



## SAR EVALUATION REPORT

**Applicant Name:**  
 Samsung Electronics Co., Ltd.  
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 Yeongtong-gu, Suwon-si  
 Gyeonggi-do, 16677, Korea

**Date of Testing:**  
 11/03/17 - 12/07/17  
**Test Site/Location:**  
 PCTEST Lab, Columbia, MD, USA  
**Document Serial No.:**  
 1M1711010281-01-R1.A3L

**FCC ID:** A3LSMG960U

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

**DUT Type:** Portable Handset  
**Application Type:** Certification  
**FCC Rule Part(s):** CFR §2.1093  
**Model:** SM-G960U  
**Additional Model(s):** SM-G960U1, SM-G960W, SM-G960XU

Equipment Class	Band & Mode	Tx Frequency	SAR		
			1g Head (W/kg)	1g Body-Worn (W/kg)	1g Hotspot (W/kg)
PCE	CDMA/EVDO BC10 (§90S)	817.90 - 823.10 MHz	0.26	0.31	0.50
PCE	CDMA/EVDO BC0 (§22H)	824.70 - 848.31 MHz	0.33	0.40	0.68
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.33	0.96	0.78
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.22	0.21	0.41
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.90 MHz	0.11	0.37	0.53
PCE	UMTS 850	826.40 - 846.60 MHz	0.34	0.42	0.63
PCE	UMTS 1750	1712.4 - 1752.6 MHz	0.28	0.62	0.86
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.20	0.78	0.89
PCE	LTE Band 71	665.5 - 695.5 MHz	0.12	0.27	0.38
PCE	LTE Band 12	699.7 - 715.3 MHz	0.13	0.29	0.40
PCE	LTE Band 17	706.5 - 713.5 MHz	N/A	N/A	N/A
PCE	LTE Band 13	779.5 - 784.5 MHz	0.23	0.38	0.59
PCE	LTE Band 14	790.5 - 795.5 MHz	0.26	0.40	0.58
PCE	LTE Band 20 (Cell)	814.7 - 848.3 MHz	0.33	0.35	0.55
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	0.35	0.37	0.66
PCE	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	0.29	0.78	0.77
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	N/A	N/A	N/A
PCE	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	0.24	0.88	0.75
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	N/A	N/A	N/A
PCE	LTE Band 30	2307.5 - 2312.5 MHz	0.12	0.29	0.52
PCE	LTE Band 7	2502.5 - 2567.5 MHz	0.12	0.50	0.77
PCE	LTE Band 41	2498.5 - 2687.5 MHz	0.13	0.52	0.95
PCE	LTE Band 38	2572.5 - 2617.5 MHz	N/A	N/A	N/A
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.59	0.11	0.37
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	N/A
NII	U-NII-2A	5280 - 5320 MHz	0.40	0.27	N/A
NII	U-NII-2C	5500 - 5720 MHz	0.30	0.73	N/A
NII	U-NII-3	5745 - 5825 MHz	0.30	0.59	1.08
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.63	< 0.1	0.17
<b>Simultaneous SAR per KDB 690783 D01v01r03:</b>			1.25	1.59	1.59

Note: This revised Test Report (S/N: 1M1711010281-01-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
CDMA/EVDO BC10 (§90S)	Voice/Data	817.90 - 823.10 MHz
CDMA/EVDO BC0 (§22H)	Voice/Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 71	Voice/Data	665.5 - 695.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 17	Voice/Data	706.5 - 713.5 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 14	Voice/Data	790.5 - 795.5 MHz
LTE Band 26 (Cell)	Voice/Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 66 (AWS)	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 30	Voice/Data	2307.5 - 2312.5 MHz
LTE Band 7	Voice/Data	2502.5 - 2567.5 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
LTE Band 38	Voice/Data	2572.5 - 2617.5 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2462 MHz
U-NII-1	Voice/Data	5180 - 5240 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
ANT+	Data	2402 - 2480 MHz
MST	Data	555 Hz - 8.33 kHz

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## 1.2 Power Reduction for SAR

This device utilizes a single step power reduction mechanism for SAR compliance under portable hotspot conditions for some wireless modes and bands. All hotspot SAR evaluations for this device were performed at the maximum allowed output power when hotspot is enabled. Detailed descriptions of the power reduction mechanism are included in the operational description.

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



## 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 PCE 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	<b>33.0</b>	<b>33.0</b>	<b>31.5</b>	<b>29.5</b>	<b>28.5</b>	<b>27.5</b>	<b>25.5</b>	<b>23.5</b>	<b>22.5</b>
	Nominal	<b>32.5</b>	<b>32.5</b>	<b>31.0</b>	<b>29.0</b>	<b>28.0</b>	<b>27.0</b>	<b>25.0</b>	<b>23.0</b>	<b>22.0</b>
GSM/GPRS/EDGE 1900	Maximum	<b>31.0</b>	<b>31.0</b>	<b>28.5</b>	<b>26.5</b>	<b>25.5</b>	<b>26.5</b>	<b>24.5</b>	<b>22.5</b>	<b>21.5</b>
	Nominal	<b>30.5</b>	<b>30.5</b>	<b>28.0</b>	<b>26.0</b>	<b>25.0</b>	<b>26.0</b>	<b>24.0</b>	<b>22.0</b>	<b>21.0</b>

Mode / Band		Modulated Average (dBm)			
		3GPP WCDMA	3GPP HSDPA	3GPP HSUPA	3GPP DC-HSDPA
UMTS Band 5 (850 MHz)	Maximum	<b>25.0</b>	<b>24.0</b>	<b>24.0</b>	<b>24.0</b>
	Nominal	<b>24.5</b>	<b>23.5</b>	<b>23.5</b>	<b>23.5</b>
UMTS Band 4 (1750 MHz)	Maximum	<b>25.0</b>	<b>24.0</b>	<b>24.0</b>	<b>24.0</b>
	Nominal	<b>24.5</b>	<b>23.5</b>	<b>23.5</b>	<b>23.5</b>
UMTS Band 2 (1900 MHz)	Maximum	<b>25.0</b>	<b>24.0</b>	<b>24.0</b>	<b>24.0</b>
	Nominal	<b>24.5</b>	<b>23.5</b>	<b>23.5</b>	<b>23.5</b>
Mode / Band		Modulated Average (dBm)			
CDMA/EVDO BC10 (\$90S)	Maximum	<b>25.5</b>			
	Nominal	<b>25.0</b>			
CDMA/EVDO BC0 (\$22H)	Maximum	<b>25.0</b>			
	Nominal	<b>24.5</b>			
PCS CDMA/EVDO	Maximum	<b>25.0</b>			
	Nominal	<b>24.5</b>			

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Mode / Band		Modulated Average (dBm)
LTE Band 71	Maximum	25.0
	Nominal	24.5
LTE Band 12	Maximum	25.3
	Nominal	24.8
LTE Band 17	Maximum	25.3
	Nominal	24.8
LTE Band 13	Maximum	25.0
	Nominal	24.5
LTE Band 14	Maximum	25.0
	Nominal	24.5
LTE Band 26 (Cell)	Maximum	25.0
	Nominal	24.5
LTE Band 5 (Cell)	Maximum	25.0
	Nominal	24.5
LTE Band 66 (AWS)	Maximum	25.0
	Nominal	24.5
LTE Band 4 (AWS)	Maximum	25.0
	Nominal	24.5
LTE Band 25 (PCS)	Maximum	25.0
	Nominal	24.5
LTE Band 2 (PCS)	Maximum	25.0
	Nominal	24.5
LTE Band 30	Maximum	25.0
	Nominal	24.5
LTE Band 7	Maximum	24.0
	Nominal	23.5
LTE B41 (PC2)	Maximum	27.5
	Nominal	27.0
LTE Band 41 (PC3)	Maximum	24.5
	Nominal	24.0
LTE Band 38	Maximum	23.5
	Nominal	23.0

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### 1.3.2 Reduced PCE Power

Mode / Band		Burst Average GMSK (dBm)				Burst Average 8-PSK (dBm)			
		1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots
GPRS/EDGE 1900	Maximum	<b>28.0</b>	<b>26.0</b>	<b>24.0</b>	<b>23.0</b>	<b>26.5</b>	<b>24.5</b>	<b>22.5</b>	<b>21.5</b>
	Nominal	<b>27.5</b>	<b>25.5</b>	<b>23.5</b>	<b>22.5</b>	<b>26.0</b>	<b>24.0</b>	<b>22.0</b>	<b>21.0</b>

Mode / Band		Modulated Average (dBm)			
		3GPP WCDMA	3GPP HSDPA	3GPP HSUPA	3GPP DC-HSDPA
UMTS Band 4 (1750 MHz)	Maximum	<b>20.5</b>	<b>20.5</b>	<b>20.5</b>	<b>20.5</b>
	Nominal	<b>20.0</b>	<b>20.0</b>	<b>20.0</b>	<b>20.0</b>
UMTS Band 2 (1900 MHz)	Maximum	<b>20.5</b>	<b>20.5</b>	<b>20.5</b>	<b>20.5</b>
	Nominal	<b>20.0</b>	<b>20.0</b>	<b>20.0</b>	<b>20.0</b>

Mode / Band		Modulated Average (dBm)
PCS CDMA/EVDO	Maximum	<b>20.5</b>
	Nominal	<b>20.0</b>

Mode / Band		Modulated Average (dBm)
LTE Band 66 (AWS)	Maximum	<b>20.5</b>
	Nominal	<b>20.0</b>
LTE Band 4 (AWS)	Maximum	<b>20.5</b>
	Nominal	<b>20.0</b>
LTE Band 25 (PCS)	Maximum	<b>20.5</b>
	Nominal	<b>20.0</b>
LTE Band 2 (PCS)	Maximum	<b>20.5</b>
	Nominal	<b>20.0</b>
LTE Band 30	Maximum	<b>21.5</b>
	Nominal	<b>21.0</b>
LTE Band 7	Maximum	<b>21.5</b>
	Nominal	<b>21.0</b>
LTE Band 41 (PC2)	Maximum	<b>23.5</b>
	Nominal	<b>23.0</b>
LTE Band 41 (PC3)	Maximum	<b>23.5</b>
	Nominal	<b>23.0</b>

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### 1.3.3 Maximum Bluetooth and SISO and MIMO WLAN Power

Mode / Band		Modulated Average - Single Tx Chain (dBm)
Bluetooth	Maximum	<b>15.5</b>
	Nominal	<b>15.0</b>
Bluetooth (EDR)	Maximum	<b>6.0</b>
	Nominal	<b>5.5</b>
Bluetooth LE	Maximum	<b>9.0</b>
	Nominal	<b>8.5</b>

Mode / Band		Modulated Average - Single Tx Chain (dBm)
IEEE 802.11b (2.4 GHz)	Maximum	<b>20.5</b>
	Nominal	<b>20.0</b>
IEEE 802.11g (2.4 GHz)	Maximum	<b>17.5</b>
	Nominal	<b>17.0</b>
IEEE 802.11n (2.4 GHz)	Maximum	<b>17.5</b>
	Nominal	<b>17.0</b>

Mode / Band		Modulated Average - MIMO (dBm)		
		20 MHz Bandwidth		
		Ch. 1	Ch. 2-10	Ch. 11
IEEE 802.11g (2.4 GHz)	Maximum	<b>20.0</b>	<b>20.5</b>	<b>19.5</b>
	Nominal	<b>19.5</b>	<b>20.0</b>	<b>19.0</b>
IEEE 802.11n (2.4 GHz)	Maximum	<b>20.0</b>	<b>20.5</b>	<b>19.5</b>
	Nominal	<b>19.5</b>	<b>20.0</b>	<b>19.0</b>

Mode / Band		Modulated Average - Antenna 1 Single Tx Chain (dBm)				
		20 MHz Bandwidth	40 MHz Bandwidth		80 MHz Bandwidth	
			Ch. 38	Ch. 46 - 159	Ch. 106	Ch. 42-58, 122-155
IEEE 802.11a (5 GHz)	Maximum	<b>18.5</b>				
	Nominal	<b>18.0</b>				
IEEE 802.11n (5 GHz)	Maximum	<b>18.5</b>	<b>16.5</b>	<b>17.5</b>		
	Nominal	<b>18.0</b>	<b>16.0</b>	<b>17.0</b>		
IEEE 802.11ac (5 GHz)	Maximum	<b>18.5</b>	<b>16.5</b>	<b>17.5</b>	<b>16.0</b>	<b>17.5</b>
	Nominal	<b>18.0</b>	<b>16.0</b>	<b>17.0</b>	<b>15.5</b>	<b>17.0</b>

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Mode / Band		Modulated Average - Antenna 2 Single Tx Chain (dBm)					
		20 MHz Bandwidth		40 MHz Bandwidth		80 MHz Bandwidth	
		Ch. 36 - 144, 165	Ch. 149 - 161	Ch. 38	Ch. 46 - 159	Ch. 106	Ch. 42-58, 122-155
IEEE 802.11a (5 GHz)	Maximum	18.5	17.5				
	Nominal	18.0	17.0				
IEEE 802.11n (5 GHz)	Maximum	18.5	17.5	16.5	17.5		
	Nominal	18.0	17.0	16.0	17.0		
IEEE 802.11ac (5 GHz)	Maximum	18.5	17.5	16.5	17.5	16.0	17.5
	Nominal	18.0	17.0	16.0	17.0	15.5	17.0

Mode / Band		Modulated Average - MIMO (dBm)								
		20 MHz Bandwidth		40 MHz Bandwidth				80 MHz Bandwidth		
		Ch. 64	Ch. 36 - 60, 100 - 165	Ch. 38	Ch. 62	Ch. 102	Ch. 46,54, 110-159	Ch. 42,58	Ch. 106	Ch. 122 - 155
IEEE 802.11a (5 GHz)	Maximum	20.0	20.5							
	Nominal	19.5	20.0							
IEEE 802.11n (5 GHz)	Maximum	20.0	20.5	18.5	18.0	19.0	20.5			
	Nominal	19.5	20.0	18.0	17.5	18.5	20.0			
IEEE 802.11ac (5 GHz)	Maximum	20.0	20.5	18.5	18.0	19.0	20.5	17.5	18.0	20.5
	Nominal	19.5	20.0	18.0	17.5	18.5	20.0	17.0	17.5	20.0

### 1.3.4 Reduced SISO and MIMO WLAN Power

Mode / Band		Modulated Average - Single Tx Chain (dBm)
IEEE 802.11b (2.4 GHz)	Maximum	15.5
	Nominal	15.0
IEEE 802.11g (2.4 GHz)	Maximum	15.5
	Nominal	15.0
IEEE 802.11n (2.4 GHz)	Maximum	15.5
	Nominal	15.0

Mode / Band		Modulated Average - Single Tx Chain (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
IEEE 802.11a (5 GHz)	Maximum	13.5		
	Nominal	13.0		
IEEE 802.11n (5 GHz)	Maximum	13.5	13.5	
	Nominal	13.0	13.0	
IEEE 802.11ac (5 GHz)	Maximum	13.5	13.5	13.5
	Nominal	13.0	13.0	13.0

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Mode / Band		Modulated Average - MIMO (dBm)				
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth		
IEEE 802.11n (2.4 GHz)	Maximum	18.5				
	Nominal	18.0				
IEEE 802.11g (2.4 GHz)	Maximum	18.5				
	Nominal	18.0				
IEEE 802.11a (5 GHz)	Maximum	16.5				
	Nominal	16.0				
IEEE 802.11n (5 GHz)	Maximum	16.5			16.5	
	Nominal	16.0			16.0	
IEEE 802.11ac (5 GHz)	Maximum	16.5	16.5	16.5		
	Nominal	16.0	16.0	16.0		

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

	# Tx	5 GHz WIFI [dBm]		2.4 GHz WIFI [dBm]		802.11 Modes
		Ant1	Ant2	Ant1	Ant2	
2.4 GHz + 5 GHz	2	A	-	-	B	2.4 GHz: b,g,n 5 GHz: a,n,ac
	2	-	A	B	-	
	2	A	-	B	-	
	2	-	A	-	B	
	3	A	A	B	-	2.4 GHz: b, g, n 5 GHz: n, ac, a (CDD + STBC only)
	3	A	A	-	B	
	3	A	-	B	B	2.4 GHz: n, g (CDD + STBC only) 5 GHz: a, n, ac
	3	-	A	B	B	
4	A	A	B	B	2.4 GHz: n, g (CDD + STBC only) 5 GHz: n, ac, a (CDD + STBC only)	

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

A = 13 dBm

B = 16 dBm



(Upper tolerance: target + 0.5 dB)

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

A = 13 dBm

B = 13 dBm

(Upper tolerance: target + 0.5 dB)

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## 1.4 DUT Antenna Locations

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



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

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

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

## 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 transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds.

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

**Table 1-2  
Simultaneous Transmission Scenarios**

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

- Bluetooth cannot transmit simultaneously with WLAN.
- All licensed modes share the same antenna path and cannot transmit simultaneously.
- 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

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[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 supports CDD and STBC and 802.11n/ac additionally supports SDM.
7. This device supports VOLTE.
8. This device supports VoWIFI.

## 1.7 Miscellaneous SAR Test Considerations

### (A) WIFI/BT

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

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

This device supports IEEE 802.11ac with the following features:

- a) Up to 80 MHz Bandwidth only
- b) No aggregate channel configurations
- c) 2 Tx antenna output
- d) 256 QAM is supported
- e) TDWR and Band gap channels are supported

### (B) Licensed Transmitter(s)



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

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

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.

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.

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 LTE CA operations was

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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.

This device supports downlink 4x4 MIMO operations for some LTE Bands. Per May 2017 TBC Workshop Notes, 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 both Power Class 2 (PC2) and Power Class 3 (PC3) for LTE Band 41. Per May 2017 TCB Workshop Notes, SAR tests were performed with Power Class 3 (given the specific UL/DL limitations for Power Class 2). Additionally, SAR testing for the power class condition was evaluated for the highest configuration in Power Class 3 for each test configuration to confirm the results were scalable linearly (See Section 14.2).

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

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



This device uses antenna B for LTE Band 7 and LTE Band 30 standalone operations. During some inter-band downlink carrier aggregation scenarios with Band 7 or 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 7 and 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.

## 1.8 Guidance Applied



- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r04, D05Av01r02, D06v02r01 (2G/3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- Fall 2017 TCB Workshop Notes (LTE Carrier Aggregation)
- May 2017 TCB Workshop Notes (LTE 4x4 Downlink MIMO, LTE Band 41 Power Class 2/3)

## 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					
FCC ID	A3LSMG960U				
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 71 (665.5 - 695.5 MHz)				
	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 17 (706.5 - 713.5 MHz)				
	LTE Band 13 (779.5 - 784.5 MHz)				
	LTE Band 14 (790.5 - 795.5 MHz)				
	LTE Band 26 (Cell) (814.7 - 848.3 MHz)				
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)				
	LTE Band 66 (AWS) (1710.7 - 1779.3 MHz)				
	LTE Band 4 (AWS) (1710.7 - 1754.3 MHz)				
	LTE Band 25 (PCS) (1850.7 - 1914.3 MHz)				
	LTE Band 2 (PCS) (1850.7 - 1909.3 MHz)				
	LTE Band 30 (2307.5 - 2312.5 MHz)				
	LTE Band 7 (2502.5 - 2567.5 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
	LTE Band 38 (2572.5 - 2617.5 MHz)				
	LTE Band 71: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 17: 5 MHz, 10 MHz				
	LTE Band 13: 5 MHz, 10 MHz				
	LTE Band 14: 5 MHz, 10 MHz				
LTE Band 26 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz					
LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz					
LTE Band 66 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz					
LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz					
LTE Band 25 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz					
LTE Band 2 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz					
LTE Band 30: 5 MHz, 10 MHz					
LTE Band 7: 5 MHz, 10 MHz, 15 MHz, 20 MHz					
LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz					
LTE Band 38: 5 MHz, 10 MHz, 15 MHz, 20 MHz					
Channel Bandwidths	LTE Band 71: 5 MHz				
	LTE Band 12: 3 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
	665.5 (133147)		680.5 (133297)		695.5 (133447)
LTE Band 71: 10 MHz	668 (133172)		680.5 (133297)		693 (133422)
LTE Band 71: 15 MHz	670.5 (133197)		680.5 (133297)		690.5 (133397)
LTE Band 71: 20 MHz	673 (133222)		680.5 (133297)		688 (133372)
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)		715.3 (23173)
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)		714.5 (23169)
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 17: 5 MHz	706.5 (23755)		710 (23790)		713.5 (23825)
LTE Band 17: 10 MHz	709 (23780)		710 (23790)		711 (23800)
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 (23287)		793 (23300)		795.5 (23373)
LTE Band 14: 10 MHz	N/A		793 (23300)		N/A
LTE Band 26 (Cell): 1.4 MHz	814.7 (26897)		831.5 (26865)		848.3 (27033)
LTE Band 26 (Cell): 3 MHz	815.5 (26705)		831.5 (26865)		847.5 (27025)
LTE Band 26 (Cell): 5 MHz	816.5 (26715)		831.5 (26865)		846.5 (27015)
LTE Band 26 (Cell): 10 MHz	819 (26740)		831.5 (26865)		844 (26990)
LTE Band 26 (Cell): 15 MHz	821.5 (26765)		831.5 (26865)		841.5 (26965)
LTE Band 5 (Cell): 1.4 MHz	824.7 (20407)		836.5 (20525)		848.3 (20643)
LTE Band 5 (Cell): 3 MHz	825.5 (20415)		836.5 (20525)		847.5 (20635)
LTE Band 5 (Cell): 5 MHz	826.5 (20425)		836.5 (20525)		846.5 (20625)
LTE Band 5 (Cell): 10 MHz	829 (20450)		836.5 (20525)		844 (20600)
LTE Band 66 (AWS): 1.4 MHz	1710.7 (131979)		1745 (132322)		1779.3 (132655)
LTE Band 66 (AWS): 3 MHz	1711.5 (131987)		1745 (132322)		1778.5 (132657)
LTE Band 66 (AWS): 5 MHz	1712.5 (131997)		1745 (132322)		1777.5 (132647)
LTE Band 66 (AWS): 10 MHz	1715 (132022)		1745 (132322)		1775 (132622)
LTE Band 66 (AWS): 15 MHz	1717.5 (132047)		1745 (132322)		1772.5 (132597)
LTE Band 66 (AWS): 20 MHz	1720 (132072)		1745 (132322)		1770 (132572)
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)		1732.5 (20175)		1754.3 (20393)
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)		1732.5 (20175)		1753.5 (20385)
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)		1732.5 (20175)		1752.5 (20375)
LTE Band 4 (AWS): 10 MHz	1715 (20000)		1732.5 (20175)		1750 (20350)
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)		1732.5 (20175)		1747.5 (20325)
LTE Band 4 (AWS): 20 MHz	1720 (20050)		1732.5 (20175)		1745 (20300)
LTE Band 25 (PCS): 1.4 MHz	1850.7 (26047)		1882.5 (26365)		1914.3 (26683)
LTE Band 25 (PCS): 3 MHz	1851.5 (26055)		1882.5 (26365)		1913.5 (26675)
LTE Band 25 (PCS): 5 MHz	1852.5 (26065)		1882.5 (26365)		1912.5 (26665)
LTE Band 25 (PCS): 10 MHz	1855 (26090)		1882.5 (26365)		1910 (26640)
LTE Band 25 (PCS): 15 MHz	1857.5 (26115)		1882.5 (26365)		1907.5 (26615)
LTE Band 25 (PCS): 20 MHz	1860 (26140)		1882.5 (26365)		1905 (26590)
LTE Band 2 (PCS): 1.4 MHz	1850.7 (18607)		1880 (18900)		1909.3 (19193)
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)		1880 (18900)		1908.5 (19185)
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)		1880 (18900)		1907.5 (19175)
LTE Band 2 (PCS): 10 MHz	1855 (18650)		1880 (18900)		1905 (19150)
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)		1880 (18900)		1902.5 (19125)
LTE Band 2 (PCS): 20 MHz	1860 (18700)		1880 (18900)		1900 (19100)
LTE Band 30: 5 MHz	2307.5 (27665)		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 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 18 (QPSK, 16QAM, 64QAM, 256QAM) UL UE Cat 5 (QPSK, 16QAM, 64QAM)				
Modulations Supported in UL	QPSK, 16QAM, 64QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3-6.2.57 (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 3G Release 14. It supports carriers aggregation and downlink MIMO. LAA features as shown in Section 9 and Appendix I. All other uplink communications are identical to the Release 8 specifications. Uplink Communications are done on the PCC unless otherwise specified. The following LTE Release 14 features are not supported: Relay, HetNet, Enhanced eICG, MDH, eMBMS, Cross-carrier scheduling, Enhanced SC-FDMA.				

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### 3 INTRODUCTION

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

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

#### 3.1 SAR Definition

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

**Equation 3-1  
SAR Mathematical Equation**

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



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

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

where:

- σ = conductivity of the tissue-simulating material (S/m)
- ρ = mass density of the tissue-simulating material (kg/m<sup>3</sup>)
- 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]

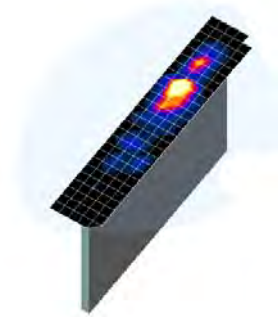
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# 4 DOSIMETRIC ASSESSMENT

## 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**  
Sample SAR Area Scan

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

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

\*Also compliant to IEEE 1528-2013 Table 6

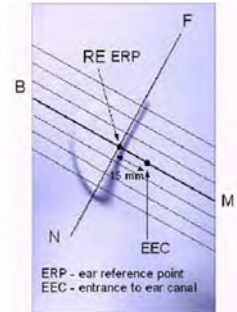
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## 5 DEFINITION OF REFERENCE POINTS

### 5.1 EAR REFERENCE POINT

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



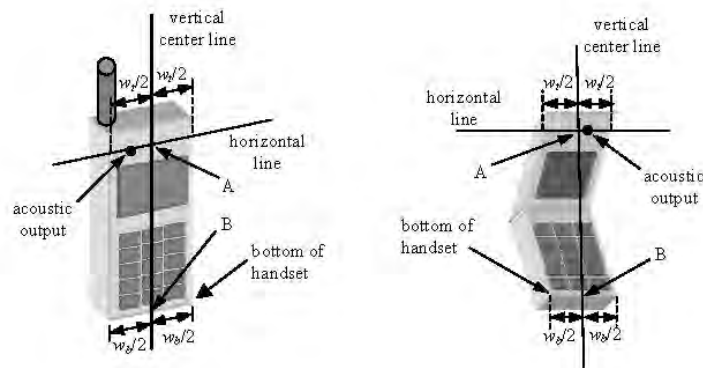
**Figure 5-1**  
Close-Up Side view of ERP

### 5.2 HANDSET REFERENCE POINTS



Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The test device was placed in a normal operating position with the acoustic output located along the “vertical centerline” on the front of the device aligned to the “ear reference point” (See Figure 5-3). The acoustic output was 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.

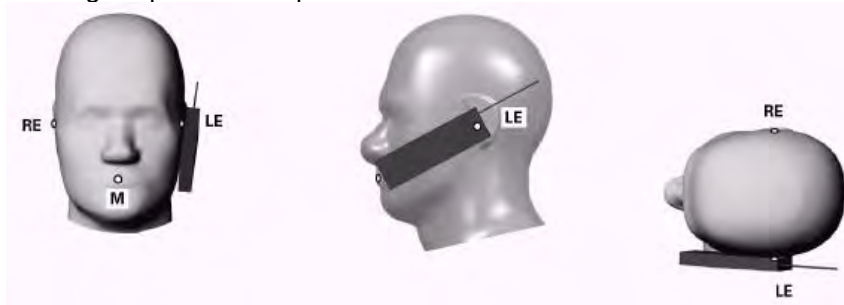




Figure 6-1 Front, Side and Top View of Cheek Position

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

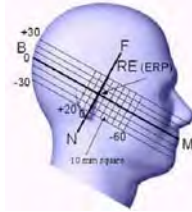
With the test device aligned in the “Cheek Position”:

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**

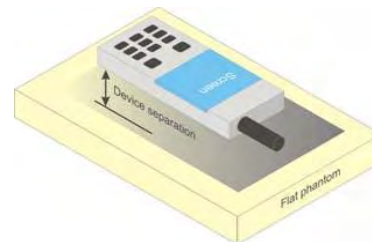
### 6.4 SAR Evaluations near the Mouth/Jaw Regions of the SAM Phantom

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

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

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# 7 RF EXPOSURE LIMITS

## 7.1 Uncontrolled Environment

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



## 7.2 Controlled Environment

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

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

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

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

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## 8 FCC MEASUREMENT PROCEDURES

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

### 8.1 Measured and Reported SAR

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

### 8.2 3G SAR Test Reduction Procedure

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

### 8.3 Procedures Used to Establish RF Signal for SAR

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



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

### 8.4 SAR Measurement Conditions for CDMA2000

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

#### 8.4.1 Output Power Verification

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

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1. If the mobile station (MS) supports Reverse TCH RC 1 and Forward TCH RC 1, set up a call using Fundamental Channel Test Mode 1 (RC=1/1) with 9600 bps data rate only.
2. Under RC1, C.S0011 Table 4.4.5.2-1, Table 8-1 parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH<sub>0</sub> 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 SCH<sub>0</sub> 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
$\frac{I_{or}}{Pilot E_c}$	dBm/1.23 MHz	-104
$\frac{I_{or}}{Traffic E_c}$	dB	-7
$\frac{I_{or}}{Traffic E_c}$	dB	-7.4

**Table 8-2**  
**Parameters for Max. Power for RC3**

Parameter	Units	Value
$\frac{I_{or}}{Pilot E_c}$	dBm/1.23 MHz	-86
$\frac{I_{or}}{Traffic E_c}$	dB	-7
$\frac{I_{or}}{Traffic E_c}$	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<sub>n</sub>), with FCH only as the primary mode. Otherwise, SAR is required for multiple code channel configuration (FCH + SCH<sub>n</sub>), with FCH at full rate and SCH<sub>0</sub> 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<sub>n</sub> 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<sub>n</sub>, for the highest reported SAR configuration in 12.2 kbps RMC.

### 8.5.4 SAR Measurements with Rel 5 HSDPA

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

### 8.5.5 SAR Measurements with Rel 6 HSUPA

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

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

### 8.5.6 SAR Measurement Conditions for DC-HSDPA



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

## 8.6 SAR Measurement Conditions for LTE

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

### 8.6.1 Spectrum Plots for RB Configurations

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

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## 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.

## 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  $\leq 0.8$  W/kg for FDD and  $\leq 0.6$  W/kg for TDD, 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 carrier aggregation configurations when the average output power with

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downlink only carrier aggregation active is not more than 0.25 dB higher than the average output power with downlink only carrier aggregation inactive.

## 8.7 SAR Testing with 802.11 Transmitters

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

### 8.7.1 General Device Setup

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

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

### 8.7.2 U-NII-1 and U-NII-2A



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

### 8.7.3 U-NII-2C and U-NII-3

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

### 8.7.4 Initial Test Position Procedure

For exposure conditions with multiple test positions, such as handset operating next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all positions in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is  $\leq 0.4$  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  $\leq 0.8$  W/kg or all test positions are measured.

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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  $\leq 0.8$  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 OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is  $> 1.2$  W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed.

### 8.7.6 OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. 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  $\leq 0.8$  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  $\leq 1.2$  W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements (See Section 8.7.6).



### 8.7.8 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is  $\leq 1.2$  W/kg, no additional SAR tests for the subsequent test configurations are required.

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### 8.7.9 MIMO SAR considerations

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

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# 9 RF CONDUCTED POWERS

## 9.1 CDMA Conducted Powers

**Table 9-1  
Maximum Conducted Power**

Band	Channel	Rule Part	Frequency	SO2 [dBm]	SO55 [dBm]	SO75 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	RC11	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	564	90S	820.1	24.86	24.84	24.84	24.85	24.84	24.87	24.87
Cellular	1013	22H	824.7	24.35	24.34	24.35	24.32	24.33	24.55	24.44
	384	22H	836.52	24.51	24.49	24.47	24.48	24.47	24.77	24.59
	777	22H	848.31	24.52	24.51	24.52	24.49	24.49	24.69	24.58
PCS	25	24E	1851.25	24.24	24.25	24.23	24.23	24.27	24.10	24.10
	600	24E	1880	24.16	24.17	24.16	24.18	24.20	24.02	24.01
	1175	24E	1908.75	24.32	24.32	24.29	24.30	24.29	24.11	24.15

**Table 9-2  
Reduced Conducted Power**

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	19.89	19.86	19.80	19.79
	600	24E	1880	20.02	20.01	19.90	19.92
	1175	24E	1908.75	20.04	20.11	20.00	19.99

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



**Figure 9-1  
Power Measurement Setup**

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## 9.2 GSM Conducted Powers

**Table 9-3**  
**Maximum Conducted Power**

Maximum Burst-Averaged Output Power										
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	32.87	32.86	31.04	28.93	<b>28.46</b>	27.00	25.20	22.89	21.23
	190	32.80	32.77	30.92	28.33	<b>28.13</b>	26.89	24.99	23.00	20.75
	251	33.00	33.00	30.75	28.81	<b>28.39</b>	26.99	24.85	22.70	20.80
GSM 1900	512	29.64	29.60	27.45	25.49	<b>23.57</b>	25.48	23.64	21.48	19.71
	661	29.47	29.43	27.44	25.37	<b>23.55</b>	25.31	23.45	21.44	19.77
	810	29.64	29.59	27.47	25.43	<b>23.83</b>	25.49	23.24	21.72	19.91
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	23.84	23.83	25.02	24.67	<b>25.45</b>	17.97	19.18	18.63	18.22
	190	23.77	23.74	24.90	24.07	<b>25.12</b>	17.86	18.97	18.74	17.74
	251	23.97	23.97	24.73	24.55	<b>25.38</b>	17.96	18.83	18.44	17.79
GSM 1900	512	20.61	20.57	21.43	21.23	<b>20.56</b>	16.45	17.62	17.22	16.70
	661	20.44	20.40	21.42	21.11	<b>20.54</b>	16.28	17.43	17.18	16.76
	810	20.61	20.56	21.45	21.17	<b>20.82</b>	16.46	17.22	17.46	16.90
GSM 850	Frame	23.47	23.47	24.98	24.74	<b>24.99</b>	17.97	18.98	18.74	18.99
GSM 1900	Avg.Targets:	21.47	21.47	21.98	21.74	<b>21.99</b>	16.97	17.98	17.74	17.99

**Table 9-4**  
**Reduced Conducted Power**

Maximum Burst-Averaged Output Power										
Band	Channel	GPRS/EDGE Data (GMSK)				EDGE Data (GMSK)				
		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	27.51	25.13	23.21	<b>21.26</b>	25.48	23.64	21.48	19.71	
	661	27.21	25.02	23.22	<b>21.63</b>	25.31	23.45	21.44	19.77	
	810	27.66	25.44	23.48	<b>21.89</b>	25.49	23.24	21.72	19.91	
Calculated Maximum Frame-Averaged Output Power										
Band	Channel	GPRS/EDGE Data (GMSK)				EDGE Data (GMSK)				
		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	18.48	19.11	18.95	<b>18.25</b>	16.45	17.62	17.22	16.70	
	661	18.18	19.00	18.96	<b>18.62</b>	16.28	17.43	17.18	16.76	
	810	18.63	19.42	19.22	<b>18.88</b>	16.46	17.22	17.46	16.90	
GSM 1900	Frame Avg.Targets:	18.47	19.48	19.24	<b>19.49</b>	16.97	17.98	17.74	17.99	

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Note:

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

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



**Figure 9-2**  
**Power Measurement Setup**

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### 9.3 UMTS Conducted Powers

**Table 9-5  
Maximum Conducted Power**

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	24.68	24.67	24.69	24.12	24.05	24.06	24.00	24.01	24.03	-
99		12.2 kbps AMR	24.69	24.72	24.68	24.08	24.05	24.07	23.97	23.99	24.01	-
6	HSDPA	Subtest 1	23.75	23.56	23.75	23.26	23.15	23.20	23.18	23.22	23.24	0
6		Subtest 2	23.81	23.58	23.75	23.24	23.13	23.18	23.15	23.19	23.21	0
6		Subtest 3	23.29	23.04	23.24	22.75	22.66	22.69	22.67	22.70	22.67	0.5
6		Subtest 4	23.31	23.09	23.23	22.76	22.64	22.68	22.70	22.68	22.73	0.5
6	HSUPA	Subtest 1	23.98	23.70	23.85	23.24	23.14	23.19	23.17	23.20	23.22	0
6		Subtest 2	21.98	21.78	21.89	21.26	21.17	21.20	21.19	21.18	21.21	2
6		Subtest 3	21.51	21.27	21.45	22.25	22.15	22.18	22.17	22.21	22.20	1
6		Subtest 4	21.30	21.12	21.23	21.27	21.15	21.18	21.15	21.22	21.21	2
6		Subtest 5	23.97	23.79	23.95	23.28	23.17	23.21	23.24	23.21	23.24	0
8	DC-HSDPA	Subtest 1	23.65	23.49	23.60	23.28	23.17	23.20	23.21	23.20	23.21	0
8		Subtest 2	23.63	23.50	23.58	23.24	23.15	23.17	23.16	23.15	23.15	0
8		Subtest 3	23.17	22.93	23.07	22.73	22.65	22.68	22.68	22.66	22.74	0.5
8		Subtest 4	23.22	22.96	23.10	22.73	22.62	22.70	22.70	22.67	22.72	0.5

**Table 9-6  
Reduced Conducted Power**

3GPP Release Version	Mode	3GPP 34.121 Subtest	AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	19.87	19.93	19.98	19.95	19.98	20.00	-
99		12.2 kbps AMR	19.90	19.92	20.00	19.96	19.99	20.00	-
6	HSDPA	Subtest 1	19.87	19.93	19.98	20.05	20.10	20.12	0
6		Subtest 2	19.87	19.91	20.01	20.07	20.10	20.12	0
6		Subtest 3	19.86	19.93	19.96	20.06	20.07	20.11	0.5
6		Subtest 4	19.85	19.92	19.99	20.06	20.07	20.11	0.5
6	HSUPA	Subtest 1	19.54	19.48	19.01	19.22	19.62	19.64	0
6		Subtest 2	19.34	19.42	19.49	19.59	19.68	20.03	2
6		Subtest 3	19.70	19.30	19.80	19.89	19.94	19.93	1
6		Subtest 4	19.80	19.75	19.78	19.87	19.91	19.90	2
6		Subtest 5	19.85	19.91	19.99	20.06	20.11	20.11	0
8	DC-HSDPA	Subtest 1	20.19	20.16	20.16	20.12	20.14	20.16	0
8		Subtest 2	20.21	20.16	20.14	20.13	20.15	20.15	0
8		Subtest 3	20.23	20.16	20.23	20.11	20.12	20.16	0.5
8		Subtest 4	20.17	20.19	20.19	20.09	20.18	20.13	0.5

**DC-HSDPA considerations**

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

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 71

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



LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133297 (680.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.81	0	0
	1	50	24.64		0
	1	99	24.28		0
	50	0	23.83	0-1	1
	50	25	23.72		1
	50	50	23.60		1
	100	0	23.70		1
16QAM	1	0	23.92	0-1	1
	1	50	23.87		1
	1	99	23.40		1
	50	0	22.90	0-2	2
	50	25	22.80		2
	50	50	22.64		2
	100	0	22.73		2
64QAM	1	0	23.00	0-2	2
	1	50	22.98		2
	1	99	22.61		2
	50	0	21.91	0-3	3
	50	25	21.83		3
	50	50	21.66		3
	100	0	21.76		3

Note: LTE Band 71 at 20 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

**Table 9-8**  
**LTE Band 71 Conducted Powers - 15 MHz Bandwidth**

LTE Band 71 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133297 (680.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.65	0	0
	1	36	24.59		0
	1	74	24.37		0
	36	0	23.68	0-1	1
	36	18	23.65		1
	36	37	23.52		1
	75	0	23.66		1
16QAM	1	0	23.87	0-1	1
	1	36	23.72		1
	1	74	23.46		1
	36	0	22.79	0-2	2
	36	18	22.71		2
	36	37	22.67		2
	75	0	22.63		2
64QAM	1	0	22.91	0-2	2
	1	36	22.87		2
	1	74	22.59		2
	36	0	21.75	0-3	3
	36	18	21.71		3
	36	37	21.62		3
	75	0	21.68		3

Note: LTE Band 71 at 15 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.



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

LTE Band 71 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133172 (668.0 MHz)	133297 (680.5 MHz)	133422 (693.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.65	24.56	24.52	0	0
	1	25	24.61	24.54	24.38		0
	1	49	24.52	24.43	24.23		0
	25	0	23.71	23.60	23.51	0-1	1
	25	12	23.63	23.62	23.40		1
	25	25	23.62	23.58	23.35		1
16QAM	50	0	23.67	23.54	23.44	0-1	1
	1	0	23.82	23.82	23.78		1
	1	25	23.83	23.88	23.72		1
	1	49	23.77	23.73	23.51	0-2	1
	25	0	22.80	22.68	22.64		2
	25	12	22.78	22.65	22.50		2
64QAM	25	25	22.66	22.57	22.46	0-2	2
	50	0	22.71	22.69	22.52		2
	1	0	22.87	22.83	22.81		0-2
	1	25	22.75	22.68	22.64	2	
	1	49	22.61	22.59	22.51	2	
	64QAM	25	0	21.74	21.76	21.65	0-3
25		12	21.68	21.66	21.53	3	
25		25	21.62	21.59	21.43	3	
50		0	21.71	21.67	21.59	3	

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

LTE Band 71 5 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			133147 (665.5 MHz)	133297 (680.5 MHz)	133447 (695.5 MHz)			
			Conducted Power [dBm]					
QPSK	1	0	24.67	24.64	24.28	0	0	
	1	12	24.49	24.52	24.20		0	
	1	24	24.53	24.49	24.21		0	
	12	0	23.57	23.59	23.22	0-1	1	
	12	6	23.58	23.62	23.21		1	
	12	13	23.64	23.57	23.25		1	
16QAM	25	0	23.69	23.61	23.23	0-1	1	
	1	0	23.84	23.86	23.53		0-1	1
	1	12	23.77	23.78	23.51			1
	1	24	23.78	23.79	23.55	0-2		1
	12	0	22.69	22.71	22.44		2	
	12	6	22.76	22.73	22.38		2	
64QAM	12	13	22.75	22.68	22.34	0-2	2	
	25	0	22.71	22.64	22.31		2	
	1	0	22.79	22.79	22.53		0-2	2
	1	12	22.76	22.81	22.46	2		
	1	24	22.65	22.72	22.45	0-3		2
	12	0	21.70	21.71	21.41		3	
12	6	21.66	21.72	21.36	3			
64QAM	12	13	21.63	21.69	21.33	0-3	3	
	25	0	21.73	21.66	21.37		3	

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LTE Band 12



**Table 9-11**  
**LTE Band 12 Conducted Powers - 10 MHz Bandwidth**

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23095 (707.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.47	0	0
	1	25	24.57		0
	1	49	24.46		0
	25	0	23.66	0-1	1
	25	12	23.62		1
	25	25	23.53		1
	50	0	23.60		1
16QAM	1	0	23.50	0-1	1
	1	25	23.79		1
	1	49	23.55		1
	25	0	22.76	0-2	2
	25	12	22.70		2
	25	25	22.62		2
	50	0	22.69		2
64QAM	1	0	22.57	0-2	2
	1	25	22.66		2
	1	49	22.70		2
	25	0	21.75	0-3	3
	25	12	21.70		3
	25	25	21.64		3
	50	0	21.71		3

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

**Table 9-12**  
**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)	23095 (707.5 MHz)	23155 (713.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.67	24.61	24.52	0	0
	1	12	24.26	24.53	24.10		0
	1	24	24.40	24.55	23.97		0
	12	0	23.64	23.60	23.49	0-1	1
	12	6	23.38	23.59	23.05		1
	12	13	23.20	23.62	22.84		1
	25	0	23.42	23.61	23.16		1
16QAM	1	0	23.72	23.70	23.59	0-1	1
	1	12	23.79	23.88	23.53		1
	1	24	23.66	23.72	23.42		1
	12	0	22.72	22.73	22.56	0-2	2
	12	6	22.59	22.76	22.39		2
	12	13	22.49	22.72	22.20		2
	25	0	22.56	22.68	22.34		2
64QAM	1	0	22.73	22.67	22.59	0-2	2
	1	12	22.63	22.69	22.45		2
	1	24	22.53	22.64	22.37		2
	12	0	21.73	21.73	21.56	0-3	3
	12	6	21.61	21.78	21.44		3
	12	13	21.45	21.67	21.11		3
	25	0	21.57	21.79	21.35		3



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

LTE Band 12 3 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	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	24.70	24.65	24.17	0	0	
	1	7	24.74	24.71	24.09		0	
	1	14	24.26	24.56	24.06		0	
	8	0	23.65	23.63	22.98	0-1	1	
	8	4	23.64	23.60	22.88		1	
	8	7	23.44	23.57	22.94		1	
16QAM	15	0	23.63	23.61	22.99	0-1	1	
	1	0	23.84	23.79	23.53		0-1	1
	1	7	23.87	23.82	23.46			1
	1	14	23.69	23.80	23.41	0-2		1
	8	0	22.79	22.78	22.25		2	
	8	4	22.73	22.79	22.16		2	
64QAM	8	7	22.67	22.76	22.12	0-2	2	
	15	0	22.71	22.71	22.12		2	
	1	0	22.80	22.69	22.30		0-2	2
	1	7	22.76	22.80	22.32	2		
	1	14	22.78	22.82	22.36	0-3		2
	8	0	21.77	21.77	21.20		3	
8	4	21.74	21.69	21.09	3			
64QAM	8	7	21.57	21.79	21.15	0-3	3	
	15	0	21.75	21.73	21.17		3	

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

LTE Band 12 1.4 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	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	24.59	24.58	23.66	0	0	
	1	2	24.64	24.67	23.76		0	
	1	5	24.56	24.52	23.86		0	
	3	0	24.57	24.57	23.74	0-1	0	
	3	2	24.60	24.65	23.79		0	
	3	3	24.56	24.56	23.78		0	
16QAM	6	0	23.61	23.52	22.81	0-1	1	
	1	0	23.87	23.72	23.18		0-1	1
	1	2	23.79	23.75	23.15			1
	1	5	23.83	23.76	23.30	0-1		1
	3	0	23.86	23.72	22.92		1	
	3	2	23.74	23.70	22.99		1	
64QAM	3	3	23.69	23.67	22.94	0-2	1	
	6	0	22.65	22.56	22.08		0-2	2
	1	0	22.69	22.87	21.97			0-2
	1	2	22.73	22.72	22.07	0-2		
	1	5	22.76	22.59	22.19		0-2	
	3	0	22.70	22.73	22.11			0-2
3	2	22.73	22.76	22.00	0-3	2		
3	3	22.79	22.67	22.13		0-3	2	
6	0	21.71	21.56	21.01			3	

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LTE Band 13



**Table 9-15**  
**LTE Band 13 Conducted Powers - 10 MHz Bandwidth**

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23230 (782.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.58	0	0
	1	25	24.55		0
	1	49	24.35		0
	25	0	23.70	0-1	1
	25	12	23.68		1
	25	25	23.62		1
16QAM	50	0	23.65	0-1	1
	1	0	23.73		1
	1	25	23.68		1
	1	49	23.53	0-2	1
	25	0	22.73		2
	25	12	22.74		2
64QAM	25	25	22.68	0-2	2
	50	0	22.70		2
	1	0	22.83		2
	1	25	22.80	0-2	2
	1	49	22.60		2
	25	0	21.77		0-3
25	12	21.72	3		
25	25	21.70	3		
	50	0	21.71		3

**Table 9-16**  
**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	24.56	0	0
	1	12	24.53		0
	1	24	24.54		0
	12	0	23.62	0-1	1
	12	6	23.69		1
	12	13	23.62		1
16QAM	25	0	23.64	0-1	1
	1	0	23.71		1
	1	12	23.70		1
	1	24	23.72	0-2	1
	12	0	22.67		2
	12	6	22.74		2
64QAM	12	13	22.68	0-2	2
	25	0	22.71		2
	1	0	22.58		2
	1	12	22.61	0-2	2
	1	24	22.70		2
	12	0	21.74		0-3
12	6	21.75	3		
12	13	21.68	3		
	25	0	21.71		3

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

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LTE Band 14



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

LTE Band 14 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23330 (793.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.75	0	0
	1	25	24.61		0
	1	49	24.58		0
	25	0	23.72	0-1	1
	25	12	23.65		1
	25	25	23.56		1
	50	0	23.64		1
16QAM	1	0	23.84	0-1	1
	1	25	23.76		1
	1	49	23.73		1
	25	0	22.72	0-2	2
	25	12	22.73		2
	25	25	22.67		2
	50	0	22.70		2
64QAM	1	0	22.94	0-2	2
	1	25	22.83		2
	1	49	22.82		2
	25	0	21.79	0-3	3
	25	12	21.67		3
	25	25	21.65		3
	50	0	21.74		3

**Table 9-18**  
**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	24.69	0	0
	1	12	24.61		0
	1	24	24.64		0
	12	0	23.70	0-1	1
	12	6	23.66		1
	12	13	23.60		1
	25	0	23.63		1
16QAM	1	0	23.76	0-1	1
	1	12	23.79		1
	1	24	23.81		1
	12	0	22.76	0-2	2
	12	6	22.71		2
	12	13	22.68		2
	25	0	22.70		2
64QAM	1	0	22.87	0-2	2
	1	12	22.86		2
	1	24	22.84		2
	12	0	21.80	0-3	3
	12	6	21.79		3
	12	13	21.76		3
	25	0	21.73		3

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 26 (Cell)



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

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26865 (831.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	23.91	0	0
	1	36	24.21		0
	1	74	24.37		0
	36	0	23.10	0-1	1
	36	18	23.19		1
	36	37	23.28		1
16QAM	75	0	23.11	0-1	1
	1	0	23.24		1
	1	36	23.56		1
	1	74	23.69	0-2	1
	36	0	22.22		2
	36	18	22.27		2
64QAM	36	37	22.37	0-2	2
	75	0	22.21		2
	1	0	22.21		2
	1	36	22.47	0-2	2
	1	74	22.59		2
	36	0	21.27		0-3
36	18	21.31	3		
36	37	21.41	3		
	75	0	21.24		3

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

**Table 9-20**  
**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	23.57	23.99	24.35	0	0
	1	25	23.77	24.16	24.49		0
	1	49	23.89	24.26	24.13		0
	25	0	22.72	23.06	23.51	0-1	1
	25	12	22.80	23.14	23.56		1
	25	25	22.81	23.17	23.48		1
16QAM	50	0	22.78	23.13	23.54	0-1	1
	1	0	22.91	23.42	23.71		1
	1	25	23.10	23.52	23.83		1
	1	49	23.27	23.61	23.51	0-2	1
	25	0	21.81	22.12	22.60		2
	25	12	21.89	22.20	22.68		2
64QAM	25	25	21.94	22.26	22.57	0-2	2
	50	0	21.86	22.21	22.63		2
	1	0	21.82	22.31	22.64		0-2
	1	25	22.03	22.42	22.76	2	
	1	49	22.13	22.54	22.56	0-3	
	25	0	20.83	21.12	21.61		3
25	12	20.89	21.22	21.65	3		
	25	25	20.93	21.28	21.58	0-3	3
	50	0	20.88	21.24	21.66		3

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

LTE Band 26 (Cell) 5 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	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	23.52	24.10	24.50	0	0	
	1	12	23.60	24.15	24.54		0	
	1	24	23.68	24.23	24.12		0	
	12	0	22.64	23.14	23.51	0-1	1	
	12	6	22.72	23.14	23.63		1	
	12	13	22.69	23.18	23.56		1	
16QAM	25	0	22.71	23.10	23.48	0-1	1	
	1	0	22.88	23.46	23.87		1	
	1	12	22.96	23.48	23.88		1	
	1	24	22.99	23.57	23.42	0-2	1	
	12	0	21.77	22.26	22.66		2	
	12	6	21.85	22.25	22.74		2	
64QAM	12	13	21.80	22.28	22.68	0-2	2	
	25	0	21.81	22.21	22.58		2	
	1	0	21.80	22.34	22.82		0-2	2
	1	12	21.86	22.42	22.82	2		
	1	24	21.93	22.50	22.31	2		
	64QAM	12	0	20.82	21.31	21.69	0-3	3
		12	6	20.89	21.28	21.76		3
		12	13	20.84	21.33	21.72		3
25		0	20.80	21.20	21.58	3		



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

LTE Band 26 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	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	23.54	24.04	24.54	0	0
	1	7	23.70	24.22	24.61		0
	1	14	23.58	24.11	24.03		0
	8	0	22.61	23.10	23.57	0-1	1
	8	4	22.65	23.11	23.58		1
	8	7	22.57	23.18	23.54		1
16QAM	15	0	22.62	23.09	23.57	0-1	1
	1	0	22.85	23.38	23.90		1
	1	7	23.04	23.57	23.93		1
	1	14	22.92	23.49	23.31	0-2	1
	8	0	21.76	22.24	22.69		2
	8	4	21.76	22.25	22.70		2
64QAM	8	7	21.71	22.28	22.64	0-2	2
	15	0	21.67	22.17	22.62		2
	1	0	21.77	22.35	22.82		0-2
	1	7	21.98	22.52	22.86	2	
	1	14	21.85	22.38	22.31	0-3	
	8	0	20.78	21.26	21.73		3
	8	4	20.79	21.25	21.72		3
	8	7	20.76	21.32	21.68	3	
15	0	20.72	21.19	21.66	3		

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**Table 9-23**  
**LTE Band 26 (Cell) Conducted Powers -1.4 MHz Bandwidth**

LTE Band 26 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	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	23.44	23.97	24.41	0	0
	1	2	23.50	24.14	24.45		0
	1	5	23.52	24.05	23.87		0
	3	0	23.47	23.99	24.42		0
	3	2	23.50	24.12	24.13		0
	3	3	23.54	24.09	23.93		0
	6	0	22.56	23.02	23.37	0-1	1
16QAM	1	0	22.78	23.31	23.72	0-1	1
	1	2	22.87	23.48	23.72		1
	1	5	22.85	23.41	23.22		1
	3	0	22.68	23.23	23.60		1
	3	2	22.74	23.36	23.48		1
	3	3	22.77	23.29	23.20		1
	6	0	21.72	22.18	22.56	0-2	2
64QAM	1	0	21.73	22.27	22.67	0-2	2
	1	2	21.79	22.38	22.71		2
	1	5	21.82	22.34	22.22		2
	3	0	21.74	22.23	22.67		2
	3	2	21.76	22.37	22.59		2
	3	3	21.80	22.32	22.32		2
	6	0	20.67	21.12	21.56	0-3	3

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LTE Band 5 (Cell)



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

LTE Band 5 (Cell) 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20525 (836.5 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	24.26	0	0
	1	25	24.25		0
	1	49	24.17		0
	25	0	23.28	0-1	1
	25	12	23.27		1
	25	25	23.20		1
16QAM	50	0	23.20	0-1	1
	1	0	23.32		1
	1	25	23.44		1
	1	49	23.48	0-2	1
	25	0	22.36		2
	25	12	22.32		2
64QAM	25	25	22.25	0-2	2
	50	0	22.24		2
	1	0	22.28		2
	1	25	22.45	0-2	2
	1	49	22.39		2
	25	0	21.29		0-3
25	12	21.30	3		
25	25	21.23	3		
	50	0	21.29		3

Note: LTE Band 5 (Cell) at 10 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

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

LTE Band 5 (Cell) 5 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	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	24.17	24.33	24.24	0	0	
	1	12	24.16	24.24	24.17		0	
	1	24	24.15	24.18	23.58		0	
	12	0	23.20	23.27	23.24	0-1	1	
	12	6	23.25	23.30	23.26		1	
	12	13	23.18	23.24	23.17		1	
16QAM	25	0	23.22	23.27	23.20	0-1	1	
	1	0	23.29	23.48	23.42		0-1	1
	1	12	23.40	23.41	23.35			1
	1	24	23.48	23.33	22.61	0-2		1
	12	0	22.33	22.34	22.29		2	
	12	6	22.31	22.35	22.26		2	
64QAM	12	13	22.25	22.32	22.21	0-2	2	
	25	0	22.34	22.35	22.28		2	
	1	0	22.37	22.56	22.50		0-2	2
	1	12	22.49	22.48	22.46	0-3		2
	1	24	22.41	22.49	21.65			2
	12	0	21.36	21.43	21.37		3	
64QAM	12	6	21.37	21.46	21.38	0-3	3	
	12	13	21.32	21.37	21.26		3	
	25	0	21.31	21.39	21.29		3	
							3	



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

LTE Band 5 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	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	24.13	24.28	24.23	0	0
	1	7	24.19	24.38	24.16		0
	1	14	24.17	24.26	23.59		0
	8	0	23.11	23.26	23.19	0-1	1
	8	4	23.26	23.27	23.18		1
	8	7	23.20	23.25	23.17		1
	15	0	23.23	23.26	23.26		1
16QAM	1	0	23.29	23.69	23.37	0-1	1
	1	7	23.37	23.49	23.41		1
	1	14	23.35	23.39	22.71		1
	8	0	22.20	22.37	22.29	0-2	2
	8	4	22.32	22.40	22.28		2
	8	7	22.30	22.35	22.20		2
	15	0	22.31	22.30	22.27		2
64QAM	1	0	22.46	22.50	22.46	0-2	2
	1	7	22.51	22.55	22.53		2
	1	14	22.45	22.47	21.81		2
	8	0	21.27	21.41	21.32	0-3	3
	8	4	21.37	21.42	21.33		3
	8	7	21.35	21.35	21.35		3
	15	0	21.33	21.38	21.30		3

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

LTE Band 5 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	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	24.04	24.15	23.94	0	0
	1	2	24.11	24.25	23.73		0
	1	5	24.02	24.14	23.25		0
	3	0	24.08	24.20	23.70		0
	3	2	24.07	24.25	23.51		0
	3	3	24.05	24.20	23.23		0
	6	0	23.06	23.22	22.67	0-1	1
16QAM	1	0	23.20	23.37	23.19	0-1	1
	1	2	23.29	23.38	22.99		1
	1	5	23.18	23.33	22.52		1
	3	0	23.19	23.31	22.97		1
	3	2	23.29	23.32	22.72		1
	3	3	23.19	23.26	22.50		1
	6	0	22.14	22.34	21.90	0-2	2
64QAM	1	0	22.32	22.41	22.10	0-2	2
	1	2	22.40	22.51	22.05		2
	1	5	22.32	22.40	21.68		2
	3	0	22.28	22.42	22.22		2
	3	2	22.31	22.43	21.89		2
	3	3	22.28	22.43	21.63		2
	6	0	21.16	21.30	21.05	0-3	3

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Maximum LTE Band 66 (AWS)

Table 9-28  
LTE Band 66 (AWS) 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	24.00	24.28	24.31	0	0
	1	50	23.76	24.00	23.99		0
	1	99	24.04	23.80	23.85		0
	50	0	22.54	23.21	23.14	0-1	1
	50	25	22.31	23.13	23.06		1
	50	50	22.64	22.85	22.97		1
16QAM	100	0	22.54	23.08	23.04	0-1	1
	1	0	22.94	23.40	23.30		1
	1	50	22.51	23.43	23.23		1
	1	99	22.95	23.33	23.00	0-2	1
	50	0	21.65	22.29	22.18		2
	50	25	21.62	22.21	22.08		2
64QAM	50	50	21.70	22.06	22.02	0-2	2
	100	0	21.56	22.17	22.12		2
	1	0	22.30	22.19	22.45		0-2
	1	50	21.97	21.92	22.17	2	
	1	99	21.99	21.90	22.10	0-3	
	50	0	20.80	21.37	21.19		3
50	25	20.64	21.20	21.10	3		
50	50	20.74	21.05	21.03	0-3	3	
100	0	20.61	21.16	21.10		3	

Table 9-29  
LTE Band 66 (AWS) 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	24.10	24.33	24.38	0	0
	1	36	23.77	24.25	24.19		0
	1	74	23.98	24.27	24.17		0
	36	0	22.94	23.42	23.32	0-1	1
	36	18	22.90	23.37	23.29		1
	36	37	22.77	23.35	23.22		1
16QAM	75	0	22.80	23.34	23.27	0-1	1
	1	0	23.16	23.55	23.51		1
	1	36	22.97	23.38	23.33		1
	1	74	23.16	23.42	23.28	0-2	1
	36	0	22.04	22.49	22.36		2
	36	18	21.99	22.48	22.33		2
64QAM	36	37	21.91	22.40	22.27	0-2	2
	75	0	21.90	22.42	22.35		2
	1	0	22.27	22.59	22.60		0-2
	1	36	22.16	22.51	22.40	2	
	1	74	22.22	22.47	22.40	0-3	
	36	0	21.25	21.53	21.40		3
36	18	21.10	21.51	21.36	3		
36	37	20.99	21.44	21.35	0-3	3	
75	0	20.95	21.45	21.38		3	



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**Table 9-30**  
**LTE Band 66 (AWS) 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	24.12	24.37	24.26	0	0
	1	25	23.84	24.26	24.03		0
	1	49	23.60	24.25	24.14		0
	25	0	22.79	23.38	23.36	0-1	1
	25	12	22.71	23.37	23.25		1
	25	25	22.50	23.33	23.20		1
16QAM	50	0	22.47	23.39	23.16	0-1	1
	1	0	23.39	23.54	23.52		1
	1	25	22.98	23.39	23.34		1
	1	49	22.81	23.32	23.32	0-2	1
	25	0	21.93	22.45	22.42		2
	25	12	21.82	22.41	22.41		2
64QAM	25	25	21.64	22.41	22.34	0-2	2
	50	0	21.62	22.42	22.35		2
	1	0	22.39	22.58	22.60		0-2
	1	25	22.07	22.52	22.50	2	
	1	49	21.79	22.50	22.45	0-3	
	25	0	20.99	21.47	21.42		3
25	12	20.92	21.45	21.45	3		
64QAM	25	25	20.64	21.40	21.40	0-3	3
	50	0	20.66	21.43	21.32		3

**Table 9-31**  
**LTE Band 66 (AWS) 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	24.12	24.20	23.97	0	0
	1	12	23.92	24.14	23.86		0
	1	24	23.58	24.04	23.75		0
	12	0	23.13	23.22	22.98	0-1	1
	12	6	23.01	23.21	22.90		1
	12	13	22.87	23.15	22.89		1
16QAM	25	0	22.88	23.17	22.84	0-1	1
	1	0	23.45	23.46	23.30		1
	1	12	23.36	23.43	23.31		1
	1	24	23.12	23.36	23.23	0-2	1
	12	0	22.28	22.33	22.15		2
	12	6	22.16	22.31	22.10		2
64QAM	12	13	22.07	22.30	22.06	0-2	2
	25	0	22.03	22.28	21.94		2
	1	0	22.43	22.47	22.28		0-2
	1	12	22.34	22.39	22.12	2	
	1	24	22.08	22.31	22.14	0-3	
	12	0	21.33	21.34	21.17		3
12	6	21.27	21.37	21.16	3		
64QAM	12	13	21.14	21.26	21.11	0-3	3
	25	0	21.09	21.31	21.04		3



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**Table 9-32**  
**LTE Band 66 (AWS) 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	24.16	24.20	23.87	0	0
	1	7	24.13	24.25	23.93		0
	1	14	23.98	24.11	23.81		0
	8	0	23.19	23.22	22.87	0-1	1
	8	4	23.14	23.25	22.89		1
	8	7	22.99	23.19	22.83		1
	15	0	23.02	23.17	22.85		1
16QAM	1	0	23.40	23.53	23.14	0-1	1
	1	7	23.53	23.61	23.39		1
	1	14	23.36	23.44	23.19		1
	8	0	22.37	22.40	22.02	0-2	2
	8	4	22.42	22.38	22.09		2
	8	7	22.32	22.34	22.07		2
	15	0	22.28	22.22	21.98		2
64QAM	1	0	22.41	22.43	22.21	0-2	2
	1	7	22.36	22.49	22.17		2
	1	14	22.29	22.38	22.20		2
	8	0	21.31	21.36	21.07	0-3	3
	8	4	21.36	21.34	21.02		3
	8	7	21.33	21.33	21.05		3
	15	0	21.27	21.30	20.99		3

**Table 9-33**  
**LTE Band 66 (AWS) 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	24.12	24.23	23.80	0	0
	1	2	24.18	24.30	24.03		0
	1	5	24.05	24.27	23.76		0
	3	0	24.11	24.22	23.76	0-1	0
	3	2	24.16	24.26	23.80		0
	3	3	24.09	24.26	23.82		0
	6	0	23.16	23.28	22.78		1
16QAM	1	0	23.48	23.51	23.12	0-1	1
	1	2	23.42	23.62	23.22		1
	1	5	23.44	23.54	23.02		1
	3	0	23.32	23.40	22.99	0-2	1
	3	2	23.36	23.39	23.13		1
	3	3	23.26	23.40	22.96		1
	6	0	22.28	22.36	21.99		2
64QAM	1	0	22.41	22.46	22.15	0-2	2
	1	2	22.45	22.60	22.21		2
	1	5	22.33	22.52	22.12		2
	3	0	22.35	22.42	22.07	0-3	2
	3	2	22.38	22.44	22.19		2
	3	3	22.34	22.43	22.06		2
	6	0	21.23	21.38	20.96		3

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Reduced LTE Band 66 (AWS)

