	0.840	0.109	0.177	0.949	1.017	1.126
	LTE Band 12	0.333	0.109	0.177	0.442	0.510	0.619
	LTE Band 13	0.239	0.109	0.177	0.348	0.416	0.525
	LTE Band 14	0.311	0.109	0.177	0.420	0.488	0.597
	LTE Band 5 (Cell)	0.307	0.109	0.177	0.416	0.484	0.593
	LTE Band 26 (Cell)	0.240	0.109	0.177	0.349	0.417	0.526
	LTE Band 66 (AWS)	0.863	0.109	0.177	0.972	1.040	1.149
	LTE Band 2 (PCS)	0.799	0.109	0.177	0.908	0.976	1.085
	LTE Band 30	0.451	0.109	0.177	0.560	0.628	0.737
	LTE Band 7	0.341	0.109	0.177	0.450	0.518	0.627
	LTE Band 48	0.178	0.109	0.177	0.287	0.355	0.464
LTE Band 41	0.315	0.109	0.177	0.424	0.492	0.601	

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**Table 12-7
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
Body-Worn	GSM 850	0.157	0.181	0.313	0.338	0.470
	GSM 1900	0.400	0.181	0.313	0.581	0.713
	UMTS 850	0.279	0.181	0.313	0.460	0.592
	UMTS 1750	1.112	0.181	0.313	1.293	1.425
	UMTS 1900	0.872	0.181	0.313	1.053	1.185
	Cell. CDMA	0.301	0.181	0.313	0.482	0.614
	PCS CDMA	0.840	0.181	0.313	1.021	1.153
	LTE Band 12	0.333	0.181	0.313	0.514	0.646
	LTE Band 13	0.239	0.181	0.313	0.420	0.552
	LTE Band 14	0.311	0.181	0.313	0.492	0.624
	LTE Band 5 (Cell)	0.307	0.181	0.313	0.488	0.620
	LTE Band 26 (Cell)	0.240	0.181	0.313	0.421	0.553
	LTE Band 66 (AWS)	0.863	0.181	0.313	1.044	1.176
	LTE Band 2 (PCS)	0.799	0.181	0.313	0.980	1.112
	LTE Band 30	0.451	0.181	0.313	0.632	0.764
	LTE Band 7	0.341	0.181	0.313	0.522	0.654
	LTE Band 48	0.178	0.181	0.313	0.359	0.491
LTE Band 41	0.315	0.181	0.313	0.496	0.628	

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Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	
Body-Worn	GSM 850	0.157	0.361	0.518
	GSM 1900	0.400	0.361	0.761
	UMTS 850	0.279	0.361	0.640
	UMTS 1750	1.112	0.361	1.473
	UMTS 1900	0.872	0.361	1.233
	Cell. CDMA	0.301	0.361	0.662
	PCS CDMA	0.840	0.361	1.201
	LTE Band 12	0.333	0.361	0.694
	LTE Band 13	0.239	0.361	0.600
	LTE Band 14	0.311	0.361	0.672
	LTE Band 5 (Cell)	0.307	0.361	0.668
	LTE Band 26 (Cell)	0.240	0.361	0.601
	LTE Band 66 (AWS)	0.863	0.361	1.224
	LTE Band 2 (PCS)	0.799	0.361	1.160
	LTE Band 30	0.451	0.361	0.812
	LTE Band 7	0.341	0.361	0.702
	LTE Band 48	0.178	0.361	0.539
LTE Band 41	0.315	0.361	0.676	



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Table 12-8
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 MIMO at 19 dBm SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	GSM 850	0.157	0.092	0.177	0.426
	GSM 1900	0.400	0.092	0.177	0.669
	UMTS 850	0.279	0.092	0.177	0.548
	UMTS 1750	1.112	0.092	0.177	1.381
	UMTS 1900	0.872	0.092	0.177	1.141
	Cell. CDMA	0.301	0.092	0.177	0.570
	PCS CDMA	0.840	0.092	0.177	1.109
	LTE Band 12	0.333	0.092	0.177	0.602
	LTE Band 13	0.239	0.092	0.177	0.508
	LTE Band 14	0.311	0.092	0.177	0.580
	LTE Band 5 (Cell)	0.307	0.092	0.177	0.576
	LTE Band 26 (Cell)	0.240	0.092	0.177	0.509
	LTE Band 66 (AWS)	0.863	0.092	0.177	1.132
	LTE Band 2 (PCS)	0.799	0.092	0.177	1.068
	LTE Band 30	0.451	0.092	0.177	0.720
	LTE Band 7	0.341	0.092	0.177	0.610
	LTE Band 48	0.178	0.092	0.177	0.447
LTE Band 41	0.315	0.092	0.177	0.584	



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Table 12-9
Simultaneous Transmission Scenario with Bluetooth (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	GSM 850	0.157	0.034	0.191
	GSM 1900	0.400	0.034	0.434
	UMTS 850	0.279	0.034	0.313
	UMTS 1750	1.112	0.034	1.146
	UMTS 1900	0.872	0.034	0.906
	Cell. CDMA	0.301	0.034	0.335
	PCS CDMA	0.840	0.034	0.874
	LTE Band 12	0.333	0.034	0.367
	LTE Band 13	0.239	0.034	0.273
	LTE Band 14	0.311	0.034	0.345
	LTE Band 5 (Cell)	0.307	0.034	0.341
	LTE Band 26 (Cell)	0.240	0.034	0.274
	LTE Band 66 (AWS)	0.863	0.034	0.897
	LTE Band 2 (PCS)	0.799	0.034	0.833
	LTE Band 30	0.451	0.034	0.485
	LTE Band 7	0.341	0.034	0.375
	LTE Band 48	0.178	0.034	0.212
LTE Band 41	0.315	0.034	0.349	







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Table 12-10
Simultaneous Transmission Scenario with Bluetooth and 5 GHz 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	GSM 850	0.157	0.034	0.181	0.372
	GSM 1900	0.400	0.034	0.181	0.615
	UMTS 850	0.279	0.034	0.181	0.494
	UMTS 1750	1.112	0.034	0.181	1.327
	UMTS 1900	0.872	0.034	0.181	1.087
	Cell. CDMA	0.301	0.034	0.181	0.516
	PCS CDMA	0.840	0.034	0.181	1.055
	LTE Band 12	0.333	0.034	0.181	0.548
	LTE Band 13	0.239	0.034	0.181	0.454
	LTE Band 14	0.311	0.034	0.181	0.526
	LTE Band 5 (Cell)	0.307	0.034	0.181	0.522
	LTE Band 26 (Cell)	0.240	0.034	0.181	0.455
	LTE Band 66 (AWS)	0.863	0.034	0.181	1.078
	LTE Band 2 (PCS)	0.799	0.034	0.181	1.014
	LTE Band 30	0.451	0.034	0.181	0.666
	LTE Band 7	0.341	0.034	0.181	0.556
	LTE Band 48	0.178	0.034	0.181	0.393
LTE Band 41	0.315	0.034	0.181	0.530	

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Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	GSM 850	0.157	0.034	0.313	0.504
	GSM 1900	0.400	0.034	0.313	0.747
	UMTS 850	0.279	0.034	0.313	0.626
	UMTS 1750	1.112	0.034	0.313	1.459
	UMTS 1900	0.872	0.034	0.313	1.219
	Cell. CDMA	0.301	0.034	0.313	0.648
	PCS CDMA	0.840	0.034	0.313	1.187
	LTE Band 12	0.333	0.034	0.313	0.680
	LTE Band 13	0.239	0.034	0.313	0.586
	LTE Band 14	0.311	0.034	0.313	0.658
	LTE Band 5 (Cell)	0.307	0.034	0.313	0.654
	LTE Band 26 (Cell)	0.240	0.034	0.313	0.587
	LTE Band 66 (AWS)	0.863	0.034	0.313	1.210
	LTE Band 2 (PCS)	0.799	0.034	0.313	1.146
	LTE Band 30	0.451	0.034	0.313	0.798
	LTE Band 7	0.341	0.034	0.313	0.688
	LTE Band 48	0.178	0.034	0.313	0.525
LTE Band 41	0.315	0.034	0.313	0.662	

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Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	GSM 850	0.157	0.034	0.361	0.552
	GSM 1900	0.400	0.034	0.361	0.795
	UMTS 850	0.279	0.034	0.361	0.674
	UMTS 1750	1.112	0.034	0.361	1.507
	UMTS 1900	0.872	0.034	0.361	1.267
	Cell. CDMA	0.301	0.034	0.361	0.696
	PCS CDMA	0.840	0.034	0.361	1.235
	LTE Band 12	0.333	0.034	0.361	0.728
	LTE Band 13	0.239	0.034	0.361	0.634
	LTE Band 14	0.311	0.034	0.361	0.706
	LTE Band 5 (Cell)	0.307	0.034	0.361	0.702
	LTE Band 26 (Cell)	0.240	0.034	0.361	0.635
	LTE Band 66 (AWS)	0.863	0.034	0.361	1.258
	LTE Band 2 (PCS)	0.799	0.034	0.361	1.194
	LTE Band 30	0.451	0.034	0.361	0.846
	LTE Band 7	0.341	0.034	0.361	0.736
	LTE Band 48	0.178	0.034	0.361	0.573
LTE Band 41	0.315	0.034	0.361	0.710	

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12.5 Hotspot SAR Simultaneous Transmission Analysis

Table 12-11
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	GPRS 850	0.488	0.242	0.377	0.730	0.865
	GPRS 1900	0.893	0.242	0.377	1.135	1.270
	UMTS 850	0.613	0.242	0.377	0.855	0.990
	UMTS 1750	1.369	0.242	0.377	See Table Below	See Table Below
	UMTS 1900	1.388	0.242	0.377	See Table Below	See Table Below
	Cell. EVDO	0.912	0.242	0.377	1.154	1.289
	PCS EVDO	0.956	0.242	0.377	1.198	1.333
	LTE Band 12	0.448	0.242	0.377	0.690	0.825
	LTE Band 13	0.452	0.242	0.377	0.694	0.829
	LTE Band 14	0.541	0.242	0.377	0.783	0.918
	LTE Band 5 (Cell)	0.635	0.242	0.377	0.877	1.012
	LTE Band 26 (Cell)	0.508	0.242	0.377	0.750	0.885
	LTE Band 66 (AWS)	1.165	0.242	0.377	1.407	1.542
	LTE Band 2 (PCS)	1.289	0.242	0.377	1.531	See Table Below
	LTE Band 30	0.726	0.242	0.377	0.968	1.103
	LTE Band 7	0.800	0.242	0.377	1.042	1.177
	LTE Band 48	0.416	0.242	0.377	0.658	0.793
LTE Band 41	0.808	0.242	0.377	1.050	1.185	

Simult Tx	Configuration	UMTS 1750 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)		Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3			1	2	3	1+2	1+3
Hotspot SAR	Back	0.724	0.242	0.377	0.966	1.101	Hotspot SAR	Back	0.664	0.242	0.377	0.906	1.041
	Front	0.554	0.242*	0.377*	0.796	0.931		Front	0.553	0.242*	0.377*	0.795	0.930
	Top	-	0.242*	0.377*	0.242	0.377		Top	-	0.242*	0.377*	0.242	0.377
	Bottom	1.369	-	-	1.369	1.369		Bottom	1.388	-	-	1.388	1.388
	Right	0.081	-	-	0.081	0.081		Right	0.070	-	-	0.070	0.070
	Left	0.092	0.238	0.377*	0.330	0.469		Left	0.056	0.238	0.377*	0.294	0.433

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.448	0.377	0.825
	Front	0.448	0.377*	0.825
	Top	-	0.377*	0.377
	Bottom	1.289	-	1.289
	Right	0.077	-	0.077
	Left	0.101	0.377*	0.478

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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	GPRS 850	0.488	0.273	0.761
	GPRS 1900	0.893	0.273	1.166
	UMTS 850	0.613	0.273	0.886
	UMTS 1750	1.369	0.273	See Table Below
	UMTS 1900	1.388	0.273	See Table Below
	Cell. EVDO	0.912	0.273	1.185
	PCS EVDO	0.956	0.273	1.229
	LTE Band 12	0.448	0.273	0.721
	LTE Band 13	0.452	0.273	0.725
	LTE Band 14	0.541	0.273	0.814
	LTE Band 5 (Cell)	0.635	0.273	0.908
	LTE Band 26 (Cell)	0.508	0.273	0.781
	LTE Band 66 (AWS)	1.165	0.273	1.438
	LTE Band 2 (PCS)	1.289	0.273	1.562
	LTE Band 30	0.726	0.273	0.999
	LTE Band 7	0.800	0.273	1.073
	LTE Band 48	0.416	0.273	0.689
LTE Band 41	0.808	0.273	1.081	

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Hotspot SAR	Back	0.724	0.273	0.997	Hotspot SAR	Back	0.664	0.273	0.937
	Front	0.554	0.273*	0.827		Front	0.553	0.273*	0.826
	Top	-	0.273*	0.273		Top	-	0.273*	0.273
	Bottom	1.369	-	1.369		Bottom	1.388	-	1.388
	Right	0.081	-	0.081		Right	0.070	-	0.070
	Left	0.092	0.273*	0.365		Left	0.056	0.273*	0.329





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Table 12-12
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
Hotspot SAR	GPRS 850	0.488	0.242	0.367	0.730	0.855
	GPRS 1900	0.893	0.242	0.367	1.135	1.260
	UMTS 850	0.613	0.242	0.367	0.855	0.980
	UMTS 1750	1.369	0.242	0.367	See Table Below	See Table Below
	UMTS 1900	1.388	0.242	0.367	See Table Below	See Table Below
	Cell. EVDO	0.912	0.242	0.367	1.154	1.279
	PCS EVDO	0.956	0.242	0.367	1.198	1.323
	LTE Band 12	0.448	0.242	0.367	0.690	0.815
	LTE Band 13	0.452	0.242	0.367	0.694	0.819
	LTE Band 14	0.541	0.242	0.367	0.783	0.908
	LTE Band 5 (Cell)	0.635	0.242	0.367	0.877	1.002
	LTE Band 26 (Cell)	0.508	0.242	0.367	0.750	0.875
	LTE Band 66 (AWS)	1.165	0.242	0.367	1.407	1.532
	LTE Band 2 (PCS)	1.289	0.242	0.367	1.531	See Table Below
	LTE Band 30	0.726	0.242	0.367	0.968	1.093
	LTE Band 7	0.800	0.242	0.367	1.042	1.167
	LTE Band 48	0.416	0.242	0.367	0.658	0.783
LTE Band 41	0.808	0.242	0.367	1.050	1.175	

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3			1	2	3	1+2	1+3
Hotspot SAR	Back	0.724	0.242	0.367	0.966	1.091	Hotspot SAR	Back	0.664	0.242	0.367	0.906	1.031
	Front	0.554	0.242*	0.367*	0.796	0.921		Front	0.553	0.242*	0.367*	0.795	0.920
	Top	-	0.242*	0.367*	0.242	0.367		Top	-	0.242*	0.367*	0.242	0.367
	Bottom	1.369	-	-	1.369	1.369		Bottom	1.388	-	-	1.388	1.388
	Right	0.081	-	-	0.081	0.081		Right	0.070	-	-	0.070	0.070
	Left	0.092	0.242*	0.367*	0.334	0.459		Left	0.056	0.242*	0.367*	0.298	0.423

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.448	0.367	0.815
	Front	0.448	0.367*	0.815
	Top	-	0.367*	0.367
	Bottom	1.289	-	1.289
	Right	0.077	-	0.077
	Left	0.101	0.367*	0.468

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Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	GPRS 850	0.488	0.525	1.013
	GPRS 1900	0.893	0.525	1.418
	UMTS 850	0.613	0.525	1.138
	UMTS 1750	1.369	0.525	See Table Below
	UMTS 1900	1.388	0.525	See Table Below
	Cell. EVDO	0.912	0.525	1.437
	PCS EVDO	0.956	0.525	1.481
	LTE Band 12	0.448	0.525	0.973
	LTE Band 13	0.452	0.525	0.977
	LTE Band 14	0.541	0.525	1.066
	LTE Band 5 (Cell)	0.635	0.525	1.160
	LTE Band 26 (Cell)	0.508	0.525	1.033
	LTE Band 66 (AWS)	1.165	0.525	See Table Below
	LTE Band 2 (PCS)	1.289	0.525	See Table Below
	LTE Band 30	0.726	0.525	1.251
	LTE Band 7	0.800	0.525	1.325
LTE Band 48	0.416	0.525	0.941	
LTE Band 41	0.808	0.525	1.333	

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Hotspot SAR	Back	0.724	0.525	1.249	Hotspot SAR	Back	0.664	0.525	1.189
	Front	0.554	0.525*	1.079		Front	0.553	0.525*	1.078
	Top	-	0.525*	0.525		Top	-	0.525*	0.525
	Bottom	1.369	-	1.369		Bottom	1.388	-	1.388
	Right	0.081	-	0.081		Right	0.070	-	0.070
Left	0.092	0.289	0.381	Left	0.056	0.289	0.345		
Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Hotspot SAR	Back	0.668	0.525	1.193	Hotspot SAR	Back	0.448	0.525	0.973
	Front	0.699	0.525*	1.224		Front	0.448	0.525*	0.973
	Top	-	0.525*	0.525		Top	-	0.525*	0.525
	Bottom	1.165	-	1.165		Bottom	1.289	-	1.289
	Right	0.082	-	0.082		Right	0.077	-	0.077
Left	0.093	0.289	0.382	Left	0.101	0.289	0.390		



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Table 12-13
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 at 19 dBm SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	GPRS 850	0.488	0.178	0.258	0.924
	GPRS 1900	0.893	0.178	0.258	1.329
	UMTS 850	0.613	0.178	0.258	1.049
	UMTS 1750	1.369	0.178	0.258	See Table Below
	UMTS 1900	1.388	0.178	0.258	See Table Below
	Cell. EVDO	0.912	0.178	0.258	1.348
	PCS EVDO	0.956	0.178	0.258	1.392
	LTE Band 12	0.448	0.178	0.258	0.884
	LTE Band 13	0.452	0.178	0.258	0.888
	LTE Band 14	0.541	0.178	0.258	0.977
	LTE Band 5 (Cell)	0.635	0.178	0.258	1.071
	LTE Band 26 (Cell)	0.508	0.178	0.258	0.944
	LTE Band 66 (AWS)	1.165	0.178	0.258	See Table Below
	LTE Band 2 (PCS)	1.289	0.178	0.258	See Table Below
	LTE Band 30	0.726	0.178	0.258	1.162
	LTE Band 7	0.800	0.178	0.258	1.236
	LTE Band 48	0.416	0.178	0.258	0.852
LTE Band 41	0.808	0.178	0.258	1.244	

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	2.4 GHz WLAN MIMO at 19 dBm SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN MIMO at 19 dBm SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Hotspot SAR	Back	0.724	0.178	0.258	1.160	Hotspot SAR	Back	0.664	0.178	0.258	1.100
	Front	0.554	0.178*	0.258*	0.990		Front	0.553	0.178*	0.258*	0.989
	Top	-	0.178*	0.258*	0.436		Top	-	0.178*	0.258*	0.436
	Bottom	1.369	-	-	1.369		Bottom	1.388	-	-	1.388
	Right	0.081	-	-	0.081		Right	0.070	-	-	0.070
	Left	0.092	0.082	0.139	0.313		Left	0.056	0.082	0.139	0.277
Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN MIMO at 19 dBm SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	2.4 GHz WLAN MIMO at 19 dBm SAR (W/kg)	5 GHz WLAN MIMO at 16 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Hotspot SAR	Back	0.668	0.178	0.258	1.104	Hotspot SAR	Back	0.448	0.178	0.258	0.884
	Front	0.699	0.178*	0.258*	1.135		Front	0.448	0.178*	0.258*	0.884
	Top	-	0.178*	0.258*	0.436		Top	-	0.178*	0.258*	0.436
	Bottom	1.165	-	-	1.165		Bottom	1.289	-	-	1.289
	Right	0.082	-	-	0.082		Right	0.077	-	-	0.077
	Left	0.093	0.082	0.139	0.314		Left	0.101	0.082	0.139	0.322



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Table 12-14
Simultaneous Transmission Scenario with Bluetooth (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	GPRS 850	0.488	0.113	0.601
	GPRS 1900	0.893	0.113	1.006
	UMTS 850	0.613	0.113	0.726
	UMTS 1750	1.369	0.113	1.482
	UMTS 1900	1.388	0.113	1.501
	Cell. EVDO	0.912	0.113	1.025
	PCS EVDO	0.956	0.113	1.069
	LTE Band 12	0.448	0.113	0.561
	LTE Band 13	0.452	0.113	0.565
	LTE Band 14	0.541	0.113	0.654
	LTE Band 5 (Cell)	0.635	0.113	0.748
	LTE Band 26 (Cell)	0.508	0.113	0.621
	LTE Band 66 (AWS)	1.165	0.113	1.278
	LTE Band 2 (PCS)	1.289	0.113	1.402
	LTE Band 30	0.726	0.113	0.839
	LTE Band 7	0.800	0.113	0.913
	LTE Band 48	0.416	0.113	0.529
LTE Band 41	0.808	0.113	0.921	





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Table 12-15
Simultaneous Transmission Scenario with Bluetooth and 5 GHz 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	
Hotspot SAR	GPRS 850	0.488	0.113	0.242	0.843
	GPRS 1900	0.893	0.113	0.242	1.248
	UMTS 850	0.613	0.113	0.242	0.968
	UMTS 1750	1.369	0.113	0.242	See Table Below
	UMTS 1900	1.388	0.113	0.242	See Table Below
	Cell. EVDO	0.912	0.113	0.242	1.267
	PCS EVDO	0.956	0.113	0.242	1.311
	LTE Band 12	0.448	0.113	0.242	0.803
	LTE Band 13	0.452	0.113	0.242	0.807
	LTE Band 14	0.541	0.113	0.242	0.896
	LTE Band 5 (Cell)	0.635	0.113	0.242	0.990
	LTE Band 26 (Cell)	0.508	0.113	0.242	0.863
	LTE Band 66 (AWS)	1.165	0.113	0.242	1.520
	LTE Band 2 (PCS)	1.289	0.113	0.242	See Table Below
	LTE Band 30	0.726	0.113	0.242	1.081
	LTE Band 7	0.800	0.113	0.242	1.155
	LTE Band 48	0.416	0.113	0.242	0.771
	LTE Band 41	0.808	0.113	0.242	1.163



Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Hotspot SAR	Back	0.724	0.113	0.242	1.079	Hotspot SAR	Back	0.664	0.113	0.242	1.019
	Front	0.554	0.078	0.242*	0.874		Front	0.553	0.078	0.242*	0.873
	Top	-	0.078	0.242*	0.320		Top	-	0.078	0.242*	0.320
	Bottom	1.369	-	-	1.369		Bottom	1.388	-	-	1.388
	Right	0.081	-	-	0.081		Right	0.070	-	-	0.070
	Left	0.092	0.106	0.242*	0.440		Left	0.056	0.106	0.242*	0.404

Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.448	0.113	0.242	0.803
	Front	0.448	0.078	0.242*	0.768
	Top	-	0.078	0.242*	0.320
	Bottom	1.289	-	-	1.289
	Right	0.077	-	-	0.077
	Left	0.101	0.106	0.242*	0.449

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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	
Hotspot SAR	GPRS 850	0.488	0.113	0.367	0.968
	GPRS 1900	0.893	0.113	0.367	1.373
	UMTS 850	0.613	0.113	0.367	1.093
	UMTS 1750	1.369	0.113	0.367	See Table Below
	UMTS 1900	1.388	0.113	0.367	See Table Below
	Cell. EVDO	0.912	0.113	0.367	1.392
	PCS EVDO	0.956	0.113	0.367	1.436
	LTE Band 12	0.448	0.113	0.367	0.928
	LTE Band 13	0.452	0.113	0.367	0.932
	LTE Band 14	0.541	0.113	0.367	1.021
	LTE Band 5 (Cell)	0.635	0.113	0.367	1.115
	LTE Band 26 (Cell)	0.508	0.113	0.367	0.988
	LTE Band 66 (AWS)	1.165	0.113	0.367	See Table Below
	LTE Band 2 (PCS)	1.289	0.113	0.367	See Table Below
	LTE Band 30	0.726	0.113	0.367	1.206
	LTE Band 7	0.800	0.113	0.367	1.280
	LTE Band 48	0.416	0.113	0.367	0.896
LTE Band 41	0.808	0.113	0.367	1.288	

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Hotspot SAR	Back	0.724	0.113	0.367	1.204	Hotspot SAR	Back	0.664	0.113	0.367	1.144
	Front	0.554	0.078	0.367*	0.999		Front	0.553	0.078	0.367*	0.998
	Top	-	0.078	0.367*	0.445		Top	-	0.078	0.367*	0.445
	Bottom	1.369	-	-	1.369		Bottom	1.388	-	-	1.388
	Right	0.081	-	-	0.081		Right	0.070	-	-	0.070
Left	0.092	0.106	0.367*	0.565	Left	0.056	0.106	0.367*	0.529		
Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Hotspot SAR	Back	0.668	0.113	0.367	1.148	Hotspot SAR	Back	0.448	0.113	0.367	0.928
	Front	0.699	0.078	0.367*	1.144		Front	0.448	0.078	0.367*	0.893
	Top	-	0.078	0.367*	0.445		Top	-	0.078	0.367*	0.445
	Bottom	1.165	-	-	1.165		Bottom	1.289	-	-	1.289
	Right	0.082	-	-	0.082		Right	0.077	-	-	0.077
Left	0.093	0.106	0.367*	0.566	Left	0.101	0.106	0.367*	0.574		

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Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	GPRS 850	0.488	0.113	0.525	1.126
	GPRS 1900	0.893	0.113	0.525	1.531
	UMTS 850	0.613	0.113	0.525	1.251
	UMTS 1750	1.369	0.113	0.525	See Table Below
	UMTS 1900	1.388	0.113	0.525	See Table Below
	Cell. EVDO	0.912	0.113	0.525	1.550
	PCS EVDO	0.956	0.113	0.525	1.594
	LTE Band 12	0.448	0.113	0.525	1.086
	LTE Band 13	0.452	0.113	0.525	1.090
	LTE Band 14	0.541	0.113	0.525	1.179
	LTE Band 5 (Cell)	0.635	0.113	0.525	1.273
	LTE Band 26 (Cell)	0.508	0.113	0.525	1.146
	LTE Band 66 (AWS)	1.165	0.113	0.525	See Table Below
	LTE Band 2 (PCS)	1.289	0.113	0.525	See Table Below
	LTE Band 30	0.726	0.113	0.525	1.364
	LTE Band 7	0.800	0.113	0.525	1.438
	LTE Band 48	0.416	0.113	0.525	1.054
LTE Band 41	0.808	0.113	0.525	1.446	

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Hotspot SAR	Back	0.724	0.113	0.525	1.362	Hotspot SAR	Back	0.664	0.113	0.525	1.302
	Front	0.554	0.078	0.525*	1.157		Front	0.553	0.078	0.525*	1.156
	Top	-	0.078	0.525*	0.603		Top	-	0.078	0.525*	0.603
	Bottom	1.369	-	-	1.369		Bottom	1.388	-	-	1.388
	Right	0.081	-	-	0.081		Right	0.070	-	-	0.070
	Left	0.092	0.106	0.289	0.487		Left	0.056	0.106	0.289	0.451
Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3			1	2	3	1+2+3
Hotspot SAR	Back	0.668	0.113	0.525	1.306	Hotspot SAR	Back	0.448	0.113	0.525	1.086
	Front	0.699	0.078	0.525*	1.302		Front	0.448	0.078	0.525*	1.051
	Top	-	0.078	0.525*	0.603		Top	-	0.078	0.525*	0.603
	Bottom	1.165	-	-	1.165		Bottom	1.289	-	-	1.289
	Right	0.082	-	-	0.082		Right	0.077	-	-	0.077
	Left	0.093	0.106	0.289	0.488		Left	0.101	0.106	0.289	0.496

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12.6 Phablet Simultaneous Transmission Analysis



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

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

Table 12-16
Simultaneous Transmission Scenario with 5 GHz WLAN SISO (Phablet)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	GPRS 1900	2.261	0.983	3.244
	UMTS 1750	3.056	0.983	See Table Below
	UMTS 1900	3.273	0.983	See Table Below
	PCS EVDO	3.044	0.983	See Table Below
	LTE Band 66 (AWS)	2.902	0.983	3.885
	LTE Band 2 (PCS)	3.263	0.983	See Table Below
	LTE Band 30	1.942	0.983	2.925
	LTE Band 7	2.266	0.983	3.249
	LTE Band 48	1.084	0.983	2.067
	LTE Band 41	2.673	0.983	3.656

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Phablet SAR	Back	2.422	0.983	3.405	Phablet SAR	Back	2.849	0.983	3.832
	Front	1.678	0.983*	2.661		Front	1.744	0.983*	2.727
	Top	-	0.983*	0.983		Top	-	0.983*	0.983
	Bottom	3.056	-	3.056		Bottom	3.273	-	3.273
	Right	0.454	-	0.454		Right	0.373	-	0.373
	Left	0.592	0.983*	1.575		Left	0.439	0.983*	1.422
Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Phablet SAR	Back	2.762	0.983	3.745	Phablet SAR	Back	2.898	0.983	3.881
	Front	1.699	0.983*	2.682		Front	1.680	0.983*	2.663
	Top	-	0.983*	0.983		Top	-	0.983*	0.983
	Bottom	3.044	-	3.044		Bottom	3.263	-	3.263
	Right	0.329	-	0.329		Right	0.396	-	0.396
	Left	0.429	0.983*	1.412		Left	0.467	0.983*	1.450

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Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	GPRS 1900	2.261	1.355	3.616
	UMTS 1750	3.056	1.355	See Table Below
	UMTS 1900	3.273	1.355	See Table Below
	PCS EVDO	3.044	1.355	See Table Below
	LTE Band 66 (AWS)	2.902	1.355	See Table Below
	LTE Band 2 (PCS)	3.263	1.355	See Table Below
	LTE Band 30	1.942	1.355	3.297
	LTE Band 7	2.266	1.355	3.621
	LTE Band 48	1.084	1.355	2.439
LTE Band 41	2.673	1.355	See Table Below	