**Table 9-34**  
**LTE Band 66 (AWS) 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	20.26	20.31	20.41	0	0
	1	50	20.18	20.16	20.20		0
	1	99	20.16	20.28	20.22		0
	50	0	20.31	20.34	20.36	0-1	0
	50	25	20.24	20.31	20.30		0
	50	50	20.21	20.26	20.24		0
	100	0	20.23	20.30	20.30		0
16QAM	1	0	20.42	20.50	20.50	0-1	0
	1	50	20.33	20.43	20.38		0
	1	99	20.30	20.48	20.42		0
	50	0	20.37	20.47	20.45	0-2	0
	50	25	20.31	20.40	20.38		0
	50	50	20.26	20.33	20.35		0
	100	0	20.30	20.40	20.31		0
64QAM	1	0	20.49	20.50	20.50	0-2	0
	1	50	20.37	20.43	20.38		0
	1	99	20.40	20.50	20.37		0
	50	0	20.40	20.50	20.42	0-3	0
	50	25	20.35	20.43	20.40		0
	50	50	20.32	20.38	20.31		0
	100	0	20.36	20.41	20.44		0

**Table 9-35**  
**LTE Band 66 (AWS) 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	20.16	20.31	20.38	0	0
	1	36	20.00	20.12	20.30		0
	1	74	20.05	20.03	20.21		0
	36	0	20.08	20.27	20.25	0-1	0
	36	18	20.14	20.20	20.21		0
	36	37	20.11	20.15	20.20		0
	75	0	20.14	20.20	20.17		0
16QAM	1	0	20.37	20.24	20.37	0-1	0
	1	36	20.00	20.05	20.27		0
	1	74	20.02	20.34	20.10		0
	36	0	20.18	20.34	20.29	0-2	0
	36	18	20.28	20.31	20.27		0
	36	37	20.22	20.22	20.28		0
	75	0	20.29	20.25	20.26		0
64QAM	1	0	20.47	20.25	20.44	0-2	0
	1	36	20.33	20.07	20.33		0
	1	74	20.40	20.24	20.26		0
	36	0	20.23	20.40	20.40	0-3	0
	36	18	20.30	20.34	20.36		0
	36	37	20.26	20.29	20.36		0
	75	0	20.22	20.30	20.29		0



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**Table 9-36**  
**LTE Band 66 (AWS) 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	20.17	20.15	20.15	0	0
	1	25	20.05	20.06	20.13		0
	1	49	20.05	19.98	20.03		0
	25	0	20.11	20.22	20.19	0-1	0
	25	12	20.09	20.15	20.25		0
	25	25	20.09	20.11	20.19		0
16QAM	50	0	20.17	20.16	20.13	0-1	0
	1	0	20.33	20.35	20.24		0
	1	25	20.38	20.17	20.17		0
	1	49	20.34	20.07	20.13	0-2	0
	25	0	20.18	20.29	20.20		0
	25	12	20.13	20.24	20.31		0
64QAM	25	25	20.18	20.18	20.26	0-2	0
	50	0	20.22	20.21	20.17		0
	1	0	20.34	20.33	20.31		0-3
	1	25	20.42	20.38	20.40	0	
	1	49	20.35	20.30	20.31	0	
	25	0	20.21	20.28	20.23	0	
25	12	20.13	20.28	20.33	0		
25	25	20.22	20.23	20.27	0		
50	0	20.27	20.26	20.23	0		

**Table 9-37**  
**LTE Band 66 (AWS) 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	20.05	20.04	20.13	0	0
	1	12	19.91	20.00	20.03		0
	1	24	19.87	19.97	20.02		0
	12	0	20.04	20.12	20.13	0-1	0
	12	6	20.01	20.12	20.14		0
	12	13	19.96	20.11	20.09		0
16QAM	25	0	19.98	20.10	20.14	0-1	0
	1	0	20.27	20.15	20.38		0
	1	12	20.36	20.31	20.38		0
	1	24	20.30	20.23	19.94	0-2	0
	12	0	20.09	20.25	20.30		0
	12	6	20.10	20.20	20.29		0
64QAM	12	13	20.08	20.18	20.19	0-2	0
	25	0	20.12	20.22	20.19		0
	1	0	20.18	20.05	20.34		0-3
	1	12	20.14	20.03	20.28	0	
	1	24	20.12	19.98	20.25	0	
	12	0	20.18	20.25	20.31	0	
12	6	20.15	20.26	20.29	0		
12	13	20.10	20.22	20.22	0		
25	0	20.18	20.29	20.22	0		



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**Table 9-38**  
**LTE Band 66 (AWS) 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	19.93	20.05	20.11	0	0
	1	7	20.03	20.19	20.19		0
	1	14	19.88	20.02	20.02		0
	8	0	19.97	20.07	20.10	0-1	0
	8	4	19.99	20.10	20.14		0
	8	7	19.97	20.05	20.10		0
16QAM	15	0	19.98	20.06	20.15	0-1	0
	1	0	20.22	20.09	20.00		0
	1	7	20.33	20.16	20.09		0
	1	14	20.34	20.07	19.93	0-2	0
	8	0	20.19	20.15	20.33		0
	8	4	20.21	20.19	20.35		0
64QAM	8	7	20.11	20.16	20.32	0-2	0
	15	0	19.98	20.10	20.11		0
	1	0	20.06	20.02	20.37		0
	1	7	20.17	20.34	20.43	0-2	0
	1	14	20.04	20.20	20.29		0
	8	0	20.16	20.14	20.28		0-3
	8	4	20.17	20.15	20.25	0	
	8	7	20.12	20.15	20.23	0	
15	0	19.99	20.12	20.15	0		

**Table 9-39**  
**LTE Band 66 (AWS) 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	19.84	19.96	19.93	0	0
	1	2	19.88	20.06	20.00		0
	1	5	19.80	19.94	19.88		0
	3	0	19.86	19.99	20.04	0-1	0
	3	2	19.89	20.02	20.07		0
	3	3	19.86	19.98	20.00		0
16QAM	6	0	19.88	19.97	20.09	0-1	0
	1	0	20.34	20.29	19.93		0
	1	2	20.34	20.32	20.29		0
	1	5	20.23	20.25	20.22	0-1	0
	3	0	20.13	20.22	20.13		0
	3	2	20.16	20.24	20.19		0
64QAM	3	3	20.04	20.13	20.14	0-2	0
	6	0	19.96	20.10	20.23		0
	1	0	20.26	20.16	20.34		0-2
	1	2	20.31	20.24	20.38	0	
	1	5	20.14	20.26	20.22	0	
	3	0	20.03	20.30	20.25	0-2	0
	3	2	20.06	20.34	20.29		0
	3	3	20.02	20.27	20.23		0
6	0	19.98	20.08	20.15	0-3	0	

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Maximum LTE Band 25 (PCS)

Table 9-40  
LTE Band 25 (PCS) Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.29	24.12	24.07	0	0
	1	50	23.92	23.72	23.86		0
	1	99	24.10	23.89	23.89		0
	50	0	23.05	22.94	23.12	0-1	1
	50	25	22.99	22.93	23.05		1
	50	50	22.94	22.92	23.02		1
16QAM	100	0	22.98	22.92	23.06	0-1	1
	1	0	23.35	23.27	23.13		1
	1	50	23.23	22.91	22.87		1
	1	99	23.48	23.12	22.89	0-2	1
	50	0	22.12	22.06	22.17		2
	50	25	22.04	22.00	22.12		2
64QAM	50	50	21.95	21.96	22.08	0-2	2
	100	0	22.05	22.01	22.12		2
	1	0	22.22	22.45	22.48		0-2
	1	50	22.27	22.05	22.30	2	
	1	99	22.10	22.21	22.35	2	
	64QAM	50	0	21.17	21.08	21.21	0-3
50		25	21.06	20.98	21.16	3	
50		50	21.04	20.94	21.16	3	
100		0	21.09	20.97	21.18	3	

Table 9-41  
LTE Band 25 (PCS) Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26115 (1857.5 MHz)	26365 (1882.5 MHz)	26615 (1907.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.09	23.93	24.08	0	0
	1	36	23.75	23.85	23.95		0
	1	74	23.73	23.83	24.00		0
	36	0	22.92	22.91	22.95	0-1	1
	36	18	22.85	22.89	22.94		1
	36	37	22.78	22.86	22.90		1
16QAM	75	0	22.87	22.92	22.93	0-1	1
	1	0	23.22	23.15	23.13		1
	1	36	22.83	22.89	22.74		1
	1	74	22.81	22.90	23.13	0-2	1
	36	0	21.97	22.04	22.06		2
	36	18	21.91	22.00	22.02		2
64QAM	36	37	21.86	21.98	22.00	0-2	2
	75	0	21.96	22.02	21.98		2
	1	0	21.91	22.29	22.39		0-2
	1	36	21.69	22.11	22.18	2	
	1	74	22.13	22.13	22.23	2	
	64QAM	36	0	21.04	21.03	21.05	0-3
36		18	20.96	21.00	21.02	3	
36		37	20.89	20.94	21.04	3	
75		0	20.94	20.98	21.06	3	



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**Table 9-42**  
**LTE Band 25 (PCS) Conducted Powers - 10 MHz Bandwidth**

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26090 (1855.0 MHz)	26365 (1882.5 MHz)	26640 (1910.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.14	23.97	23.89	0	0
	1	25	23.70	23.67	23.79		0
	1	49	23.87	23.86	23.80		0
	25	0	22.89	22.77	22.89	0-1	1
	25	12	22.87	22.78	22.86		1
	25	25	22.82	22.74	22.87		1
16QAM	50	0	22.82	22.79	22.88	0-1	1
	1	0	23.30	22.95	23.33		1
	1	25	23.00	22.63	23.44		1
	1	49	23.20	22.84	23.49	0-2	1
	25	0	21.97	21.93	21.96		2
	25	12	21.91	21.90	21.91		2
64QAM	25	25	21.85	21.87	21.92	0-2	2
	50	0	21.93	21.87	21.92		2
	1	0	22.44	22.35	22.30		2
	1	25	22.07	22.06	22.03	0-3	2
	1	49	21.88	22.28	22.02		2
	25	0	20.96	20.86	20.96		3
64QAM	25	12	20.96	20.87	20.93	0-3	3
	25	25	20.93	20.80	20.91		3
	50	0	20.91	20.90	20.92		3
	50	0	20.91	20.90	20.92		3

**Table 9-43**  
**LTE Band 25 (PCS) Conducted Powers - 5 MHz Bandwidth**

LTE Band 25 (PCS) 5 MHz Bandwidth								
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			26065 (1852.5 MHz)	26365 (1882.5 MHz)	26665 (1912.5 MHz)			
			Conducted Power [dBm]					
QPSK	1	0	23.86	23.74	23.75	0	0	
	1	12	23.80	23.72	23.71		0	
	1	24	23.80	23.69	23.88		0	
	QPSK	12	0	22.83	22.76	22.85	0-1	1
		12	6	22.84	22.76	22.83		1
		12	13	22.78	22.74	22.82		1
25		0	22.79	22.71	22.82	1		
16QAM	1	0	23.09	23.06	22.80	0-1	1	
	1	12	23.01	23.05	22.84		1	
	1	24	23.05	23.32	22.83		1	
	16QAM	12	0	21.97	21.88	21.90	0-2	2
		12	6	21.93	21.86	21.93		2
		12	13	21.88	21.83	21.94		2
25		0	21.93	21.79	21.84	2		
64QAM	1	0	21.95	22.09	22.27	0-2	2	
	1	12	21.88	22.06	22.21		2	
	1	24	21.87	22.11	22.15		2	
	64QAM	12	0	21.05	20.86	20.97	0-3	3
		12	6	21.03	20.85	20.91		3
		12	13	20.98	20.80	20.89		3
25		0	20.90	20.80	20.88	3		



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**Table 9-44**  
**LTE Band 25 (PCS) Conducted Powers - 3 MHz Bandwidth**

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26055 (1851.5 MHz)	26365 (1882.5 MHz)	26675 (1913.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.78	23.72	23.82	0	0
	1	7	23.81	23.80	23.91		0
	1	14	23.74	23.68	23.87		0
	8	0	22.85	22.70	22.81	0-1	1
	8	4	22.86	22.74	22.84		1
	8	7	22.83	22.72	22.81		1
16QAM	15	0	22.85	22.70	22.84		1
	1	0	23.12	22.78	23.16	0-1	1
	1	7	23.21	22.89	23.28		1
	1	14	23.08	22.82	22.86		1
	8	0	21.87	21.82	21.99	0-2	2
	8	4	21.88	21.77	22.03		2
8	7	21.87	21.74	22.01	2		
64QAM	15	0	21.83	21.86	21.80		2
	1	0	22.21	22.07	21.94	0-2	2
	1	7	22.32	22.03	22.22		2
	1	14	22.19	21.92	22.08		2
	8	0	20.93	20.86	20.93	0-3	3
	8	4	20.93	20.89	20.95		3
8	7	20.90	20.85	20.93	3		
	15	0	20.91	20.84	20.90		3

**Table 9-45**  
**LTE Band 25 (PCS) Conducted Powers -1.4 MHz Bandwidth**

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26047 (1850.7 MHz)	26365 (1882.5 MHz)	26683 (1914.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.75	23.80	23.69	0	0
	1	2	23.81	23.99	23.77		0
	1	5	23.72	23.86	23.70		0
	3	0	23.79	23.89	23.73		0
	3	2	23.80	23.92	23.80		0
	3	3	23.75	23.99	23.73		0
16QAM	6	0	22.76	22.95	22.75	0-1	1
	1	0	23.16	23.29	22.99	0-1	1
	1	2	23.24	22.91	22.88		1
	1	5	23.12	22.83	22.81		1
	3	0	22.96	22.87	22.89		1
	3	2	23.01	22.93	22.94		1
3	3	22.96	23.05	22.89	1		
64QAM	6	0	21.84	21.89	21.85	0-2	2
	1	0	22.09	22.21	22.13	0-2	2
	1	2	21.88	22.31	22.16		2
	1	5	21.83	22.24	22.09		2
	3	0	21.90	22.17	22.03		2
	3	2	21.94	22.20	22.06		2
3	3	21.89	22.16	22.01	2		
	6	0	20.87	20.98	20.84	0-3	3

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Reduced LTE Band 25 (PCS)

Table 9-46  
LTE Band 25 (PCS) Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.44	20.21	20.50	0	0
	1	50	20.17	19.91	20.31		0
	1	99	20.28	19.96	20.27		0
	50	0	20.21	20.12	20.41	0-1	0
	50	25	20.15	20.04	20.33		0
	50	50	20.08	20.05	20.29		0
16QAM	100	0	20.09	20.11	20.36	0-1	0
	1	0	20.50	20.47	20.50		0
	1	50	20.39	20.38	20.46		0
	1	99	20.48	20.46	20.47	0-2	0
	50	0	20.29	20.25	20.40		0
	50	25	20.21	20.18	20.37		0
64QAM	50	50	20.18	20.12	20.31	0-2	0
	100	0	20.24	20.17	20.42		0
	1	0	20.49	20.45	20.50		0-2
	1	50	20.30	20.12	20.46	0	
	1	99	20.39	20.27	20.42	0	
	64QAM	50	0	20.38	20.20	20.48	0-3
50		25	20.26	20.12	20.45	0	
50		50	20.22	20.02	20.41	0	
100		0	20.27	20.11	20.47	0	

Table 9-47  
LTE Band 25 (PCS) Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26115 (1857.5 MHz)	26365 (1882.5 MHz)	26615 (1907.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.09	19.90	20.16	0	0
	1	36	19.84	19.72	19.98		0
	1	74	19.75	19.76	20.00		0
	36	0	19.99	19.90	20.10	0-1	0
	36	18	19.95	19.86	20.10		0
	36	37	19.87	19.84	20.08		0
16QAM	75	0	19.94	19.86	20.11	0-1	0
	1	0	20.20	20.38	20.28		0
	1	36	20.11	20.07	20.04		0
	1	74	20.00	19.76	20.05	0-2	0
	36	0	20.05	20.04	20.26		0
	36	18	19.99	20.00	20.22		0
64QAM	36	37	19.93	19.99	20.18	0-2	0
	75	0	20.00	19.94	20.15		0
	1	0	19.73	20.29	20.49		0-2
	1	36	19.54	20.13	20.37	0	
	1	74	19.54	20.18	20.37	0	
	64QAM	36	0	20.11	20.09	20.24	0-3
36		18	20.06	20.02	20.19	0	
36		37	20.01	20.01	20.19	0	
75		0	20.01	20.00	20.20	0	

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**Table 9-48**  
**LTE Band 25 (PCS) Conducted Powers - 10 MHz Bandwidth**

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26090 (1855.0 MHz)	26365 (1882.5 MHz)	26640 (1910.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.18	20.07	20.14	0	0
	1	25	19.80	19.77	19.99		0
	1	49	20.03	19.93	20.02		0
	25	0	19.95	19.84	20.09	0-1	0
	25	12	19.94	19.76	20.07		0
	25	25	19.87	19.83	20.05		0
	50	0	19.94	19.90	20.09		0
16QAM	1	0	19.61	20.24	20.05	0-1	0
	1	25	19.74	20.10	19.88		0
	1	49	19.94	20.12	19.90		0
	25	0	19.95	20.00	20.10	0-2	0
	25	12	19.98	19.99	20.06		0
	25	25	19.90	19.95	20.08		0
	50	0	20.05	19.93	20.11		0
64QAM	1	0	20.28	20.48	20.30	0-2	0
	1	25	19.96	20.23	20.30		0
	1	49	20.15	20.35	20.24		0
	25	0	20.07	20.00	20.25	0-3	0
	25	12	20.01	19.98	20.23		0
	25	25	19.99	19.96	20.19		0
	50	0	20.02	19.97	20.23		0

**Table 9-49**  
**LTE Band 25 (PCS) Conducted Powers - 5 MHz Bandwidth**

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26065 (1852.5 MHz)	26365 (1882.5 MHz)	26665 (1912.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	19.95	19.82	20.00	0	0
	1	12	19.88	19.79	19.95		0
	1	24	19.84	19.80	20.01		0
	12	0	19.94	19.83	20.04	0-1	0
	12	6	19.92	19.78	20.08		0
	12	13	19.89	19.69	20.05		0
	25	0	19.94	19.81	20.05		0
16QAM	1	0	20.18	20.11	20.17	0-1	0
	1	12	20.08	20.09	20.07		0
	1	24	20.04	20.11	19.99		0
	12	0	20.07	19.93	20.13	0-2	0
	12	6	20.10	19.90	20.12		0
	12	13	20.05	19.91	20.09		0
	25	0	20.00	19.97	20.17		0
64QAM	1	0	20.32	19.52	20.40	0-2	0
	1	12	20.24	19.60	20.33		0
	1	24	20.23	19.52	20.23		0
	12	0	20.18	19.96	20.27	0-3	0
	12	6	20.16	19.94	20.26		0
	12	13	20.11	19.92	20.30		0
	25	0	20.02	19.92	20.09		0



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**Table 9-50**  
**LTE Band 25 (PCS) Conducted Powers - 3 MHz Bandwidth**

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26055 (1851.5 MHz)	26365 (1882.5 MHz)	26675 (1913.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.08	19.96	20.02	0	0
	1	7	20.18	20.02	20.14		0
	1	14	20.11	19.87	20.08		0
	8	0	20.11	19.96	20.12	0-1	0
	8	4	20.08	19.99	20.16		0
	8	7	20.05	19.96	20.12		0
	15	0	20.06	19.98	20.18		0
16QAM	1	0	20.13	19.79	19.85	0-1	0
	1	7	20.23	19.79	19.88		0
	1	14	20.10	19.66	19.82		0
	8	0	19.98	19.88	19.96	0-2	0
	8	4	19.97	19.89	20.09		0
	8	7	19.92	19.85	20.07		0
	15	0	20.02	19.89	19.83		0
64QAM	1	0	20.08	19.85	20.14	0-2	0
	1	7	20.17	19.79	20.18		0
	1	14	20.09	19.69	20.15		0
	8	0	20.16	20.04	20.19	0-3	0
	8	4	20.18	20.08	20.15		0
	8	7	20.13	20.01	20.04		0
	15	0	19.95	19.95	20.03		0

**Table 9-51**  
**LTE Band 25 (PCS) Conducted Powers -1.4 MHz Bandwidth**

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26047 (1850.7 MHz)	26365 (1882.5 MHz)	26683 (1914.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.01	20.18	20.10	0	0
	1	2	20.06	20.22	20.21		0
	1	5	19.97	20.18	20.17		0
	3	0	20.00	20.19	20.09		0
	3	2	20.03	20.21	20.17		0
	3	3	20.00	20.16	20.13		0
	6	0	19.99	20.22	20.18	0-1	0
16QAM	1	0	19.60	20.06	20.07	0-1	0
	1	2	19.71	20.01	20.13		0
	1	5	19.64	20.03	20.08		0
	3	0	19.99	20.01	20.12		0
	3	2	20.04	20.08	20.15		0
	3	3	19.96	20.03	19.98		0
	6	0	19.89	20.09	20.05	0-2	0
64QAM	1	0	19.73	19.63	20.09	0-2	0
	1	2	19.77	19.65	20.14		0
	1	5	19.63	19.61	20.11		0
	3	0	20.03	20.06	20.23		0
	3	2	20.11	20.11	20.25		0
	3	3	20.03	20.08	20.11		0
	6	0	19.65	20.18	19.98	0-3	0

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Maximum Antenna B LTE Band 30



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

LTE Band 30 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			27710 (2310.0 MHz) Conducted Power [dBm]		
QPSK	1	0	24.50	0	0
	1	25	24.30		0
	1	49	24.28		0
	25	0	23.53	0-1	1
	25	12	23.50		1
	25	25	23.46		1
16QAM	50	0	23.50	0-1	1
	1	0	23.70		1
	1	25	23.54		1
	1	49	23.49	0-2	1
	25	0	22.57		2
	25	12	22.56		2
64QAM	25	25	22.48	0-2	2
	50	0	22.55		2
	1	0	22.69		2
	1	25	22.59	0-2	2
	1	49	22.49		2
	25	0	21.66		0-3
25	12	21.57	3		
25	25	21.50	3		
	50	0	21.50		3

**Table 9-53**  
**LTE Band 30 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	24.23	0	0
	1	12	24.26		0
	1	24	24.24		0
	12	0	23.38	0-1	1
	12	6	23.48		1
	12	13	23.37		1
16QAM	25	0	23.34	0-1	1
	1	0	23.41		1
	1	12	23.42		1
	1	24	23.40	0-2	1
	12	0	22.48		2
	12	6	22.40		2
64QAM	12	13	22.35	0-2	2
	25	0	22.40		2
	1	0	22.59		2
	1	12	22.56	0-2	2
	1	24	22.54		2
	12	0	21.49		0-3
12	6	21.51	3		
12	13	21.48	3		
	25	0	21.50		3

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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Maximum Antenna A LTE Band 30



**Table 9-54**  
**LTE Band 30 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	24.41	0	0
	1	25	24.31		0
	1	49	24.00		0
	25	0	23.37	0-1	1
	25	12	23.31		1
	25	25	23.18		1
16QAM	50	0	23.30	0-1	1
	1	0	23.69		1
	1	25	23.51		1
	1	49	23.27	0-2	1
	25	0	22.41		2
	25	12	22.38		2
64QAM	25	25	22.33	0-2	2
	50	0	22.38		2
	1	0	22.72		0-2
	1	25	22.67	2	
	1	49	22.50	2	
	64QAM	25	0	21.46	0-3
25		12	21.44	3	
25		25	21.38	3	
50		0	21.43	3	

**Table 9-55**  
**LTE Band 30 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	24.36	0	0
	1	12	24.28		0
	1	24	24.20		0
	12	0	23.28	0-1	1
	12	6	23.27		1
	12	13	23.17		1
16QAM	25	0	23.25	0-1	1
	1	0	23.70		1
	1	12	23.56		1
	1	24	23.50	0-2	1
	12	0	22.38		2
	12	6	22.35		2
64QAM	12	13	22.24	0-2	2
	25	0	22.29		2
	1	0	22.70		0-2
	1	12	22.60	2	
	1	24	22.62	2	
	64QAM	12	0	21.42	0-3
12		6	21.38	3	
12		13	21.29	3	
25		0	21.34	3	

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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Reduced Antenna B LTE Band 30



**Table 9-56**  
**LTE Band 30 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	21.08	0	0
	1	25	20.84		0
	1	49	20.81		0
	25	0	20.92	0-1	0
	25	12	20.93		0
	25	25	20.86		0
16QAM	50	0	20.90	0-1	0
	1	0	21.20		0
	1	25	20.96		0
	1	49	20.95	0-2	0
	25	0	20.97		0
	25	12	20.98		0
64QAM	25	25	20.93	0-2	0
	50	0	20.95		0
	1	0	21.26		0-3
	1	25	21.03	0	
	1	49	20.99	0	
		25	0	20.98	0
	25	12	20.97	0	
	25	25	20.94	0	
	50	0	20.96	0	

**Table 9-57**  
**LTE Band 30 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	20.87	0	0
	1	12	20.70		0
	1	24	20.69		0
	12	0	20.76	0-1	0
	12	6	20.79		0
	12	13	20.74		0
16QAM	25	0	20.73	0-1	0
	1	0	20.96		0
	1	12	20.85		0-2
	1	24	20.79	0	
	12	0	20.76	0	
	64QAM	12	6	20.77	0-2
12		13	20.72	0	
25		0	20.86	0	
1		0	21.03	0-3	0
1		12	20.94		0
1		24	20.96		0
	12	0	20.79	0	
	12	6	20.87	0	
	12	13	20.79	0	
	25	0	20.78	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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Reduced Antenna A LTE Band 30



**Table 9-58**  
**LTE Band 30 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	21.08	0	0
	1	25	20.87		0
	1	49	20.86		0
	25	0	20.94	0-1	0
	25	12	20.91		0
	25	25	20.90		0
16QAM	50	0	20.88	0-1	0
	1	0	21.39		0
	1	25	21.27		0
	1	49	21.25	0-2	0
	25	0	21.02		0
	25	12	21.01		0
64QAM	25	25	20.98	0-2	0
	50	0	20.97		0
	1	0	20.85		0-3
	1	25	20.73	0	
	1	49	20.74	0	
	25	0	20.81	0	
25	12	20.82	0		
25	25	20.78	0		
50	0	20.76	0		

**Table 9-59**  
**LTE Band 30 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	21.01	0	0
	1	12	20.84		0
	1	24	20.81		0
	12	0	20.93	0-1	0
	12	6	20.89		0
	12	13	20.81		0
16QAM	25	0	20.85	0-1	0
	1	0	21.25		0
	1	12	21.10		0
	1	24	21.16	0-2	0
	12	0	20.96		0
	12	6	20.92		0
64QAM	12	13	20.85	0-2	0
	25	0	20.89		0
	1	0	21.22		0-3
	1	12	21.14	0	
	1	24	21.05	0	
	12	0	21.02	0	
12	6	21.01	0		
12	13	20.89	0		
25	0	20.90	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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Maximum Antenna B LTE Band 7

Table 9-60  
LTE Band 7 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	23.53	23.45	23.58	0	0	
	1	50	23.19	23.31	23.18		0	
	1	99	23.26	23.30	23.07		0	
	QPSK	50	0	22.42	22.44	22.48	0-1	1
		50	25	22.32	22.36	22.30		1
		50	50	22.33	22.35	22.19		1
		100	0	22.42	22.41	22.34		1
16QAM	1	0	22.80	22.77	22.85	0-1	1	
	1	50	22.49	22.62	22.51		1	
	1	99	22.51	22.64	22.35		1	
	16QAM	50	0	21.47	21.49	21.53	0-2	2
		50	25	21.35	21.45	21.40		2
		50	50	21.39	21.42	21.26		2
		100	0	21.45	21.38	21.39		2
64QAM	1	0	21.77	21.72	21.78	0-2	2	
	1	50	21.45	21.54	21.41		2	
	1	99	21.51	21.52	21.31		2	
	64QAM	50	0	20.46	20.49	20.42	0-3	3
		50	25	20.36	20.45	20.38		3
		50	50	20.39	20.40	20.29		3
		100	0	20.47	20.44	20.40		3

Table 9-61  
LTE Band 7 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	23.60	23.57	23.65	0	0	
	1	36	23.41	23.47	23.41		0	
	1	74	23.35	23.49	23.26		0	
	QPSK	36	0	22.48	22.55	22.55	0-1	1
		36	18	22.45	22.55	22.45		1
		36	37	22.39	22.54	22.36		1
		75	0	22.42	22.53	22.44		1
16QAM	1	0	22.66	22.67	22.81	0-1	1	
	1	36	22.53	22.63	22.55		1	
	1	74	22.49	22.62	22.48		1	
	16QAM	36	0	21.56	21.65	21.64	0-2	2
		36	18	21.53	21.63	21.51		2
		36	37	21.43	21.60	21.42		2
		75	0	21.51	21.59	21.54		2
64QAM	1	0	21.79	21.75	21.83	0-2	2	
	1	36	21.63	21.70	21.65		2	
	1	74	21.50	21.72	21.58		2	
	64QAM	36	0	20.59	20.65	20.62	0-3	3
		36	18	20.54	20.65	20.55		3
		36	37	20.47	20.60	20.46		3
		75	0	20.51	20.61	20.55		3

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**Table 9-62**  
**LTE Band 7 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	23.49	23.47	23.47	0	0	
	1	25	23.34	23.47	23.35		0	
	1	49	23.25	23.45	23.27		0	
	25	0	22.40	22.43	22.47	0-1	1	
	25	12	22.35	22.49	22.44		1	
	25	25	22.32	22.45	22.38		1	
16QAM	50	0	22.38	22.47	22.43	0-1	1	
	1	0	22.61	22.64	22.66		0-1	1
	1	25	22.53	22.58	22.47			1
	1	49	22.39	22.59	22.55	0-2		1
	25	0	21.50	21.58	21.57		2	
	25	12	21.47	21.54	21.53		2	
64QAM	25	25	21.39	21.55	21.48	0-2	2	
	50	0	21.46	21.59	21.48		2	
	1	0	21.65	21.71	21.75		0-2	2
	1	25	21.55	21.70	21.65	2		
	1	49	21.53	21.62	21.55	0-3		2
	25	0	20.51	20.61	20.58		3	
25	12	20.47	20.52	20.53	3			
64QAM	25	25	20.45	20.58	20.47	0-3	3	
	50	0	20.48	20.57	20.52		3	

**Table 9-63**  
**LTE Band 7 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	23.46	23.45	23.38	0	0	
	1	12	23.43	23.44	23.33		0	
	1	24	23.37	23.45	23.33		0	
	12	0	22.49	22.50	22.42	0-1	1	
	12	6	22.52	22.53	22.44		1	
	12	13	22.46	22.47	22.37		1	
16QAM	25	0	22.50	22.50	22.39	0-1	1	
	1	0	22.63	22.63	22.49		0-1	1
	1	12	22.60	22.61	22.48			1
	1	24	22.59	22.57	22.53	0-2		1
	12	0	21.57	21.56	21.51		2	
	12	6	21.56	21.57	21.50		2	
64QAM	12	13	21.52	21.54	21.42	0-2	2	
	25	0	21.58	21.57	21.45		2	
	1	0	21.78	21.69	21.60		0-2	2
	1	12	21.68	21.68	21.59	2		
	1	24	21.66	21.62	21.55	0-3		2
	12	0	20.65	20.62	20.52		3	
12	6	20.69	20.63	20.56	3			
64QAM	12	13	20.59	20.61	20.49	0-3	3	
	25	0	20.61	20.56	20.47		3	

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Maximum Antenna A LTE Band 7

Table 9-64  
LTE Band 7 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	22.63	22.76	23.38	0	0
	1	50	22.33	22.82	23.31		0
	1	99	22.34	22.95	23.39		0
	50	0	21.63	21.85	22.30	0-1	1
	50	25	21.47	21.86	22.35		1
	50	50	21.42	21.87	22.31		1
16QAM	100	0	21.42	21.83	22.32	0-1	1
	1	0	22.28	22.25	22.82		1
	1	50	21.94	22.27	22.70		1
	1	99	21.93	22.47	22.92	0-2	1
	50	0	20.72	20.95	21.39		2
	50	25	20.56	20.97	21.43		2
64QAM	50	50	20.51	20.96	21.40	0-2	2
	100	0	20.52	20.94	21.41		2
	1	0	21.24	20.84	21.33		0-2
	1	50	21.00	20.94	21.30	2	
	1	99	20.97	21.22	21.47	0-3	
	50	0	19.56	19.63	20.10		3
50	25	19.42	19.64	20.20	3		
50	50	19.39	19.71	20.13	3		
100	0	19.37	19.61	20.13	3		

Table 9-65  
LTE Band 7 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	23.14	23.01	23.29	0	0
	1	36	22.81	23.02	23.27		0
	1	74	22.60	23.08	23.08		0
	36	0	22.07	22.06	21.89	0-1	1
	36	18	21.90	22.07	21.74		1
	36	37	21.75	22.01	22.24		1
16QAM	75	0	21.87	22.04	22.30	0-1	1
	1	0	22.29	22.20	22.65		1
	1	36	22.09	22.32	21.91		1
	1	74	21.90	22.35	22.43	0-2	1
	36	0	21.13	21.15	21.12		2
	36	18	20.99	21.16	20.93		2
64QAM	36	37	20.81	21.11	21.09	0-2	2
	75	0	20.95	21.12	21.20		2
	1	0	21.49	21.25	21.62		0-2
	1	36	21.15	21.15	20.91	2	
	1	74	20.94	21.32	21.33	0-3	
	36	0	20.17	20.20	20.27		3
36	18	19.98	20.17	19.98	3		
36	37	19.83	20.14	20.15	3		
75	0	19.96	20.12	20.20	3		



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**Table 9-66**  
**LTE Band 7 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	23.37	23.02	22.81	0	0
	1	25	23.20	23.02	23.01		0
	1	49	23.15	23.07	23.06		0
	25	0	22.05	22.01	21.72	0-1	1
	25	12	22.07	22.04	22.16		1
	25	25	21.90	22.03	22.10		1
16QAM	50	0	22.04	22.03	22.08	0-1	1
	1	0	22.36	22.30	21.82		1
	1	25	22.25	22.27	22.49		1
	1	49	21.99	22.40	22.65	0-2	1
	25	0	21.17	21.09	20.87		2
	25	12	21.11	21.12	21.03		2
64QAM	25	25	20.99	21.12	21.17	0-2	2
	50	0	21.10	21.11	21.15		2
	1	0	21.46	21.28	20.88		0-3
	1	25	21.26	21.30	21.35	2	
	1	49	21.14	21.42	21.38	2	
	25	0	20.16	20.12	20.18	0-3	3
25	12	20.12	20.13	20.08	3		
25	25	20.02	20.11	20.19	3		
	50	0	20.12	20.14	20.15		3

**Table 9-67**  
**LTE Band 7 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	23.05	23.14	23.10	0	0
	1	12	22.96	23.13	23.04		0
	1	24	22.86	23.04	23.03		0
	12	0	22.03	22.12	22.11	0-1	1
	12	6	22.04	22.15	22.14		1
	12	13	21.95	22.14	22.08		1
16QAM	25	0	21.98	22.11	22.10	0-1	1
	1	0	22.34	22.45	22.39		1
	1	12	22.22	22.35	22.40		1
	1	24	22.20	22.35	22.41	0-2	1
	12	0	21.17	21.23	21.19		2
	12	6	21.12	21.27	21.20		2
64QAM	12	13	20.98	21.20	21.13	0-2	2
	25	0	21.11	21.22	21.14		2
	1	0	21.42	21.34	21.39		0-3
	1	12	21.25	21.26	21.36	2	
	1	24	21.17	21.41	21.34	2	
	12	0	20.22	20.20	20.25	0-3	3
12	6	20.19	20.19	20.22	3		
12	13	20.08	20.13	20.24	3		
	25	0	20.12	20.12	20.17		3

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Reduced Antenna B LTE Band 7

Table 9-68  
LTE Band 7 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	20.67	20.44	20.80	0	0	
	1	50	20.40	20.35	20.57		0	
	1	99	20.45	20.53	20.62		0	
	QPSK	50	0	20.57	20.47	20.74	0-1	0
		50	25	20.48	20.45	20.65		0
		50	50	20.52	20.44	20.57		0
		100	0	20.59	20.46	20.67		0
16QAM	1	0	20.83	20.62	20.96	0-1	0	
	1	50	20.56	20.55	20.75		0	
	1	99	20.62	20.72	20.78		0	
	16QAM	50	0	20.65	20.53	20.81	0-2	0
		50	25	20.57	20.52	20.73		0
		50	50	20.61	20.51	20.67		0
		100	0	20.67	20.54	20.75		0
64QAM	1	0	20.89	20.73	21.03	0-2	0	
	1	50	20.62	20.63	20.80		0	
	1	99	20.70	20.78	20.84		0	
	64QAM	50	0	20.19	20.10	20.36	0-3	0.5
		50	25	20.11	20.09	20.27		0.5
		50	50	20.12	20.07	20.19		0.5
		100	0	20.18	20.08	20.26		0.5

Table 9-69  
LTE Band 7 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	20.45	20.47	20.76	0	0	
	1	36	20.21	20.37	20.58		0	
	1	74	20.19	20.52	20.50		0	
	QPSK	36	0	20.35	20.46	20.65	0-1	0
		36	18	20.33	20.49	20.58		0
		36	37	20.20	20.42	20.57		0
		75	0	20.30	20.42	20.58		0
16QAM	1	0	20.50	20.61	20.90	0-1	0	
	1	36	20.39	20.51	20.69		0	
	1	74	20.40	20.69	20.75		0	
	16QAM	36	0	20.42	20.50	20.72	0-2	0
		36	18	20.39	20.49	20.65		0
		36	37	20.29	20.45	20.67		0
		75	0	20.37	20.50	20.65		0
64QAM	1	0	20.69	20.69	20.98	0-2	0	
	1	36	20.42	20.62	20.81		0	
	1	74	20.43	20.74	20.72		0	
	64QAM	36	0	20.00	20.07	20.32	0-3	0.5
		36	18	19.95	20.05	20.24		0.5
		36	37	19.86	20.00	20.24		0.5
		75	0	19.88	20.02	20.17		0.5



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**Table 9-70**  
**LTE Band 7 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	20.30	20.43	20.67	0	0
	1	25	20.25	20.39	20.61		0
	1	49	20.12	20.37	20.51		0
	25	0	20.30	20.40	20.56	0-1	0
	25	12	20.24	20.45	20.64		0
	25	25	20.19	20.43	20.59		0
16QAM	50	0	20.28	20.41	20.56	0-1	0
	1	0	20.42	20.59	20.82		0
	1	25	20.33	20.54	20.76		0
	1	49	20.38	20.58	20.70	0-2	0
	25	0	20.35	20.50	20.68		0
	25	12	20.32	20.52	20.72		0
64QAM	25	25	20.26	20.46	20.65	0-2	0
	50	0	20.32	20.48	20.61		0
	1	0	20.50	20.71	20.86		0-3
	1	25	20.59	20.63	20.83	0	
	1	49	20.42	20.65	20.84	0	
	25	0	19.91	20.08	20.23	0.5	
25	12	19.89	20.08	20.26	0.5		
25	25	19.81	20.02	20.23	0.5		
50	0	19.85	20.07	20.16	0.5		

**Table 9-71**  
**LTE Band 7 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	20.34	20.42	20.68	0	0
	1	12	20.33	20.35	20.55		0
	1	24	20.28	20.38	20.57		0
	12	0	20.37	20.41	20.60	0-1	0
	12	6	20.39	20.45	20.65		0
	12	13	20.37	20.21	20.61		0
16QAM	25	0	20.32	20.43	20.60	0-1	0
	1	0	20.59	20.55	20.77		0
	1	12	20.47	20.59	20.65		0
	1	24	20.40	20.56	20.70	0-2	0
	12	0	20.45	20.48	20.71		0
	12	6	20.46	20.52	20.72		0
64QAM	12	13	20.36	20.46	20.66	0-2	0
	25	0	20.44	20.46	20.68		0
	1	0	20.66	20.65	20.85		0-3
	1	12	20.62	20.63	20.79	0	
	1	24	20.50	20.65	20.73	0	
	12	0	20.07	20.05	20.24	0.5	
12	6	20.06	20.10	20.25	0.5		
12	13	19.90	20.08	20.21	0.5		
25	0	19.97	20.06	20.19	0.5		

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Reduced Antenna A LTE Band 7

**Table 9-72**  
**LTE Band 7 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	21.12	21.27	21.48	0	0	
	1	50	21.02	21.11	21.37		0	
	1	99	20.91	21.16	21.49		0	
	16QAM	50	0	21.15	21.29	21.39	0-1	0
		50	25	21.07	21.16	21.46		0
		50	50	21.02	21.06	21.38		0
		100	0	21.06	21.12	21.43		0
64QAM	1	0	21.40	21.47	21.46	0-1	0	
	1	50	21.28	21.37	21.41		0	
	1	99	21.22	21.29	21.50		0	
	16QAM	50	0	21.23	21.38	21.45	0-2	0
		50	25	21.12	21.28	21.34		0
		50	50	21.07	21.16	21.46		0
		100	0	21.11	21.24	21.49		0
64QAM	1	0	21.49	21.48	21.48	0-2	0	
	1	50	21.32	21.46	21.39		0	
	1	99	21.19	21.41	21.49		0	
	16QAM	50	0	20.74	20.98	20.94	0-3	0.5
		50	25	20.67	20.88	20.35		0.5
		50	50	20.62	20.75	20.60		0.5
		100	0	20.64	20.74	20.85		0.5

**Table 9-73**  
**LTE Band 7 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	21.30	21.05	21.40	0	0	
	1	36	21.02	21.11	21.18		0	
	1	74	20.74	21.15	21.16		0	
	16QAM	36	0	21.18	21.12	21.26	0-1	0
		36	18	21.07	21.11	21.25		0
		36	37	20.83	21.11	21.15		0
		75	0	21.02	21.09	21.23		0
64QAM	1	0	21.27	21.40	21.50	0-1	0	
	1	36	21.30	21.36	21.44		0	
	1	74	21.07	21.47	21.47		0	
	16QAM	36	0	21.20	21.11	21.12	0-2	0
		36	18	21.06	21.14	20.88		0
		36	37	20.89	21.12	21.11		0
		75	0	20.98	21.10	21.22		0
64QAM	1	0	21.46	21.45	21.45	0-2	0	
	1	36	21.29	21.43	21.36		0	
	1	74	21.16	21.38	21.46		0	
	16QAM	36	0	20.71	20.95	20.91	0-3	0.5
		36	18	20.64	20.85	20.32		0.5
		36	37	20.59	20.73	20.57		0.5
		75	0	20.61	20.71	20.82		0.5



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**Table 9-74**  
**LTE Band 7 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	21.27	21.11	21.31	0	0
	1	25	20.98	21.10	21.28		0
	1	49	20.86	21.16	21.17		0
	25	0	21.14	21.10	21.26	0-1	0
	25	12	21.13	21.15	21.24		0
	25	25	20.97	21.07	21.24		0
16QAM	50	0	21.06	21.08	21.21	0-1	0
	1	0	21.50	21.40	21.50		0
	1	25	21.30	21.38	21.49		0
	1	49	21.10	21.46	21.50	0-2	0
	25	0	21.13	21.10	20.90		0
	25	12	21.14	21.10	21.08		0
64QAM	25	25	20.97	21.08	21.20	0-2	0
	50	0	21.11	21.07	21.16		0
	1	0	21.47	21.46	21.46		0-3
	1	25	21.30	21.44	21.37	0	
	1	49	21.17	21.39	21.47	0	
	25	0	20.72	20.96	20.92	0.5	
25	12	20.65	20.86	20.33	0.5		
25	25	20.60	20.73	20.58	0.5		
50	0	20.62	20.72	20.83	0.5		

**Table 9-75**  
**LTE Band 7 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	21.16	21.09	21.28	0	0
	1	12	21.07	21.10	21.29		0
	1	24	20.92	21.05	21.23		0
	12	0	21.19	21.11	21.29	0-1	0
	12	6	21.14	21.15	21.32		0
	12	13	21.02	21.11	21.26		0
16QAM	25	0	21.10	21.07	21.26	0-1	0
	1	0	21.50	21.39	21.49		0
	1	12	21.34	21.45	21.50		0
	1	24	21.30	21.30	21.47	0-2	0
	12	0	21.17	21.10	21.26		0
	12	6	21.16	21.17	21.28		0
64QAM	12	13	21.02	21.09	21.23	0-2	0
	25	0	21.09	21.10	21.24		0
	1	0	21.46	21.47	21.44		0-3
	1	12	21.29	21.44	21.35	0	
	1	24	21.16	21.40	21.45	0	
	12	0	20.71	20.97	20.90	0.5	
12	6	20.64	21.00	20.31	0.5		
12	13	20.59	20.74	20.56	0.5		
25	0	20.61	20.73	20.81	0.5		

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Maximum PC3 LTE Band 41

Table 9-76  
LTE Band 41 Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	23.75	24.01	23.87	23.62	23.91	0	0
	1	50	23.63	23.84	23.53	23.53	23.78		0
	1	99	23.64	23.77	23.42	23.52	23.74		0
	50	0	22.73	23.04	22.81	22.55	22.85	0-1	1
	50	25	22.73	22.97	22.69	22.58	22.81		1
	50	50	22.68	22.93	22.53	22.54	22.75		1
16QAM	100	0	22.72	22.98	22.68	22.51	22.79	0-1	1
	1	0	23.04	23.28	23.24	22.82	23.20		1
	1	50	22.83	23.19	22.85	22.75	23.04		1
	1	99	22.92	23.16	22.74	22.76	23.02	0-2	1
	50	0	21.83	22.12	21.96	21.61	21.94		2
	50	25	21.79	22.05	21.80	21.69	21.90		2
64QAM	50	50	21.75	22.00	21.66	21.62	21.84	0-2	2
	100	0	21.81	22.06	21.83	21.58	21.88		2
	1	0	21.61	21.95	21.83	21.45	21.84		0-3
	1	50	21.49	21.83	21.51	21.39	21.68	2	
	1	99	21.56	21.76	21.38	21.38	21.66	2	
	50	0	20.80	21.19	20.95	20.69	21.01	3	
50	25	20.78	21.13	20.80	20.71	20.97	3		
50	50	20.60	21.07	20.68	20.66	20.92	3		
100	0	20.79	21.14	20.81	20.63	20.95	3		

Table 9-77  
LTE Band 41 Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth										
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)			
			Conducted Power [dBm]							
QPSK	1	0	23.75	24.08	23.92	23.80	24.05	0	0	
	1	36	23.64	23.86	23.61	23.60	23.85		0	
	1	74	23.63	23.75	23.51	23.52	23.79		0	
	36	0	22.70	22.99	22.88	22.73	22.98	0-1	1	
	36	18	22.69	22.89	22.75	22.66	22.95		1	
	36	37	22.69	22.83	22.65	22.59	22.87		1	
16QAM	75	0	22.67	22.88	22.75	22.66	22.92	0-1	1	
	1	0	22.98	23.38	23.22	23.05	23.32		0-2	1
	1	36	22.88	23.06	22.91	22.83	23.08			1
	1	74	22.91	22.95	22.80	22.74	22.97	0-2		1
	36	0	21.77	22.05	21.92	21.79	22.06		2	
	36	18	21.78	21.96	21.87	21.76	22.00		2	
64QAM	36	37	21.72	21.88	21.67	21.67	21.91	0-2	2	
	75	0	21.77	21.97	21.85	21.75	22.01		2	
	1	0	21.49	21.86	21.70	21.56	21.81		0-3	2
	1	36	21.40	21.59	21.41	21.36	21.62	2		
	1	74	21.40	21.53	21.30	21.28	21.50	2		
	36	0	20.76	21.02	20.98	20.84	21.06	3		
36	18	20.77	21.01	20.81	20.77	21.02	3			
36	37	20.73	20.90	20.74	20.68	20.96	3			
75	0	20.77	21.01	20.86	20.79	21.01	3			



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**Table 9-78**  
**LTE Band 41 Conducted Powers - 10 MHz Bandwidth**

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	23.67	23.95	23.82	23.69	23.93	0	0
	1	25	23.66	23.85	23.66	23.57	23.85		0
	1	49	23.61	23.79	23.61	23.52	23.79		0
	25	0	22.67	22.86	22.81	22.64	22.91	0-1	1
	25	12	22.71	22.86	22.78	22.64	22.87		1
	25	25	22.64	22.77	22.66	22.56	22.82		1
16QAM	50	0	22.66	22.87	22.74	22.65	22.89	0-1	1
	1	0	22.95	23.25	23.10	22.97	23.26		1
	1	25	22.87	23.13	22.91	22.81	23.05		1
	1	49	22.93	22.95	22.86	22.75	23.06	0-2	1
	25	0	21.73	21.91	21.84	21.72	21.95		2
	25	12	21.69	21.88	21.78	21.72	21.95		2
64QAM	25	25	21.67	21.82	21.72	21.63	21.92	0-2	2
	50	0	21.76	21.94	21.83	21.74	21.99		2
	1	0	21.44	21.76	21.63	21.50	21.73		2
	1	25	21.43	21.63	21.45	21.37	21.59	0-3	2
	1	49	21.38	21.48	21.40	21.29	21.51		2
	25	0	20.80	21.01	20.96	20.83	21.08		3
25	12	20.80	21.01	20.86	20.81	21.02	3		
25	25	20.74	20.94	20.82	20.76	21.00	3		
50	0	20.77	20.96	20.89	20.77	20.99	3		

**Table 9-79**  
**LTE Band 41 Conducted Powers - 5 MHz Bandwidth**

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	23.62	23.84	23.71	23.62	23.83	0	0
	1	12	23.64	23.79	23.65	23.59	23.82		0
	1	24	23.58	23.75	23.54	23.50	23.74		0
	12	0	22.62	22.91	22.79	22.61	22.86	0-1	1
	12	6	22.66	22.87	22.79	22.66	22.87		1
	12	13	22.62	22.84	22.71	22.59	22.84		1
16QAM	25	0	22.63	22.85	22.76	22.58	22.86	0-1	1
	1	0	22.88	23.20	22.99	22.85	23.06		1
	1	12	22.87	23.13	22.96	22.80	23.04		1
	1	24	22.84	22.98	22.81	22.72	22.95	0-2	1
	12	0	21.70	21.90	21.85	21.69	21.95		2
	12	6	21.73	21.93	21.86	21.67	21.94		2
64QAM	12	13	21.70	21.90	21.72	21.63	21.87	0-2	2
	25	0	21.69	21.86	21.79	21.64	21.88		2
	1	0	21.40	21.67	21.47	21.37	21.57		2
	1	12	21.38	21.62	21.43	21.33	21.56	0-3	2
	1	24	21.37	21.53	21.36	21.26	21.53		2
	12	0	20.79	20.99	20.96	20.80	20.97		3
12	6	20.79	21.04	20.87	20.75	21.01	3		
12	13	20.78	20.93	20.82	20.69	20.99	3		
25	0	20.80	21.00	20.92	20.75	20.97	3		

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Maximum PC2 LTE Band 41

Table 9-80  
LTE Band 41 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	26.79	26.96	26.95	26.66	26.93	0	0
	1	50	26.68	26.94	26.67	26.58	26.81		0
	1	99	26.70	26.86	26.55	26.56	26.74		0
	50	0	25.77	26.11	25.89	25.61	25.93	0-1	1
	50	25	25.74	26.05	25.76	25.68	25.91		1
	50	50	25.71	25.96	25.63	25.63	25.84		1
16QAM	100	0	25.79	26.07	25.79	25.56	25.91	0-1	1
	1	0	26.30	26.50	26.49	26.16	26.47		1
	1	50	26.15	26.44	26.15	26.06	26.32		1
	1	99	26.19	26.37	26.06	26.03	26.25	0-2	1
	50	0	24.87	25.16	24.98	24.70	24.99		2
	50	25	24.86	25.10	24.83	24.78	24.95		2
64QAM	50	50	24.80	25.03	24.70	24.69	24.91	0-2	2
	100	0	24.85	25.10	24.85	24.67	24.97		2
	1	0	24.96	25.19	25.18	24.84	25.09		0-3
	1	50	24.84	25.12	24.82	24.76	24.97	2	
	1	99	24.84	25.07	24.75	24.71	24.93	2	
	50	0	23.85	24.18	23.99	23.72	24.01	3	
50	25	23.86	24.13	23.86	23.77	24.00	3		
50	50	23.81	24.06	23.73	23.73	23.92	3		
100	0	23.83	24.12	23.86	23.65	23.95	3		

Table 9-81  
LTE Band 41 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	26.57	27.06	26.97	26.66	26.85	0	0	
	1	36	26.53	26.88	26.72	26.49	26.70		0	
	1	74	26.55	26.79	26.58	26.36	26.68		0	
	36	0	25.53	26.05	25.86	25.60	25.87	0-1	1	
	36	18	25.53	26.03	25.71	25.52	25.83		1	
	36	37	25.50	25.90	25.60	25.44	25.77		1	
16QAM	75	0	25.54	25.94	25.72	25.50	25.80	0-1	1	
	1	0	26.10	26.50	26.50	26.16	26.39		0-1	1
	1	36	25.96	26.40	26.15	25.96	26.27			1
	1	74	26.00	26.32	26.04	25.86	26.17	0-2		1
	36	0	24.60	25.09	24.94	24.69	24.90		2	
	36	18	24.64	25.02	24.87	24.63	24.87		2	
64QAM	36	37	24.59	24.99	24.71	24.55	24.84	0-2	2	
	75	0	24.61	25.01	24.82	24.62	24.88		2	
	1	0	24.65	25.18	25.10	24.76	25.02		0-3	2
	1	36	24.59	25.01	24.77	24.57	24.88	2		
	1	74	24.62	24.93	24.68	24.50	24.78	2		
	36	0	23.64	24.07	24.00	23.68	23.94	3		
36	18	23.64	24.10	23.86	23.64	23.94	3			
36	37	23.62	23.99	23.70	23.57	23.83	3			
75	0	23.64	24.06	23.85	23.63	23.93	3			



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**Table 9-82  
LTE Band 41 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	26.53	27.00	26.85	26.52	26.86	0	0
	1	25	26.51	26.89	26.66	26.44	26.74		0
	1	49	26.50	26.76	26.56	26.36	26.71		0
	25	0	25.54	26.01	25.82	25.55	25.87	0-1	1
	25	12	25.56	25.98	25.76	25.52	25.81		1
	25	25	25.47	25.90	25.61	25.48	25.78		1
16QAM	50	0	25.54	25.96	25.76	25.52	25.82	0-1	1
	1	0	26.03	26.50	26.40	26.08	26.38		1
	1	25	26.01	26.41	26.19	25.97	26.28		1
	1	49	26.00	26.32	26.14	25.88	26.26	0-2	1
	25	0	24.59	25.03	24.88	24.61	24.88		2
	25	12	24.57	24.99	24.82	24.59	24.83		2
64QAM	25	25	24.54	24.95	24.73	24.53	24.80	0-2	2
	50	0	24.63	25.07	24.85	24.64	24.94		2
	1	0	24.64	25.11	25.00	24.68	24.99		2
	1	25	24.60	25.03	24.81	24.59	24.88	0-3	2
	1	49	24.60	24.88	24.76	24.50	24.86		2
	25	0	23.68	24.14	24.03	23.76	24.05		3
64QAM	25	12	23.70	24.16	23.95	23.73	23.97	0-3	3
	25	25	23.68	24.08	23.82	23.67	23.92		3
	50	0	23.64	24.08	23.85	23.63	23.94		3

**Table 9-83  
LTE Band 41 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	26.43	26.89	26.72	26.55	26.73	0	0
	1	12	26.44	26.79	26.66	26.52	26.74		0
	1	24	26.41	26.81	26.55	26.44	26.70		0
	12	0	25.49	25.92	25.72	25.53	25.75	0-1	1
	12	6	25.51	25.95	25.75	25.51	25.79		1
	12	13	25.46	25.87	25.62	25.43	25.77		1
16QAM	25	0	25.48	25.90	25.71	25.50	25.76	0-1	1
	1	0	25.98	26.43	26.28	26.00	26.27		1
	1	12	25.97	26.40	26.21	25.99	26.30		1
	1	24	25.94	26.35	26.08	25.89	26.22	0-2	1
	12	0	24.58	25.05	24.84	24.63	24.92		2
	12	6	24.60	25.01	24.81	24.62	24.90		2
64QAM	12	13	24.55	24.97	24.76	24.53	24.89	0-2	2
	25	0	24.54	24.92	24.75	24.54	24.84		2
	1	0	24.57	25.01	24.89	24.61	24.89		2
	1	12	24.58	25.05	24.79	24.59	24.90	0-3	2
	1	24	24.56	24.96	24.70	24.53	24.84		2
	12	0	23.74	24.13	23.97	23.69	23.95		3
64QAM	12	6	23.66	24.09	23.93	23.67	23.98	0-3	3
	12	13	23.66	24.04	23.86	23.66	23.97		3
	25	0	23.65	24.06	23.89	23.66	23.95		3

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Reduced PC3 LTE Band 41

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

LTE Band 41 20 MHz Bandwidth										
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)			
			Conducted Power [dBm]							
QPSK	1	0	23.38	23.50	23.49	22.69	22.83	0	0	
	1	50	23.27	23.36	23.22	22.51	22.70		0	
	1	99	23.31	23.41	23.15	22.46	22.68		0	
	50	0	22.37	22.47	22.42	21.63	21.78	0-1	1	
	50	25	22.35	22.50	22.33	21.59	21.75		1	
	50	50	22.33	22.44	22.24	21.53	21.68		1	
100	0	22.38	22.49	22.35	21.60	21.73	0-1	1		
16QAM	1	0	22.46	22.50	22.50	21.97		22.09	1	
	1	50	22.42	22.44	22.41	21.78		21.93	1	
	1	99	22.44	22.47	22.36	21.71		21.91	1	
	50	0	21.46	21.49	21.49	20.68		20.83	0-2	2
	50	25	21.47	21.50	21.44	20.62		20.79		2
	50	50	21.43	21.46	21.34	20.60	20.76	2		
100	0	21.49	21.50	21.41	20.69	20.81	0-2	2		
64QAM	1	0	21.16	21.34	21.30	20.55		20.65	2	
	1	50	21.05	21.13	21.04	20.36		20.53	2	
	1	99	21.11	21.15	20.97	20.32		20.51	2	
	50	0	20.47	20.47	20.47	19.71		19.85	0-3	3
	50	25	20.48	20.50	20.43	19.67		19.84		3
	50	50	20.44	20.48	20.38	19.62	19.79	3		
100	0	20.41	20.50	20.46	19.69	19.80	3			

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

LTE Band 41 15 MHz Bandwidth										
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)			
			Conducted Power [dBm]							
QPSK	1	0	23.45	23.50	23.18	22.67	22.89	0	0	
	1	36	23.38	23.39	23.00	22.55	22.79		0	
	1	74	23.37	23.33	22.81	22.54	22.74		0	
	36	0	22.36	22.50	22.17	21.72	21.85	0-1	1	
	36	18	22.40	22.49	22.11	21.69	21.77		1	
	36	37	22.33	22.45	22.02	21.63	21.68		1	
75	0	22.36	22.46	22.05	21.63	21.70	0-1	1		
16QAM	1	0	22.50	22.50	22.50	22.00		22.09	1	
	1	36	22.49	22.49	22.31	21.88		21.99	1	
	1	74	22.48	22.48	22.18	21.85		21.96	1	
	36	0	21.44	21.50	21.22	20.78		20.81	0-2	2
	36	18	21.45	21.49	21.16	20.71		20.81		2
	36	37	21.45	21.50	21.05	20.71	20.75	2		
75	0	21.45	21.49	21.14	20.73	20.81	0-2	2		
64QAM	1	0	21.27	21.38	21.10	20.59		20.66	2	
	1	36	21.20	21.28	20.92	20.49		20.57	2	
	1	74	21.19	21.23	20.77	20.43		20.55	2	
	36	0	20.44	20.50	20.25	19.80		19.85	0-3	3
	36	18	20.45	20.49	20.19	19.76		19.84		3
	36	37	20.46	20.46	20.10	19.68	19.78	3		
75	0	20.43	20.47	20.18	19.76	19.84	3			



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

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	23.25	23.44	23.10	22.58	22.73	0	0
	1	25	23.25	23.37	22.99	22.52	22.68		0
	1	49	23.22	23.34	22.90	22.46	22.68		0
	25	0	22.24	22.41	22.11	21.50	21.72	0-1	1
	25	12	22.28	22.38	22.10	21.55	21.69		1
	25	25	22.22	22.34	21.99	21.51	21.62		1
16QAM	50	0	22.26	22.36	22.06	21.52	21.70	0-1	1
	1	0	22.50	22.50	22.44	21.83	22.02		1
	1	25	22.49	22.49	22.33	21.80	21.95		1
	1	49	22.47	22.48	22.20	21.76	21.96	0-2	1
	25	0	21.27	21.41	21.12	20.55	20.69		2
	25	12	21.31	21.43	21.10	20.55	20.68		2
64QAM	25	25	21.25	21.35	21.04	20.49	20.71	0-2	2
	50	0	21.32	21.47	21.15	20.63	20.80		2
	1	0	21.12	21.29	21.04	20.42	20.60		2
	1	25	21.11	21.23	20.95	20.37	20.52	0-3	2
	1	49	21.08	21.14	20.80	20.33	20.52		2
	25	0	20.39	20.50	20.22	19.69	19.83		3
64QAM	25	12	20.38	20.50	20.19	19.65	19.85	0-3	3
	25	25	20.35	20.43	20.16	19.63	19.82		3
	50	0	20.34	20.46	20.15	19.63	19.79		3

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

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	23.22	23.37	22.98	22.55	22.61	0	0
	1	12	23.23	23.36	23.03	22.52	22.62		0
	1	24	23.18	23.26	22.94	22.45	22.54		0
	12	0	22.23	22.36	22.01	21.51	21.65	0-1	1
	12	6	22.22	22.36	22.05	21.51	21.68		1
	12	13	22.20	22.28	21.98	21.47	21.61		1
16QAM	25	0	22.20	22.35	22.00	21.50	21.63	0-1	1
	1	0	22.50	22.50	22.37	21.81	21.96		1
	1	12	22.49	22.49	22.28	21.77	21.91		1
	1	24	22.45	22.48	22.21	21.75	21.89	0-2	1
	12	0	21.28	21.39	21.11	20.59	20.72		2
	12	6	21.30	21.40	21.09	20.60	20.70		2
64QAM	12	13	21.27	21.35	21.05	20.52	20.68	0-2	2
	25	0	21.23	21.36	21.06	20.52	20.69		2
	1	0	21.06	21.17	20.90	20.35	20.52		2
	1	12	21.07	21.19	20.89	20.36	20.52	0-3	2
	1	24	21.07	21.17	20.84	20.32	20.50		2
	12	0	20.35	20.41	20.15	19.62	19.73		3
64QAM	12	6	20.37	20.44	20.14	19.65	19.79	0-3	3
	12	13	20.32	20.41	20.13	19.60	19.70		3
	25	0	20.35	20.44	20.14	19.64	19.77		3

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

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	23.30	23.49	23.48	23.13	23.36	0	0
	1	50	23.21	23.44	23.06	22.87	23.18		0
	1	99	23.27	23.30	22.83	22.83	23.12		0
	50	0	23.32	23.50	23.34	23.10	23.33	0-1	0
	50	25	23.35	23.48	23.16	23.03	23.26		0
	50	50	23.31	23.46	23.02	22.93	23.20		0
16QAM	100	0	23.37	23.48	23.19	23.05	23.29	0-1	0
	1	0	23.50	23.50	23.50	23.48	23.49		0
	1	50	23.49	23.47	23.43	23.24	23.46		0
	1	99	23.50	23.45	23.19	23.14	23.45	0-2	0
	50	0	23.48	23.42	23.41	23.19	23.42		0
	50	25	23.44	23.43	23.29	23.13	23.33		0
64QAM	50	50	23.43	23.32	23.09	23.05	23.28	0-2	0
	100	0	23.47	23.40	23.30	23.16	23.37		0
	1	0	23.46	23.41	23.50	23.24	23.44		0-3
	1	50	23.34	23.33	23.12	23.02	23.27	0	
	1	99	23.40	23.27	22.89	22.97	23.22	0	
	50	0	23.47	23.50	23.41	23.18	23.42	0	
50	25	23.44	23.43	23.24	23.12	23.38	0		
50	50	23.42	23.37	23.08	23.03	23.31	0		
100	0	23.43	23.49	23.26	23.13	23.36	0		

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

LTE Band 41 15 MHz Bandwidth										
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]	
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)			
			Conducted Power [dBm]							
QPSK	1	0	23.12	23.45	23.27	22.93	23.11	0	0	
	1	36	23.03	23.28	22.94	22.70	22.99		0	
	1	74	23.01	23.17	22.70	22.67	22.93		0	
	36	0	23.08	23.43	23.23	22.87	23.07	0-1	0	
	36	18	23.08	23.40	23.11	22.86	23.03		0	
	36	37	23.04	23.32	22.91	22.74	22.99		0	
16QAM	75	0	23.03	23.35	23.03	22.80	23.00	0-1	0	
	1	0	23.50	23.50	23.50	23.35	23.50		0-1	0
	1	36	23.39	23.49	23.40	23.16	23.39			0
	1	74	23.46	23.50	23.20	23.05	23.29	0-2		0
	36	0	23.17	23.50	23.23	22.96	23.15		0	
	36	18	23.15	23.47	23.11	22.89	23.12		0	
64QAM	36	37	23.10	23.42	22.91	22.79	23.07	0-2	0	
	75	0	23.14	23.48	23.05	22.89	23.11		0	
	1	0	23.22	23.50	23.41	23.04	23.22		0-3	0
	1	36	23.11	23.44	23.00	22.85	23.09	0		
	1	74	23.12	23.34	22.74	22.77	23.02	0		
	36	0	23.16	23.50	23.25	22.96	23.17	0-3	0	
36	18	23.15	23.49	23.12	22.92	23.15	0			
36	37	23.16	23.42	22.98	22.80	23.09	0			
75	0	23.19	23.50	23.10	22.92	23.17	0			



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

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	23.02	23.39	23.20	22.80	23.08	0	0
	1	25	22.96	23.30	23.00	22.70	22.98		0
	1	49	22.91	23.18	22.80	22.59	22.93		0
	25	0	23.03	23.41	23.15	22.83	23.07	0-1	0
	25	12	23.06	23.37	23.01	22.80	22.99		0
	25	25	22.98	23.33	22.94	22.71	22.94		0
16QAM	50	0	23.06	23.39	23.02	22.80	23.00	0-1	0
	1	0	23.50	23.50	23.50	23.26	23.42		0
	1	25	23.50	23.49	23.41	23.10	23.35		0
	1	49	23.48	23.45	23.27	23.01	23.33	0-2	0
	25	0	23.10	23.50	23.11	22.81	23.04		0
	25	12	23.10	23.49	23.05	22.79	23.05		0
64QAM	25	25	23.06	23.44	22.92	22.75	23.00	0-2	0
	50	0	23.17	23.49	23.10	22.86	23.11		0
	1	0	23.17	23.50	23.27	22.93	23.15		0
	1	25	23.11	23.45	23.01	22.83	23.03	0-3	0
	1	49	23.10	23.37	22.84	22.75	23.00		0
	25	0	23.24	23.50	23.28	22.99	23.22		0
64QAM	25	12	23.24	23.49	23.19	22.98	23.17	0-3	0
	25	25	23.21	23.48	23.08	22.85	23.14		0
	50	0	23.18	23.50	23.12	22.87	23.09		0

**Table 9-91**  
**LTE Band 41 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	22.98	23.29	23.03	22.76	22.99	0	0
	1	12	23.02	23.26	22.95	22.71	22.98		0
	1	24	22.97	23.20	22.83	22.65	22.89		0
	12	0	23.01	23.30	23.02	22.77	22.95	0-1	0
	12	6	23.03	23.33	23.05	22.79	22.97		0
	12	13	22.98	23.30	22.92	22.77	22.93		0
16QAM	25	0	23.01	23.32	23.01	22.78	22.96	0-1	0
	1	0	23.49	23.50	23.46	23.16	23.36		0
	1	12	23.49	23.49	23.41	23.15	23.36		0
	1	24	23.48	23.48	23.31	23.09	23.31	0-2	0
	12	0	23.10	23.49	23.13	22.86	23.05		0
	12	6	23.12	23.50	23.09	22.89	23.09		0
64QAM	12	13	23.08	23.40	23.02	22.81	23.07	0-2	0
	25	0	23.05	23.40	23.03	22.80	22.99		0
	1	0	23.09	23.47	23.10	22.86	23.06		0
	1	12	23.08	23.44	23.00	22.86	23.07	0-3	0
	1	24	23.07	23.41	22.93	22.80	23.03		0
	12	0	23.20	23.50	23.18	22.94	23.13		0
64QAM	12	6	23.22	23.49	23.19	22.97	23.16	0-3	0
	12	13	23.18	23.48	23.06	22.90	23.10		0
	25	0	23.19	23.50	23.15	22.93	23.14		0

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## 9.4.23 LTE Band 71 Carrier Aggregation Conducted Powers

Table 9-92

LTE Band 71 Three Component Carrier Conducted Powers

Combination	PCC Band	PCC								SCC 1				SCC 2				Power	
		PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 2A-2A-71A	LTE B71	20	133297	680.5	QPSK	1	0	68761	634.5	LTE B2	20	900	1960	LTE B2	20	700	1940	24.67	24.61
CA 2A-4A-71A	LTE B71	20	133297	680.5	QPSK	1	0	68761	634.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	24.91	24.81
CA 2A-6A-71A	LTE B71	20	133297	680.5	QPSK	1	0	68761	634.5	LTE B2	20	900	1960	LTE B66	20	66786	2145	24.92	24.81
CA 4A-4A-71A	LTE B71	20	133297	680.5	QPSK	1	0	68761	634.5	LTE B4	20	2175	2132.5	LTE B4	10	2350	2150	24.97	24.81
CA 6A-71A	LTE B71	20	133297	680.5	QPSK	1	0	68761	634.5	LTE B66	20	66786	2145	LTE B66	20	66984	2164.8	24.91	24.81
CA 6A-6A-71A	LTE B71	20	133297	680.5	QPSK	1	0	68761	634.5	LTE B66	20	66786	2145	LTE B66	20	67236	2190	24.95	24.81

## 9.4.24 LTE Band 12 Carrier Aggregation Conducted Powers

Table 9-93

LTE Band 12 Two Component Carrier Conducted Powers

Combination	PCC Band	PCC								SCC				Power	
		PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 12A-25A	LTE B12	5	23035	701.5	QPSK	1	0	5035	731.5	LTE B25	20	8365	1962.5	24.80	24.67

Table 9-94

LTE Band 12 Three Component Carrier Conducted Powers

Combination	PCC Band	PCC								SCC 1				SCC 2				Power	
		PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 2A-2A-12A	LTE B12	5	23035	701.5	QPSK	1	0	5035	731.5	LTE B2	20	900	1960	LTE B2	20	700	1940	24.45	24.67
CA 2A-4A-12A	LTE B12	5	23035	701.5	QPSK	1	0	5035	731.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	24.49	24.67
CA 2A-7A-12A	LTE B12	5	23035	701.5	QPSK	1	0	5035	731.5	LTE B2	20	900	1960	LTE B7	20	3100	2655	24.48	24.67
CA 2A-12B	LTE B12	5	23035	701.5	QPSK	1	0	5035	731.5	LTE B12	10	5107	738.7	LTE B2	20	900	1960	24.69	24.67
CA 2A-12A-30A	LTE B12	5	23035	701.5	QPSK	1	0	5035	731.5	LTE B2	20	900	1960	LTE B30	10	9820	2355	24.47	24.67
CA 2A-12A-66A	LTE B12	5	23035	701.5	QPSK	1	0	5035	731.5	LTE B2	20	900	1960	LTE B66	20	66786	2145	24.49	24.67
CA 4A-4A-12A	LTE B12	5	23035	701.5	QPSK	1	0	5035	731.5	LTE B4	20	2175	2132.5	LTE B4	10	2350	2150	24.48	24.67
CA 4A-12B	LTE B12	5	23035	701.5	QPSK	1	0	5035	731.5	LTE B12	10	5107	738.7	LTE B4	20	2175	2132.5	24.71	24.67
CA 12A-66C	LTE B12	5	23035	701.5	QPSK	1	0	5035	731.5	LTE B66	20	66786	2145	LTE B66	20	66984	2164.8	24.65	24.67
CA 12A-6A-66A	LTE B12	5	23035	701.5	QPSK	1	0	5035	731.5	LTE B66	20	66786	2145	LTE B66	20	67236	2190	24.58	24.67

## 9.4.25 LTE Band 17 Carrier Aggregation Conducted Powers

Table 9-95

LTE Band 17 Two Component Carrier Conducted Powers

Combination	PCC Band	PCC								SCC				Power	
		PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 2A-17A	LTE B17	5	23755	706.5	QPSK	1	0	5755	736.5	LTE B2	10	900	1960	24.48	24.67

## 9.4.26 LTE Band 13 Carrier Aggregation Conducted Powers

Table 9-96



LTE Band 13 Three Component Carrier Conducted Powers

Combination	PCC Band	PCC								SCC 1				SCC 2				Power	
		PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 2A-4A-13A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	24.55	24.58
CA 4A-4A-13A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B4	20	2175	2132.5	LTE B4	10	2350	2150	24.53	24.58

Table 9-97

LTE Band 13 Four Component Carrier Conducted Powers

Combination	PCC Band	PCC								SCC 1				SCC 2				SCC 3				Power	
		PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 2A-2A-13A-66A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B66	20	66786	2145	24.48	24.58
CA 2A-13A-66B	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B66	15	66786	2145	LTE B66	5	66879	2154.3	24.61	24.58
CA 2A-13A-66C	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B66	20	66786	2145	LTE B66	20	66984	2164.8	24.61	24.58
CA 2A-13A-66A-66A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B2	20	900	1960	LTE B66	20	66786	2145	LTE B66	20	67236	2190	24.60	24.58

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## 9.4.27 LTE Band 26 Carrier Aggregation Conducted Powers

**Table 9-98**  
**LTE Band 26 Two Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC						SCC				Power		
			PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_26A-41A	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	LTE B41	20	40620	2593	24.38	24.54

**Table 9-99**  
**LTE Band 26 Three Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC						SCC 1			SCC 2			Power				
			PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_25A-25A-26A	LTE B26	3	27025	847.5	QPSK	1	7	9025	892.5	LTE B25	20	8365	1962.5	LTE B25	20	8590	1985	24.06	24.61
CA_26A-41C	LTE B26	5	27015	846.5	QPSK	1	12	9015	891.5	LTE B41	20	40620	2593	LTE B41	20	40422	2573.2	24.57	24.54

## 9.4.28 LTE Band 5 Carrier Aggregation Conducted Powers

**Table 9-100**  
**LTE Band 5 Two Component Carrier Conducted Powers**



Combination	PCC Band	PCC Bandwidth [MHz]	PCC						SCC				Power		
			PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_5A-25A	LTE B5	5	20525	836.5	QPSK	1	0	2525	881.5	LTE B25	20	8365	1962.5	24.32	24.33

**Table 9-101**  
**LTE Band 5 Four Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC						SCC 1			SCC 2			SCC 3			Power					
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_2A-2A-4A-5A	LTE B5	5	20525	836.5	QPSK	1	0	2525	881.5	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B4	20	2175	2132.5	24.43	24.33
CA_2A-2A-5A-30A	LTE B5	5	20525	836.5	QPSK	1	0	2525	881.5	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B30	10	9820	2355	24.44	24.33
CA_2A-2A-5A-66A	LTE B5	5	20525	836.5	QPSK	1	0	2525	881.5	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B66	20	66786	2145	24.45	24.33
CA_2A-4A-4A-5A	LTE B5	5	20525	836.5	QPSK	1	0	2525	881.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B4	10	2350	2150	24.42	24.33
CA_2A-4A-5A-30A	LTE B5	5	20525	836.5	QPSK	1	0	2525	881.5	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B30	10	9820	2355	24.41	24.33
CA_2A-5A-30A-66A	LTE B5	5	20525	836.5	QPSK	1	0	2525	881.5	LTE B2	20	900	1960	LTE B30	10	9820	2355	LTE B66	20	66786	2145	24.43	24.33
CA_2A-5A-66A	LTE B5	5	20525	836.5	QPSK	1	0	2525	881.5	LTE B2	20	900	1960	LTE B66	15	66786	2145	LTE B66	5	66879	2154.3	24.41	24.33
CA_2A-5A-66C	LTE B5	5	20525	836.5	QPSK	1	0	2525	881.5	LTE B2	20	900	1960	LTE B66	20	66786	2145	LTE B66	20	66984	2164.8	24.46	24.33
CA_2A-5A-66A-66A	LTE B5	5	20525	836.5	QPSK	1	0	2525	881.5	LTE B2	20	900	1960	LTE B66	20	66786	2145	LTE B66	20	67286	2190	24.43	24.33
CA_5A-30A-66A-66A	LTE B5	5	20525	836.5	QPSK	1	0	2525	881.5	LTE B30	10	9820	2355	LTE B66	20	66786	2145	LTE B66	20	67236	2190	24.40	24.33

**Table 9-102**  
**LTE Band 5 Five Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC						SCC 1			SCC 2			SCC 3			SCC 4			Power						
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_2A-5A-30A-66A	LTE B5	5	20525	836.5	QPSK	1	0	2525	881.5	LTE B5	10	2451	874.3	LTE B2	20	900	1960	LTE B30	10	9820	2355	LTE B66	20	66786	2145	24.38	24.33
CA_2A-5A-66A-66A	LTE B5	5	20525	836.5	QPSK	1	0	2525	881.5	LTE B5	10	2451	874.3	LTE B2	20	900	1960	LTE B66	20	66786	2145	LTE B66	20	67236	2190	24.37	24.33
CA_5A-30A-66A-66A	LTE B5	5	20525	836.5	QPSK	1	0	2525	881.5	LTE B5	10	2451	874.3	LTE B30	10	9820	2355	LTE B66	20	66786	2145	LTE B66	20	67236	2190	24.42	24.33

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## 9.4.29 LTE Band 66 Maximum Carrier Aggregation Conducted Powers

### Table 9-103 LTE Band 66 Three Component Carrier Conducted Powers

Combination	PCC Band	PCC Bandwidth [MHz]	PCC			SCC 1			SCC 2			Power							
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)		
CA 2C-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B2	20	900	1960	LTE B2	20	702	1940.2	24.33	24.38
CA 2A-12A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B2	20	900	1960	LTE B12	10	5095	737.5	24.25	24.38
CA 2A-66A-71A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B2	20	900	1960	LTE B71	20	68761	634.5	24.21	24.38
CA 12A-66C	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66890	2155.4	LTE B12	10	5095	737.5	24.22	24.38
CA 12A-66A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66536	2120	LTE B12	10	5095	737.5	24.21	24.38
CA 29A-30A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B29	10	9715	722.5	LTE B30	10	9820	2355	24.23	24.38
CA 66D	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66890	2155.4	LTE B66	20	66692	2135.6	24.14	24.38
CA 66A-66C	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66734	2139.8	LTE B66	20	66536	2120	24.22	24.38
CA 66C-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66890	2155.4	LTE B66	20	66536	2120	24.23	24.38
CA 66C-71A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66890	2155.4	LTE B71	20	68761	634.5	24.20	24.38
CA 66A-66A-71A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66536	2120	LTE B71	20	68761	634.5	24.22	24.38

### Table 9-104 LTE Band 66 Four Component Carrier Conducted Powers

Combination	PCC Band	PCC BW [MHz]	PCC			SCC 1			SCC 2			SCC 3			Power								
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)		
CA 2A-2A-5A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B5	10	2525	881.5	24.47	24.38
CA 2A-2A-12A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B12	10	5095	737.5	24.37	24.38
CA 2A-2A-30A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B12	10	5095	737.5	24.38	24.38
CA 2A-2A-66A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66536	2120	LTE B2	20	900	1960	LTE B2	20	700	1940	24.42	24.38
CA 2A-5A-30A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B2	20	900	1960	LTE B5	10	2525	881.5	LTE B30	10	9820	2355	24.44	24.38
CA 2A-5A-66B	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66692	2163.2	LTE B2	20	900	1960	LTE B5	10	2525	881.5	24.38	24.38
CA 2A-5A-66C	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66890	2155.4	LTE B2	20	900	1960	LTE B5	10	2525	881.5	24.40	24.38
CA 2A-5A-66A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66536	2120	LTE B2	20	900	1960	LTE B5	10	2525	881.5	24.41	24.38
CA 2A-29A-30A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B2	20	900	1960	LTE B29	10	5095	737.5	LTE B30	10	9820	2355	24.44	24.38
CA 2A-12A-66A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66536	2120	LTE B2	20	900	1960	LTE B12	10	5095	737.5	24.40	24.38
CA 2A-13A-66B	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66692	2163.2	LTE B2	20	900	1960	LTE B13	10	5280	751	24.42	24.38
CA 2A-13A-66C	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66890	2155.4	LTE B2	20	900	1960	LTE B13	10	5280	751	24.43	24.38
CA 2A-13A-66A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66536	2120	LTE B2	20	900	1960	LTE B13	10	5280	751	24.39	24.38
CA 2A-29A-30A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B2	20	900	1960	LTE B29	10	9715	722.5	LTE B30	10	9820	2355	24.51	24.38
CA 5A-30A-66A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66536	2120	LTE B5	10	2525	881.5	LTE B30	10	9820	2355	24.44	24.38
CA 12A-30A-66A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66536	2120	LTE B12	10	5095	737.5	LTE B30	10	9820	2355	24.47	24.38

### Table 9-105 LTE Band 66 Five Component Carrier Conducted Powers

Combination	PCC Band	PCC BW [MHz]	PCC			SCC 1			SCC 2			SCC 3			Power												
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)						
CA 2A-2A-30A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B2	20	900	1960	LTE B5	10	2525	881.5	LTE B5	5	2463	874.3	LTE B30	10	9820	2355	24.82	24.38
CA 2A-2A-66A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66536	2120	LTE B2	20	900	1960	LTE B5	10	2525	881.5	LTE B5	5	2463	874.3	24.40	24.38
CA 3A-30A-66A-66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B66	20	66536	2120	LTE B5	10	2525	881.5	LTE B66	5	2463	881.5	LTE B30	10	9820	2355	24.49	24.38

## 9.4.30 LTE Band 66 Reduced Carrier Aggregation Conducted Powers

### Table 9-106 LTE Band 66 Three Component Carrier Conducted Powers

Combination	PCC Band	PCC Bandwidth [MHz]	PCC			SCC 1			SCC 2			Power							
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)		
CA 2C-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B2	20	900	1960	LTE B2	20	702	1940.2	20.43	20.50
CA 2A-12A-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B2	20	900	1960	LTE B12	10	5095	737.5	20.44	20.50
CA 2A-66A-71A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B2	20	900	1960	LTE B71	20	68761	634.5	20.46	20.50
CA 12A-66C	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B66	20	66588	2125.2	LTE B12	10	5095	737.5	20.41	20.50
CA 12A-66A-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B66	20	67236	2190	LTE B12	10	5095	737.5	20.43	20.50
CA 29A-30A-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B29	10	9715	722.5	LTE B30	10	9820	2355	20.45	20.50
CA 66D	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B66	20	66588	2125.2	LTE B66	20	66984	2164.8	20.43	20.50
CA 66A-66C	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B66	20	67038	2170.2	LTE B66	20	67236	2190	20.41	20.50
CA 66C-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B66	20	66588	2125.2	LTE B66	20	67236	2190	20.47	20.50
CA 66C-71A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B66	20	66588	2125.2	LTE B71	20	68761	634.5	20.41	20.50
CA 66A-66A-71A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B66	20	67236	2190	LTE B71	20	68761	634.5	20.37	20.50

### Table 9-107 LTE Band 66 Four Component Carrier Conducted Powers

Combination	PCC Band	PCC BW [MHz]	PCC			SCC 1			SCC 2			SCC 3			Power								
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)		
CA 2A-2A-5A-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B5	10	2525	881.5	20.48	20.50
CA 2A-2A-12A-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B12	10	5095	737.5	20.49	20.50
CA 2A-2A-13A-66A	LTE B66	20	132322	1745	16QAM																		

**Table 9-108**  
**LTE Band 66 Five Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC				SCC 1				SCC 2				SCC 3				SCC 4				LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)											
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band			SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]								
CA 2A-66-66A	LTE B66	20	13222	1745	16QAM	1	0	2300	2145	LTE B2	20	900	1960	LTE B2	20	900	1960	LTE B2	20	900	1960	LTE B2	20	900	1960	LTE B2	20	900	1960	LTE B2	20	900	1960	20.50	20.50
CA 3A-66-66A	LTE B66	20	13222	1745	16QAM	1	0	2300	2145	LTE B66	20	900	1960	LTE B66	20	900	1960	LTE B66	20	900	1960	LTE B66	20	900	1960	LTE B66	20	900	1960	LTE B66	20	900	1960	20.50	20.50
CA 5B-66-66A	LTE B66	20	13222	1745	16QAM	1	0	2300	2145	LTE B66	20	900	1960	LTE B66	20	900	1960	LTE B66	20	900	1960	LTE B66	20	900	1960	LTE B66	20	900	1960	LTE B66	20	900	1960	20.50	20.50

### 9.4.31 LTE Band 4 Maximum Carrier Aggregation Conducted Powers

**Table 9-109**  
**LTE Band 4 Two Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC				LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
										SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]		
CA 4A-17A	LTE B4	10	20300	1745	QPSK	1	0	2300	2145	LTE B17	10	5790	740	24.15	24.37

**Table 9-110**  
**LTE Band 4 Three Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC 1				SCC 2				LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
										SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]		
CA 2A-4A-12A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B2	20	900	1960	LTE B12	10	5095	737.5	24.17	24.38
CA 2A-4A-13A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B2	20	900	1960	LTE B13	10	5230	751	24.18	24.38
CA 2A-4A-71A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B2	20	900	1960	LTE B71	20	68761	634.5	24.25	24.38
CA 4A-4A-7A (1)	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B4	20	2050	2120	LTE B7	20	3100	2655	24.18	24.38
CA 4A-4A-12A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B4	20	2050	2120	LTE B12	10	5095	737.5	24.17	24.38
CA 4A-4A-13A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B4	20	2050	2120	LTE B13	10	5230	751	24.20	24.38
CA 4A-4A-29A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B4	20	2050	2120	LTE B29	10	9715	722.5	24.17	24.38
CA 4A-4A-71A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B4	20	2050	2120	LTE B71	20	68761	634.5	24.19	24.38
CA 4A-12B	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B12	5	5095	737.5	LTE B12	5	5047	732.7	24.25	24.38

**Table 9-111**  
**LTE Band 4 Four Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC 1				SCC 2				SCC 3				LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
										SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]		
CA 2A-4A-6A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B2	20	900	1960	LTE B2	20	900	1960	LTE B5	10	2525	881.5	24.44	24.38
CA 2A-4A-12A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B2	20	900	1960	LTE B12	10	5095	737.5	24.17	24.38				
CA 2A-4A-5A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B4	20	2050	2120	LTE B5	10	2525	881.5	24.40	24.38				
CA 2A-4A-30A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B2	20	900	1960	LTE B5	10	2525	881.5	24.45	24.38				
CA 2A-4A-7A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B2	20	900	1960	LTE B7	20	3100	2655	24.38	24.38				
CA 2A-4A-7A-1A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B2	20	900	1960	LTE B7	20	3100	2655	24.38	24.38				
CA 2A-4A-7A-2A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B2	20	900	1960	LTE B7	20	3100	2655	24.40	24.38				
CA 2A-4A-12B	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B2	20	900	1960	LTE B12	10	5095	737.5	24.19	24.38				
CA 2A-4A-12A-30A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B2	20	900	1960	LTE B12	10	5095	737.5	24.46	24.38				
CA 2A-4A-29A-30A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B2	20	900	1960	LTE B29	10	9715	722.5	24.44	24.38				



### 9.4.32 LTE Band 4 Reduced Carrier Aggregation Conducted Powers

**Table 9-112**  
**LTE Band 4 Two Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC				LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
										SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]		
CA 4A-17A	LTE B4	10	20000	1715	64QAM	1	25	2000	2115	LTE B17	10	5790	740	20.49	20.42

**Table 9-113**  
**LTE Band 4 Three Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC 1				SCC 2				LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
										SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]		
CA 2A-4A-12A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B2	20	900	1960	LTE B12	10	5095	737.5	20.18	20.50
CA 2A-4A-13A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B2	20	900	1960	LTE B13	10	5230	751	20.19	20.50
CA 2A-4A-71A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B2	20	900	1960	LTE B71	20	68761	634.5	20.13	20.50
CA 4A-4A-7A (1)	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B4	20	2050	2120	LTE B7	20	3100	2655	20.12	20.50
CA 4A-4A-12A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B4	20	2050	2120	LTE B12	10	5095	737.5	20.17	20.50
CA 4A-4A-13A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B4	20	2050	2120	LTE B13	10	5230	751	20.16	20.50
CA 4A-4A-29A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B4	20	2050	2120	LTE B29	10	9715	722.5	20.18	20.50
CA 4A-4A-71A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B4	20	2050	2120	LTE B71	20	68761	634.5	20.17	20.50
CA 4A-12B	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B12	5	5095	737.5	LTE B12	5	5047	732.7	20.20	20.50

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Document S/N: 1M1711010281-01-R1.A3L	Test Dates: 11/03/17 - 12/07/17	DUT Type: Portable Handset	Page 80 of 162	

**Table 9-114**  
**LTE Band 4 Four Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC						SCC 1				SCC 2				SCC 3				LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)	
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel			SCC (DL) Freq. [MHz]
CA 2A-2A-4A-5A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B5	10	2525	881.5	20.28	20.50
CA 2A-2A-4A-12A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B12	10	5095	737.5	20.20	20.50
CA 2A-4A-4A-5A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B4	20	2050	2120	LTE B2	20	900	1960	LTE B5	10	2525	881.5	20.20	20.50
CA 2A-4A-5A-90A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B2	20	900	1960	LTE B5	10	2525	881.5	LTE B10	10	4020	2593	20.24	20.50
CA 2A-4A-7C	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B2	20	900	1960	LTE B7	20	3100	2655	LTE B7	20	2820	2635.2	20.27	20.50
CA 2A-4A-7A-7A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B2	20	900	1960	LTE B7	20	3100	2655	LTE B7	20	2820	2630	20.17	20.50
CA 2A-4A-7A-12A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B2	20	900	1960	LTE B7	20	3100	2655	LTE B12	10	5095	737.5	20.21	20.50
CA 2A-4A-12B	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B2	20	900	1960	LTE B12	5	5095	737.5	LTE B12	5	5047	732.7	20.32	20.50
CA 2A-4A-12A-30A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B2	20	900	1960	LTE B12	10	5095	737.5	LTE B10	10	4020	2593	20.20	20.50
CA 2A-4A-70A-30A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B2	20	900	1960	LTE B12	10	5095	737.5	LTE B10	10	4020	2593	20.27	20.50

**9.4.33 LTE Band 25 Maximum Carrier Aggregation Conducted Powers**

**Table 9-115**  
**LTE Band 25 Two Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC			LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)	
										SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel			SCC (DL) Frequency [MHz]
CA 5A-25A	LTE B25	20	26140	1860	QPSK	1	0	8140	1940	LTE B5	10	2525	881.5	24.27	24.29
CA 12A-25A	LTE B25	20	26140	1860	QPSK	1	0	8140	1940	LTE B12	10	5095	737.5	24.24	24.29
CA 25A-41A	LTE B25	20	26140	1860	QPSK	1	0	8140	1940	LTE B41	20	40620	2593	24.46	24.29

**Table 9-116**  
**LTE Band 25 Three Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC 1			SCC 2			LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)		
										SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]			SCC (DL) Channel	SCC (DL) Frequency [MHz]
CA 25A-25A-26A	LTE B25	20	26140	1860	QPSK	1	0	8140	1940	LTE B25	20	8590	1985	LTE B26	5	8865	876.5	24.30	24.29
CA 25A-41C	LTE B25	20	26140	1860	QPSK	1	0	8140	1940	LTE B41	20	40620	2593	LTE B41	20	40422	2573.2	24.45	24.29

**Table 9-117**  
**LTE Band 25 Four Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC 1			SCC 2			SCC 3			LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)			
										SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band			SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]
CA 25A-41D	LTE B25	20	26140	1860	QPSK	1	0	8140	1940	LTE B41	20	40422	2573.2	LTE B41	20	40620	2593	LTE B41	20	40818	2612.8	24.29	24.29



**9.4.34 LTE Band 25 Reduced Carrier Aggregation Conducted Powers**

**Table 9-118**  
**LTE Band 25 Two Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC			LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)	
										SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel			SCC (DL) Frequency [MHz]
CA 5A-25A	LTE B25	20	26140	1860	16QAM	1	0	8140	1940	LTE B5	10	2525	881.5	20.48	20.50
CA 12A-25A	LTE B25	20	26140	1860	16QAM	1	0	8140	1940	LTE B12	10	5095	737.5	20.50	20.50
CA 25A-41A	LTE B25	20	26140	1860	16QAM	1	0	8140	1940	LTE B41	20	40620	2593	20.22	20.50

**Table 9-119**  
**LTE Band 25 Three Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC 1			SCC 2			LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)		
										SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]			SCC (DL) Channel	SCC (DL) Frequency [MHz]
CA 25A-25A-26A	LTE B25	20	26140	1860	16QAM	1	0	8140	1940	LTE B25	20	8590	1985	LTE B26	5	8865	876.5	20.41	20.50
CA 25A-41C	LTE B25	20	26140	1860	16QAM	1	0	8140	1940	LTE B41	20	40620	2593	LTE B41	20	40422	2573.2	20.47	20.50

FCC ID A3LSMG960U	 PCTEST ENGINEERING LABORATORY, INC.	<b>SAR EVALUATION REPORT</b>		Approved by: Quality Manager
Document S/N: 1M1711010281-01-R1.A3L	Test Dates: 11/03/17 - 12/07/17	DUT Type: Portable Handset	Page 81 of 162	

**Table 9-120**  
**LTE Band 25 Four Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC				SCC 1				SCC 2				Power							
				PCC (UL) Freq. [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Single Carrier Tx Power [dBm]				
CA_25A-41D	LTE B25	20	26140	1860	16QAM	1	0	8140	1940	LTE B41	20	40422	2573.2	LTE B41	20	40620	2581	LTE B41	20	40818	2612.8	20.18	20.55

**9.4.35 LTE Band 2 Maximum Carrier Aggregation Conducted Powers**

**Table 9-121**  
**LTE Band 2 Two Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL #RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC			Power		
										SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Single Carrier Tx Power [dBm]
CA_2A-17A	LTE B2	10	18650	1855	QPSK	1	0	650	1935	LTE B17	10	5790	740	24.20	24.14

**Table 9-122**  
**LTE Band 2 Three Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL #RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC 1			SCC 2			Power			
										SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Single Carrier Tx Power [dBm]
CA_2A-2A-12A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1100	1980	LTE B12	10	5095	737.5	24.32	24.29
CA_2C-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	898	1959.8	LTE B66	20	66786	2145	24.30	24.29
CA_2A-2A-71A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1100	1980	LTE B71	20	68761	634.5	24.30	24.29
CA_2A-4A-12A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	24.31	24.29
CA_2A-5A-13A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B13	10	5230	751	24.30	24.29
CA_2A-4A-71A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B71	20	68761	634.5	24.34	24.29
CA_2A-7A-12A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B7	20	3100	2655	LTE B12	10	5095	737.5	24.40	24.29
CA_2A-12B	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B12	5	5095	737.5	LTE B12	5	5047	732.7	24.31	24.29
CA_2A-12A-30A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B12	10	5095	737.5	LTE B30	10	6620	2265	24.36	24.28
CA_2A-12A-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B12	10	5095	737.5	LTE B66	20	66786	2145	24.37	24.29
CA_2A-66A-71A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B66	20	66786	2145	LTE B71	20	68761	634.5	24.35	24.29

**Table 9-123**  
**LTE Band 2 Four Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC 1			SCC 2			SCC 3			Power				
										SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Single Carrier Tx Power [dBm]
CA_2A-2A-4A-5A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1000	1980	LTE B4	20	2175	2132.5	LTE B5	10	2525	881.5	24.31	24.29
CA_2A-2A-4A-12A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1000	1980	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	24.34	24.29
CA_2A-2A-5A-30A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1000	1980	LTE B5	10	2525	881.5	LTE B30	10	6620	2265	24.30	24.29
CA_2A-2A-5A-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1000	1980	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	24.31	24.29
CA_2A-2A-5A-71A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1000	1980	LTE B5	10	2525	881.5	LTE B71	20	68761	634.5	24.32	24.29
CA_2A-2A-12A-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1000	1980	LTE B12	10	5095	737.5	LTE B66	20	66786	2145	24.32	24.29
CA_2A-2A-12A-71A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1000	1980	LTE B12	10	5095	737.5	LTE B71	20	68761	634.5	24.33	24.29
CA_2A-2A-13A-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1000	1980	LTE B13	10	5230	751	LTE B66	20	66786	2145	24.32	24.29
CA_2A-2A-13A-71A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1000	1980	LTE B13	10	5230	751	LTE B71	20	68761	634.5	24.33	24.29
CA_2A-2A-20A-30A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B30	10	6620	2265	LTE B30	10	6620	2265	24.28	24.29
CA_2A-2A-20A-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B30	10	6620	2265	LTE B66	20	66786	2145	24.29	24.29
CA_2A-2A-20A-71A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B30	10	6620	2265	LTE B71	20	68761	634.5	24.30	24.29
CA_2A-4A-7A-12A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B7	20	3100	2655	LTE B12	10	5095	737.5	24.29	24.29
CA_2A-4A-7A-30A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B7	20	3100	2655	LTE B30	10	6620	2265	24.28	24.29
CA_2A-4A-7A-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B7	20	3100	2655	LTE B66	20	66786	2145	24.29	24.29
CA_2A-4A-7A-71A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B7	20	3100	2655	LTE B71	20	68761	634.5	24.30	24.29
CA_2A-4A-7A-12A-30A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B7	20	3100	2655	LTE B12	10	5095	737.5	24.29	24.29
CA_2A-4A-7A-12A-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B7	20	3100	2655	LTE B66	20	66786	2145	24.29	24.29
CA_2A-4A-7A-12A-71A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B7	20	3100	2655	LTE B71	20	68761	634.5	24.30	24.29
CA_2A-4A-7A-12A-30A-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B7	20	3100	2655	LTE B12	10	5095	737.5	24.29	24.29
CA_2A-4A-7A-12A-30A-71A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B7	20	3100	2655	LTE B71	20	68761	634.5	24.30	24.29
CA_2A-5A-30A-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	24.29	24.29
CA_2A-5A-66B	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B5	10	2525	881.5	LTE B66	15	66786	2145	LTE B66	5	66879	2154.3	24.34	24.29
CA_2A-5A-66C	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66884	2164.8	24.28	24.29
CA_2A-5A-66D-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	67236	2190	24.29	24.29
CA_2A-12A-30A-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B12	10	5095	737.5	LTE B30	10	6620	2265	LTE B66	20	66786	2145	24.30	24.29
CA_2A-12A-66A-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B12	10	5095	737.5	LTE B66	20	66786	2145	LTE B66	20	67236	2190	24.31	24.29
CA_2A-12A-66B	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B12	10	5095	737.5	LTE B66	15	66786	2145	LTE B66	5	66879	2154.3	24.31	24.29
CA_2A-13A-66C	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B13	10	5230	751	LTE B66	20	66786	2145	LTE B66	20	66884	2164.8	24.28	24.29
CA_2A-13A-66A-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B13	10	5230	751	LTE B66	20	66786	2145	LTE B66	20	67236	2190	24.30	24.29
CA_2A-20A-30A-66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B20	10	9715	722.5	LTE B30	10	6620	2265	LTE B66	20	66786	2145	24.30	24.29

**Table 9-124**  
**LTE Band 2 Five Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC (DL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC 1			SCC 2			SCC 3			SCC 4			Power	
										SC													

**Table 9-126**  
**LTE Band 2 Three Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC					SCC 1				SCC 2				Power			
			PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_2A-2A-12A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B12	10	5095	737.5	20.46	20.50
CA_2C-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	898	1959.8	LTE B66	20	66786	2145	20.41	20.50
CA_2A-2A-71A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B71	20	66761	634.5	20.43	20.50
CA_2A-4A-12A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	20.43	20.50
CA_2A-4A-13A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B13	10	5230	751	20.46	20.50
CA_2A-4A-71A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B71	20	66761	634.5	20.43	20.50
CA_2A-7A-12A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B7	20	3100	2655	LTE B12	10	5095	737.5	20.48	20.50
CA_2A-12A-30A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B12	5	5095	737.5	LTE B12	5	5047	732.7	20.46	20.50
CA_2A-12A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B12	10	5095	737.5	LTE B30	10	9820	2355	20.50	20.50
CA_2A-12A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B12	10	5095	737.5	LTE B66	20	66786	2145	20.45	20.50
CA_2A-66A-71A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B66	20	66786	2145	LTE B71	20	66761	634.5	20.44	20.50

**Table 9-127**  
**LTE Band 2 Four Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC					SCC 1				SCC 2				SCC 3				Power			
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_2A-2A-4A-3A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B4	20	2175	2132.5	LTE B30	10	2525	881.5	20.46	20.50
CA_2A-2A-4A-12A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	20.49	20.50
CA_2A-2A-5A-30A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B5	10	2525	881.5	LTE B30	10	9820	2355	20.50	20.50
CA_2A-2A-5A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	20.47	20.50
CA_2A-2A-12A-30A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B12	10	5095	737.5	LTE B30	10	9820	2355	20.49	20.50
CA_2A-2A-12A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B12	10	5095	737.5	LTE B66	20	66786	2145	20.46	20.50
CA_2A-2A-13A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B13	10	5230	751	LTE B66	20	66786	2145	20.47	20.50
CA_2A-2A-29A-30A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B29	10	9715	722.5	LTE B30	10	9820	2355	20.46	20.50
CA_2A-2A-29A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B29	10	9715	722.5	LTE B66	20	67236	2190	20.48	20.50
CA_2A-4A-4A-3A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B4	10	2525	881.5	LTE B5	10	2525	881.5	20.49	20.50
CA_2A-4A-5A-30A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B5	10	2525	881.5	LTE B30	10	9820	2355	20.50	20.50
CA_2A-4A-7A-12A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B7	20	3100	2655	LTE B7	20	2902	2635.2	20.48	20.50
CA_2A-4A-7A-13A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B7	20	3100	2655	LTE B7	20	2850	2630	20.49	20.50
CA_2A-4A-7A-12A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B7	20	3100	2655	LTE B12	10	5095	737.5	20.49	20.50
CA_2A-4A-12B	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B12	5	5095	737.5	LTE B12	5	5047	732.7	20.45	20.50
CA_2A-4A-12A-30A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	LTE B30	10	9820	2355	20.49	20.50
CA_2A-4A-29A-30A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B4	20	2175	2132.5	LTE B29	10	9715	722.5	LTE B30	10	9820	2355	20.48	20.50
CA_2A-5A-30A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B5	10	2525	881.5	LTE B30	10	9820	2355	LTE B66	20	66786	2145	20.48	20.50
CA_2A-5A-66B	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B5	10	2525	881.5	LTE B66	15	66786	2145	LTE B66	5	66679	2154.3	20.49	20.50
CA_2A-5A-66C	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66684	2154.8	20.47	20.50
CA_2A-5A-66A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	67236	2190	20.46	20.50
CA_2A-12A-30A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B12	10	5095	737.5	LTE B30	10	9820	2355	LTE B66	20	66786	2145	20.50	20.50
CA_2A-12A-66A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B12	10	5095	737.5	LTE B66	20	66786	2145	LTE B66	20	67236	2190	20.49	20.50
CA_2A-13A-66C	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B13	10	5230	751	LTE B66	15	66786	2145	LTE B66	5	66679	2154.3	20.47	20.50
CA_2A-13A-66C	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B13	10	5230	751	LTE B66	20	66786	2145	LTE B66	20	66684	2154.8	20.49	20.50
CA_2A-13A-66A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B13	10	5230	751	LTE B66	20	66786	2145	LTE B66	20	67236	2190	20.47	20.50
CA_2A-29A-30A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B29	10	9715	722.5	LTE B30	10	9820	2355	LTE B66	20	66786	2145	20.48	20.50

**Table 9-128**  
**LTE Band 2 Five Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC					SCC 1				SCC 2				SCC 3				SCC 4				Power			
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_2A-5A-30A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B5	10	2525	881.5	LTE B30	10	9820	2355	LTE B66	20	66786	2145	LTE B66	20	66786	2145	20.48	20.50
CA_2A-5A-66A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B5	10	2525	881.5	LTE B66	15	66786	2145	LTE B66	15	66786	2145	LTE B66	15	66786	2145	20.49	20.50

**9.4.37 LTE Band 30 Antenna A Maximum Carrier Aggregation Conducted Powers**

**Table 9-129**  
**LTE Band 30 Three Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC					SCC 1				SCC 2				SCC 3				Power	
			PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]
CA_2A-12A-30A	LTE B30 AntA	10	27710	2310	QPSK	1	0	9820	2355	LTE B2	20	900	1960	LTE B12	10	5095	737.5	24.45	24.41		
CA_29A-30A-66A	LTE B30 AntA	10	27710	2310	QPSK	1	0	9820	2355	LTE B29	10	9715	722.5	LTE B66	20	66786	2145	24.39	24.41		

**Table 9-130**  
**LTE Band 30 Four Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC					SCC 1				SCC 2				SCC 3				Power			
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Ant. A Tx Power (dBm)
CA_2A-2A-5A-30A	LTE B30 AntA	10	27710	2310	QPSK	1	0	9820	2355	LTE B2	20	900	1960	LTE B2	20	900	1960	LTE B5	10	2525	881.5	24.46	24.41
CA_2A-2A-12A-30A	LTE B30 AntA	10	27710	2310	QPSK	1	0	9820	2355	LTE B2	20	900	1960	LTE B2	20	900	1960	LTE B12	10	5095	737.5	24.45	24.41
CA_2A-2A-29A-30A	LTE B30 AntA	10	27710	2310	QPSK	1	0	9820	2355	LTE B29	10	9715	722.5	LTE B30	10	9820	2355	LTE B29	10	9715	722.5	24.42	24.41
CA_2A-4A-5A-30A	LTE B30 AntA	10	27710	2310	QPSK	1	0	9820	2355	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B5	10	2525	881.5	24.41	24.41
CA_2A-4A-7A-30A	LTE B30 AntA	10	27710	2310	QPSK	1	0	9820	2355	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B7	20	3100	2655	24.41	24.



**Table 9-131  
LTE Band 30 Five Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC				SCC 1				SCC 2				SCC 3				Power								
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Ant. A Tx Power [dBm]				
CA 2A-3A-6A	LTE B30 AHA	30	27710	2310	QPSK	1	0	9820	2355	LTE B2	20	900	1960	LTE B2	20	2025	881.5	LTE B5	5	2453	874.3	LTE B6	20	66786	2145	21.05	21.39
CA 3A-30A-6A	LTE B30 AHA	30	27710	2310	QPSK	1	0	9820	2355	LTE B5	20	2525	881.5	LTE B5	20	2453	874.3	LTE B6	20	66786	2145	LTE B6	20	67236	2190	21.39	21.41

**9.4.38 LTE Band 30 Antenna A Reduced Carrier Aggregation Conducted Powers**

**Table 9-132  
LTE Band 30 Three Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC 1			SCC 2			Power							
										SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Ant. A Tx Power [dBm]				
CA 2A-12A-30A	LTE B30 AHA	30	27710	2310	16QAM	1	0	9820	2355	LTE B2	20	900	1960	LTE B2	20	900	1960	LTE B12	10	5095	737.5	21.05	21.39
CA 29A-30A-6A	LTE B30 AHA	30	27710	2310	16QAM	1	0	9820	2355	LTE B29	10	9820	2355	LTE B29	10	9715	722.5	LTE B66	20	66786	2145	21.20	21.39

**Table 9-133  
LTE Band 30 Four Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC				SCC 1				SCC 2				SCC 3				Power								
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Ant. A Tx Power [dBm]				
CA 2A-2A-12A-30A	LTE B30 AHA	30	27710	2310	16QAM	1	0	9820	2355	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B5	10	2125	881.5	LTE B12	10	5095	737.5	21.25	21.39
CA 2A-2A-29A-30A	LTE B30 AHA	30	27710	2310	16QAM	1	0	9820	2355	LTE B2	20	900	1960	LTE B2	20	700	1940	LTE B29	10	5095	722.5	LTE B12	10	5095	737.5	21.26	21.39
CA 2A-4A-3A-30A	LTE B30 AHA	30	27710	2310	16QAM	1	0	9820	2355	LTE B2	20	900	1960	LTE B4	20	2175	2122.5	LTE B5	10	2125	881.5	LTE B12	10	5095	737.5	21.24	21.39
CA 2A-4A-12A-30A	LTE B30 AHA	30	27710	2310	16QAM	1	0	9820	2355	LTE B2	20	900	1960	LTE B4	20	2175	2122.5	LTE B12	10	5095	737.5	LTE B12	10	5095	737.5	21.25	21.39
CA 2A-4A-29A-30A	LTE B30 AHA	30	27710	2310	16QAM	1	0	9820	2355	LTE B2	20	900	1960	LTE B4	20	2175	2122.5	LTE B29	10	5095	722.5	LTE B12	10	5095	737.5	21.22	21.39
CA 2A-4A-30A-6A	LTE B30 AHA	30	27710	2310	16QAM	1	0	9820	2355	LTE B2	20	900	1960	LTE B4	20	2175	2122.5	LTE B66	20	66786	2145	LTE B12	10	5095	737.5	21.22	21.39
CA 2A-12A-30A-6A	LTE B30 AHA	30	27710	2310	16QAM	1	0	9820	2355	LTE B2	20	900	1960	LTE B12	10	9715	722.5	LTE B66	20	66786	2145	LTE B12	10	5095	737.5	21.20	21.39
CA 3A-30A-6A-6A	LTE B30 AHA	30	27710	2310	16QAM	1	0	9820	2355	LTE B5	10	2525	881.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	LTE B66	20	67236	2190	21.21	21.39
CA 12A-30A-6A-6A	LTE B30 AHA	30	27710	2310	16QAM	1	0	9820	2355	LTE B12	10	5095	737.5	LTE B66	20	66786	2145	LTE B66	20	66786	2145	LTE B66	20	67236	2190	21.23	21.39

**Table 9-134  
LTE Band 30 Five Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC				SCC 1				SCC 2				SCC 3				Power								
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Ant. A Tx Power [dBm]				
CA 2A-3A-30A-6A	LTE B30 AHA	30	27710	2310	16QAM	1	0	9820	2355	LTE B2	20	900	1960	LTE B2	20	2025	881.5	LTE B5	5	2453	874.3	LTE B6	20	66786	2145	21.20	21.39
CA 3A-30A-6A-6A	LTE B30 AHA	30	27710	2310	16QAM	1	0	9820	2355	LTE B5	20	2525	881.5	LTE B5	20	2453	874.3	LTE B6	20	66786	2145	LTE B6	20	67236	2190	21.20	21.39

**9.4.39 LTE Band 7 Antenna B Maximum Carrier Aggregation Conducted Powers**

**Table 9-135  
LTE Band 7 Two Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC			Power		
										SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Single Carrier Tx Power [dBm]
CA 7C	LTE B7	15	21375	2562.5	QPSK	1	0	3375	2682.5	LTE B7	15	3225	2667.5	23.61	23.65
CA 7A-7A (1)	LTE B7	15	21375	2562.5	QPSK	1	0	3375	2682.5	LTE B7	20	2850	2630	23.57	23.65



**9.4.40 LTE Band 7 Antenna A Maximum Carrier Aggregation Conducted Powers**

**Table 9-136  
LTE Band 7 Three Component Carrier Conducted Powers**

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC 1			SCC 2			Power			
										SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Ant. A Tx Power [dBm]
CA 2A-7A-12A	LTE B7 AHA	20	21350	2560	QPSK	1	99	3350	2680	LTE B2	20	900	1960	LTE B12	10	5095	737.5	23.37	23.39
CA 4A-7A-7A (1)	LTE B7 AHA	20	21350	2560	QPSK	1	99	3350	2680	LTE B4	20	2175	2132.5	LTE B4	10	2350	2150	23.38	23.39

**Table 9-137  
LTE Band 7 Four Component Carrier Conducted Powers**

Combination	PCC Band	PCC BW [MHz]	PCC				SCC 1				SCC 2				SCC 3				Power				
			PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Ant. A Tx Power [dBm]
CA 2A-4A-7C	LTE B7 AHA	20	21350	2560	QPSK	1	99	3350	2680	LTE B7	20	3152	2660.2	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	23.36	23.39
CA 2A-4A-7A-7A	LTE B7 AHA	20	21350	2560	QPSK	1	99	3350	2680	LTE B7	20	2850	2630	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	23.36	23.39
CA 2A-4A-7A-12A	LTE B7 AHA	20	21350	2560	QPSK	1	99	3350	2680	LTE B7	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	23.34	23.39

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## 9.4.41 LTE Band 7 Antenna B Reduced Carrier Aggregation Conducted Powers

Table 9-138  
LTE Band 7 Two Component Carrier Conducted Powers

Combination	PCC									SCC				Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 7C	LTE B7	20	21350	2560	64QAM	1	0	3350	2680	LTE B7	20	3152	2660.2	21.11	21.03
CA 7A-7A (1)	LTE B7	20	21350	2560	64QAM	1	0	3350	2680	LTE B7	20	2850	2630	21.10	21.03

## 9.4.42 LTE Band 7 Antenna A Reduced Carrier Aggregation Conducted Powers

Table 9-139  
LTE Band 7 Three Component Carrier Conducted Powers

Combination	PCC									SCC 1				SCC 2				Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Ant. A Tx Power (dBm)
CA 2A-7A-12A	LTE B7 AHA	20	21350	2560	16QAM	1	99	3350	2680	LTE B2	20	900	1960	LTE B12	10	5095	737.5	21.10	21.30
CA 4A-4A-7A (1)	LTE B7 AHA	20	21350	2560	16QAM	1	99	3350	2680	LTE B4	20	2175	2132.5	LTE B4	10	2350	2150	21.20	21.50

Table 9-140  
LTE Band 7 Four Component Carrier Conducted Powers

Combination	PCC									SCC 1				SCC 2				SCC 3		Power			
	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Ant. A Tx Power (dBm)
CA 2A-4A-7C	LTE B7 AHA	20	21350	2560	16QAM	1	99	3350	2680	LTE B7	20	3152	2660.2	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	21.20	21.30
CA 2A-4A-7A-7A	LTE B7 AHA	20	21350	2560	16QAM	1	99	3350	2680	LTE B7	20	2850	2630	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	21.18	21.50
CA 2A-4A-7A-12A	LTE B7 AHA	20	21350	2560	16QAM	1	99	3350	2680	LTE B2	20	900	1960	LTE B4	20	2175	2132.5	LTE B12	10	5095	737.5	21.24	21.90

## 9.4.43 LTE Band 41 PC3 Maximum Carrier Aggregation Conducted Powers

Table 9-141  
LTE Band 41 Two Component Carrier Conducted Powers



Combination	PCC									SCC				Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 41A-41A (1)	LTE B41	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	41490	2680	24.08	24.08

Table 9-142  
LTE Band 41 Three Component Carrier Conducted Powers

Combination	PCC									SCC 1				SCC 2				Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 41A-41C	LTE B41	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	24.07	24.08
CA 41C-41A	LTE B41	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	40356	2566.6	LTE B41	20	41490	2680	24.11	24.08

Table 9-143  
LTE Band 41 Four Component Carrier Conducted Powers

Combination	PCC									SCC 1				SCC 2				SCC 3		Power			
	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 41E	LTE B41	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	40356	2566.6	LTE B41	20	40554	2586.4	LTE B41	20	40752	2606.2	24.11	24.08
CA 41A-41D	LTE B41	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	41094	2640.4	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	24.05	24.08
CA 41D-41A	LTE B41	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	40356	2566.6	LTE B41	20	40554	2586.4	LTE B41	20	41490	2680	24.08	24.08
CA 41C-41C	LTE B41	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	40356	2566.6	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	24.13	24.08

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**Table 9-144  
LTE Band 41 Five Component Carrier Conducted Powers**

Combination	PCC										SCC 1				SCC 2				SCC 3				SCC 4				Power	
	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)	
CA 41C-41D	LTE B41	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	40383	2569.3	LTE B41	20	41292	2660.2	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	27.03	27.06	
CA 41D-41C	LTE B41	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	40383	2569.3	LTE B41	20	40356	2566.6	LTE B41	20	40356	2566.6	LTE B41	20	41490	2680	27.03	27.06	

**9.4.44 LTE Band 41 PC2 Maximum Carrier Aggregation Conducted Powers**

**Table 9-145  
LTE Band 41 Two Component Carrier Conducted Powers**

Combination	PCC						SCC						Power		
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 41A-41A (1)	LTE B41 PC2	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41 PC2	20	41490	2680	27.03	27.06

**Table 9-146  
LTE Band 41 Three Component Carrier Conducted Powers**

Combination	PCC						SCC 1				SCC 2				Power				
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 41A-41C	LTE B41 PC2	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41 PC2	20	41292	2660.2	LTE B41 PC2	20	41490	2680	27.03	27.06
CA 41C-41A	LTE B41 PC2	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41 PC2	20	40356	2566.6	LTE B41 PC2	20	41490	2680	27.02	27.06

**Table 9-147  
LTE Band 41 Four Component Carrier Conducted Powers**

Combination	PCC						SCC 1				SCC 2				SCC 3				Power								
	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)				
CA 41E	LTE B41 PC2	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41 PC2	20	40356	2566.6	LTE B41 PC2	20	40356	2566.6	LTE B41 PC2	20	40356	2566.6	LTE B41 PC2	20	41490	2680	27.03	27.06
CA 41A-41D	LTE B41 PC2	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41 PC2	20	41294	2640.4	LTE B41 PC2	20	41292	2660.2	LTE B41 PC2	20	41292	2660.2	LTE B41 PC2	20	41490	2680	27.09	27.06
CA 41D-41A	LTE B41 PC2	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41 PC2	20	40356	2566.6	LTE B41 PC2	20	40356	2566.6	LTE B41 PC2	20	40356	2566.6	LTE B41 PC2	20	41490	2680	27.03	27.06
CA 41C-41C	LTE B41 PC2	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41 PC2	20	40356	2566.6	LTE B41 PC2	20	41292	2660.2	LTE B41 PC2	20	41292	2660.2	LTE B41 PC2	20	41490	2680	27.16	27.06

**Table 9-148  
LTE Band 41 Five Component Carrier Conducted Powers**

Combination	PCC										SCC 1				SCC 2				SCC 3				Power				
	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 41C-41D	LTE B41 PC2	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41 PC2	20	40356	2566.6	LTE B41 PC2	20	40383	2569.3	LTE B41 PC2	20	40383	2569.3	LTE B41 PC2	20	41292	2660.2	27.03	27.06
CA 41D-41C	LTE B41 PC2	15	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41 PC2	20	40356	2566.6	LTE B41 PC2	20	40356	2566.6	LTE B41 PC2	20	40356	2566.6	LTE B41 PC2	20	41490	2680	27.03	27.06

**9.4.45 LTE Band 41 PC3 Reduced Carrier Aggregation Conducted Powers**

**Table 9-149  
LTE Band 41 Two Component Carrier Conducted Powers**



Combination	PCC						SCC						Power		
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 41A-41A (1)	LTE B41	20	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	41490	2680	23.47	23.50

**Table 9-150  
LTE Band 41 Three Component Carrier Conducted Powers**

Combination	PCC						SCC 1				SCC 2				Power				
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 41A-41C	LTE B41	20	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	23.47	23.50
CA 41C-41A	LTE B41	20	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	40383	2569.3	LTE B41	20	41490	2680	23.46	23.50

**Table 9-151  
LTE Band 41 Four Component Carrier Conducted Powers**

Combination	PCC						SCC 1				SCC 2				SCC 3				Power								
	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)				
CA 41E	LTE B41	20	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	40383	2569.3	LTE B41	20	40383	2569.3	LTE B41	20	40383	2569.3	LTE B41	20	40779	2608.9	23.43	23.50
CA 41A-41D	LTE B41	20	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	41294	2640.4	LTE B41	20	41292	2660.2	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	23.48	23.50
CA 41D-41A	LTE B41	20	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	40383	2569.3	LTE B41	20	40383	2569.3	LTE B41	20	40383	2569.3	LTE B41	20	41490	2680	23.44	23.50
CA 41C-41C	LTE B41	20	40185	2549.5	QPSK	1	0	40185	2549.5	LTE B41	20	40383	2569.3	LTE B41	20	41292	2660.2	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	23.42	23.50

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**Table 9-152**  
**LTE Band 41 Five Component Carrier Conducted Powers**

Combination	PCC										SCC 1				SCC 2				SCC 3				SCC 4				Power	
	PCC Band	PCC BW [MHz]	PCC (DL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Single Carrier Tx Power [dBm]	
CA 41C-41D	LTE B41	20	40185	2506	16QAM	1	0	40185	2506	LTE B41	20	40185	2506.2	LTE B41	20	40185	2506.4	LTE B41	20	40185	2506.6	LTE B41	20	40185	2506.8	23.47	23.50	
CA 41D-41C	LTE B41	20	40185	2506	16QAM	1	0	40185	2506	LTE B41	20	40185	2506.2	LTE B41	20	40185	2506.4	LTE B41	20	40185	2506.6	LTE B41	20	40185	2506.8	23.47	23.50	

**9.4.46 LTE Band 41 PC2 Reduced Carrier Aggregation Conducted Powers**

**Table 9-153**  
**LTE Band 41 Two Component Carrier Conducted Powers**

Combination	PCC						SCC						Power		
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Single Carrier Tx Power [dBm]
CA 41A-41A (1)	LTE B41 PC2	20	39750	2506	16QAM	1	0	39750	2506	LTE B41 PC2	20	41490	2680	23.49	23.50

**Table 9-154**  
**LTE Band 41 Three Component Carrier Conducted Powers**

Combination	PCC						SCC 1				SCC 2				Power				
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Single Carrier Tx Power [dBm]
CA 41A-41C	LTE B41 PC2	20	39750	2506	16QAM	1	0	39750	2506	LTE B41 PC2	20	41292	2660.2	LTE B41 PC2	20	41490	2680	23.47	23.50
CA 41C-41A	LTE B41 PC2	20	39750	2506	16QAM	1	0	39750	2506	LTE B41 PC2	20	39948	2525.8	LTE B41 PC2	20	41490	2680	23.47	23.50

**Table 9-155**  
**LTE Band 41 Four Component Carrier Conducted Powers**



Combination	PCC						SCC 1				SCC 2				Power								
	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Single Carrier Tx Power [dBm]				
CA 41E	LTE B41 PC2	20	39750	2506	16QAM	1	0	39750	2506	LTE B41 PC2	20	39948	2525.8	LTE B41 PC2	20	40146	2545.6	LTE B41 PC2	20	40944	2565.4	23.48	23.50
CA 41A-41D	LTE B41 PC2	20	39750	2506	16QAM	1	0	39750	2506	LTE B41 PC2	20	41094	2640.4	LTE B41 PC2	20	41292	2660.2	LTE B41 PC2	20	41490	2680	23.45	23.50
CA 41D-41A	LTE B41 PC2	20	39750	2506	16QAM	1	0	39750	2506	LTE B41 PC2	20	39948	2525.8	LTE B41 PC2	20	40146	2545.6	LTE B41 PC2	20	41490	2680	23.47	23.50
CA 41C-41C	LTE B41 PC2	20	39750	2506	16QAM	1	0	39750	2506	LTE B41 PC2	20	39948	2525.8	LTE B41 PC2	20	41292	2660.2	LTE B41 PC2	20	41490	2680	23.44	23.50

**Table 9-156**  
**LTE Band 41 Five Component Carrier Conducted Powers**

Combination	PCC						SCC 1				SCC 2				SCC 3				Power								
	PCC Band	PCC BW [MHz]	PCC (DL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled [dBm]	LTE Single Carrier Tx Power [dBm]
CA 41C-41D	LTE B41 PC2	20	39750	2506	16QAM	1	0	39750	2506	LTE B41 PC2	20	39948	2525.8	LTE B41 PC2	20	42006	2640.4	LTE B41 PC2	20	41292	2660.2	LTE B41 PC2	20	43490	2680	23.46	23.50
CA 41D-41C	LTE B41 PC2	20	39750	2506	16QAM	1	0	39750	2506	LTE B41 PC2	20	39948	2525.8	LTE B41 PC2	20	40546	2545.6	LTE B41 PC2	20	41292	2660.2	LTE B41 PC2	20	43490	2680	23.44	23.50

**Notes:**

- SAR test exclusion for LTE downlink Carrier Aggregation is determined by power measurements according to the number component carriers (CCs) supported by the product implementation. For those combinations required by FCC Guidance, power measurements were performed with 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.
- All control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.
- For downlink carrier aggregation combinations, PCC uplink channel was selected based on section C)3b)ii) of KBD 941225 D05 V01r02. The downlink PCC channel was paired with the selected PCC uplink channel according to normal configurations without carrier aggregation. For inter-band CA, the SCC downlink channels were selected near the middle of their transmission bands. For contiguous intra-band CA, the downlink channel spacing between the component carriers was set to multiple of 300 kHz less than the nominal channel spacing defined in section 5.4.1A of 3GPP TS 36.521. For non-contiguous intra-band CA, the downlink channel spacing between the component carriers was set to be larger than the nominal channel spacing and provided maximum separation between the component carriers. All selected downlink channels remained fully within the downlink transmission band of the respective component carrier.
- 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.

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- Per FCC Guidance, for LTE Band 7 and LTE Band 30 Antenna A scenarios, the conducted power was compared to the CA\_4A-7A and CA\_4A-30A conducted powers, respectively, to determine SAR test exclusion.
- Per KDB Publication 941225 D05Av01r02, SAR test 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.

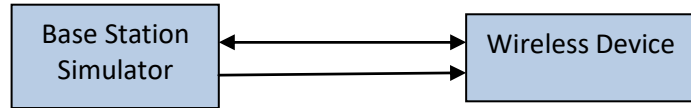


Figure 9-4  
Power Measurement Setup

### 9.4.47 LTE Uplink Maximum Carrier Aggregation Conducted Powers

Table 9-157

LTE Uplink Two Carrier Component Carrier Aggregation Conducted Powers

Combination	PCC						SCC						Power		Target Power (dBm)		
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset		LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	23.88	24.01	24.0

Table 9-158

LTE CA\_41C Uplink Carrier Aggregation with Three Competent Carrier Aggregation on the Downlink

Combination	PCC						SCC1						SCC2				Power		Target Power (dBm)		
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]		CA_41C ULCA Tx. Power with 3CC DLCA enabled (dBm)	CA_41C ULCA Tx. Power (dBm)
CA_41C-41A	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	LTE B41	20	41490	2680	23.90	23.88	24.0
CA_41D	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	LTE B41	20	40383	2569.3	23.91	23.88	24.0

Table 9-159

LTE CA\_41C Uplink Carrier Aggregation with Four Competent Carrier Aggregation on the Downlink

Combination	PCC						SCC1						SCC2				SCC3				Power		Target Power (dBm)		
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]		CA_41C ULCA Tx. Power with 4CC DLCA enabled (dBm)	CA_41C ULCA Tx. Power (dBm)
CA_41E	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	LTE B41	20	40383	2569.3	LTE B41	20	40581	2589.1	23.91	23.88	24.0
CA_41C-41C	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	23.90	23.88	24.0
CA_41D-41A	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	LTE B41	20	40383	2569.3	LTE B41	20	41490	2680	23.91	23.88	24.0

Table 9-160

LTE CA\_41C Uplink Carrier Aggregation with Five Competent Carrier Aggregation on the Downlink

Combination	PCC						SCC1						SCC2				SCC3				SCC4				Power		Target Power (dBm)		
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]		CA_41C ULCA Tx. Power with 5CC DLCA enabled (dBm)	CA_41C ULCA Tx. Power (dBm)
CA_41C-41D	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	LTE B41	20	41094	2640.4	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	23.90	23.88	24.0
CA_41D-41C	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	LTE B41	20	40383	2569.3	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	23.90	23.88	24.0

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## 9.4.48 LTE Uplink Reduced Carrier Aggregation Conducted Powers

Table 9-161

LTE Uplink Two Carrier Component Carrier Aggregation Conducted Powers

Combination	PCC							SCC							Power		Target Power (dBm)
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx. Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)	
CA_41C	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	23.35	23.50	23.0

Table 9-162

LTE CA\_41C Uplink Carrier Aggregation with Three Competent Carrier Aggregation on the Downlink

Combination	PCC							SCC1				SCC2				Power		Target Power (dBm)			
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel		SCC (DL) Frequency [MHz]	CA_41C ULCA Tx. Power with 3CC DLCA enabled (dBm)	CA_41C ULCA Tx. Power (dBm)
CA_41C-41A	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	LTE B41	20	41490	2680	23.37	23.35	23.0
CA_41D	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	LTE B41	20	40383	2569.3	23.39	23.35	23.0

Table 9-163

LTE CA\_41C Uplink Carrier Aggregation with Four Competent Carrier Aggregation on the Downlink

Combination	PCC							SCC1				SCC2				SCC3				Power		Target Power (dBm)			
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel		SCC (DL) Frequency [MHz]	CA_41C ULCA Tx. Power with 4CC DLCA enabled (dBm)	CA_41C ULCA Tx. Power (dBm)
CA_41E	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	LTE B41	20	40383	2569.3	LTE B41	20	40581	2589.1	23.37	23.35	23.0
CA_41C-41C	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	23.29	23.35	23.0
CA_41D-41A	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	LTE B41	20	40383	2569.3	LTE B41	20	41490	2680	23.29	23.35	23.0

Table 9-164

LTE CA\_41C Uplink Carrier Aggregation with Five Competent Carrier Aggregation on the Downlink



Combination	PCC							SCC1				SCC2				SCC3				Power		Target Power (dBm)							
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel		SCC (DL) Frequency [MHz]	CA_41C ULCA Tx. Power with 5CC DLCA enabled (dBm)	CA_41C ULCA Tx. Power (dBm)				
CA_41E-41D	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	LTE B41	20	40383	2569.3	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	23.40	23.35	23.0
CA_41D-41C	LTE B41	20	40185	2549.5	QPSK	1	0	LTE B41	20	39987	2529.7	QPSK	1	99	LTE B41	20	40383	2569.3	LTE B41	20	41292	2660.2	LTE B41	20	41490	2680	23.39	23.35	23.0

Notes:

1. This device supports uplink carrier aggregation for LTE CA\_41C with a maximum of two 20 MHz 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 Fall 2017 TCB Workshop Notes, 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.
3. Uplink carrier aggregation is only possible when the device is operating with Power Class 3 for LTE Band 41.
4. Per FCC Guidance, additional SAR measurements for LTE ULCA for CA\_41C uplink with other DLCA combinations active were not required since the maximum output power for this configuration was not >0.25dB higher than the maximum output power for ULCA with only CA\_41C active.