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2				1	2	1+2	1+2
Phablet SAR	Back	2.422	1.355	3.777	0.06	Phablet SAR	Back	2.849	1.355	See Note 1	0.06
	Front	1.678	1.355*	3.033			Front	1.744	1.355*	3.099	N/A
	Top	-	1.355*	1.355			Top	-	1.355*	1.355	N/A
	Bottom	3.056	-	3.056			Bottom	3.273	-	3.273	N/A
	Right	0.454	-	0.454			Right	0.373	-	0.373	N/A
	Left	0.592	0.268	0.860			Left	0.439	0.268	0.707	N/A
Phablet SAR	Back	2.762	1.355	See Note 1	0.06	Phablet SAR	Back	1.631	1.355	2.986	
	Front	1.699	1.355*	3.054			Front	1.654	1.355*	3.009	
	Top	-	1.355*	1.355			Top	-	1.355*	1.355	
	Bottom	3.044	-	3.044			Bottom	2.902	-	2.902	
	Right	0.329	-	0.329			Right	0.471	-	0.471	
	Left	0.429	0.268	0.697			Left	0.567	0.268	0.835	
Phablet SAR	Back	2.898	1.355	See Note 1	0.06	Phablet SAR	Back	2.331	1.355	3.686	
	Front	1.680	1.355*	3.035			Front	2.166	1.355*	3.521	
	Top	-	1.355*	1.355			Top	-	1.355*	1.355	
	Bottom	3.263	-	3.263			Bottom	2.673	-	2.673	
	Right	0.396	-	0.396			Right	-	-	-	
	Left	0.467	0.268	0.735			Left	0.878	0.268	1.146	



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Table 12-17
Simultaneous Transmission Scenario with 5 GHz WLAN MIMO (Phablet)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	GPRS 1900	2.261	2.192	See Table Below
	UMTS 1750	3.056	2.192	See Table Below
	UMTS 1900	3.273	2.192	See Table Below
	PCS EVDO	3.044	2.192	See Table Below
	LTE Band 66 (AWS)	2.902	2.192	See Table Below
	LTE Band 2 (PCS)	3.263	2.192	See Table Below
	LTE Band 30	1.942	2.192	See Table Below
	LTE Band 7	2.266	2.192	See Table Below
	LTE Band 48	1.084	2.192	3.276
LTE Band 41	2.673	2.192	See Table Below	

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2			1	2	1+2	1+2
Phablet SAR	Back	1.459	2.192	3.651	Phablet SAR	Back	2.422	2.192	See Note 1	0.07
	Front	1.377	0.363	1.740		Front	1.678	0.363	2.041	N/A
	Top	-	2.192*	2.192		Top	-	2.192*	2.192	N/A
	Bottom	2.261	-	2.261		Bottom	3.056	-	3.056	N/A
	Right	0.379	-	0.379		Right	0.454	-	0.454	N/A
	Left	0.399	0.829	1.228		Left	0.592	0.829	1.421	N/A

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Phablet SAR	Back	2.849	2.192	See Note 1	0.08	Phablet SAR	Back	2.762	2.192	See Note 1	0.08
	Front	1.744	0.363	2.107	N/A		Front	1.699	0.363	2.062	N/A
	Top	-	2.192*	2.192	N/A		Top	-	2.192*	2.192	N/A
	Bottom	3.273	-	3.273	N/A		Bottom	3.044	-	3.044	N/A
	Right	0.373	-	0.373	N/A		Right	0.329	-	0.329	N/A
	Left	0.439	0.829	1.268	N/A		Left	0.429	0.829	1.258	N/A

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 2 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2			1	2	1+2	1+2
Phablet SAR	Back	1.631	2.192	3.823	Phablet SAR	Back	2.898	2.192	See Note 1	0.09
	Front	1.654	0.363	2.017		Front	1.680	0.363	2.043	N/A
	Top	-	2.192*	2.192		Top	-	2.192*	2.192	N/A
	Bottom	2.902	-	2.902		Bottom	3.263	-	3.263	N/A
	Right	0.471	-	0.471		Right	0.396	-	0.396	N/A
	Left	0.567	0.829	1.396		Left	0.467	0.829	1.296	N/A

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Simult Tx	Configuration	LTE Band 30 Ant A SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 30 Ant B SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2			1	2	1+2	1+2
Phablet SAR	Back	1.339	2.192	3.531	Phablet SAR	Back	1.892	2.192	See Note 1	0.06
	Front	0.892	0.363	1.255		Front	1.654	0.363	2.017	N/A
	Top	-	2.192*	2.192		Top	-	2.192*	2.192	N/A
	Bottom	1.033	-	1.033		Bottom	1.942	-	1.942	N/A
	Right	0.517	-	0.517		Right	0.401	-	0.401	N/A
	Left	0.031	0.829	0.860		Left	1.143	0.829	1.972	N/A
Simult Tx	Configuration	LTE Band 7 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2			1	2	1+2	1+2
Phablet SAR	Back	1.792	2.192	3.984	Phablet SAR	Back	2.331	2.192	See Note 1	0.08
	Front	1.862	0.363	2.225		Front	2.166	0.363	2.529	N/A
	Top	-	2.192*	2.192		Top	-	2.192*	2.192	N/A
	Bottom	2.266	-	2.266		Bottom	2.673	-	2.673	N/A
	Right	-	-	-		Right	-	-	-	N/A
	Left	0.982	0.829	1.811		Left	0.878	0.829	1.707	N/A

Note 1 - No evaluation was performed to determine the aggregate 10g SAR for these configurations as the SPLSR ratio between the antenna pairs was not greater than 0.10 per FCC KDB 447498 D01v06. See Section 12.7 for detailed SPLSR ratio analysis.

12.7 SPLSR Evaluation and Analysis

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



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

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

12.7.1 Phablet Back Side SPLSR Evaluation and Analysis

Table 12-18
Peak SAR Locations for Phablet Back Side

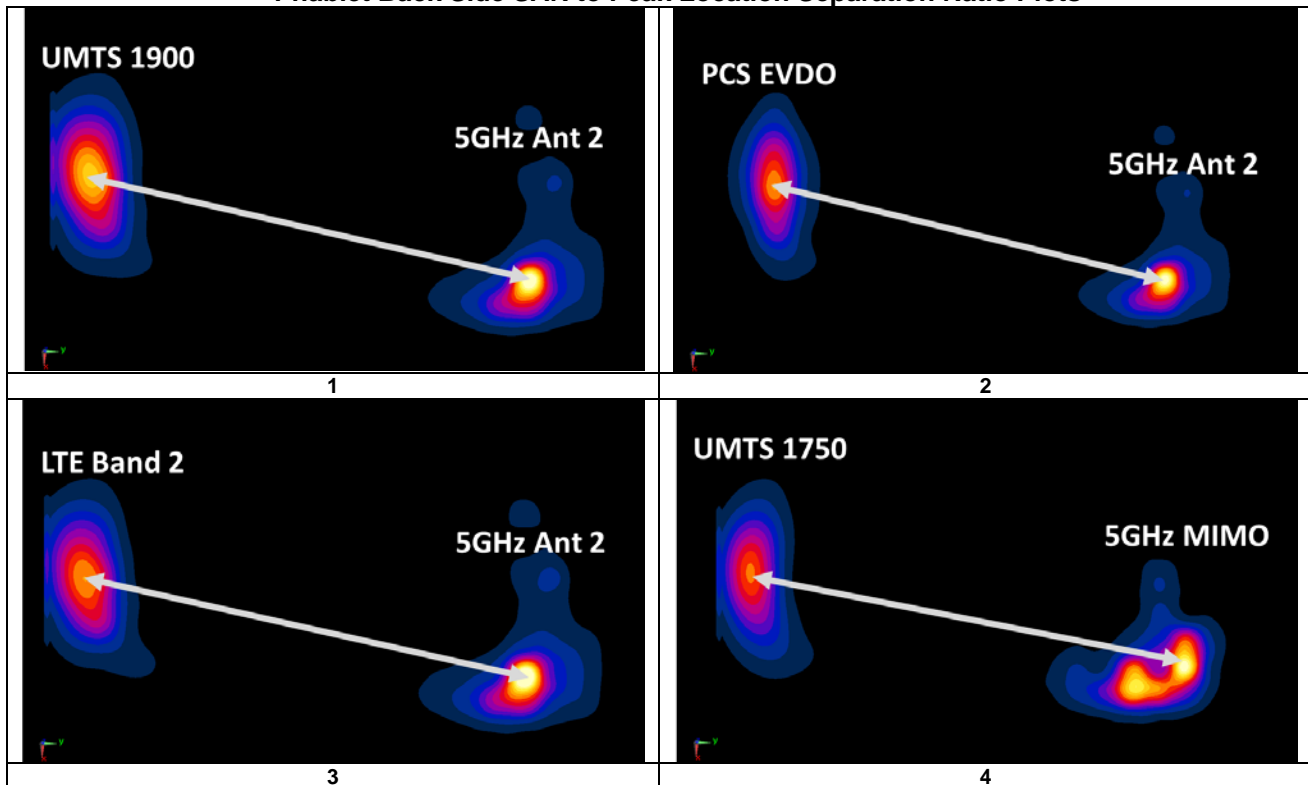
Mode/Band	x (mm)	y (mm)
5 GHz WLAN Ant 2	7.00	54.00
5 GHz WLAN MIMO	14.00	51.00
UMTS 1750	-28.00	-79.50
UMTS 1900	-18.50	-79.50
PCS EVDO	-12.00	-80.00
LTE Band 2 (PCS)	-15.50	-79.50
LTE Band 30 Ant B	-2.20	-80.60
LTE Band 41	-8.50	-70.60



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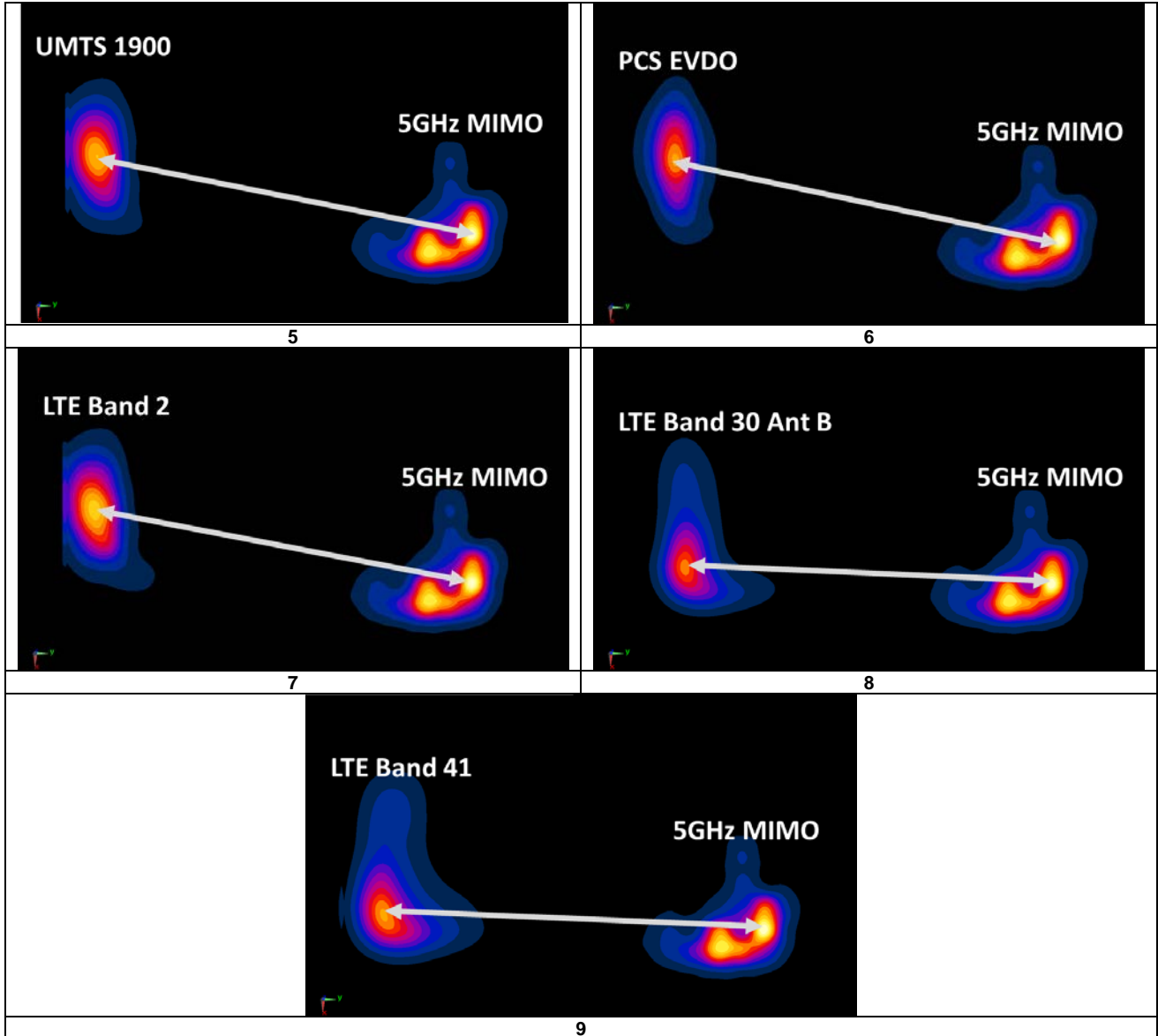
**Table 12-19
Phablet Back Side SAR to Peak Location Separation Ratio Calculations**

Antenna Pair		Standalone SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D _{a-b}	$(a+b)^{1.5}/D_{a-b}$	
5 GHz WLAN Ant 2	UMTS 1900	1.355	2.849	4.204	135.91	0.06	1
5 GHz WLAN Ant 2	PCS EVDO	1.355	2.762	4.117	135.34	0.06	2
5 GHz WLAN Ant 2	LTE Band 2 (PCS)	1.355	2.898	4.253	135.38	0.06	3
5 GHz WLAN MIMO	UMTS 1750	2.192	2.422	4.614	137.09	0.07	4
5 GHz WLAN MIMO	UMTS 1900	2.192	2.849	5.041	134.49	0.08	5
5 GHz WLAN MIMO	PCS EVDO	2.192	2.762	4.954	133.56	0.08	6
5 GHz WLAN MIMO	LTE Band 2 (PCS)	2.192	2.898	5.090	133.79	0.09	7
5 GHz WLAN MIMO	LTE Band 30 Ant B	2.192	1.892	4.084	132.59	0.06	8
5 GHz WLAN MIMO	LTE Band 41	2.192	2.331	4.523	123.66	0.08	9

**Table 12-20
Phablet Back Side SAR to Peak Location Separation Ratio Plots**





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12.8 Simultaneous Transmission Conclusion

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

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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
- 5) When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

**Table 13-1
Body SAR Measurement Variability Results**

BODY VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	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	1907.60	9538	UMTS 1900	RMC	bottom	10 mm	1.170	1.140	1.03	N/A	N/A	N/A	N/A
1750	1720.00	132072	LTE Band 66 (AWS), ULCA, 20 MHz Bandwidth	QPSK, 50 RB, 50 RB Offset	bottom	10 mm	1.100	0.969	1.14	N/A	N/A	N/A	N/A
	1739.80	132270					QPSK, 50 RB, 0 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							



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**Table 13-2
Phablet SAR Measurement Variability Results**

PHABLET VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Data Rate (Mbps)	Side	Spacing	Measured SAR (10g)	1st Repeated SAR (10g)	Ratio	2nd Repeated SAR (10g)	Ratio	3rd Repeated SAR (10g)	Ratio
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1900	1880.00	9400	UMTS 1900	RMC	N/A	bottom	0 mm	3.190	3.180	1.00	N/A	N/A	N/A	N/A
1750	1720.00	132072	LTE Band 66 (AWS), ULCA, 20 MHz Bandwidth	QPSK, 50 RB, 50 RB Offset	N/A	bottom	0 mm	2.630	2.740	1.04	N/A	N/A	N/A	N/A
	1739.80	132270		QPSK, 50 RB, 0 RB Offset										
2450	2510.00	20850	LTE Band 7, 20 MHz Bandwidth	QPSK, 50 RB, 25 RB Offset	N/A	bottom	0 mm	2.020	1.940	1.04	N/A	N/A	N/A	N/A
5600	5600.00	120	802.11n, 20 MHz Bandwidth	OFDM, MIMO	13	back	0 mm	2.020	2.010	1.00	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Phablet 4.0 W/kg (mW/g) averaged over 10 grams							

13.2 Measurement Uncertainty

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

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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 80 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 80 states.

Per FCC Guidance, several bands/modes were combined to be treated as a single aggregate band. For the LTE Band 5 and 26 pair, the highest reported SAR configuration per exposure condition was evaluated. 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		EVDO Rev A		EVDO Rev A	
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)	0.173	Measured 1g SAR (W/kg)	0.100	Measured 1g SAR (W/kg)	0.110	Measured 1g SAR (W/kg)	0.224	Measured 1g SAR (W/kg)	0.100
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 8)	0.279	Auto-tune (State 31)	0.193	Auto-tune (State 17)	0.207	Auto-tune (State 2)	0.254	Auto-tune (State 17)	0.209
Default (State 1)	0.271	Default (State 17)	0.161	Default (State 17)	0.206	Default (State 1)	0.244	Default (State 17)	0.205
State 1	0.271	State 0	0.195	State 2	0.166	State 2	0.251	State 0	0.155
State 6	0.261	State 2	0.177	State 3	0.163	State 5	0.244	State 1	0.152
State 8	0.267	State 6	0.160	State 4	0.161	State 7	0.230	State 5	0.128
State 11	0.170	State 7	0.157	State 14	0.064	State 9	0.207	State 8	0.122
State 15	0.051	State 8	0.157	State 15	0.046	State 16	0.124	State 11	0.091
State 19	0.152	State 10	0.134	State 17	0.206	State 17	0.127	State 14	0.053
State 24	0.128	State 13	0.089	State 20	0.206	State 22	0.117	State 15	0.040
State 29	0.019	State 17	0.161	State 21	0.206	State 27	0.042	State 17	0.205
State 32	0.269	State 19	0.169	State 22	0.199	State 28	0.024	State 23	0.166
State 39	0.230	State 26	0.187	State 30	0.104	State 29	0.016	State 25	0.143
State 40	0.198	State 29	0.199	State 32	0.111	State 36	0.191	State 27	0.079
State 43	0.124	State 31	0.190	State 36	0.095	State 45	0.066	State 38	0.074
State 48	0.156	State 33	0.102	State 37	0.094	State 48	0.235	State 40	0.073
State 52	0.180	State 42	0.064	State 38	0.088	State 63	0.007	State 41	0.065
State 53	0.178	State 46	0.026	State 41	0.078	State 67	0.128	State 49	0.152
State 54	0.167	State 55	0.150	State 42	0.071	State 68	0.234	State 52	0.134
State 56	0.156	State 60	0.112	State 49	0.166	State 69	0.121	State 54	0.127
State 61	0.025	State 62	0.088	State 52	0.147	State 71	0.134	State 59	0.099
State 65	0.139	State 63	0.073	State 54	0.138	State 74	0.232	State 66	0.069
State 68	0.281	State 69	0.159	State 64	0.133	State 77	0.122	State 69	0.195
State 73	0.141	State 73	0.149	State 65	0.168	State 78	0.230	State 72	0.142
State 75	0.155	State 76	0.192	State 71	0.162	State 79	0.134	State 77	0.209



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Table 14-2
LTE Supplemental Head SAR Data

Supplemental Head SAR Data											
LTE Band 12		LTE Band 13		LTE Band 14		LTE Band 5/26		LTE Band 66		LTE Band 2	
QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 15MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 20MHz Bandwidth, 1 RB, 99 RB Offsets		QPSK, 20MHz Bandwidth, 1 RB, 50 RB Offsets	
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)	707.50	Frequency (MHz)	782.00	Frequency (MHz)	793.00	Frequency (MHz)	831.50	Frequency (MHz)	1720.00	Frequency (MHz)	1860.00
Channel	23095	Channel	23230	Channel	23330	Channel	26865	Channel	132072	Channel	18700
Measured 1g SAR (W/kg)	0.120	Measured 1g SAR (W/kg)	0.151	Measured 1g SAR (W/kg)	0.135	Measured 1g SAR (W/kg)	0.161	Measured 1g SAR (W/kg)	0.115	Measured 1g SAR (W/kg)	0.119
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 76)	0.230	Auto-tune (State 1)	0.171	Auto-tune (State 1)	0.167	Auto-tune (State 5)	0.228	Auto-tune (State 30)	0.164	Auto-tune (State 17)	0.188
Default (State 1)	0.221	Default (State 1)	0.163	Default (State 1)	0.168	Default (State 1)	0.213	Default (State 49)	0.147	Default (State 17)	0.186
State 3	0.204	State 1	0.163	State 1	0.168	State 4	0.224	State 0	0.150	State 4	0.132
State 7	0.179	State 8	0.098	State 3	0.146	State 5	0.223	State 2	0.134	State 5	0.131
State 10	0.135	State 21	0.101	State 8	0.110	State 6	0.219	State 7	0.120	State 8	0.125
State 14	0.053	State 31	0.004	State 12	0.037	State 10	0.178	State 8	0.125	State 9	0.116
State 23	0.062	State 45	0.023	State 14	0.019	State 14	0.071	State 13	0.073	State 11	0.094
State 26	0.034	State 49	0.134	State 17	0.110	State 17	0.104	State 17	0.172	State 16	0.190
State 35	0.174	State 57	0.062	State 19	0.109	State 20	0.121	State 19	0.172	State 17	0.186
State 36	0.168	State 67	0.128	State 20	0.109	State 27	0.034	State 24	0.169	State 18	0.180
State 43	0.087	State 68	0.165	State 26	0.059	State 29	0.014	State 27	0.169	State 23	0.168
State 65	0.078	State 70	0.151	State 30	0.013	State 30	0.009	State 30	0.161	State 25	0.164
State 73	0.079	State 76	0.166	State 35	0.125	State 34	0.194	State 33	0.069	State 28	0.122
State 76	0.228	State 78	0.150	State 41	0.075	State 39	0.169	State 34	0.061	State 32	0.100
				State 45	0.024	State 43	0.108	State 37	0.057	State 35	0.087
				State 48	0.121	State 46	0.052	State 42	0.044	State 41	0.065
				State 55	0.108	State 49	0.115	State 45	0.026	State 47	0.018
				State 58	0.062	State 53	0.141	State 48	0.137	State 50	0.132
				State 61	0.021	State 54	0.132	State 51	0.133	State 59	0.090
				State 62	0.015	State 55	0.126	State 52	0.132	State 60	0.074
				State 65	0.108	State 61	0.018	State 56	0.123	State 64	0.119
				State 69	0.109	State 62	0.011	State 58	0.111	State 71	0.147
				State 73	0.108	State 68	0.217	State 69	0.164	State 72	0.146
				State 76	0.165	State 73	0.101	State 76	0.143	State 74	0.086



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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	Bottom Edge	Test Position	Bottom Edge	Test Position	Back Side	Test Position	Bottom Edge
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	836.60	Frequency (MHz)	1752.60	Frequency (MHz)	1907.60	Frequency (MHz)	848.31	Frequency (MHz)	1908.75
Channel	4183	Channel	1513	Channel	9538	Channel	777	Channel	1175
Measured 1g SAR (W/kg)	0.487	Measured 1g SAR (W/kg)	1.080	Measured 1g SAR (W/kg)	1.170	Measured 1g SAR (W/kg)	0.676	Measured 1g SAR (W/kg)	0.821
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 34)	0.727	Auto-tune (State 27)	1.375	Auto-tune (State 17)	1.348	Auto-tune (State 1)	1.180	Auto-tune (State 17)	1.302
Default (State 1)	0.703	Default (State 17)	1.297	Default (State 17)	1.340	Default (State 1)	1.100	Default (State 17)	1.298
State 0	0.737	State 0	1.341	State 0	1.147	State 0	1.090	State 0	1.211
State 1	0.703	State 1	1.288	State 1	1.146	State 1	1.100	State 1	1.204
State 6	0.665	State 2	1.195	State 2	1.053	State 3	1.120	State 2	1.096
State 7	0.637	State 3	1.169	State 3	1.034	State 6	1.070	State 3	1.070
State 12	0.228	State 4	1.147	State 4	1.016	State 6	1.030	State 4	1.062
State 15	0.080	State 5	1.140	State 5	1.011	State 12	0.462	State 5	1.232
State 21	0.478	State 6	1.103	State 6	0.964	State 20	0.963	State 6	1.000
State 22	0.445	State 7	1.080	State 7	0.937	State 25	0.021	State 7	0.978
State 26	0.237	State 8	1.090	State 8	0.952	State 26	0.069	State 8	0.996
State 34	0.745	State 9	1.029	State 9	0.874	State 28	0.122	State 9	0.917
State 36	0.672	State 10	0.973	State 10	0.807	State 35	1.060	State 10	1.220
State 37	0.661	State 11	0.900	State 11	0.717	State 38	0.940	State 11	0.750
State 43	0.301	State 12	0.798	State 12	0.595	State 40	0.891	State 12	0.625
State 44	0.210	State 13	0.730	State 13	0.511	State 45	0.092	State 13	0.535
State 49	0.471	State 14	0.634	State 14	0.415	State 47	0.041	State 14	0.436
State 53	0.526	State 15	0.521	State 15	0.307	State 50	0.774	State 15	0.328
State 54	0.490	State 16	1.281	State 16	1.334	State 53	0.804	State 16	1.227
State 55	0.468	State 17	1.297	State 17	1.340	State 62	0.105	State 17	1.298
State 59	0.191	State 18	1.352	State 18	1.279	State 64	1.020	State 18	1.250
State 63	0.036	State 19	1.332	State 19	0.126	State 65	0.743	State 19	1.232
State 69	0.441	State 20	1.340	State 20	1.246	State 70	1.068	State 20	1.234
State 76	0.748	State 21	1.345	State 21	1.236	State 76	1.043	State 21	1.188
		State 22	1.359	State 22	1.200			State 22	1.199
		State 23	1.367	State 23	1.183			State 23	1.221
		State 24	1.366	State 24	1.197			State 24	1.178
		State 25	1.382	State 25	1.130			State 25	1.154
		State 26	1.343	State 26	1.077			State 26	1.193
		State 27	1.387	State 27	0.985			State 27	1.098
		State 28	1.361	State 28	0.867			State 28	0.983
		State 29	1.346	State 29	0.760			State 29	0.888
		State 30	1.292	State 30	0.637			State 30	0.679
		State 31	1.171	State 31	0.486			State 31	0.601
		State 32	0.647	State 32	0.770			State 32	0.695
		State 33	0.648	State 33	0.779			State 33	0.703
		State 34	0.582	State 34	0.703			State 34	0.691
		State 35	0.569	State 35	0.683			State 35	0.678
		State 36	0.561	State 36	0.673			State 36	0.662
		State 37	0.557	State 37	0.665			State 37	0.660
		State 38	0.529	State 38	0.625			State 38	0.590
		State 39	0.514	State 39	0.605			State 39	0.539
		State 40	0.525	State 40	0.629			State 40	0.617
		State 41	0.480	State 41	0.563			State 41	0.549
		State 42	0.443	State 42	0.518			State 42	0.458
		State 43	0.392	State 43	0.447			State 43	0.431
		State 44	0.329	State 44	0.362			State 44	0.343
		State 45	0.285	State 45	0.304			State 45	0.290
		State 46	0.237	State 46	0.241			State 46	0.230
		State 47	0.179	State 47	0.173			State 47	0.167
		State 48	1.217	State 48	1.121			State 48	1.145
		State 49	1.215	State 49	1.119			State 49	1.150
		State 50	1.162	State 50	1.036			State 50	1.048
		State 51	1.153	State 51	1.014			State 51	1.232
		State 52	1.147	State 52	1.001			State 52	1.216
		State 53	1.139	State 53	0.993			State 53	1.011
		State 54	1.117	State 54	0.947			State 54	0.965
		State 55	1.105	State 55	0.923			State 55	1.232
		State 56	1.106	State 56	0.942			State 56	0.963
		State 57	1.063	State 57	0.865			State 57	0.869
		State 58	1.024	State 58	0.803			State 58	0.823
		State 59	0.964	State 59	0.714			State 59	0.732
		State 60	0.890	State 60	0.599			State 60	0.567
		State 61	0.823	State 61	0.518			State 61	0.543
		State 62	0.745	State 62	0.425			State 62	0.448
		State 63	0.636	State 63	0.317			State 63	0.310
		State 64	1.176	State 64	0.890			State 64	0.951
		State 65	1.188	State 65	1.107			State 65	1.185
		State 66	0.550	State 66	0.578			State 66	0.567
		State 67	1.110	State 67	0.895			State 67	1.082
		State 68	1.271	State 68	1.105			State 68	1.163
		State 69	1.296	State 69	1.324			State 69	1.261
		State 70	0.644	State 70	0.753			State 70	0.751
		State 71	1.206	State 71	1.101			State 71	1.233
		State 72	1.269	State 72	1.036			State 72	1.084
		State 73	1.247	State 73	1.238			State 73	1.222
		State 74	0.621	State 74	0.672			State 74	0.606
		State 75	1.191	State 75	1.017			State 75	1.046
		State 76	1.283	State 76	1.125			State 76	1.196
		State 77	1.311	State 77	1.332			State 77	1.281
		State 78	0.654	State 78	0.765			State 78	0.698
		State 79	1.209	State 79	1.109			State 79	1.139

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Table 14-4
LTE Supplemental Body SAR Data