Figure 9-5  
Power Measurement Setup

FCC ID A3LSMG960U	 PCTEST ENGINEERING LABORATORY, INC.	SAR EVALUATION REPORT		Approved by: Quality Manager
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# 9.4.49 Downlink 2x2 MIMO LAA Maximum Carrier Aggregation Conducted Powers

Table 9-165

Two Carrier Component Carrier Aggregation Conducted Powers

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx.Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_13A-46 <sub>A</sub> A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46 <sub>A</sub>	20	47290	5200	24.53	24.58
CA_13A-46 <sub>B</sub> A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46 <sub>B</sub>	20	48290	5300	24.55	24.58
CA_13A-46 <sub>C</sub> A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46 <sub>C</sub>	20	51290	5600	24.52	24.58
CA_13A-46 <sub>D</sub> A	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46 <sub>D</sub>	20	53140	5785	24.56	24.58
CA_7A-46 <sub>A</sub> A	LTE B7	15	21375	2562.5	QPSK	1	0	3375	2682.5	LTE B46 <sub>A</sub>	20	47290	5200	23.63	23.65
CA_7A-46 <sub>B</sub> A	LTE B7	15	21375	2562.5	QPSK	1	0	3375	2682.5	LTE B46 <sub>B</sub>	20	48290	5300	23.64	23.65
CA_7A-46 <sub>C</sub> A	LTE B7	15	21375	2562.5	QPSK	1	0	3375	2682.5	LTE B46 <sub>C</sub>	20	51290	5600	23.60	23.65
CA_7A-46 <sub>D</sub> A	LTE B7	15	21375	2562.5	QPSK	1	0	3375	2682.5	LTE B46 <sub>D</sub>	20	53140	5785	23.65	23.65

Table 9-166

Three Carrier Component Carrier Aggregation Conducted Powers

Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx.Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_4A-46 <sub>A</sub> -46 <sub>A</sub> A	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B46 <sub>A</sub>	20	47090	5180	LTE B46 <sub>B</sub>	20	53540	5825	24.41	24.38
CA_13A-46 <sub>C</sub> C	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46 <sub>C</sub>	20	47290	5200	LTE B46 <sub>D</sub>	20	47488	5219.8	24.57	24.58
CA_13A-46 <sub>D</sub> C	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46 <sub>D</sub>	20	48290	5300	LTE B46 <sub>A</sub>	20	48488	5319.8	24.53	24.58
CA_13A-46 <sub>C</sub> C	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46 <sub>C</sub>	20	51290	5600	LTE B46 <sub>D</sub>	20	51488	5619.8	24.56	24.58
CA_13A-46 <sub>D</sub> C	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46 <sub>D</sub>	20	53140	5785	LTE B46 <sub>C</sub>	20	53338	5804.8	24.57	24.58
CA_7A-46 <sub>C</sub> C	LTE B7	15	21375	2562.5	QPSK	1	0	3375	2682.5	LTE B46 <sub>C</sub>	20	47290	5200	LTE B46 <sub>D</sub>	20	47488	5219.8	23.63	23.65
CA_7A-46 <sub>D</sub> C	LTE B7	15	21375	2562.5	QPSK	1	0	3375	2682.5	LTE B46 <sub>D</sub>	20	48290	5300	LTE B46 <sub>C</sub>	20	48488	5319.8	23.64	23.65
CA_7A-46 <sub>C</sub> C	LTE B7	15	21375	2562.5	QPSK	1	0	3375	2682.5	LTE B46 <sub>C</sub>	20	51290	5600	LTE B46 <sub>D</sub>	20	51488	5619.8	23.63	23.65
CA_7A-46 <sub>D</sub> C	LTE B7	15	21375	2562.5	QPSK	1	0	3375	2682.5	LTE B46 <sub>D</sub>	20	53140	5785	LTE B46 <sub>C</sub>	20	53338	5804.8	23.61	23.65

Table 9-167

Four Carrier Component Carrier Aggregation Conducted Powers

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx.Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_2A-46 <sub>A</sub> -46 <sub>A</sub> -66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B46 <sub>A</sub>	20	47090	5180	LTE B46 <sub>B</sub>	20	53540	5825	LTE B66	20	66786	2145	24.37	24.29
CA_4A-46 <sub>D</sub> D	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B46 <sub>D</sub>	20	47290	5200	LTE B46 <sub>C</sub>	20	47488	5219.8	LTE B46 <sub>D</sub>	20	47092	5180.2	24.44	24.38
CA_4A-46 <sub>D</sub> D	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B46 <sub>D</sub>	20	48290	5300	LTE B46 <sub>C</sub>	20	48488	5319.8	LTE B46 <sub>D</sub>	20	48092	5280.2	24.43	24.38
CA_4A-46 <sub>D</sub> D	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B46 <sub>D</sub>	20	51290	5600	LTE B46 <sub>C</sub>	20	51488	5619.8	LTE B46 <sub>D</sub>	20	51092	5580.2	24.40	24.38
CA_4A-46 <sub>D</sub> D	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B46 <sub>D</sub>	20	53140	5785	LTE B46 <sub>C</sub>	20	53338	5804.8	LTE B46 <sub>D</sub>	20	52942	5765.2	24.39	24.38
CA_4A-46 <sub>C</sub> -46 <sub>C</sub> C	LTE B4	15	20325	1747.5	QPSK	1	0	2325	2147.5	LTE B46 <sub>C</sub>	20	47090	5180	LTE B46 <sub>D</sub>	20	53540	5825	LTE B46 <sub>C</sub>	20	53342	5805.2	24.43	24.38
CA_2A-46 <sub>A</sub> -46 <sub>A</sub> -66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B2	20	900	1960	LTE B46 <sub>A</sub>	20	47090	5180	LTE B46 <sub>B</sub>	20	53540	5825	24.41	24.38
CA_13A-46 <sub>D</sub> D	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46 <sub>D</sub>	20	47290	5200	LTE B46 <sub>C</sub>	20	47488	5219.8	LTE B46 <sub>D</sub>	20	47092	5180.2	24.55	24.58
CA_13A-46 <sub>D</sub> D	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46 <sub>D</sub>	20	48290	5300	LTE B46 <sub>C</sub>	20	48488	5319.8	LTE B46 <sub>D</sub>	20	48092	5280.2	24.60	24.58
CA_13A-46 <sub>D</sub> D	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46 <sub>D</sub>	20	51290	5600	LTE B46 <sub>C</sub>	20	51488	5619.8	LTE B46 <sub>D</sub>	20	51092	5580.2	24.55	24.58
CA_13A-46 <sub>D</sub> D	LTE B13	10	23230	782	QPSK	1	0	5230	751	LTE B46 <sub>D</sub>	20	53140	5785	LTE B46 <sub>C</sub>	20	53338	5804.8	LTE B46 <sub>D</sub>	20	52942	5765.2	24.54	24.58
CA_7A-46 <sub>D</sub> D	LTE B7	15	21375	2562.5	QPSK	1	0	3375	2682.5	LTE B46 <sub>D</sub>	20	47290	5200	LTE B46 <sub>C</sub>	20	47488	5219.8	LTE B46 <sub>D</sub>	20	47092	5180.2	23.65	23.65
CA_7A-46 <sub>D</sub> D	LTE B7	15	21375	2562.5	QPSK	1	0	3375	2682.5	LTE B46 <sub>D</sub>	20	48290	5300	LTE B46 <sub>C</sub>	20	48488	5319.8	LTE B46 <sub>D</sub>	20	48092	5280.2	23.66	23.65
CA_7A-46 <sub>D</sub> D	LTE B7	15	21375	2562.5	QPSK	1	0	3375	2682.5	LTE B46 <sub>D</sub>	20	51290	5600	LTE B46 <sub>C</sub>	20	51488	5619.8	LTE B46 <sub>D</sub>	20	51092	5580.2	23.66	23.65
CA_7A-46 <sub>D</sub> D	LTE B7	15	21375	2562.5	QPSK	1	0	3375	2682.5	LTE B46 <sub>D</sub>	20	53140	5785	LTE B46 <sub>C</sub>	20	53338	5804.8	LTE B46 <sub>D</sub>	20	52942	5765.2	23.65	23.65

Table 9-168

Five Carrier Component Carrier Aggregation Conducted Powers

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx.Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_2A-2A-46 <sub>D</sub> D	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1100	1980	LTE B46 <sub>A</sub>	20	47290	5200	LTE B46 <sub>B</sub>	20	47488	5219.8	LTE B46 <sub>C</sub>	20	47092	5180.2	24.34	24.29
CA_2A-2A-46 <sub>D</sub> D	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1100	1980	LTE B46 <sub>B</sub>	20	48290	5300	LTE B46 <sub>C</sub>	20	48488	5319.8	LTE B46 <sub>D</sub>	20	48092	5280.2	24.35	24.29
CA_2A-2A-46 <sub>D</sub> D	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1100	1980	LTE B46 <sub>C</sub>	20	51290	5600	LTE B46 <sub>D</sub>	20	51488	5619.8	LTE B46 <sub>A</sub>	20	51092	5580.2	24.33	24.29
CA_2A-2A-46 <sub>D</sub> D	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B2	20	1100	1980	LTE B46 <sub>D</sub>	20	53140	5785	LTE B46 <sub>C</sub>	20	53338	5804.8	LTE B46 <sub>D</sub>	20	52942	5765.2	24.31	24.29
CA_2A-46 <sub>D</sub> -66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B46 <sub>A</sub>	20	47290	5200	LTE B46 <sub>B</sub>	20	47488	5219.8	LTE B46 <sub>C</sub>	20	47092	5180.2	LTE B66	20	66786	2145	24.34	24.29
CA_2A-46 <sub>D</sub> -66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B46 <sub>B</sub>	20	48290	5300	LTE B46 <sub>C</sub>	20	48488	5319.8	LTE B46 <sub>D</sub>	20	48092	5280.2	LTE B66	20	66786	2145	24.33	24.29
CA_2A-46 <sub>D</sub> -66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B46 <sub>C</sub>	20	51290	5600	LTE B46 <sub>D</sub>	20	51488	5619.8	LTE B46 <sub>A</sub>	20	51092	5580.2	LTE B66	20	66786	2145	24.30	24.29
CA_2A-46 <sub>D</sub> -66A	LTE B2	20	18700	1860	QPSK	1	0	700	1940	LTE B46 <sub>D</sub>	20	53140	5785	LTE B46 <sub>C</sub>	20	53338	5804.8	LTE B46 <sub>D</sub>	20	52942	5765.2	LTE B66	20	66786	2145	24.31	24.29
CA_2A-46 <sub>D</sub> -66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B2	20	900	1960	LTE B46 <sub>A</sub>	20	47290	5200	LTE B46 <sub>B</sub>	20	47488	5219.8	LTE B46 <sub>C</sub>	20	47092	5180.2	24.40	24.38
CA_2A-46 <sub>D</sub> -66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B2	20	900	1960	LTE B46 <sub>B</sub>	20	48290	5300	LTE B46 <sub>C</sub>	20	48488	5319.8	LTE B46 <sub>D</sub>	20	48092	5280.2	24.32	24.38
CA_2A-46 <sub>D</sub> -66A	LTE B66	15	132597	1772.5	QPSK	1	0	67061	2172.5	LTE B2	20	900	1960	LTE B46 <sub>C</sub>	20	51290	5600	LTE B46 <sub>D</sub>	20	51488							



## 9.4.50 Downlink 2x2 MIMO LAA Reduced Carrier Aggregation Conducted Powers

### Table 9-169 Two Carrier Component Carrier Aggregation Conducted Powers

Combination	PCC Band	PCC Bandwidth [MHz]	PCC						SCC				Power		
			PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_7A-46 <sub>a</sub> A	LTE B7	20	21350	2560	64QAM	1	0	3350	2680	LTE B46 <sub>a</sub>	20	47290	5200	21.22	21.03
CA_7A-46 <sub>b</sub> A	LTE B7	20	21350	2560	64QAM	1	0	3350	2680	LTE B46 <sub>b</sub>	20	48290	5300	21.19	21.03
CA_7A-46 <sub>c</sub> A	LTE B7	20	21350	2560	64QAM	1	0	3350	2680	LTE B46 <sub>c</sub>	20	51290	5600	21.18	21.03
CA_7A-46 <sub>d</sub> A	LTE B7	20	21350	2560	64QAM	1	0	3350	2680	LTE B46 <sub>d</sub>	20	53140	5785	21.20	21.03

### Table 9-170 Three Carrier Component Carrier Aggregation Conducted Powers

Combination	PCC Band	PCC Bandwidth [MHz]	PCC						SCC 1				SCC 2				Power		
			PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Channel	SCC (DL) Frequency [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_4A-46 <sub>a</sub> A-46 <sub>b</sub> A	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B46 <sub>a</sub>	20	47090	5180	LTE B46 <sub>b</sub>	20	53540	5825	20.45	20.50
CA_7A-46 <sub>c</sub> C	LTE B7	20	21350	2560	64QAM	1	0	3350	2680	LTE B46 <sub>c</sub>	20	47290	5200	LTE B46 <sub>c</sub>	20	47488	5219.8	20.95	21.03
CA_7A-46 <sub>d</sub> C	LTE B7	20	21350	2560	64QAM	1	0	3350	2680	LTE B46 <sub>d</sub>	20	48290	5300	LTE B46 <sub>d</sub>	20	48488	5319.8	20.92	21.03
CA_7A-46 <sub>e</sub> C	LTE B7	20	21350	2560	64QAM	1	0	3350	2680	LTE B46 <sub>e</sub>	20	51290	5600	LTE B46 <sub>e</sub>	20	51488	5619.8	20.93	21.03
CA_7A-46 <sub>f</sub> C	LTE B7	20	21350	2560	64QAM	1	0	3350	2680	LTE B46 <sub>f</sub>	20	53140	5785	LTE B46 <sub>f</sub>	20	53338	5804.8	20.94	21.03

### Table 9-171 Four Carrier Component Carrier Aggregation Conducted Powers

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC 1				SCC 2				SCC 3				Power	
										SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_2A-46 <sub>a</sub> A-46 <sub>b</sub> A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B46 <sub>a</sub>	20	47090	5180	LTE B46 <sub>b</sub>	20	53540	5825	LTE B66	20	66786	2145	20.47	20.50
CA_4A-46 <sub>d</sub> D	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B46 <sub>d</sub>	20	47290	5200	LTE B46 <sub>d</sub>	20	47488	5219.8	LTE B46 <sub>e</sub>	20	47092	5180.2	20.38	20.50
CA_4A-46 <sub>e</sub> D	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B46 <sub>e</sub>	20	48290	5300	LTE B46 <sub>e</sub>	20	48488	5319.8	LTE B46 <sub>f</sub>	20	48092	5280.2	20.36	20.50
CA_4A-46 <sub>f</sub> D	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B46 <sub>f</sub>	20	51290	5600	LTE B46 <sub>f</sub>	20	51488	5619.8	LTE B46 <sub>g</sub>	20	51092	5580.2	20.39	20.50
CA_4A-46 <sub>g</sub> D	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B46 <sub>g</sub>	20	53140	5785	LTE B46 <sub>g</sub>	20	53338	5804.8	LTE B46 <sub>h</sub>	20	52942	5765.2	20.34	20.50
CA_4A-46 <sub>a</sub> A-46 <sub>b</sub> A-46 <sub>c</sub> C	LTE B4	20	20300	1745	16QAM	1	0	2300	2145	LTE B46 <sub>a</sub>	20	47090	5180	LTE B46 <sub>b</sub>	20	53540	5825	LTE B46 <sub>c</sub>	20	53342	5805.2	20.39	20.50
CA_2A-46 <sub>a</sub> A-46 <sub>b</sub> A-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B2	20	900	1960	LTE B46 <sub>a</sub>	20	47090	5180	LTE B46 <sub>b</sub>	20	53540	5825	20.36	20.50
CA_7A-46 <sub>d</sub> D	LTE B7	20	21350	2560	64QAM	1	0	3350	2680	LTE B46 <sub>d</sub>	20	47290	5200	LTE B46 <sub>d</sub>	20	47488	5219.8	LTE B46 <sub>e</sub>	20	47092	5180.2	20.94	21.03
CA_7A-46 <sub>e</sub> D	LTE B7	20	21350	2560	64QAM	1	0	3350	2680	LTE B46 <sub>e</sub>	20	48290	5300	LTE B46 <sub>e</sub>	20	48488	5319.8	LTE B46 <sub>f</sub>	20	48092	5280.2	20.91	21.03
CA_7A-46 <sub>f</sub> D	LTE B7	20	21350	2560	64QAM	1	0	3350	2680	LTE B46 <sub>f</sub>	20	51290	5600	LTE B46 <sub>f</sub>	20	51488	5619.8	LTE B46 <sub>g</sub>	20	51092	5580.2	20.93	21.03
CA_7A-46 <sub>g</sub> D	LTE B7	20	21350	2560	64QAM	1	0	3350	2680	LTE B46 <sub>g</sub>	20	53140	5785	LTE B46 <sub>g</sub>	20	53338	5804.8	LTE B46 <sub>h</sub>	20	52942	5765.2	20.93	21.03

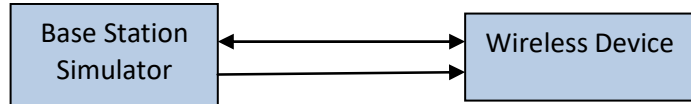
### Table 9-172 Five Carrier Component Carrier Aggregation Conducted Powers

Combination	PCC Band	PCC BW [MHz]	PCC (UL) Channel	PCC (UL) Freq. [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	PCC (DL) Channel	PCC (DL) Freq. [MHz]	SCC 1				SCC 2				SCC 3				SCC 4				Power	
										SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	SCC Band	SCC BW [MHz]	SCC (DL) Channel	SCC (DL) Freq. [MHz]	LTE Tx Power with DL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_2A-2A-46 <sub>d</sub> D	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B46 <sub>d</sub>	20	47290	5200	LTE B46 <sub>e</sub>	20	47488	5219.8	LTE B46 <sub>f</sub>	20	47092	5180.2	20.44	20.50
CA_2A-2A-46 <sub>e</sub> D	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B46 <sub>e</sub>	20	48290	5300	LTE B46 <sub>f</sub>	20	48488	5319.8	LTE B46 <sub>g</sub>	20	48092	5280.2	20.46	20.50
CA_2A-2A-46 <sub>f</sub> D	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B46 <sub>f</sub>	20	51290	5600	LTE B46 <sub>g</sub>	20	51488	5619.8	LTE B46 <sub>h</sub>	20	51092	5580.2	20.45	20.50
CA_2A-2A-46 <sub>g</sub> D	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B2	20	1100	1980	LTE B46 <sub>g</sub>	20	53140	5785	LTE B46 <sub>h</sub>	20	53338	5804.8	LTE B46 <sub>i</sub>	20	52942	5765.2	20.46	20.50
CA_2A-46 <sub>d</sub> D-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B46 <sub>d</sub>	20	47290	5200	LTE B46 <sub>e</sub>	20	47488	5219.8	LTE B46 <sub>f</sub>	20	47092	5180.2	LTE B66	20	66786	2145	20.46	20.50
CA_2A-46 <sub>e</sub> D-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B46 <sub>e</sub>	20	48290	5300	LTE B46 <sub>f</sub>	20	48488	5319.8	LTE B46 <sub>g</sub>	20	48092	5280.2	LTE B66	20	66786	2145	20.47	20.50
CA_2A-46 <sub>f</sub> D-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B46 <sub>f</sub>	20	51290	5600	LTE B46 <sub>g</sub>	20	51488	5619.8	LTE B46 <sub>h</sub>	20	51092	5580.2	LTE B66	20	66786	2145	20.45	20.50
CA_2A-46 <sub>g</sub> D-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B46 <sub>g</sub>	20	53140	5785	LTE B46 <sub>h</sub>	20	53338	5804.8	LTE B46 <sub>i</sub>	20	52942	5765.2	LTE B66	20	66786	2145	20.44	20.50
CA_2A-46 <sub>a</sub> A-46 <sub>b</sub> A-66A	LTE B2	20	18700	1860	16QAM	1	0	700	1940	LTE B46 <sub>a</sub>	20	47090	5180	LTE B46 <sub>b</sub>	20	53540	5825	LTE B46 <sub>c</sub>	20	53342	5805.2	LTE B66	20	66786	2145	20.43	20.50
CA_2A-46 <sub>d</sub> D-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B2	20	900	1960	LTE B46 <sub>d</sub>	20	47290	5200	LTE B46 <sub>e</sub>	20	47488	5219.8	LTE B46 <sub>f</sub>	20	47092	5180.2	20.37	20.50
CA_2A-46 <sub>e</sub> D-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B2	20	900	1960	LTE B46 <sub>e</sub>	20	48290	5300	LTE B46 <sub>f</sub>	20	48488	5319.8	LTE B46 <sub>g</sub>	20	48092	5280.2	20.39	20.50
CA_2A-46 <sub>f</sub> D-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B2	20	900	1960	LTE B46 <sub>f</sub>	20	51290	5600	LTE B46 <sub>g</sub>	20	51488	5619.8	LTE B46 <sub>h</sub>	20	51092	5580.2	20.31	20.50
CA_2A-46 <sub>g</sub> D-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B2	20	900	1960	LTE B46 <sub>g</sub>	20	53140	5785	LTE B46 <sub>h</sub>	20	53338	5804.8	LTE B46 <sub>i</sub>	20	52942	5765.2	20.29	20.50
CA_2A-46 <sub>a</sub> A-46 <sub>b</sub> A-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B2	20	900	1960	LTE B46 <sub>a</sub>	20	47090	5180	LTE B46 <sub>b</sub>	20	53540	5825	LTE B46 <sub>c</sub>	20	53342	5805.2	20.27	20.50
CA_46 <sub>d</sub> D-66A-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B66	20	67236	2190	LTE B46 <sub>d</sub>	20	47290	5200	LTE B46 <sub>e</sub>	20	47488	5219.8	LTE B46 <sub>f</sub>	20	47092	5180.2	20.26	20.50
CA_46 <sub>e</sub> D-66A-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B66	20	67236	2190	LTE B46 <sub>e</sub>	20	48290	5300	LTE B46 <sub>f</sub>	20	48488	5319.8	LTE B46 <sub>g</sub>	20	48092	5280.2	20.29	20.50
CA_46 <sub>f</sub> D-66A-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B66	20	67236	2190	LTE B46 <sub>f</sub>	20	51290	5600	LTE B46 <sub>g</sub>	20	51488	5619.8	LTE B46 <sub>h</sub>	20	51092	5580.2	20.27	20.50
CA_46 <sub>g</sub> D-66A-66A	LTE B66	20	132322	1745	16QAM	1	0	66786	2145	LTE B66	20	67236	2190	LTE B46 <sub>g</sub>	20	53140	5785	LTE B46 <sub>h</sub>	20	53338	5804.8	LTE B46 <sub>i</sub>	20	52942	5765.2	20.37	20.50



This device supports LAA with downlink carrier aggregation only. All uplink communications and acknowledgements on the PCC remain identical to specifications when downlink carrier aggregation is inactive. For those combinations required by FCC Guidance, power measurements were performed with 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.

The PCC uplink channel was selected based on section C)3)b)ii) of KBD 941225 D05 V01r02. The downlink PCC channel was paired with the selected PCC uplink channel according to normal configurations without carrier aggregation per 3GPP requirements. The SCC downlink channels were selected near the middle of their transmission bands. For contiguous intra-band carriers, the downlink channel spacing between the component carriers was set to multiple of 300 kHz less than the nominal channel spacing defined in section 5.4.1A of 3GPP TS 36.521. For LAA operations, each Band 46 sub-band was evaluated independently due to the wide downlink bandwidth.

Per FCC KDB Publication 941225 D05Av01r02, no SAR measurements are required for 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.



**Figure 9-6**  
**Power Measurement Setup for LAA 2X2 MIMO**

FCC ID A3LSMG960U	 <b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>SAR EVALUATION REPORT</b>		<b>Approved by:</b> Quality Manager
<b>Document S/N:</b> 1M1711010281-01-R1.A3L	<b>Test Dates:</b> 11/03/17 - 12/07/17	<b>DUT Type:</b> Portable Handset		Page 92 of 162





## 9.5 WLAN Conducted Powers

**Table 9-173  
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
2412	1	19.58	17.48	17.26
2437	6	19.62	17.48	17.36
2462	11	<b>20.22</b>	17.12	17.09

**Table 9-174  
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
2412	1	<b>20.19</b>	17.34	17.09
2437	6	20.16	17.31	17.05
2462	11	19.76	16.91	17.05



FCC ID A3LSMG960U	 <b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>SAR EVALUATION REPORT</b>		<b>Approved by:</b> Quality Manager
<b>Document S/N:</b> 1M1711010281-01-R1.A3L	<b>Test Dates:</b> 11/03/17 - 12/07/17	<b>DUT Type:</b> Portable Handset		Page 93 of 162

**Table 9-175**  
**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
5180	36	18.26	18.23	17.71
5200	40	18.40	18.26	17.63
5220	44	18.32	18.31	17.60
5240	48	18.30	18.26	17.70
5260	52	18.15	18.15	18.14
5280	56	18.22	18.20	18.20
5300	60	<b>18.28</b>	18.24	18.22
5320	64	18.25	18.17	18.28
5500	100	<b>18.39</b>	18.30	18.34
5600	120	18.10	18.12	18.04
5620	124	18.00	18.28	18.11
5720	144	17.73	17.66	17.87
5745	149	<b>17.44</b>	17.41	17.40
5785	157	17.42	17.15	17.44
5825	165	17.43	18.07	17.52

**Table 9-176**  
**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
5180	36	17.86	17.81	17.87
5200	40	17.91	17.80	18.07
5220	44	17.88	17.78	17.96
5240	48	17.97	17.81	17.98
5260	52	18.08	17.96	17.85
5280	56	18.02	17.85	17.94
5300	60	18.08	17.91	17.93
5320	64	<b>18.17</b>	18.03	17.74
5500	100	18.01	17.91	17.85
5600	120	17.79	17.70	17.62
5620	124	17.50	17.58	17.67
5720	144	<b>18.42</b>	18.41	18.37
5745	149	17.02	16.68	17.28
5785	157	16.77	16.76	17.27
5825	165	<b>18.03</b>	17.59	18.16



FCC ID A3LSMG960U	 <b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>SAR EVALUATION REPORT</b>		<b>Approved by:</b> Quality Manager
<b>Document S/N:</b> 1M1711010281-01-R1.A3L	<b>Test Dates:</b> 11/03/17 - 12/07/17	<b>DUT Type:</b> Portable Handset		Page 94 of 162

**Table 9-177**  
**5 GHz WLAN Maximum Average RF Power – MIMO**

<b>5GHz (40MHz) 802.11n Conducted Power [dBm]</b>				
<b>Freq [MHz]</b>	<b>Channel</b>	<b>ANT1</b>	<b>ANT2</b>	<b>MIMO</b>
5190	38	15.52	15.39	18.47
5230	46	16.97	16.67	19.83
5270	54	<b>16.73</b>	<b>16.68</b>	<b>19.72</b>
5310	62	14.72	14.46	17.60
5510	102	15.57	15.54	18.57
5590	118	16.52	16.54	19.54
5630	126	16.86	17.40	20.15
5710	142	16.57	17.19	19.90
5755	151	16.65	17.16	19.92
5795	159	16.58	17.10	19.86
<b>5GHz (80MHz) 802.11ac Conducted Power [dBm]</b>				
<b>Freq [MHz]</b>	<b>Channel</b>	<b>ANT1</b>	<b>ANT2</b>	<b>MIMO</b>
5210	42	14.59	14.25	17.43
5290	58	14.56	14.28	17.43
5530	106	15.00	14.30	17.67
5610	122	<b>16.85</b>	<b>16.76</b>	<b>19.82</b>
5690	138	16.55	16.60	19.59
5775	155	<b>16.81</b>	<b>16.65</b>	<b>19.74</b>

**Table 9-178**  
**Maximum Output Powers During Conditions with 2.4 GHz and 5 GHz WLAN**

<b>5GHz (80MHz) 802.11ac Conducted Power [dBm]</b>			
<b>Freq [MHz]</b>	<b>Channel</b>	<b>ANT1</b>	<b>ANT2</b>
5210	42	12.79	12.97
5290	58	<b>13.21</b>	<b>12.81</b>
5530	106	12.80	12.73
5610	122	12.75	12.63
5690	138	<b>13.38</b>	<b>13.37</b>
5775	155	<b>13.07</b>	<b>13.00</b>

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**Table 9-179**  
**2.4 GHz WLAN Reduced Average RF Power – Ant 1**



2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	15.07	15.35	15.31
2437	6	14.80	15.15	15.05
2462	11	<b>15.27</b>	15.35	15.21

**Table 9-180**  
**2.4 GHz WLAN Reduced Average RF Power – Ant 2**

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	<b>14.90</b>	14.63	14.38
2437	6	14.69	14.88	14.86
2462	11	14.60	15.36	15.12

**Table 9-181**  
**5 GHz WLAN Reduced Average RF Power – Ant 1**

5GHz (80MHz) Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode
		802.11ac
		Average
5210	42	12.79
5290	58	<b>13.21</b>
5530	106	12.80
5610	122	12.75
5690	138	<b>13.38</b>
5775	155	<b>13.07</b>



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**Table 9-182**  
**5 GHz WLAN Reduced Average RF Power – Ant 2**

5GHz (80MHz) Conducted Power [dBm]		
Freq [MHz]	Channel	IEEE Transmission Mode
		802.11ac
		Average
5210	42	12.97
5290	58	<b>12.81</b>
5530	106	12.73
5610	122	12.63
5690	138	<b>13.37</b>
5775	155	<b>13.00</b>

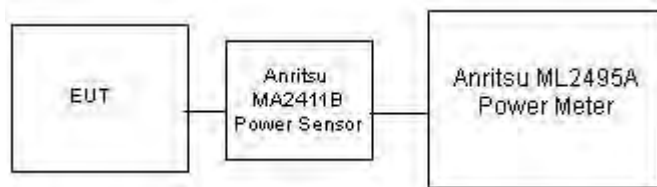
**Table 9-183**  
**Reduced Output Powers During Conditions with 2.4 GHz and 5 GHz WLAN**

2.4GHz 802.11n Conducted Power [dBm]			
Freq [MHz]	Channel	ANT1	ANT2
2412	1	12.85	12.97
2437	6	<b>13.36</b>	<b>13.00</b>
2462	11	12.77	12.70
5GHz (80MHz) 802.11ac Conducted Power [dBm]			
Freq [MHz]	Channel	ANT1	ANT2
5210	42	12.79	12.97
5290	58	<b>13.21</b>	<b>12.81</b>
5530	106	12.80	12.73
5610	122	12.75	12.63
5690	138	<b>13.38</b>	<b>13.37</b>
5775	155	<b>13.07</b>	<b>13.00</b>

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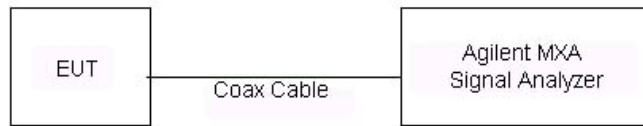
Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02:

- 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 9-7**

Power Measurement Setup for Bandwidths < 50 MHz



**Figure 9-8**

Power Measurement Setup for Bandwidths > 50 MHz



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## 9.6 Bluetooth Conducted Powers

Table 9-184  
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	<b>15.04</b>	31.924
2441	1.0	39	14.63	29.046
2480	1.0	78	13.03	20.069
2402	2.0	0	5.91	3.896
2441	2.0	39	5.75	3.759
2480	2.0	78	4.31	2.699
2402	3.0	0	5.77	3.779
2441	3.0	39	5.88	3.875
2480	3.0	78	4.49	2.809

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

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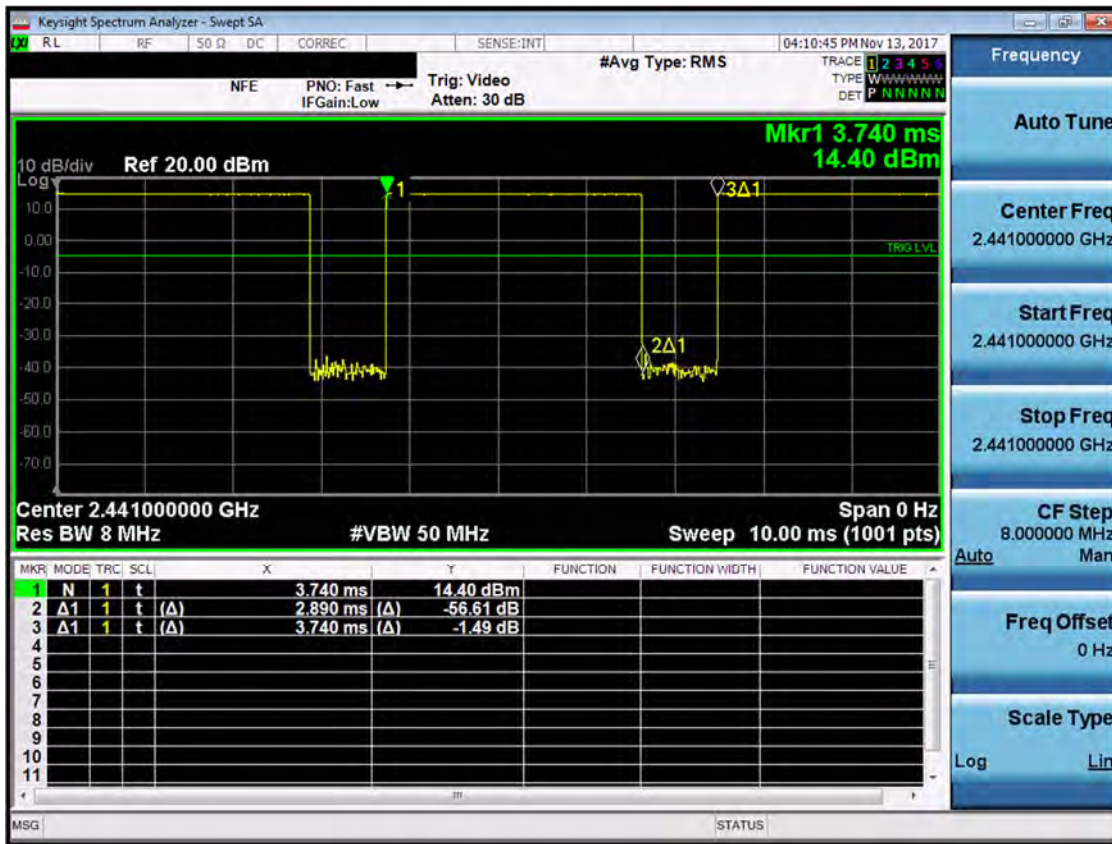


Figure 9-9  
Bluetooth Transmission Plot

Equation 9-1  
Bluetooth Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.89ms}{3.74ms} * 100\% = 77.3\%$$

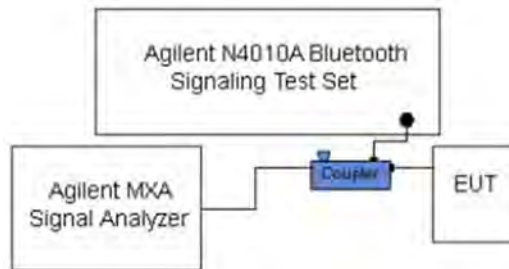


Figure 9-10  
Power Measurement Setup

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# 10 SYSTEM VERIFICATION

## 10.1 Tissue Verification

**Table 10-1  
Measured Head Tissue Properties**



Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon$	TARGET Conductivity, $\sigma$ (S/m)	TARGET Dielectric Constant, $\epsilon$	% dev $\sigma$	% dev $\epsilon$
11/13/2017	750H	20.6	680	0.864	42.651	0.888	42.305	-2.70%	0.82%
			695	0.869	42.622	0.889	42.227	-2.25%	0.94%
			710	0.874	42.593	0.890	42.149	-1.80%	1.05%
			740	0.884	42.506	0.893	41.994	-1.01%	1.22%
			755	0.889	42.437	0.894	41.916	-0.56%	1.24%
			770	0.894	42.365	0.895	41.838	-0.11%	1.26%
			785	0.900	42.318	0.896	41.760	0.45%	1.34%
11/20/2017	750H	20.4	800	0.906	42.286	0.897	41.682	1.00%	1.45%
			700	0.871	42.157	0.889	42.201	-2.02%	-0.10%
			710	0.875	42.127	0.890	42.149	-1.69%	-0.05%
11/3/2017	835H	20.8	740	0.886	42.072	0.893	41.994	-0.78%	0.19%
			755	0.891	42.030	0.894	41.916	-0.34%	0.27%
			820	0.905	42.458	0.899	41.578	0.67%	2.12%
11/6/2017	835H	20.5	835	0.920	42.260	0.900	41.500	2.22%	1.83%
			850	0.934	42.064	0.916	41.500	1.97%	1.36%
			820	0.900	42.598	0.899	41.578	0.11%	2.45%
11/8/2017	835H	22.0	835	0.915	42.406	0.900	41.500	1.67%	2.18%
			850	0.930	42.216	0.916	41.500	1.53%	1.73%
			820	0.889	41.761	0.899	41.578	-1.11%	0.44%
11/12/2017	835H	20.5	835	0.903	41.568	0.900	41.500	0.33%	0.16%
			850	0.917	41.388	0.916	41.500	0.11%	-0.27%
			820	0.887	40.921	0.899	41.578	-1.33%	-1.58%
11/6/2017	1750H	20.5	835	0.902	40.759	0.900	41.500	0.22%	-1.79%
			850	0.917	40.578	0.916	41.500	0.11%	-2.22%
			1710	1.367	39.094	1.348	40.142	1.41%	-2.61%
11/6/2017	1900H	22.2	1750	1.407	38.893	1.371	40.079	2.63%	-2.96%
			1790	1.446	38.697	1.394	40.016	3.73%	-3.30%
			1850	1.351	39.437	1.400	40.000	-3.50%	-1.41%
11/8/2017	1900H	21.5	1880	1.382	39.325	1.400	40.000	-1.29%	-1.69%
			1910	1.413	39.217	1.400	40.000	0.93%	-1.96%
			1850	1.380	40.102	1.400	40.000	-1.43%	0.25%
11/7/2017	2450H	21.1	1910	1.442	39.891	1.400	40.000	3.00%	-0.27%
			2300	1.719	38.713	1.670	39.500	2.93%	-1.99%
			2310	1.730	38.674	1.679	39.480	3.04%	-2.04%
11/15/2017	2450H	21.7	2550	1.996	37.724	1.909	39.073	4.56%	-3.45%
			2600	2.053	37.507	1.964	39.009	4.53%	-3.85%
			2550	1.995	40.280	1.909	39.073	4.50%	3.09%
11/21/2017	2450H	22.1	2600	2.053	40.115	1.964	39.009	4.53%	2.84%
			2400	1.812	39.627	1.756	39.289	3.19%	0.86%
			2450	1.872	39.470	1.800	39.200	4.00%	0.69%
11/24/2017	5200H-5800H	20.6	2500	1.925	39.220	1.855	39.136	3.77%	0.21%
			5240	4.513	36.231	4.696	35.940	-3.90%	0.81%
			5260	4.538	36.190	4.717	35.917	-3.79%	0.76%
			5280	4.554	36.176	4.737	35.894	-3.86%	0.79%
			5300	4.571	36.159	4.758	35.871	-3.93%	0.80%
			5600	4.885	35.743	5.065	35.529	-3.55%	0.60%
			5680	4.969	35.646	5.147	35.437	-3.46%	0.59%
			5700	4.997	35.565	5.168	35.414	-3.31%	0.43%
			5745	5.045	35.526	5.214	35.363	-3.24%	0.46%
			5765	5.057	35.504	5.234	35.340	-3.38%	0.46%

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**Table 10-2  
Measured Body Tissue Properties**

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, $\sigma$ (S/m)	Measured Dielectric Constant, $\epsilon$	TARGET Conductivity, $\sigma$ (S/m)	TARGET Dielectric Constant, $\epsilon$	% dev $\sigma$	% dev $\epsilon$
11/6/2017	750B	21.5	680	0.935	54.581	0.958	55.804	-2.40%	-2.19%
			695	0.941	54.549	0.959	55.745	-1.88%	-2.15%
			700	0.943	54.538	0.959	55.726	-1.67%	-2.13%
			710	0.946	54.517	0.960	55.687	-1.46%	-2.10%
			740	0.957	54.470	0.963	55.570	-0.62%	-1.98%
			755	0.963	54.432	0.964	55.512	-0.10%	-1.95%
			770	0.968	54.397	0.965	55.453	0.31%	-1.90%
11/9/2017	750B	20.6	785	0.974	54.362	0.966	55.395	0.83%	-1.86%
			740	0.944	54.664	0.963	55.570	-1.97%	-1.63%
			755	0.950	54.613	0.964	55.512	-1.45%	-1.62%
			785	0.962	54.529	0.966	55.395	-0.41%	-1.56%
11/6/2017	835B	20.7	800	0.969	54.505	0.967	55.336	0.21%	-1.50%
			820	0.978	53.207	0.969	55.258	0.93%	-3.71%
			835	0.994	53.062	0.970	55.200	2.47%	-3.87%
11/8/2017	835B	21.1	850	1.009	52.923	0.988	55.154	2.13%	-4.05%
			820	0.980	52.799	0.969	55.258	1.14%	-4.45%
			835	0.995	52.643	0.970	55.200	2.58%	-4.63%
11/15/2017	835B	21.6	850	1.010	52.487	0.988	55.154	2.23%	-4.84%
			820	0.957	52.994	0.969	55.258	-1.24%	-4.10%
			835	0.974	52.846	0.970	55.200	0.41%	-4.26%
11/3/2017	1750B	21.7	850	0.989	52.697	0.988	55.154	0.10%	-4.45%
			1710	1.459	51.806	1.463	53.537	-0.27%	-3.23%
			1750	1.505	51.635	1.488	53.432	1.14%	-3.36%
11/6/2017	1750B	21.4	1790	1.550	51.476	1.514	53.326	2.38%	-3.47%
			1710	1.453	52.127	1.463	53.537	-0.68%	-2.63%
			1750	1.498	51.962	1.488	53.432	0.67%	-2.75%
11/6/2017	1900B	21.4	1790	1.539	51.796	1.514	53.326	1.65%	-2.87%
			1850	1.509	52.823	1.520	53.300	-0.72%	-0.89%
			1880	1.543	52.740	1.520	53.300	1.51%	-1.05%
11/8/2017	1900B	22.8	1910	1.580	52.655	1.520	53.300	3.95%	-1.21%
			1850	1.518	53.151	1.520	53.300	-0.13%	-0.28%
			1880	1.550	53.050	1.520	53.300	1.97%	-0.47%
11/6/2017	2450B	23.0	1910	1.583	52.966	1.520	53.300	4.14%	-0.63%
			2300	1.810	52.528	1.809	52.900	0.06%	-0.70%
			2310	1.823	52.487	1.816	52.887	0.39%	-0.76%
11/15/2017	2450B	23.5	2320	1.837	52.443	1.826	52.873	0.60%	-0.81%
			2500	2.144	51.628	2.092	52.573	2.49%	-1.80%
			2600	2.215	51.438	2.163	52.509	2.40%	-2.04%
11/20/2017	2450B	23.7	2400	1.928	53.413	1.902	52.767	1.37%	1.22%
			2450	1.990	53.230	1.950	52.700	2.05%	1.01%
			2500	2.061	53.043	2.021	52.636	1.98%	0.77%
			2550	2.132	52.879	2.092	52.573	1.91%	0.58%
			2600	2.198	52.680	2.163	52.509	1.62%	0.33%
			2650	2.276	52.513	2.234	52.445	1.88%	0.13%
			2400	1.974	53.553	1.902	52.767	3.79%	1.49%
11/23/2017	2450B	23.0	2450	2.044	53.380	1.950	52.700	4.82%	1.29%
			2500	2.116	53.161	2.021	52.636	4.70%	1.00%
			2300	1.776	52.617	1.809	52.900	-1.82%	-0.53%
11/27/2017	2450B	23.0	2310	1.782	52.545	1.816	52.887	-1.87%	-0.65%
			2550	2.102	51.727	2.092	52.573	0.48%	-1.61%
			2600	2.164	51.572	2.163	52.509	0.05%	-1.78%
			5240	5.405	47.718	5.346	48.960	1.10%	-2.54%
11/24/2017	5200B-5800B	21.9	5260	5.437	47.688	5.369	48.933	1.27%	-2.54%
			5300	5.487	47.609	5.416	48.879	1.31%	-2.60%
			5320	5.519	47.561	5.439	48.851	1.47%	-2.64%
			5500	5.743	47.294	5.650	48.607	1.65%	-2.70%
			5600	5.899	47.142	5.766	48.471	2.31%	-2.74%
			5700	6.039	46.947	5.883	48.336	2.65%	-2.87%
			5745	6.101	46.906	5.936	48.275	2.78%	-2.84%
			5765	6.117	46.867	5.959	48.248	2.65%	-2.86%
			5825	6.206	46.745	6.029	48.166	2.94%	-2.95%

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.

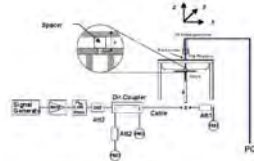
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## 10.2 Test System Verification

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 10-3  
System Verification Results**



System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR <sub>1g</sub> (W/kg)	1 W Target SAR <sub>1g</sub> (W/kg)	1 W Normalized SAR <sub>1g</sub> (W/kg)	Deviation <sub>1g</sub> (%)
G	750	HEAD	11/13/2017	21.9	21.1	0.200	1161	3332	1.560	8.170	7.800	-4.53%
D	750	HEAD	11/20/2017	21.6	20.2	0.200	1054	3318	1.650	8.370	8.250	-1.43%
K	835	HEAD	11/03/2017	21.9	20.8	0.200	4d133	7406	1.910	9.520	9.550	0.32%
K	835	HEAD	11/06/2017	22.3	20.5	0.200	4d133	7406	1.950	9.520	9.750	2.42%
K	835	HEAD	11/08/2017	22.9	22.0	0.200	4d133	7406	1.950	9.520	9.750	2.42%
H	835	HEAD	11/12/2017	21.5	20.6	0.200	4d133	7410	1.940	9.520	9.700	1.89%
E	1750	HEAD	11/06/2017	22.4	20.5	0.100	1148	3319	3.580	36.400	35.800	-1.65%
G	1900	HEAD	11/06/2017	21.1	21.2	0.100	5d149	3332	3.780	39.600	37.800	-4.55%
G	1900	HEAD	11/08/2017	21.7	21.2	0.100	5d149	3332	4.220	39.600	42.200	6.57%
E	2300	HEAD	11/07/2017	24.3	21.1	0.100	1073	3319	5.200	48.600	52.000	7.00%
E	2450	HEAD	11/21/2017	23.1	22.1	0.100	981	3319	5.260	52.800	52.600	-0.38%
E	2600	HEAD	11/07/2017	24.3	21.1	0.100	1126	3319	5.850	56.400	58.500	3.72%
E	2600	HEAD	11/15/2017	22.5	21.7	0.100	1126	3319	5.900	56.400	59.000	4.61%
H	5250	HEAD	11/24/2017	21.7	20.6	0.050	1057	3914	4.070	81.600	81.400	-0.25%
H	5600	HEAD	11/24/2017	21.7	20.6	0.050	1057	3914	3.930	83.700	78.600	-6.09%
H	5750	HEAD	11/24/2017	21.7	20.6	0.050	1057	3914	4.020	80.000	80.400	0.50%
D	750	BODY	11/06/2017	22.6	21.5	0.200	1054	3318	1.760	8.610	8.800	2.21%
D	750	BODY	11/09/2017	20.8	20.5	0.200	1054	3318	1.740	8.610	8.700	1.05%
K	835	BODY	11/06/2017	22.4	20.6	0.200	4d132	7406	2.100	9.800	10.500	7.14%
K	835	BODY	11/08/2017	22.8	21.1	0.200	4d132	7406	2.050	9.800	10.250	4.59%
J	835	BODY	11/15/2017	24.1	21.5	0.200	4d133	3209	1.960	9.410	9.800	4.14%
J	1750	BODY	11/03/2017	21.9	21.7	0.100	1150	3209	3.930	36.500	39.300	7.67%
J	1750	BODY	11/06/2017	21.7	21.5	0.100	1150	3209	3.850	36.500	38.500	5.48%
H	1900	BODY	11/06/2017	23.8	21.4	0.100	5d148	7410	4.130	40.900	41.300	0.98%
J	1900	BODY	11/08/2017	23.7	22.4	0.100	5d148	3209	4.050	40.900	40.500	-0.98%
I	2300	BODY	11/06/2017	22.0	22.5	0.100	1073	3213	4.570	48.100	45.700	-4.99%
I	2300	BODY	11/27/2017	22.0	22.0	0.100	1073	3213	4.610	48.100	46.100	-4.16%
I	2450	BODY	11/20/2017	21.9	21.9	0.100	719	3213	4.930	50.100	49.300	-1.60%
I	2450	BODY	11/23/2017	21.7	21.0	0.100	719	3213	5.260	50.100	52.600	4.99%
I	2600	BODY	11/15/2017	23.3	21.9	0.100	1064	3213	5.810	54.700	58.100	6.22%
I	2600	BODY	11/20/2017	21.9	21.9	0.100	1064	3213	5.540	54.700	55.400	1.28%
I	2600	BODY	11/27/2017	22.0	22.0	0.100	1064	3213	5.580	54.700	55.800	2.01%
D	5250	BODY	11/24/2017	20.8	20.7	0.050	1057	7308	3.520	74.600	70.400	-5.63%
D	5600	BODY	11/24/2017	20.8	20.7	0.050	1057	7308	3.820	78.900	76.400	-3.17%
D	5750	BODY	11/24/2017	20.8	20.7	0.050	1057	7308	3.580	75.500	71.600	-5.17%



**Figure 10-1  
System Verification Setup Diagram**



**Figure 10-2  
System Verification Setup Photo**

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# 11 SAR DATA SUMMARY



## 11.1 Standalone Head SAR Data

**Table 11-1  
CDMA BC10 (§90S) Head SAR**

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Ant State	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	24.84	0.02	Right	Cheek	3	20EE2	1:1	0.221	1.164	0.257	A1
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	24.84	0.00	Right	Tilt	3	20EE2	1:1	0.117	1.164	0.136	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	24.84	0.00	Left	Cheek	3	20EE2	1:1	0.174	1.164	0.203	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	24.84	0.08	Left	Tilt	3	20EE2	1:1	0.108	1.164	0.126	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	24.87	-0.02	Right	Cheek	3	20EE2	1:1	0.197	1.156	0.228	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	24.87	0.05	Right	Tilt	3	20EE2	1:1	0.098	1.156	0.113	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	24.87	0.16	Left	Cheek	3	20EE2	1:1	0.144	1.156	0.166	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	24.87	-0.06	Left	Tilt	3	20EE2	1:1	0.109	1.156	0.126	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram							

**Table 11-2  
CDMA BC0 (§22H) Head SAR**

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Ant State	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.0	24.49	-0.03	Right	Cheek	3	20EE2	1:1	0.290	1.125	0.326	A2
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.0	24.49	0.05	Right	Tilt	3	20EE2	1:1	0.137	1.125	0.154	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.0	24.49	-0.09	Left	Cheek	3	20EE2	1:1	0.210	1.125	0.236	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.0	24.49	0.07	Left	Tilt	3	20EE2	1:1	0.116	1.125	0.131	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.0	24.59	0.07	Right	Cheek	3	20EE2	1:1	0.286	1.099	0.314	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.0	24.59	0.08	Right	Tilt	3	20EE2	1:1	0.097	1.099	0.107	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.0	24.59	-0.14	Left	Cheek	3	20EE2	1:1	0.211	1.099	0.232	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.0	24.59	-0.06	Left	Tilt	3	20EE2	1:1	0.114	1.099	0.125	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram							

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**Table 11-3  
PCS CDMA Head SAR**



MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Ant State	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.17	0.00	Right	Cheek	77	20EE2	1:1	0.190	1.211	0.230	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.17	0.02	Right	Tilt	77	20EE2	1:1	0.085	1.211	0.103	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.17	-0.04	Left	Cheek	77	20EE2	1:1	0.247	1.211	0.299	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.17	0.01	Left	Tilt	77	20EE2	1:1	0.061	1.211	0.074	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.01	-0.01	Right	Cheek	77	20EE2	1:1	0.181	1.256	0.227	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.01	0.02	Right	Tilt	77	20EE2	1:1	0.083	1.256	0.104	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.01	-0.10	Left	Cheek	77	20EE2	1:1	0.264	1.256	0.332	A3
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.01	0.02	Left	Tilt	77	20EE2	1:1	0.048	1.256	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								

**Table 11-4  
GSM 850 Head SAR**

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.										(W/kg)		(W/kg)		
836.60	190	GSM 850	GSM	33.0	32.80	0.04	Right	Cheek	20EF4	1:8.3	0.205	1.047	0.215	A4	
836.60	190	GSM 850	GSM	33.0	32.80	0.12	Right	Tilt	20EF4	1:8.3	0.094	1.047	0.098		
836.60	190	GSM 850	GSM	33.0	32.80	0.05	Left	Cheek	20EF4	1:8.3	0.156	1.047	0.163		
836.60	190	GSM 850	GSM	33.0	32.80	-0.03	Left	Tilt	20EF4	1:8.3	0.093	1.047	0.097		
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

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

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.										(W/kg)		(W/kg)		
1880.00	661	GSM 1900	GSM	31.0	29.47	-0.12	Right	Cheek	20EF4	1:8.3	0.052	1.422	0.074		
1880.00	661	GSM 1900	GSM	31.0	29.47	-0.02	Right	Tilt	20EF4	1:8.3	0.036	1.422	0.051		
1880.00	661	GSM 1900	GSM	31.0	29.47	-0.05	Left	Cheek	20EF4	1:8.3	0.076	1.422	0.108	A5	
1880.00	661	GSM 1900	GSM	31.0	29.47	0.06	Left	Tilt	20EF4	1:8.3	0.028	1.422	0.040		
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

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**Table 11-6  
UMTS 850 Head SAR**



MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Ant State	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	4183	UMTS 850	RMC	25.0	24.67	-0.03	Right	Cheek	2	20EDE	1:1	0.313	1.079	0.338	A6
836.60	4183	UMTS 850	RMC	25.0	24.67	0.05	Right	Tilt	2	20EDE	1:1	0.129	1.079	0.139	
836.60	4183	UMTS 850	RMC	25.0	24.67	0.03	Left	Cheek	2	20EDE	1:1	0.219	1.079	0.236	
836.60	4183	UMTS 850	RMC	25.0	24.67	0.13	Left	Tilt	2	20EDE	1:1	0.111	1.079	0.120	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

**Table 11-7  
UMTS 1750 Head SAR**

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Ant State	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1732.40	1412	UMTS 1750	RMC	25.0	24.05	0.05	Right	Cheek	73	20EF4	1:1	0.138	1.245	0.172	
1732.40	1412	UMTS 1750	RMC	25.0	24.05	0.09	Right	Tilt	73	20EF4	1:1	0.085	1.245	0.106	
1732.40	1412	UMTS 1750	RMC	25.0	24.05	0.14	Left	Cheek	73	20EF4	1:1	0.222	1.245	0.276	A7
1732.40	1412	UMTS 1750	RMC	25.0	24.05	0.09	Left	Tilt	73	20EF4	1:1	0.103	1.245	0.128	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

**Table 11-8  
UMTS 1900 Head SAR**

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Ant State	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	9400	UMTS 1900	RMC	25.0	24.01	0.11	Right	Cheek	77	20EF4	1:1	0.111	1.256	0.139	
1880.00	9400	UMTS 1900	RMC	25.0	24.01	0.18	Right	Tilt	77	20EF4	1:1	0.051	1.256	0.064	
1880.00	9400	UMTS 1900	RMC	25.0	24.01	-0.01	Left	Cheek	77	20EF4	1:1	0.156	1.256	0.196	A8
1880.00	9400	UMTS 1900	RMC	25.0	24.01	-0.01	Left	Tilt	77	20EF4	1:1	0.048	1.256	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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**Table 11-9  
LTE Band 71 Head SAR**



MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Ant State	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
680.50	133297	Md	LTE Band 71	20	25.0	24.81	0.12	0	Right	Cheek	1	QPSK	1	0	20E78	1:1	0.114	1.045	0.119	A9
680.50	133297	Md	LTE Band 71	20	24.0	23.83	0.08	1	Right	Cheek	1	QPSK	50	0	20E78	1:1	0.089	1.040	0.093	
680.50	133297	Md	LTE Band 71	20	25.0	24.81	-0.12	0	Right	Tilt	1	QPSK	1	0	20E78	1:1	0.065	1.045	0.068	
680.50	133297	Md	LTE Band 71	20	24.0	23.83	0.14	1	Right	Tilt	1	QPSK	50	0	20E78	1:1	0.045	1.040	0.047	
680.50	133297	Md	LTE Band 71	20	25.0	24.81	0.00	0	Left	Cheek	1	QPSK	1	0	20E78	1:1	0.044	1.045	0.046	
680.50	133297	Md	LTE Band 71	20	24.0	23.83	0.13	1	Left	Cheek	1	QPSK	50	0	20E78	1:1	0.038	1.040	0.040	
680.50	133297	Md	LTE Band 71	20	25.0	24.81	0.10	0	Left	Tilt	1	QPSK	1	0	20E78	1:1	0.024	1.045	0.025	
680.50	133297	Md	LTE Band 71	20	24.0	23.83	0.21	1	Left	Tilt	1	QPSK	50	0	20E78	1:1	0.022	1.040	0.023	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

**Table 11-10  
LTE Band 12 Head SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Ant State	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	25.3	24.57	0.10	0	Right	Cheek	2	QPSK	1	25	20E78	1:1	0.111	1.183	0.131	A10
707.50	23095	Md	LTE Band 12	10	24.3	23.66	0.05	1	Right	Cheek	2	QPSK	25	0	20E78	1:1	0.092	1.159	0.107	
707.50	23095	Md	LTE Band 12	10	25.3	24.57	0.08	0	Right	Tilt	2	QPSK	1	25	20E78	1:1	0.036	1.183	0.043	
707.50	23095	Md	LTE Band 12	10	24.3	23.66	0.12	1	Right	Tilt	2	QPSK	25	0	20E78	1:1	0.028	1.159	0.032	
707.50	23095	Md	LTE Band 12	10	25.3	24.57	-0.03	0	Left	Cheek	2	QPSK	1	25	20E78	1:1	0.047	1.183	0.056	
707.50	23095	Md	LTE Band 12	10	24.3	23.66	0.20	1	Left	Cheek	2	QPSK	25	0	20E78	1:1	0.040	1.159	0.046	
707.50	23095	Md	LTE Band 12	10	25.3	24.57	0.10	0	Left	Tilt	2	QPSK	1	25	20E78	1:1	0.046	1.183	0.054	
707.50	23095	Md	LTE Band 12	10	24.3	23.66	0.07	1	Left	Tilt	2	QPSK	25	0	20E78	1:1	0.038	1.159	0.044	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

**Table 11-11  
LTE Band 13 Head SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Ant State	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	Md	LTE Band 13	10	25.0	24.58	-0.11	0	Right	Cheek	1	QPSK	1	0	20E78	1:1	0.210	1.102	0.231	A11
782.00	23230	Md	LTE Band 13	10	24.0	23.70	0.12	1	Right	Cheek	1	QPSK	25	0	20E78	1:1	0.194	1.072	0.208	
782.00	23230	Md	LTE Band 13	10	25.0	24.58	0.06	0	Right	Tilt	1	QPSK	1	0	20E78	1:1	0.098	1.102	0.108	
782.00	23230	Md	LTE Band 13	10	24.0	23.70	0.06	1	Right	Tilt	1	QPSK	25	0	20E78	1:1	0.089	1.072	0.095	
782.00	23230	Md	LTE Band 13	10	25.0	24.58	-0.08	0	Left	Cheek	1	QPSK	1	0	20E78	1:1	0.174	1.102	0.192	
782.00	23230	Md	LTE Band 13	10	24.0	23.70	0.07	1	Left	Cheek	1	QPSK	25	0	20E78	1:1	0.157	1.072	0.168	
782.00	23230	Md	LTE Band 13	10	25.0	24.58	-0.11	0	Left	Tilt	1	QPSK	1	0	20E78	1:1	0.088	1.102	0.097	
782.00	23230	Md	LTE Band 13	10	24.0	23.70	-0.16	1	Left	Tilt	1	QPSK	25	0	20E78	1:1	0.085	1.072	0.091	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

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**Table 11-12  
LTE Band 14 Head SAR**



MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Ant State	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	Md	LTE Band 14	10	25.0	24.75	0.02	0	Right	Cheek	1	QPSK	1	0	20E78	1:1	0.245	1.059	0.259	A12
793.00	23330	Md	LTE Band 14	10	24.0	23.72	0.03	1	Right	Cheek	1	QPSK	25	0	20E78	1:1	0.194	1.067	0.207	
793.00	23330	Md	LTE Band 14	10	25.0	24.75	0.05	0	Right	Tilt	1	QPSK	1	0	20E78	1:1	0.127	1.059	0.134	
793.00	23330	Md	LTE Band 14	10	24.0	23.72	0.11	1	Right	Tilt	1	QPSK	25	0	20E78	1:1	0.104	1.067	0.111	
793.00	23330	Md	LTE Band 14	10	25.0	24.75	-0.09	0	Left	Cheek	1	QPSK	1	0	20E78	1:1	0.213	1.059	0.226	
793.00	23330	Md	LTE Band 14	10	24.0	23.72	0.11	1	Left	Cheek	1	QPSK	25	0	20E78	1:1	0.169	1.067	0.180	
793.00	23330	Md	LTE Band 14	10	25.0	24.75	0.00	0	Left	Tilt	1	QPSK	1	0	20E78	1:1	0.111	1.059	0.118	
793.00	23330	Md	LTE Band 14	10	24.0	23.72	-0.18	1	Left	Tilt	1	QPSK	25	0	20E78	1:1	0.095	1.067	0.101	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

**Table 11-13  
LTE Band 26 (Cell) Head SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Ant State	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	Md	LTE Band 26 (Cell)	15	25.0	24.37	-0.07	0	Right	Cheek	3	QPSK	1	74	20E78	1:1	0.282	1.156	0.326	A13
831.50	26865	Md	LTE Band 26 (Cell)	15	24.0	23.28	0.00	1	Right	Cheek	3	QPSK	36	37	20E78	1:1	0.228	1.180	0.269	
831.50	26865	Md	LTE Band 26 (Cell)	15	25.0	24.37	-0.09	0	Right	Tilt	3	QPSK	1	74	20E78	1:1	0.095	1.156	0.110	
831.50	26865	Md	LTE Band 26 (Cell)	15	24.0	23.28	0.09	1	Right	Tilt	3	QPSK	36	37	20E78	1:1	0.078	1.180	0.092	
831.50	26865	Md	LTE Band 26 (Cell)	15	25.0	24.37	0.06	0	Left	Cheek	3	QPSK	1	74	20E78	1:1	0.205	1.156	0.237	
831.50	26865	Md	LTE Band 26 (Cell)	15	24.0	23.28	0.01	1	Left	Cheek	3	QPSK	36	37	20E78	1:1	0.173	1.180	0.204	
831.50	26865	Md	LTE Band 26 (Cell)	15	25.0	24.37	0.05	0	Left	Tilt	3	QPSK	1	74	20E78	1:1	0.123	1.156	0.142	
831.50	26865	Md	LTE Band 26 (Cell)	15	24.0	23.28	0.05	1	Left	Tilt	3	QPSK	36	37	20E78	1:1	0.089	1.180	0.105	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

**Table 11-14  
LTE Band 5 (Cell) Head SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Ant State	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
836.50	20525	Md	LTE Band 5 (Cell)	10	25.0	24.26	-0.03	0	Right	Cheek	3	QPSK	1	0	20E78	1:1	0.293	1.186	0.347	A14
836.50	20525	Md	LTE Band 5 (Cell)	10	24.0	23.28	-0.01	1	Right	Cheek	3	QPSK	25	0	20E78	1:1	0.227	1.180	0.268	
836.50	20525	Md	LTE Band 5 (Cell)	10	25.0	24.26	0.08	0	Right	Tilt	3	QPSK	1	0	20E78	1:1	0.100	1.186	0.119	
836.50	20525	Md	LTE Band 5 (Cell)	10	24.0	23.28	0.02	1	Right	Tilt	3	QPSK	25	0	20E78	1:1	0.080	1.180	0.094	
836.50	20525	Md	LTE Band 5 (Cell)	10	25.0	24.26	0.02	0	Left	Cheek	3	QPSK	1	0	20E78	1:1	0.202	1.186	0.240	
836.50	20525	Md	LTE Band 5 (Cell)	10	24.0	23.28	0.06	1	Left	Cheek	3	QPSK	25	0	20E78	1:1	0.168	1.180	0.198	
836.50	20525	Md	LTE Band 5 (Cell)	10	25.0	24.26	0.14	0	Left	Tilt	3	QPSK	1	0	20E78	1:1	0.110	1.186	0.130	
836.50	20525	Md	LTE Band 5 (Cell)	10	24.0	23.28	0.09	1	Left	Tilt	3	QPSK	25	0	20E78	1:1	0.081	1.180	0.096	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

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

MEASUREMENT RESULTS																				
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)		
1770.00	132572	High	LTE Band 66 (AWS)	20	25.0	24.31	0.04	0	Right	Cheek	77	QPSK	1	0	20E6C	1:1	0.160	1.172	0.188	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.0	23.21	0.14	1	Right	Cheek	77	QPSK	50	0	20E6C	1:1	0.116	1.199	0.139	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.0	24.31	0.05	0	Right	Tilt	77	QPSK	1	0	20E6C	1:1	0.076	1.172	0.089	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.0	23.21	0.09	1	Right	Tilt	77	QPSK	50	0	20E6C	1:1	0.046	1.199	0.055	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.0	24.31	0.02	0	Left	Cheek	77	QPSK	1	0	20E6C	1:1	0.245	1.172	0.287	A15
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.0	23.21	0.04	1	Left	Cheek	77	QPSK	50	0	20E6C	1:1	0.189	1.199	0.227	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.0	24.31	0.13	0	Left	Tilt	77	QPSK	1	0	20E6C	1:1	0.080	1.172	0.094	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.0	23.21	0.16	1	Left	Tilt	77	QPSK	50	0	20E6C	1:1	0.058	1.199	0.070	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

**Table 11-16  
LTE Band 25 (PCS) Head SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Ant State	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	26140	Low	LTE Band 25 (PCS)	20	25.0	24.29	-0.13	0	Right	Cheek	77	QPSK	1	0	20E6C	1:1	0.156	1.178	0.184	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.12	0.02	1	Right	Cheek	77	QPSK	50	0	20E6C	1:1	0.150	1.225	0.184	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.0	24.29	-0.18	0	Right	Tilt	77	QPSK	1	0	20E6C	1:1	0.088	1.178	0.104	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.12	-0.13	1	Right	Tilt	77	QPSK	50	0	20E6C	1:1	0.064	1.225	0.078	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.0	24.29	-0.03	0	Left	Cheek	77	QPSK	1	0	20E6C	1:1	0.204	1.178	0.240	A16
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.12	-0.09	1	Left	Cheek	77	QPSK	50	0	20E6C	1:1	0.157	1.225	0.192	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.0	24.29	0.12	0	Left	Tilt	77	QPSK	1	0	20E6C	1:1	0.077	1.178	0.091	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.12	-0.06	1	Left	Tilt	77	QPSK	50	0	20E6C	1:1	0.032	1.225	0.039	
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 11-17  
LTE Band 30 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	25.0	24.50	0.12	0	Right	Cheek	Ant B	QPSK	1	0	20EEA	1:1	0.094	1.122	0.105	
2310.00	27710	Mid	LTE Band 30	10	24.0	23.53	0.13	1	Right	Cheek	Ant B	QPSK	25	0	20EEA	1:1	0.081	1.114	0.090	
2310.00	27710	Mid	LTE Band 30	10	25.0	24.50	0.09	0	Right	Tilt	Ant B	QPSK	1	0	20EEA	1:1	0.061	1.122	0.068	
2310.00	27710	Mid	LTE Band 30	10	24.0	23.53	0.03	1	Right	Tilt	Ant B	QPSK	25	0	20EEA	1:1	0.049	1.114	0.055	
2310.00	27710	Mid	LTE Band 30	10	25.0	24.50	-0.09	0	Left	Cheek	Ant B	QPSK	1	0	20EEA	1:1	0.110	1.122	0.123	A17
2310.00	27710	Mid	LTE Band 30	10	24.0	23.53	0.17	1	Left	Cheek	Ant B	QPSK	25	0	20EEA	1:1	0.082	1.114	0.091	
2310.00	27710	Mid	LTE Band 30	10	25.0	24.50	0.12	0	Left	Tilt	Ant B	QPSK	1	0	20EEA	1:1	0.036	1.122	0.040	
2310.00	27710	Mid	LTE Band 30	10	24.0	23.53	0.13	1	Left	Tilt	Ant B	QPSK	25	0	20EEA	1:1	0.026	1.114	0.029	
2310.00	27710	Mid	LTE Band 30	10	25.0	24.41	0.10	0	Right	Cheek	Ant A	QPSK	1	0	5FCA1	1:1	0.069	1.146	0.079	
2310.00	27710	Mid	LTE Band 30	10	24.0	23.37	-0.06	1	Right	Cheek	Ant A	QPSK	25	0	5FCA1	1:1	0.060	1.156	0.069	
2310.00	27710	Mid	LTE Band 30	10	25.0	24.41	0.13	0	Right	Tilt	Ant A	QPSK	1	0	5FCA1	1:1	0.031	1.146	0.036	
2310.00	27710	Mid	LTE Band 30	10	24.0	23.37	-0.13	1	Right	Tilt	Ant A	QPSK	25	0	5FCA1	1:1	0.016	1.156	0.018	
2310.00	27710	Mid	LTE Band 30	10	25.0	24.41	0.07	0	Left	Cheek	Ant A	QPSK	1	0	5FCA1	1:1	0.036	1.146	0.041	
2310.00	27710	Mid	LTE Band 30	10	24.0	23.37	0.16	1	Left	Cheek	Ant A	QPSK	25	0	5FCA1	1:1	0.032	1.156	0.037	
2310.00	27710	Mid	LTE Band 30	10	25.0	24.41	0.13	0	Left	Tilt	Ant A	QPSK	1	0	5FCA1	1:1	0.024	1.146	0.028	
2310.00	27710	Mid	LTE Band 30	10	24.0	23.37	0.14	1	Left	Tilt	Ant A	QPSK	25	0	5FCA1	1:1	0.021	1.156	0.024	
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 11-18  
LTE Band 7 Head SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Antenna Config.	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
2560.00	21350	High	LTE Band 7	20	24.0	23.58	0.12	0	Right	Cheek	Ant B	QPSK	1	0	20EEA	1:1	0.100	1.102	0.110	
2560.00	21350	High	LTE Band 7	20	23.0	22.48	0.17	1	Right	Cheek	Ant B	QPSK	50	0	20EEA	1:1	0.079	1.127	0.089	
2560.00	21350	High	LTE Band 7	20	24.0	23.58	0.10	0	Right	Tilt	Ant B	QPSK	1	0	20EEA	1:1	0.103	1.102	0.114	
2560.00	21350	High	LTE Band 7	20	23.0	22.48	0.12	1	Right	Tilt	Ant B	QPSK	50	0	20EEA	1:1	0.077	1.127	0.087	
2560.00	21350	High	LTE Band 7	20	24.0	23.58	0.12	0	Left	Cheek	Ant B	QPSK	1	0	20EEA	1:1	0.106	1.102	0.117	A18
2560.00	21350	High	LTE Band 7	20	23.0	22.48	0.19	1	Left	Cheek	Ant B	QPSK	50	0	20EEA	1:1	0.091	1.127	0.103	
2560.00	21350	High	LTE Band 7	20	24.0	23.58	0.00	0	Left	Tilt	Ant B	QPSK	1	0	20EEA	1:1	0.056	1.102	0.062	
2560.00	21350	High	LTE Band 7	20	23.0	22.48	0.12	1	Left	Tilt	Ant B	QPSK	50	0	20EEA	1:1	0.049	1.127	0.055	
2560.00	21350	High	LTE Band 7	20	24.0	23.39	0.08	0	Right	Cheek	Ant A	QPSK	1	99	5FCA1	1:1	0.066	1.151	0.076	
2560.00	21350	High	LTE Band 7	20	23.0	22.35	0.10	1	Right	Cheek	Ant A	QPSK	50	25	5FCA1	1:1	0.046	1.161	0.053	
2560.00	21350	High	LTE Band 7	20	24.0	23.39	0.12	0	Right	Tilt	Ant A	QPSK	1	99	5FCA1	1:1	0.087	1.151	0.100	
2560.00	21350	High	LTE Band 7	20	23.0	22.35	0.07	1	Right	Tilt	Ant A	QPSK	50	25	5FCA1	1:1	0.065	1.161	0.075	
2560.00	21350	High	LTE Band 7	20	24.0	23.39	0.13	0	Left	Cheek	Ant A	QPSK	1	99	5FCA1	1:1	0.061	1.151	0.070	
2560.00	21350	High	LTE Band 7	20	23.0	22.35	0.15	1	Left	Cheek	Ant A	QPSK	50	25	5FCA1	1:1	0.047	1.161	0.055	
2560.00	21350	High	LTE Band 7	20	24.0	23.39	0.19	0	Left	Tilt	Ant A	QPSK	1	99	5FCA1	1:1	0.075	1.151	0.086	
2560.00	21350	High	LTE Band 7	20	23.0	22.35	0.13	1	Left	Tilt	Ant A	QPSK	50	25	5FCA1	1:1	0.047	1.161	0.055	
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 11-19  
LTE Band 41 Head SAR**

MEASUREMENT RESULTS																					
1 CC Uplink   2 CC Uplink	Component Carrier	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)		
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.5	24.01	0.13	0	Right	Cheek	QPSK	1	0	20EEA	1:1.58	0.076	1.119	0.085	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	23.5	23.04	0.16	1	Right	Cheek	QPSK	50	0	20EEA	1:1.58	0.058	1.112	0.064	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.5	24.01	0.18	0	Right	Tilt	QPSK	1	0	20EEA	1:1.58	0.088	1.119	0.098	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	23.5	23.04	0.17	1	Right	Tilt	QPSK	50	0	20EEA	1:1.58	0.069	1.112	0.077	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.5	24.01	0.13	0	Left	Cheek	QPSK	1	0	20EEA	1:1.58	0.091	1.119	0.102	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	23.5	23.04	0.13	1	Left	Cheek	QPSK	50	0	20EEA	1:1.58	0.072	1.112	0.080	
1 CC Uplink - Power Class 2	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	27.5	26.96	0.04	0	Left	Cheek	QPSK	1	0	20EEA	1:2.31	0.111	1.132	0.126	A19
2 CC Uplink - Power Class 3	PCC	2549.50	40185	Low-Mid	LTE Band 41	20	24.5	23.88	0.15	0	Left	Cheek	QPSK	1	0	20EEA	1:1.58	0.090	1.153	0.104	
	SCC	2529.70	39987	Low-Mid										1	99						
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.5	24.01	0.20	0	Left	Tilt	QPSK	1	0	20EEA	1:1.58	0.054	1.119	0.060	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	23.5	23.04	0.12	1	Left	Tilt	QPSK	50	0	20EEA	1:1.58	0.043	1.112	0.048	
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 SISO Head SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #	
MHz	Ch.													(W/kg)	(W/kg)			(W/kg)		
2462	11	802.11b	DSSS	22	15.5	15.27	0.17	Right	Cheek	1	SAEDF	1	99.8	0.278	-	1.054	1.002	-		
2462	11	802.11b	DSSS	22	15.5	15.27	0.03	Right	Tilt	1	SAEDF	1	99.8	0.294	0.247	1.054	1.002	0.261		
2462	11	802.11b	DSSS	22	15.5	15.27	-0.13	Left	Cheek	1	SAEDF	1	99.8	0.159	-	1.054	1.002	-		
2462	11	802.11b	DSSS	22	15.5	15.27	0.01	Left	Tilt	1	SAEDF	1	99.8	0.188	-	1.054	1.002	-		
2412	1	802.11b	DSSS	22	15.5	14.90	-0.12	Right	Cheek	2	SAEDF	1	99.8	0.729	0.509	1.148	1.002	0.586	A20	
2412	1	802.11b	DSSS	22	15.5	14.90	0.10	Right	Tilt	2	SAEDF	1	99.8	0.519	0.405	1.148	1.002	0.466		
2412	1	802.11b	DSSS	22	15.5	14.90	-0.19	Left	Cheek	2	SAEDF	1	99.8	0.292	-	1.148	1.002	-		
2412	1	802.11b	DSSS	22	15.5	14.90	-0.01	Left	Tilt	2	SAEDF	1	99.8	0.310	-	1.148	1.002	-		
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Head 1.6 W/kg (mW/g) averaged over 1 gram							

**Table 11-21  
DTS MIMO Head 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]	Side	Test Position	Antenna Config.	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	802.11n	OFDM	20	13.5	13.36	13.5	13.00	-0.13	Right	Cheek	MIMO	13	97.8	0.424	0.402	1.122	1.022	0.461	
2437	6	802.11n	OFDM	20	13.5	13.36	13.5	13.00	-0.13	Right	Cheek	MIMO	13	97.8	0.357	0.372	1.122	1.022	0.427	
2437	6	802.11n	OFDM	20	13.5	13.36	13.5	13.00	-0.13	Right	Tilt	MIMO	13	97.8	0.279	-	1.122	1.022	-	
2437	6	802.11n	OFDM	20	13.5	13.36	13.5	13.00	0.13	Left	Cheek	MIMO	13	97.8	0.257	-	1.122	1.022	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Head 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.

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**Table 11-22  
NII SISO 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)	
5290	58	802.11ac	OFDM	80	13.5	13.21	0.18	Right	Cheek	1	5AEE5	29.3	93.2	0.098	0.037	1.069	1.073	0.042	
5290	58	802.11ac	OFDM	80	13.5	13.21	-0.10	Right	Tilt	1	5AEE5	29.3	93.2	0.070	-	1.069	1.073	-	
5290	58	802.11ac	OFDM	80	13.5	13.21	0.18	Left	Cheek	1	5AEE5	29.3	93.2	0.071	-	1.069	1.073	-	
5290	58	802.11ac	OFDM	80	13.5	13.21	0.19	Left	Tilt	1	5AEE5	29.3	93.2	0.074	-	1.069	1.073	-	
5290	58	802.11ac	OFDM	80	13.5	12.81	0.13	Right	Cheek	2	5AEE5	29.3	93.2	0.660	0.319	1.172	1.073	0.401	
5290	58	802.11ac	OFDM	80	13.5	12.81	0.13	Right	Tilt	2	5AEE5	29.3	93.2	0.568	0.275	1.172	1.073	0.346	
5290	58	802.11ac	OFDM	80	13.5	12.81	0.15	Left	Cheek	2	5AEE5	29.3	93.2	0.333	-	1.172	1.073	-	
5290	58	802.11ac	OFDM	80	13.5	12.81	0.14	Left	Tilt	2	5AEE5	29.3	93.2	0.282	-	1.172	1.073	-	
5690	138	802.11ac	OFDM	80	13.5	13.38	0.16	Right	Cheek	1	5AEE5	29.3	93.2	0.149	0.072	1.028	1.073	0.079	
5690	138	802.11ac	OFDM	80	13.5	13.38	0.13	Right	Tilt	1	5AEE5	29.3	93.2	0.127	-	1.028	1.073	-	
5690	138	802.11ac	OFDM	80	13.5	13.38	0.12	Left	Cheek	1	5AEE5	29.3	93.2	0.075	-	1.028	1.073	-	
5690	138	802.11ac	OFDM	80	13.5	13.38	0.05	Left	Tilt	1	5AEE5	29.3	93.2	0.088	-	1.028	1.073	-	
5690	138	802.11ac	OFDM	80	13.5	13.37	0.18	Right	Cheek	2	5AEE5	29.3	93.2	0.446	0.274	1.030	1.073	0.303	
5690	138	802.11ac	OFDM	80	13.5	13.37	0.18	Right	Tilt	2	5AEE5	29.3	93.2	0.344	-	1.030	1.073	-	
5690	138	802.11ac	OFDM	80	13.5	13.37	0.17	Left	Cheek	2	5AEE5	29.3	93.2	0.205	-	1.030	1.073	-	
5690	138	802.11ac	OFDM	80	13.5	13.37	0.12	Left	Tilt	2	5AEE5	29.3	93.2	0.198	-	1.030	1.073	-	
5775	155	802.11ac	OFDM	80	13.5	13.07	0.19	Right	Cheek	1	5AEE5	29.3	93.2	0.173	0.080	1.104	1.073	0.095	
5775	155	802.11ac	OFDM	80	13.5	13.07	0.19	Right	Tilt	1	5AEE5	29.3	93.2	0.130	-	1.104	1.073	-	
5775	155	802.11ac	OFDM	80	13.5	13.07	0.19	Left	Cheek	1	5AEE5	29.3	93.2	0.065	-	1.104	1.073	-	
5775	155	802.11ac	OFDM	80	13.5	13.07	0.19	Left	Tilt	1	5AEE5	29.3	93.2	0.063	-	1.104	1.073	-	
5775	155	802.11ac	OFDM	80	13.5	13.00	0.17	Right	Cheek	2	5AEE5	29.3	93.2	0.438	0.247	1.122	1.073	0.297	
5775	155	802.11ac	OFDM	80	13.5	13.00	0.16	Right	Tilt	2	5AEE5	29.3	93.2	0.338	-	1.122	1.073	-	
5775	155	802.11ac	OFDM	80	13.5	13.00	0.15	Left	Cheek	2	5AEE5	29.3	93.2	0.238	-	1.122	1.073	-	
5775	155	802.11ac	OFDM	80	13.5	13.00	0.12	Left	Tilt	2	5AEE5	29.3	93.2	0.212	-	1.122	1.073	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram									

**Table 11-23  
NII MIMO Head 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]	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)	
5290	58	802.11ac	OFDM	80	13.5	13.21	13.5	12.81	-0.13	Right	Cheek	MIMO	5AEE5	58.5	92.3	0.718	0.347	1.172	1.083	0.440	
5290	58	802.11ac	OFDM	80	13.5	13.21	13.5	12.81	0.16	Right	Tilt	MIMO	5AEE5	58.5	92.3	0.600	0.293	1.172	1.083	0.372	
5290	58	802.11ac	OFDM	80	13.5	13.21	13.5	12.81	0.10	Left	Cheek	MIMO	5AEE5	58.5	92.3	0.257	-	1.172	1.083	-	
5290	58	802.11ac	OFDM	80	13.5	13.21	13.5	12.81	0.15	Left	Tilt	MIMO	5AEE5	58.5	92.3	0.223	-	1.172	1.083	-	
5690	138	802.11ac	OFDM	80	13.5	13.38	13.5	13.37	0.12	Right	Cheek	MIMO	5AEE5	58.5	92.3	0.694	0.352	1.030	1.083	0.393	A21
5690	138	802.11ac	OFDM	80	13.5	13.38	13.5	13.37	0.20	Right	Tilt	MIMO	5AEE5	58.5	92.3	0.517	-	1.030	1.083	-	
5690	138	802.11ac	OFDM	80	13.5	13.38	13.5	13.37	0.13	Left	Cheek	MIMO	5AEE5	58.5	92.3	0.356	-	1.030	1.083	-	
5690	138	802.11ac	OFDM	80	13.5	13.38	13.5	13.37	0.11	Left	Tilt	MIMO	5AEE5	58.5	92.3	0.322	-	1.030	1.083	-	
5775	155	802.11ac	OFDM	80	13.5	13.07	13.5	13.00	0.19	Right	Cheek	MIMO	5AEE5	58.5	92.3	0.709	0.337	1.122	1.083	0.409	
5775	155	802.11ac	OFDM	80	13.5	13.07	13.5	13.00	0.19	Right	Tilt	MIMO	5AEE5	58.5	92.3	0.588	0.287	1.122	1.083	0.349	
5775	155	802.11ac	OFDM	80	13.5	13.07	13.5	13.00	0.16	Left	Cheek	MIMO	5AEE5	58.5	92.3	0.381	-	1.122	1.083	-	
5775	155	802.11ac	OFDM	80	13.5	13.07	13.5	13.00	0.15	Left	Tilt	MIMO	5AEE5	58.5	92.3	0.331	-	1.122	1.083	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) 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.

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**Table 11-24  
DSS Head SAR**

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Data Rate (Mbps)	Duty Cycle %	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2402.00	0	Bluetooth	FHSS	15.5	15.04	-0.02	Right	Cheek	5AEDF	1	77.3	0.439	1.112	1.294	0.632	A22
2402.00	0	Bluetooth	FHSS	15.5	15.04	-0.16	Right	Tilt	5AEDF	1	77.3	0.389	1.112	1.294	0.560	
2402.00	0	Bluetooth	FHSS	15.5	15.04	-0.01	Left	Cheek	5AEDF	1	77.3	0.251	1.112	1.294	0.361	
2402.00	0	Bluetooth	FHSS	15.5	15.04	0.09	Left	Tilt	5AEDF	1	77.3	0.244	1.112	1.294	0.351	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram									

## 11.2 Standalone Body-Worn SAR Data

**Table 11-25  
GSM/UMTS/CDMA Body-Worn SAR Data**

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Ant State	Device Serial Number	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (\$90S)	TDSO / SO32	25.5	24.84	0.01	15 mm	3	20EE2	1:1	back	0.266	1.164	0.310	A23
836.52	384	CDMA BC0 (\$22H)	TDSO / SO32	25.0	24.47	-0.01	15 mm	3	20EE2	1:1	back	0.355	1.130	0.401	A25
1851.25	25	PCS CDMA	TDSO / SO32	25.0	24.27	0.02	15 mm	77	20EE2	1:1	back	0.793	1.183	0.938	
1880.00	600	PCS CDMA	TDSO / SO32	25.0	24.20	-0.02	15 mm	77	20EE2	1:1	back	0.795	1.202	0.956	A27
1908.75	1175	PCS CDMA	TDSO / SO32	25.0	24.29	-0.04	15 mm	77	20EE2	1:1	back	0.793	1.178	0.934	
836.60	190	GSM 850	GSM	33.0	32.80	0.04	15 mm	N/A	20EF4	1:8.3	back	0.199	1.047	0.208	A29
1880.00	661	GSM 1900	GSM	31.0	29.47	0.02	15 mm	N/A	20EF4	1:8.3	back	0.262	1.422	0.373	A31
836.60	4183	UMTS 850	RMC	25.0	24.67	0.06	15 mm	3	20EDE	1:1	back	0.392	1.079	0.423	A33
1712.40	1312	UMTS 1750	RMC	25.0	24.12	-0.08	15 mm	73	20EF4	1:1	back	0.470	1.225	0.576	
1732.40	1412	UMTS 1750	RMC	25.0	24.05	0.05	15 mm	73	20EF4	1:1	back	0.494	1.245	0.615	A35
1752.60	1513	UMTS 1750	RMC	25.0	24.06	0.04	15 mm	73	20EF4	1:1	back	0.490	1.242	0.609	
1852.40	9262	UMTS 1900	RMC	25.0	24.00	-0.02	15 mm	77	20EF4	1:1	back	0.586	1.259	0.738	
1880.00	9400	UMTS 1900	RMC	25.0	24.01	-0.02	15 mm	77	20EF4	1:1	back	0.619	1.256	0.777	A37
1907.60	9538	UMTS 1900	RMC	25.0	24.03	0.02	15 mm	77	20EF4	1:1	back	0.609	1.250	0.761	
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  
LTE FDD Body-Worn SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Bandwidth [MHz]	Ant State	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #	
MHz	Ch.																				
680.50	133297	Md	LTE Band 71	20	33	25.0	24.81	-0.01	0	N/A	20E78	QPSK	1	0	15 mm	back	1:1	0.255	1.045	0.266	A39
680.50	133297	Md	LTE Band 71	20	33	24.0	23.83	0.00	1	N/A	20E78	QPSK	50	0	15 mm	back	1:1	0.206	1.040	0.214	
707.50	23095	Md	LTE Band 12	10	2	25.3	24.57	0.00	0	N/A	20E78	QPSK	1	25	15 mm	back	1:1	0.242	1.183	0.286	A41
707.50	23095	Md	LTE Band 12	10	2	24.3	23.66	0.00	1	N/A	20E78	QPSK	25	0	15 mm	back	1:1	0.203	1.159	0.235	
782.00	23230	Md	LTE Band 13	10	3	25.0	24.58	0.04	0	N/A	20E78	QPSK	1	0	15 mm	back	1:1	0.348	1.102	0.383	A43
782.00	23230	Md	LTE Band 13	10	3	24.0	23.70	0.02	1	N/A	20E78	QPSK	25	0	15 mm	back	1:1	0.298	1.072	0.319	
793.00	23330	Md	LTE Band 14	10	1	25.0	24.75	0.00	0	N/A	20E78	QPSK	1	0	15 mm	back	1:1	0.374	1.059	0.396	A45
793.00	23330	Md	LTE Band 14	10	1	24.0	23.72	0.01	1	N/A	20E78	QPSK	25	0	15 mm	back	1:1	0.307	1.067	0.328	
831.50	26865	Md	LTE Band 26 (Cell)	15	70	25.0	24.37	-0.03	0	N/A	20E78	QPSK	1	74	15 mm	back	1:1	0.301	1.156	0.348	A47
831.50	26865	Md	LTE Band 26 (Cell)	15	70	24.0	23.28	-0.01	1	N/A	20E78	QPSK	36	37	15 mm	back	1:1	0.220	1.180	0.260	
836.50	20525	Md	LTE Band 5 (Cell)	10	3	25.0	24.26	-0.01	0	N/A	20E78	QPSK	1	0	15 mm	back	1:1	0.311	1.186	0.369	A49
836.50	20525	Md	LTE Band 5 (Cell)	10	3	24.0	23.28	0.01	1	N/A	20E78	QPSK	25	0	15 mm	back	1:1	0.261	1.180	0.308	
1720.00	132072	Low	LTE Band 66 (AWS)	20	16	25.0	24.04	-0.02	0	N/A	20E6C	QPSK	1	99	15 mm	back	1:1	0.628	1.247	0.783	
1745.00	132322	Md	LTE Band 66 (AWS)	20	16	25.0	24.28	-0.01	0	N/A	20E6C	QPSK	1	0	15 mm	back	1:1	0.647	1.180	0.763	A51
1770.00	132572	High	LTE Band 66 (AWS)	20	16	25.0	24.31	0.00	0	N/A	20E6C	QPSK	1	0	15 mm	back	1:1	0.631	1.172	0.740	
1745.00	132322	Md	LTE Band 66 (AWS)	20	16	24.0	23.21	-0.02	1	N/A	20E6C	QPSK	50	0	15 mm	back	1:1	0.515	1.199	0.617	
1860.00	26140	Low	LTE Band 25 (PCS)	20	77	25.0	24.29	0.01	0	N/A	20E6C	QPSK	1	0	15 mm	back	1:1	0.593	1.178	0.699	
1882.50	26365	Md	LTE Band 25 (PCS)	20	77	25.0	24.12	-0.02	0	N/A	20E6C	QPSK	1	0	15 mm	back	1:1	0.685	1.225	0.839	
1905.00	26590	High	LTE Band 25 (PCS)	20	77	25.0	24.07	-0.01	0	N/A	20E6C	QPSK	1	0	15 mm	back	1:1	0.713	1.239	0.883	A53
1905.00	26590	High	LTE Band 25 (PCS)	20	77	24.0	23.12	-0.02	1	N/A	20E6C	QPSK	50	0	15 mm	back	1:1	0.549	1.225	0.673	
1905.00	26590	High	LTE Band 25 (PCS)	20	77	24.0	23.06	0.01	1	N/A	20E6C	QPSK	100	0	15 mm	back	1:1	0.545	1.242	0.677	
2310.00	27710	Md	LTE Band 30	10	N/A	25.0	24.50	0.02	0	Ant B	20EEA	QPSK	1	0	15 mm	back	1:1	0.255	1.122	0.286	
2310.00	27710	Md	LTE Band 30	10	N/A	24.0	23.53	0.01	1	Ant B	20EEA	QPSK	25	0	15 mm	back	1:1	0.206	1.114	0.229	
2310.00	27710	Md	LTE Band 30	10	N/A	25.0	24.41	0.04	0	Ant A	5FCA1	QPSK	1	0	15 mm	back	1:1	0.256	1.146	0.293	A55
2310.00	27710	Md	LTE Band 30	10	N/A	24.0	23.37	-0.12	1	Ant A	5FCA1	QPSK	25	0	15 mm	back	1:1	0.203	1.156	0.235	
2560.00	21350	High	LTE Band 7	20	N/A	24.0	23.58	0.06	0	Ant B	20EEA	QPSK	1	0	15 mm	back	1:1	0.377	1.102	0.415	
2560.00	21350	High	LTE Band 7	20	N/A	23.0	22.48	-0.03	1	Ant B	20EEA	QPSK	50	0	15 mm	back	1:1	0.303	1.127	0.341	
2560.00	21350	High	LTE Band 7	20	N/A	24.0	23.39	0.05	0	Ant A	5FCA1	QPSK	1	99	15 mm	back	1:1	0.433	1.151	0.498	A57
2560.00	21350	High	LTE Band 7	20	N/A	23.0	22.35	0.07	1	Ant A	5FCA1	QPSK	50	25	15 mm	back	1:1	0.318	1.161	0.369	
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 11-27  
LTE TDD Body-Worn SAR**

MEASUREMENT RESULTS																					
FREQUENCY		Component Carrier	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) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #		
MHz	Ch.																				
1 CC Uplink - Power Class 3	PCC	2549.50	40185	Low-Md	LTE Band 41	20	24.5	24.01	-0.01	0	20EEA	QPSK	1	0	15 mm	back	1:1.58	0.349	1.119	0.391	
1 CC Uplink - Power Class 3	PCC	2549.50	40185	Low-Md	LTE Band 41	20	23.5	23.04	-0.02	1	20EEA	QPSK	50	0	15 mm	back	1:1.58	0.276	1.112	0.307	
1 CC Uplink - Power Class 2	PCC	2549.50	40185	Low-Md	LTE Band 41	20	27.5	26.96	-0.01	0	20EEA	QPSK	1	0	15 mm	back	1:2.31	0.461	1.132	0.522	A59
2 CC Uplink - Power Class 3	PCC	2549.50	40185	Low-Md	LTE Band 41	20	24.5	23.88	-0.02	0	20EEA	QPSK	1	0	15 mm	back	1:1.58	0.289	1.153	0.333	
	SCC	2529.70	39987	Low-Md									1	99							
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram											

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**Table 11-28  
DTS Body-Worn SAR**

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2462	11	802.11b	DSSS	22	20.5	20.22	0.01	15 mm	1	5ED58	1	back	99.8	0.118	0.100	1.067	1.002	0.107	A61
2412	1	802.11b	DSSS	22	20.5	20.19	-0.05	15 mm	2	5ED58	1	back	99.8	0.108	0.095	1.074	1.002	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 11-29  
NII SISO 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	18.5	18.28	-0.14	15 mm	1	5ED58	6	back	98.3	0.554	0.242	1.052	1.017	0.259	
5320	64	802.11a	OFDM	20	18.5	18.17	0.15	15 mm	2	5ED58	6	back	98.8	0.515	0.251	1.079	1.012	0.274	
5500	100	802.11a	OFDM	20	18.5	18.39	0.06	15 mm	1	5ED58	6	back	98.3	0.696	0.300	1.026	1.017	0.313	
5500	100	802.11a	OFDM	20	18.5	18.01	0.04	15 mm	2	5ED58	6	back	98.8	0.991	0.479	1.119	1.012	0.542	
5600	120	802.11a	OFDM	20	18.5	17.79	0.03	15 mm	2	5ED58	6	back	98.8	1.300	0.611	1.178	1.012	0.728	
5720	144	802.11a	OFDM	20	18.5	18.42	0.05	15 mm	2	5ED58	6	back	98.8	1.415	0.673	1.019	1.012	0.694	A63
5745	149	802.11a	OFDM	20	18.5	17.44	0.01	15 mm	1	5ED58	6	back	98.3	0.355	0.180	1.276	1.017	0.234	
5825	165	802.11a	OFDM	20	18.5	18.03	-0.04	15 mm	2	5ED58	6	back	98.8	1.141	0.521	1.114	1.012	0.587	
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 11-30  
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)	
5270	54	802.11n	OFDM	40	17.5	16.73	17.5	16.68	0.14	15 mm	MIMO	5ED58	27.0	back	95.7	0.553	0.316	1.208	1.045	0.399	
5530	106	802.11ac	OFDM	80	15.0	15.00	15.0	14.30	-0.10	15 mm	MIMO	5ED58	58.5	back	92.3	0.695	0.328	1.175	1.083	0.417	
5610	122	802.11ac	OFDM	80	17.5	16.85	17.5	16.76	0.03	15 mm	MIMO	5ED58	58.5	back	92.3	1.288	0.549	1.186	1.083	0.705	
5690	138	802.11ac	OFDM	80	17.5	16.55	17.5	16.60	-0.04	15 mm	MIMO	5ED58	58.5	back	92.3	0.993	0.452	1.245	1.083	0.609	
5775	155	802.11ac	OFDM	80	17.5	16.81	17.5	16.65	0.12	15 mm	MIMO	5ED58	58.5	back	92.3	0.749	0.367	1.216	1.083	0.483	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram											

To achieve the 20.5 dBm maximum allowed MIMO power (18dBm for ch 106) shown in the documentation, each antenna transmits at a maximum allowed power of 17.5 dBm (15dBm for Ch 106).

**Table 11-31  
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)	
5290	58	802.11ac	OFDM	80	13.5	13.21	13.5	12.81	0.00	15 mm	MIMO	5ED58	58.5	back	92.3	0.348	0.172	1.172	1.083	0.218	
5690	138	802.11ac	OFDM	80	13.5	13.38	13.5	13.37	0.10	15 mm	MIMO	5ED58	58.5	back	92.3	0.729	0.335	1.030	1.083	0.374	
5775	155	802.11ac	OFDM	80	13.5	13.07	13.5	13.00	0.06	15 mm	MIMO	5ED58	58.5	back	92.3	0.587	0.270	1.122	1.083	0.328	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) 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.

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**Table 11-32  
DSS Body-Worn SAR**

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2402	0	Bluetooth	FHSS	15.5	15.04	-0.05	15 mm	5AEE5	1	back	77.3	0.041	1.112	1.294	0.059	A65
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram									

### 11.3 Standalone Hotspot SAR Data

**Table 11-33  
CDMA Hotspot SAR Data**



MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Ant State	Device Serial Number	# of GPRS Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	25.5	24.87	-0.03	10 mm	3	20EE2	N/A	1:1	back	0.434	1.156	0.502	A24
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	25.5	24.87	0.16	10 mm	3	20EE2	N/A	1:1	front	0.339	1.156	0.392	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	25.5	24.87	0.17	10 mm	3	20EE2	N/A	1:1	bottom	0.330	1.156	0.381	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	25.5	24.87	0.07	10 mm	3	20EE2	N/A	1:1	right	0.355	1.156	0.410	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	25.5	24.87	0.05	10 mm	3	20EE2	N/A	1:1	left	0.156	1.156	0.180	
824.70	1013	CDMA BC0 (\$22H)	EVDO Rev. 0	25.0	24.55	-0.01	10 mm	3	20EE2	N/A	1:1	back	0.464	1.109	0.515	
836.52	384	CDMA BC0 (\$22H)	EVDO Rev. 0	25.0	24.77	0.07	10 mm	3	20EE2	N/A	1:1	back	0.643	1.054	0.678	A26
848.31	777	CDMA BC0 (\$22H)	EVDO Rev. 0	25.0	24.69	0.00	10 mm	3	20EE2	N/A	1:1	back	0.629	1.074	0.676	
836.52	384	CDMA BC0 (\$22H)	EVDO Rev. 0	25.0	24.77	0.03	10 mm	3	20EE2	N/A	1:1	front	0.452	1.054	0.476	
836.52	384	CDMA BC0 (\$22H)	EVDO Rev. 0	25.0	24.77	0.01	10 mm	3	20EE2	N/A	1:1	bottom	0.371	1.054	0.391	
836.52	384	CDMA BC0 (\$22H)	EVDO Rev. 0	25.0	24.77	0.02	10 mm	3	20EE2	N/A	1:1	right	0.475	1.054	0.501	
836.52	384	CDMA BC0 (\$22H)	EVDO Rev. 0	25.0	24.77	0.01	10 mm	3	20EE2	N/A	1:1	left	0.250	1.054	0.264	
1880.00	600	PCS CDMA	EVDO Rev. 0	20.5	19.90	0.00	10 mm	77	20EE0	N/A	1:1	back	0.441	1.148	0.506	
1880.00	600	PCS CDMA	EVDO Rev. 0	20.5	19.90	-0.02	10 mm	77	20EE0	N/A	1:1	front	0.358	1.148	0.411	
1851.25	25	PCS CDMA	EVDO Rev. 0	20.5	19.80	-0.01	10 mm	77	20EE0	N/A	1:1	bottom	0.570	1.175	0.670	
1880.00	600	PCS CDMA	EVDO Rev. 0	20.5	19.90	-0.02	10 mm	77	20EE0	N/A	1:1	bottom	0.677	1.148	0.777	A28
1908.75	1175	PCS CDMA	EVDO Rev. 0	20.5	20.00	-0.03	10 mm	77	20EE0	N/A	1:1	bottom	0.675	1.122	0.757	
1880.00	600	PCS CDMA	EVDO Rev. 0	20.5	19.90	-0.08	10 mm	77	20EE0	N/A	1:1	right	0.092	1.148	0.106	
1880.00	600	PCS CDMA	EVDO Rev. 0	20.5	19.90	0.10	10 mm	77	20EE0	N/A	1:1	left	0.079	1.148	0.091	
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 11-34  
GPRS/UMTS Hotspot SAR Data**

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Ant State	Device Serial Number	# of GPRS Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	190	GSM 850	GPRS	28.5	28.13	0.02	10 mm	N/A	20EF4	4	1:2.076	back	0.377	1.089	0.411	A30
836.60	190	GSM 850	GPRS	28.5	28.13	0.04	10 mm	N/A	20EF4	4	1:2.076	front	0.332	1.089	0.362	
836.60	190	GSM 850	GPRS	28.5	28.13	-0.17	10 mm	N/A	20EF4	4	1:2.076	bottom	0.219	1.089	0.238	
836.60	190	GSM 850	GPRS	28.5	28.13	0.00	10 mm	N/A	20EF4	4	1:2.076	right	0.336	1.089	0.366	
836.60	190	GSM 850	GPRS	28.5	28.13	-0.01	10 mm	N/A	20EF4	4	1:2.076	left	0.195	1.089	0.212	
1909.80	810	GSM 1900	GPRS	23.0	21.89	0.01	10 mm	N/A	20EF0	4	1:2.076	back	0.283	1.291	0.365	
1909.80	810	GSM 1900	GPRS	23.0	21.89	0.00	10 mm	N/A	20EF0	4	1:2.076	front	0.188	1.291	0.243	
1909.80	810	GSM 1900	GPRS	23.0	21.89	-0.01	10 mm	N/A	20EF0	4	1:2.076	bottom	0.408	1.291	0.527	A32
1909.80	810	GSM 1900	GPRS	23.0	21.89	0.04	10 mm	N/A	20EF0	4	1:2.076	right	0.044	1.291	0.057	
1909.80	810	GSM 1900	GPRS	23.0	21.89	-0.05	10 mm	N/A	20EF0	4	1:2.076	left	0.031	1.291	0.040	
826.40	4132	UMTS 850	RMC	25.0	24.68	-0.01	10 mm	3	20EDE	N/A	1:1	back	0.550	1.076	0.592	
836.60	4183	UMTS 850	RMC	25.0	24.67	-0.04	10 mm	3	20EDE	N/A	1:1	back	0.563	1.079	0.607	
846.60	4233	UMTS 850	RMC	25.0	24.69	-0.04	10 mm	3	20EDE	N/A	1:1	back	0.588	1.074	0.632	A34
836.60	4183	UMTS 850	RMC	25.0	24.67	0.01	10 mm	3	20EDE	N/A	1:1	front	0.486	1.079	0.524	
836.60	4183	UMTS 850	RMC	25.0	24.67	-0.07	10 mm	3	20EDE	N/A	1:1	bottom	0.372	1.079	0.401	
836.60	4183	UMTS 850	RMC	25.0	24.67	0.02	10 mm	3	20EDE	N/A	1:1	right	0.467	1.079	0.504	
836.60	4183	UMTS 850	RMC	25.0	24.67	0.02	10 mm	3	20EDE	N/A	1:1	left	0.260	1.079	0.281	
1732.40	1412	UMTS 1750	RMC	20.5	19.93	-0.09	10 mm	73	20EF0	N/A	1:1	back	0.396	1.140	0.451	
1732.40	1412	UMTS 1750	RMC	20.5	19.93	0.02	10 mm	73	20EF0	N/A	1:1	front	0.291	1.140	0.332	
1712.40	1312	UMTS 1750	RMC	20.5	19.87	-0.06	10 mm	73	20EF0	N/A	1:1	bottom	0.610	1.156	0.705	
1732.40	1412	UMTS 1750	RMC	20.5	19.93	-0.04	10 mm	73	20EF0	N/A	1:1	bottom	0.706	1.140	0.805	
1752.60	1513	UMTS 1750	RMC	20.5	19.98	-0.07	10 mm	73	20EF0	N/A	1:1	bottom	0.763	1.127	0.860	A36
1732.40	1412	UMTS 1750	RMC	20.5	19.93	-0.06	10 mm	73	20EF0	N/A	1:1	right	0.059	1.140	0.067	
1732.40	1412	UMTS 1750	RMC	20.5	19.93	0.01	10 mm	73	20EF0	N/A	1:1	left	0.102	1.140	0.116	
1880.00	9400	UMTS 1900	RMC	20.5	19.98	-0.02	10 mm	77	20EF0	N/A	1:1	back	0.452	1.127	0.509	
1880.00	9400	UMTS 1900	RMC	20.5	19.98	-0.02	10 mm	77	20EF0	N/A	1:1	front	0.341	1.127	0.384	
1852.40	9262	UMTS 1900	RMC	20.5	19.95	0.00	10 mm	77	20EF0	N/A	1:1	bottom	0.765	1.135	0.868	
1880.00	9400	UMTS 1900	RMC	20.5	19.98	0.00	10 mm	77	20EF0	N/A	1:1	bottom	0.786	1.127	0.886	A38
1907.60	9538	UMTS 1900	RMC	20.5	20.00	-0.01	10 mm	77	20EF0	N/A	1:1	bottom	0.705	1.122	0.791	
1880.00	9400	UMTS 1900	RMC	20.5	19.98	-0.03	10 mm	77	20EF0	N/A	1:1	right	0.087	1.127	0.098	
1880.00	9400	UMTS 1900	RMC	20.5	19.98	-0.04	10 mm	77	20EF0	N/A	1:1	left	0.080	1.127	0.090	
<b>ANSI / IEEE C95.1 1992 - SAFETY LIMIT</b>								<b>Body</b>								
<b>Spatial Peak</b>								<b>1.6 W/kg (mW/g)</b>								
<b>Uncontrolled Exposure/General Population</b>								<b>averaged over 1 gram</b>								



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**Table 11-35  
LTE Band 71 Hotspot SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Ant State	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
680.50	133297	Mid	LTE Band 71	20	25.0	24.81	-0.03	0	33	20E78	QPSK	1	0	10 mm	back	1:1	0.364	1.045	0.380	A40
680.50	133297	Mid	LTE Band 71	20	24.0	23.83	-0.01	1	33	20E78	QPSK	50	0	10 mm	back	1:1	0.295	1.040	0.307	
680.50	133297	Mid	LTE Band 71	20	25.0	24.81	-0.02	0	33	20E78	QPSK	1	0	10 mm	front	1:1	0.269	1.045	0.281	
680.50	133297	Mid	LTE Band 71	20	24.0	23.83	-0.01	1	33	20E78	QPSK	50	0	10 mm	front	1:1	0.220	1.040	0.229	
680.50	133297	Mid	LTE Band 71	20	25.0	24.81	-0.04	0	33	20E78	QPSK	1	0	10 mm	bottom	1:1	0.142	1.045	0.148	
680.50	133297	Mid	LTE Band 71	20	24.0	23.83	-0.05	1	33	20E78	QPSK	50	0	10 mm	bottom	1:1	0.123	1.040	0.128	
680.50	133297	Mid	LTE Band 71	20	25.0	24.81	0.04	0	33	20E78	QPSK	1	0	10 mm	right	1:1	0.168	1.045	0.176	
680.50	133297	Mid	LTE Band 71	20	24.0	23.83	0.00	1	33	20E78	QPSK	50	0	10 mm	right	1:1	0.135	1.040	0.140	
680.50	133297	Mid	LTE Band 71	20	25.0	24.81	0.02	0	33	20E78	QPSK	1	0	10 mm	left	1:1	0.077	1.045	0.080	
680.50	133297	Mid	LTE Band 71	20	24.0	23.83	0.01	1	33	20E78	QPSK	50	0	10 mm	left	1:1	0.066	1.040	0.069	
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 12 Hotspot SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Ant State	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
707.50	23095	Mid	LTE Band 12	10	25.3	24.57	0.01	0	2	20E78	QPSK	1	25	10 mm	back	1:1	0.341	1.183	0.403	A42
707.50	23095	Mid	LTE Band 12	10	24.3	23.66	0.03	1	2	20E78	QPSK	25	0	10 mm	back	1:1	0.279	1.159	0.323	
707.50	23095	Mid	LTE Band 12	10	25.3	24.57	-0.04	0	2	20E78	QPSK	1	25	10 mm	front	1:1	0.249	1.183	0.295	
707.50	23095	Mid	LTE Band 12	10	24.3	23.66	0.06	1	2	20E78	QPSK	25	0	10 mm	front	1:1	0.202	1.159	0.234	
707.50	23095	Mid	LTE Band 12	10	25.3	24.57	-0.17	0	2	20E78	QPSK	1	25	10 mm	bottom	1:1	0.159	1.183	0.188	
707.50	23095	Mid	LTE Band 12	10	24.3	23.66	-0.07	1	2	20E78	QPSK	25	0	10 mm	bottom	1:1	0.123	1.159	0.143	
707.50	23095	Mid	LTE Band 12	10	25.3	24.57	-0.13	0	2	20E78	QPSK	1	25	10 mm	right	1:1	0.283	1.183	0.335	
707.50	23095	Mid	LTE Band 12	10	24.3	23.66	-0.05	1	2	20E78	QPSK	25	0	10 mm	right	1:1	0.257	1.159	0.298	
707.50	23095	Mid	LTE Band 12	10	25.3	24.57	0.01	0	2	20E78	QPSK	1	25	10 mm	left	1:1	0.194	1.183	0.230	
707.50	23095	Mid	LTE Band 12	10	24.3	23.66	-0.02	1	2	20E78	QPSK	25	0	10 mm	left	1:1	0.145	1.159	0.168	
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 13 Hotspot SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Ant State	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	25.0	24.58	0.03	0	3	20E78	QPSK	1	0	10 mm	back	1:1	0.534	1.102	0.588	A44
782.00	23230	Md	LTE Band 13	10	24.0	23.70	0.00	1	3	20E78	QPSK	25	0	10 mm	back	1:1	0.445	1.072	0.477	
782.00	23230	Md	LTE Band 13	10	25.0	24.58	-0.13	0	3	20E78	QPSK	1	0	10 mm	front	1:1	0.435	1.102	0.479	
782.00	23230	Md	LTE Band 13	10	24.0	23.70	-0.05	1	3	20E78	QPSK	25	0	10 mm	front	1:1	0.371	1.072	0.398	
782.00	23230	Md	LTE Band 13	10	25.0	24.58	-0.17	0	3	20E78	QPSK	1	0	10 mm	bottom	1:1	0.251	1.102	0.277	
782.00	23230	Md	LTE Band 13	10	24.0	23.70	-0.12	1	3	20E78	QPSK	25	0	10 mm	bottom	1:1	0.212	1.072	0.227	
782.00	23230	Md	LTE Band 13	10	25.0	24.58	0.05	0	3	20E78	QPSK	1	0	10 mm	right	1:1	0.276	1.102	0.304	
782.00	23230	Md	LTE Band 13	10	24.0	23.70	-0.02	1	3	20E78	QPSK	25	0	10 mm	right	1:1	0.242	1.072	0.259	
782.00	23230	Md	LTE Band 13	10	25.0	24.58	-0.11	0	3	20E78	QPSK	1	0	10 mm	left	1:1	0.197	1.102	0.217	
782.00	23230	Md	LTE Band 13	10	24.0	23.70	-0.11	1	3	20E78	QPSK	25	0	10 mm	left	1:1	0.190	1.072	0.204	
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 14 Hotspot SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Ant State	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	Md	LTE Band 14	10	25.0	24.75	0.02	0	1	20E78	QPSK	1	0	10 mm	back	1:1	0.543	1.059	0.575	A46
793.00	23330	Md	LTE Band 14	10	24.0	23.72	0.06	1	1	20E78	QPSK	25	0	10 mm	back	1:1	0.446	1.067	0.476	
793.00	23330	Md	LTE Band 14	10	25.0	24.75	-0.06	0	1	20E78	QPSK	1	0	10 mm	front	1:1	0.492	1.059	0.521	
793.00	23330	Md	LTE Band 14	10	24.0	23.72	0.10	1	1	20E78	QPSK	25	0	10 mm	front	1:1	0.412	1.067	0.440	
793.00	23330	Md	LTE Band 14	10	25.0	24.75	-0.04	0	1	20E78	QPSK	1	0	10 mm	bottom	1:1	0.300	1.059	0.318	
793.00	23330	Md	LTE Band 14	10	24.0	23.72	-0.02	1	1	20E78	QPSK	25	0	10 mm	bottom	1:1	0.253	1.067	0.270	
793.00	23330	Md	LTE Band 14	10	25.0	24.75	0.02	0	1	20E78	QPSK	1	0	10 mm	right	1:1	0.349	1.059	0.370	
793.00	23330	Md	LTE Band 14	10	24.0	23.72	-0.01	1	1	20E78	QPSK	25	0	10 mm	right	1:1	0.273	1.067	0.291	
793.00	23330	Md	LTE Band 14	10	25.0	24.75	0.03	0	1	20E78	QPSK	1	0	10 mm	left	1:1	0.210	1.059	0.222	
793.00	23330	Md	LTE Band 14	10	24.0	23.72	-0.03	1	1	20E78	QPSK	25	0	10 mm	left	1:1	0.189	1.067	0.202	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram										



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**Table 11-39  
LTE Band 26 (Cell) Hotspot SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Ant State	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	25.0	24.37	-0.02	0	70	20E78	QPSK	1	74	10 mm	back	1:1	0.477	1.156	0.551	A48
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.28	0.00	1	70	20E78	QPSK	36	37	10 mm	back	1:1	0.369	1.180	0.435	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.0	24.37	0.01	0	70	20E78	QPSK	1	74	10 mm	front	1:1	0.384	1.156	0.444	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.28	0.00	1	70	20E78	QPSK	36	37	10 mm	front	1:1	0.287	1.180	0.339	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.0	24.37	-0.08	0	70	20E78	QPSK	1	74	10 mm	bottom	1:1	0.284	1.156	0.328	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.28	-0.11	1	70	20E78	QPSK	36	37	10 mm	bottom	1:1	0.220	1.180	0.260	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.0	24.37	-0.01	0	70	20E78	QPSK	1	74	10 mm	right	1:1	0.385	1.156	0.445	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.28	-0.04	1	70	20E78	QPSK	36	37	10 mm	right	1:1	0.303	1.180	0.358	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.0	24.37	0.00	0	70	20E78	QPSK	1	74	10 mm	left	1:1	0.138	1.156	0.160	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.0	23.28	-0.06	1	70	20E78	QPSK	36	37	10 mm	left	1:1	0.104	1.180	0.123	
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 5 (Cell) Hotspot SAR**

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Ant State	Device Serial Number	Modulation	RB Size	RB Offset	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.0	24.26	-0.08	0	3	20E78	QPSK	1	0	back	1:1	0.556	1.186	0.659	A50
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	23.28	-0.08	1	3	20E78	QPSK	25	0	back	1:1	0.463	1.180	0.546	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.0	24.26	0.02	0	3	20E78	QPSK	1	0	front	1:1	0.436	1.186	0.517	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	23.28	0.01	1	3	20E78	QPSK	25	0	front	1:1	0.363	1.180	0.428	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.0	24.26	-0.13	0	3	20E78	QPSK	1	0	bottom	1:1	0.283	1.186	0.336	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	23.28	-0.03	1	3	20E78	QPSK	25	0	bottom	1:1	0.239	1.180	0.282	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.0	24.26	-0.03	0	3	20E78	QPSK	1	0	right	1:1	0.400	1.186	0.474	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	23.28	0.03	1	3	20E78	QPSK	25	0	right	1:1	0.322	1.180	0.380	
836.50	20525	Mid	LTE Band 5 (Cell)	10	25.0	24.26	-0.04	0	3	20E78	QPSK	1	0	left	1:1	0.137	1.186	0.162	
836.50	20525	Mid	LTE Band 5 (Cell)	10	24.0	23.28	-0.01	1	3	20E78	QPSK	25	0	left	1:1	0.111	1.180	0.131	
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 66 (AWS) Hotspot SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Ant State	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)		
1770.00	132572	High	LTE Band 66 (AWS)	20	20.5	20.41	-0.05	0	16	20E58	QPSK	1	0	10 mm	back	1:1	0.429	1.021	0.438	
1770.00	132572	High	LTE Band 66 (AWS)	20	20.5	20.36	-0.05	0	16	20E58	QPSK	50	0	10 mm	back	1:1	0.432	1.033	0.446	
1770.00	132572	High	LTE Band 66 (AWS)	20	20.5	20.41	0.02	0	16	20E58	QPSK	1	0	10 mm	front	1:1	0.348	1.021	0.355	
1770.00	132572	High	LTE Band 66 (AWS)	20	20.5	20.36	0.02	0	16	20E58	QPSK	50	0	10 mm	front	1:1	0.347	1.033	0.358	
1770.00	132572	High	LTE Band 66 (AWS)	20	20.5	20.41	-0.01	0	16	20E58	QPSK	1	0	10 mm	bottom	1:1	0.727	1.021	0.742	
1720.00	132072	Low	LTE Band 66 (AWS)	20	20.5	20.31	0.00	0	16	20E58	QPSK	50	0	10 mm	bottom	1:1	0.645	1.045	0.674	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	20.5	20.34	-0.01	0	16	20E58	QPSK	50	0	10 mm	bottom	1:1	0.725	1.038	0.753	
1770.00	132572	High	LTE Band 66 (AWS)	20	20.5	20.36	-0.01	0	16	20E58	QPSK	50	0	10 mm	bottom	1:1	0.741	1.033	0.765	A52
1770.00	132572	High	LTE Band 66 (AWS)	20	20.5	20.41	0.00	0	16	20E58	QPSK	1	0	10 mm	right	1:1	0.061	1.021	0.062	
1770.00	132572	High	LTE Band 66 (AWS)	20	20.5	20.36	-0.01	0	16	20E58	QPSK	50	0	10 mm	right	1:1	0.060	1.033	0.062	
1770.00	132572	High	LTE Band 66 (AWS)	20	20.5	20.41	-0.05	0	16	20E58	QPSK	1	0	10 mm	left	1:1	0.105	1.021	0.107	
1770.00	132572	High	LTE Band 66 (AWS)	20	20.5	20.36	0.01	0	16	20E58	QPSK	50	0	10 mm	left	1:1	0.108	1.033	0.112	
<b>ANSI / IEEE C95.1 1992 - SAFETY LIMIT</b> Spatial Peak Uncontrolled Exposure/General Population									<b>Body</b> 1.6 W/kg (mW/g) averaged over 1 gram											



**Table 11-42  
LTE Band 25 (PCS) Hotspot SAR**

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Ant State	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)		
1905.00	26590	High	LTE Band 25 (PCS)	20	20.5	20.50	-0.02	0	77	20E58	QPSK	1	0	10 mm	back	1:1	0.453	1.000	0.453	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.5	20.41	0.00	0	77	20E58	QPSK	50	0	10 mm	back	1:1	0.452	1.021	0.461	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.5	20.50	0.01	0	77	20E58	QPSK	1	0	10 mm	front	1:1	0.378	1.000	0.378	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.5	20.41	-0.03	0	77	20E58	QPSK	50	0	10 mm	front	1:1	0.370	1.021	0.378	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.5	20.50	-0.02	0	77	20E58	QPSK	1	0	10 mm	bottom	1:1	0.734	1.000	0.734	A54
1860.00	26140	Low	LTE Band 25 (PCS)	20	20.5	20.21	0.00	0	77	20E58	QPSK	50	0	10 mm	bottom	1:1	0.625	1.069	0.668	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	20.5	20.12	-0.02	0	77	20E58	QPSK	50	0	10 mm	bottom	1:1	0.610	1.091	0.666	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.5	20.41	-0.05	0	77	20E58	QPSK	50	0	10 mm	bottom	1:1	0.733	1.021	0.748	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.5	20.50	-0.07	0	77	20E58	QPSK	1	0	10 mm	right	1:1	0.102	1.000	0.102	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.5	20.41	-0.07	0	77	20E58	QPSK	50	0	10 mm	right	1:1	0.097	1.021	0.099	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.5	20.50	-0.02	0	77	20E58	QPSK	1	0	10 mm	left	1:1	0.070	1.000	0.070	
1905.00	26590	High	LTE Band 25 (PCS)	20	20.5	20.41	0.02	0	77	20E58	QPSK	50	0	10 mm	left	1:1	0.065	1.021	0.066	
<b>ANSI / IEEE C95.1 1992 - SAFETY LIMIT</b> Spatial Peak Uncontrolled Exposure/General Population									<b>Body</b> 1.6 W/kg (mW/g) averaged over 1 gram											

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**Table 11-43  
LTE Band 30 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	21.5	21.08	-0.01	0	Ant B	20F0D	QPSK	1	0	10 mm	back	1:1	0.190	1.102	0.209	
2310.00	27710	Mid	LTE Band 30	10	21.5	20.93	0.03	0	Ant B	20F0D	QPSK	25	12	10 mm	back	1:1	0.182	1.140	0.207	
2310.00	27710	Mid	LTE Band 30	10	21.5	21.08	0.01	0	Ant B	20F0D	QPSK	1	0	10 mm	front	1:1	0.165	1.102	0.182	
2310.00	27710	Mid	LTE Band 30	10	21.5	20.93	0.01	0	Ant B	20F0D	QPSK	25	12	10 mm	front	1:1	0.166	1.140	0.189	
2310.00	27710	Mid	LTE Band 30	10	21.5	21.08	0.01	0	Ant B	20F0D	QPSK	1	0	10 mm	bottom	1:1	0.466	1.102	0.514	A56
2310.00	27710	Mid	LTE Band 30	10	21.5	20.93	0.01	0	Ant B	20F0D	QPSK	25	12	10 mm	bottom	1:1	0.460	1.140	0.524	
2310.00	27710	Mid	LTE Band 30	10	21.5	21.08	-0.01	0	Ant B	20F0D	QPSK	1	0	10 mm	left	1:1	0.132	1.102	0.145	
2310.00	27710	Mid	LTE Band 30	10	21.5	20.93	-0.03	0	Ant B	20F0D	QPSK	25	12	10 mm	left	1:1	0.129	1.140	0.147	
2310.00	27710	Mid	LTE Band 30	10	21.5	21.08	-0.04	0	Ant A	5FE0E	QPSK	1	0	10 mm	back	1:1	0.206	1.102	0.227	
2310.00	27710	Mid	LTE Band 30	10	21.5	20.94	-0.01	0	Ant A	5FE0E	QPSK	25	0	10 mm	back	1:1	0.198	1.138	0.225	
2310.00	27710	Mid	LTE Band 30	10	21.5	21.08	-0.02	0	Ant A	5FE0E	QPSK	1	0	10 mm	front	1:1	0.141	1.102	0.155	
2310.00	27710	Mid	LTE Band 30	10	21.5	20.94	0.02	0	Ant A	5FE0E	QPSK	25	0	10 mm	front	1:1	0.135	1.138	0.154	
2310.00	27710	Mid	LTE Band 30	10	21.5	21.08	-0.03	0	Ant A	5FE0E	QPSK	1	0	10 mm	bottom	1:1	0.447	1.102	0.493	
2310.00	27710	Mid	LTE Band 30	10	21.5	20.94	-0.03	0	Ant A	5FE0E	QPSK	25	0	10 mm	bottom	1:1	0.433	1.138	0.493	
2310.00	27710	Mid	LTE Band 30	10	21.5	21.08	-0.03	0	Ant A	5FE0E	QPSK	1	0	10 mm	right	1:1	0.053	1.102	0.058	
2310.00	27710	Mid	LTE Band 30	10	21.5	20.94	-0.03	0	Ant A	5FE0E	QPSK	25	0	10 mm	right	1:1	0.049	1.138	0.056	
2310.00	27710	Mid	LTE Band 30	10	21.5	21.08	-0.02	0	Ant A	5FE0E	QPSK	1	0	10 mm	left	1:1	0.046	1.102	0.051	
2310.00	27710	Mid	LTE Band 30	10	21.5	20.94	0.01	0	Ant A	5FE0E	QPSK	25	0	10 mm	left	1:1	0.045	1.138	0.051	
<b>ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population</b>								<b>Body 1.6 W/kg (mW/g) averaged over 1 gram</b>												

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**Table 11-44  
LTE Band 7 Hotspot SAR**



MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Antenna Config.	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.															(W/kg)		(W/kg)		
2560.00	21350	High	LTE Band 7	20	21.5	20.80	0.03	0	Ant B	20F0D	QPSK	1	0	10 mm	back	1:1	0.350	1.175	0.411	
2560.00	21350	High	LTE Band 7	20	21.5	20.74	0.01	0	Ant B	20F0D	QPSK	50	0	10 mm	back	1:1	0.353	1.191	0.420	
2560.00	21350	High	LTE Band 7	20	21.5	20.80	-0.03	0	Ant B	20F0D	QPSK	1	0	10 mm	front	1:1	0.317	1.175	0.372	
2560.00	21350	High	LTE Band 7	20	21.5	20.74	0.02	0	Ant B	20F0D	QPSK	50	0	10 mm	front	1:1	0.324	1.191	0.386	
2560.00	21350	High	LTE Band 7	20	21.5	20.80	-0.04	0	Ant B	20F0D	QPSK	1	0	10 mm	bottom	1:1	0.642	1.175	0.754	
2510.00	20850	Low	LTE Band 7	20	21.5	20.57	-0.02	0	Ant B	20F0D	QPSK	50	0	10 mm	bottom	1:1	0.467	1.239	0.579	
2535.00	21100	Mid	LTE Band 7	20	21.5	20.47	-0.01	0	Ant B	20F0D	QPSK	50	0	10 mm	bottom	1:1	0.528	1.268	0.670	
2560.00	21350	High	LTE Band 7	20	21.5	20.74	0.02	0	Ant B	20F0D	QPSK	50	0	10 mm	bottom	1:1	0.646	1.191	0.769	
2560.00	21350	High	LTE Band 7	20	21.5	20.80	0.00	0	Ant B	20F0D	QPSK	1	0	10 mm	left	1:1	0.217	1.175	0.255	
2560.00	21350	High	LTE Band 7	20	21.5	20.74	0.05	0	Ant B	20F0D	QPSK	50	0	10 mm	left	1:1	0.218	1.191	0.260	
2560.00	21350	High	LTE Band 7	20	21.5	21.49	0.08	0	Ant A	5FE0E	QPSK	1	99	10 mm	back	1:1	0.454	1.002	0.455	
2560.00	21350	High	LTE Band 7	20	21.5	21.46	0.09	0	Ant A	5FE0E	QPSK	50	25	10 mm	back	1:1	0.458	1.009	0.462	
2560.00	21350	High	LTE Band 7	20	21.5	21.49	0.00	0	Ant A	5FE0E	QPSK	1	99	10 mm	front	1:1	0.344	1.002	0.345	
2560.00	21350	High	LTE Band 7	20	21.5	21.46	-0.01	0	Ant A	5FE0E	QPSK	50	25	10 mm	front	1:1	0.343	1.009	0.346	
2560.00	21350	High	LTE Band 7	20	21.5	21.49	0.07	0	Ant A	5FE0E	QPSK	1	99	10 mm	bottom	1:1	0.670	1.002	0.671	
2510.00	20850	Low	LTE Band 7	20	21.5	21.15	0.00	0	Ant A	5FE0E	QPSK	50	0	10 mm	bottom	1:1	0.626	1.084	0.679	
2535.00	21100	Mid	LTE Band 7	20	21.5	21.29	0.07	0	Ant A	5FE0E	QPSK	50	0	10 mm	bottom	1:1	0.622	1.050	0.653	
2560.00	21350	High	LTE Band 7	20	21.5	21.46	0.07	0	Ant A	5FE0E	QPSK	50	25	10 mm	bottom	1:1	0.678	1.009	0.684	A58
2560.00	21350	High	LTE Band 7	20	21.5	21.49	0.03	0	Ant A	5FE0E	QPSK	1	99	10 mm	right	1:1	0.160	1.002	0.160	
2560.00	21350	High	LTE Band 7	20	21.5	21.46	-0.04	0	Ant A	5FE0E	QPSK	50	25	10 mm	right	1:1	0.170	1.009	0.172	
2560.00	21350	High	LTE Band 7	20	21.5	21.49	-0.05	0	Ant A	5FE0E	QPSK	1	99	10 mm	left	1:1	0.177	1.002	0.177	
2560.00	21350	High	LTE Band 7	20	21.5	21.46	0.00	0	Ant A	5FE0E	QPSK	50	25	10 mm	left	1:1	0.173	1.009	0.175	
<b>ANSI / IEEE C95.1 1992 - SAFETY LIMIT</b> Spatial Peak Uncontrolled Exposure/General Population								<b>Body</b> 1.6 W/kg (mW/g) averaged over 1 gram												

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**Table 11-45  
LTE Band 41 Hotspot SAR**

MEASUREMENT RESULTS																					
1 CC Uplink   2 CC Uplink	Component Carrier	FREQUENCY		Mode	Bandwidth (MHz)	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
		MHz	Ch.														(W/kg)		(W/kg)		
1 CC Uplink - Power Class 3	NA	2549.50	40185	Low-Md	LTE Band 41	20	23.5	23.50	-0.01	0	20EE6	QPSK	1	0	10 mm	back	1:1.58	0.458	1.000	0.458	
1 CC Uplink - Power Class 3	NA	2549.50	40185	Low-Md	LTE Band 41	20	22.5	22.50	0.19	1	20EE6	QPSK	50	25	10 mm	back	1:1.58	0.308	1.000	0.308	
1 CC Uplink - Power Class 3	NA	2549.50	40185	Low-Md	LTE Band 41	20	23.5	23.50	0.01	0	20EE6	QPSK	1	0	10 mm	front	1:1.58	0.492	1.000	0.492	
1 CC Uplink - Power Class 3	NA	2549.50	40185	Low-Md	LTE Band 41	20	22.5	22.50	-0.03	1	20EE6	QPSK	50	25	10 mm	front	1:1.58	0.314	1.000	0.314	
1 CC Uplink - Power Class 3	NA	2506.00	39750	Low	LTE Band 41	20	23.5	23.38	-0.03	0	20EE6	QPSK	1	0	10 mm	bottom	1:1.58	0.703	1.028	0.723	
1 CC Uplink - Power Class 3	NA	2549.50	40185	Low-Md	LTE Band 41	20	23.5	23.50	-0.07	0	20EE6	QPSK	1	0	10 mm	bottom	1:1.58	0.913	1.000	0.913	
1 CC Uplink - Power Class 3	NA	2693.00	40620	Md	LTE Band 41	20	23.5	23.49	-0.08	0	20EE6	QPSK	1	0	10 mm	bottom	1:1.58	0.786	1.002	0.788	
1 CC Uplink - Power Class 3	NA	2636.50	41055	Md-High	LTE Band 41	20	23.5	22.69	-0.09	0	20EE6	QPSK	1	0	10 mm	bottom	1:1.58	0.507	1.205	0.611	
1 CC Uplink - Power Class 3	NA	2680.00	41490	High	LTE Band 41	20	23.5	22.83	-0.05	0	20EE6	QPSK	1	0	10 mm	bottom	1:1.58	0.666	1.167	0.777	
1 CC Uplink - Power Class 3	NA	2506.00	39750	Low	LTE Band 41	20	22.5	22.37	-0.01	1	20EE6	QPSK	50	0	10 mm	bottom	1:1.58	0.607	1.030	0.625	
1 CC Uplink - Power Class 3	NA	2549.50	40185	Low-Md	LTE Band 41	20	22.5	22.50	0.00	1	20EE6	QPSK	50	25	10 mm	bottom	1:1.58	0.600	1.000	0.600	
1 CC Uplink - Power Class 3	NA	2593.00	40620	Md	LTE Band 41	20	22.5	22.42	-0.01	1	20EE6	QPSK	50	0	10 mm	bottom	1:1.58	0.629	1.019	0.641	
1 CC Uplink - Power Class 3	NA	2636.50	41055	Md-High	LTE Band 41	20	22.5	21.63	-0.01	1	20EE6	QPSK	50	0	10 mm	bottom	1:1.58	0.418	1.222	0.511	
1 CC Uplink - Power Class 3	NA	2680.00	41490	High	LTE Band 41	20	22.5	21.78	-0.01	1	20EE6	QPSK	50	0	10 mm	bottom	1:1.58	0.545	1.180	0.643	
1 CC Uplink - Power Class 3	NA	2549.50	40185	Low-Md	LTE Band 41	20	22.5	22.49	0.01	1	20EE6	QPSK	100	0	10 mm	bottom	1:1.58	0.713	1.002	0.714	
1 CC Uplink - Power Class 2	NA	2549.50	40185	Low-Md	LTE Band 41	20	23.5	23.49	0.03	0	20EE6	QPSK	1	0	10 mm	bottom	1:2.31	0.587	1.002	0.588	
2 CC Uplink - Power Class 3	PCC	2549.50	40185	Low-Md	LTE Band 41	20	23.5	23.35	-0.03	0	20EE6	QPSK	1	0	10 mm	bottom	1:1.58	0.913	1.035	0.945	A60
	SCC	2529.70	39987	Low-Md									1	99							
1 CC Uplink - Power Class 3	NA	2549.50	40185	Low-Md	LTE Band 41	20	23.5	23.50	-0.06	0	20EE6	QPSK	1	0	10 mm	left	1:1.58	0.301	1.000	0.301	
1 CC Uplink - Power Class 3	NA	2549.50	40185	Low-Md	LTE Band 41	20	22.5	22.50	-0.02	1	20EE6	QPSK	50	25	10 mm	left	1:1.58	0.228	1.000	0.228	
1 CC Uplink - Power Class 3	NA	2549.50	40185	Low-Md	LTE Band 41	20	23.5	23.50	-0.02	0	20EE6	QPSK	1	0	10 mm	bottom	1:1.58	0.885	1.000	0.885	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT												Body									
Spatial Peak												1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population												averaged over 1 gram									

Note: Blue entry represents variability measurement.