Supplemental Body SAR Data											
LTE Band 12		LTE Band 13		LTE Band 14		LTE Band 5/26		LTE Band 66		LTE Band 2	
QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 20MHz Bandwidth, 50 RB, 0 RB Offsets		QPSK, 20MHz Bandwidth, 50 RB, 50 RB Offsets	
Test Position	Back Side	Test Position	Back Side	Test Position	Back Side	Test Position	Back Side	Test Position	Bottom Edge	Test Position	Bottom Edge
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	707.50	Frequency (MHz)	782.00	Frequency (MHz)	793.00	Frequency (MHz)	836.50	Frequency (MHz)	1720.00	Frequency (MHz)	1880.00
Channel	23095	Channel	23230	Channel	23330	Channel	20525	Channel	132072	Channel	18900
Measured 1g SAR (W/kg)	0.358	Measured 1g SAR (W/kg)	0.386	Measured 1g SAR (W/kg)	0.433	Measured 1g SAR (W/kg)	0.521	Measured 1g SAR (W/kg)	1.010	Measured 1g SAR (W/kg)	0.949
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 33)	0.550	Auto-tune (State 1)	0.552	Auto-tune (State 1)	0.595	Auto-tune (State 1)	0.761	Auto-tune (State 29)	1.300	Auto-tune (State 17)	1.191
Default (State 1)	0.577	Default (State 1)	0.566	Default (State 1)	0.587	Default (State 1)	0.788	Default (State 49)	1.119	Default (State 17)	1.197
State 0	0.577	State 1	0.566	State 1	0.587	State 0	0.785	State 0	1.229	State 5	0.892
State 6	0.481	State 3	0.456	State 4	0.509	State 1	0.788	State 1	1.219	State 8	0.840
State 12	0.219	State 15	0.053	State 5	0.491	State 5	0.744	State 2	1.143	State 11	0.636
State 18	0.198	State 24	0.229	State 6	0.450	State 6	0.693	State 3	1.124	State 16	1.187
State 26	0.089	State 27	0.086	State 9	0.332	State 9	0.553	State 4	1.109	State 17	1.197
State 28	0.044	State 40	0.302	State 13	0.110	State 13	0.191	State 5	1.107	State 26	1.025
State 33	0.542	State 42	0.202	State 14	0.080	State 20	0.527	State 6	1.072	State 31	0.549
State 35	0.457	State 46	0.068	State 21	0.322	State 22	0.476	State 7	1.053	State 34	0.555
State 52	0.216	State 58	0.137	State 23	0.301	State 28	0.104	State 8	1.060	State 37	0.523
State 62	0.027	State 66	0.522	State 28	0.083	State 31	0.031	State 9	1.003	State 38	0.489
State 70	0.544	State 70	0.524	State 33	0.564	State 39	0.596	State 10	0.950	State 44	0.273
State 77	0.204	State 77	0.391	State 34	0.492	State 40	0.577	State 11	0.883	State 50	0.871
State 78	0.549	State 79	0.413	State 35	0.474	State 46	0.127	State 12	0.790	State 56	0.792
				State 44	0.127	State 51	0.580	State 13	0.722	State 57	0.731
				State 48	0.354	State 54	0.520	State 14	0.635	State 59	0.611
				State 49	0.356	State 58	0.273	State 15	0.526	State 60	0.517
				State 55	0.330	State 59	0.196	State 16	1.068	State 64	0.836
				State 57	0.260	State 63	0.037	State 17	1.085	State 66	0.481
				State 63	0.030	State 65	0.445	State 18	1.159	State 67	0.786
				State 66	0.561	State 71	0.491	State 19	1.167	State 72	0.964
				State 67	0.354	State 74	0.781	State 20	1.170	State 75	0.897
				State 74	0.564	State 79	0.491	State 21	1.180	State 79	0.950
								State 22	1.201		
								State 23	1.207		
								State 24	1.209		
								State 25	1.241		
								State 26	1.275		
								State 27	1.300		
								State 28	1.327		
								State 29	1.321		
								State 30	1.285		
								State 31	1.171		
								State 32	0.637		
								State 33	0.634		
								State 34	0.571		
								State 35	0.558		
								State 36	0.551		
								State 37	0.545		
								State 38	0.523		
								State 39	0.507		
								State 40	0.518		
								State 41	0.470		
								State 42	0.432		
								State 43	0.384		
								State 44	0.321		
								State 45	0.278		
								State 46	0.231		
								State 47	0.176		
								State 48	1.108		
								State 49	1.119		
								State 50	1.071		
								State 51	1.064		
								State 52	1.060		
								State 53	1.065		
								State 54	1.040		
								State 55	1.031		
								State 56	1.032		
								State 57	0.995		
								State 58	0.966		
								State 59	0.923		
								State 60	0.865		
								State 61	0.808		
								State 62	0.739		
								State 63	0.639		
								State 64	1.113		
								State 65	0.976		
								State 66	0.542		
								State 67	1.020		
								State 68	1.192		
								State 69	1.064		
								State 70	0.629		
								State 71	1.091		
								State 72	1.185		
								State 73	1.022		
								State 74	0.608		
								State 75	1.089		
								State 76	1.204		
								State 77	1.081		
								State 78	0.840		
								State 79	1.105		

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Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	85032E	3.5mm Standard Calibration Kit	8/12/2018	Annual	8/12/2019	MY53402252
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A	N/A	N/A	3051A00187
Agilent	8753E	(30kHz-6GHz) Network Analyzer	9/28/2018	Annual	9/28/2019	JP38020182
Agilent	8753ES	S-Parameter Network Analyzer	7/30/2018	Annual	7/30/2019	MY40000670
Agilent	8753ES	S-Parameter Vector Network Analyzer	8/30/2018	Annual	8/30/2019	MY40003841
Agilent	E4432B	ESG-D Series Signal Generator	4/19/2018	Annual	4/19/2019	US40053896
Agilent	E4438C	ESG Vector Signal Generator	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	2/7/2018	Triennial	2/7/2021	GB43304447
Agilent	E5515C	8960 Series 10 Wireless Communications Test Set	12/18/2018	Annual	12/18/2019	GB42203025
Agilent	E5515C	Wireless Communications Test Set	2/28/2018	Biennial	2/28/2020	GB41450275
Agilent	N4101A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46170464
Agilent	N6182A	MXG Vector Signal Generator	4/18/2018	Annual	4/18/2019	MY47420800
Agilent	N9300A	PXA Signal Analyzer (44GHz)	5/25/2018	Annual	5/25/2019	MY52350166
Amplifier Research	150A100C	Amplifier	CBT	N/A	CBT	350132
Amplifier Research	150A100C	DC Amplifier	CBT	N/A	CBT	348812
Anritsu	MA24106A	USB Power Sensor	7/17/2019	Annual	7/17/2019	1827527
Anritsu	MA24106A	USB Power Sensor	6/5/2018	Annual	6/5/2019	1231538
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1126066
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1126066
Anritsu	M2495A	Power Meter	10/21/2018	Annual	10/21/2019	941001
Anritsu	MT8820C	Radio Communication Analyzer	6/27/2018	Annual	6/27/2019	6201240328
Anritsu	MT8821C	Radio Communication Analyzer	11/6/2018	Annual	11/6/2019	6200901190
Anritsu	MT8821C	Radio Communication Analyzer	7/26/2018	Annual	7/26/2019	6201144418
Anritsu	MT8821C	Radio Communication Analyzer	7/24/2018	Annual	7/24/2019	6201664756
Anritsu	MT8821C	Radio Communication Analyzer	1/25/2019	Annual	1/25/2020	6261895213
Anritsu	MT8862A	Wireless Connectivity Test Set	7/3/2018	Annual	7/3/2019	6261782395
COMTECH	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	MY55A00-009
COMTECH	AR85729-5/5759B	Solid State Amplifier	CBT	N/A	CBT	M3W1A00-1002
Control Company	4040	Therm./Clock/Humidity Monitor	3/31/2017	Biennial	3/31/2019	170232394
Control Company	4040	Digital Thermometer	3/31/2017	Biennial	3/31/2019	170232400
Control Company	4352	Ultra Low Slew Thermometer	5/22/2017	Biennial	5/22/2019	170330144
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/4/2018	Annual	6/4/2019	MY53401181
Keysight Technologies	U8401A	Digital Multimeter	5/17/2018	Annual	5/17/2019	MY57201470
MCL	BW-NBW5+	6dB Attenuator	CBT	N/A	CBT	1139
Mini-Circuits	PWR-SER-4GH5	USB Power Sensor	3/30/2018	Annual	3/30/2019	11401010036
Mini-Circuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
Mini-Circuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W15	Power Attenuator	CBT	N/A	CBT	1228
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mitutoyo	CD-6/CSX	Digital Caliper	4/18/2018	Biennial	4/18/2020	13264165
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Pasternack	NC-100	Torque Wrench	4/18/2018	Annual	4/18/2019	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE5011-1	Torque Wrench	7/19/2017	Biennial	7/19/2019	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	5/18/2018	Annual	5/18/2019	109892
Rohde & Schwarz	CMW500	Radio Communication Tester	4/5/2018	Annual	4/5/2019	128633
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	5/29/2018	Annual	5/29/2019	161862
Seaskonk	NC-100	Torque Wrench 516" 8" lbs	7/11/2018	Annual	7/11/2019	N/A
Seaskonk	NC-100	Torque Wrench	7/11/2018	Annual	7/11/2019	N/A
Seaskonk	NC-100	Torque Wrench (8" lb)	5/10/2018	Biennial	5/10/2020	21053
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/15/2018	Annual	5/15/2019	1070
SPEAG	D750V3	750 MHz Dipole	3/7/2017	Biennial	3/7/2019	1054
SPEAG	D750V3	750 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	1161
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	44047
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	44133
SPEAG	D1750V2	1750 MHz SAR Dipole	10/27/2018	Annual	10/27/2019	11150
SPEAG	D1765V2	1765 MHz SAR Dipole	5/21/2018	Annual	5/21/2019	1008
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Annual	10/23/2019	54080
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Annual	10/23/2019	54149
SPEAG	D2300V2	2300 MHz SAR Dipole	11/8/2017	Biennial	11/8/2019	1064
SPEAG	D2300V2	2300 MHz SAR Dipole	8/13/2018	Annual	8/13/2019	1073
SPEAG	D2450V2	2450 MHz SAR Dipole	8/17/2017	Biennial	8/17/2019	719
SPEAG	D2450V2	2450 MHz SAR Dipole	9/11/2017	Biennial	9/11/2019	797
SPEAG	D2450V2	2450 MHz SAR Dipole	8/16/2018	Annual	8/16/2019	981
SPEAG	D2600V2	2600 MHz SAR Dipole	4/11/2018	Annual	4/11/2019	1004
SPEAG	D3500V2	3500 MHz SAR Dipole	1/11/2018	Biennial	1/11/2020	1059
SPEAG	D3700V2	3700 MHz SAR Dipole	1/11/2018	Biennial	1/11/2020	1018
SPEAG	DSGH2	5 GHz SAR Dipole	1/16/2018	Biennial	1/16/2020	1057
SPEAG	DSGH2	5 GHz SAR Dipole	9/21/2016	Triennial	9/21/2019	1191
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/13/2019	Annual	2/13/2020	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/14/2019	Annual	2/14/2020	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	3/7/2018	Annual	3/7/2019	1368
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/22/2018	Annual	8/22/2019	1450
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/11/2018	Annual	4/11/2019	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/15/2019	Annual	1/15/2020	1530
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/3/2018	Annual	10/3/2019	1558
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/13/2019	Annual	2/13/2020	665
SPEAG	EX3DV4	SAR Probe	2/14/2018	Annual	2/14/2019	3914
SPEAG	EX3DV4	SAR Probe	1/25/2019	Annual	1/25/2020	3589
SPEAG	EX3DV4	SAR Probe	8/24/2018	Annual	8/24/2019	3949
SPEAG	EX3DV3	SAR Probe	3/13/2018	Annual	3/13/2019	3319
SPEAG	EX3DV3	SAR Probe	8/22/2018	Annual	8/22/2019	3332
SPEAG	EX3DV4	SAR Probe	8/23/2018	Annual	8/23/2019	7308
SPEAG	EX3DV3	SAR Probe	3/27/2018	Annual	3/27/2019	3347
SPEAG	EX3DV4	SAR Probe	4/18/2018	Annual	4/18/2019	7357
SPEAG	EX3DV4	SAR Probe	6/25/2018	Annual	6/25/2019	7409
SPEAG	EX3DV4	SAR Probe	7/20/2018	Annual	7/20/2019	7410
SPEAG	EX3DV4	SAR Probe	1/24/2019	Annual	1/24/2020	7488
SPEAG	EX3DV4	SAR Probe	2/19/2019	Annual	2/19/2020	7417

Note: 1. Each equipment item was used solely within its respective calibration period.

2. 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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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 Uncertainty	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

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2563B

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; $\sigma = 0.942$ S/m; $\epsilon_r = 40.565$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Test Date: 01-23-2019; Ambient Temp: 23.5°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 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 (2);SEMCAD X Version 14.6.12 (7450)

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

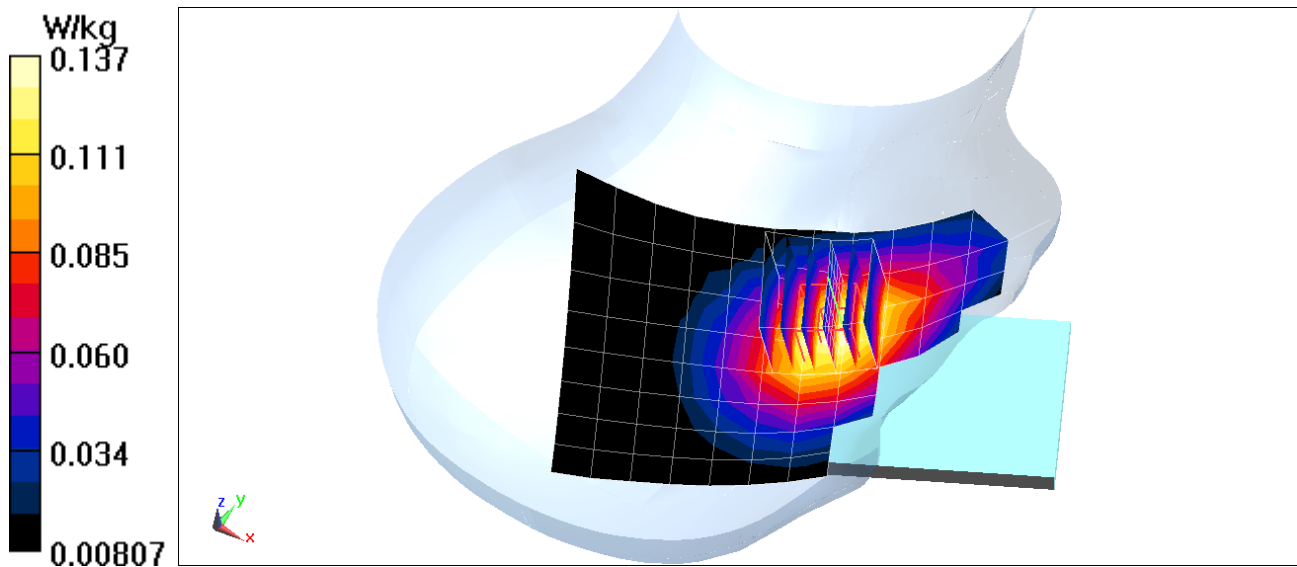
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 11.51 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.148 W/kg

SAR(1 g) = 0.116 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2559B

Communication System: UID 0, GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: 1900 Head Medium parameters used:

$f = 1880$ MHz; $\sigma = 1.417$ S/m; $\epsilon_r = 38.578$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Test Date: 02-04-2019; Ambient Temp: 21.5°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7410; ConvF(8.16, 8.16, 8.16) @ 1880 MHz; Calibrated: 7/20/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1322; Calibrated: 7/11/2018

Phantom: SAM Front; Type: SAM; Serial: 1686

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

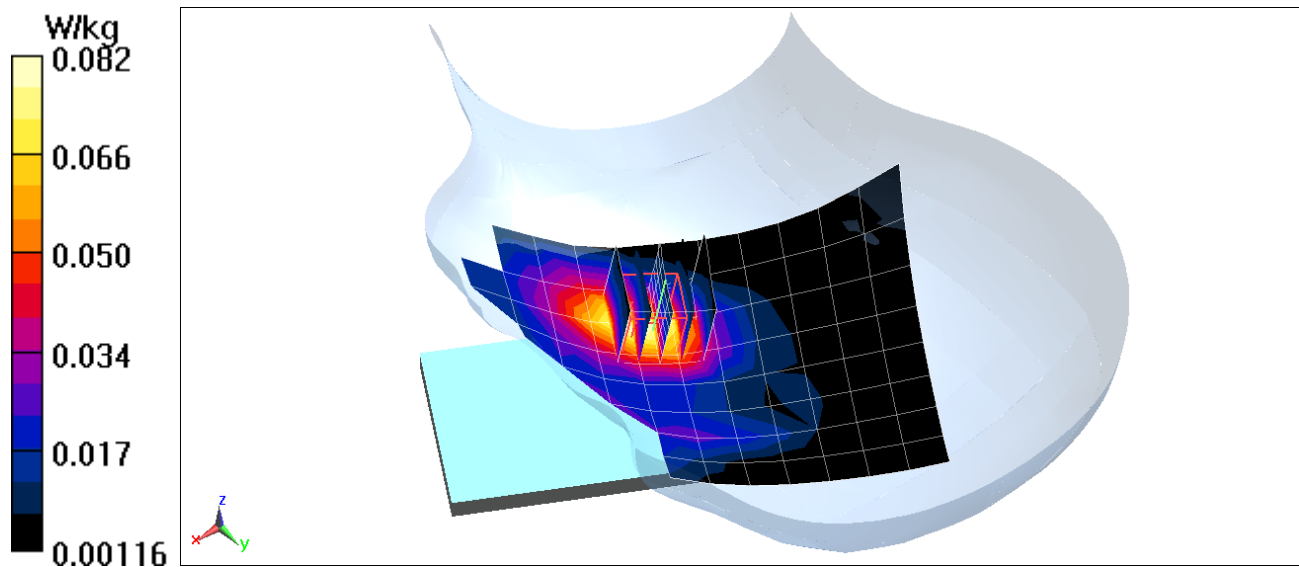
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.012 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.0980 W/kg

SAR(1 g) = 0.064 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2563B

Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
 $f = 836.6 \text{ MHz}$; $\sigma = 0.942 \text{ S/m}$; $\epsilon_r = 40.565$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

Test Date: 01-23-2019; Ambient Temp: 23.5°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 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 (2);SEMCAD X Version 14.6.12 (7450)

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

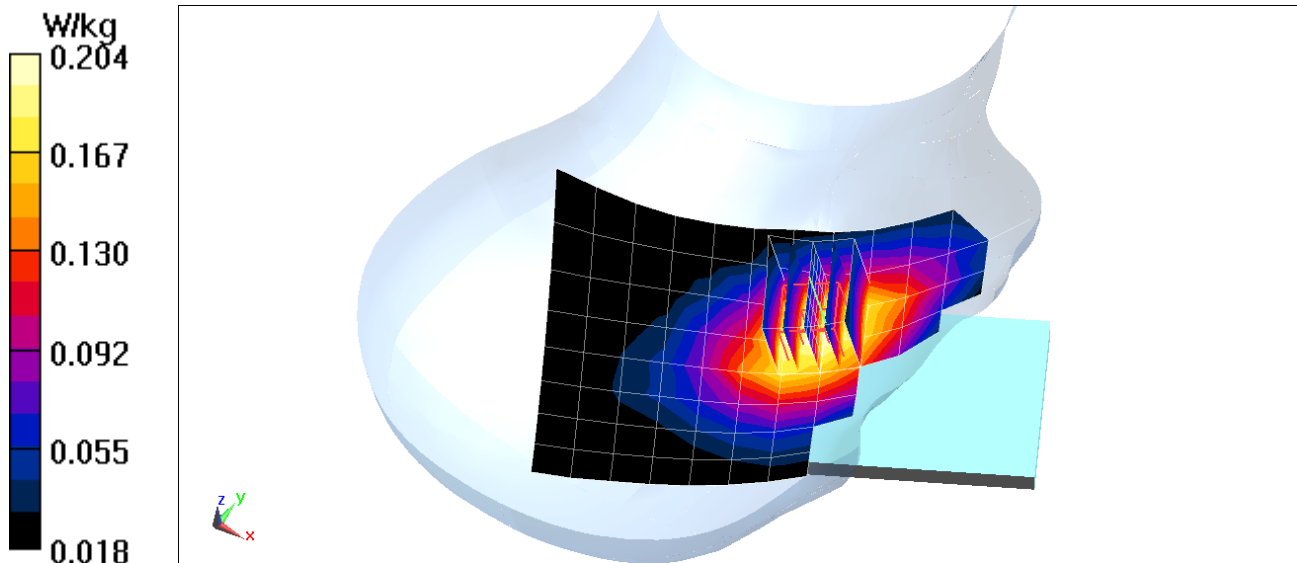
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.77 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.223 W/kg

SAR(1 g) = 0.173 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 1284B

Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
 $f = 1732.4$ MHz; $\sigma = 1.385$ S/m; $\epsilon_r = 38.948$; $\rho = 1000$ kg/m³
Phantom section: Left Section

Test Date: 03-04-2019; Ambient Temp: 22.0°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(8.8, 8.8, 8.8) @ 1732.4 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

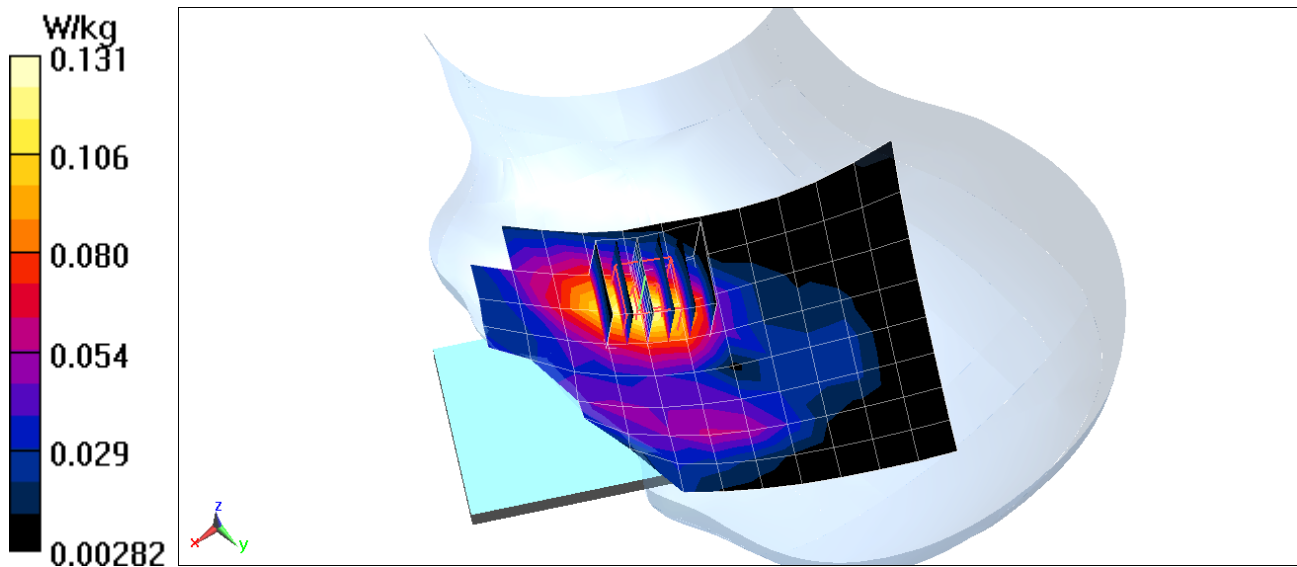
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.635 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.152 W/kg

SAR(1 g) = 0.100 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2559B

Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
 $f = 1880 \text{ MHz}$; $\sigma = 1.417 \text{ S/m}$; $\epsilon_r = 38.578$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

Test Date: 02-04-2019; Ambient Temp: 21.5°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7410; ConvF(8.16, 8.16, 8.16) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

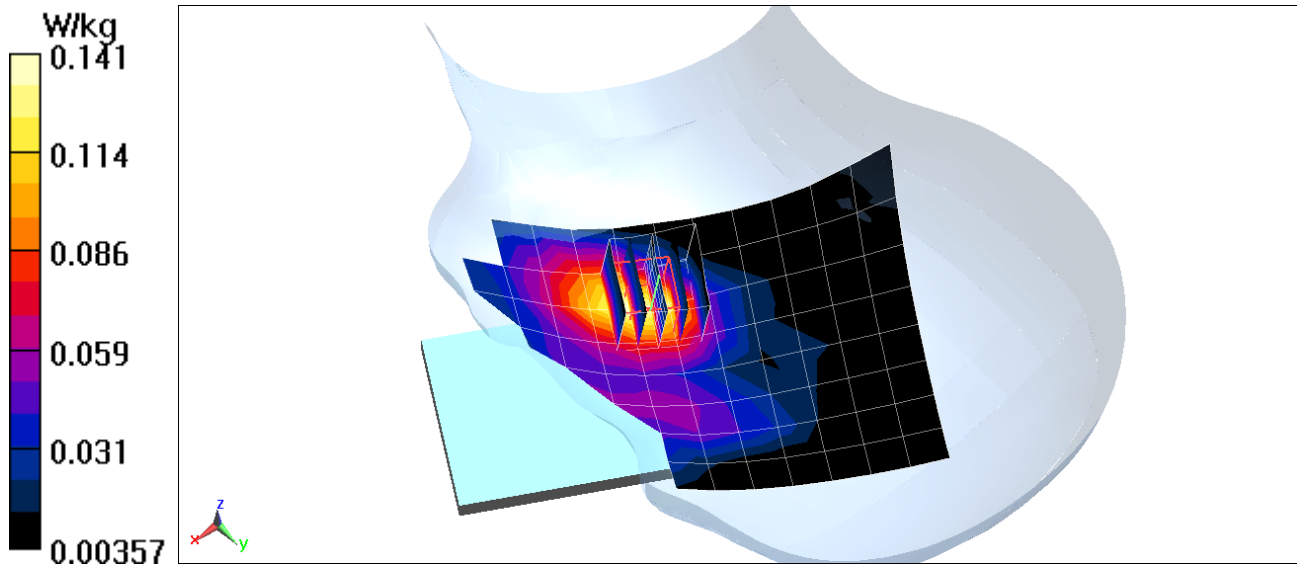
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.397 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.166 W/kg

SAR(1 g) = 0.110 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2559B

Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
 $f = 836.52$ MHz; $\sigma = 0.942$ S/m; $\epsilon_r = 40.565$; $\rho = 1000$ kg/m³
Phantom section: Right Section

Test Date: 01-23-2019; Ambient Temp: 23.5°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 836.52 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Cell. EVDO Rev. A, Right Head, Cheek, Mid.ch

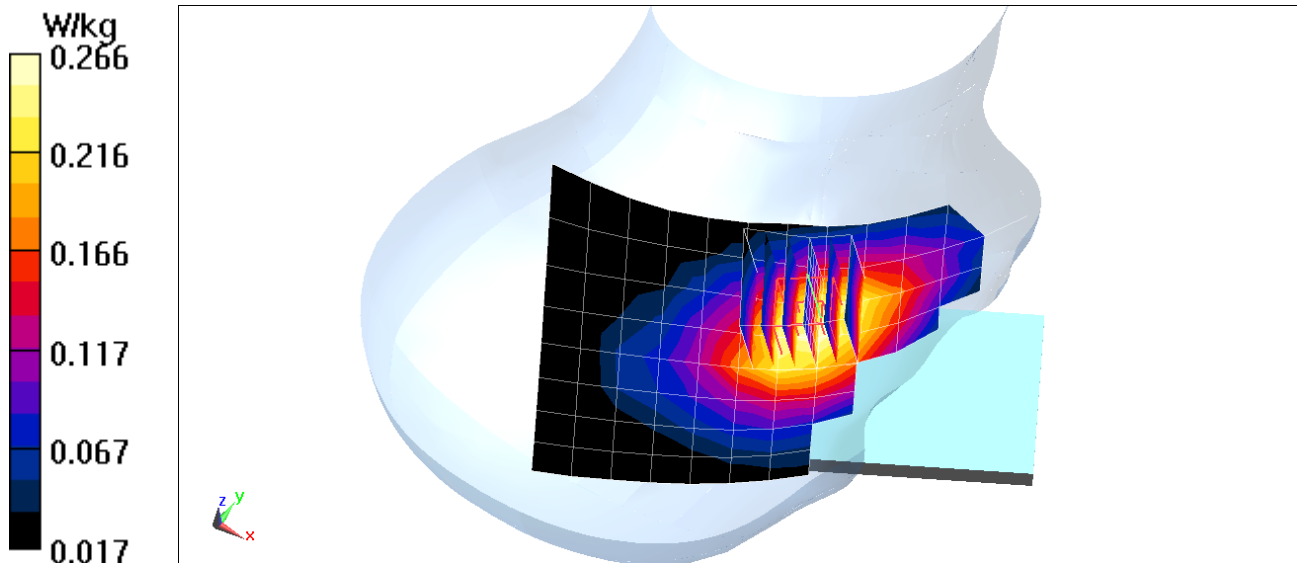
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.80 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.293 W/kg

SAR(1 g) = 0.224 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2559B

Communication System: UID 0, PCS CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
 $f = 1880 \text{ MHz}$; $\sigma = 1.417 \text{ S/m}$; $\epsilon_r = 38.578$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

Test Date: 02-04-2019; Ambient Temp: 21.5°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7410; ConvF(8.16, 8.16, 8.16) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: PCS CDMA, Left Head, Cheek, Mid.ch

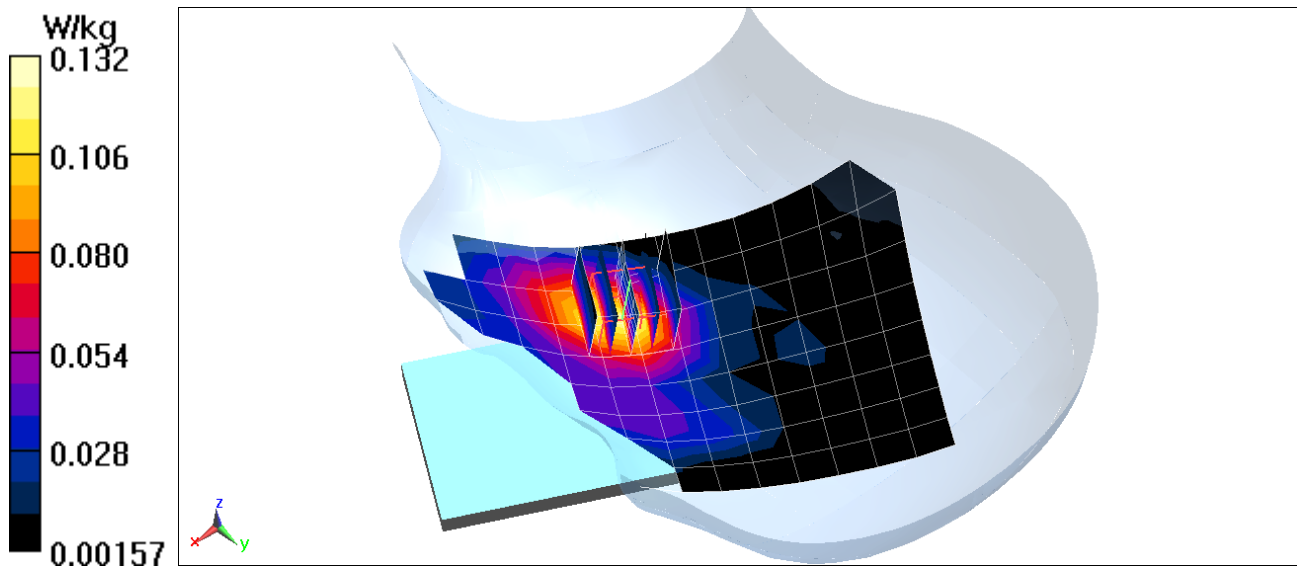
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.083 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.149 W/kg

SAR(1 g) = 0.101 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2567B

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; $\sigma = 0.863$ S/m; $\epsilon_r = 42.39$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Test Date: 01-28-2019; Ambient Temp: 21.5°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7410; ConvF(10.13, 10.13, 10.13) @ 707.5 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 (2);SEMCAD X Version 14.6.12 (7450)