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**Table 11-46  
WLAN SISO Hotspot SAR**



MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2462	11	802.11b	DSSS	22	20.5	20.22	0.07	10 mm	1	5ED58	1	back	99.8	0.174	0.162	1.067	1.002	0.173	
2462	11	802.11b	DSSS	22	20.5	20.22	0.16	10 mm	1	5ED58	1	front	99.8	0.131	0.100	1.067	1.002	0.107	
2462	11	802.11b	DSSS	22	20.5	20.22	-0.01	10 mm	1	5ED58	1	top	99.8	0.295	0.239	1.067	1.002	0.256	
2462	11	802.11b	DSSS	22	20.5	20.22	-0.05	10 mm	1	5ED58	1	left	99.8	0.037	-	1.067	1.002	-	
2412	1	802.11b	DSSS	22	20.5	20.19	0.20	10 mm	2	5ED58	1	back	99.8	0.249	0.252	1.074	1.002	0.271	
2412	1	802.11b	DSSS	22	20.5	20.19	0.03	10 mm	2	5ED58	1	front	99.8	0.206	0.177	1.074	1.002	0.190	
2412	1	802.11b	DSSS	22	20.5	20.19	-0.05	10 mm	2	5ED58	1	top	99.8	0.419	0.339	1.074	1.002	0.365	A62
2412	1	802.11b	DSSS	22	20.5	20.19	0.14	10 mm	2	5ED58	1	left	99.8	0.169	-	1.074	1.002	-	
5745	149	802.11a	OFDM	20	18.5	17.44	-0.07	10 mm	1	5ED58	6	back	98.3	0.625	0.323	1.276	1.017	0.419	
5745	149	802.11a	OFDM	20	18.5	17.44	0.12	10 mm	1	5ED58	6	front	98.3	0.036	-	1.276	1.017	-	
5745	149	802.11a	OFDM	20	18.5	17.44	0.12	10 mm	1	5ED58	6	top	98.3	0.231	0.098	1.276	1.017	0.127	
5745	149	802.11a	OFDM	20	18.5	17.44	0.13	10 mm	1	5ED58	6	left	98.3	0.087	-	1.276	1.017	-	
5745	149	802.11a	OFDM	20	17.5	17.02	-0.08	10 mm	2	5ED58	6	back	98.8	2.111	0.915	1.117	1.012	1.034	
5785	157	802.11a	OFDM	20	17.5	16.77	-0.03	10 mm	2	5ED58	6	back	98.8	1.885	0.856	1.183	1.012	1.025	
5825	165	802.11a	OFDM	20	18.5	18.03	-0.01	10 mm	2	5ED58	6	back	98.8	2.266	0.955	1.114	1.012	1.077	A64
5825	165	802.11a	OFDM	20	18.5	18.03	0.12	10 mm	2	5ED58	6	front	98.8	0.266	0.100	1.114	1.012	0.113	
5825	165	802.11a	OFDM	20	18.5	18.03	0.17	10 mm	2	5ED58	6	top	98.8	0.399	0.165	1.114	1.012	0.186	
5825	165	802.11a	OFDM	20	18.5	18.03	0.16	10 mm	2	5ED58	6	left	98.8	0.257	-	1.114	1.012	-	
5825	165	802.11a	OFDM	20	18.5	18.03	-0.03	10 mm	2	5ED58	6	back	98.8	1.900	0.946	1.114	1.012	1.066	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body											
Spatial Peak								1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population								averaged over 1 gram											

Note: Blue entry represents variability measurement.

**Table 11-47  
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)	
5775	155	802.11ac	OFDM	80	17.5	16.81	17.5	16.65	0.16	10 mm	MIMO	5ED58	58.5	back	92.3	1.558	0.739	1.216	1.083	0.973	
5775	155	802.11ac	OFDM	80	17.5	16.81	17.5	16.65	0.19	10 mm	MIMO	5ED58	58.5	front	92.3	0.100	-	1.216	1.083	-	
5775	155	802.11ac	OFDM	80	17.5	16.81	17.5	16.65	0.16	10 mm	MIMO	5ED58	58.5	top	92.3	0.317	0.118	1.216	1.083	0.155	
5775	155	802.11ac	OFDM	80	17.5	16.81	17.5	16.65	0.00	10 mm	MIMO	5ED58	58.5	left	92.3	0.145	-	1.216	1.083	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body													
Spatial Peak								1.6 W/kg (mW/g)													
Uncontrolled Exposure/General Population								averaged over 1 gram													

To achieve the 20.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 17.5 dBm.

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**Table 11-48  
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)	
5775	155	802.11ac	OFDM	80	13.5	13.07	13.5	13.00	0.06	10 mm	MIMO	SED58	58.5	back	92.3	0.651	0.388	1.122	1.083	0.471	
5775	155	802.11ac	OFDM	80	13.5	13.07	13.5	13.00	0.12	10 mm	MIMO	SED58	58.5	front	92.3	0.055	-	1.122	1.083	-	
5775	155	802.11ac	OFDM	80	13.5	13.07	13.5	13.00	0.12	10 mm	MIMO	SED58	58.5	top	92.3	0.213	0.069	1.122	1.083	0.084	
5775	155	802.11ac	OFDM	80	13.5	13.07	13.5	13.00	-0.19	10 mm	MIMO	SED58	58.5	left	92.3	0.090	-	1.122	1.083	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram											

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 11-49  
DSS Hotspot SAR**

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2402	0	Bluetooth	FHSS	15.5	15.04	-0.10	10 mm	5AEE5	1	back	77.3	0.092	1.112	1.294	0.132	
2402	0	Bluetooth	FHSS	15.5	15.04	-0.02	10 mm	5AEE5	1	front	77.3	0.075	1.112	1.294	0.108	
2402	0	Bluetooth	FHSS	15.5	15.04	-0.01	10 mm	5AEE5	1	top	77.3	0.119	1.112	1.294	0.171	A66
2402	0	Bluetooth	FHSS	15.5	15.04	-0.04	10 mm	5AEE5	1	left	77.3	0.052	1.112	1.294	0.075	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram						

## 11.4 SAR Test Notes

### General Notes:

- 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.
- 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.
- 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  $\leq 1.2$  W/kg, no additional body-worn SAR evaluations using a headset cable were required.
- 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.
- 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).
- 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

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state determined by the device was verified before and after each SAR measurement and is listed in tables above. Please see Section 14 for supplemental data.

11. This device utilizes power reduction for some wireless modes and technologies, as outlined in Section 1.3. The maximum output power allowed for each transmitter and exposure condition was evaluated for SAR compliance based on expected use conditions and simultaneous transmission scenarios.

**GSM Test Notes:**



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

**UMTS Notes:**

1. UMTS mode in was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v03r01. AMR and HSPA SAR was not required per the 3G Test Reduction Procedure in KDB Publication 941225 D01v03r01.
2. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is  $\leq 0.8$  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.



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LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r04. The general test procedures used for testing can be found in Section 8.6.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 and MCC=001 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
4. Per FCC KDB Publication 447498 D01v06, when the reported (scaled) for LTE Band 41 SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg for 1g evaluations, testing at the other channels was required for such test configurations.
5. TDD LTE was tested per the guidance provided in FCC KDB Publication 941225 D05v02r04. Testing was performed using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.
6. Per KDB Publication 941225 D05Av01r02, SAR for downlink only LTE CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.
7. This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per May TCB Workshop Notes, all SAR tests were performed using Power Class 3. SAR with power class 2 at the available duty factor was additionally performed for the power class 3 configuration with the highest SAR configuration for each exposure conditions. Please see Section 14 for linearity results.
8. For LTE Band 41, per Fall TCB Workshop Notes, 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.
9. For LTE Band 7 and LTE Band 30 Antenna A operations, the device was connected in a radiated downlink carrier aggregation scenario per FCC Guidance. Combination CA\_4A-7A was used for LTE Band 7 Antenna A and CA\_4A-30A for LTE Band 30 Antenna A.

WLAN Notes:



1. For held-to-ear and hotspot operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is  $\leq 0.4$  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  $\leq 0.8$  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) 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.

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4. Per KDB Publication 248227 D01v02r02, SAR for MIMO was evaluated by following the simultaneous SAR provisions from KDB Publication 447498 D01v06 by either evaluating the sum of the 1g SAR values of each antenna transmitting independently or making a SAR measurement with both antennas transmitting simultaneously. Please see Section 12 for complete analysis.
5. When the maximum reported 1g averaged SAR is  $\leq 0.8$  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  $\leq 1.20$  W/kg for 1g evaluations or all test channels were measured.
6. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.

**Bluetooth Notes**

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests test mode type. Per October 2016 TCB Workshop Notes, the reported SAR was scaled to the 100% transmission duty factor to determine compliance. See Section 9.6 for the time domain plot and calculation for the duty factor of the device.
2. Head and hotspot Bluetooth SAR was 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  $\leq 1.6$  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.

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

Per FCC KDB Publication 648474 D04 Handset SAR v01r01, the devices edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR (“-”).

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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	CDMA/EVDO BC10 (§90S)	0.257	0.261	0.586	0.518	0.843	1.104
	CDMA/EVDO BC0 (§22H)	0.326	0.261	0.586	0.587	0.912	1.173
	PCS CDMA/EVDO	0.332	0.261	0.586	0.593	0.918	1.179
	GSM 850	0.215	0.261	0.586	0.476	0.801	1.062
	GSM 1900	0.108	0.261	0.586	0.369	0.694	0.955
	UMTS 850	0.338	0.261	0.586	0.599	0.924	1.185
	UMTS 1750	0.276	0.261	0.586	0.537	0.862	1.123
	UMTS 1900	0.196	0.261	0.586	0.457	0.782	1.043
	LTE Band 71	0.119	0.261	0.586	0.380	0.705	0.966
	LTE Band 12	0.131	0.261	0.586	0.392	0.717	0.978
	LTE Band 13	0.231	0.261	0.586	0.492	0.817	1.078
	LTE Band 14	0.259	0.261	0.586	0.520	0.845	1.106
	LTE Band 26 (Cell)	0.326	0.261	0.586	0.587	0.912	1.173
	LTE Band 5 (Cell)	0.347	0.261	0.586	0.608	0.933	<b>1.194</b>
	LTE Band 66 (AWS)	0.287	0.261	0.586	0.548	0.873	1.134
	LTE Band 25 (PCS)	0.240	0.261	0.586	0.501	0.826	1.087
	LTE Band 30	0.123	0.261	0.586	0.384	0.709	0.970
LTE Band 7	0.117	0.261	0.586	0.378	0.703	0.964	
LTE Band 41	0.126	0.261	0.586	0.387	0.712	0.973	

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	CDMA/EVDO BC10 (§90S)	0.257	0.095	0.401	0.352	0.658	0.753
	CDMA/EVDO BC0 (§22H)	0.326	0.095	0.401	0.421	0.727	0.828
	PCS CDMA/EVDO	0.332	0.095	0.401	0.427	0.733	0.828
	GSM 850	0.215	0.095	0.401	0.310	0.616	0.711
	GSM 1900	0.108	0.095	0.401	0.203	0.509	0.604
	UMTS 850	0.338	0.095	0.401	0.433	0.739	0.834
	UMTS 1750	0.276	0.095	0.401	0.371	0.677	0.772
	UMTS 1900	0.196	0.095	0.401	0.291	0.597	0.692
	LTE Band 71	0.119	0.095	0.401	0.214	0.520	0.615
	LTE Band 12	0.131	0.095	0.401	0.226	0.532	0.627
	LTE Band 13	0.231	0.095	0.401	0.326	0.632	0.727
	LTE Band 14	0.259	0.095	0.401	0.354	0.660	0.755
	LTE Band 26 (Cell)	0.326	0.095	0.401	0.421	0.727	0.822
	LTE Band 5 (Cell)	0.347	0.095	0.401	0.442	0.748	<b>0.843</b>
	LTE Band 66 (AWS)	0.287	0.095	0.401	0.382	0.688	0.783
	LTE Band 25 (PCS)	0.240	0.095	0.401	0.335	0.641	0.736
	LTE Band 30	0.123	0.095	0.401	0.218	0.524	0.619
LTE Band 7	0.117	0.095	0.401	0.212	0.518	0.613	
LTE Band 41	0.126	0.095	0.401	0.221	0.527	0.622	

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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 MIMO at 13 dBm SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	
Head SAR	CDMA/EVDO BC10 (§90S)	0.257	0.461	0.440	1.158
	CDMA/EVDO BC0 (§22H)	0.326	0.461	0.440	1.227
	PCS CDMA/EVDO	0.332	0.461	0.440	1.233
	GSM 850	0.215	0.461	0.440	1.116
	GSM 1900	0.108	0.461	0.440	1.009
	UMTS 850	0.338	0.461	0.440	1.239
	UMTS 1750	0.276	0.461	0.440	1.177
	UMTS 1900	0.196	0.461	0.440	1.097
	LTE Band 71	0.119	0.461	0.440	1.020
	LTE Band 12	0.131	0.461	0.440	1.032
	LTE Band 13	0.231	0.461	0.440	1.132
	LTE Band 14	0.259	0.461	0.440	1.160
	LTE Band 26 (Cell)	0.326	0.461	0.440	1.227
	LTE Band 5 (Cell)	0.347	0.461	0.440	<b>1.248</b>
	LTE Band 66 (AWS)	0.287	0.461	0.440	1.188
	LTE Band 25 (PCS)	0.240	0.461	0.440	1.141
	LTE Band 30	0.123	0.461	0.440	1.024
	LTE Band 7	0.117	0.461	0.440	1.018
	LTE Band 41	0.126	0.461	0.440	1.027

**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	
Head SAR	CDMA/EVDO BC10 (§90S)	0.257	0.632	0.889
	CDMA/EVDO BC0 (§22H)	0.326	0.632	0.958
	PCS CDMA/EVDO	0.332	0.632	0.964
	GSM 850	0.215	0.632	0.847
	GSM 1900	0.108	0.632	0.740
	UMTS 850	0.338	0.632	0.970
	UMTS 1750	0.276	0.632	0.908
	UMTS 1900	0.196	0.632	0.828
	LTE Band 71	0.119	0.632	0.751
	LTE Band 12	0.131	0.632	0.763
	LTE Band 13	0.231	0.632	0.863
	LTE Band 14	0.259	0.632	0.891
	LTE Band 26 (Cell)	0.326	0.632	0.958
	LTE Band 5 (Cell)	0.347	0.632	<b>0.979</b>
	LTE Band 66 (AWS)	0.287	0.632	0.919
	LTE Band 25 (PCS)	0.240	0.632	0.872
	LTE Band 30	0.123	0.632	0.755
	LTE Band 7	0.117	0.632	0.749
	LTE Band 41	0.126	0.632	0.758

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## 12.4 Body-Worn Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Body-Worn	CDMA BC10 (§90S)	0.310	0.107	0.102	0.417	0.412	0.519
	CDMA BC0 (§22H)	0.401	0.107	0.102	0.508	0.503	0.610
	PCS CDMA	0.956	0.107	0.102	1.063	1.058	<b>1.165</b>
	GSM 850	0.208	0.107	0.102	0.315	0.310	0.417
	GSM 1900	0.373	0.107	0.102	0.480	0.475	0.582
	UMTS 850	0.423	0.107	0.102	0.530	0.525	0.632
	UMTS 1750	0.615	0.107	0.102	0.722	0.717	0.824
	UMTS 1900	0.777	0.107	0.102	0.884	0.879	0.986
	LTE Band 71	0.266	0.107	0.102	0.373	0.368	0.475
	LTE Band 12	0.286	0.107	0.102	0.393	0.388	0.495
	LTE Band 13	0.383	0.107	0.102	0.490	0.485	0.592
	LTE Band 14	0.396	0.107	0.102	0.503	0.498	0.605
	LTE Band 26 (Cell)	0.348	0.107	0.102	0.455	0.450	0.557
	LTE Band 5 (Cell)	0.369	0.107	0.102	0.476	0.471	0.578
	LTE Band 66 (AWS)	0.783	0.107	0.102	0.890	0.885	0.992
	LTE Band 25 (PCS)	0.883	0.107	0.102	0.990	0.985	1.092
	LTE Band 30	0.293	0.107	0.102	0.400	0.395	0.502
	LTE Band 7	0.498	0.107	0.102	0.605	0.600	0.707
LTE Band 41	0.522	0.107	0.102	0.629	0.624	0.731	

**Table 12-6**  
**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)		SPLSR
		1	2	3	1+2	1+3	1+3
Body-Worn	CDMA BC10 (§90S)	0.310	0.313	0.728	0.623	1.038	N/A
	CDMA BC0 (§22H)	0.401	0.313	0.728	0.714	1.129	N/A
	PCS CDMA	0.956	0.313	0.728	1.269	See Note 1	0.02
	GSM 850	0.208	0.313	0.728	0.521	0.936	N/A
	GSM 1900	0.373	0.313	0.728	0.686	1.101	N/A
	UMTS 850	0.423	0.313	0.728	0.736	1.151	N/A
	UMTS 1750	0.615	0.313	0.728	0.928	1.343	N/A
	UMTS 1900	0.777	0.313	0.728	1.090	1.505	N/A
	LTE Band 71	0.266	0.313	0.728	0.579	0.994	N/A
	LTE Band 12	0.286	0.313	0.728	0.599	1.014	N/A
	LTE Band 13	0.383	0.313	0.728	0.696	1.111	N/A
	LTE Band 14	0.396	0.313	0.728	0.709	1.124	N/A
	LTE Band 26 (Cell)	0.348	0.313	0.728	0.661	1.076	N/A
	LTE Band 5 (Cell)	0.369	0.313	0.728	0.682	1.097	N/A
	LTE Band 66 (AWS)	0.783	0.313	0.728	1.096	<b>1.511</b>	N/A
	LTE Band 25 (PCS)	0.883	0.313	0.728	1.196	See Note 1	0.01
	LTE Band 30	0.293	0.313	0.728	0.606	1.021	N/A
	LTE Band 7	0.498	0.313	0.728	0.811	1.226	N/A
LTE Band 41	0.522	0.313	0.728	0.835	1.250	N/A	



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**Table 12-7**  
**Simultaneous Transmission Scenario with 5 GHz WLAN MIMO (Body-Worn at 1.5 cm)**

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO at 17 dBm SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2		
Body-Worn	CDMA BC10 (§90S)	0.310	0.705	1.015	N/A
	CDMA BC0 (§22H)	0.401	0.705	1.106	N/A
	PCS CDMA	0.956	0.705	See Note 1	0.02
	GSM 850	0.208	0.705	0.913	N/A
	GSM 1900	0.373	0.705	1.078	N/A
	UMTS 850	0.423	0.705	1.128	N/A
	UMTS 1750	0.615	0.705	1.320	N/A
	UMTS 1900	0.777	0.705	1.482	N/A
	LTE Band 71	0.266	0.705	0.971	N/A
	LTE Band 12	0.286	0.705	0.991	N/A
	LTE Band 13	0.383	0.705	1.088	N/A
	LTE Band 14	0.396	0.705	1.101	N/A
	LTE Band 26 (Cell)	0.348	0.705	1.053	N/A
	LTE Band 5 (Cell)	0.369	0.705	1.074	N/A
	LTE Band 66 (AWS)	0.783	0.705	1.488	N/A
	LTE Band 25 (PCS)	0.883	0.705	<b>1.588</b>	N/A
	LTE Band 30	0.293	0.705	0.998	N/A
LTE Band 7	0.498	0.705	1.203	N/A	
LTE Band 41	0.522	0.705	1.227	N/A	



**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 Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Body-Worn	CDMA BC10 (§90S)	0.310	0.107	0.102	0.374	0.893
	CDMA BC0 (§22H)	0.401	0.107	0.102	0.374	0.984
	PCS CDMA	0.956	0.107	0.102	0.374	<b>1.539</b>
	GSM 850	0.208	0.107	0.102	0.374	0.791
	GSM 1900	0.373	0.107	0.102	0.374	0.956
	UMTS 850	0.423	0.107	0.102	0.374	1.006
	UMTS 1750	0.615	0.107	0.102	0.374	1.198
	UMTS 1900	0.777	0.107	0.102	0.374	1.360
	LTE Band 71	0.266	0.107	0.102	0.374	0.849
	LTE Band 12	0.286	0.107	0.102	0.374	0.869
	LTE Band 13	0.383	0.107	0.102	0.374	0.966
	LTE Band 14	0.396	0.107	0.102	0.374	0.979
	LTE Band 26 (Cell)	0.348	0.107	0.102	0.374	0.931
	LTE Band 5 (Cell)	0.369	0.107	0.102	0.374	0.952
	LTE Band 66 (AWS)	0.783	0.107	0.102	0.374	1.366
	LTE Band 25 (PCS)	0.883	0.107	0.102	0.374	1.466
	LTE Band 30	0.293	0.107	0.102	0.374	0.876
LTE Band 7	0.498	0.107	0.102	0.374	1.081	
LTE Band 41	0.522	0.107	0.102	0.374	1.105	

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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	CDMA BC10 (§90S)	0.310	0.059	0.369
	CDMA BC0 (§22H)	0.401	0.059	0.460
	PCS CDMA	0.956	0.059	<b>1.015</b>
	GSM 850	0.208	0.059	0.267
	GSM 1900	0.373	0.059	0.432
	UMTS 850	0.423	0.059	0.482
	UMTS 1750	0.615	0.059	0.674
	UMTS 1900	0.777	0.059	0.836
	LTE Band 71	0.266	0.059	0.325
	LTE Band 12	0.286	0.059	0.345
	LTE Band 13	0.383	0.059	0.442
	LTE Band 14	0.396	0.059	0.455
	LTE Band 26 (Cell)	0.348	0.059	0.407
	LTE Band 5 (Cell)	0.369	0.059	0.428
	LTE Band 66 (AWS)	0.783	0.059	0.842
	LTE Band 25 (PCS)	0.883	0.059	0.942
	LTE Band 30	0.293	0.059	0.352
LTE Band 7	0.498	0.059	0.557	
LTE Band 41	0.522	0.059	0.581	



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## 12.5 Hotspot SAR Simultaneous Transmission Analysis

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

**Table 12-10**  
**Simultaneous Transmission Scenario with 2.4 GHz WLAN (Hotspot at 1.0 cm)**

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	EVDO BC10 (\$90S)	0.502	0.256	0.365	0.758	0.867	1.123
	EVDO BC0 (\$22H)	0.678	0.256	0.365	0.934	1.043	1.299
	PCS EVDO	0.777	0.256	0.365	1.033	1.142	1.398
	GPRS 850	0.411	0.256	0.365	0.667	0.776	1.032
	GPRS 1900	0.527	0.256	0.365	0.783	0.892	1.148
	UMTS 850	0.632	0.256	0.365	0.888	0.997	1.253
	UMTS 1750	0.860	0.256	0.365	1.116	1.225	1.481
	UMTS 1900	0.886	0.256	0.365	1.142	1.251	1.507
	LTE Band 71	0.380	0.256	0.365	0.636	0.745	1.001
	LTE Band 12	0.403	0.256	0.365	0.659	0.768	1.024
	LTE Band 13	0.588	0.256	0.365	0.844	0.953	1.209
	LTE Band 14	0.575	0.256	0.365	0.831	0.940	1.196
	LTE Band 26 (Cell)	0.551	0.256	0.365	0.807	0.916	1.172
	LTE Band 5 (Cell)	0.659	0.256	0.365	0.915	1.024	1.280
	LTE Band 66 (AWS)	0.765	0.256	0.365	1.021	1.130	1.386
	LTE Band 25 (PCS)	0.748	0.256	0.365	1.004	1.113	1.369
	LTE Band 30	0.524	0.256	0.365	0.780	0.889	1.145
LTE Band 7	0.769	0.256	0.365	1.025	1.134	1.390	
LTE Band 41	0.945	0.256	0.365	1.201	1.310	<b>1.566</b>	

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**Table 12-11**  
**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	EVDO BC10 (\$90S)	0.502	0.419	1.077	0.921	<b>1.579</b>
	EVDO BC0 (\$22H)	0.678	0.419	1.077	1.097	See Table Below
	PCS EVDO	0.777	0.419	1.077	1.196	See Table Below
	GPRS 850	0.411	0.419	1.077	0.830	1.488
	GPRS 1900	0.527	0.419	1.077	0.946	See Table Below
	UMTS 850	0.632	0.419	1.077	1.051	See Table Below
	UMTS 1750	0.860	0.419	1.077	1.279	See Table Below
	UMTS 1900	0.886	0.419	1.077	1.305	See Table Below
	LTE Band 71	0.380	0.419	1.077	0.799	1.457
	LTE Band 12	0.403	0.419	1.077	0.822	1.480
	LTE Band 13	0.588	0.419	1.077	1.007	See Table Below
	LTE Band 14	0.575	0.419	1.077	0.994	See Table Below
	LTE Band 26 (Cell)	0.551	0.419	1.077	0.970	See Table Below
	LTE Band 5 (Cell)	0.659	0.419	1.077	1.078	See Table Below
	LTE Band 66 (AWS)	0.765	0.419	1.077	1.184	See Table Below
	LTE Band 25 (PCS)	0.748	0.419	1.077	1.167	See Table Below
	LTE Band 30	0.524	0.419	1.077	0.943	See Table Below
	LTE Band 7	0.769	0.419	1.077	1.188	See Table Below
LTE Band 41	0.945	0.419	1.077	1.364	See Table Below	



Simult Tx	Configuration	EVDO BC0 (\$22H) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2				1+2	1	2
Hotspot SAR	Back	0.678	1.077	See Note 1	0.02	Hotspot SAR	Back	0.506	1.077	<b>1.583</b>
	Front	0.476	0.113	0.589	N/A		Front	0.411	0.113	0.524
	Top	-	0.186	0.186	N/A		Top	-	0.186	0.186
	Bottom	0.391	-	0.391	N/A		Bottom	0.777	-	0.777
	Right	0.501	-	0.501	N/A		Right	0.106	-	0.106
	Left	0.264	1.077*	1.341	N/A		Left	0.091	1.077*	1.168



Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2			1	2	1+2	
Hotspot SAR	Back	0.365	1.077	<b>1.442</b>	Hotspot SAR	Back	0.632	1.077	See Note 1	0.02
	Front	0.243	0.113	0.356		Front	0.524	0.113	0.637	N/A
	Top	-	0.186	0.186		Top	-	0.186	0.186	N/A
	Bottom	0.527	-	0.527		Bottom	0.401	-	0.401	N/A
	Right	0.057	-	0.057		Right	0.504	-	0.504	N/A
	Left	0.040	1.077*	1.117		Left	0.281	1.077*	1.358	N/A

Simult Tx	Configuration	UMTS 1750 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 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Hotspot SAR	Back	0.451	1.077	<b>1.528</b>	Hotspot SAR	Back	0.509	1.077	<b>1.586</b>
	Front	0.332	0.113	0.445		Front	0.384	0.113	0.497
	Top	-	0.186	0.186		Top	-	0.186	0.186
	Bottom	0.860	-	0.860		Bottom	0.886	-	0.886
	Right	0.067	-	0.067		Right	0.098	-	0.098
	Left	0.116	1.077*	1.193		Left	0.090	1.077*	1.167



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Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	LTE Band 14 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	1+2
Hotspot SAR	Back	0.588	1.077	See Note 1	0.02	Hotspot SAR	Back	0.575	1.077	See Note 1	0.02
	Front	0.479	0.113	0.592	N/A		Front	0.521	0.113	0.634	N/A
	Top	-	0.186	0.186	N/A		Top	-	0.186	0.186	N/A
	Bottom	0.277	-	0.277	N/A		Bottom	0.318	-	0.318	N/A
	Right	0.304	-	0.304	N/A		Right	0.370	-	0.370	N/A
	Left	0.217	1.077*	1.294	N/A		Left	0.222	1.077*	1.299	N/A
Simult Tx	Configuration	LTE Band 26 (Cell) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	LTE Band 5 (Cell) 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	1+2
Hotspot SAR	Back	0.551	1.077	See Note 1	0.02	Hotspot SAR	Back	0.659	1.077	See Note 1	0.02
	Front	0.444	0.113	0.557	N/A		Front	0.517	0.113	0.630	N/A
	Top	-	0.186	0.186	N/A		Top	-	0.186	0.186	N/A
	Bottom	0.328	-	0.328	N/A		Bottom	0.336	-	0.336	N/A
	Right	0.445	-	0.445	N/A		Right	0.474	-	0.474	N/A
	Left	0.160	1.077*	1.237	N/A		Left	0.162	1.077*	1.239	N/A
Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	1+2			1	2	1+2		
Hotspot SAR	Back	0.446	1.077	1.523	Hotspot SAR	Back	0.461	1.077	1.538		
	Front	0.358	0.113	0.471		Front	0.378	0.113	0.491		
	Top	-	0.186	0.186		Top	-	0.186	0.186		
	Bottom	0.765	-	0.765		Bottom	0.748	-	0.748		
	Right	0.062	-	0.062		Right	0.102	-	0.102		
	Left	0.112	1.077*	1.189		Left	0.070	1.077*	1.147		
Simult Tx	Configuration	LTE Band 30 Ant B SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 7 Ant B SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	1+2			1	2	1+2		
Hotspot SAR	Back	0.209	1.077	1.286	Hotspot SAR	Back	0.420	1.077	1.497		
	Front	0.189	0.113	0.302		Front	0.386	0.113	0.499		
	Top	-	0.186	0.186		Top	-	0.186	0.186		
	Bottom	0.524	-	0.524		Bottom	0.769	-	0.769		
	Right	0.147	1.077*	1.224		Right	0.260	1.077*	1.337		
	Left	0.147	1.077*	1.224		Left	0.260	1.077*	1.337		

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Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 30 Ant A SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Hotspot SAR	Back	0.458	1.077	<b>1.535</b>	Hotspot SAR	Back	0.227	1.077	<b>1.304</b>
	Front	0.492	0.113	0.605		Front	0.155	0.113	0.268
	Top	-	0.186	0.186		Top	-	0.186	0.186
	Bottom	0.945	-	0.945		Bottom	0.493	-	0.493
	Right	0.301	1.077*	1.378		Right	0.058	-	0.058
	Left	0.301	1.077*	1.378		Left	0.051	1.077*	1.128



Simult Tx	Configuration	LTE Band 7 Ant A SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.462	1.077	<b>1.539</b>
	Front	0.346	0.113	0.459
	Top	-	0.186	0.186
	Bottom	0.684	-	0.684
	Right	0.172	-	0.172
	Left	0.177	1.077*	1.254

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO at 17 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.502	0.973	1.475
	EVDO BC0 (§22H)	0.678	0.973	See Table Below
	PCS EVDO	0.777	0.973	See Table Below
	GPRS 850	0.411	0.973	1.384
	GPRS 1900	0.527	0.973	1.500
	UMTS 850	0.632	0.973	See Table Below
	UMTS 1750	0.860	0.973	See Table Below
	UMTS 1900	0.886	0.973	See Table Below
	LTE Band 71	0.380	0.973	1.353
	LTE Band 12	0.403	0.973	1.376
	LTE Band 13	0.588	0.973	1.561
	LTE Band 14	0.575	0.973	1.548
	LTE Band 26 (Cell)	0.551	0.973	1.524
	LTE Band 5 (Cell)	0.659	0.973	See Table Below
	LTE Band 66 (AWS)	0.765	0.973	See Table Below
	LTE Band 25 (PCS)	0.748	0.973	See Table Below
	LTE Band 30	0.524	0.973	1.497
LTE Band 7	0.769	0.973	See Table Below	
LTE Band 41	0.945	0.973	See Table Below	

Simult Tx	Configuration	EVDO BC0 (§22H) SAR (W/kg)	5 GHz WLAN MIMO at 17 dBm SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN MIMO at 17 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2	1+2			1	2	1+2
Hotspot SAR	Back	0.678	0.973	See Note 1	0.02	Hotspot SAR	Back	0.506	0.973	1.479
	Front	0.476	0.973*	1.449	N/A		Front	0.411	0.973*	1.384
	Top	-	0.155	0.155	N/A		Top	-	0.155	0.155
	Bottom	0.391	-	0.391	N/A		Bottom	0.777	-	0.777
	Right	0.501	-	0.501	N/A		Right	0.106	-	0.106
	Left	0.264	0.973*	1.237	N/A		Left	0.091	0.973*	1.064
Hotspot SAR	Back	0.632	0.973	See Note 1	0.02	Hotspot SAR	Back	0.451	0.973	1.424
	Front	0.524	0.973*	1.497	N/A		Front	0.332	0.973*	1.305
	Top	-	0.155	0.155	N/A		Top	-	0.155	0.155
	Bottom	0.401	-	0.401	N/A		Bottom	0.860	-	0.860
	Right	0.504	-	0.504	N/A		Right	0.067	-	0.067
	Left	0.281	0.973*	1.254	N/A		Left	0.116	0.973*	1.089
Hotspot SAR	Back	0.509	0.973	1.482	Hotspot SAR	Back	0.659	0.973	See Note 1	0.02
	Front	0.384	0.973*	1.357		Front	0.517	0.973*	1.490	N/A
Hotspot SAR	Top	-	0.155	0.155	Hotspot SAR	Top	-	0.155	0.155	N/A
	Bottom	0.886	-	0.886		Bottom	0.336	-	0.336	N/A
	Right	0.098	-	0.098		Right	0.474	-	0.474	N/A
	Left	0.090	0.973*	1.063		Left	0.162	0.973*	1.135	N/A

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Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN MIMO at 17 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN MIMO at 17 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Hotspot SAR	Back	0.446	0.973	1.419	Hotspot SAR	Back	0.461	0.973	1.434
	Front	0.358	0.973*	1.331		Front	0.378	0.973*	1.351
	Top	-	0.155	0.155		Top	-	0.155	0.155
	Bottom	0.765	-	0.765		Bottom	0.748	-	0.748
	Right	0.062	-	0.062		Right	0.102	-	0.102
	Left	0.112	0.973*	1.085		Left	0.070	0.973*	1.043

Simult Tx	Configuration	LTE Band 7 Ant B SAR (W/kg)	5 GHz WLAN MIMO at 17 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 7 Ant A SAR (W/kg)	5 GHz WLAN MIMO at 17 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Hotspot SAR	Back	0.420	0.973	1.393	Hotspot SAR	Back	0.462	0.973	1.435
	Front	0.386	0.973*	1.359		Front	0.346	0.973*	1.319
	Top	-	0.155	0.155		Top	-	0.155	0.155
	Bottom	0.769	-	0.769		Bottom	0.684	-	0.684
	Right	0.062	-	0.062		Right	0.172	-	0.172
	Left	0.260	0.973*	1.233		Left	0.177	0.973*	1.150



Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN MIMO at 17 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.458	0.973	1.431
	Front	0.492	0.973*	<b>1.465</b>
	Top	-	0.155	0.155
	Bottom	0.945	-	0.945
	Right	0.062	-	0.062
	Left	0.301	0.973*	1.274

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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 Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	EVDO BC0 (§90S)	0.502	0.256	0.365	0.471	<b>1.594</b>
	EVDO BC0 (§22H)	0.678	0.256	0.365	0.471	See Table Below
	PCS EVDO	0.777	0.256	0.365	0.471	See Table Below
	GPRS 850	0.411	0.256	0.365	0.471	1.503
	GPRS 1900	0.527	0.256	0.365	0.471	See Table Below
	UMTS 850	0.632	0.256	0.365	0.471	See Table Below
	UMTS 1750	0.860	0.256	0.365	0.471	See Table Below
	UMTS 1900	0.886	0.256	0.365	0.471	See Table Below
	LTE Band 71	0.380	0.256	0.365	0.471	1.472
	LTE Band 12	0.403	0.256	0.365	0.471	1.495
	LTE Band 13	0.588	0.256	0.365	0.471	See Table Below
	LTE Band 14	0.575	0.256	0.365	0.471	See Table Below
	LTE Band 26 (Cell)	0.551	0.256	0.365	0.471	See Table Below
	LTE Band 5 (Cell)	0.659	0.256	0.365	0.471	See Table Below
	LTE Band 66 (AWS)	0.765	0.256	0.365	0.471	See Table Below
	LTE Band 25 (PCS)	0.748	0.256	0.365	0.471	See Table Below
	LTE Band 30	0.524	0.256	0.365	0.471	See Table Below
LTE Band 7	0.769	0.256	0.365	0.471	See Table Below	
LTE Band 41	0.945	0.256	0.365	0.471	See Table Below	

Simult Tx	Configuration	EVDO BC0 (§22H) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4			1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.678	0.173	0.271	0.471	<b>1.593</b>	Hotspot SAR	Back	0.506	0.173	0.271	0.471	<b>1.421</b>
	Front	0.476	0.107	0.190	0.471*	1.244		Front	0.411	0.107	0.190	0.471*	1.179
	Top	-	0.256	0.365	0.084	0.705		Top	-	0.256	0.365	0.084	0.705
	Bottom	0.391	-	-	-	0.391		Bottom	0.777	-	-	-	0.777
	Right	0.501	-	-	-	0.501		Right	0.106	-	-	-	0.106
	Left	0.264	0.256*	0.365*	0.471*	1.356		Left	0.091	0.256*	0.365*	0.471*	1.183
Hotspot SAR	Back	0.365	0.173	0.271	0.471	<b>1.280</b>	Hotspot SAR	Back	0.632	0.173	0.271	0.471	<b>1.547</b>
	Front	0.243	0.107	0.190	0.471*	1.011		Front	0.524	0.107	0.190	0.471*	1.292
	Top	-	0.256	0.365	0.084	0.705		Top	-	0.256	0.365	0.084	0.705
	Bottom	0.527	-	-	-	0.527		Bottom	0.401	-	-	-	0.401
	Right	0.057	-	-	-	0.057		Right	0.504	-	-	-	0.504
	Left	0.040	0.256*	0.365*	0.471*	1.132		Left	0.281	0.256*	0.365*	0.471*	1.373
Hotspot SAR	Back	0.451	0.173	0.271	0.471	<b>1.366</b>	Hotspot SAR	Back	0.509	0.173	0.271	0.471	<b>1.424</b>
	Front	0.332	0.107	0.190	0.471*	1.100		Front	0.384	0.107	0.190	0.471*	1.152
	Top	-	0.256	0.365	0.084	0.705		Top	-	0.256	0.365	0.084	0.705
	Bottom	0.860	-	-	-	0.860		Bottom	0.886	-	-	-	0.886
	Right	0.067	-	-	-	0.067		Right	0.098	-	-	-	0.098
	Left	0.116	0.256*	0.365*	0.471*	1.208		Left	0.090	0.256*	0.365*	0.471*	1.182
Hotspot SAR	Back	0.588	0.173	0.271	0.471	<b>1.503</b>	Hotspot SAR	Back	0.575	0.173	0.271	0.471	<b>1.490</b>
	Front	0.479	0.107	0.190	0.471*	1.247		Front	0.521	0.107	0.190	0.471*	1.289
	Top	-	0.256	0.365	0.084	0.705		Top	-	0.256	0.365	0.084	0.705
	Bottom	0.277	-	-	-	0.277		Bottom	0.318	-	-	-	0.318
	Right	0.304	-	-	-	0.304		Right	0.370	-	-	-	0.370
	Left	0.217	0.256*	0.365*	0.471*	1.309		Left	0.222	0.256*	0.365*	0.471*	1.314

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Simult Tx	Configuration	LTE Band 26 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 5 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4			1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.551	0.173	0.271	0.471	1.466	Hotspot SAR	Back	0.659	0.173	0.271	0.471	1.574
	Front	0.444	0.107	0.190	0.471*	1.212		Front	0.517	0.107	0.190	0.471*	1.285
	Top	-	0.256	0.365	0.084	0.705		Top	-	0.256	0.365	0.084	0.705
	Bottom	0.328	-	-	-	0.328		Bottom	0.336	-	-	-	0.336
	Right	0.445	-	-	-	0.445		Right	0.474	-	-	-	0.474
	Left	0.160	0.256*	0.365*	0.471*	1.252		Left	0.162	0.256*	0.365*	0.471*	1.254
Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)
	1	2	3	4	1+2+3+4	1		2	3	4	1+2+3+4		
Hotspot SAR	Back	0.446	0.173	0.271	0.471	1.361	Hotspot SAR	Back	0.461	0.173	0.271	0.471	1.376
	Front	0.358	0.107	0.190	0.471*	1.126		Front	0.378	0.107	0.190	0.471*	1.146
	Top	-	0.256	0.365	0.084	0.705		Top	-	0.256	0.365	0.084	0.705
	Bottom	0.765	-	-	-	0.765		Bottom	0.748	-	-	-	0.748
	Right	0.062	-	-	-	0.062		Right	0.102	-	-	-	0.102
	Left	0.112	0.256*	0.365*	0.471*	1.204		Left	0.070	0.256*	0.365*	0.471*	1.162
Simult Tx	Configuration	LTE Band 30 Ant B SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 30 Ant A SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)
	1	2	3	4	1+2+3+4	1		2	3	4	1+2+3+4		
Hotspot SAR	Back	0.209	0.173	0.271	0.471	1.124	Hotspot SAR	Back	0.227	0.173	0.271	0.471	1.142
	Front	0.189	0.107	0.190	0.471*	0.957		Front	0.155	0.107	0.190	0.471*	0.923
	Top	-	0.256	0.365	0.084	0.705		Top	-	0.256	0.365	0.084	0.705
	Bottom	0.524	-	-	-	0.524		Bottom	0.493	-	-	-	0.493
	Right	0.147	-	-	-	0.147		Right	0.058	-	-	-	0.058
	Left	0.147	0.256*	0.365*	0.471*	1.239		Left	0.051	0.256*	0.365*	0.471*	1.143
Simult Tx	Configuration	LTE Band 7 Ant B SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 7 Ant A SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)
	1	2	3	4	1+2+3+4	1		2	3	4	1+2+3+4		
Hotspot SAR	Back	0.420	0.173	0.271	0.471	1.335	Hotspot SAR	Back	0.462	0.173	0.271	0.471	1.377
	Front	0.386	0.107	0.190	0.471*	1.154		Front	0.346	0.107	0.190	0.471*	1.114
	Top	-	0.256	0.365	0.084	0.705		Top	-	0.256	0.365	0.084	0.705
	Bottom	0.769	-	-	-	0.769		Bottom	0.684	-	-	-	0.684
	Right	0.260	-	-	-	0.260		Right	0.172	-	-	-	0.172
	Left	0.260	0.256*	0.365*	0.471*	1.352		Left	0.177	0.256*	0.365*	0.471*	1.269

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN MIMO at 13 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Hotspot SAR	Back	0.458	0.173	0.271	0.471	1.373
	Front	0.492	0.107	0.190	0.471*	1.260
	Top	-	0.256	0.365	0.084	0.705
	Bottom	0.945	-	-	-	0.945
	Right	0.301	-	-	-	0.301
	Left	0.301	0.256*	0.365*	0.471*	1.393



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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	EVDO BC10 (§90S)	0.502	0.171	0.673
	EVDO BC0 (§22H)	0.678	0.171	0.849
	PCS EVDO	0.777	0.171	0.948
	GPRS 850	0.411	0.171	0.582
	GPRS 1900	0.527	0.171	0.698
	UMTS 850	0.632	0.171	0.803
	UMTS 1750	0.860	0.171	1.031
	UMTS 1900	0.886	0.171	1.057
	LTE Band 71	0.380	0.171	0.551
	LTE Band 12	0.403	0.171	0.574
	LTE Band 13	0.588	0.171	0.759
	LTE Band 14	0.575	0.171	0.746
	LTE Band 26 (Cell)	0.551	0.171	0.722
	LTE Band 5 (Cell)	0.659	0.171	0.830
	LTE Band 66 (AWS)	0.765	0.171	0.936
	LTE Band 25 (PCS)	0.748	0.171	0.919
	LTE Band 30	0.524	0.171	0.695
LTE Band 7	0.769	0.171	0.940	
LTE Band 41	0.945	0.171	1.116	

**Notes:**

- No evaluation was performed to determine the aggregate 1g SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.04 per FCC KDB 447498 D01v06. See Section 12.6 for detailed SPLS ratio analysis.

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## 12.6 SPLSR Evaluation and Analysis

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

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

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



### 12.6.1 Body – Worn Back Side SPLSR Evaluation and Analysis

**Table 12-15**  
**Peak SAR Locations for Body-Worn Back Side**

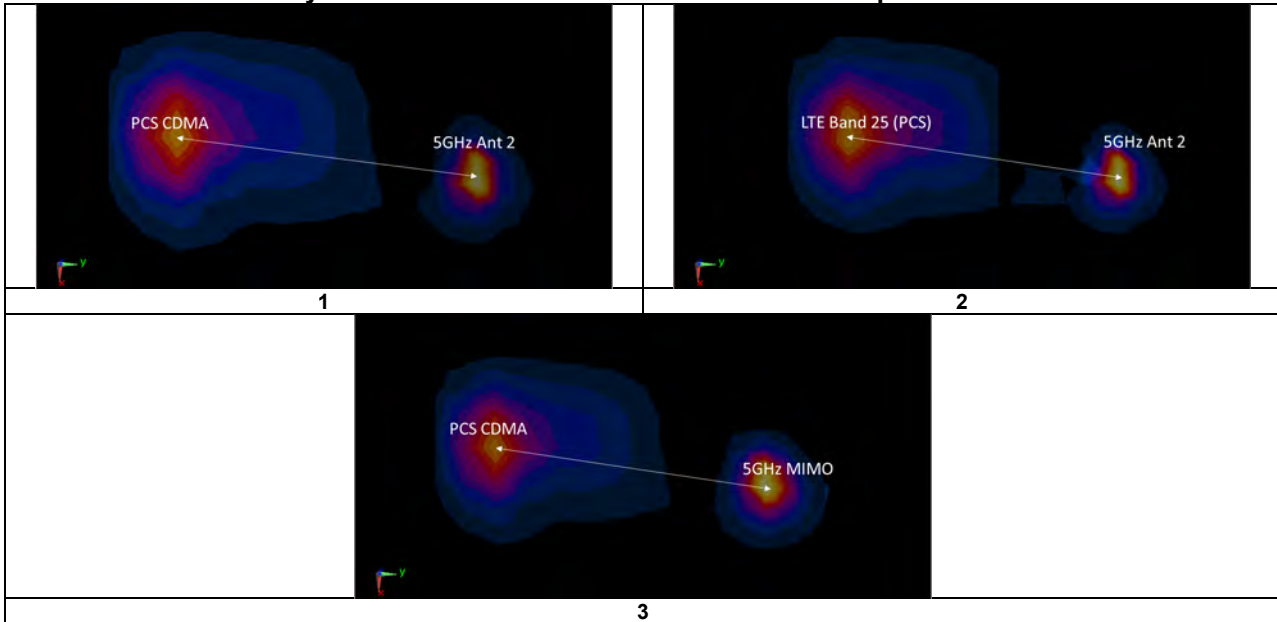
Mode/Band	x (mm)	y (mm)
5 GHz WLAN Ant 2	1.00	64.00
5 GHz WLAN MIMO	-1.00	66.00
PCS CDMA	-18.50	-70.00
LTE Band 25 (PCS)	-23.00	-73.50



**Table 12-16**  
**Body- Worn Back Side SAR to Peak Location Separation Ratio Calculations**

Antenna Pair		Standalone 1g 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 <sub>a-b</sub>	$(a+b)^{1.5}/D_{a-b}$	
5 GHz WLAN Ant 2	PCS CDMA	0.728	0.956	1.684	135.41	0.02	1
5 GHz WLAN Ant 2	LTE Band 25 (PCS)	0.728	0.883	1.611	139.58	0.01	2
5 GHz WLAN MIMO	PCS CDMA	0.705	0.956	1.661	137.12	0.02	3

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**Table 12-17**  
**Body – Worn Back Side SAR to Peak Location Separation Ratio Plots**



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## 12.6.2 Hotspot Back Side SPLSR Evaluation and Analysis

**Table 12-18**  
**Peak SAR Locations for Hotspot Back Side**

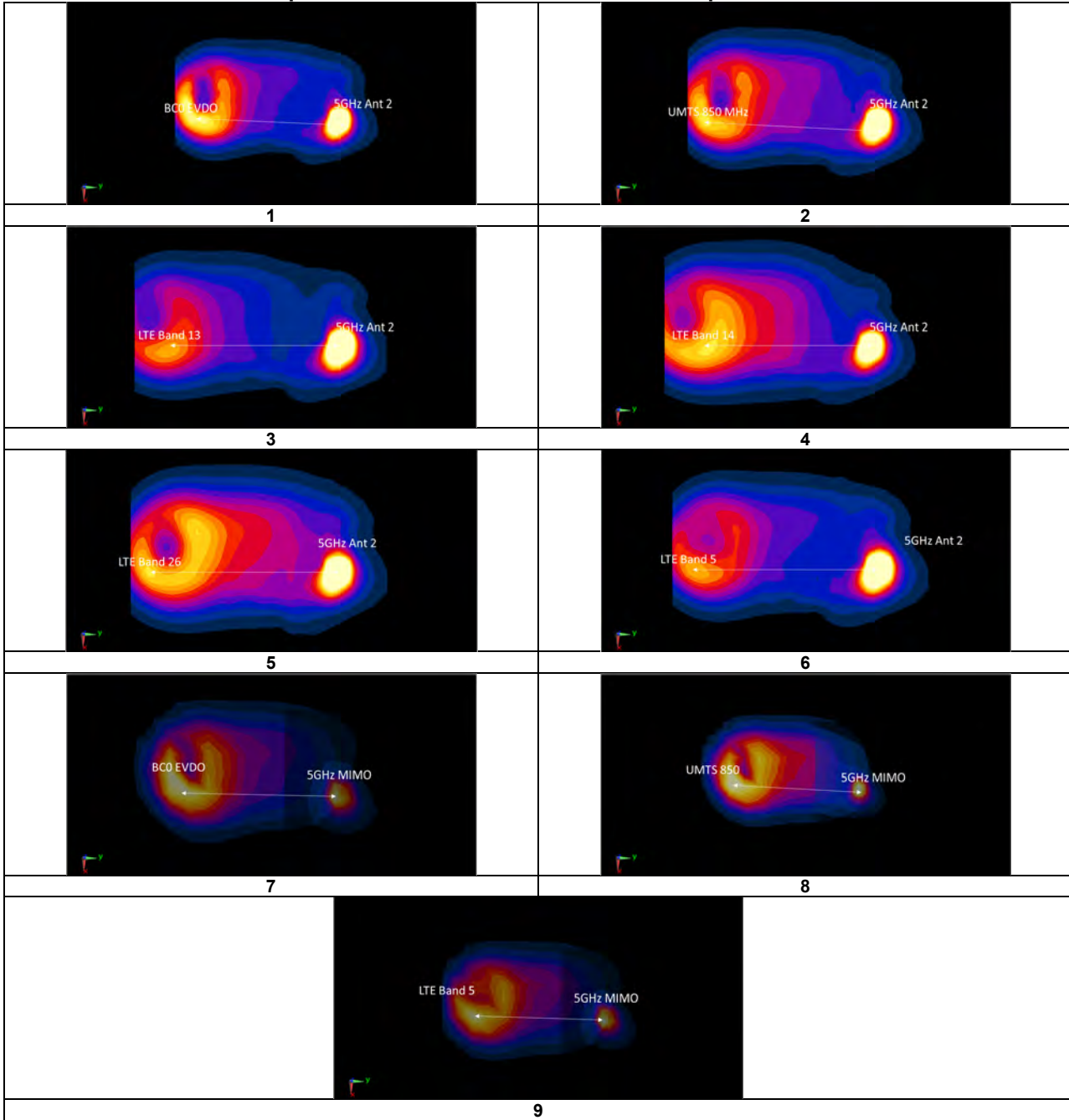
Mode/Band	x (mm)	y (mm)
5 GHz WLAN Ant 2	1.00	58.00
5 GHz WLAN MIMO	0.00	58.00
BC0 EVDO	-3.50	-70.50
UMTS 850	-3.50	-72.00
LTE Band 13	4.00	-66.00
LTE Band 14	-4.00	-82.00
LTE Band 26 (Cell)	-3.50	-72.00
LTE Band 5 (Cell)	-10.00	-76.50

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

Antenna Pair		Standalone 1g SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLSR Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D <sub>a-b</sub>	$(a+b)^{1.5}/D_{a-b}$	
5 GHz WLAN Ant 2	BC0 EVDO	1.077	0.678	1.755	128.58	0.02	1
5 GHz WLAN Ant 2	UMTS 850	1.077	0.632	1.709	130.08	0.02	2
5 GHz WLAN Ant 2	LTE Band 13	1.077	0.588	1.665	124.04	0.02	3
5 GHz WLAN Ant 2	LTE Band 14	1.077	0.575	1.652	140.09	0.02	4
5 GHz WLAN Ant 2	LTE Band 26 (Cell)	1.077	0.551	1.628	130.08	0.02	5
5 GHz WLAN Ant 2	LTE Band 5 (Cell)	1.077	0.659	1.736	134.95	0.02	6
5 GHz WLAN MIMO	BC0 EVDO	0.973	0.678	1.651	128.55	0.02	7
5 GHz WLAN MIMO	UMTS 850	0.973	0.632	1.605	130.05	0.02	8
5 GHz WLAN MIMO	LTE Band 5 (Cell)	0.973	0.659	1.632	134.87	0.02	9

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



### 12.7 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  $\geq 0.80$  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  $\geq 1.45$  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  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .
- 4) Repeated measurements are not required when the original highest measured SAR is  $< 0.80$  W/kg

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

BODY VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Data Rate (Mbps)	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)	
2600	2549.50	40185	LTE Band 41, 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	N/A	bottom	10 mm	0.913	0.885	1.03	N/A	N/A	N/A	N/A
5750	5825.00	165	802.11a, 20 MHz Bandwidth	OFDM, ANT 2	6	back	10 mm	0.955	0.946	1.01	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram							

## 13.2 Measurement Uncertainty

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

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## 14 ADDITIONAL TESTING PER FCC GUIDANCE



### 14.1 Tuner Testing

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

To evaluate all of 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 CDMA BC0 and BC10, the highest reported SAR configuration per exposure condition was considered for point SAR measurements. Additionally, LTE bands 12/17 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 three bands (i.e., the number of required single point measurements (at least 20) apply to the aggregated band). All other bands were treated independently.