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

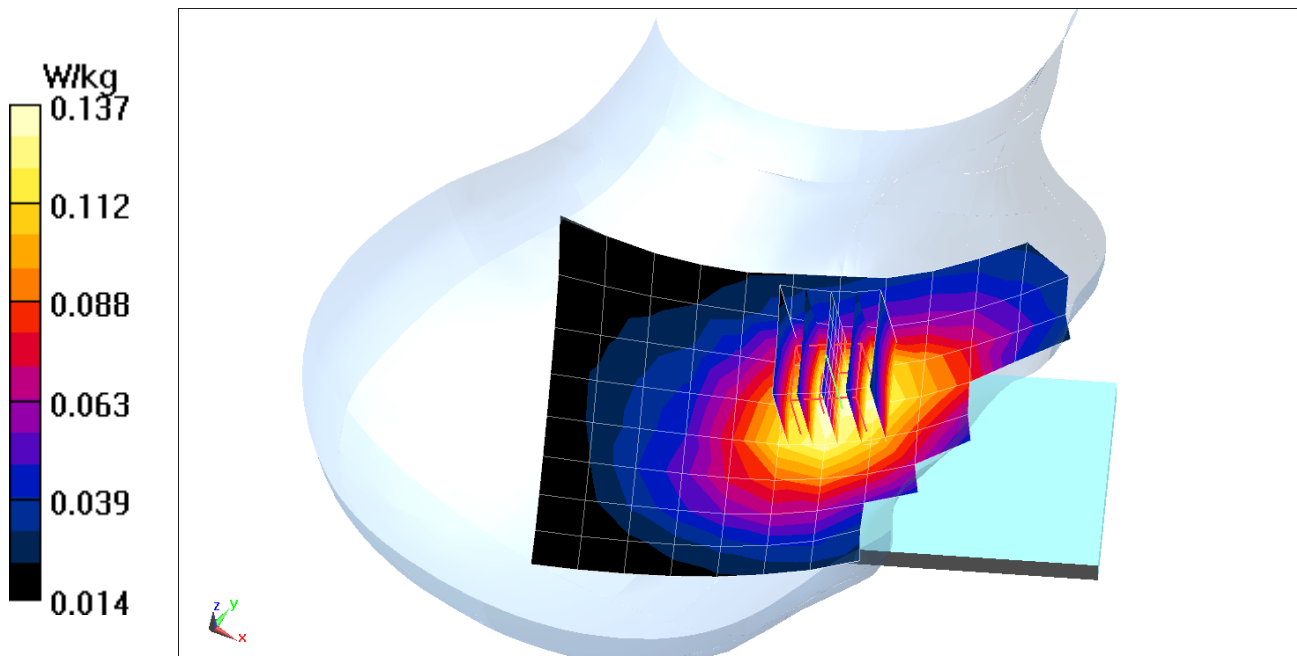
Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.37 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.146 W/kg

SAR(1 g) = 0.120 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2567B

Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
 $f = 782 \text{ MHz}$; $\sigma = 0.889 \text{ S/m}$; $\epsilon_r = 42.142$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

Test Date: 01-28-2019; Ambient Temp: 21.5°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7410; ConvF(10.13, 10.13, 10.13) @ 782 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 13, Right Head, Cheek, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset**

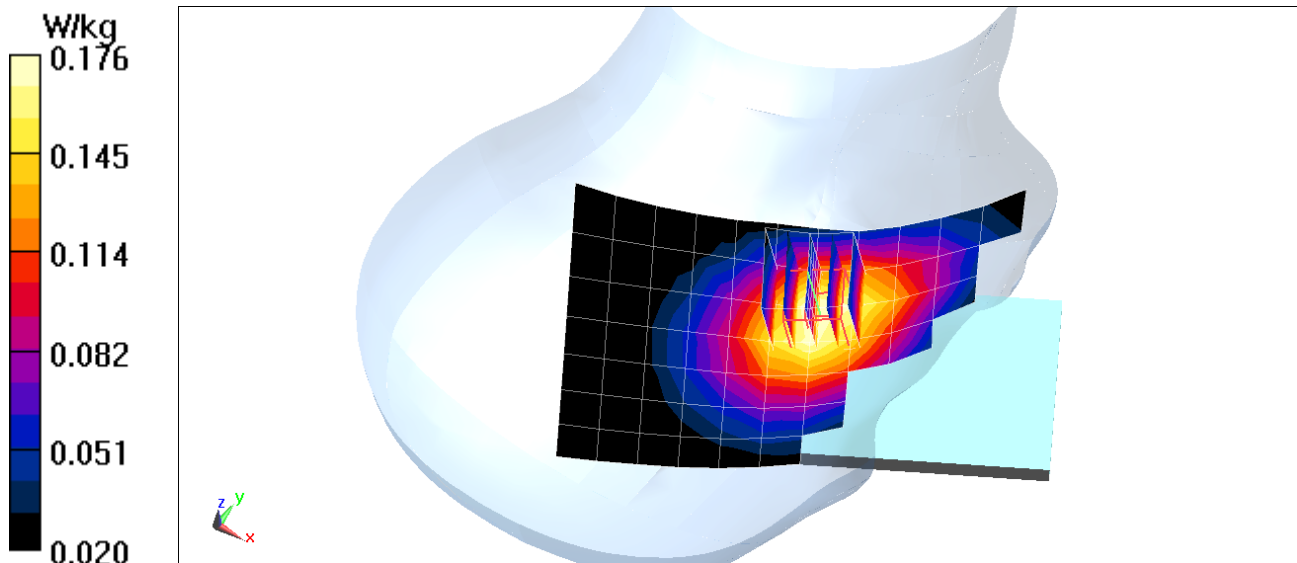
Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.75 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.191 W/kg

SAR(1 g) = 0.151 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2567B

Communication System: UID 0, LTE Band 14; Frequency: 793 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
 $f = 793 \text{ MHz}$; $\sigma = 0.893 \text{ S/m}$; $\epsilon_r = 42.102$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

Test Date: 01-28-2019; Ambient Temp: 21.5°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7410; ConvF(10.13, 10.13, 10.13) @ 793 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 14, Right Head, Cheek, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset**

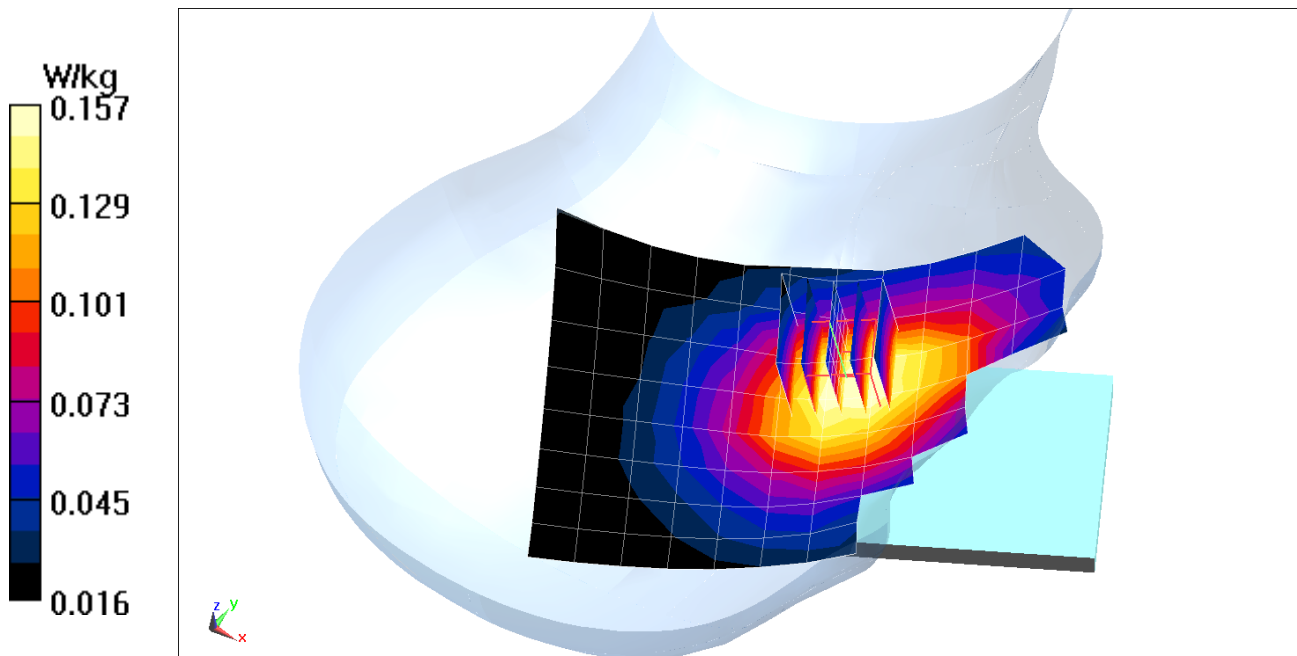
Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.99 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.167 W/kg

SAR(1 g) = 0.135 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2531B

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; $\sigma = 0.928$ S/m; $\epsilon_r = 40.986$; $\rho = 1000$ kg/m³
Phantom section: Right Section

Test Date: 02-01-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 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 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 5 (Cell.), Right Head, Cheek, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset**

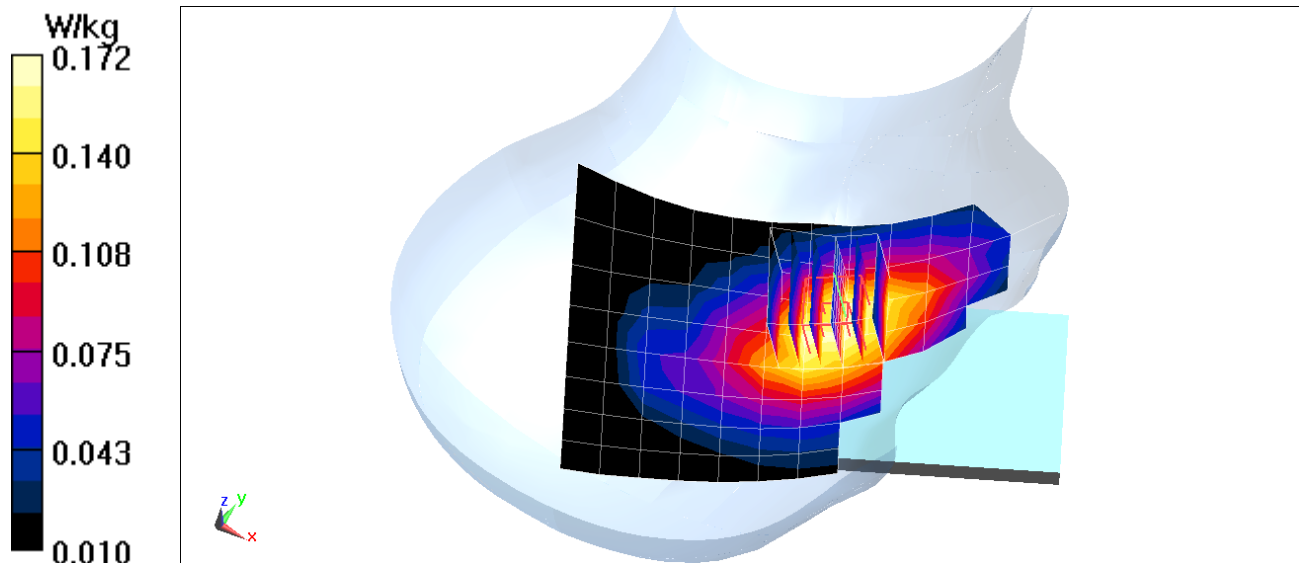
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.27 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.190 W/kg

SAR(1 g) = 0.145 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2567B

Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
 $f = 831.5 \text{ MHz}$; $\sigma = 0.919 \text{ S/m}$; $\epsilon_r = 41.228$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

Test Date: 02-13-2019; Ambient Temp: 22.2°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 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 (2);SEMCAD X Version 14.6.12 (7450)

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

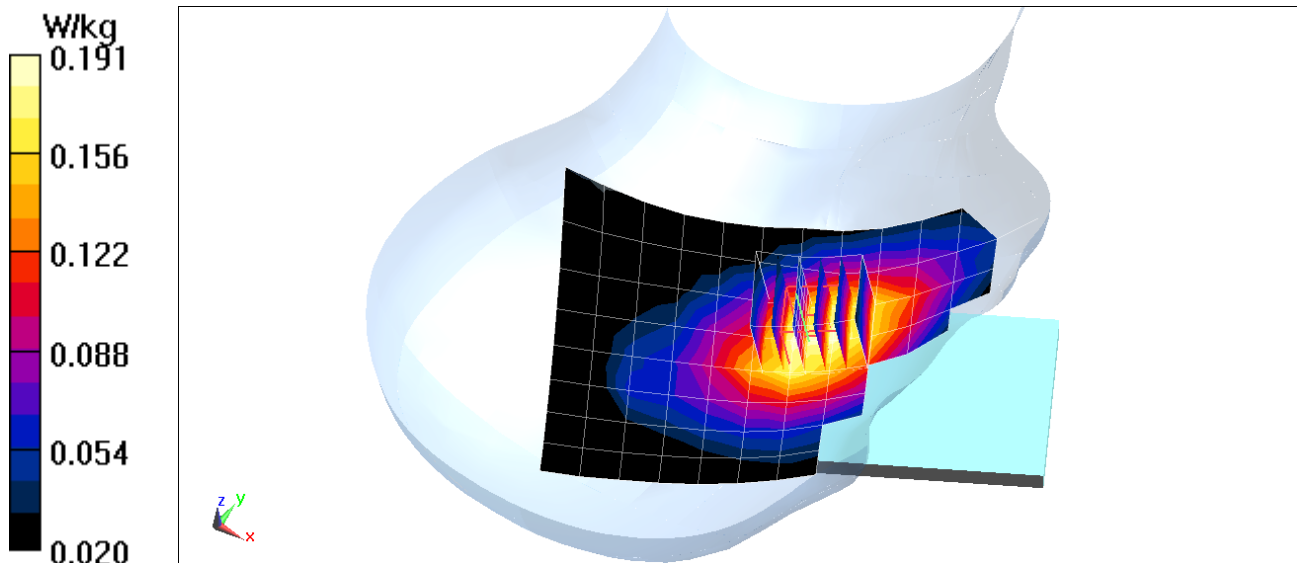
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x6x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.96 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.205 W/kg

SAR(1 g) = 0.161 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2574B

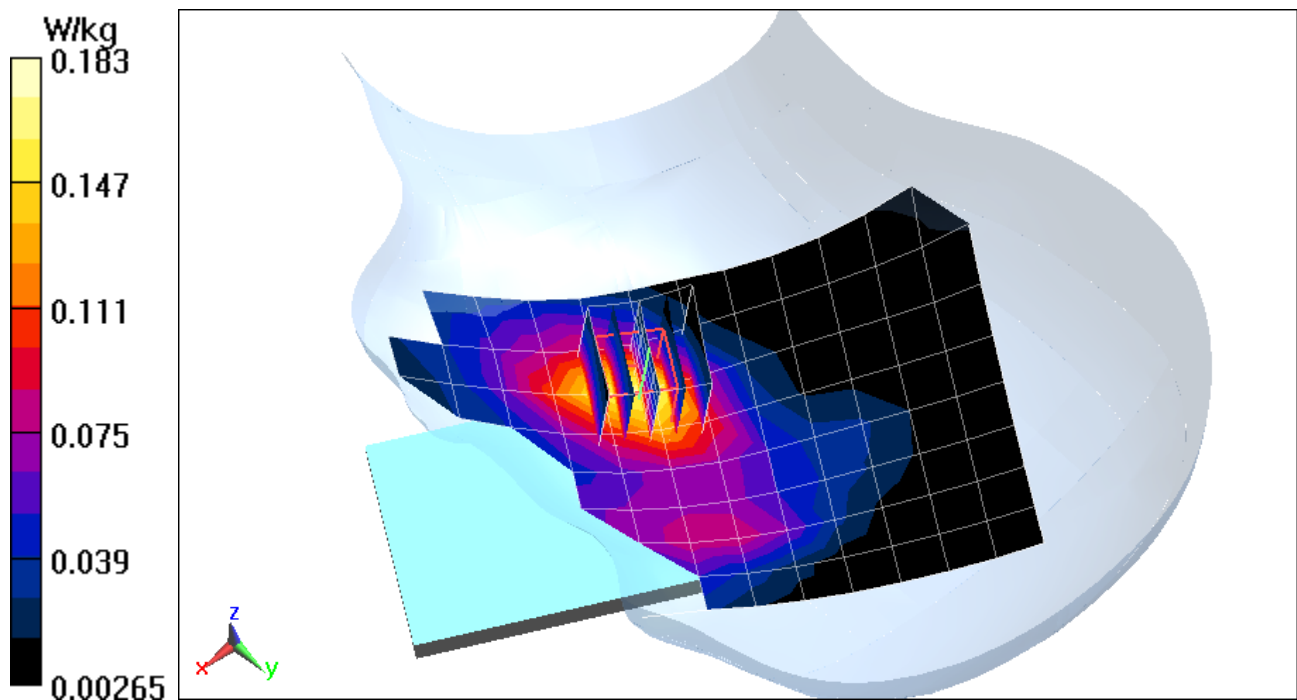
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1715 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
 $f = 1715 \text{ MHz}$; $\sigma = 1.369 \text{ S/m}$; $\epsilon_r = 41.92$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

Test Date: 02-04-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7409; ConvF(8.43, 8.43, 8.43) @ 1715 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 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS) ULCA, Left Head, Cheek,
PCC: 10 MHz Bandwidth, QPSK, Ch. 132022, 1 RB, 49 RB Offset
SCC: 10 MHz Bandwidth, QPSK, Ch. 132171, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.93 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.213 W/kg
SAR(1 g) = 0.142 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2574B

Communication System: UID 0, _LTE Band 2 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
 $f = 1860 \text{ MHz}$; $\sigma = 1.407 \text{ S/m}$; $\epsilon_r = 39.06$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section

Test Date: 02-06-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7410; ConvF(8.16, 8.16, 8.16) @ 1860 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 2 (PCS), Left Head, Cheek, Low.ch, 20 MHz Bandwidth,
QPSK, 1 RB, 50 RB Offset**

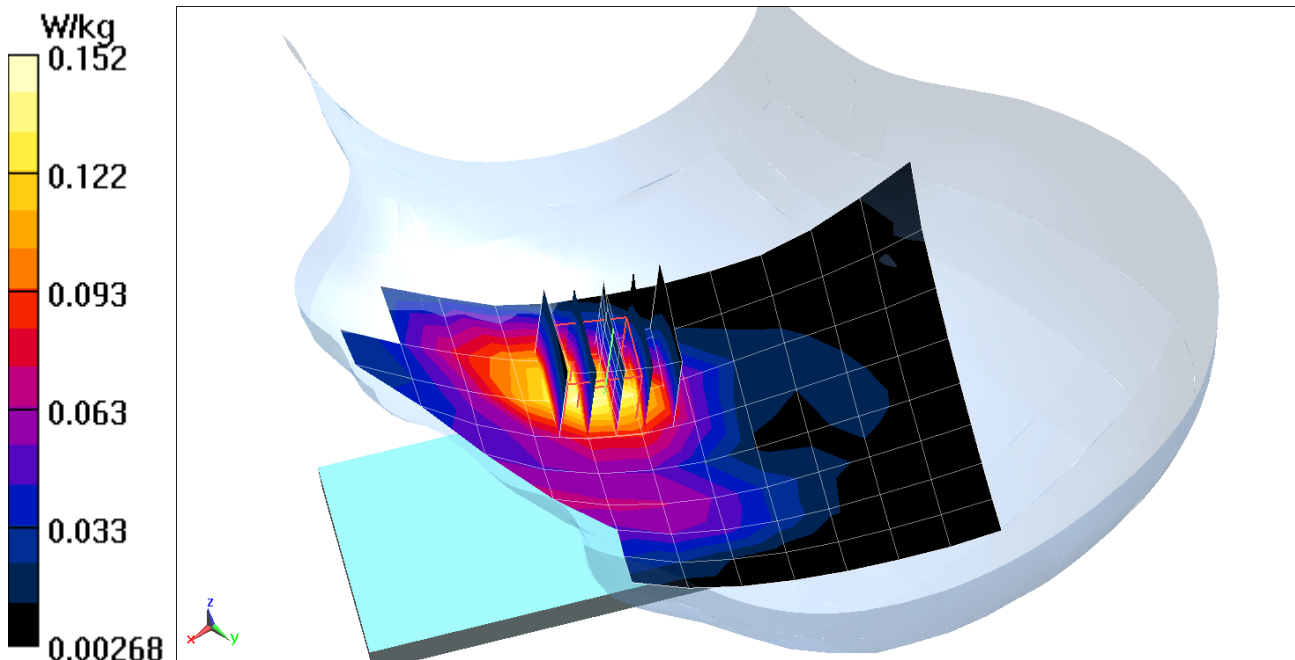
Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.997 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.171 W/kg

SAR(1 g) = 0.119 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 1283B

Communication System: UID 0, LTE Band 30; Frequency: 2310 MHz; Duty Cycle: 1:1

Medium: 2300 Head Medium parameters used:

$f = 2310 \text{ MHz}$; $\sigma = 1.76 \text{ S/m}$; $\epsilon_r = 41.362$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 03-02-2019; Ambient Temp: 20.5°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN3589; ConvF(6.77, 6.77, 6.77) @ 2310 MHz; Calibrated: 1/25/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1450; Calibrated: 8/22/2018

Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 30, Antenna B, Left Head, Cheek, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 49 RB Offset**

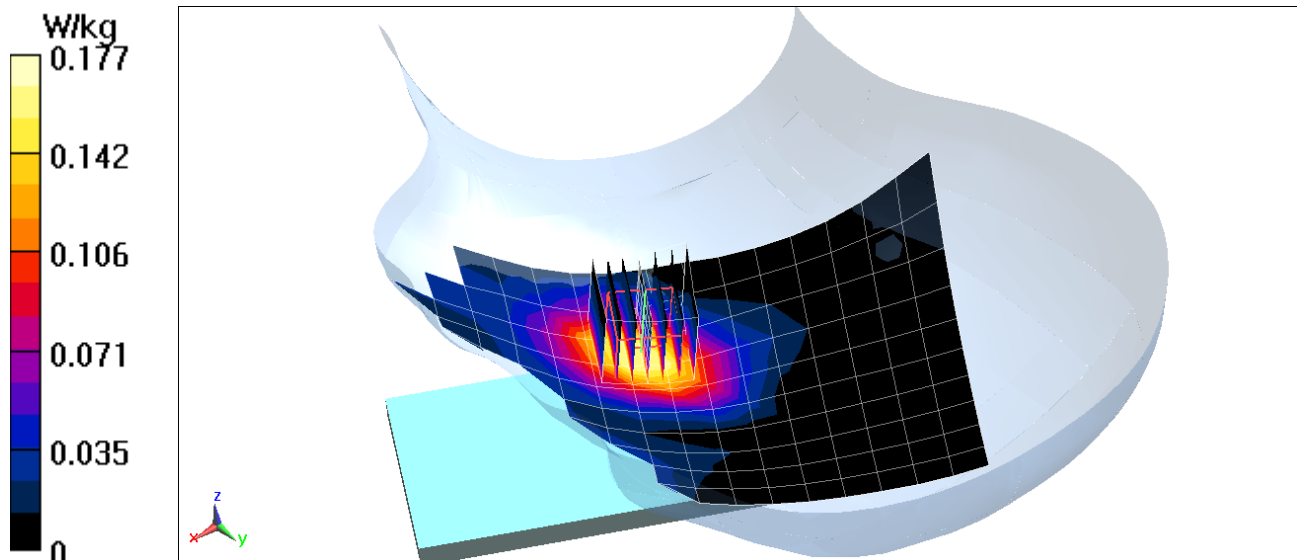
Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 9.122 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.207 W/kg

SAR(1 g) = 0.125 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2573B

Communication System: UID 0, _LTE Band 7; Frequency: 2535 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
 $f = 2535 \text{ MHz}$; $\sigma = 1.889 \text{ S/m}$; $\epsilon_r = 38.431$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

Test Date: 01-29-2019; Ambient Temp: 23.2°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7410; ConvF(7.24, 7.24, 7.24) @ 2535 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 7, Right Head, Cheek, Mid.ch, 20 MHz Bandwidth,
QPSK, 1 RB, 50 RB Offset**

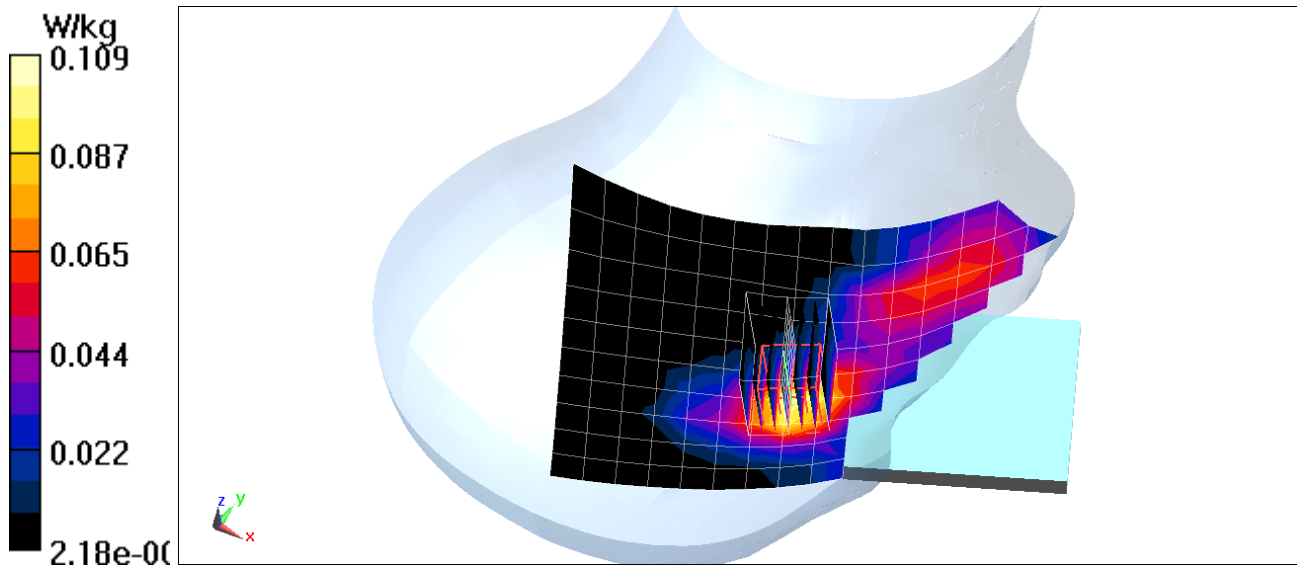
Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm

Zoom Scan (9x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.683 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 0.130 W/kg

SAR(1 g) = 0.074 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2573B

Communication System: UID 0, LTE Band 48; Frequency: 3646.7 MHz; Duty Cycle: 1:1.58
Medium: 3500 Head Medium parameters used (interpolated):
 $f = 3646.7$ MHz; $\sigma = 3.028$ S/m; $\epsilon_r = 37.731$; $\rho = 1000$ kg/m³
Phantom section: Left Section

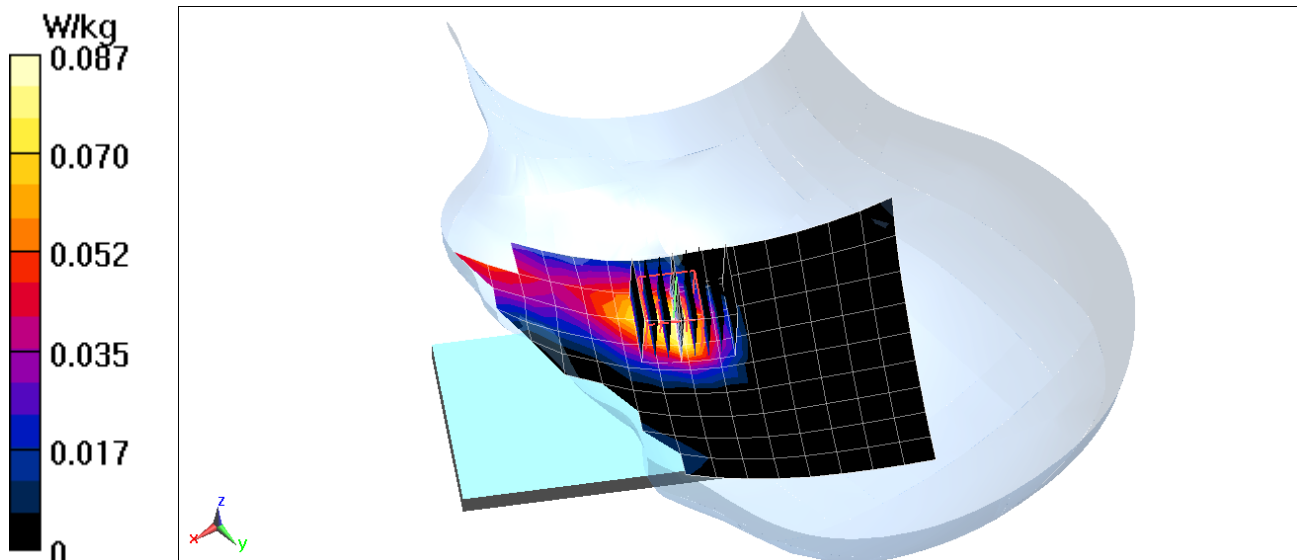
Test Date: 02-07-2019; Ambient Temp: 21.7°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN3949; ConvF(7.24, 7.24, 7.24) @ 3646.7 MHz; Calibrated: 8/24/2018
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 48, Left Head, Cheek, Mid-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 = 4.395 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.169 W/kg
SAR(1 g) = 0.050 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 1283B

Communication System: UID 0, LTE Band 41; Frequency: 2549.5 MHz; Duty Cycle: 1:1.58

Medium: 2450 Head Medium parameters used:

$f = 2550$ MHz; $\sigma = 1.897$ S/m; $\epsilon_r = 39.331$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Test Date: 03-07-2019; Ambient Temp: 21.8°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN3589; ConvF(6.25, 6.25, 6.25) @ 2549.5 MHz; Calibrated: 1/25/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1450; Calibrated: 8/22/2018

Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

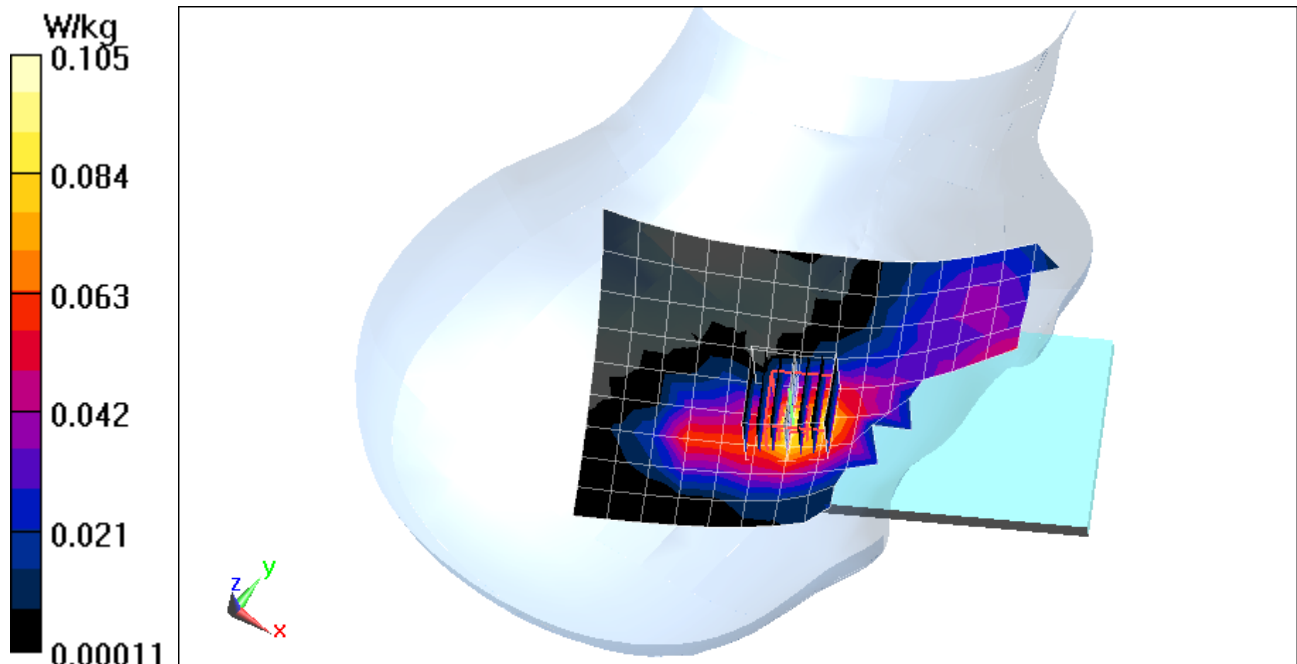
Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 6.580 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.130 W/kg

SAR(1 g) = 0.066 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2555B

Communication System: UID 0, _IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
 $f = 2437 \text{ MHz}$; $\sigma = 1.82 \text{ S/m}$; $\epsilon_r = 38.554$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

Test Date: 01-29-2019; Ambient Temp: 23.2°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7410; ConvF(7.5, 7.5, 7.5) @ 2437 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: IEEE 802.11b, 22 MHz Bandwidth, Antenna 1, Right Head, Cheek,
Ch 6, 1 Mbps**

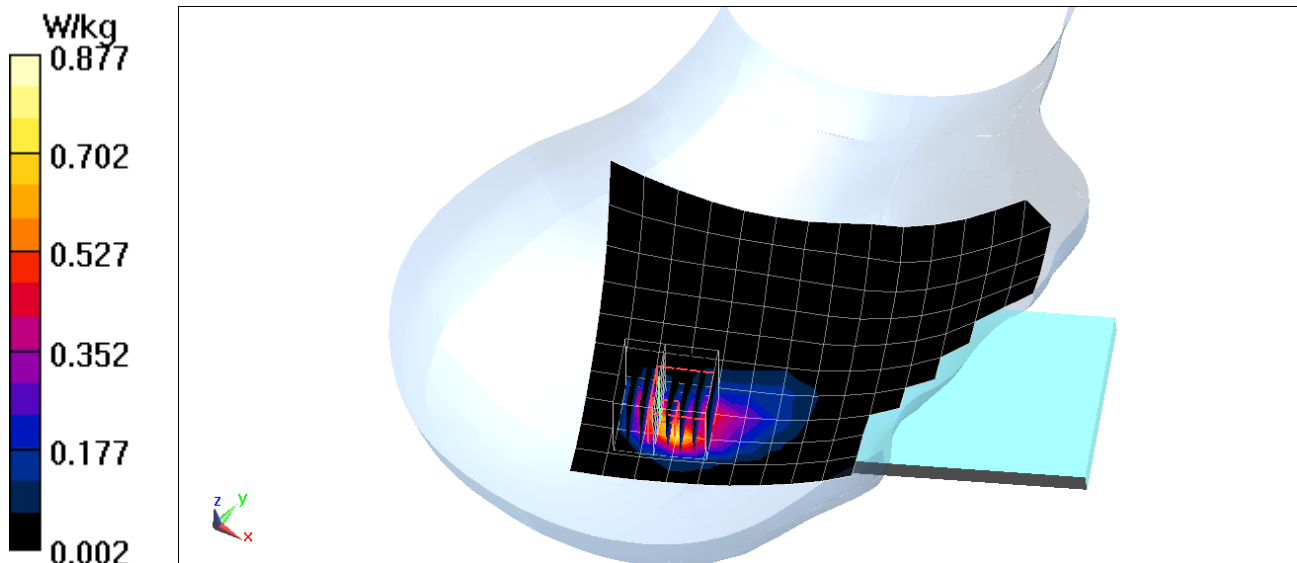
Area Scan (11x18x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x8x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 1.335 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 1.21 W/kg

SAR(1 g) = 0.448 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2555B

Communication System: UID 0, 802.11ac 5.2-5.8 GHz Band; Frequency: 5775 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used (interpolated):
 $f = 5775 \text{ MHz}$; $\sigma = 5.28 \text{ S/m}$; $\epsilon_r = 35.268$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section

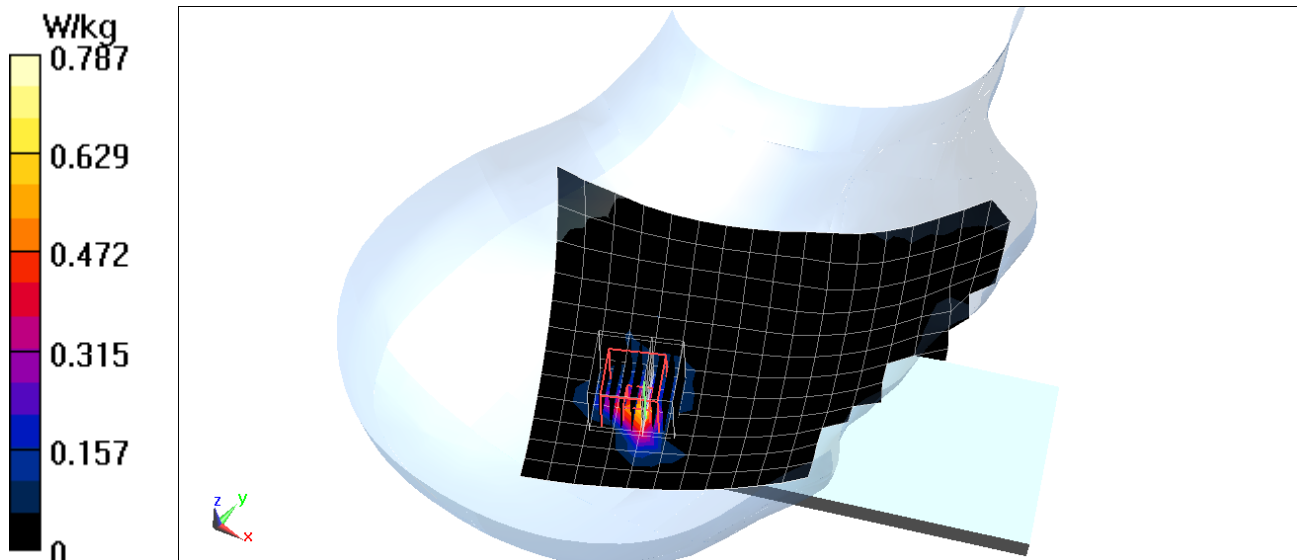
Test Date: 01-28-2019; Ambient Temp: 19.8°C; Tissue Temp: 19.5°C

Probe: EX3DV4 - SN7409; ConvF(4.82, 4.82, 4.82) @ 5775 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 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: IEEE 802.11ac, U-NII-3, Antenna 1, 80 MHz Bandwidth, Right Head, Tilt,
Ch 155, 29.3 Mbps**

Area Scan (13x20x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 2.955 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 1.66 W/kg
SAR(1 g) = 0.275 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2558B

Communication System: UID 0, Bluetooth; Frequency: 2480 MHz; Duty Cycle: 1:1.297

Medium: 2450 Head Medium parameters used (interpolated):

$f = 2480$ MHz; $\sigma = 1.872$ S/m; $\epsilon_r = 39.189$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Test Date: 02-11-2019; Ambient Temp: 20.9°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7409; ConvF(7.23, 7.23, 7.23) @ 2480 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 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Bluetooth, Right Head, Tilt, Ch 78, 1 Mbps

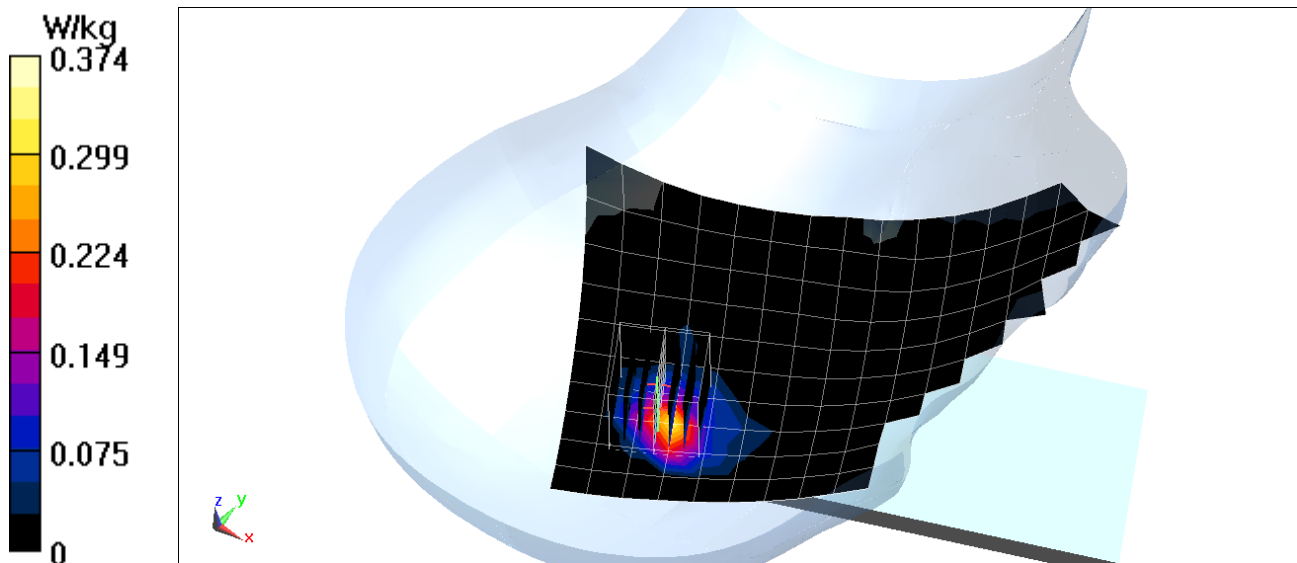
Area Scan (11x19x1): Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 11.13 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.185 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2563B

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; $\sigma = 0.981$ S/m; $\epsilon_r = 52.92$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-30-2019; Ambient Temp: 22.1°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 836.6 MHz; Calibrated: 4/18/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1407; Calibrated: 4/11/2018

Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

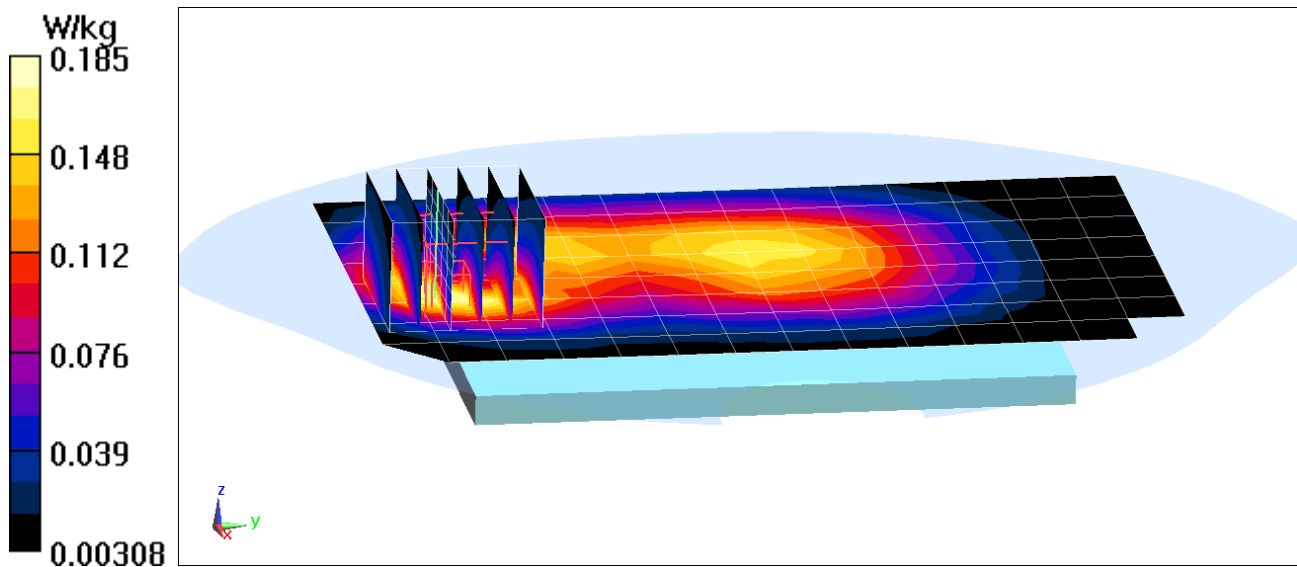
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 12.07 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.216 W/kg

SAR(1 g) = 0.133 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2563B

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):
 $f = 836.6 \text{ MHz}$; $\sigma = 0.981 \text{ S/m}$; $\epsilon_r = 52.92$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-30-2019; Ambient Temp: 22.1°C; Tissue Temp: 21.6°C

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

Mode: GPRS 850, Body SAR, Back side, Mid.ch, 3 Tx Slots

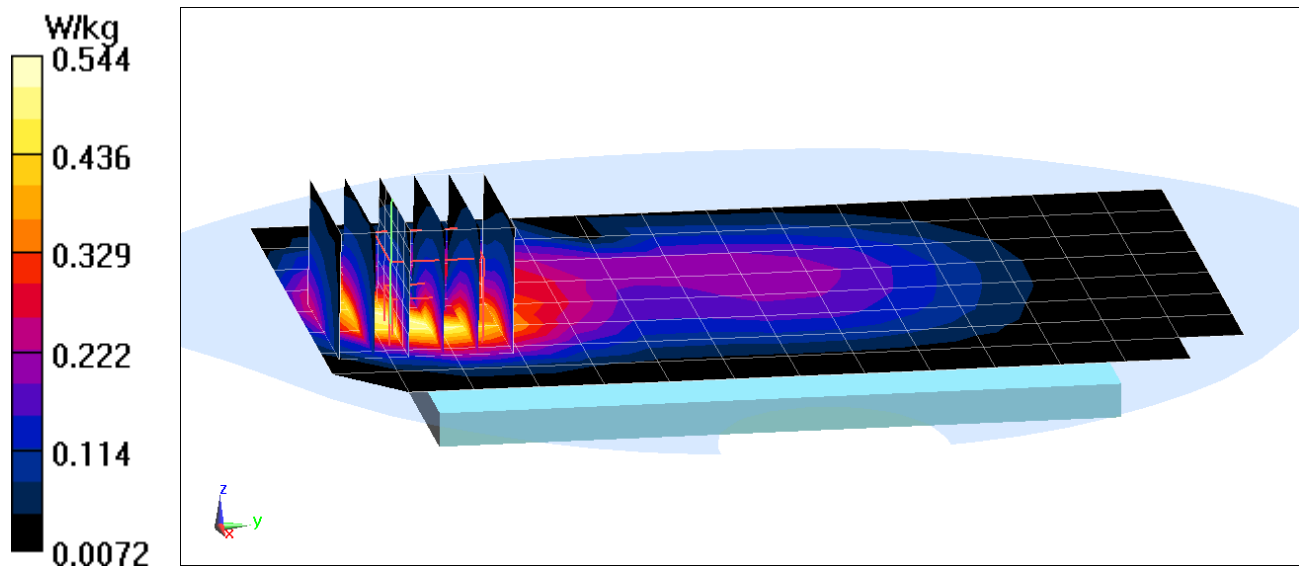
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.56 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.642 W/kg

SAR(1 g) = 0.376 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2559B

Communication System: UID 0, GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.555 \text{ S/m}$; $\epsilon_r = 54.304$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-28-2019; Ambient Temp: 20.9°C; Tissue Temp: 24.1°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1880 MHz; Calibrated: 8/22/2018

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 (2); SEMCAD X Version 14.6.12 (7450)

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

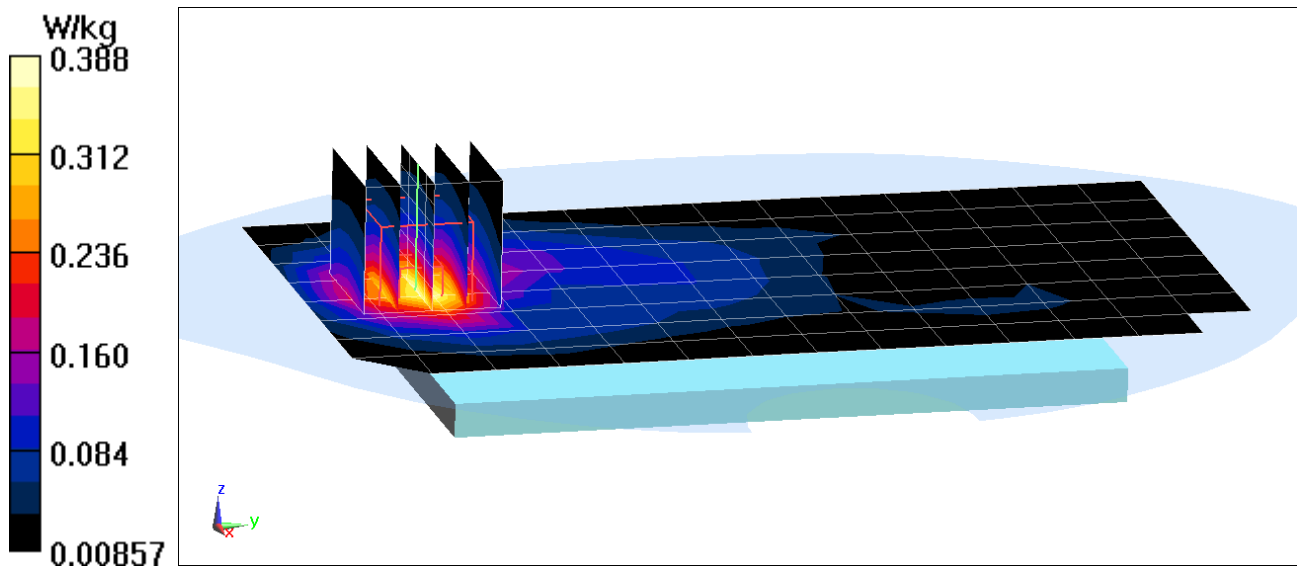
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.53 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.507 W/kg

SAR(1 g) = 0.321 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 1284B

Communication System: UID 0, GSM GPRS; 2 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:4.15

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.532 \text{ S/m}$; $\epsilon_r = 51.722$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date:02-27-2019; Ambient Temp:23.3°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7488; ConvF(8.37, 8.37, 8.37) @ 1880 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1530; Calibrated: 1/15/2019

Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GPRS 1900, Body SAR, Bottom Edge, Mid.ch, 2 Tx Slots

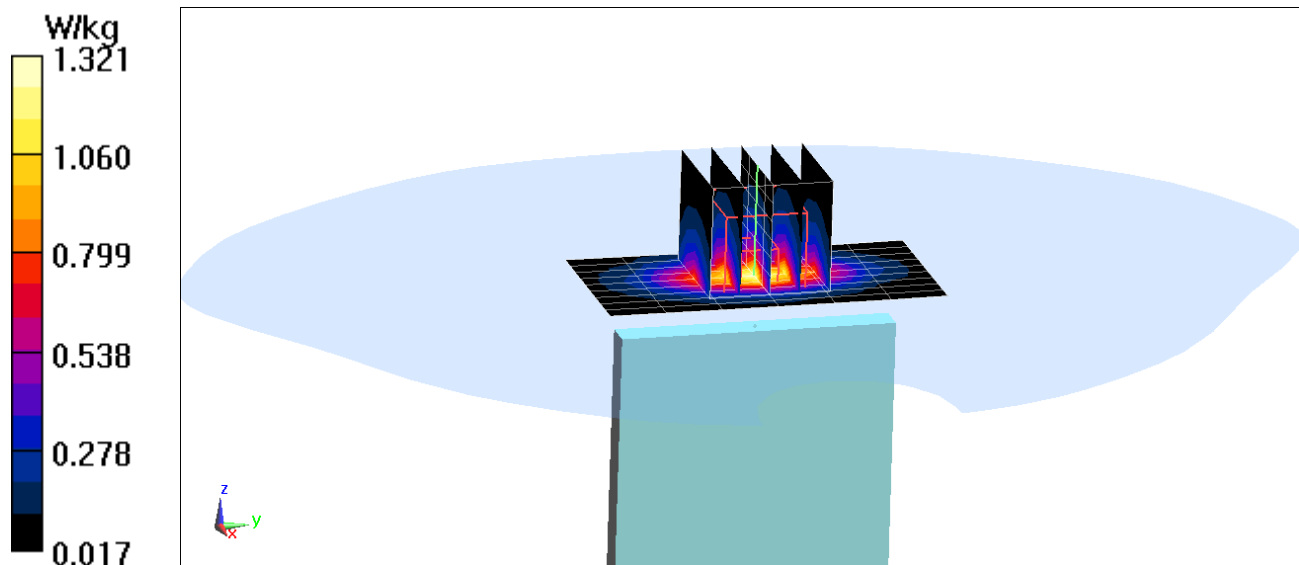
Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 25.28 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.57 W/kg

SAR(1 g) = 0.864 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2563B

Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
 $f = 836.6 \text{ MHz}$; $\sigma = 0.973 \text{ S/m}$; $\epsilon_r = 53.386$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-23-2019; Ambient Temp: 22.1°C; Tissue Temp: 20.3°C

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

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

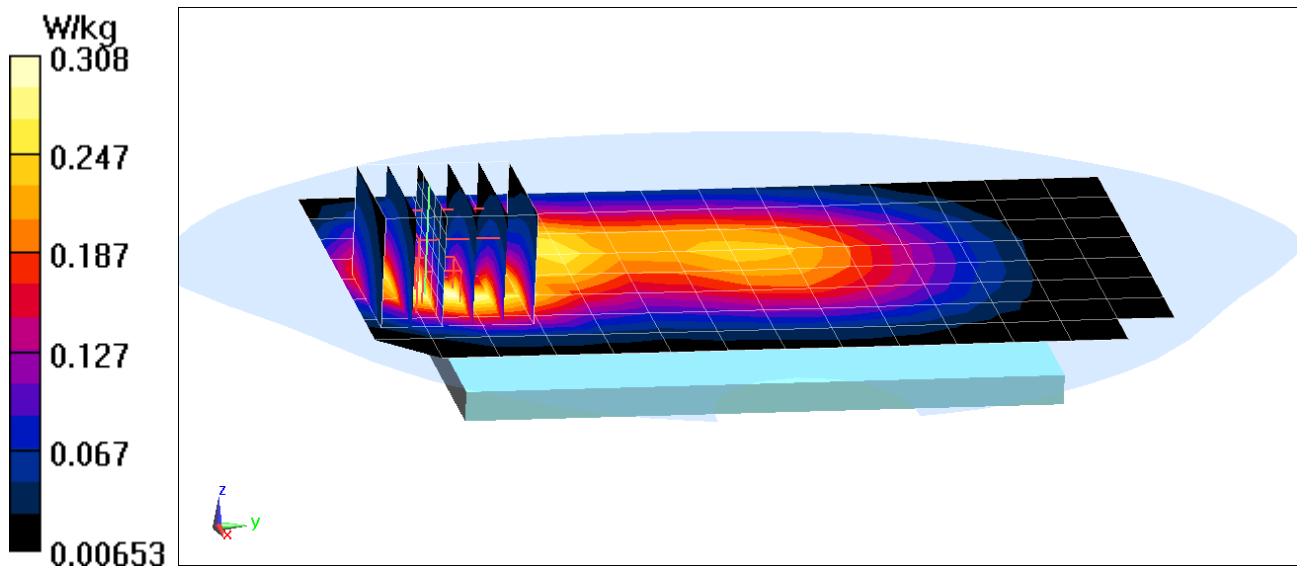
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.66 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.361 W/kg

SAR(1 g) = 0.222 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2563B

Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
 $f = 836.6 \text{ MHz}$; $\sigma = 0.973 \text{ S/m}$; $\epsilon_r = 53.386$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-23-2019; Ambient Temp: 22.1°C; Tissue Temp: 20.3°C

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

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

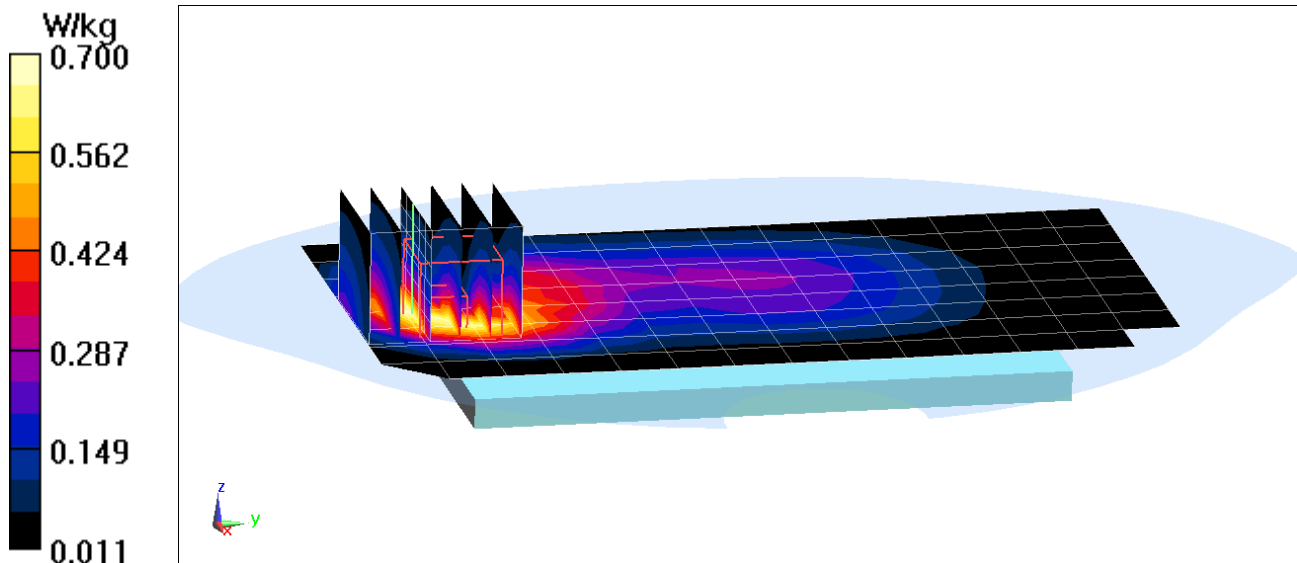
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.04 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.839 W/kg

SAR(1 g) = 0.487 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2559B

Communication System: UID 0, UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
 $f = 1752.6$ MHz; $\sigma = 1.511$ S/m; $\epsilon_r = 51.011$; $\rho = 1000$ kg/m³
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-07-2019; Ambient Temp: 22.1°C; Tissue Temp: 19.5°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1752.6 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

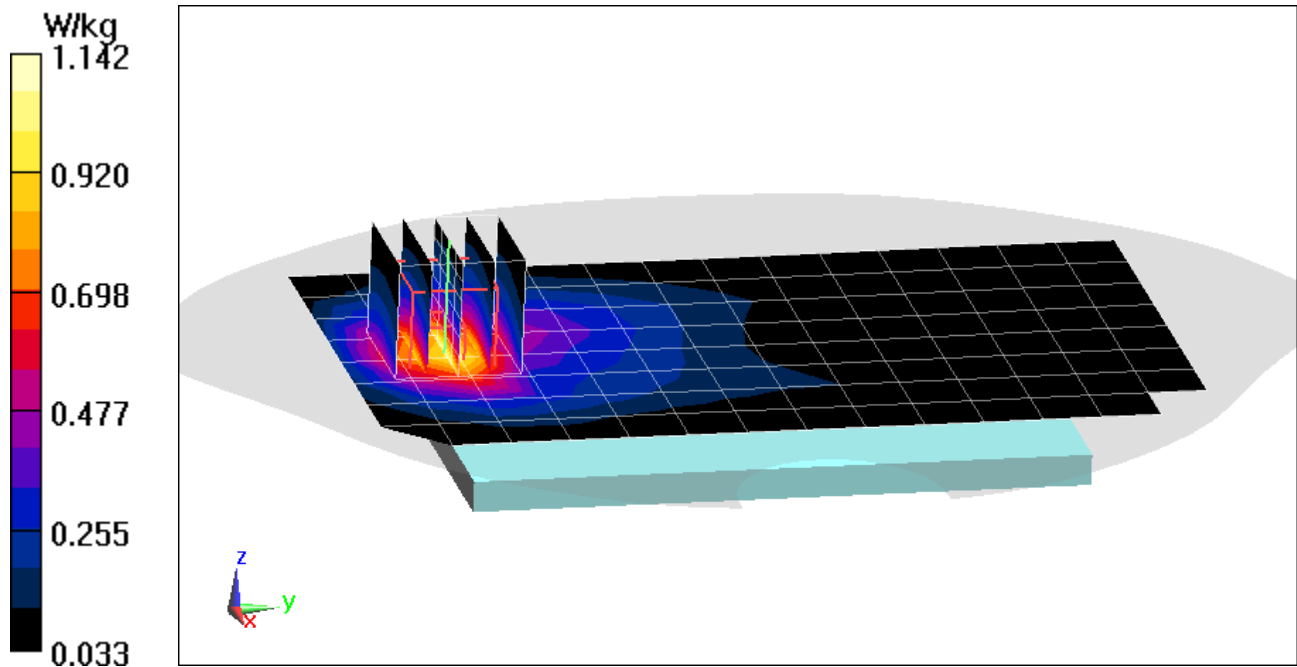
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.45 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.31 W/kg

SAR(1 g) = 0.826 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2559B

Communication System: UID 0, UMTS , Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
 $f = 1752.6$ MHz; $\sigma = 1.511$ S/m; $\epsilon_r = 51.011$; $\rho = 1000$ kg/m³
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-07-2019; Ambient Temp: 22.1°C; Tissue Temp: 19.5°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1752.6 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