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

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**Table 14-1**  
**UMTS/CDMA Supplemental Head SAR Data**

Supplemental Head SAR Data									
UMTS 850		UMTS 1750		UMTS 1900		CDMA BC0		CDMA BC1	
RMC		RMC		RMC		RC3/S055		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)	0.313	Measured 1g SAR (W/kg)	0.222	Measured 1g SAR (W/kg)	0.156	Measured 1g SAR (W/kg)	0.290	Measured 1g SAR (W/kg)	0.264
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 2)	0.392	Auto-tune (State 73)	0.274	Auto-tune (State 77)	0.240	Auto-tune (State 3)	0.407	Auto-tune (State 77)	0.306
Default (State 1)	0.390	Default (State 17)	0.280	Default (State 17)	0.230	Default (State 1)	0.391	Default (State 17)	0.306
State 0	0.388	State 4	0.138	State 4	0.151	State 1	0.391	State 1	0.234
State 1	0.390	State 7	0.123	State 6	0.141	State 2	0.409	State 5	0.203
State 2	0.389	State 10	0.102	State 9	0.126	State 3	0.415	State 7	0.185
State 5	0.381	State 11	0.088	State 14	0.058	State 6	0.399	State 11	0.136
State 17	0.157	State 13	0.062	State 24	0.206	State 9	0.368	State 12	0.112
State 21	0.160	State 17	0.280	State 26	0.179	State 11	0.300	State 15	0.056
State 22	0.155	State 18	0.258	State 29	0.121	State 17	0.142	State 17	0.306
State 25	0.123	State 24	0.237	State 33	0.070	State 22	0.140	State 18	0.286
State 27	0.084	State 27	0.189	State 42	0.044	State 29	0.043	State 25	0.243
State 28	0.058	State 30	0.128	State 44	0.029	State 32	0.372	State 31	0.093
State 33	0.367	State 36	0.044	State 47	0.012	State 35	0.328	State 32	0.093
State 35	0.323	State 42	0.032	State 52	0.088	State 40	0.289	State 36	0.085
State 40	0.281	State 45	0.018	State 54	0.082	State 47	0.073	State 43	0.054
State 43	0.186	State 48	0.092	State 57	0.074	State 49	0.193	State 49	0.147
State 48	0.205	State 52	0.078	State 61	0.039	State 55	0.194	State 50	0.135
State 53	0.216	State 55	0.070	State 66	0.052	State 57	0.174	State 53	0.130
State 63	0.031	State 58	0.058	State 70	0.069	State 60	0.089	State 59	0.085
State 68	0.391	State 64	0.148	State 72	0.173	State 62	0.050	State 64	0.203
State 71	0.207	State 70	0.051	State 75	0.092	State 63	0.031	State 71	0.151
State 74	0.362	State 73	0.279	State 77	0.232	State 68	0.406	State 77	0.301
State 76	0.388	State 76	0.167	State 78	0.104	State 75	0.190	State 78	0.103

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**Table 14-2**  
**LTE Supplemental Head SAR Data**

Supplemental Head SAR Data															
LTE Band 71		LTE Band 14		LTE Band 12		LTE Band 13		LTE Band 26		LTE Band 5		LTE Band 66		LTE Band 25	
QPSK, 20MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 25 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 15MHz Bandwidth, 1 RB, 74 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 20MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 20MHz Bandwidth, 1 RB, 0 RB Offsets	
Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Left Cheek	Test Position	Left Cheek
Frequency (MHz)	680.50	Frequency (MHz)	793.00	Frequency (MHz)	707.50	Frequency (MHz)	782.00	Frequency (MHz)	831.50	Frequency (MHz)	836.50	Frequency (MHz)	1770.00	Frequency (MHz)	1860.00
Channel	133297	Channel	23330	Channel	23095	Channel	23230	Channel	26865	Channel	20525	Channel	132572	Channel	26140
Measured 1g SAR (W/kg)	0.114	Measured 1g SAR (W/kg)	0.245	Measured 1g SAR (W/kg)	0.111	Measured 1g SAR (W/kg)	0.210	Measured 1g SAR (W/kg)	0.282	Measured 1g SAR (W/kg)	0.293	Measured 1g SAR (W/kg)	0.245	Measured 1g SAR (W/kg)	0.204
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 1)	0.125	Auto-tune (State 1)	0.300	Auto-tune (State 2)	0.130	Auto-tune (State 1)	0.252	Auto-tune (State 3)	0.304	Auto-tune (State 3)	0.344	Auto-tune (State 77)	0.319	Auto-tune (State 77)	0.292
Default (State 33)	0.117	Default (State 1)	0.300	Default (State 1)	0.126	Default (State 1)	0.245	Default (State 1)	0.299	Default (State 1)	0.341	Default (State 17)	0.288	Default (State 17)	0.296
State 1	0.120	State 1	0.300	State 0	0.125	State 1	0.245	State 1	0.299	State 1	0.341	State 1	0.183	State 3	0.293
State 2	0.126	State 3	0.278	State 2	0.128	State 8	0.224	State 3	0.306	State 3	0.349	State 4	0.154	State 10	0.160
State 5	0.128	State 4	0.276	State 7	0.113	State 16	0.087	State 6	0.302	State 6	0.342	State 5	0.150	State 14	0.083
State 9	0.120	State 6	0.258	State 23	0.035	State 24	0.083	State 10	0.269	State 10	0.301	State 11	0.096	State 17	0.296
State 15	0.022	State 9	0.216	State 31	0.001	State 32	0.227	State 13	0.171	State 13	0.192	State 15	0.038	State 23	0.254
State 17	0.021	State 14	0.069	State 39	0.078	State 40	0.162	State 19	0.096	State 19	0.115	State 17	0.288	State 28	0.176
State 22	0.019	State 24	0.129	State 47	0.012	State 48	0.112	State 23	0.086	State 23	0.103	State 19	0.262	State 34	0.091
State 25	0.012	State 26	0.093	State 50	0.059	State 50	0.127	State 26	0.059	State 26	0.071	State 20	0.256	State 35	0.085
State 28	0.002	State 29	0.035	State 54	0.052	State 55	0.114	State 30	0.015	State 30	0.019	State 21	0.254	State 38	0.077
State 29	0.002	State 33	0.270	State 59	0.014	State 60	0.041	State 37	0.230	State 31	0.011	State 25	0.221	State 41	0.070
State 33	0.117	State 42	0.135	State 66	0.121	State 67	0.110	State 38	0.217	State 37	0.264	State 31	0.095	State 46	0.028
State 40	0.107	State 44	0.082					State 41	0.188	State 38	0.251	State 37	0.049	State 51	0.124
State 43	0.078	State 47	0.032					State 44	0.115	State 41	0.214	State 39	0.043	State 56	0.116
State 48	0.026	State 52	0.186					State 51	0.135	State 44	0.131	State 43	0.030	State 60	0.069
State 49	0.027	State 54	0.175					State 54	0.129	State 51	0.158	State 49	0.102	State 62	0.046
State 53	0.028	State 57	0.146					State 58	0.093	State 54	0.151	State 53	0.084	State 64	0.196
State 68	0.107	State 61	0.050					State 65	0.090	State 58	0.109	State 56	0.079	State 66	0.073
State 69	0.022	State 66	0.270					State 66	0.266	State 65	0.106	State 59	0.053	State 69	0.290
State 71	0.028	State 70	0.275					State 69	0.089	State 69	0.109	State 65	0.264	State 74	0.081
State 74	0.117	State 72	0.303					State 72	0.290	State 72	0.337	State 71	0.100	State 77	0.293
State 76	0.107	State 75	0.181					State 79	0.126	State 79	0.149	State 77	0.295	State 79	0.144

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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		TDSO/ SO32	
Test Position	Back Side	Test Position	Bottom Edge	Test Position	Bottom Edge	Test Position	Back Side	Test Position	Back Side
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	15 mm
Frequency (MHz)	846.60	Frequency (MHz)	1752.60	Frequency (MHz)	1880.00	Frequency (MHz)	836.52	Frequency (MHz)	1880.00
Channel	4233	Channel	1513	Channel	9400	Channel	384	Channel	600
Measured 1g SAR (W/kg)	0.588	Measured 1g SAR (W/kg)	0.763	Measured 1g SAR (W/kg)	0.786	Measured 1g SAR (W/kg)	0.643	Measured 1g SAR (W/kg)	0.795
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 3)	0.830	Auto-tune (State 73)	0.973	Auto-tune (State 77)	1.162	Auto-tune (State 3)	0.800	Auto-tune (State 77)	0.908
Default (State 1)	0.799	Default (State 17)	0.984	Default (State 17)	1.175	Default (State 1)	0.783	Default (State 17)	0.912
State 3	0.829	State 3	0.557	State 1	0.853	State 1	0.783	State 0	0.648
State 4	0.801	State 7	0.499	State 5	0.728	State 3	0.811	State 3	0.559
State 7	0.761	State 9	0.455	State 10	0.568	State 4	0.811	State 12	0.292
State 11	0.834	State 12	0.304	State 15	0.224	State 7	0.789	State 17	0.912
State 14	0.259	State 17	0.984	State 17	1.175	State 8	0.788	State 20	0.810
State 16	0.326	State 23	0.881	State 18	1.088	State 13	0.425	State 23	0.749
State 24	0.294	State 27	0.753	State 25	0.930	State 16	0.256	State 27	0.582
State 27	0.170	State 29	0.624	State 30	0.510	State 21	0.260	State 35	0.206
State 31	0.043	State 35	0.185	State 32	0.316	State 28	0.097	State 38	0.184
State 34	0.763	State 41	0.148	State 36	0.280	State 33	0.767	State 41	0.165
State 42	0.534	State 43	0.115	State 39	0.249	State 34	0.703	State 51	0.310
State 45	0.299	State 45	0.078	State 42	0.217	State 39	0.627	State 53	0.302
State 49	0.430	State 51	0.322	State 48	0.488	State 45	0.296	State 59	0.196
State 50	0.447	State 52	0.315	State 51	0.433	State 46	0.236	State 61	0.130
State 52	0.439	State 55	0.282	State 53	0.422	State 61	0.126	State 63	0.072
State 55	0.407	State 57	0.260	State 58	0.329	State 62	0.092	State 66	0.175
State 59	0.246	State 58	0.237	State 60	0.235	State 67	0.349	State 69	0.899
State 62	0.100	State 63	0.087	State 64	0.711	State 70	0.765	State 72	0.607
State 70	0.821	State 69	0.978	State 67	0.394	State 73	0.257	State 73	0.872
State 73	0.326	State 73	0.969	State 76	0.848	State 74	0.763	State 77	0.909
State 77	0.330	State 75	0.351	State 77	1.169	State 76	0.789	State 78	0.234

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**Table 14-4**  
**LTE Supplemental Body SAR Data**

Supplemental Body SAR Data															
LTE Band 71		LTE Band 14		LTE Band 12		LTE Band 13		LTE Band 26		LTE Band 5		LTE Band 66		LTE Band 25	
QPSK, 20MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 25 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 15MHz Bandwidth, 1 RB, 74 RB Offsets		QPSK, 10MHz Bandwidth, 1 RB, 0 RB Offsets		QPSK, 20MHz Bandwidth, 1 RB, 99 RB Offsets		QPSK, 20MHz Bandwidth, 1 RB, 0 RB Offsets	
Test Position	Back Side	Test Position	Back Side	Test Position	Back Side	Test Position	Back Side	Test Position	Back Side	Test Position	Back Side	Test Position	Back Side	Test Position	Back Side
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	10 mm	Spacing	15 mm	Spacing	15 mm
Frequency (MHz)	680.50	Frequency (MHz)	793.00	Frequency (MHz)	707.50	Frequency (MHz)	782.00	Frequency (MHz)	831.50	Frequency (MHz)	836.50	Frequency (MHz)	1720.00	Frequency (MHz)	1905.00
Channel	133297	Channel	23330	Channel	23095	Channel	23230	Channel	26865	Channel	20525	Channel	132072	Channel	26590
Measured 1g SAR (W/kg)	0.364	Measured 1g SAR (W/kg)	0.543	Measured 1g SAR (W/kg)	0.341	Measured 1g SAR (W/kg)	0.534	Measured 1g SAR (W/kg)	0.477	Measured 1g SAR (W/kg)	0.556	Measured 1g SAR (W/kg)	0.628	Measured 1g SAR (W/kg)	0.713
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 33)	0.454	Auto-tune (State 1)	0.823	Auto-tune (State 2)	0.445	Auto-tune (State 3)	0.686	Auto-tune (State 70)	0.648	Auto-tune (State 3)	0.680	Auto-tune (State 16)	0.700	Auto-tune (State 77)	0.984
Default (State 33)	0.436	Default (State 1)	0.809	Default (State 1)	0.428	Default (State 1)	0.669	Default (State 1)	0.654	Default (State 1)	0.669	Default (State 17)	0.717	Default (State 17)	0.964
State 0	0.395	State 1	0.809	State 1	0.428	State 1	0.669	State 1	0.654	State 1	0.669	State 0	0.472	State 6	0.571
State 2	0.457	State 5	0.770	State 2	0.436	State 3	0.682	State 8	0.644	State 3	0.696	State 2	0.409	State 11	0.410
State 8	0.449	State 10	0.540	State 12	0.148	State 6	0.653	State 9	0.605	State 8	0.690	State 8	0.359	State 13	0.291
State 16	0.093	State 18	0.345	State 14	0.087	State 13	0.287	State 12	0.351	State 9	0.665	State 14	0.141	State 17	0.964
State 19	0.096	State 21	0.333	State 22	0.137	State 19	0.264	State 18	0.221	State 12	0.458	State 16	0.722	State 19	0.904
State 20	0.094	State 25	0.245	State 34	0.387	State 21	0.259	State 20	0.208	State 15	0.212	State 17	0.717	State 26	0.735
State 22	0.084	State 30	0.063	State 40	0.294	State 26	0.150	State 29	0.050	State 18	0.214	State 19	0.644	State 30	0.435
State 28	0.018	State 36	0.689	State 54	0.179	State 33	0.651	State 36	0.545	State 20	0.210	State 20	0.639	State 33	0.246
State 33	0.436	State 38	0.633	State 62	0.019	State 44	0.244	State 46	0.176	State 29	0.054	State 22	0.608	State 37	0.207
State 34	0.433	State 39	0.613	State 68	0.428	State 61	0.343	State 47	0.130	State 32	0.646	State 28	0.396	State 39	0.184
State 37	0.422	State 42	0.444	State 79	0.186	State 78	0.672	State 50	0.323	State 36	0.576	State 37	0.132	State 44	0.105
State 38	0.404	State 45	0.223					State 56	0.249	State 46	0.212	State 38	0.121	State 46	0.067
State 40	0.392	State 48	0.443					State 57	0.207	State 47	0.155	State 40	0.123	State 49	0.377
State 46	0.141	State 53	0.427					State 59	0.135	State 50	0.298	State 46	0.044	State 54	0.297
State 56	0.098	State 58	0.293					State 60	0.099	State 56	0.272	State 56	0.203	State 58	0.246
State 65	0.092	State 60	0.159					State 62	0.060	State 57	0.239	State 63	0.053	State 61	0.142
State 66	0.435	State 64	0.811					State 64	0.647	State 60	0.113	State 65	0.637	State 63	0.080
State 68	0.397	State 67	0.440					State 67	0.300	State 64	0.657	State 68	0.454	State 65	0.848
State 71	0.116	State 71	0.445					State 70	0.634	State 67	0.271	State 71	0.259	State 72	0.674
State 74	0.435	State 76	0.820					State 75	0.301	State 75	0.272	State 74	0.137	State 74	0.205
State 79	0.116	State 77	0.349					State 78	0.634	State 78	0.645	State 79	0.261	State 77	0.993

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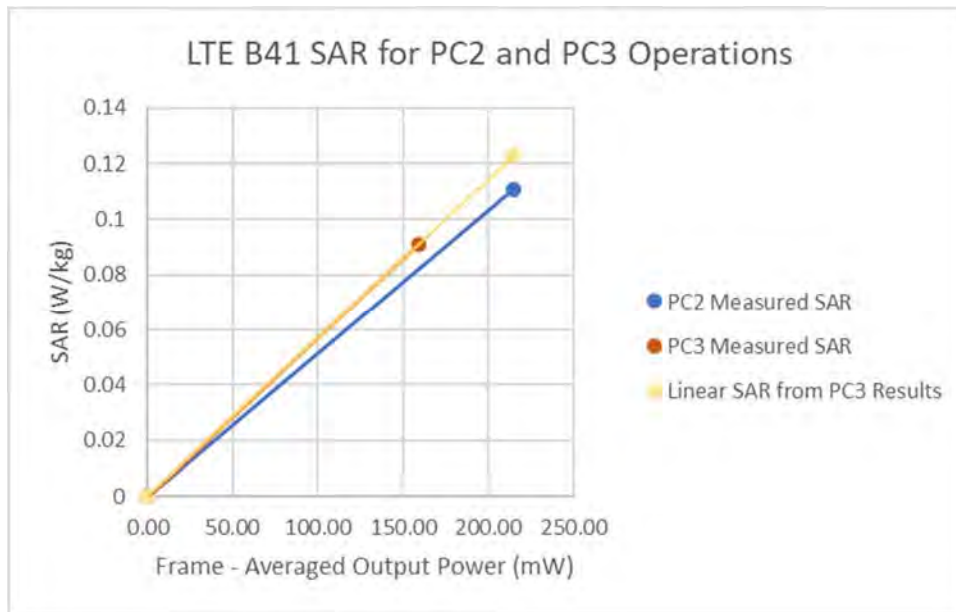
## 14.2 LTE Band 41 Power Class 2 and Power Class 3 Linearity

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



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

**Table 14-5**  
**LTE Band 41 Head Linearity Data**

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24.5	27.5
Measured Output Power (dBm)	24.01	26.96
Measured SAR (W/kg)	0.091	0.111
Measured Power (mW)	251.77	496.59
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	159.37	215.02
% deviation from expected linearity		-9.59%

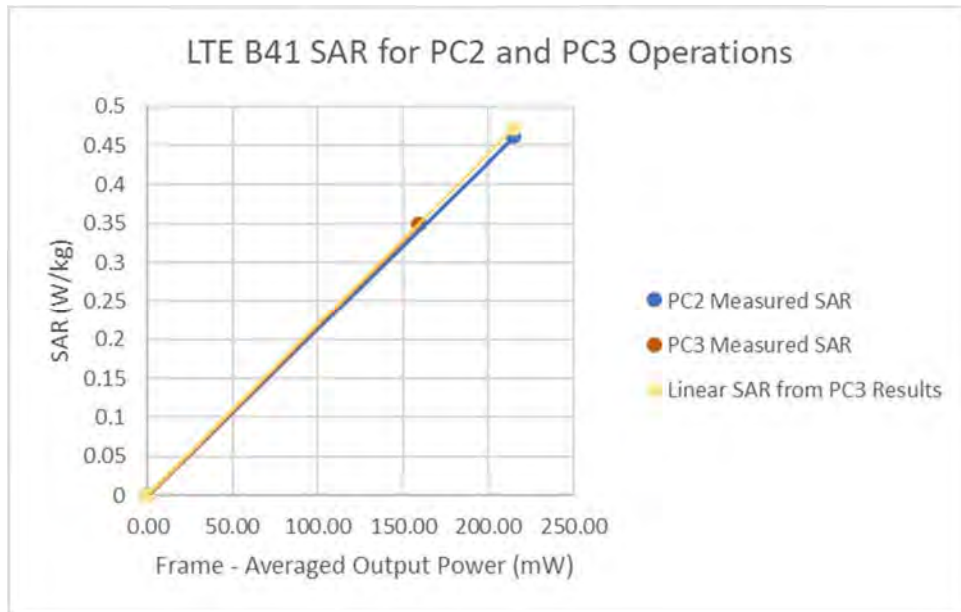


**Figure 14-1**  
**LTE Band 41 Head Linearity**



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**Table 14-6  
LTE Band 41 Body-Worn Linearity Data**

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24.5	27.5
Measured Output Power (dBm)	24.01	26.96
Measured SAR (W/kg)	0.349	0.461
Measured Power (mW)	251.77	496.59
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	159.37	215.02
% deviation from expected linearity		-2.10%



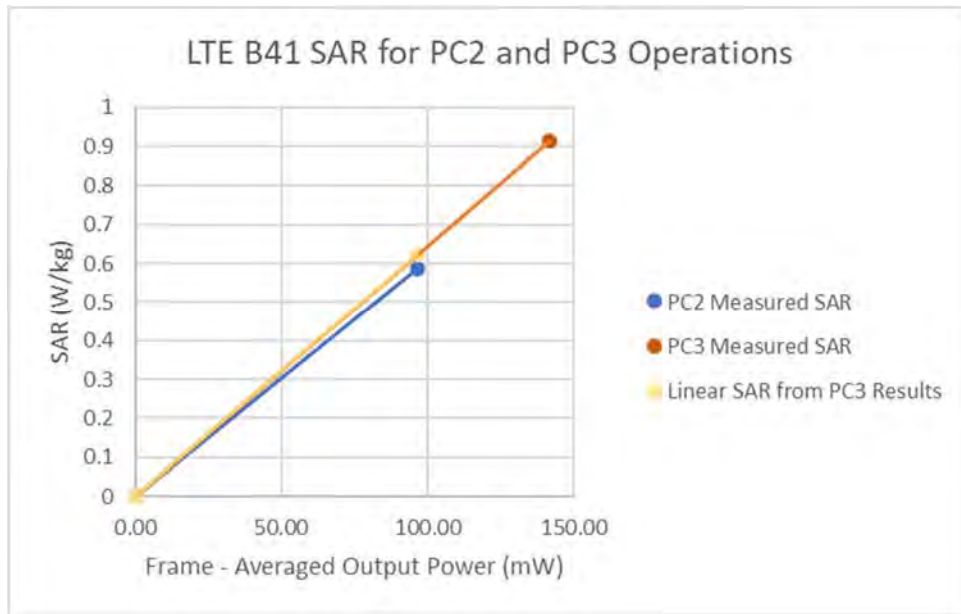
**Figure 14-2  
LTE Band 41 Body-Worn Linearity**

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**Table 14-7  
LTE Band 41 Hotspot Linearity Data**

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	23.5	23.5
Measured Output Power (dBm)	23.5	23.49
Measured SAR (W/kg)	0.913	0.587
Measured Power (mW)	223.87	223.36
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	141.71	96.71
% deviation from expected linearity		-5.79%





**Figure 14-3  
LTE Band 41 Hotspot Linearity**

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# 15 EQUIPMENT LIST



Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A	N/A	N/A	3051A00187
Agilent	8648D	(9kHz-4GHz) Signal Generator	CBT	N/A	CBT	3629U00687
Agilent	8753ES	S-Parameter Vector Network Analyzer	8/17/2017	Annual	8/17/2018	MY40003841
Agilent	8753ES	S-Parameter Network Analyzer	9/14/2017	Annual	9/14/2018	US39170118
Agilent	E4432B	ESG-D Series Signal Generator	3/24/2017	Annual	3/24/2018	US40053896
Agilent	E4438C	ESG Vector Signal Generator	3/24/2017	Biennial	3/24/2019	MY42082385
Agilent	E5515C	Wireless Communications Test Set	1/8/2015	Triennial	1/8/2018	GB43163447
Agilent	E8257D	(250kHz-20GHz) Signal Generator	3/22/2017	Annual	3/22/2018	MY45470194
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB44450273
Agilent	N5182A	MXG Vector Signal Generator	2/28/2017	Annual	2/28/2018	MY47420800
Agilent	N9020A	MXA Signal Analyzer	12/28/2016	Annual	12/28/2017	US46470561
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Anritsu	MA24106A	USB Power Sensor	6/7/2017	Annual	6/7/2018	1231535
Anritsu	MA24106A	USB Power Sensor	6/7/2017	Annual	6/7/2018	1231538
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1207364
Anritsu	MA2411B	Pulse Power Sensor	2/10/2017	Annual	2/10/2018	1339018
Anritsu	ML2495A	Power Meter	10/22/2017	Annual	10/22/2018	941001
Anritsu	MT8820C	Radio Communication Analyzer	5/23/2017	Annual	5/23/2018	6201240328
Anritsu	MT8821C	Radio Communication Analyzer	8/15/2017	Annual	8/15/2018	6200901190
Anritsu	MT8821C	Radio Communication Analyzer	7/25/2017	Annual	7/25/2018	6201664756
Anritsu	MT8821C	Radio Communication Analyzer	11/17/2017	Annual	11/17/2018	6201381794
COMTECH	AR85729-5/5759B	Solid State Amplifier	CBT	N/A	CBT	M3W1A00-1002
Control Company	4040	Therm./ Clock/ Humidity Monitor	3/1/2017	Biennial	3/1/2019	170152009
Control Company	4352	Ultra Long Stem Thermometer	3/8/2016	Biennial	3/8/2018	160261694
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mitutoyo	CD-6°CSX	Digital Caliper	3/2/2016	Biennial	3/2/2018	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
Pasternack	NC-100	Torque Wrench	3/8/2017	Annual	3/8/2018	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	4/11/2017	Annual	4/11/2018	836371/0079
Rohde & Schwarz	CMW500	Radio Communication Tester	3/29/2017	Annual	3/29/2018	128633
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	7/20/2017	Annual	7/20/2018	132885
Seekonk	NC-100	Torque Wrench (8" lb)	9/1/2016	Biennial	9/1/2018	21053
Seekonk	NC-100	Torque Wrench 5"16", 8" lbs	3/2/2016	Biennial	3/2/2018	N/A
SPEAG	D750V3	750 MHz SAR Dipole	7/13/2016	Biennial	7/13/2018	1161
SPEAG	D750V3	750 MHz Dipole	3/7/2017	Annual	3/7/2018	1054
SPEAG	D835V2	835 MHz SAR Dipole	7/11/2017	Annual	7/11/2018	4d133
SPEAG	D1750V2	1750 MHz SAR Dipole	5/9/2017	Annual	5/9/2018	1148
SPEAG	D1900V2	1900 MHz SAR Dipole	7/11/2017	Annual	7/11/2018	5d149
SPEAG	D2300V2	2300 MHz SAR Dipole	7/25/2016	Biennial	7/25/2018	1073
SPEAG	D2450V2	2450 MHz SAR Dipole	7/25/2016	Biennial	7/25/2018	981
SPEAG	D2600V2	2600 MHz SAR Dipole	7/10/2017	Annual	7/10/2018	1126
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/20/2017	Annual	1/20/2018	1057
SPEAG	D835V2	835 MHz SAR Dipole	1/11/2017	Annual	1/11/2018	4d132
SPEAG	D1750V2	1750 MHz SAR Dipole	7/14/2016	Biennial	7/14/2018	1150
SPEAG	D1900V2	1900 MHz SAR Dipole	2/9/2017	Annual	2/9/2018	5d148
SPEAG	D2450V2	2450 MHz SAR Dipole	8/17/2017	Annual	8/17/2018	719
SPEAG	D2600V2	2600 MHz SAR Dipole	6/7/2017	Annual	6/7/2018	1064
SPEAG	ES3DV3	SAR Probe	8/14/2017	Annual	8/14/2018	3332
SPEAG	ES3DV3	SAR Probe	9/22/2017	Annual	9/22/2018	3318
SPEAG	EX3DV4	SAR Probe	4/18/2017	Annual	4/18/2018	7406
SPEAG	EX3DV4	SAR Probe	7/17/2017	Annual	7/17/2018	7410
SPEAG	ES3DV3	SAR Probe	3/14/2017	Annual	3/14/2018	3319
SPEAG	EX3DV4	SAR Probe	2/13/2017	Annual	2/13/2018	3914
SPEAG	ES3DV3	SAR Probe	3/14/2017	Annual	3/14/2018	3209
SPEAG	ES3DV3	SAR Probe	2/10/2017	Annual	2/10/2018	3213
SPEAG	EX3DV4	SAR Probe	8/16/2017	Annual	8/16/2018	7308
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/9/2017	Annual	8/9/2018	1323
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/14/2017	Annual	6/14/2018	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/11/2017	Annual	4/11/2018	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/13/2017	Annual	7/13/2018	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/8/2017	Annual	3/8/2018	1368
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/9/2017	Annual	2/9/2018	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/13/2017	Annual	3/13/2018	1415
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/9/2017	Annual	2/9/2018	1272
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/10/2017	Annual	5/10/2018	1070
SPEAG	DAKS-3.5	Portable Dielectric Assessment Kit	7/11/2017	Annual	7/11/2018	1039

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

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# 16 MEASUREMENT UNCERTAINTIES

a	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	Tol. (± %)	Prob. Dist.	Div.	c <sub>i</sub> 1gm	c <sub>i</sub> 10 gms	1gm u <sub>i</sub> (± %)	10gms u <sub>i</sub> (± %)	v <sub>i</sub>
<b>Measurement System</b>								
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	∞
<b>Test Sample Related</b>								
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	∞
<b>Phantom &amp; Tissue Parameters</b>								
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	∞
<b>Combined Standard Uncertainty (k=1)</b>	RSS					11.5	11.3	60
<b>Expanded Uncertainty</b> (95% CONFIDENCELEVEL)	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: A3LSMG960U; Type: Portable Handset; Serial: 20EE2**

Communication System: UID 0, Cellular CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used (interpolated):

$f = 820.1$  MHz;  $\sigma = 0.9$  S/m;  $\epsilon_r = 42.597$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Test Date: 11-06-2017; Ambient Temp: 22.3°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7406; ConvF(9.97, 9.97, 9.97); Calibrated: 4/18/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1407; Calibrated: 4/11/2017

Phantom: SAM Right; Type: QD000P40CD; Serial: TP:7535

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: Cell. CDMA, Rule Part 90S, Right Head, Cheek, Mid.ch**

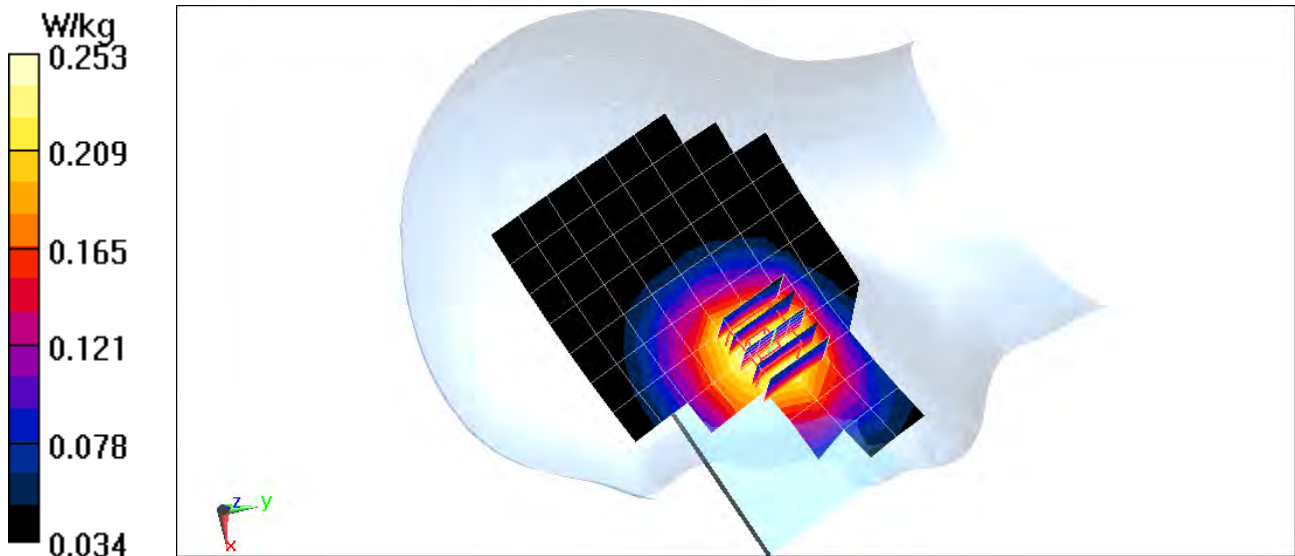
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 16.06 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.271 W/kg

**SAR(1 g) = 0.221 W/kg**





# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EE2**

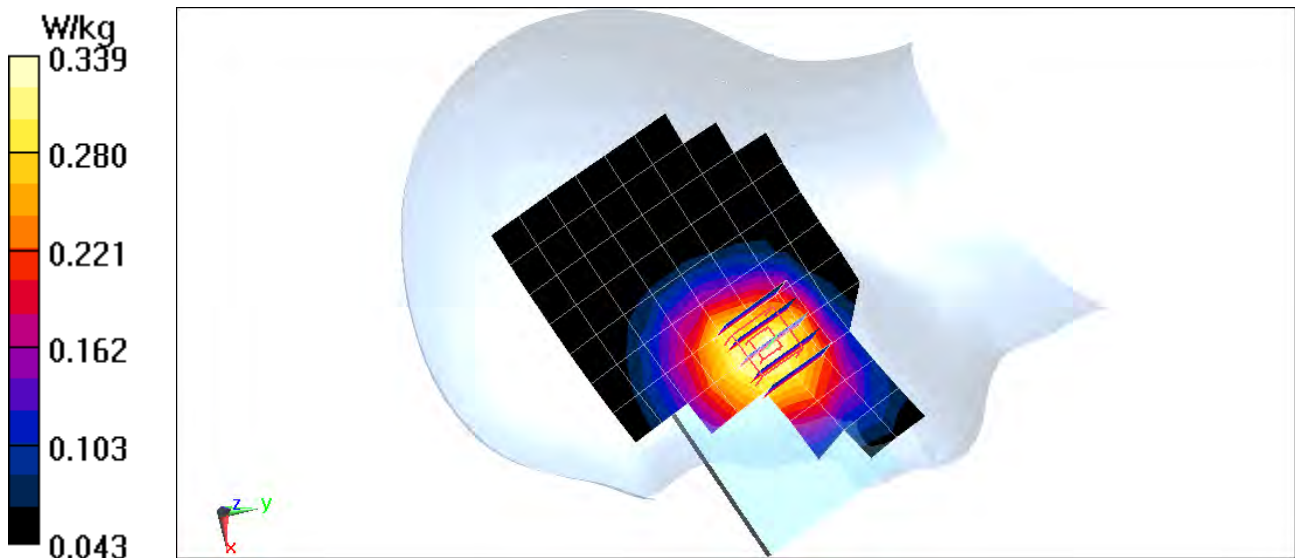
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1  
Medium: 835 Head Medium parameters used (interpolated):  
 $f = 836.52$  MHz;  $\sigma = 0.917$  S/m;  $\epsilon_r = 42.387$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

Test Date: 11-06-2017; Ambient Temp: 22.3°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7406; ConvF(9.97, 9.97, 9.97); Calibrated: 4/18/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1407; Calibrated: 4/11/2017  
Phantom: SAM Right; Type: QD000P40CD; Serial: TP:7535  
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: Cell. CDMA, Rule Part 22H, Right Head, Cheek, Mid.ch**

**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 18.26 V/m; Power Drift = -0.03 dB  
Peak SAR (extrapolated) = 0.363 W/kg  
**SAR(1 g) = 0.290 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EE2**

Communication System: UID 0, PCS CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1

Medium: 1900 Head Medium parameters used:

$f = 1880 \text{ MHz}$ ;  $\sigma = 1.382 \text{ S/m}$ ;  $\epsilon_r = 39.325$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 11-06-2017; Ambient Temp: 21.1°C; Tissue Temp: 21.2°C

Probe: ES3DV3 - SN3332; ConvF(5.33, 5.33, 5.33); Calibrated: 8/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 8/9/2017

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

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: PCS EVDO Rev. A, Left Head, Cheek, Mid.ch**

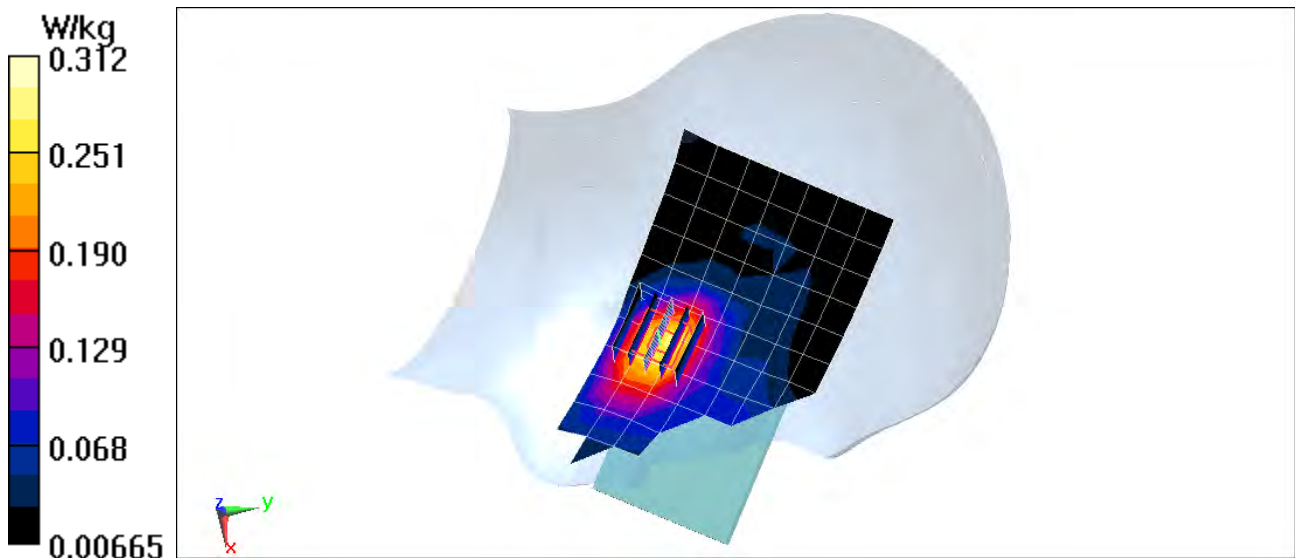
**Area Scan (8x14x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 14.92 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 0.408 W/kg

**SAR(1 g) = 0.264 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EF4**

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;  $\sigma = 0.904$  S/m;  $\epsilon_r = 41.549$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

Test Date: 11-08-2017; Ambient Temp: 22.9°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7406; ConvF(9.97, 9.97, 9.97); Calibrated: 4/18/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1407; Calibrated: 4/11/2017  
Phantom: SAM Right; Type: QD000P40CD; Serial: TP:7535  
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

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

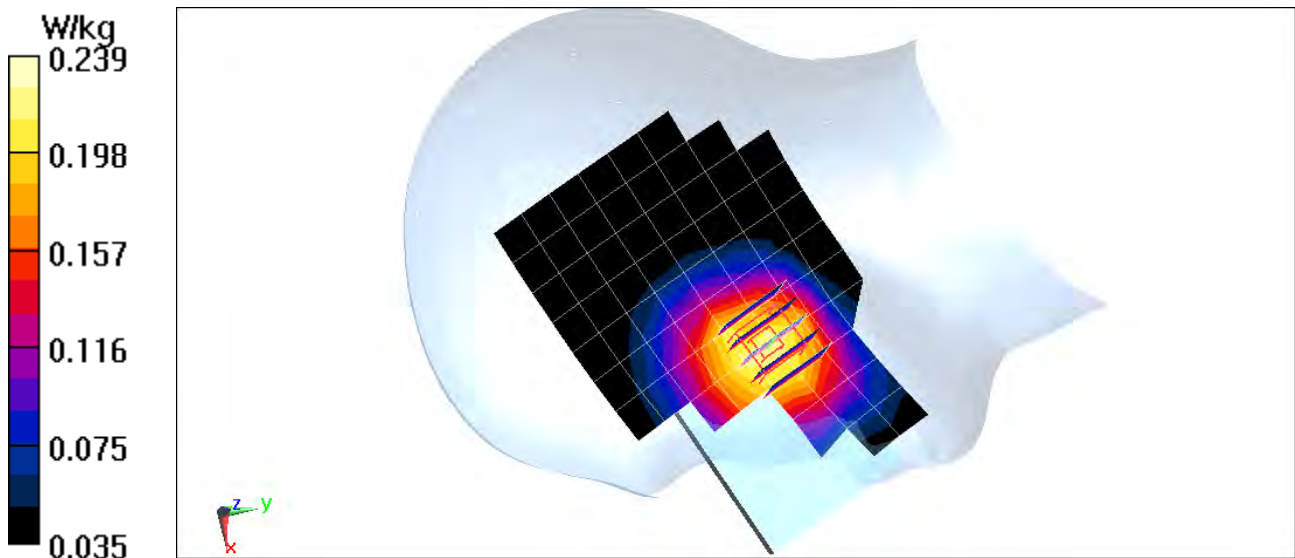
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 15.13 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.255 W/kg

**SAR(1 g) = 0.205 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EF4**

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

Medium: 1900 Head Medium parameters used:

$f = 1880 \text{ MHz}$ ;  $\sigma = 1.41 \text{ S/m}$ ;  $\epsilon_r = 40.002$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 11-08-2017; Ambient Temp: 21.7°C; Tissue Temp: 21.2°C

Probe: ES3DV3 - SN3332; ConvF(5.33, 5.33, 5.33); Calibrated: 8/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 8/9/2017

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

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

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

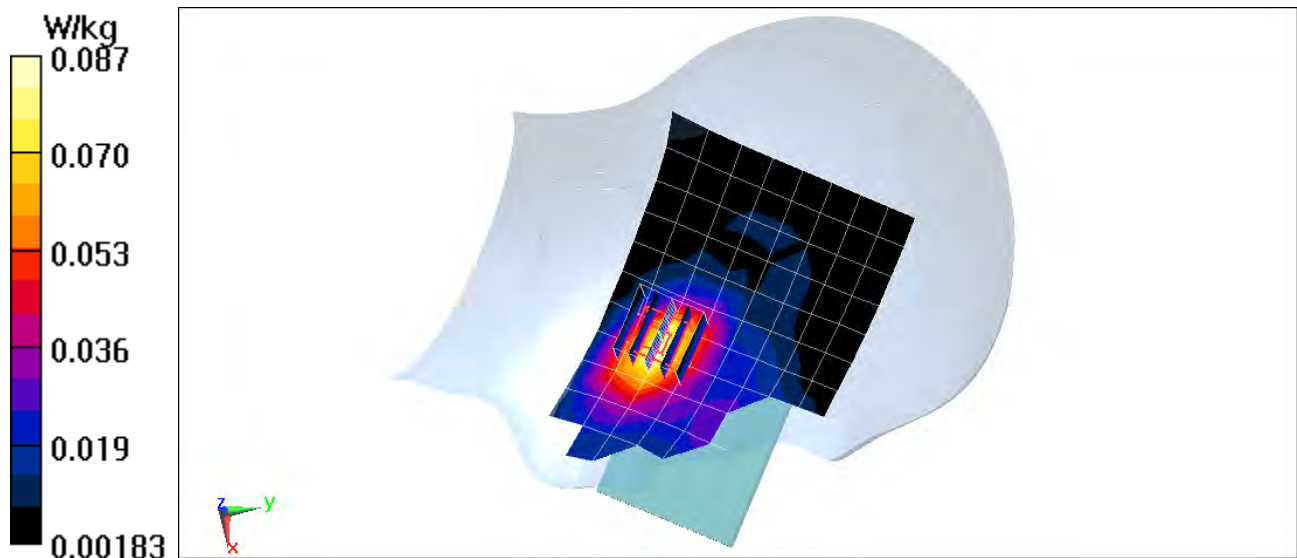
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 8.043 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.118 W/kg

**SAR(1 g) = 0.076 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EDE**

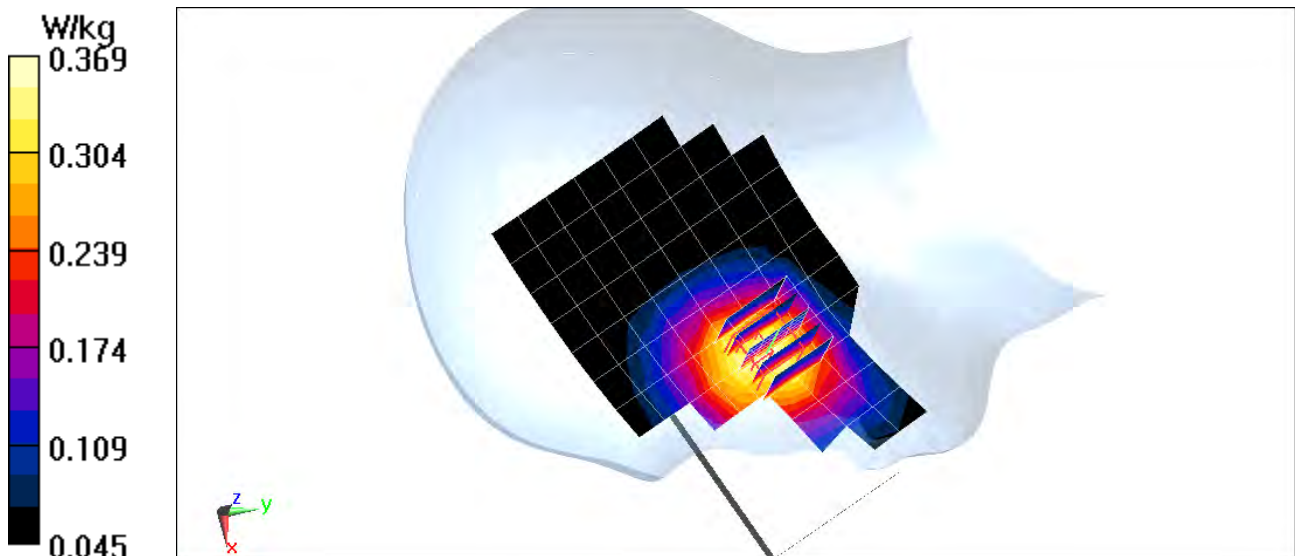
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1  
Medium: 835 Head Medium parameters used (interpolated):  
 $f = 836.6$  MHz;  $\sigma = 0.921$  S/m;  $\epsilon_r = 42.239$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

Test Date: 11-03-2017; Ambient Temp: 21.9°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7406; ConvF(9.97, 9.97, 9.97); Calibrated: 4/18/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1407; Calibrated: 4/11/2017  
Phantom: SAM Right; Type: QD000P40CD; Serial: TP:7535  
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

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

**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 19.19 V/m; Power Drift = -0.03 dB  
Peak SAR (extrapolated) = 0.400 W/kg  
**SAR(1 g) = 0.313 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EF4**

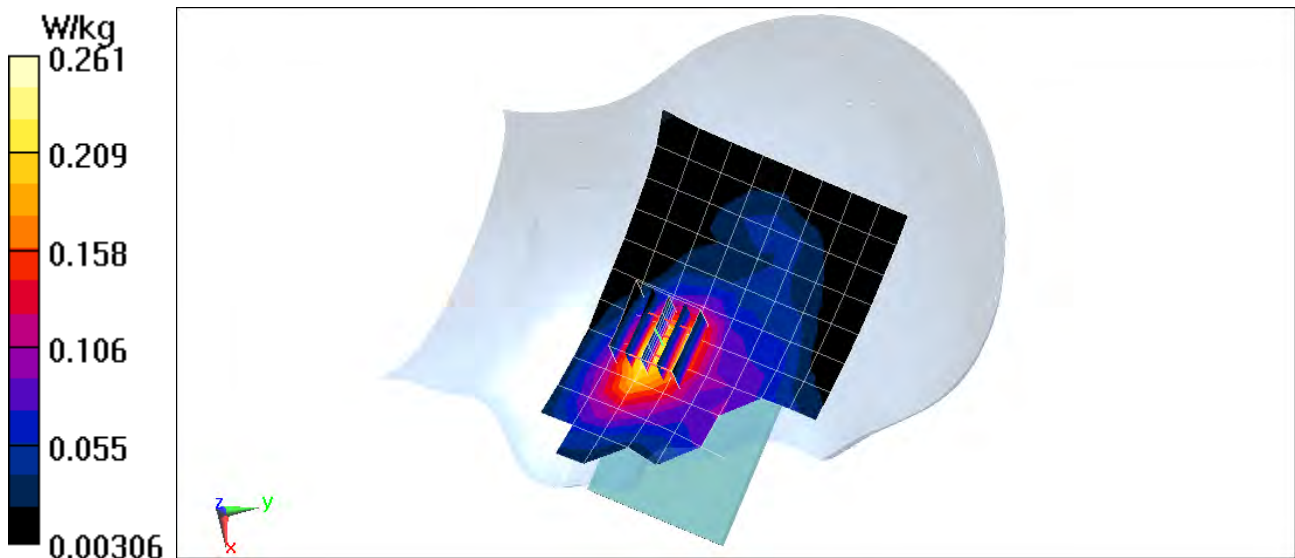
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1  
Medium: 1750 Head Medium parameters used (interpolated):  
 $f = 1732.4$  MHz;  $\sigma = 1.389$  S/m;  $\epsilon_r = 38.981$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

Test Date: 11-06-2017; Ambient Temp: 22.4°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3319; ConvF(5.38, 5.38, 5.38); Calibrated: 3/14/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1368; Calibrated: 3/8/2017  
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 12.82 V/m; Power Drift = 0.14 dB  
Peak SAR (extrapolated) = 0.328 W/kg  
**SAR(1 g) = 0.222 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EF4**

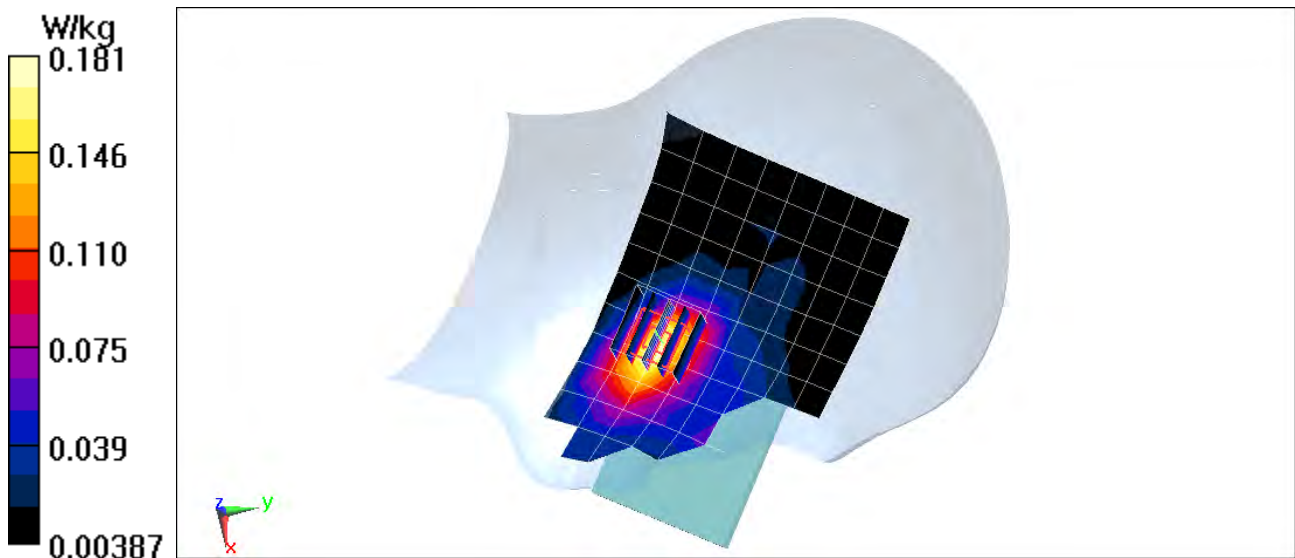
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium: 1900 Head Medium parameters used:  
 $f = 1880 \text{ MHz}$ ;  $\sigma = 1.41 \text{ S/m}$ ;  $\epsilon_r = 40.002$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section

Test Date: 11-08-2017; Ambient Temp: 21.7°C; Tissue Temp: 21.2°C

Probe: ES3DV3 - SN3332; ConvF(5.33, 5.33, 5.33); Calibrated: 8/14/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1323; Calibrated: 8/9/2017  
Phantom: SAM Front; Type: SAM; Serial: 1686  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

**Area Scan (9x15x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 11.16 V/m; Power Drift = -0.01 dB  
Peak SAR (extrapolated) = 0.236 W/kg  
**SAR(1 g) = 0.156 W/kg**





# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1

Medium: 750 Head Medium parameters used (interpolated):

$f = 680.5$  MHz;  $\sigma = 0.864$  S/m;  $\epsilon_r = 42.65$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Test Date: 11-13-2017; Ambient Temp: 21.9°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3332; ConvF(6.81, 6.81, 6.81); Calibrated: 8/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 8/9/2017

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

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 71, Right Head, Cheek, Mid.ch,  
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

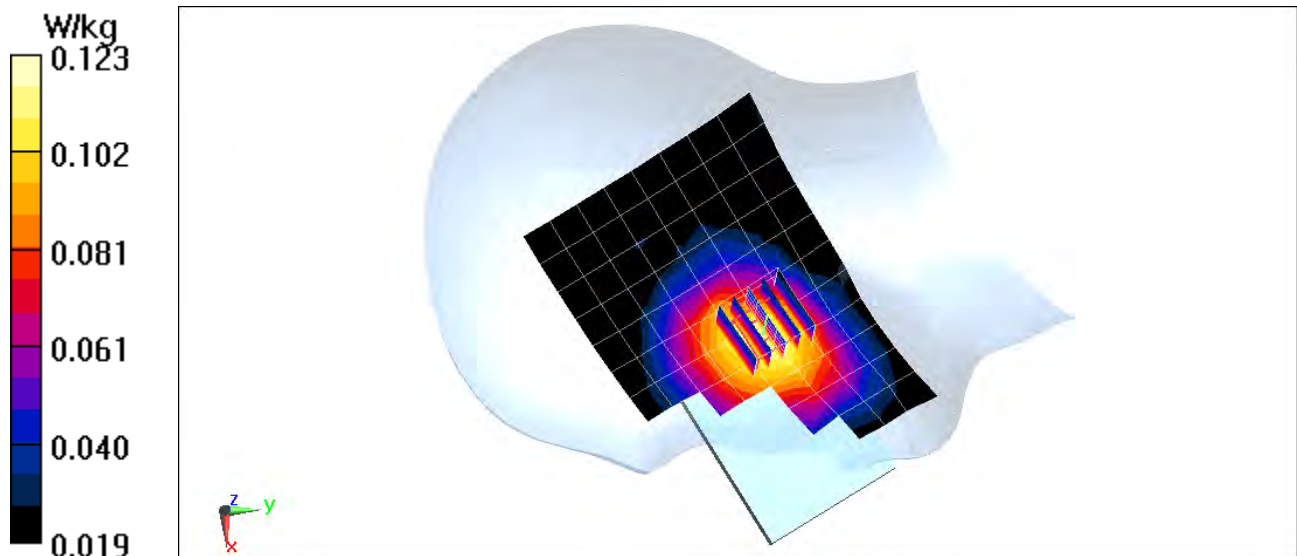
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 12.12 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.137 W/kg

**SAR(1 g) = 0.114 W/kg**





# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

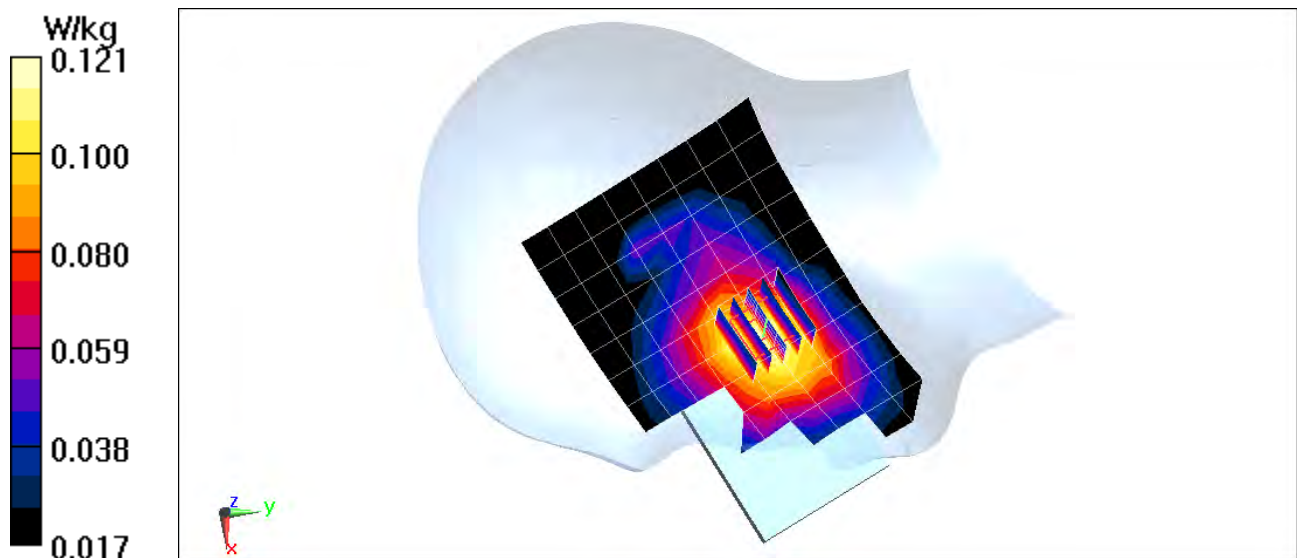
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1  
Medium: 750 Head Medium parameters used (interpolated):  
 $f = 707.5$  MHz;  $\sigma = 0.874$  S/m;  $\epsilon_r = 42.135$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

Test Date: 11-20-2017; Ambient Temp: 21.6°C; Tissue Temp: 20.2°C

Probe: ES3DV3 - SN3318; ConvF(6.72, 6.72, 6.72); Calibrated: 9/22/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1334; Calibrated: 6/14/2017  
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646  
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 12, Right Head, Cheek, Mid.ch,  
10 MHz Bandwidth, QPSK, 1 RB, 25 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 = 12.06 V/m; Power Drift = 0.10 dB  
Peak SAR (extrapolated) = 0.144 W/kg  
**SAR(1 g) = 0.111 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1

Medium: 750 Head Medium parameters used (interpolated):

$f = 782 \text{ MHz}$ ;  $\sigma = 0.899 \text{ S/m}$ ;  $\epsilon_r = 42.327$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 11-13-2017; Ambient Temp: 21.9°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3332; ConvF(6.81, 6.81, 6.81); Calibrated: 8/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 8/9/2017

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

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

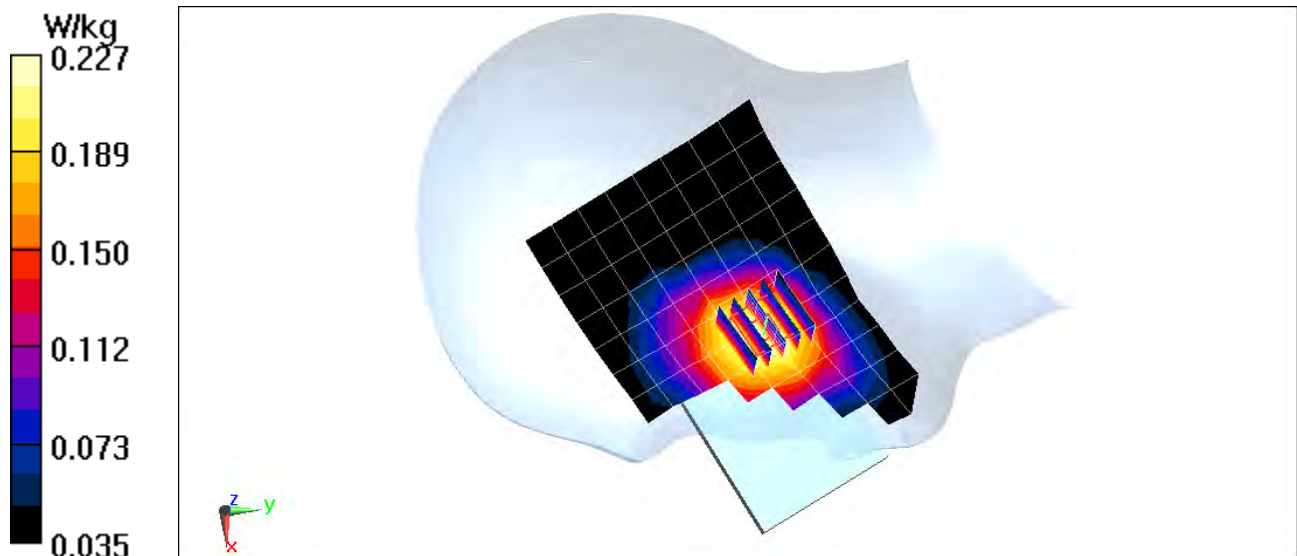
**Area Scan (9x13x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 16.74 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 0.254 W/kg

**SAR(1 g) = 0.210 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

Communication System: UID 0, LTE Band 14; Frequency: 793 MHz; Duty Cycle: 1:1

Medium: 750 Head Medium parameters used (interpolated):

$f = 793 \text{ MHz}$ ;  $\sigma = 0.903 \text{ S/m}$ ;  $\epsilon_r = 42.301$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 11-13-2017; Ambient Temp: 21.9°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3332; ConvF(6.81, 6.81, 6.81); Calibrated: 8/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 8/9/2017

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

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

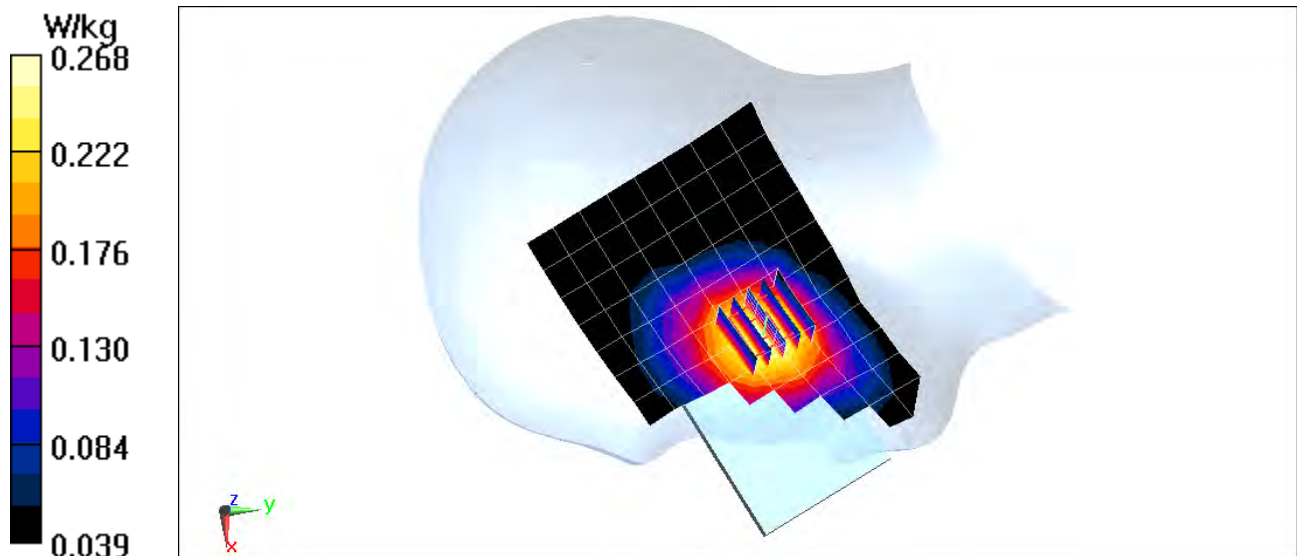
**Area Scan (9x13x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 17.95 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.303 W/kg

**SAR(1 g) = 0.245 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

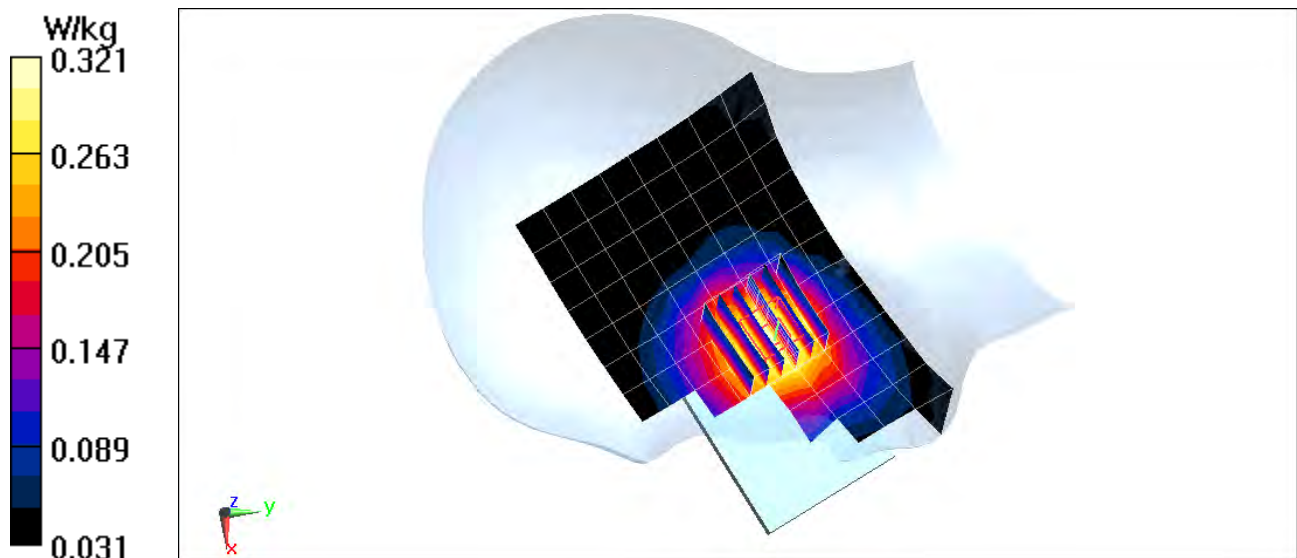
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1  
Medium: 835 Head Medium parameters used (interpolated):  
 $f = 831.5$  MHz;  $\sigma = 0.899$  S/m;  $\epsilon_r = 40.797$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

Test Date: 11-12-2017; Ambient Temp: 21.5°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7410; ConvF(10.08, 10.08, 10.08); Calibrated: 7/17/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017  
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759  
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 26 (Cell.), Right Head, Cheek, Mid.ch,  
15 MHz Bandwidth, QPSK, 1 RB, 74 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 = 18.50 V/m; Power Drift = -0.07 dB  
Peak SAR (extrapolated) = 0.342 W/kg  
**SAR(1 g) = 0.282 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

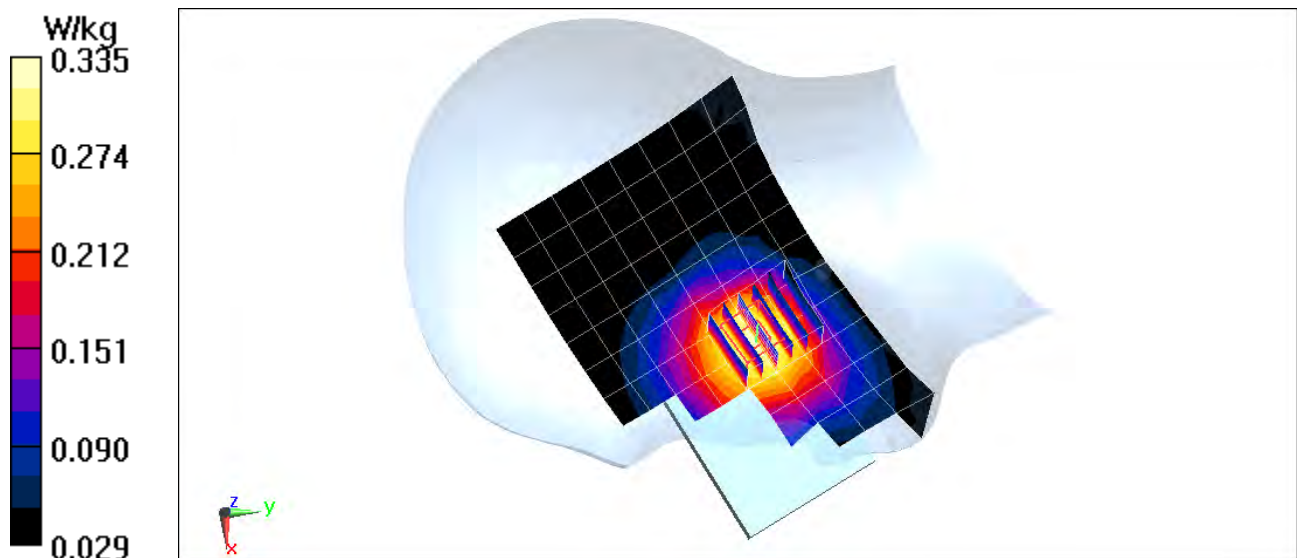
Communication System: UID 0, LTE Band 5 (Cell.); Frequency: 836.5 MHz; Duty Cycle: 1:1  
Medium: 835 Head Medium parameters used (interpolated):  
 $f = 836.5$  MHz;  $\sigma = 0.903$  S/m;  $\epsilon_r = 40.741$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

Test Date: 11-12-2017; Ambient Temp: 21.5°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7410; ConvF(10.08, 10.08, 10.08); Calibrated: 7/17/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017  
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**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 (6x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 18.68 V/m; Power Drift = -0.03 dB  
Peak SAR (extrapolated) = 0.359 W/kg  
**SAR(1 g) = 0.293 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E6C**

Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1770 MHz; Duty Cycle: 1:1

Medium: 1750 Head Medium parameters used (interpolated):

$f = 1770$  MHz;  $\sigma = 1.427$  S/m;  $\epsilon_r = 38.795$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Test Date: 11-06-2017; Ambient Temp: 22.4°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3319; ConvF(5.38, 5.38, 5.38); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1368; Calibrated: 3/8/2017

Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

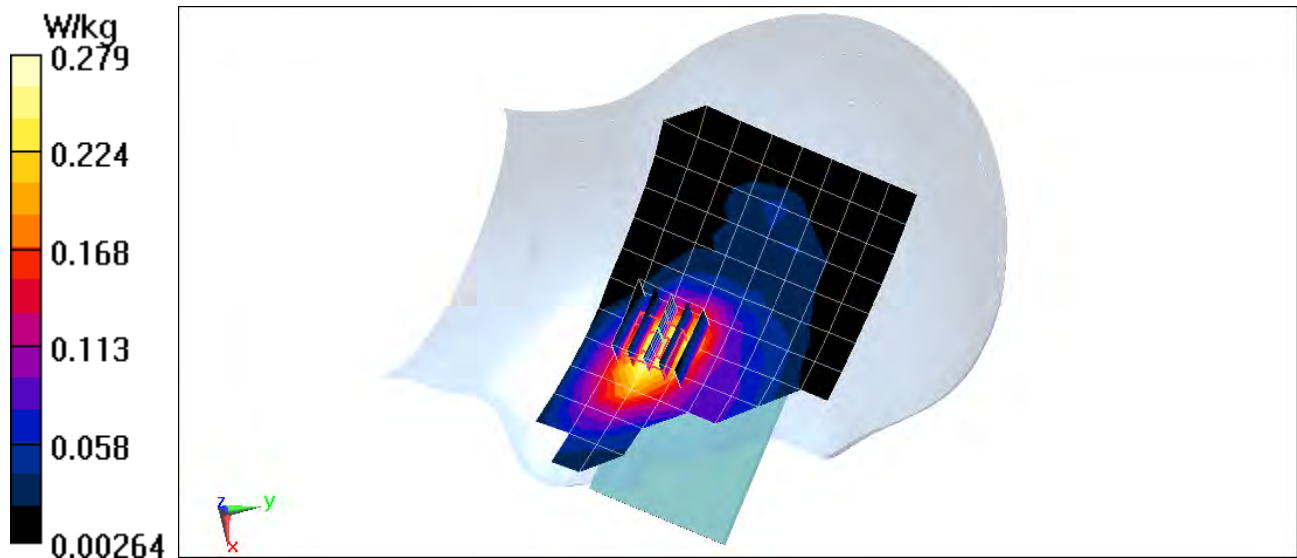
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 14.51 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.369 W/kg

**SAR(1 g) = 0.245 W/kg**





# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E6C**

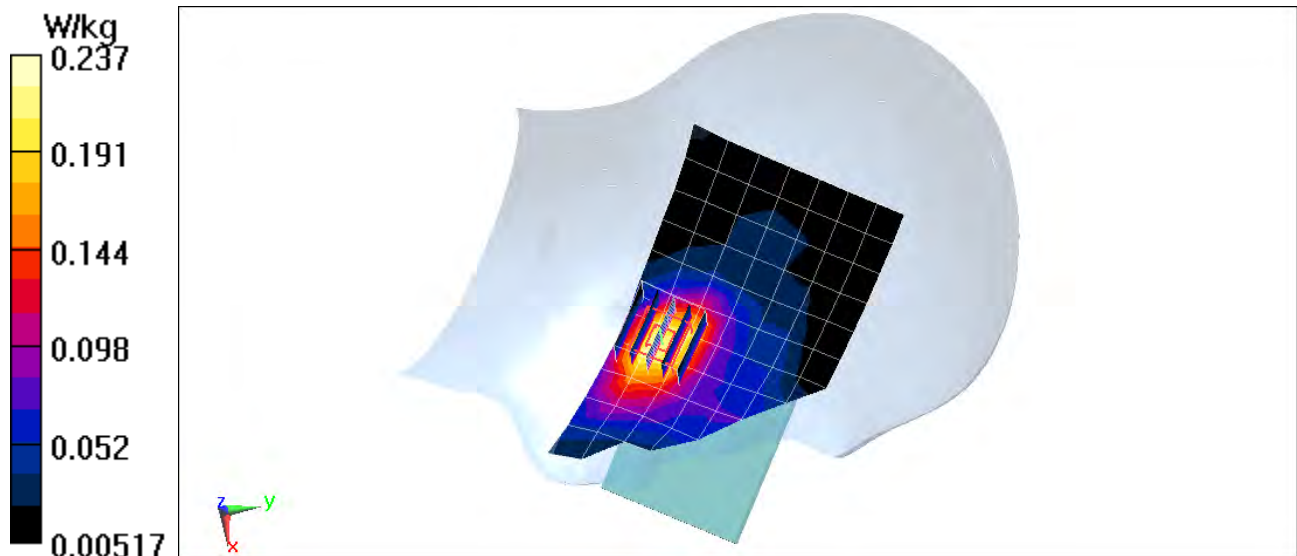
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1  
Medium: 1900 Head Medium parameters used (interpolated):  
 $f = 1860$  MHz;  $\sigma = 1.361$  S/m;  $\epsilon_r = 39.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

Test Date: 11-06-2017; Ambient Temp: 21.1°C; Tissue Temp: 21.2°C

Probe: ES3DV3 - SN3332; ConvF(5.33, 5.33, 5.33); Calibrated: 8/14/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1323; Calibrated: 8/9/2017  
Phantom: SAM Front; Type: SAM; Serial: 1686  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 25 (PCS), Left Head, Cheek, Low.ch,  
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

**Area Scan (8x14x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 13.83 V/m; Power Drift = -0.03 dB  
Peak SAR (extrapolated) = 0.306 W/kg  
**SAR(1 g) = 0.204 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EEA**

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

Medium: 2450 Head Medium parameters used:

$f = 2310$  MHz;  $\sigma = 1.73$  S/m;  $\epsilon_r = 38.674$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Test Date: 11-07-2017; Ambient Temp: 24.3°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3319; ConvF(4.86, 4.86, 4.86); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1368; Calibrated: 3/8/2017

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

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 30, Antenna B, Left Head, Cheek, Mid.ch,  
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset,**