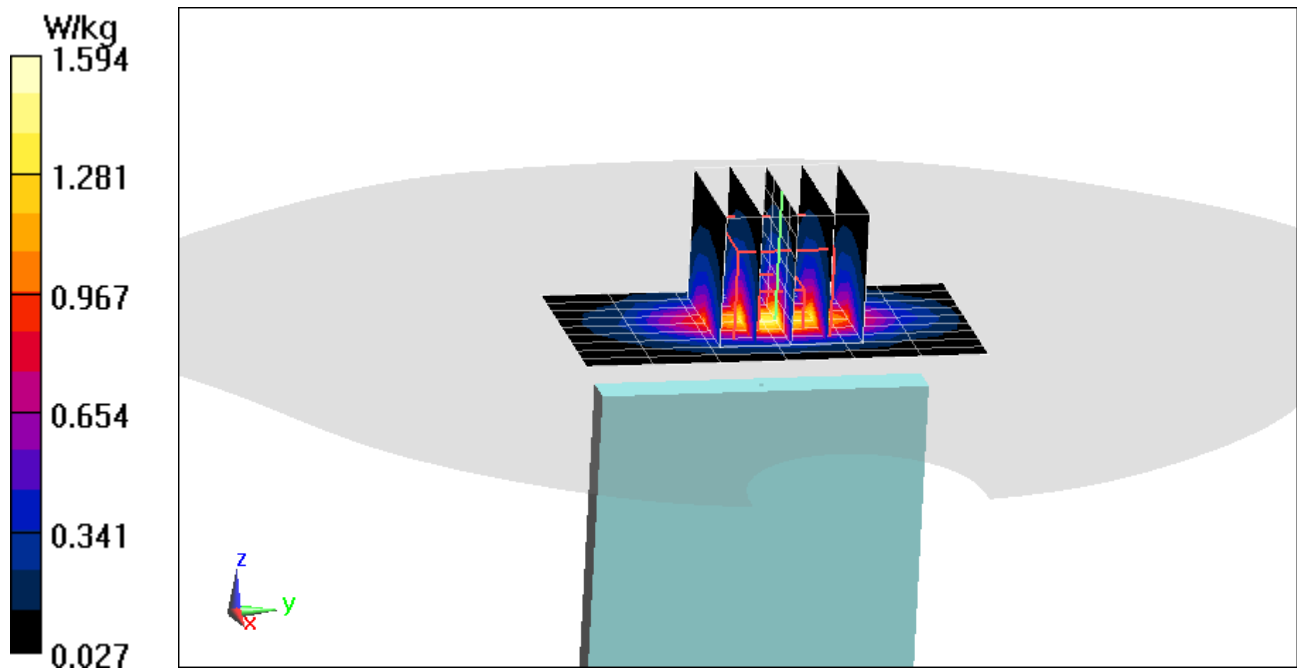
Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.21 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.88 W/kg

SAR(1 g) = 1.08 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2559B

Communication System: UID 0, UMTS; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
 $f = 1907.6 \text{ MHz}$; $\sigma = 1.58 \text{ S/m}$; $\epsilon_r = 52.511$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-08-2019; Ambient Temp: 21.1°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7488; ConvF(8.37, 8.37, 8.37) @ 1907.6 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

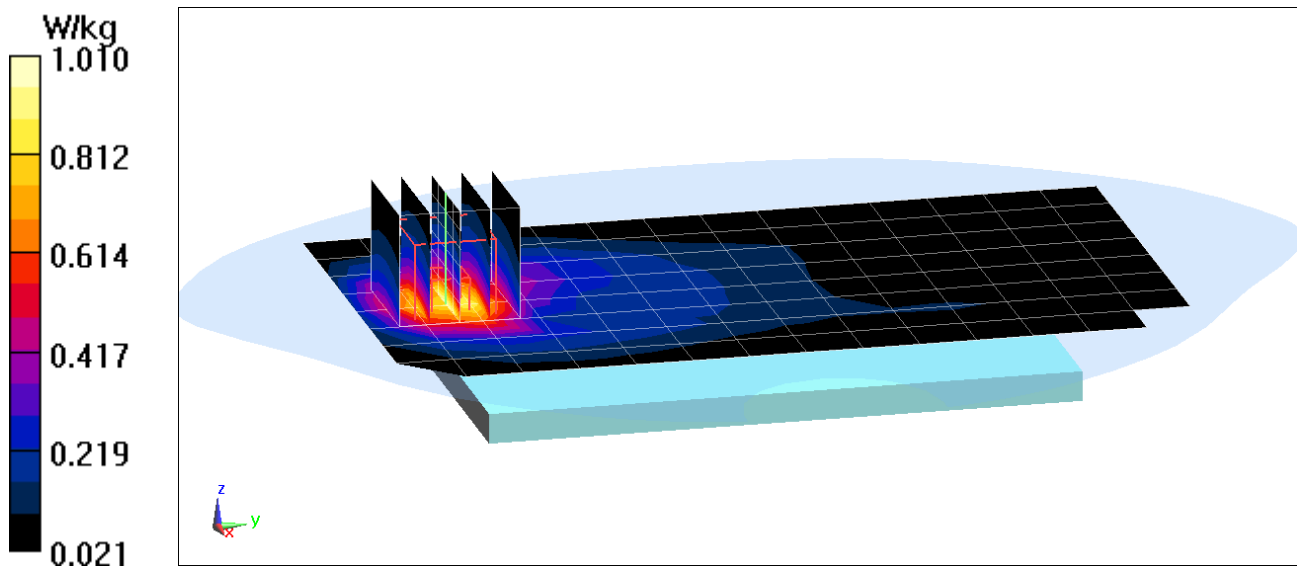
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.29 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.17 W/kg

SAR(1 g) = 0.715 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2559B

Communication System: UID 0, _UMTS; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
 $f = 1907.6 \text{ MHz}$; $\sigma = 1.58 \text{ S/m}$; $\epsilon_r = 52.511$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-08-2019; Ambient Temp: 21.1°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7488; ConvF(8.37, 8.37, 8.37) @ 1907.6 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

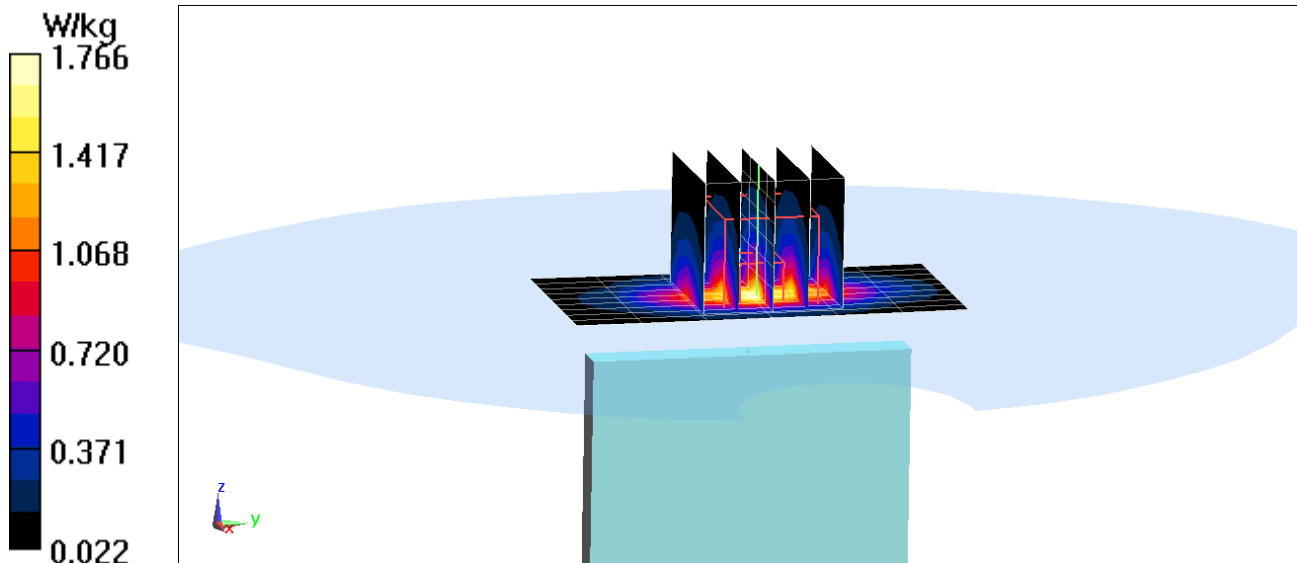
Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 28.80 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 2.08 W/kg

SAR(1 g) = 1.17 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2563B

Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
 $f = 836.52$ MHz; $\sigma = 0.97$ S/m; $\epsilon_r = 52.943$; $\rho = 1000$ kg/m³
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-11-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 836.52 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Cell. CDMA, Body SAR, Back side, Mid.ch

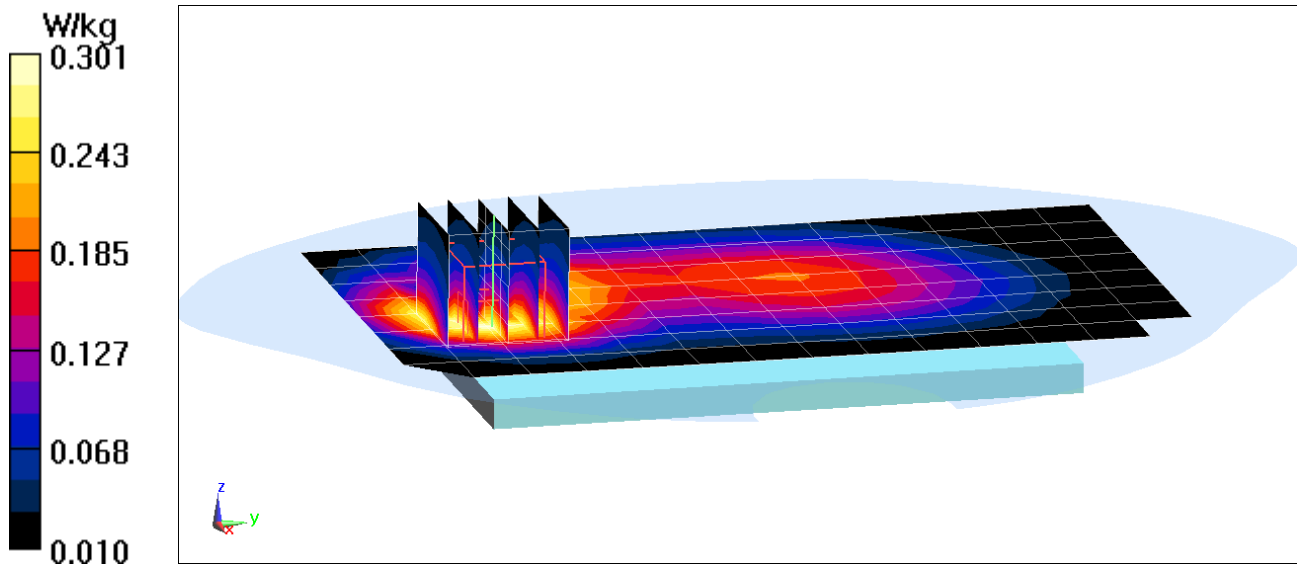
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 15.63 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.352 W/kg

SAR(1 g) = 0.222 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2563B

Communication System: UID 0, CDMA; Frequency: 848.31 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
 $f = 848.31 \text{ MHz}$; $\sigma = 0.982 \text{ S/m}$; $\epsilon_r = 52.815$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-11-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 848.31 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Cell. EVDO, Body SAR, Back side, High.ch

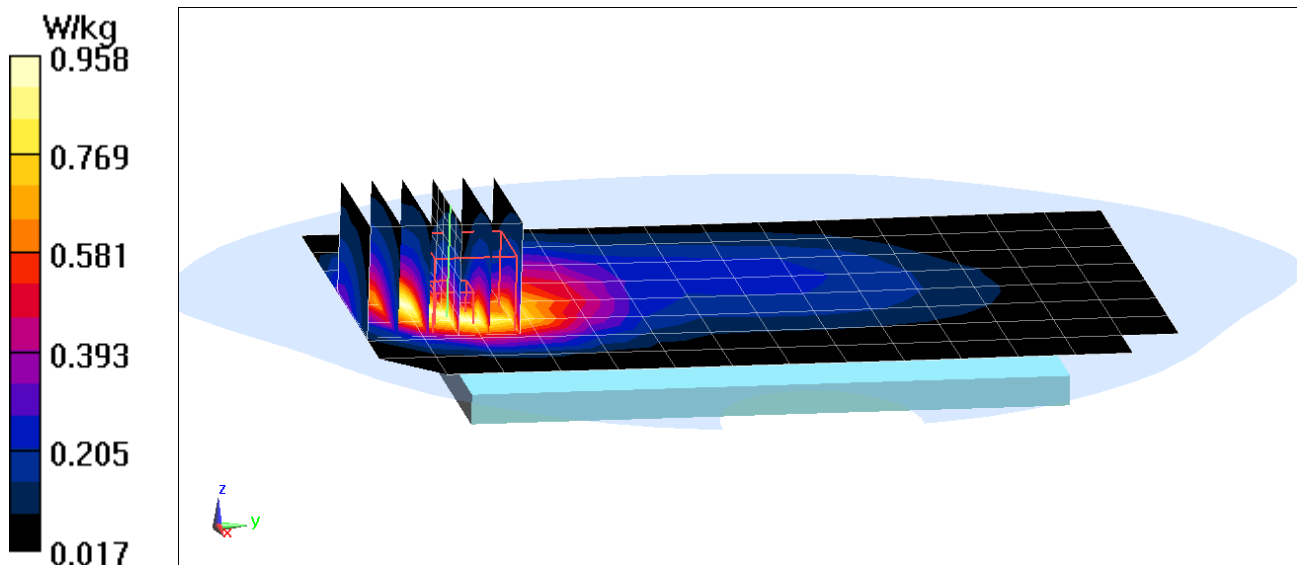
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.87 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.676 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2559B

Communication System: UID 0, CDMA; Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
 $f = 1851.25 \text{ MHz}$; $\sigma = 1.521 \text{ S/m}$; $\epsilon_r = 54.406$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-28-2019; Ambient Temp: 20.9°C; Tissue Temp: 24.1°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1851.25 MHz; Calibrated: 8/22/2018
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 (2);SEMCAD X Version 14.6.12 (7450)

Mode: PCS CDMA, Body SAR, Back side, Low.ch

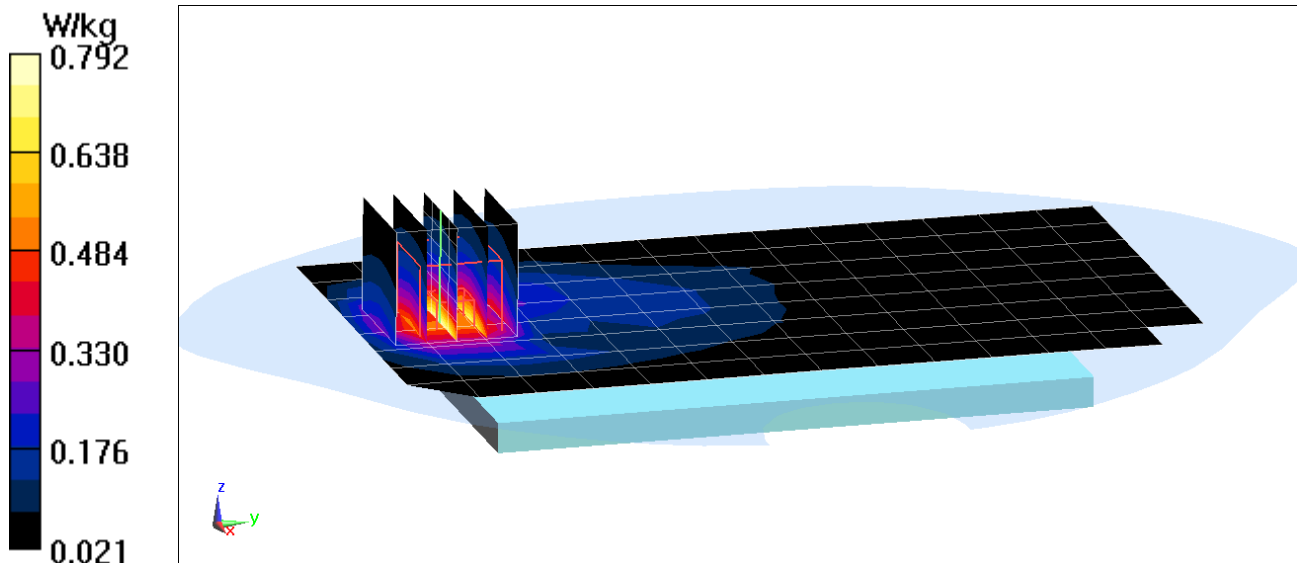
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 22.48 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.674 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2559B

Communication System: UID 0, CDMA, Frequency: 1908.75 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
 $f = 1908.75$ MHz; $\sigma = 1.588$ S/m; $\epsilon_r = 54.222$; $\rho = 1000$ kg/m³
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-28-2019; Ambient Temp: 20.9°C; Tissue Temp: 24.1°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1908.75 MHz; Calibrated: 8/22/2018
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 (2);SEMCAD X Version 14.6.12 (7450)

Mode: PCS EVDO, Body SAR, Bottom Edge, High.ch

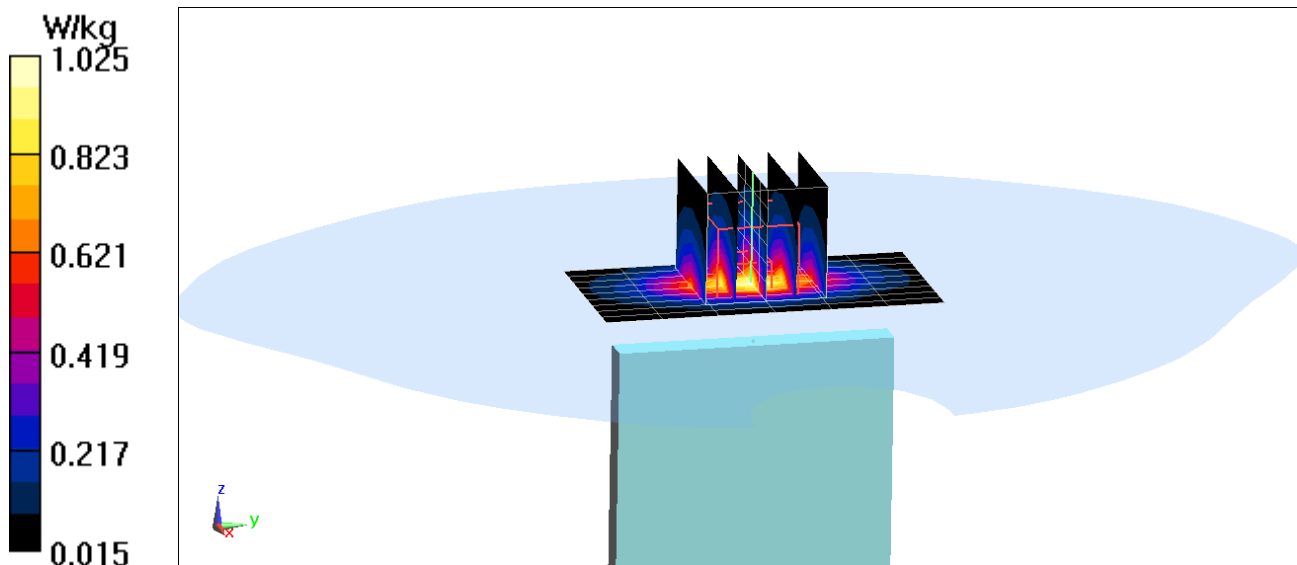
Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 24.85 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.39 W/kg

SAR(1 g) = 0.821 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2567B

Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
 $f = 707.5 \text{ MHz}$; $\sigma = 0.967 \text{ S/m}$; $\epsilon_r = 54.21$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-05-2019; Ambient Temp: 24.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN3589; ConvF(8.34, 8.34, 8.34) @ 707.5 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

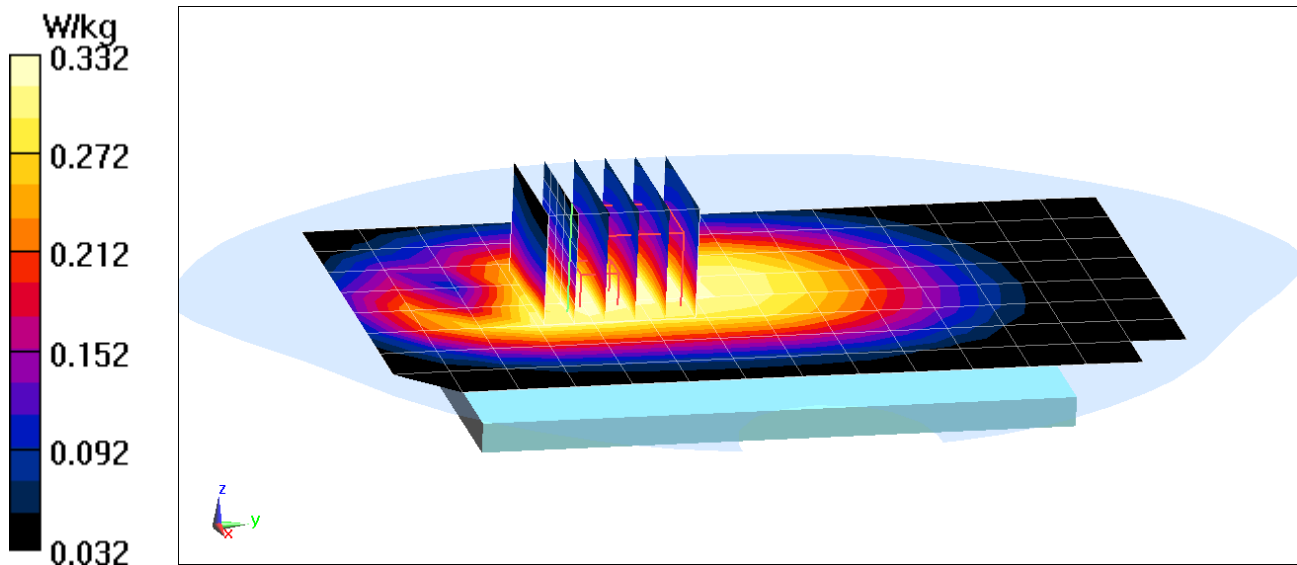
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.73 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.376 W/kg

SAR(1 g) = 0.266 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2567B

Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
 $f = 707.5 \text{ MHz}$; $\sigma = 0.967 \text{ S/m}$; $\epsilon_r = 54.21$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-05-2019; Ambient Temp: 24.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN3589; ConvF(8.34, 8.34, 8.34) @ 707.5 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

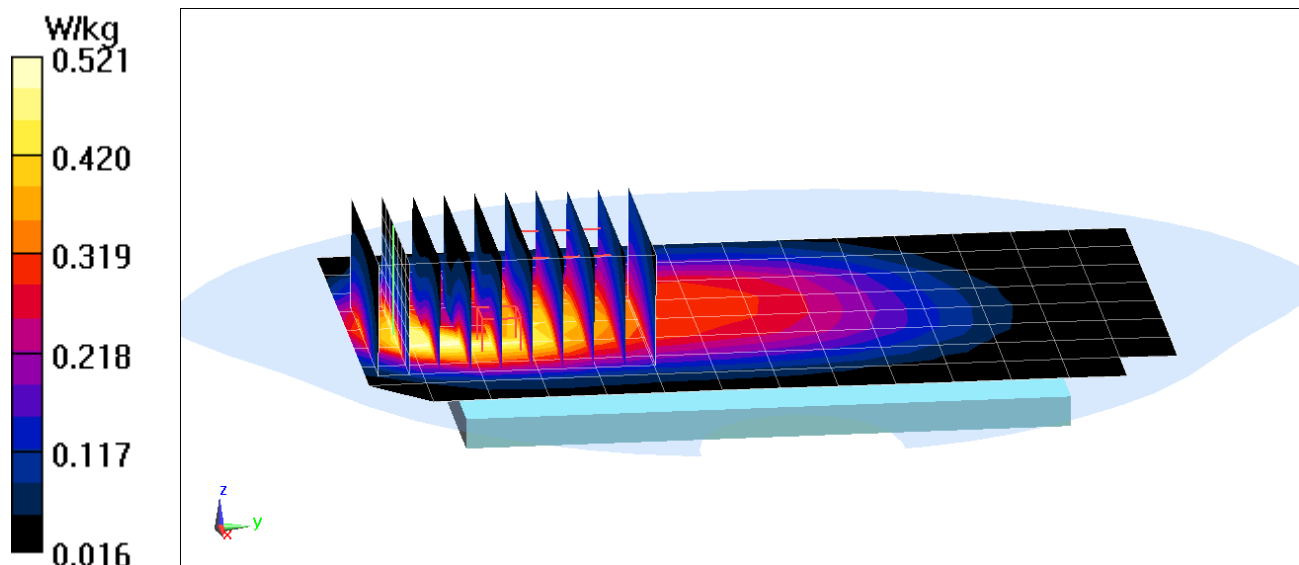
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (8x10x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.52 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.637 W/kg

SAR(1 g) = 0.358 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2567B

Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
 $f = 782 \text{ MHz}$; $\sigma = 0.997 \text{ S/m}$; $\epsilon_r = 54.016$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-05-2019; Ambient Temp: 24.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN3589; ConvF(8.34, 8.34, 8.34) @ 782 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 13, Body SAR, Back side, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset**

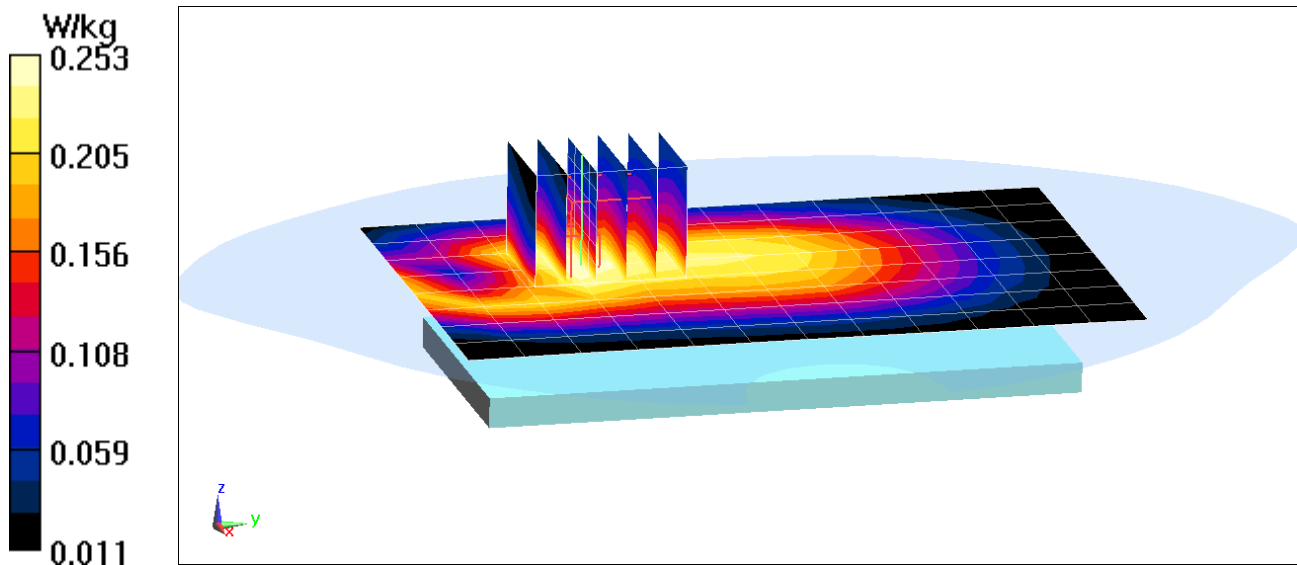
Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.63 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.288 W/kg

SAR(1 g) = 0.204 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2567B

Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
 $f = 782 \text{ MHz}$; $\sigma = 0.997 \text{ S/m}$; $\epsilon_r = 54.016$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-05-2019; Ambient Temp: 24.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN3589; ConvF(8.34, 8.34, 8.34) @ 782 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 13, Body SAR, Back side, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset**

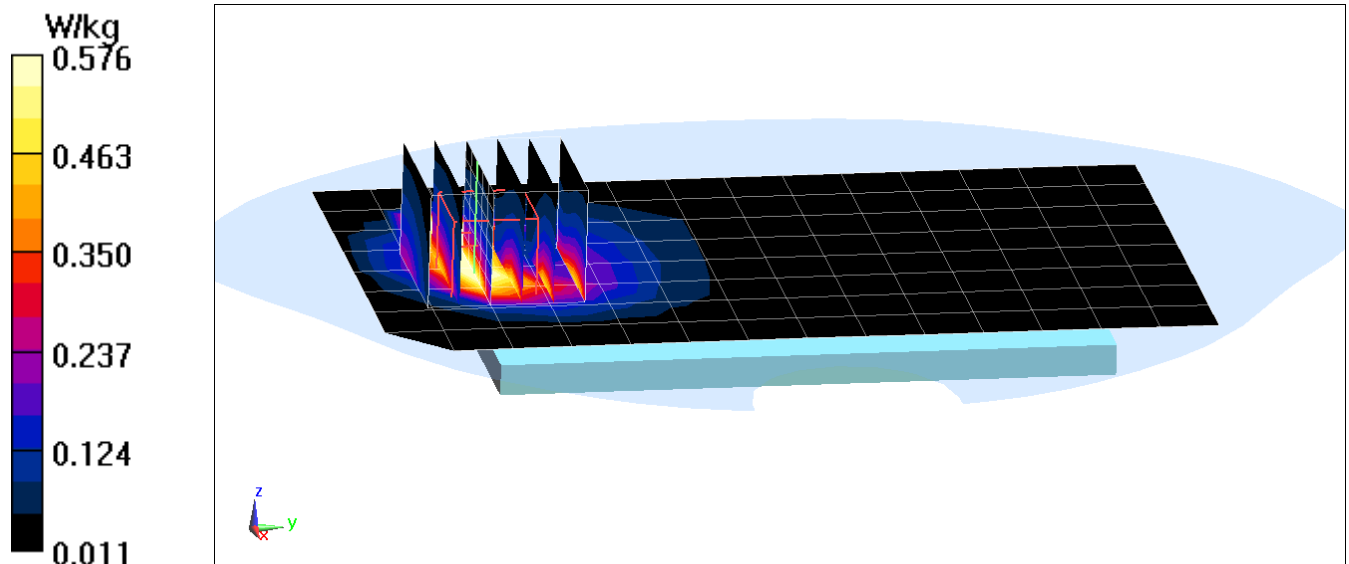
Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.77 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.701 W/kg

SAR(1 g) = 0.386 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2567B

Communication System: UID 0, LTE Band 14; Frequency: 793 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
 $f = 793 \text{ MHz}$; $\sigma = 1.001 \text{ S/m}$; $\epsilon_r = 53.996$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-05-2019; Ambient Temp: 24.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN3589; ConvF(8.34, 8.34, 8.34) @ 793 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 14, Body SAR, Back side, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset**

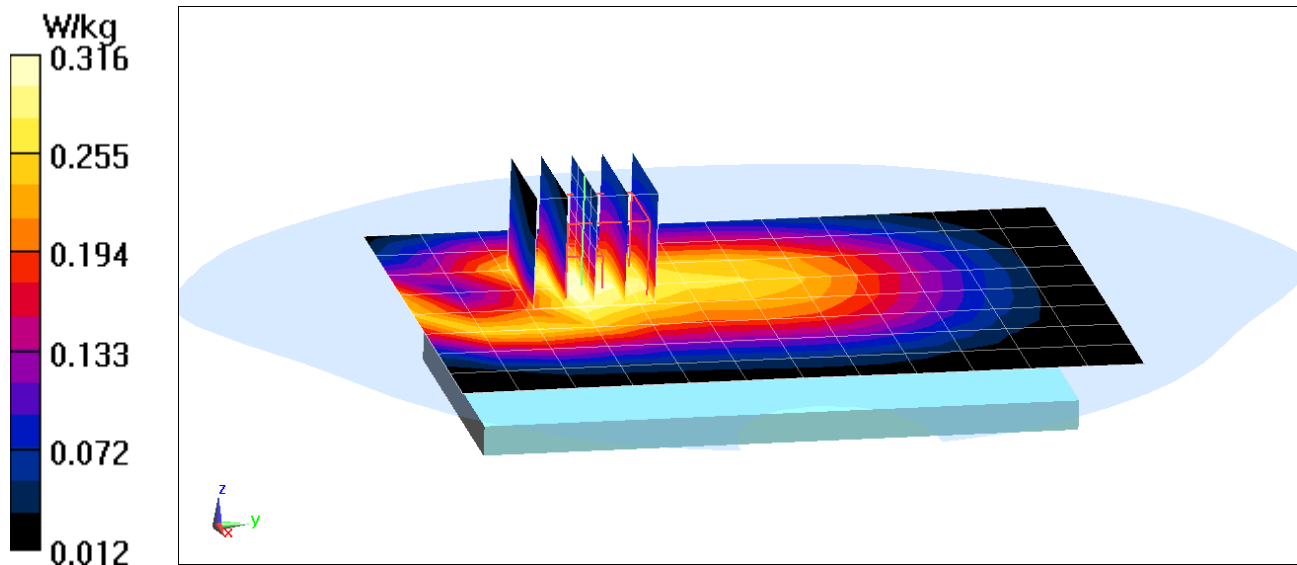
Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.02 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.358 W/kg

SAR(1 g) = 0.249 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2567B

Communication System: UID 0, LTE Band 14; Frequency: 793 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
 $f = 793 \text{ MHz}$; $\sigma = 1.001 \text{ S/m}$; $\epsilon_r = 53.996$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-05-2019; Ambient Temp: 24.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN3589; ConvF(8.34, 8.34, 8.34) @ 793 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 14, Body SAR, Back side, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset**

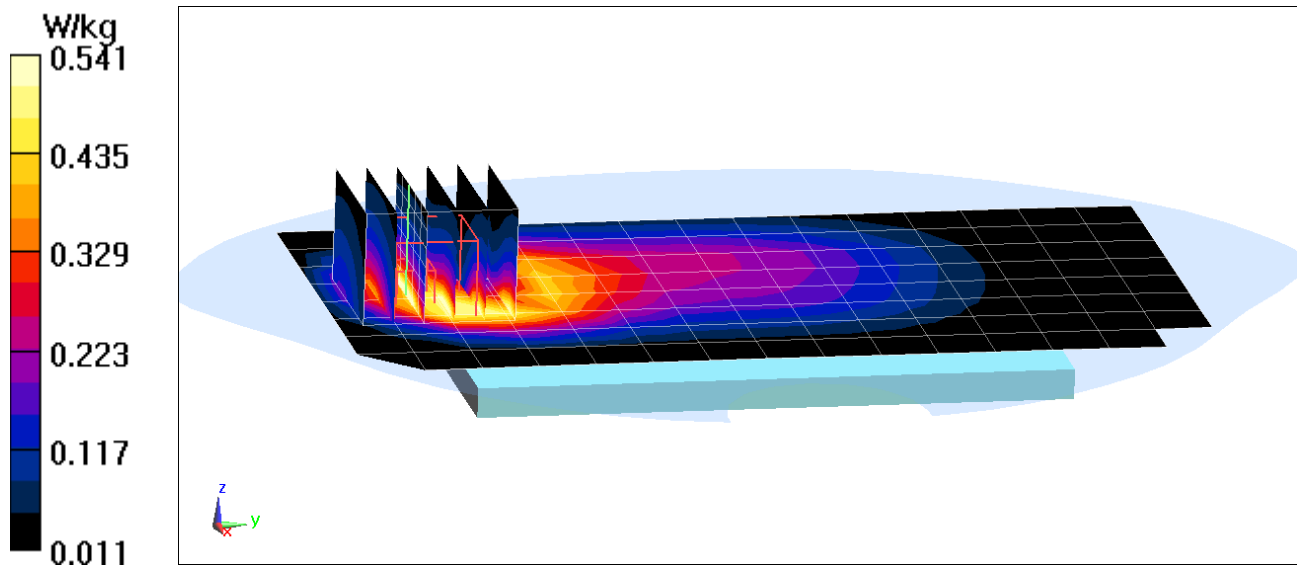
Area Scan (9x16x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.40 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.802 W/kg

SAR(1 g) = 0.433 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2567B

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; $\sigma = 0.979$ S/m; $\epsilon_r = 52.992$; $\rho = 1000$ kg/m³
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-28-2019; Ambient Temp: 22.1°C; Tissue Temp: 19.3°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 836.5 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 5 (Cell.), Body SAR, Back side, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset**

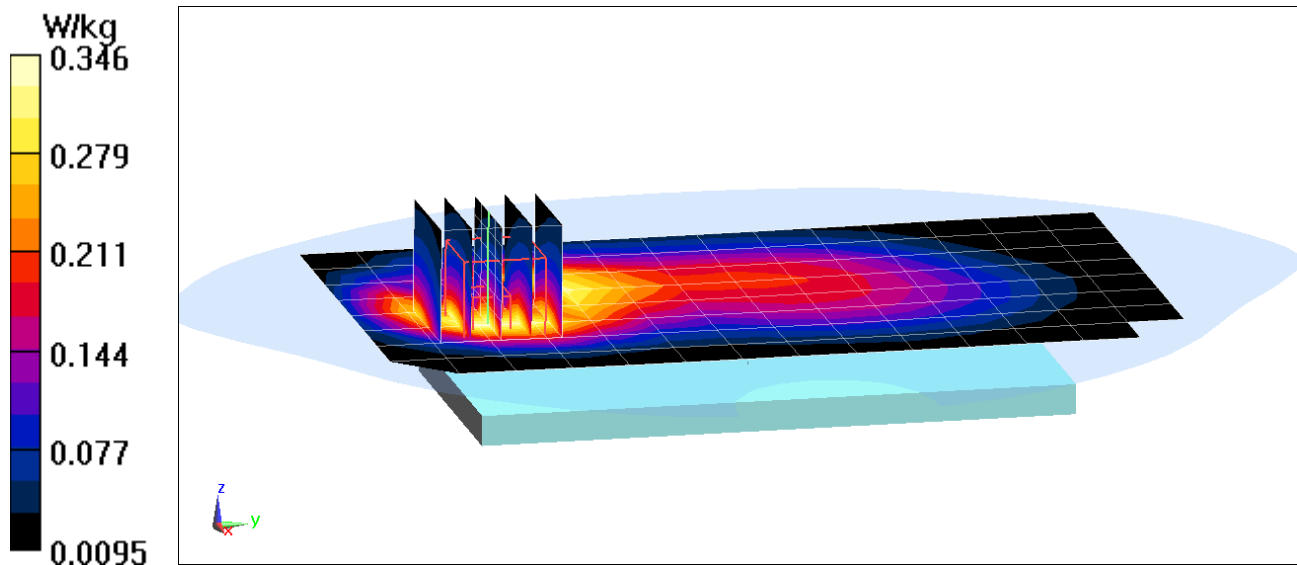
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.61 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.399 W/kg

SAR(1 g) = 0.252 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2567B

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; $\sigma = 0.979$ S/m; $\epsilon_r = 52.992$; $\rho = 1000$ kg/m³
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-28-2019; Ambient Temp: 22.1°C; Tissue Temp: 19.3°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 836.5 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 5 (Cell.), Body SAR, Back side, Mid.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset**

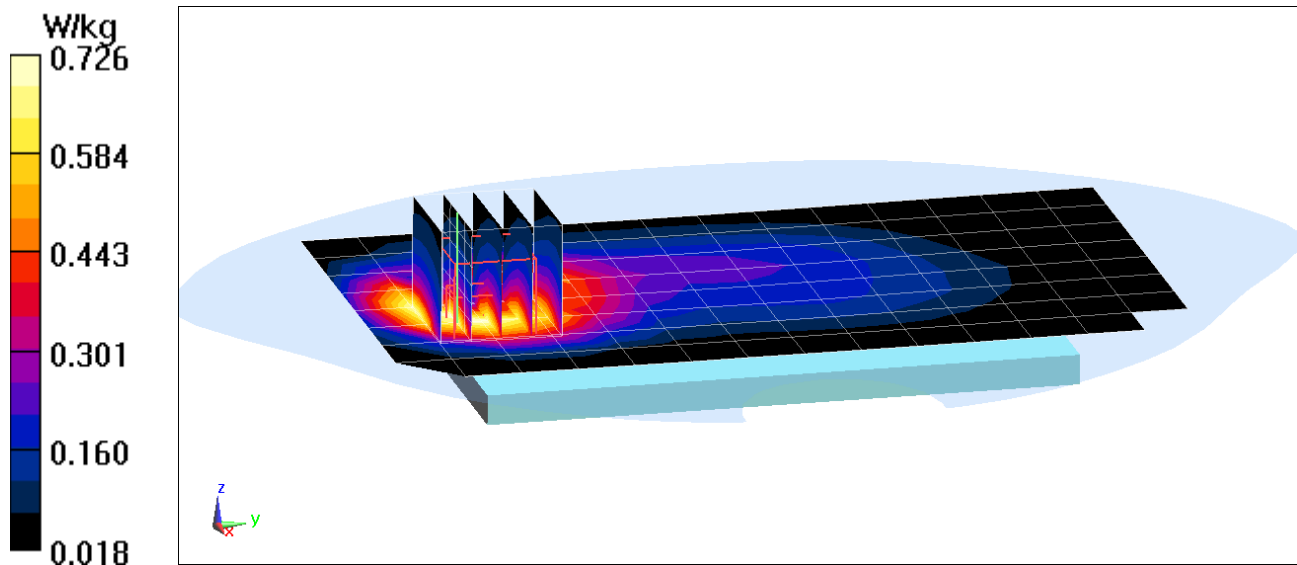
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 23.83 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.859 W/kg

SAR(1 g) = 0.521 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 1292B

Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used (interpolated):

$f = 831.5 \text{ MHz}$; $\sigma = 0.98 \text{ S/m}$; $\epsilon_r = 54.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-25-2019; Ambient Temp: 21.4°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 831.5 MHz; Calibrated: 4/18/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1407; Calibrated: 4/11/2018

Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

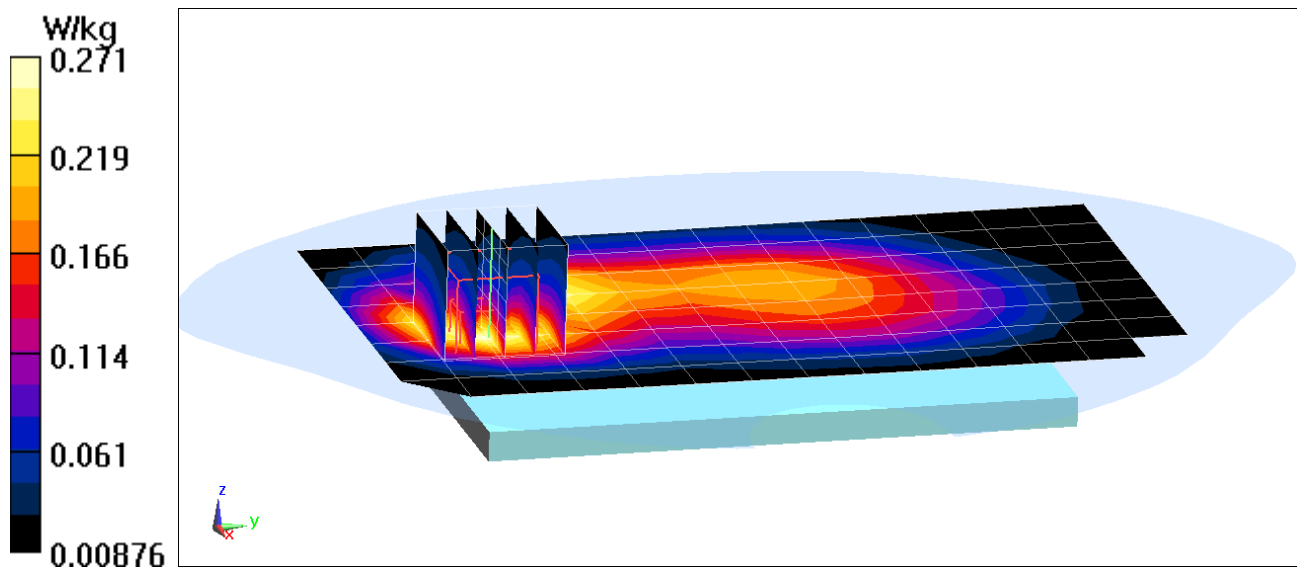
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 14.75 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.320 W/kg

SAR(1 g) = 0.200 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 1292B

Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used (interpolated):

$f = 831.5 \text{ MHz}$; $\sigma = 0.98 \text{ S/m}$; $\epsilon_r = 54.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-25-2019; Ambient Temp: 21.4°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 831.5 MHz; Calibrated: 4/18/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1407; Calibrated: 4/11/2018

Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

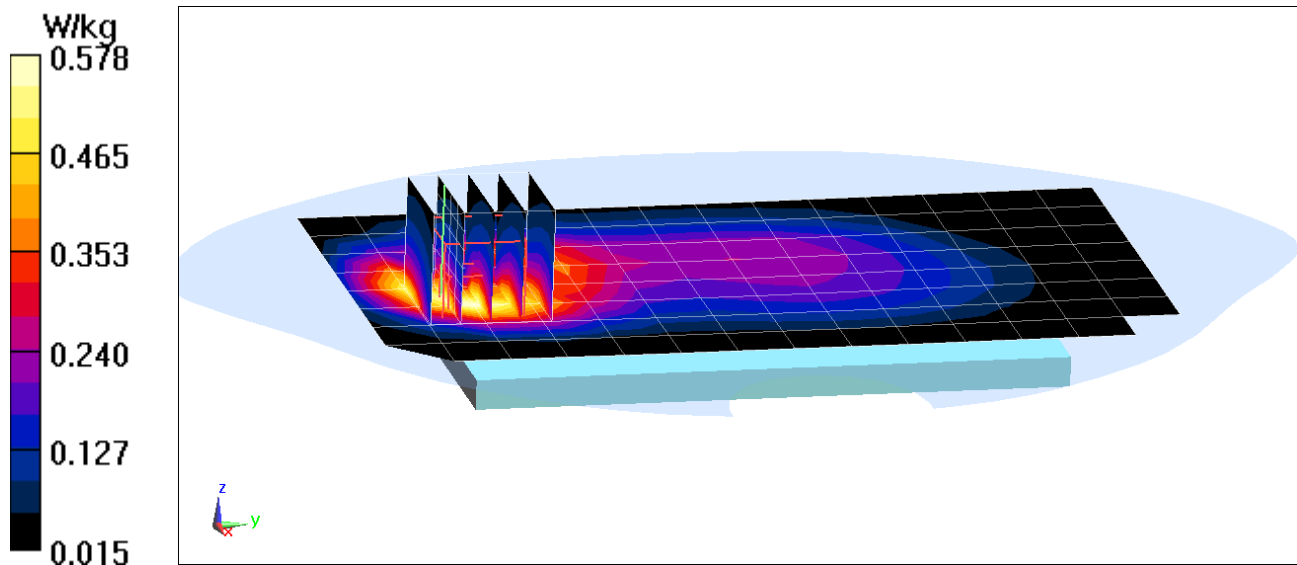
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 21.60 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.705 W/kg

SAR(1 g) = 0.423 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2559B

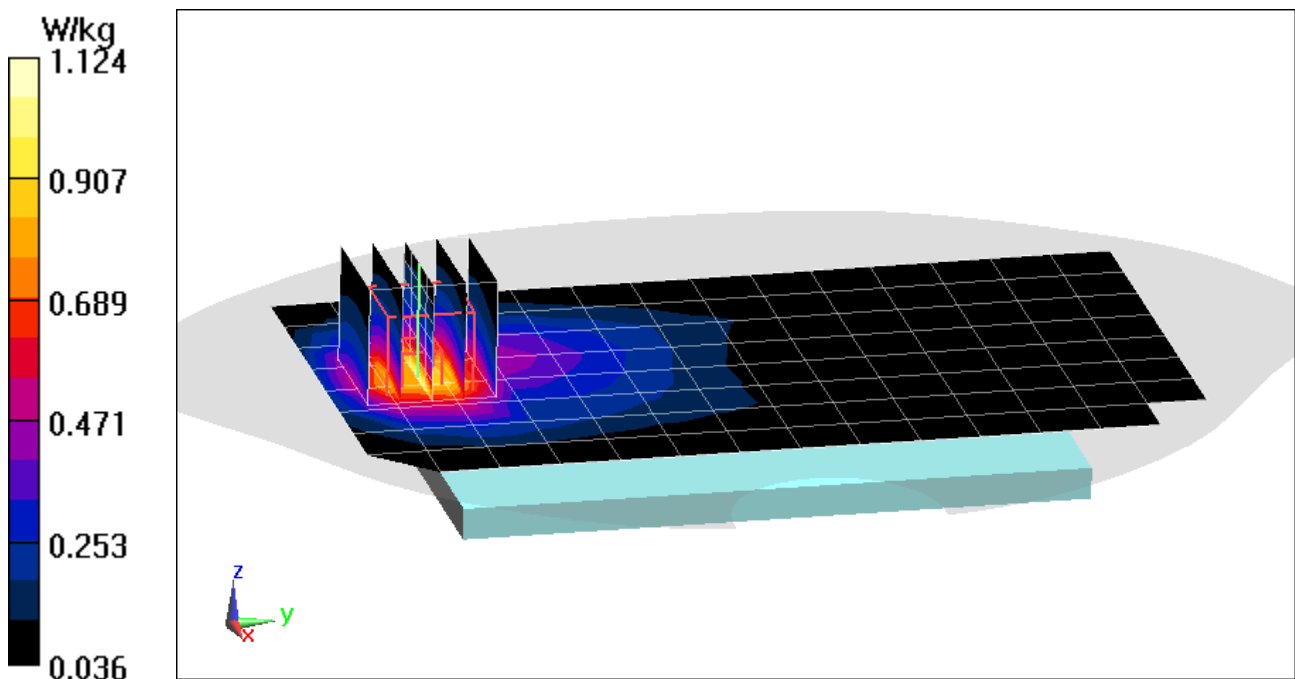
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1715 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
 $f = 1715 \text{ MHz}$; $\sigma = 1.482 \text{ S/m}$; $\epsilon_r = 51.087$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-07-2019; Ambient Temp: 22.1°C; Tissue Temp: 19.5°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1715 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS) ULCA, Body SAR, Back side,
PCC: 10 MHz Bandwidth, QPSK, Ch. 132022, 1 RB, 49 RB Offset
SCC: 10 MHz Bandwidth, QPSK, Ch. 132121, 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 = 24.38 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.814 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2559B

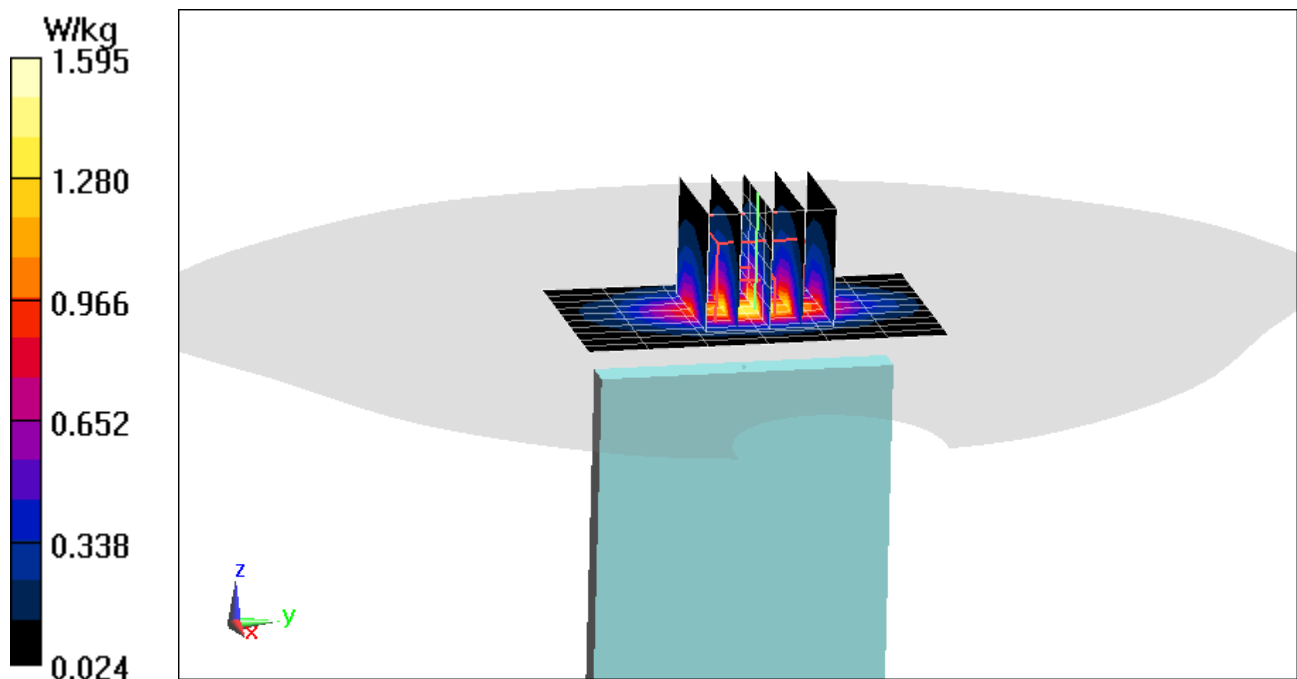
Communication System: UID 0, _LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
 $f = 1720 \text{ MHz}$; $\sigma = 1.486 \text{ S/m}$; $\epsilon_r = 51.077$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-07-2019; Ambient Temp: 22.1°C; Tissue Temp: 19.5°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1720 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS) ULCA, Body SAR, Bottom Edge,
PCC: 20 MHz Bandwidth, QPSK, Ch. 132072, 50 RB, 50 RB Offset
SCC: 20 MHz Bandwidth, QPSK, Ch. 132270, 50 RB, 0 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 = 28.34 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 1.1 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 1289B

Communication System: UID 0, LTE Band 2 (PCS); Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.532 \text{ S/m}$; $\epsilon_r = 51.722$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-27-2019; Ambient Temp: 23.3°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7488; ConvF(8.37, 8.37, 8.37) @ 1880 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1530; Calibrated: 1/15/2019

Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375

Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 2 (PCS), Body SAR, Back side, Mid.ch, 20 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset**

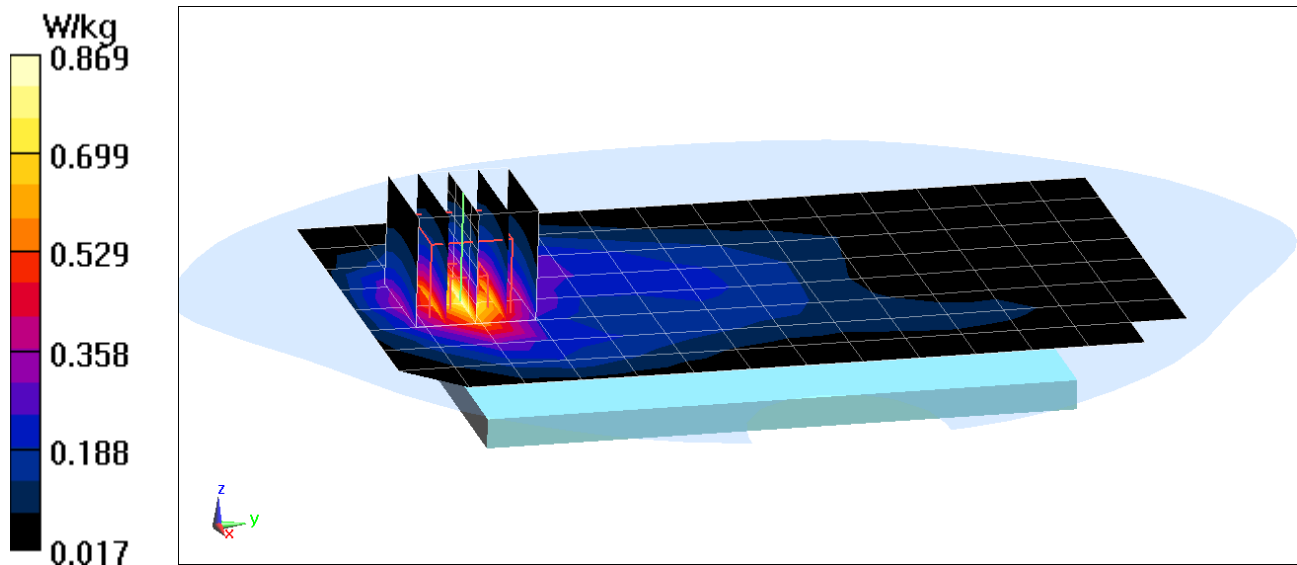
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.81 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.01 W/kg

SAR(1 g) = 0.606 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 1289B

Communication System: UID 0, _LTE Band 2 (PCS); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
 $f = 1880 \text{ MHz}$; $\sigma = 1.532 \text{ S/m}$; $\epsilon_r = 51.019$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-24-2019; Ambient Temp: 21.7°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7488; ConvF(8.37, 8.37, 8.37) @ 1880 MHz; Calibrated: 1/24/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1530; Calibrated: 1/15/2019
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 2 (PCS), Body SAR, Bottom Edge, Mid.ch, 20 MHz Bandwidth,
QPSK, 50 RB, 50 RB Offset**

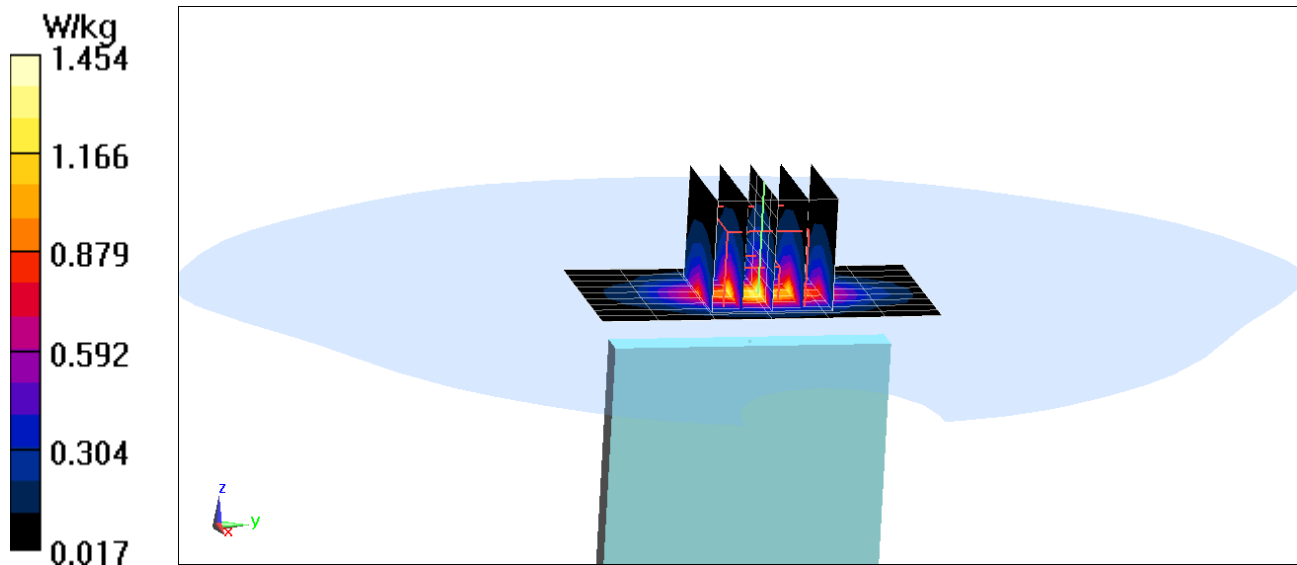
Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 26.33 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.73 W/kg

SAR(1 g) = 0.949 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 1283B

Communication System: UID 0, LTE Band 30; Frequency: 2310 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
 $f = 2310 \text{ MHz}$; $\sigma = 1.867 \text{ S/m}$; $\epsilon_r = 52.123$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-25-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.0°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 (2);SEMCAD X Version 14.6.12 (7450)

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

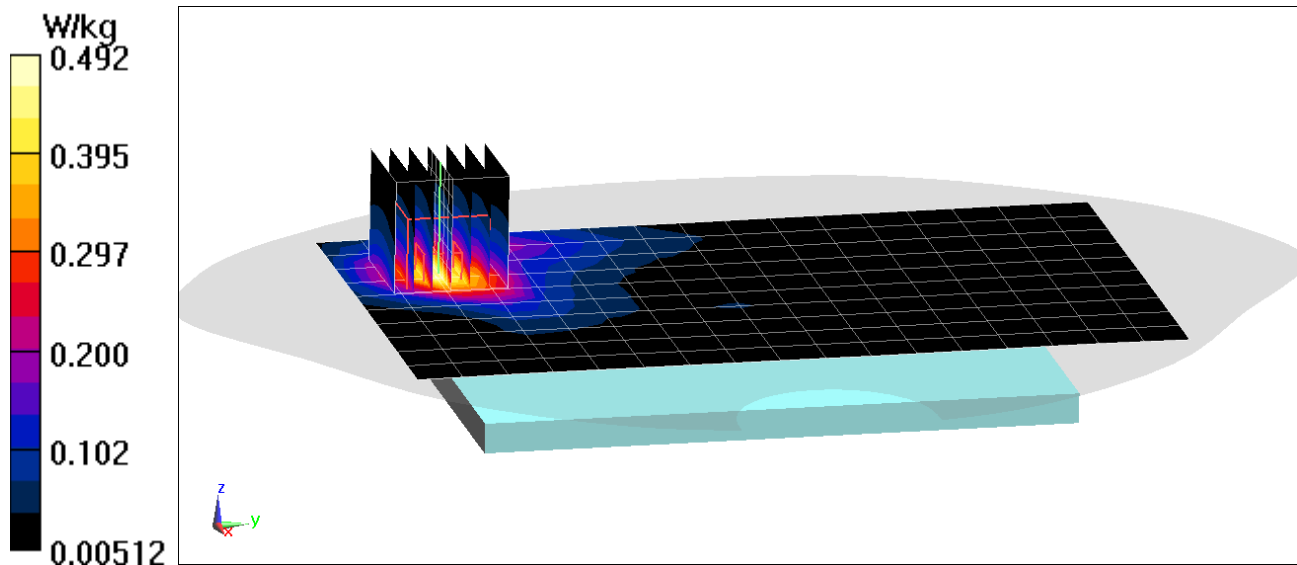
Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 15.74 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.697 W/kg

SAR(1 g) = 0.395 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 1283B

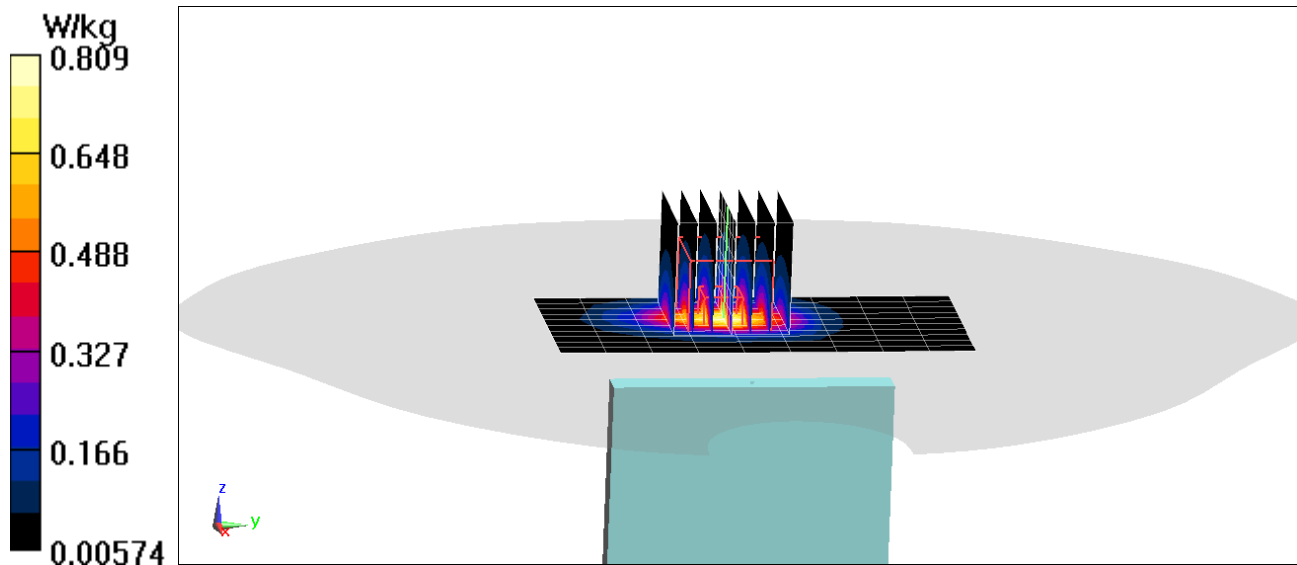
Communication System: UID 0, LTE Band 30; Frequency: 2310 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
 $f = 2310 \text{ MHz}$; $\sigma = 1.867 \text{ S/m}$; $\epsilon_r = 52.123$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-25-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.0°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 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 30, Antenna A, Body SAR, Bottom Edge, Mid.ch, 10 MHz Bandwidth,
QPSK, 25 RB, 12 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 = 20.10 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.624 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2573B

Communication System: UID 0, LTE Band 7; Frequency: 2535 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
 $f = 2535 \text{ MHz}$; $\sigma = 2.134 \text{ S/m}$; $\epsilon_r = 51.708$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-05-2019; Ambient Temp: 22.7°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3319; ConvF(4.33, 4.33, 4.33) @ 2535 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)

**Mode: LTE Band 7, Body SAR, Back side, Mid.ch, 20 MHz Bandwidth,
QPSK, 1 RB, 50 RB Offset**

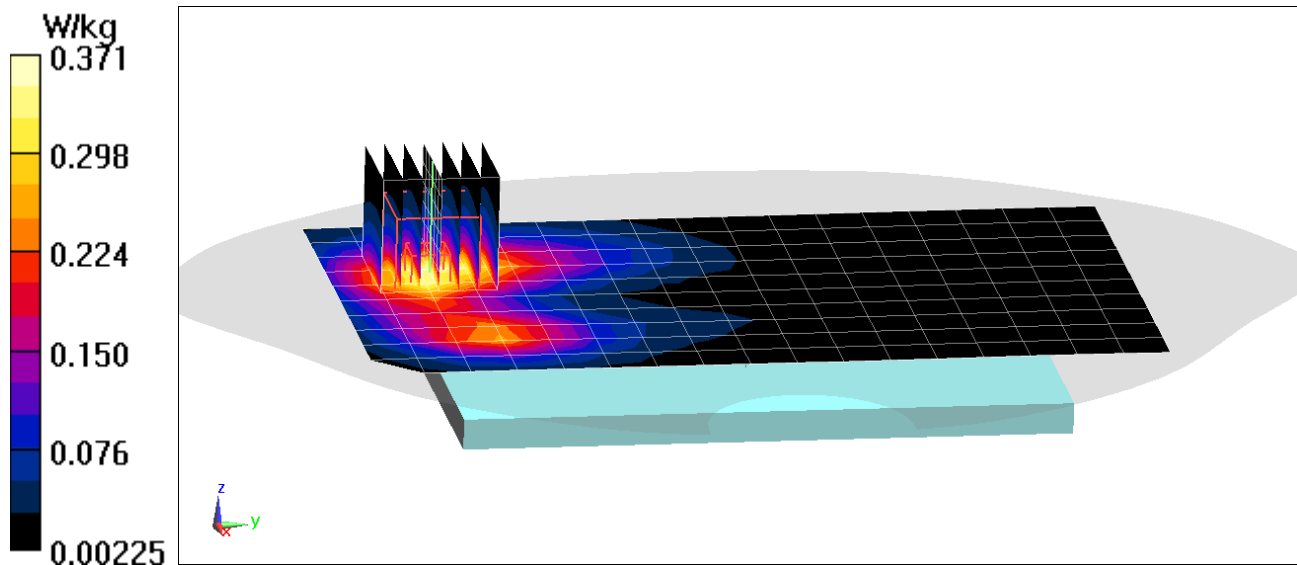
Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 12.60 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.554 W/kg

SAR(1 g) = 0.303 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2573B

Communication System: UID 0, LTE Band 7; Frequency: 2560 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
 $f = 2560 \text{ MHz}$; $\sigma = 2.164 \text{ S/m}$; $\epsilon_r = 51.626$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-05-2019; Ambient Temp: 22.7°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3319; ConvF(4.33, 4.33, 4.33) @ 2560 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)

**Mode: LTE Band 7, Body SAR, Bottom Edge, High.ch, 20 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset**

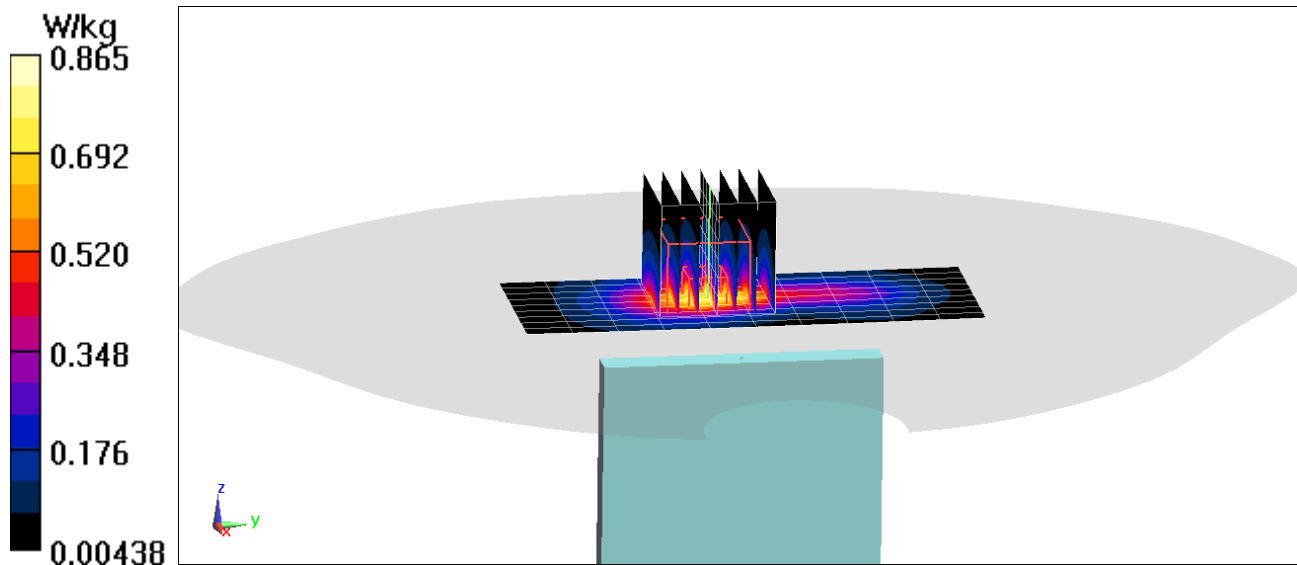
Area Scan (10x11x1): Measurement grid: dx=5mm, dy=12mm

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

Reference Value = 18.97 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.33 W/kg

SAR(1 g) = 0.678 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2573B

Communication System: UID 0, LTE Band 48; Frequency: 3646.7 MHz; Duty Cycle: 1:1.58
Medium: 3500 Body Medium parameters used (interpolated):
 $f = 3646.7 \text{ MHz}$; $\sigma = 3.342 \text{ S/m}$; $\epsilon_r = 50.833$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-04-2019; Ambient Temp: 20.7°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN3914; ConvF(6.64, 6.64, 6.64) @ 3646.7 MHz; Calibrated: 2/14/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

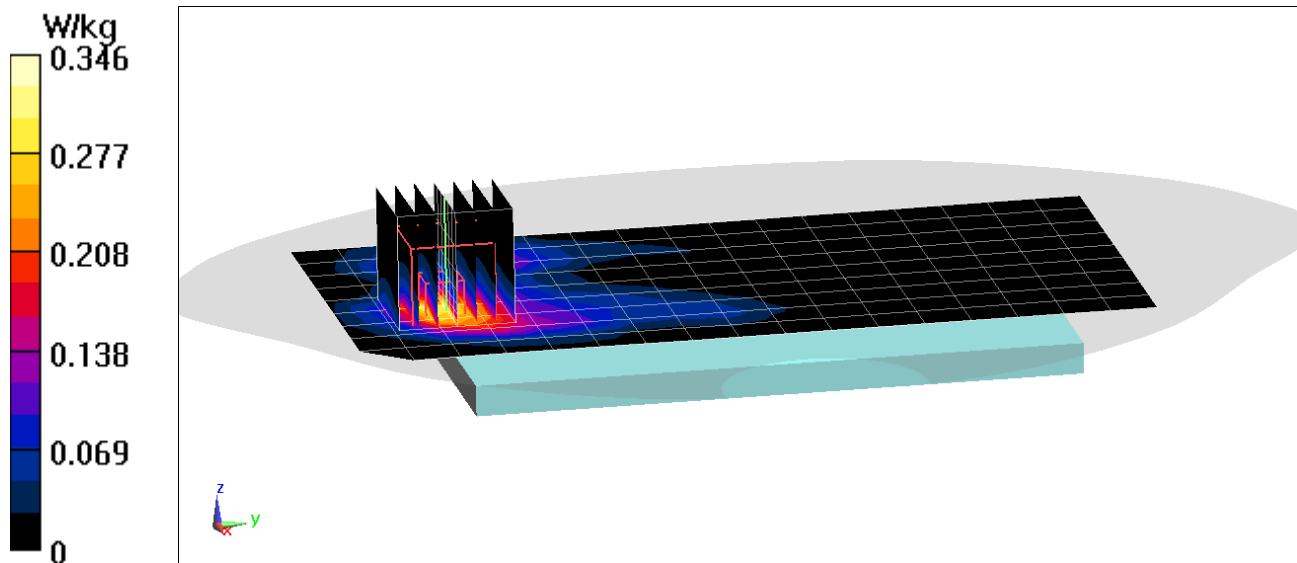
Area Scan (10x16x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x8)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Reference Value = 6.829 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 0.362 W/kg

SAR(1 g) = 0.145 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2573B

Communication System: UID 0, LTE Band 48; Frequency: 3646.7 MHz; Duty Cycle: 1:1.58
Medium: 3500 Body Medium parameters used (interpolated):
 $f = 3646.7$ MHz; $\sigma = 3.342$ S/m; $\epsilon_r = 50.833$; $\rho = 1000$ kg/m³
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-04-2019; Ambient Temp: 20.7°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN3914; ConvF(6.64, 6.64, 6.64) @ 3646.7 MHz; Calibrated: 2/14/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 48, Body SAR, Bottom Edge, Mid-High.ch, 20 MHz Bandwidth,
QPSK, 50 RB, 50 RB Offset**

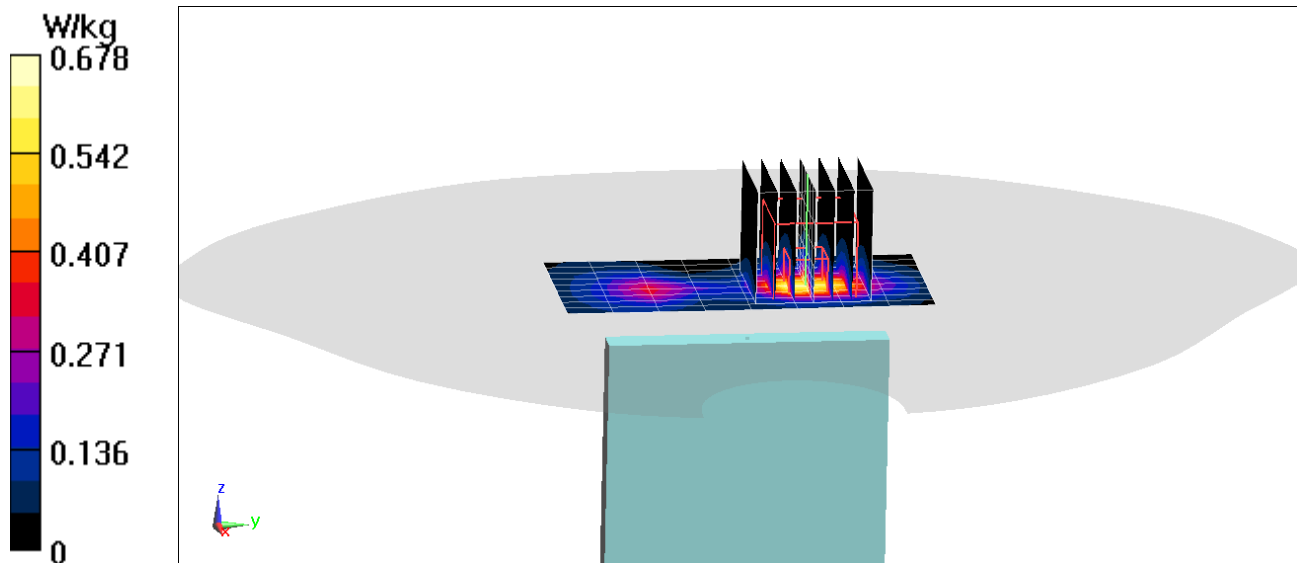
Area Scan (10x9x1): Measurement grid: dx=5mm, dy=12mm

Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 11.13 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.931 W/kg

SAR(1 g) = 0.357 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 1283B

Communication System: UID 0, LTE Band 41; Frequency: 2549.5 MHz; Duty Cycle: 1:1.58
Medium: 2450 Body Medium parameters used:
 $f = 2550 \text{ MHz}$; $\sigma = 2.15 \text{ S/m}$; $\epsilon_r = 51.458$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-25-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.0°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 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: LTE Band 41, Body SAR, Back side, Low-Mid.ch, 20 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset**

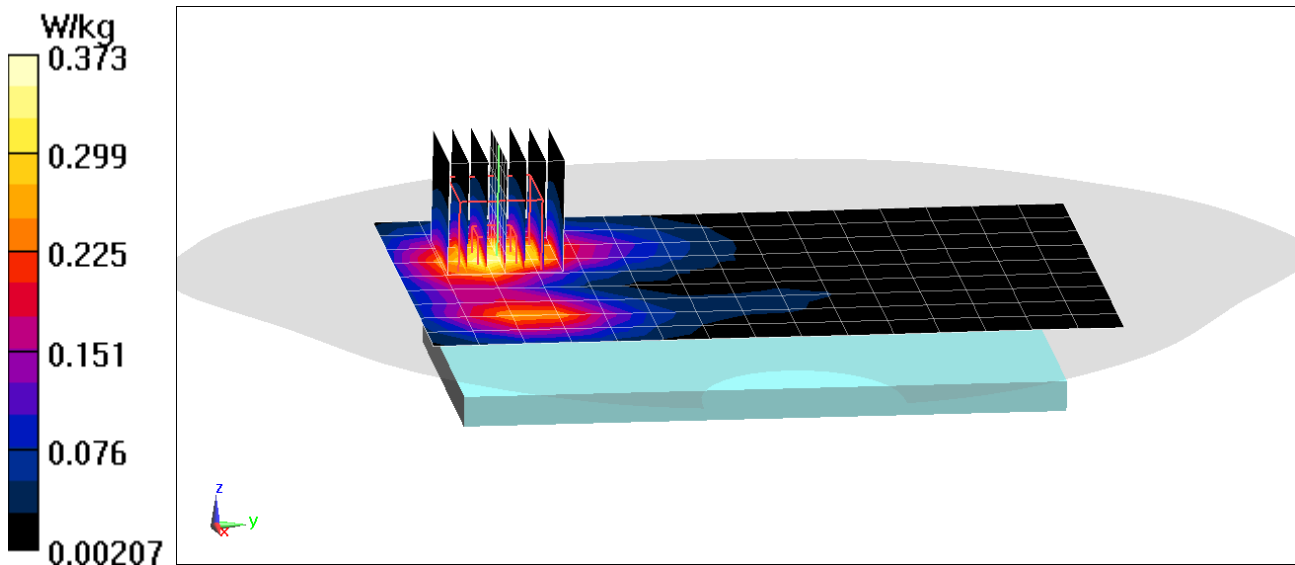
Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 12.44 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.578 W/kg

SAR(1 g) = 0.299 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 1283B

Communication System: UID 0, _LTE Band 41; Frequency: 2506 MHz; Duty Cycle: 1:1.58
Medium: 2450 Body Medium parameters used (interpolated):
 $f = 2506 \text{ MHz}$; $\sigma = 2.093 \text{ S/m}$; $\epsilon_r = 51.576$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-25-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2506 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)

**Mode: LTE Band 41, Body SAR, Bottom Edge, Low.ch, 20 MHz Bandwidth,
QPSK, 1 RB, 0 RB Offset**

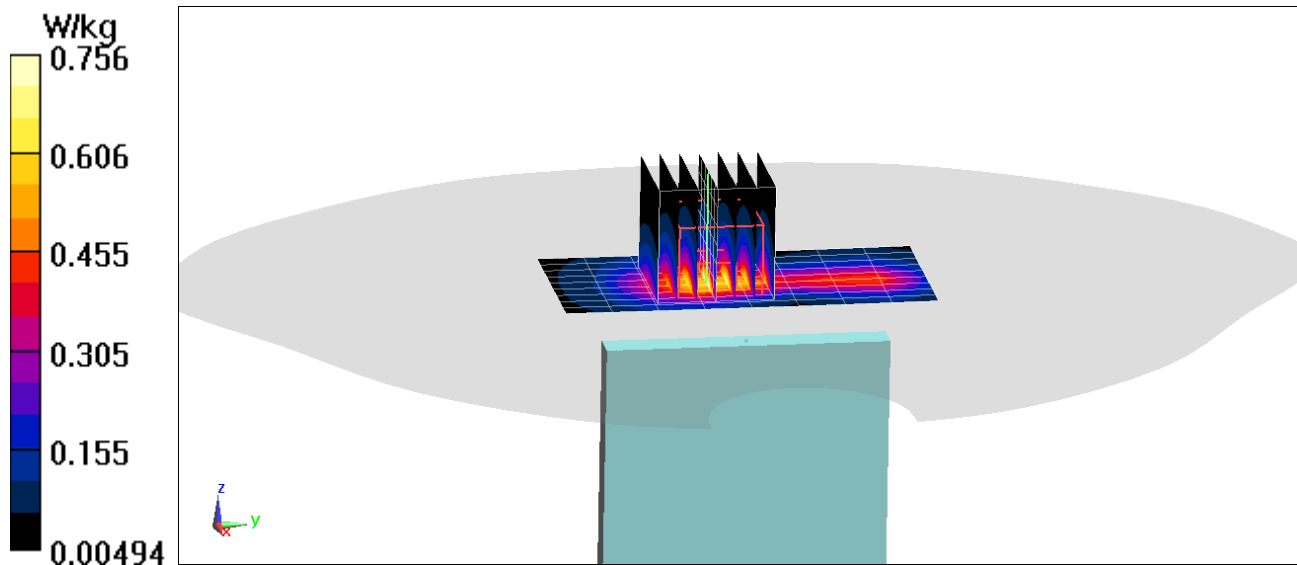
Area Scan (10x9x1): Measurement grid: $dx=5\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.22 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.17 W/kg

SAR(1 g) = 0.598 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2555B

Communication System: UID 0, _IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
 $f = 2437 \text{ MHz}$; $\sigma = 2.02 \text{ S/m}$; $\epsilon_r = 50.689$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-29-2019; Ambient Temp: 22.6°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2437 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)

**Mode: IEEE 802.11b, Antenna 2, 22 MHz Bandwidth, Body SAR, Ch 06,
1 Mbps, Back Side**

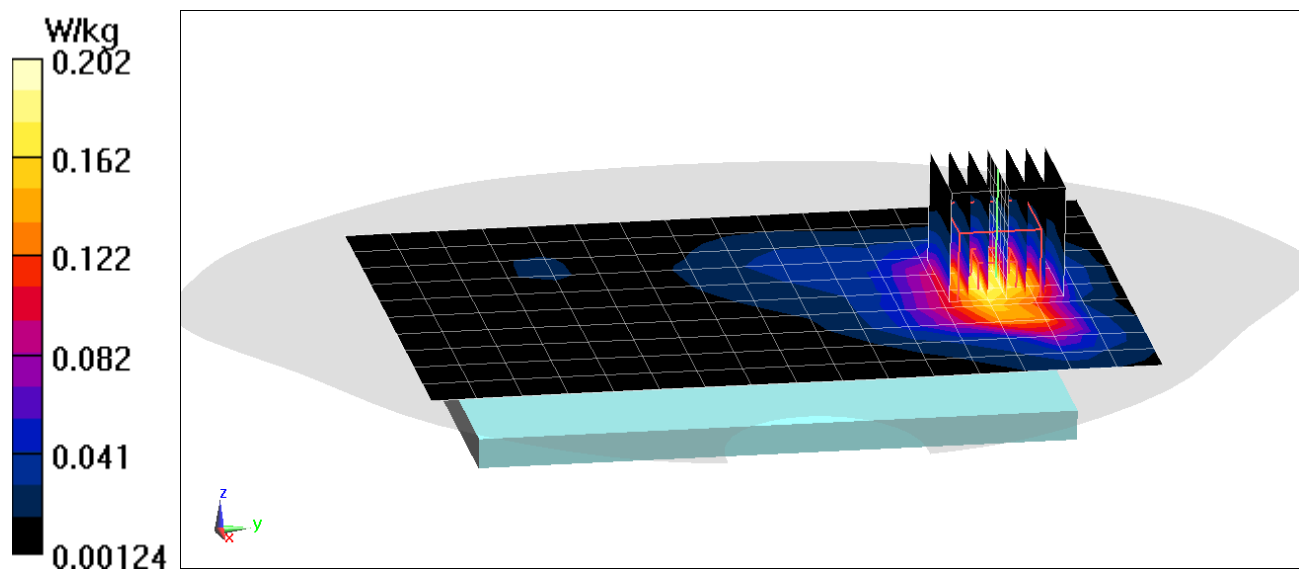
Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 9.691 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.304 W/kg

SAR(1 g) = 0.167 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 2555B

Communication System: UID 0, _IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
 $f = 2437 \text{ MHz}$; $\sigma = 2.02 \text{ S/m}$; $\epsilon_r = 50.689$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-29-2019; Ambient Temp: 22.6°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2437 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)

**Mode: IEEE 802.11b, Antenna 2, 22 MHz Bandwidth, Body SAR, Ch 06,
1 Mbps, Back Side**

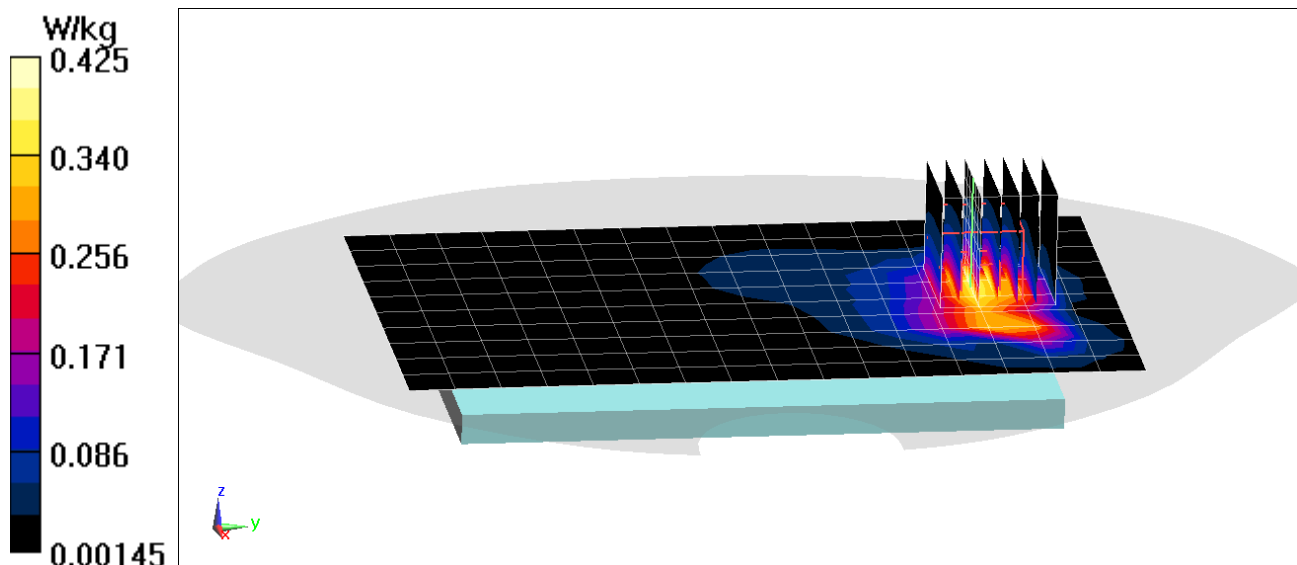
Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 3.550 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.668 W/kg

SAR(1 g) = 0.356 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 9631B

Communication System: UID 0, 802.11n 5.2-5.8 GHz Band; Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5500 \text{ MHz}$; $\sigma = 5.798 \text{ S/m}$; $\epsilon_r = 47.478$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 02-22-2019; Ambient Temp: 22.6°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7308; ConvF(4, 4, 4) @ 5500 MHz; Calibrated: 8/23/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1558; Calibrated: 10/3/2018

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: IEEE 802.11n, UNII-2C, MIMO, 20 MHz Bandwidth, Body SAR,
Ch 100, 13 Mbps, Back Side**

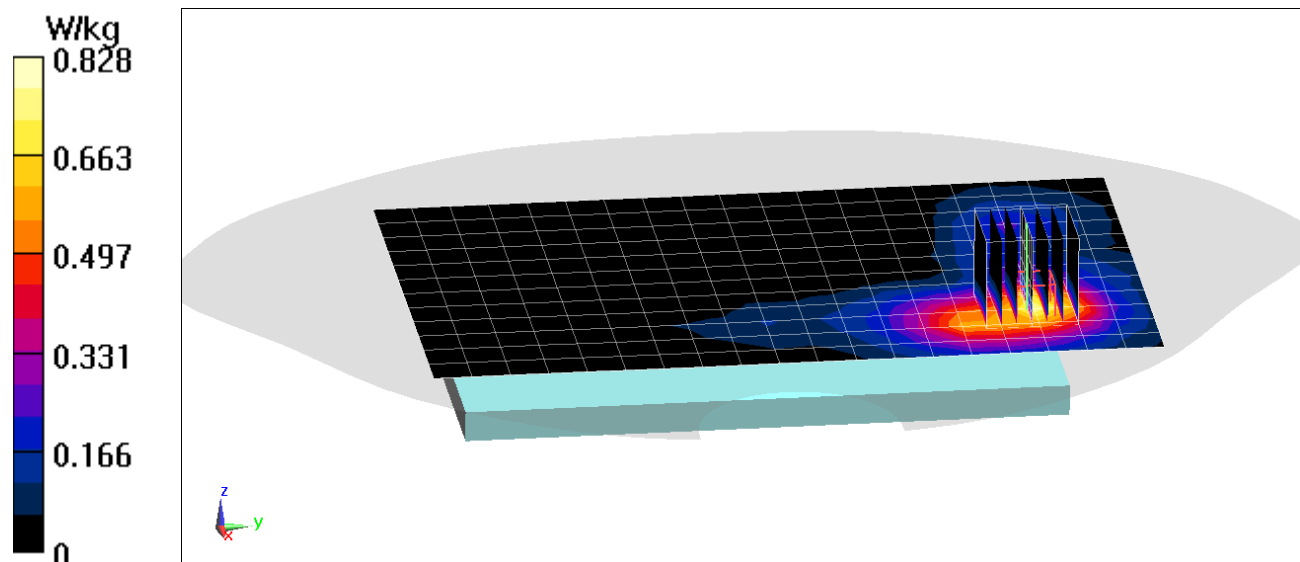
Area Scan (13x20x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 7.959 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.28 W/kg

SAR(1 g) = 0.340 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMG977U; Type: Portable Handset; Serial: 9631B

Communication System: UID 0, 802.11n 5.2-5.8 GHz Band; Frequency: 5745 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5745 \text{ MHz}$; $\sigma = 6.181 \text{ S/m}$; $\epsilon_r = 46.995$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-22-2019; Ambient Temp: 22.6°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7308; ConvF(4.18, 4.18, 4.18) @ 5745 MHz; Calibrated: 8/23/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1558; Calibrated: 10/3/2018

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630

Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

**Mode: IEEE 802.11n, MIMO, UNII-3, 20 MHz Bandwidth, Body SAR, Ch 149,
13 Mbps, Back Side**

Area Scan (13x20x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 9.061 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 1.99 W/kg

SAR(1 g) = 0.478 W/kg