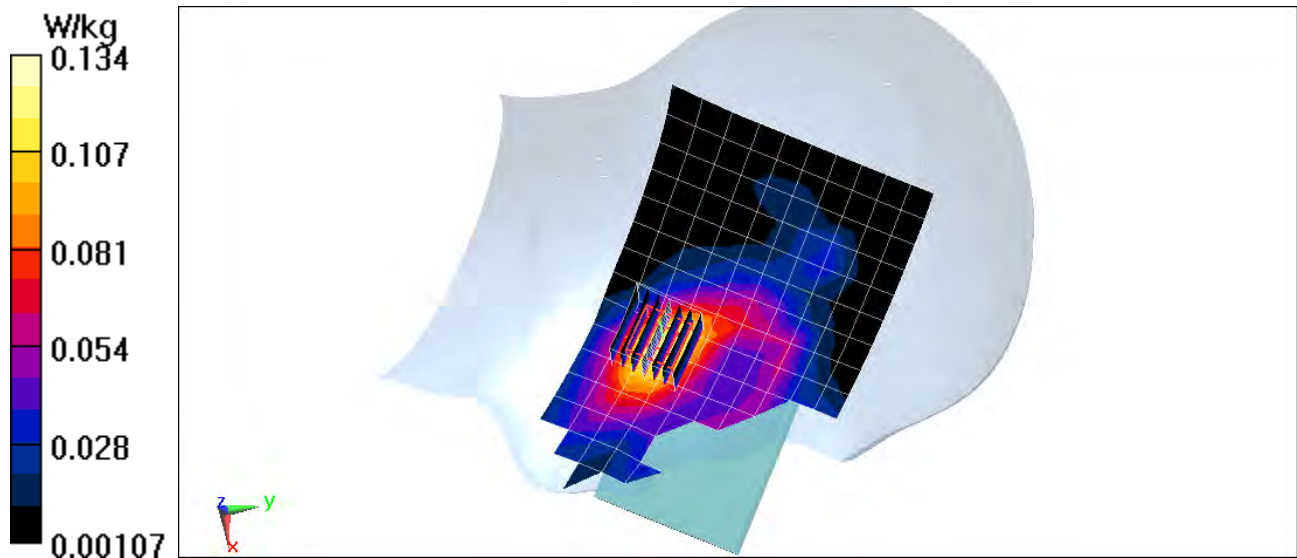
**Area Scan (11x18x1):** Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 8.971 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.184 W/kg

**SAR(1 g) = 0.110 W/kg**





# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EEA**

Communication System: UID 0, LTE Band 7; Frequency: 2560 MHz; Duty Cycle: 1:1  
Medium: 2450 Head Medium parameters used (interpolated):  
 $f = 2560$  MHz;  $\sigma = 2.007$  S/m;  $\epsilon_r = 37.681$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section

Test Date: 11-07-2017; Ambient Temp: 24.3°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3319; ConvF(4.41, 4.41, 4.41); Calibrated: 3/14/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1368; Calibrated: 3/8/2017  
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

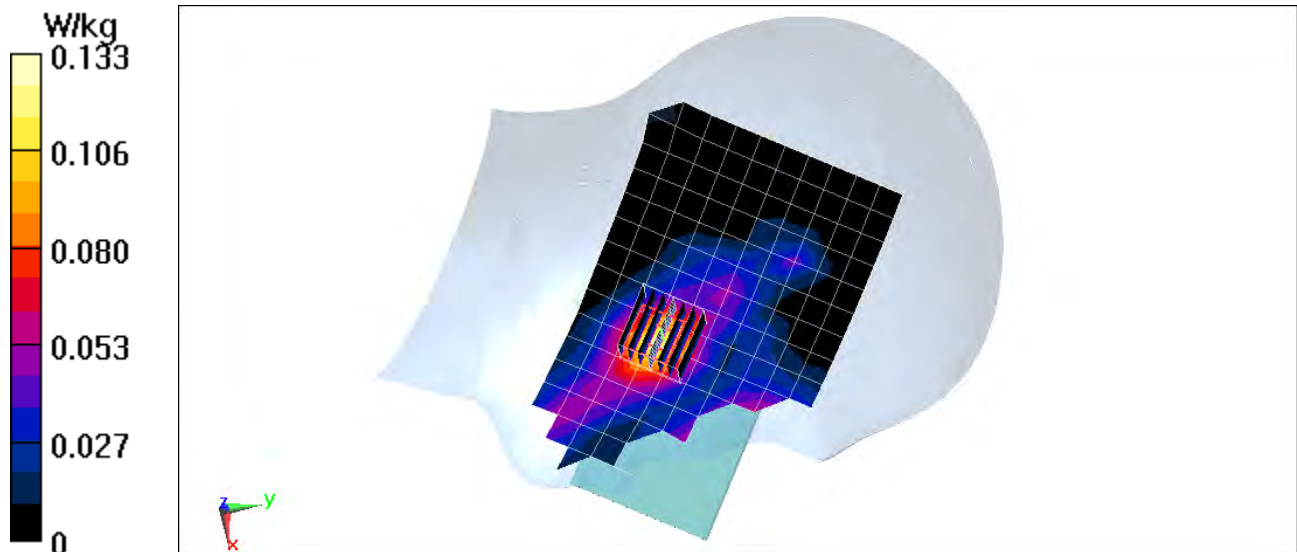
**Area Scan (11x18x1):** Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 8.384 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.190 W/kg

**SAR(1 g) = 0.106 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EEA**

Communication System: UID 0, LTE Band 41 (Class 2); Frequency: 2549.5 MHz; Duty Cycle: 1:2.31

Medium: 2450 Head Medium parameters used:

$f = 2550$  MHz;  $\sigma = 1.995$  S/m;  $\epsilon_r = 40.28$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Left Section

Test Date: 11-15-2017; Ambient Temp: 22.5°C; Tissue Temp: 21.7°C

Probe: ES3DV3 - SN3319; ConvF(4.41, 4.41, 4.41); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1368; Calibrated: 3/8/2017

Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 41 PC2, Left Head, Cheek, Low-Mid.ch, QPSK,  
20 MHz Bandwidth, 1 RB, 0 RB Offset**

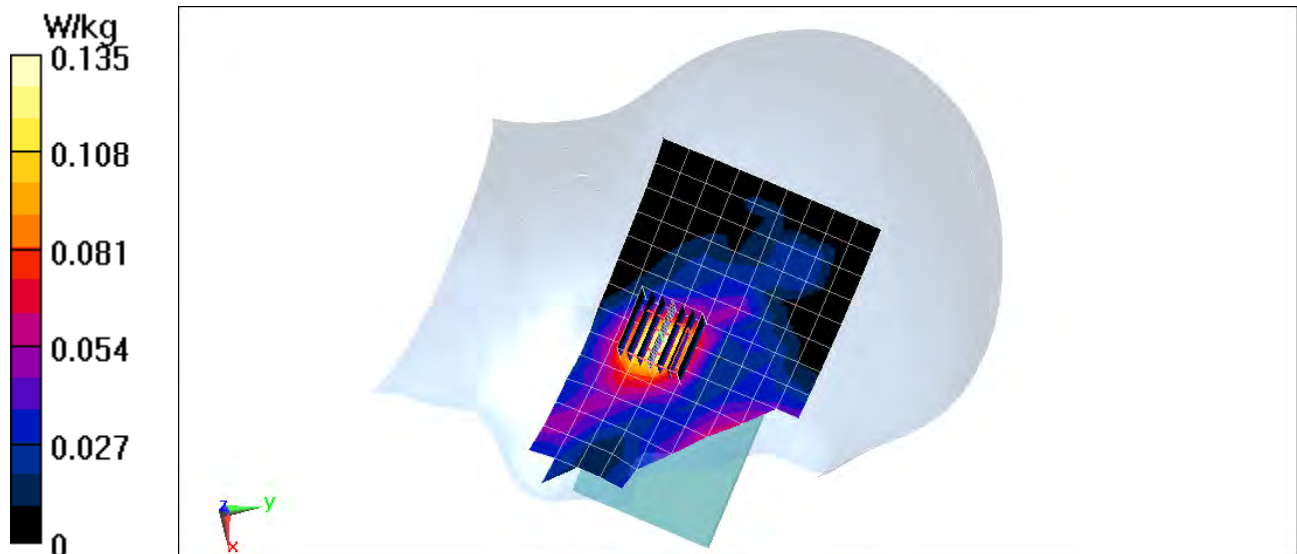
**Area Scan (10x17x1):** Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 8.657 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.195 W/kg

**SAR(1 g) = 0.111 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 5AEDF**

Communication System: UID 0, IEEE 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1  
Medium: 2450 MHz Medium parameters used (interpolated):  
 $f = 2412 \text{ MHz}$ ;  $\sigma = 1.826 \text{ S/m}$ ;  $\epsilon_r = 39.589$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Right Section

Test Date: 11-21-2017; Ambient Temp: 23.1°C; Tissue Temp: 22.1°C

Probe: ES3DV3 - SN3319; ConvF(4.6, 4.6, 4.6); Calibrated: 3/14/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1368; Calibrated: 3/8/2017

Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

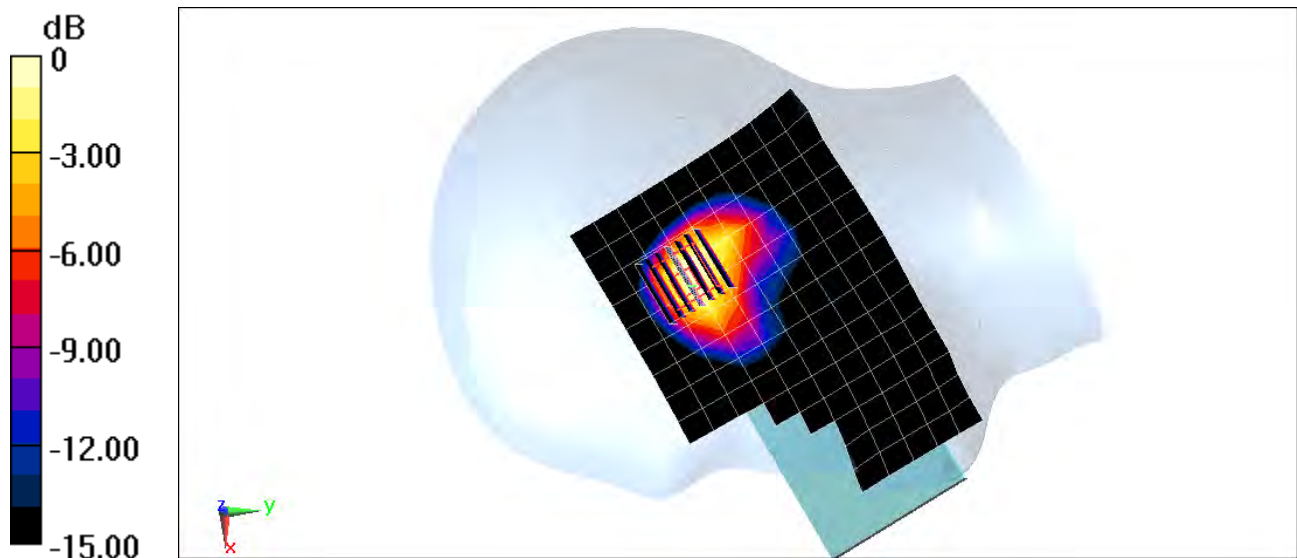
**Area Scan (11x18x1):** Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 13.69 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 1.24 W/kg

**SAR(1 g) = 0.509 W/kg**



0 dB = 0.671 W/kg = -1.73 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 5AEE5**

Communication System: UID 0, 802.11ac 5.2-5.8 GHz Band; Frequency: 5690 MHz; Duty Cycle: 1:1

Medium: 5GHz Medium parameters used (interpolated):  
 $f = 5690$  MHz;  $\sigma = 4.983$  S/m;  $\epsilon_r = 35.605$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section

Test Date: 11-24-2017; Ambient Temp: 21.7°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3914; ConvF(4.91, 4.91, 4.91); Calibrated: 2/13/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/9/2017

Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: IEEE 802.11ac, U-NII-2C, MIMO, 80 MHz Bandwidth,  
Right Head, Cheek, Ch 138, 58.5 Mbps**

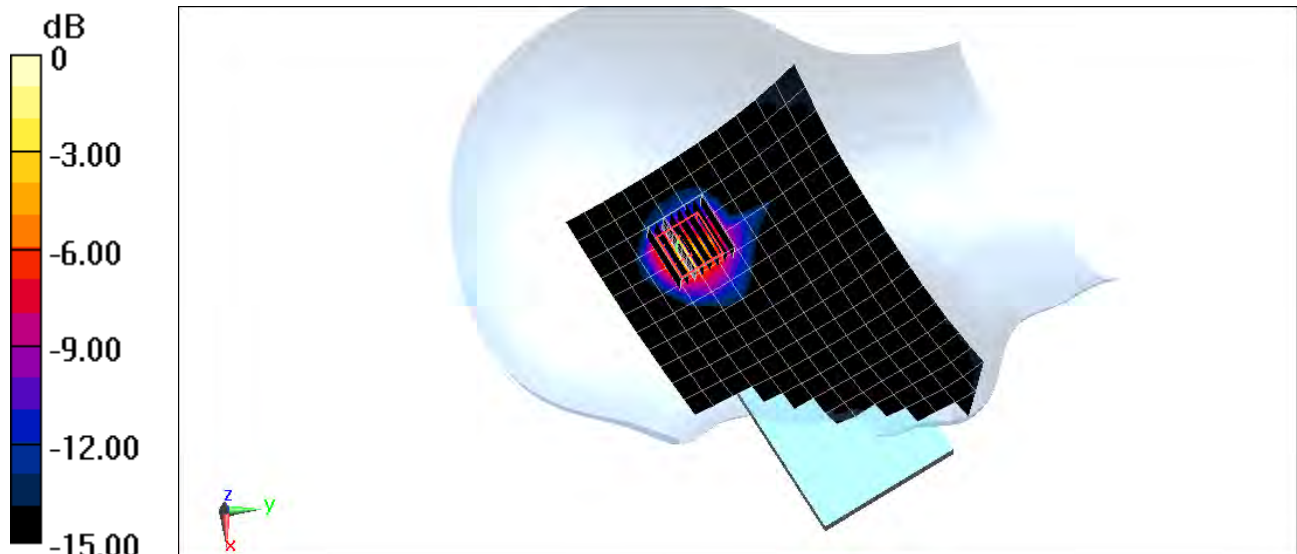
**Area Scan (13x22x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4;

Reference Value = 3.995 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 2.04 W/kg

**SAR(1 g) = 0.352 W/kg**



0 dB = 1.09 W/kg = 0.37 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 5AEDF**

Communication System: UID 0, Bluetooth; Frequency: 2402 MHz; Duty Cycle: 1:1.294

Medium: 2300-2600MHz Medium parameters used (interpolated):

$f = 2402$  MHz;  $\sigma = 1.814$  S/m;  $\epsilon_r = 39.621$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Right Section

Test Date: 11-21-2017; Ambient Temp: 23.1°C; Tissue Temp: 22.1°C

Probe: ES3DV3 - SN3319; ConvF(4.6, 4.6, 4.6); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1368; Calibrated: 3/8/2017

Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: Bluetooth, Right Head, Cheek, Ch 0, 1 Mbps**

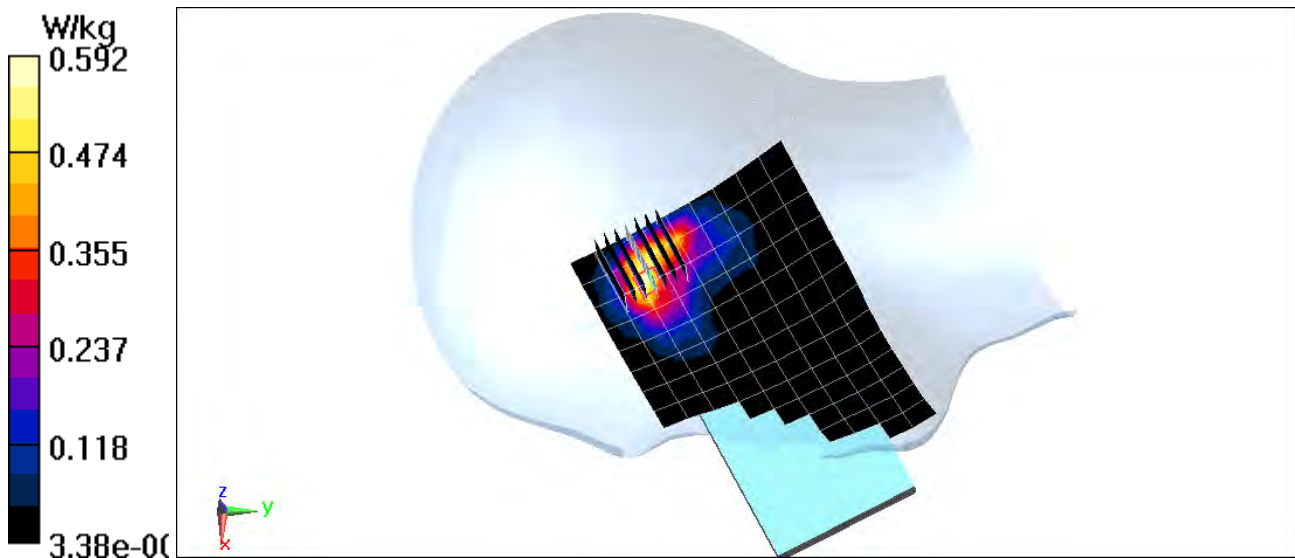
**Area Scan (10x15x1):** Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 16.27 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.07 W/kg

**SAR(1 g) = 0.439 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EE2**

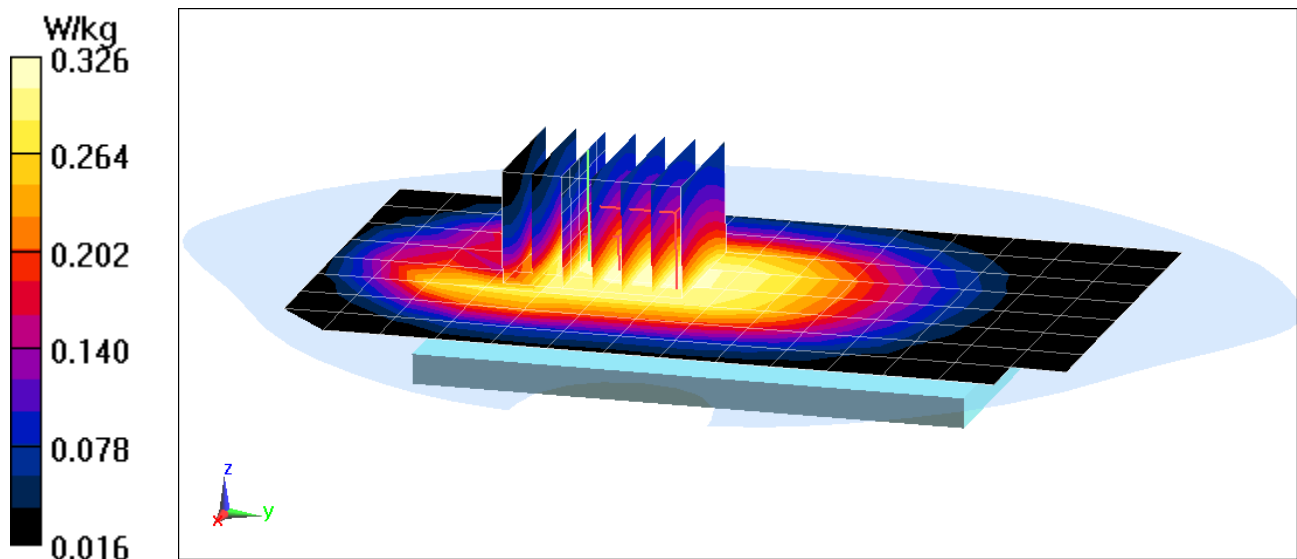
Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1  
Medium: 835 Body Medium parameters used (interpolated):  
 $f = 820.1 \text{ MHz}$ ;  $\sigma = 0.98 \text{ S/m}$ ;  $\epsilon_r = 52.798$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-08-2017; Ambient Temp: 22.8°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7406; ConvF(9.77, 9.77, 9.77); Calibrated: 4/18/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1407; Calibrated: 4/11/2017  
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: Cell. CDMA Rule Part 90S, Body SAR, Back side, Mid.ch**

**Area Scan (9x15x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
**Zoom Scan (6x7x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 16.46 V/m; Power Drift = 0.01 dB  
Peak SAR (extrapolated) = 0.359 W/kg  
**SAR(1 g) = 0.266 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EE2**

Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1  
Medium: 835 Body Medium parameters used (interpolated):  
 $f = 820.1 \text{ MHz}$ ;  $\sigma = 0.98 \text{ S/m}$ ;  $\epsilon_r = 52.798$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-08-2017; Ambient Temp: 22.8°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7406; ConvF(9.77, 9.77, 9.77); Calibrated: 4/18/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1407; Calibrated: 4/11/2017  
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: Cell. EVDO Rev. 0 Rule Part 90S, Body SAR, Back side, Mid.ch**

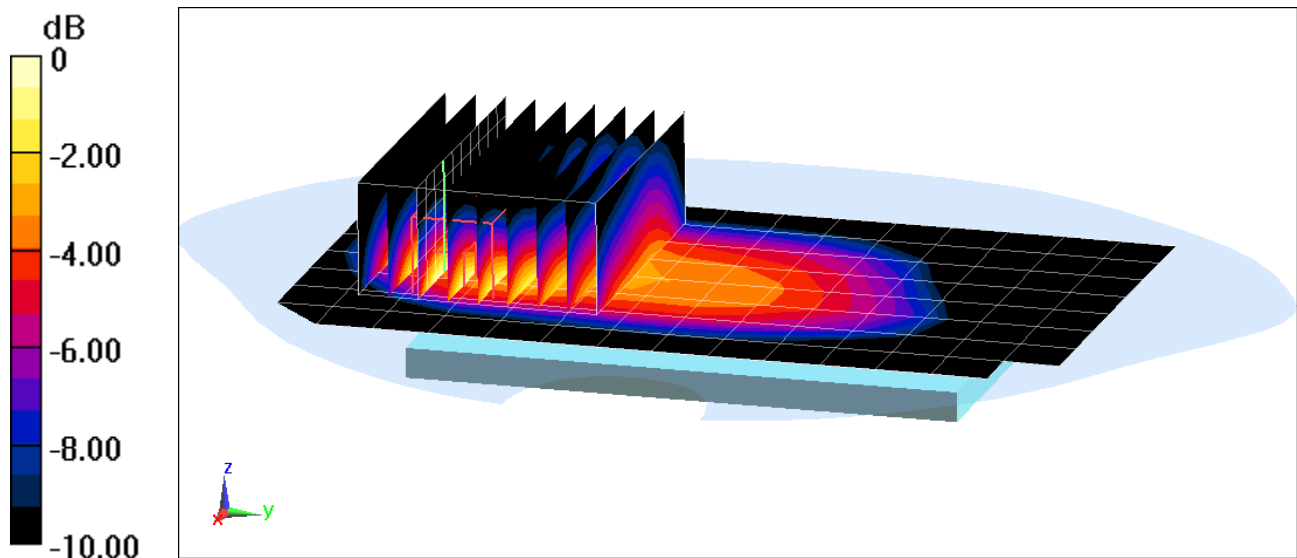
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

**Zoom Scan (11x9x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.93 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.799 W/kg

**SAR(1 g) = 0.434 W/kg**



0 dB = 0.649 W/kg = -1.88 dBW/kg



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EE2**

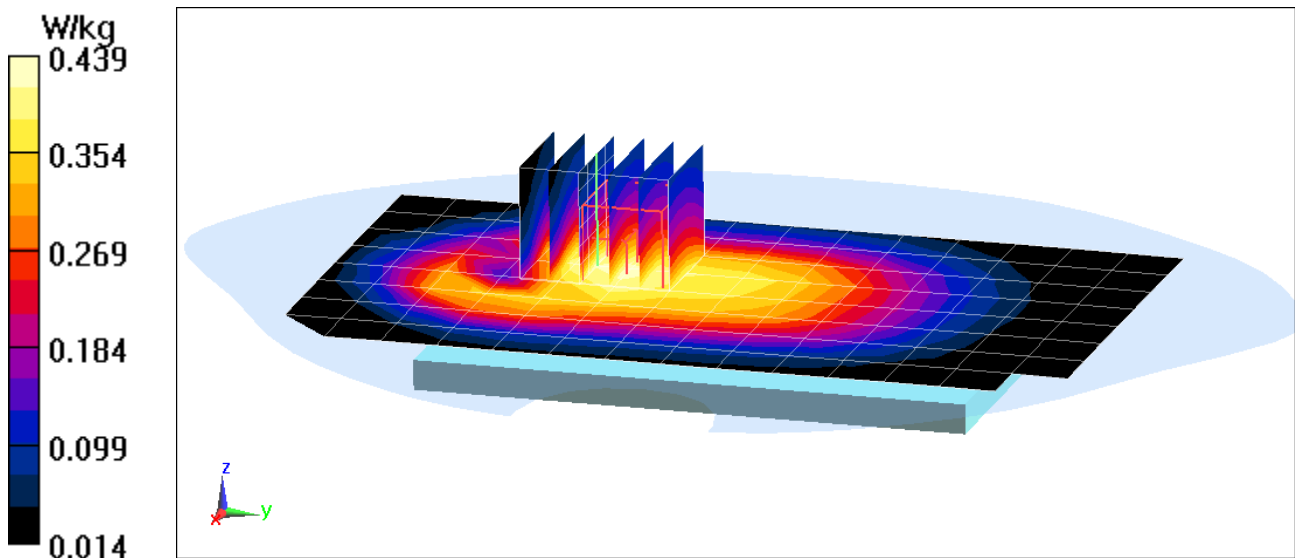
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1  
Medium: 835 Body Medium parameters used (interpolated):  
 $f = 836.52$  MHz;  $\sigma = 0.996$  S/m;  $\epsilon_r = 53.048$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-06-2017; Ambient Temp: 22.4°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.77, 9.77, 9.77); Calibrated: 4/18/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1407; Calibrated: 4/11/2017  
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x6x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 19.15 V/m; Power Drift = -0.01 dB  
Peak SAR (extrapolated) = 0.488 W/kg  
**SAR(1 g) = 0.355 W/kg**





# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EE2**

Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1  
Medium: 835 Body Medium parameters used (interpolated):  
 $f = 836.52$  MHz;  $\sigma = 0.996$  S/m;  $\epsilon_r = 53.048$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-06-2017; Ambient Temp: 22.4°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.77, 9.77, 9.77); Calibrated: 4/18/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1407; Calibrated: 4/11/2017  
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: Cell. EVDO Rev. 0 Rule Part 22H, Body SAR, Back side, Mid.ch**

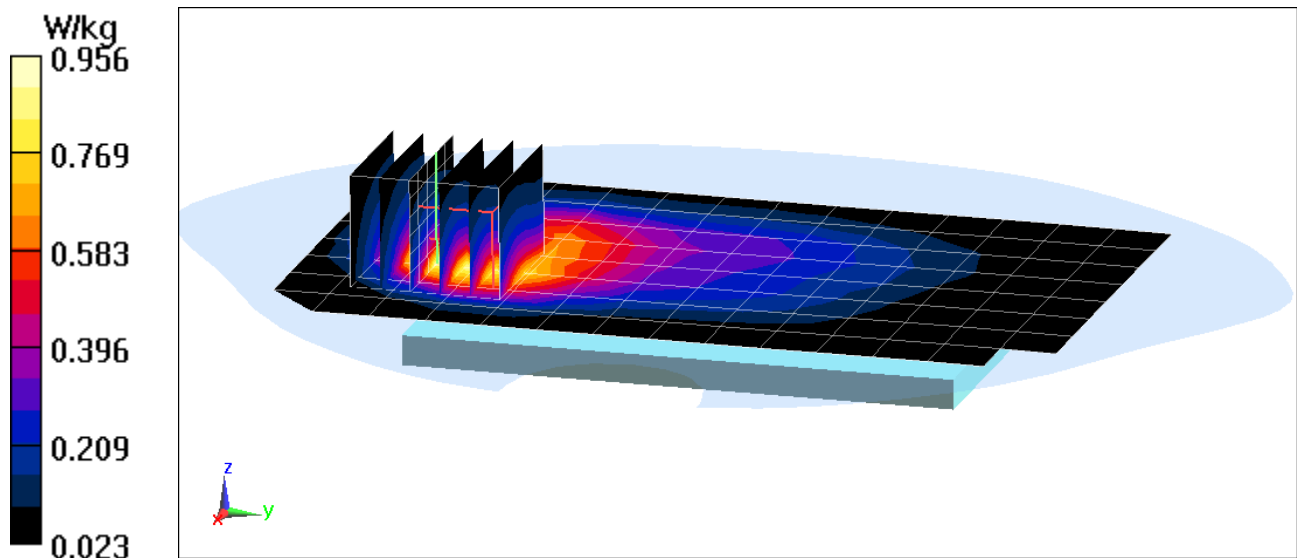
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 26.43 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.18 W/kg

**SAR(1 g) = 0.643 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EE2**

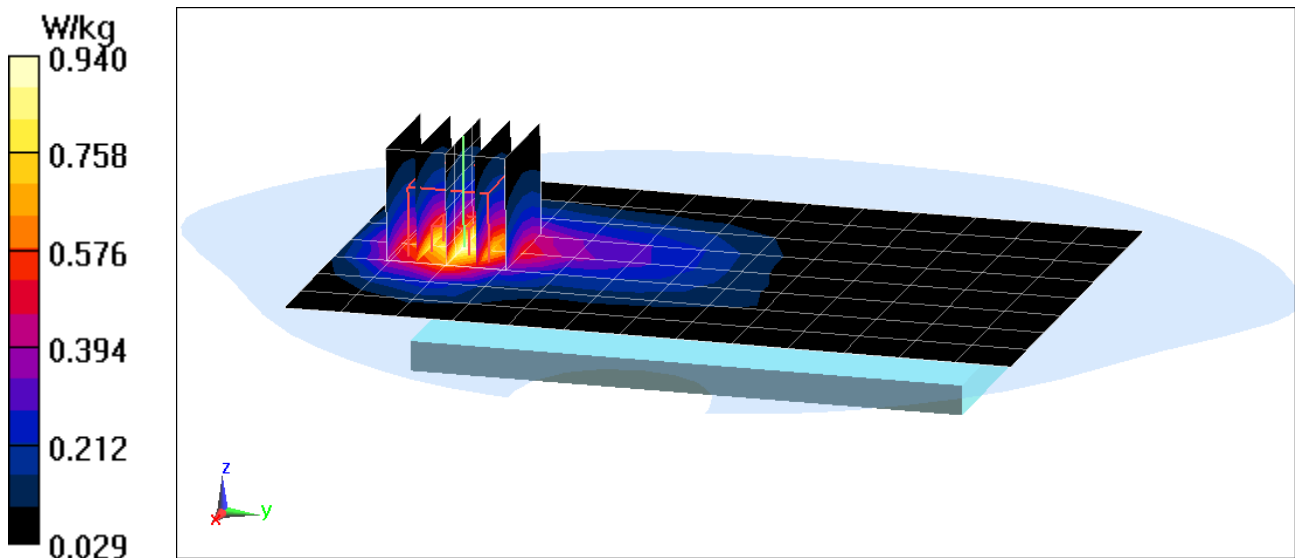
Communication System: UID 0, CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium: 1900 Body Medium parameters used:  
 $f = 1880 \text{ MHz}$ ;  $\sigma = 1.55 \text{ S/m}$ ;  $\epsilon_r = 53.05$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-08-2017; Ambient Temp: 23.7°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3209; ConvF(4.93, 4.93, 4.93); Calibrated: 3/14/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1415; Calibrated: 3/13/2017  
Phantom: SAM Right; Type: QD000P40CD; Serial: 1800  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: PCS CDMA, Body SAR, Back side, Mid.ch**

**Area Scan (9x14x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 24.04 V/m; Power Drift = -0.02 dB  
Peak SAR (extrapolated) = 1.24 W/kg  
**SAR(1 g) = 0.795 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EE0**

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

Medium: 1900 Body Medium parameters used:

$f = 1880$  MHz;  $\sigma = 1.55$  S/m;  $\epsilon_r = 53.05$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-08-2017; Ambient Temp: 23.7°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3209; ConvF(4.93, 4.93, 4.93); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1415; Calibrated: 3/13/2017

Phantom: SAM Right; Type: QD000P40CD; Serial: 1800

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: PCS EVDO Rev. 0, Body SAR, Bottom Edge, Mid.ch**

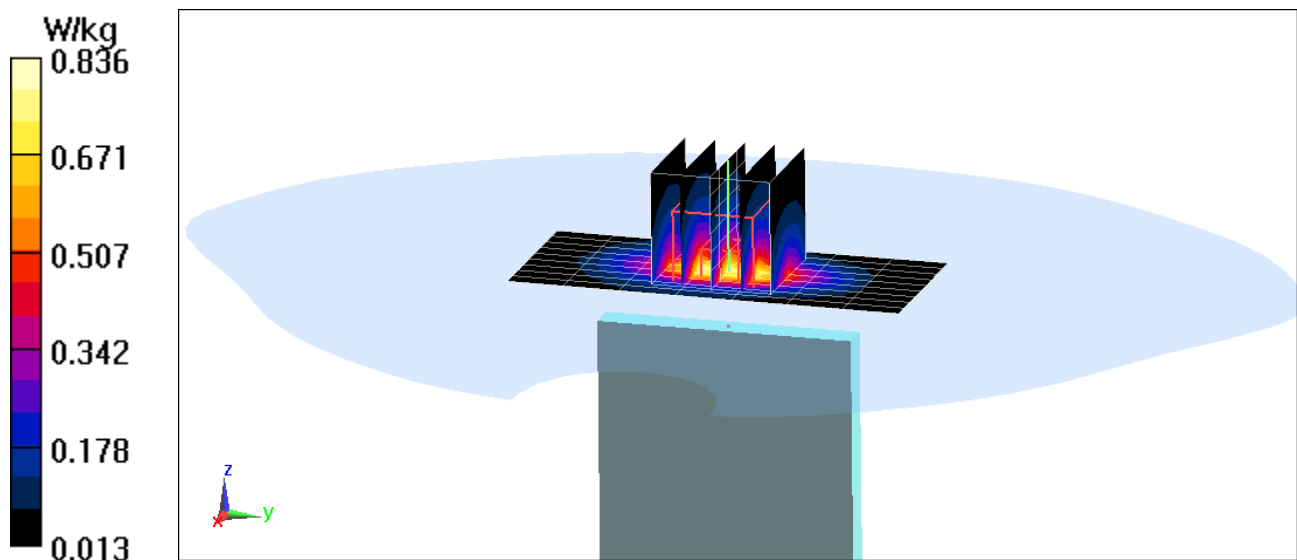
**Area Scan (10x8x1):** Measurement grid: dx=5mm, dy=15mm

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

Reference Value = 22.71 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.13 W/kg

**SAR(1 g) = 0.677 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EF4**

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;  $\sigma = 0.996$  S/m;  $\epsilon_r = 53.047$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-06-2017; Ambient Temp: 22.4°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.77, 9.77, 9.77); Calibrated: 4/18/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1407; Calibrated: 4/11/2017  
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375  
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

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

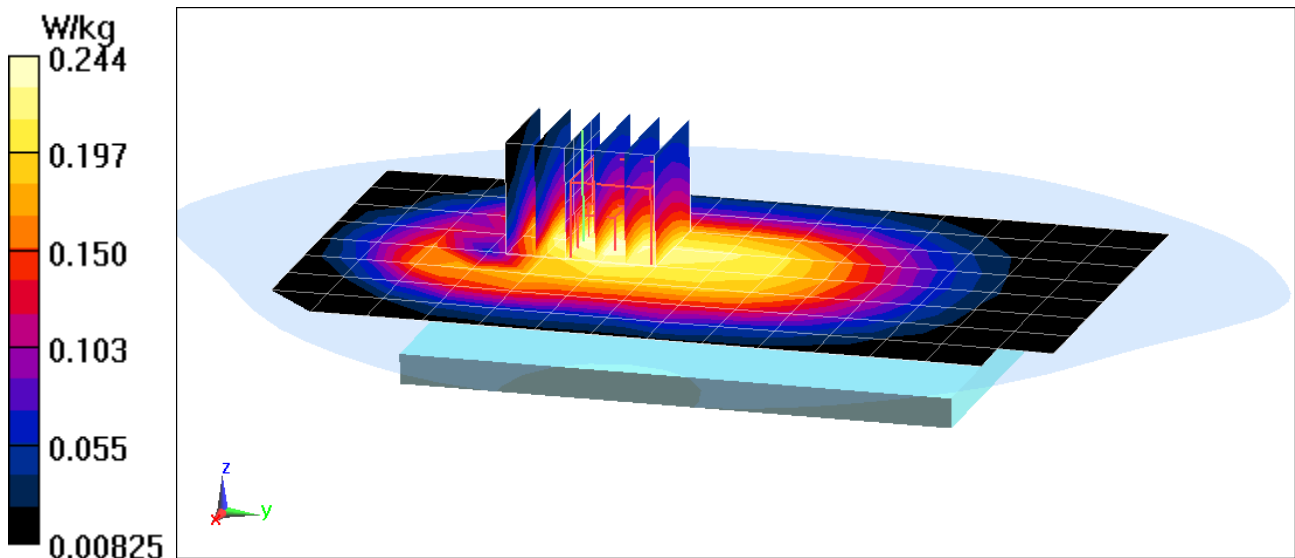
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 14.31 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.271 W/kg

**SAR(1 g) = 0.199 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EF4**

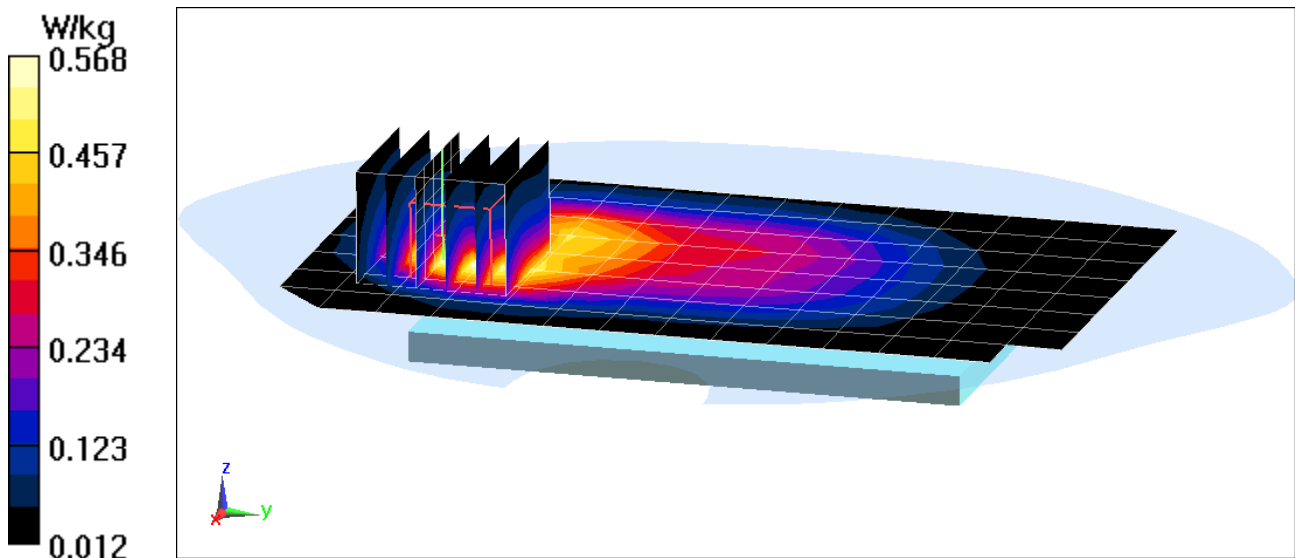
Communication System: UID 0, GSM GPRS; 4 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:2.076  
Medium: 835 Body Medium parameters used (interpolated):  
 $f = 836.6$  MHz;  $\sigma = 0.997$  S/m;  $\epsilon_r = 52.626$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-08-2017; Ambient Temp: 22.8°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7406; ConvF(9.77, 9.77, 9.77); Calibrated: 4/18/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1407; Calibrated: 4/11/2017  
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: GPRS 850, Body SAR, Back side, Mid.ch, 4 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 = 21.04 V/m; Power Drift = 0.02 dB  
Peak SAR (extrapolated) = 0.684 W/kg  
**SAR(1 g) = 0.377 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EF4**

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

Medium: 1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$ ;  $\sigma = 1.543 \text{ S/m}$ ;  $\epsilon_r = 52.74$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-06-2017; Ambient Temp: 23.8°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(7.98, 7.98, 7.98); Calibrated: 7/17/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1322; Calibrated: 7/13/2017

Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

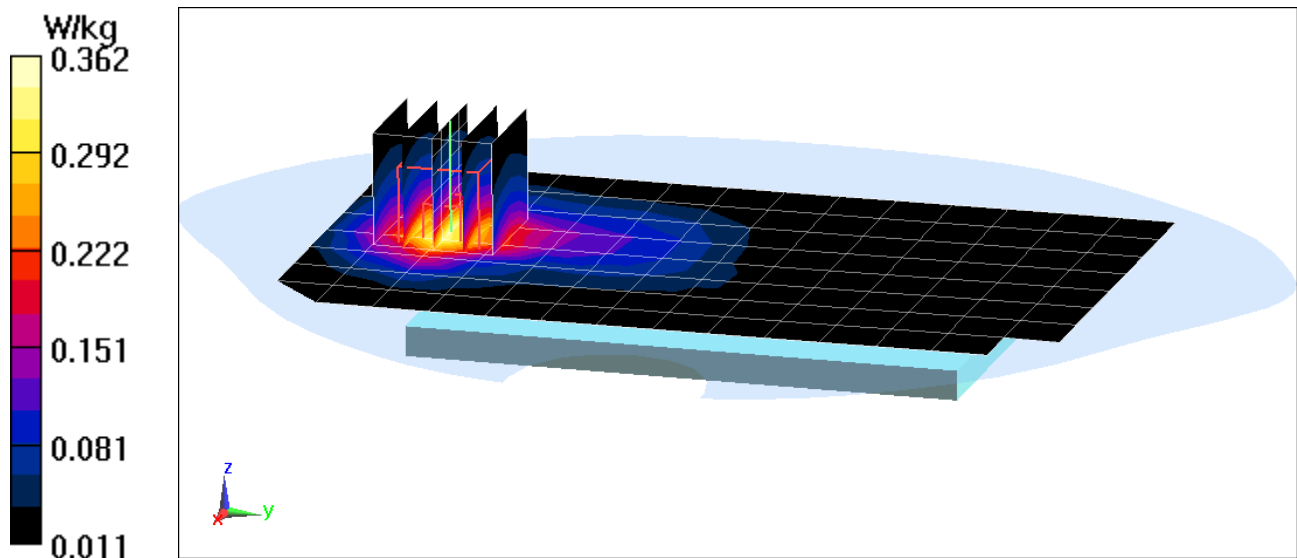
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 13.72 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.410 W/kg

SAR(1 g) = 0.262 W/kg



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EF0**

Communication System: UID 0, GSM GPRS; 4 Tx slots; Frequency: 1909.8 MHz; Duty Cycle: 1:2.076

Medium: 1900 Body Medium parameters used:

$f = 1910$  MHz;  $\sigma = 1.58$  S/m;  $\epsilon_r = 52.655$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-06-2017; Ambient Temp: 23.8°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(7.98, 7.98, 7.98); Calibrated: 7/17/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1322; Calibrated: 7/13/2017

Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: GPRS 1900, Body SAR, Bottom Edge, high.ch, 4 Tx Slots**

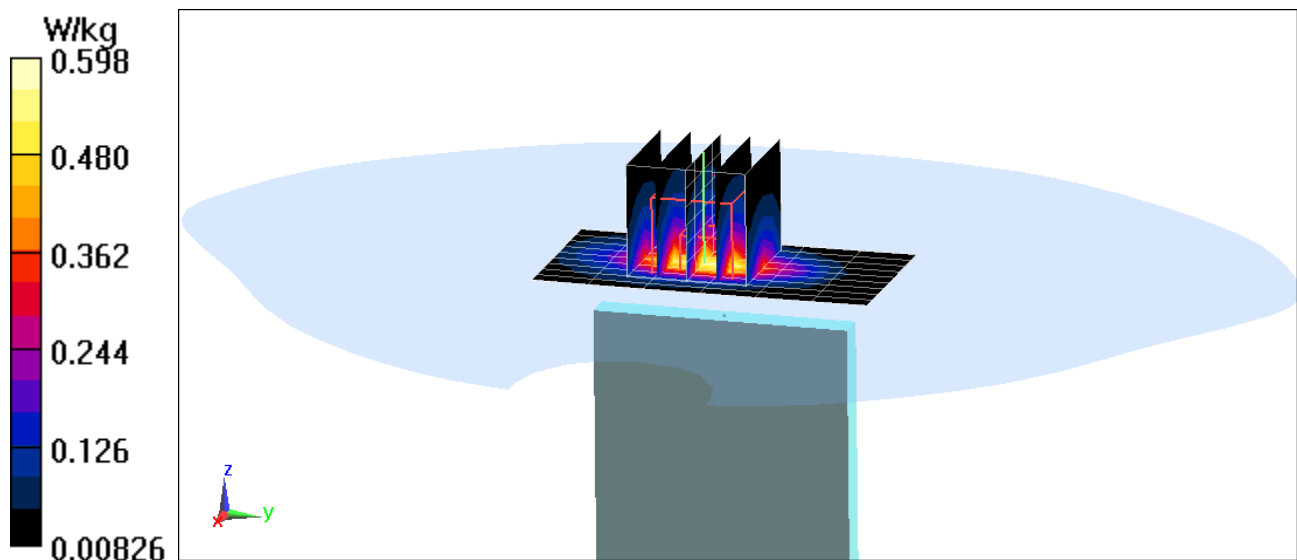
**Area Scan (10x7x1):** Measurement grid: dx=5mm, dy=15mm

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

Reference Value = 17.20 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.689 W/kg

**SAR(1 g) = 0.408 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EDE**

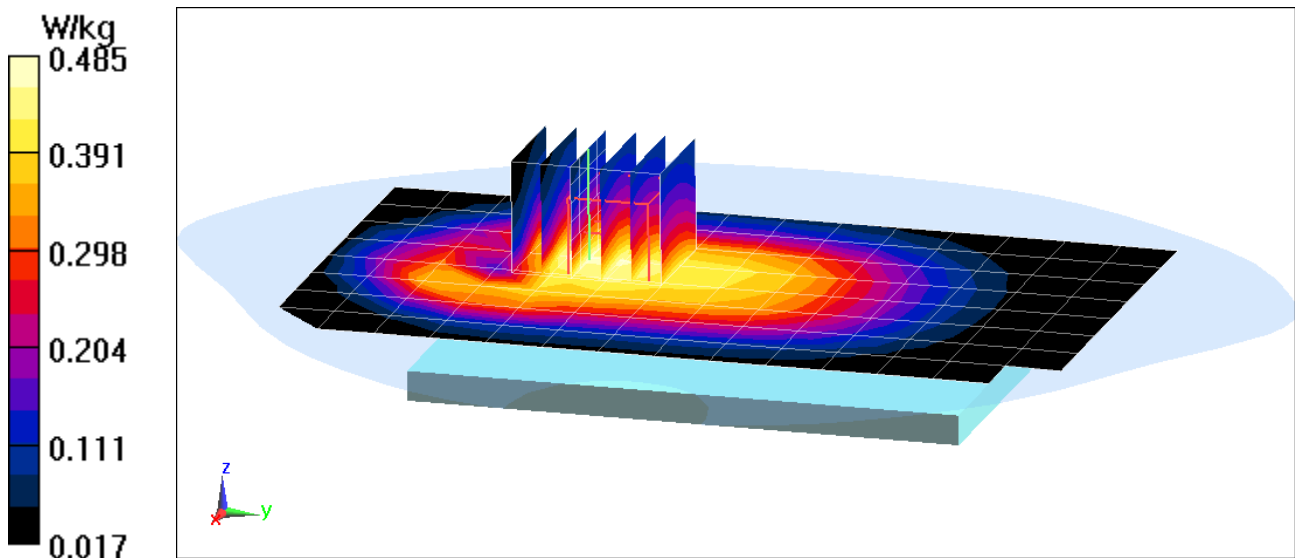
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1  
Medium: 835 Body Medium parameters used (interpolated):  
 $f = 836.6$  MHz;  $\sigma = 0.996$  S/m;  $\epsilon_r = 53.047$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-06-2017; Ambient Temp: 22.4°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.77, 9.77, 9.77); Calibrated: 4/18/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1407; Calibrated: 4/11/2017  
Phantom: SAM Left; Type: QD000P40CC; Serial: TP: 1375  
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

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

**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x6x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 20.14 V/m; Power Drift = 0.06 dB  
Peak SAR (extrapolated) = 0.536 W/kg  
**SAR(1 g) = 0.392 W/kg**





# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EDE**

Communication System: UID 0, UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1

Medium parameters used (interpolated):

$f = 846.6$  MHz;  $\sigma = 1.006$  S/m;  $\epsilon_r = 52.955$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0cm

Test Date: 11-06-2017; Ambient Temp: 22.4°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.77, 9.77, 9.77); Calibrated: 4/18/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1407; Calibrated: 4/11/2017

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

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: UMTS 850, Body SAR, Back side, High.ch**

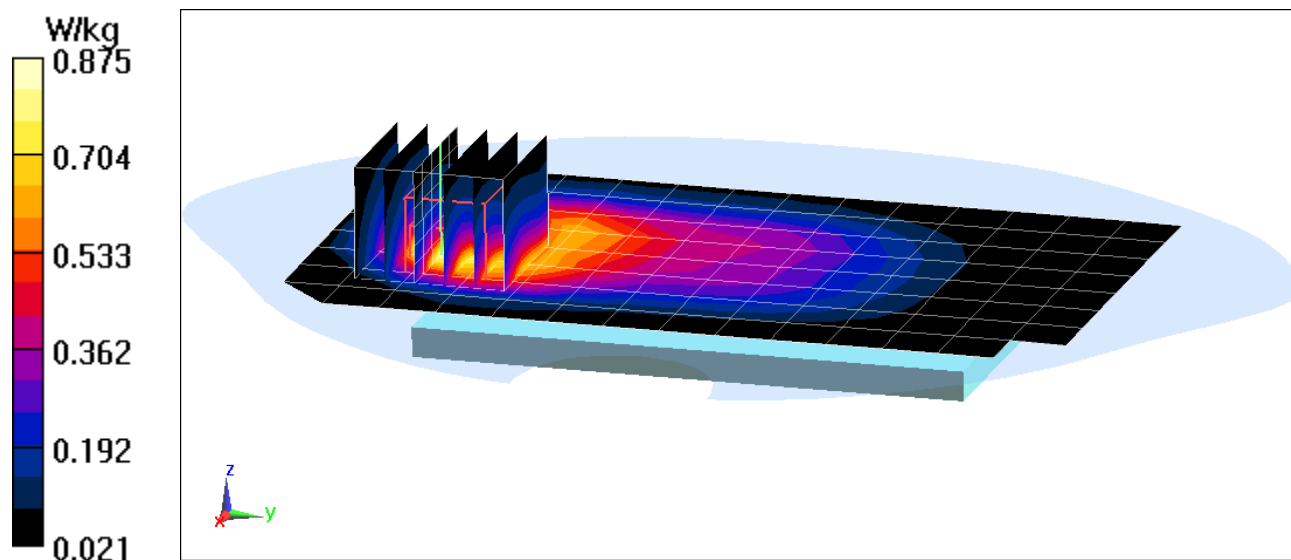
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 25.13 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.06 W/kg

**SAR(1 g) = 0.588 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EF4**

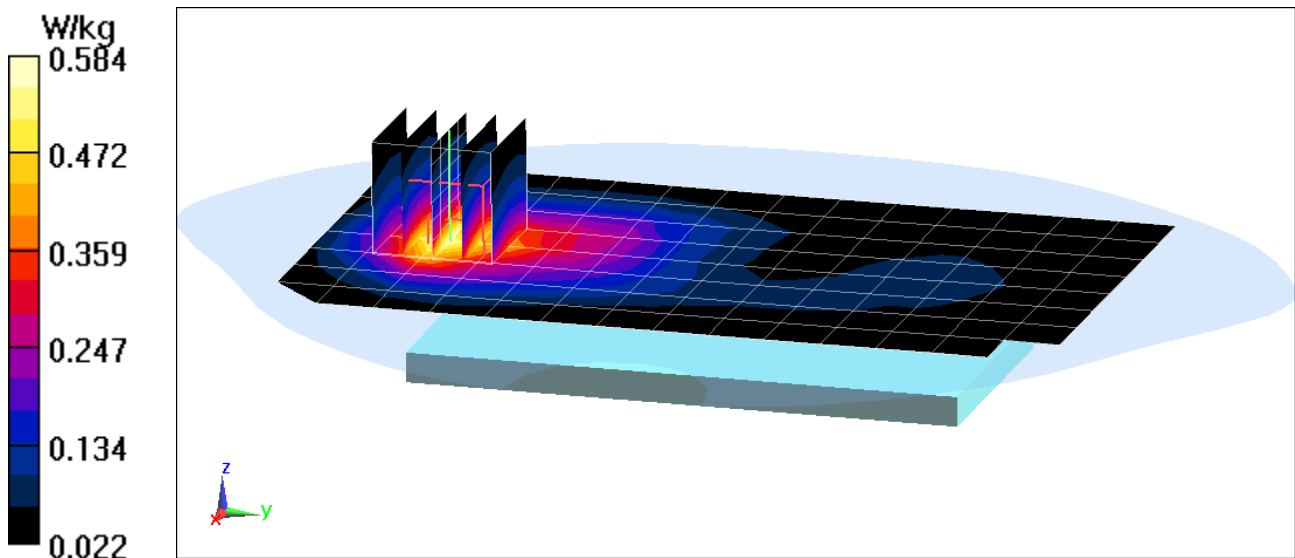
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1  
Medium: 1750 Body Medium parameters used (interpolated):  
 $f = 1732.4$  MHz;  $\sigma = 1.485$  S/m;  $\epsilon_r = 51.71$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-03-2017; Ambient Temp: 21.9°C; Tissue Temp: 21.7°C

Probe: ES3DV3 - SN3209; ConvF(5.13, 5.13, 5.13); Calibrated: 3/14/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1415; Calibrated: 3/13/2017  
Phantom: SAM Left; Type: QD000P40CD; Serial: 1692  
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: UMTS 1750, 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 = 19.51 V/m; Power Drift = 0.05 dB  
Peak SAR (extrapolated) = 0.749 W/kg  
**SAR(1 g) = 0.494 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EF0**

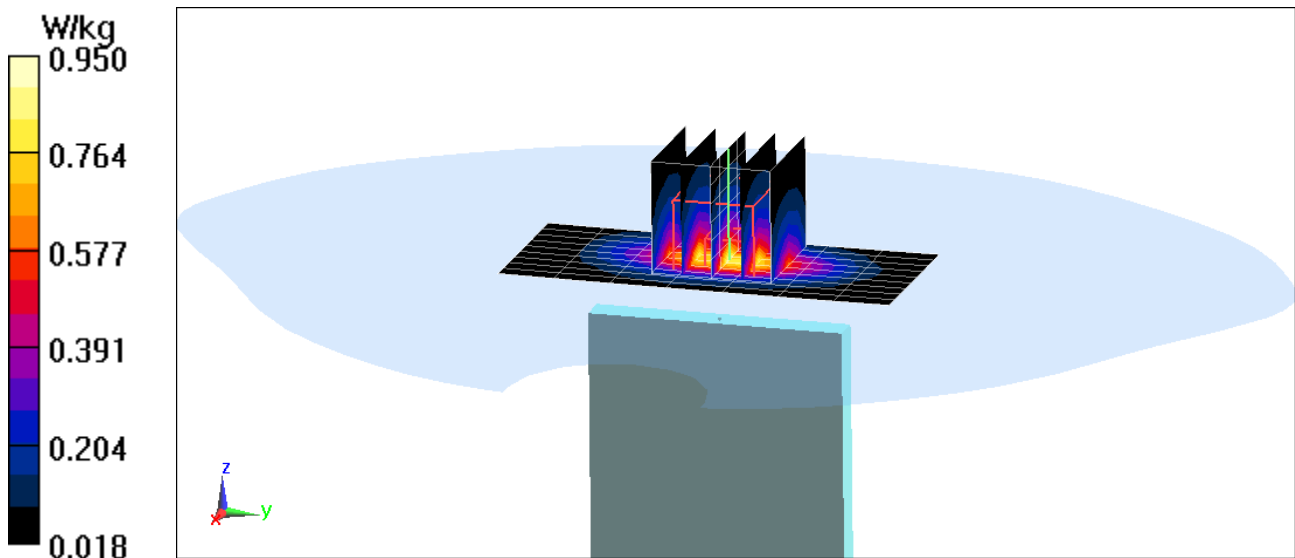
Communication System: UID 0, UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1  
Medium: 1750 Body Medium parameters used (interpolated):  
 $f = 1752.6$  MHz;  $\sigma = 1.508$  S/m;  $\epsilon_r = 51.625$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-03-2017; Ambient Temp: 21.9°C; Tissue Temp: 21.7°C

Probe: ES3DV3 - SN3209; ConvF(5.13, 5.13, 5.13); Calibrated: 3/14/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1415; Calibrated: 3/13/2017  
Phantom: SAM Left; Type: QD000P40CD; Serial: 1692  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

**Area Scan (10x8x1):** Measurement grid: dx=5mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 24.30 V/m; Power Drift = -0.07 dB  
Peak SAR (extrapolated) = 1.28 W/kg  
**SAR(1 g) = 0.763 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EF4**

Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium: 1900 Body Medium parameters used:  
 $f = 1880 \text{ MHz}$ ;  $\sigma = 1.543 \text{ S/m}$ ;  $\epsilon_r = 52.74$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-06-2017; Ambient Temp: 23.8°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(7.98, 7.98, 7.98); Calibrated: 7/17/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017

Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

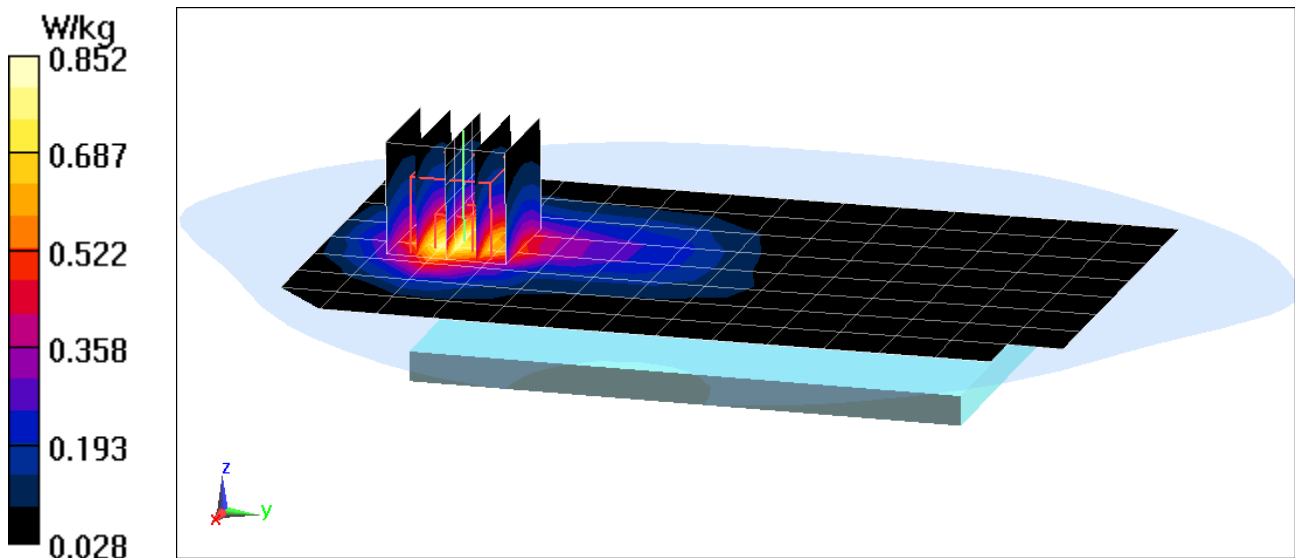
**Area Scan (9x15x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 21.04 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.963 W/kg

**SAR(1 g) = 0.619 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EF0**

Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1  
Medium: 1900 Body Medium parameters used:  
 $f = 1880 \text{ MHz}$ ;  $\sigma = 1.543 \text{ S/m}$ ;  $\epsilon_r = 52.74$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-06-2017; Ambient Temp: 23.8°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(7.98, 7.98, 7.98); Calibrated: 7/17/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017

Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

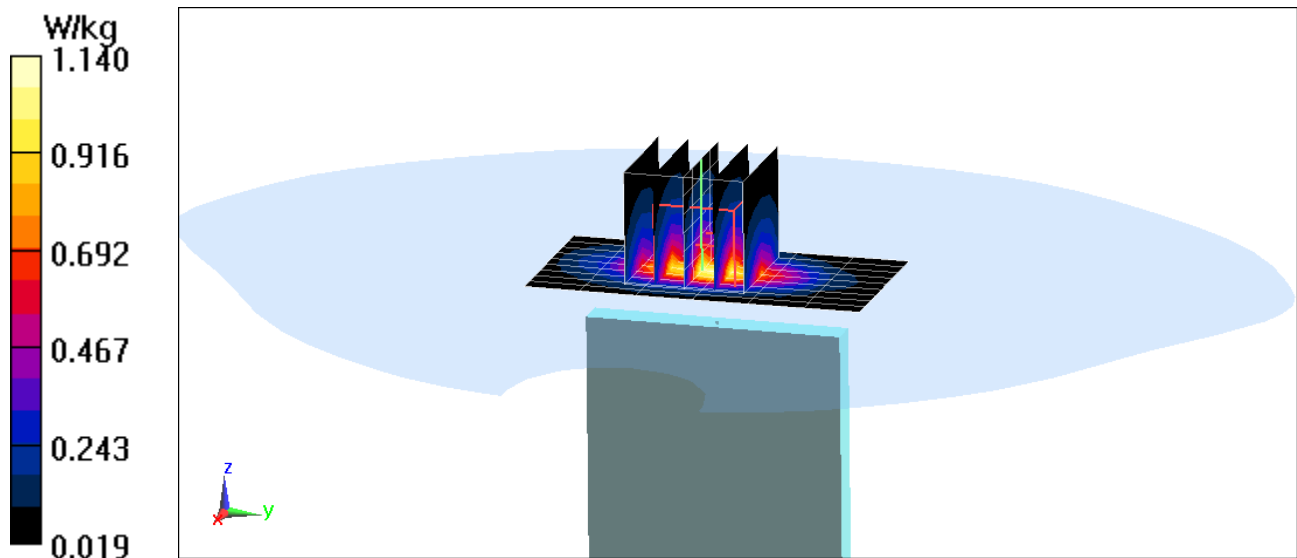
**Area Scan (10x7x1):** Measurement grid: dx=5mm, dy=15mm

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

Reference Value = 24.06 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.31 W/kg

**SAR(1 g) = 0.786 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1

Medium: 750 Body Medium parameters used (interpolated):

$f = 680.5$  MHz;  $\sigma = 0.935$  S/m;  $\epsilon_r = 54.58$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-06-2017; Ambient Temp: 22.6°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3318; ConvF(6.46, 6.46, 6.46); Calibrated: 9/22/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

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

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

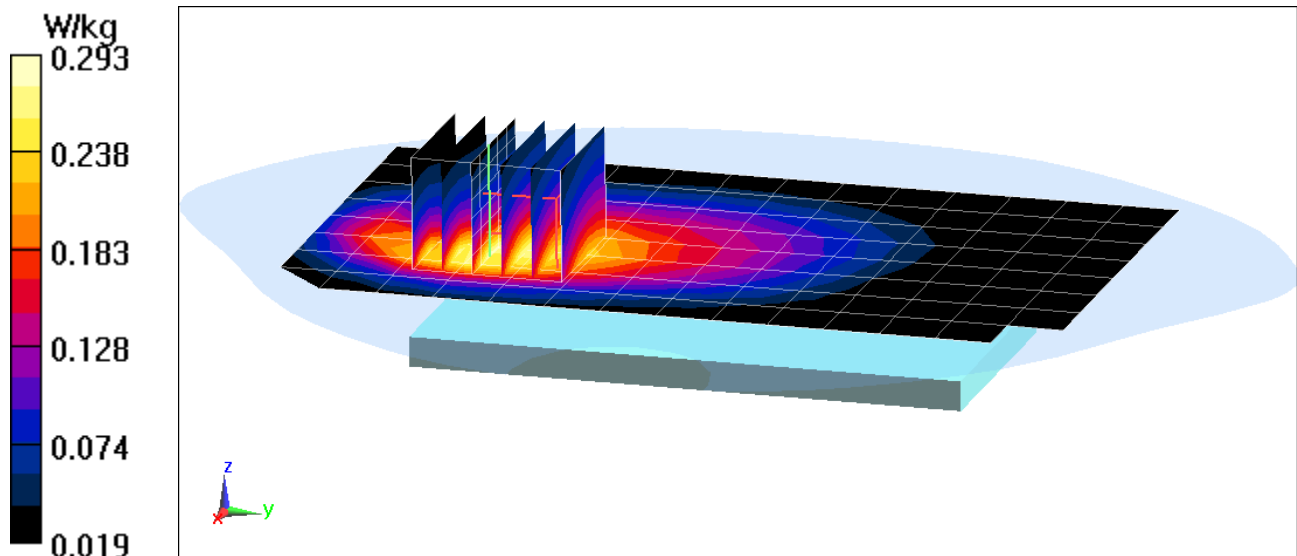
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 17.25 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.374 W/kg

**SAR(1 g) = 0.255 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1

Medium: 750 Body Medium parameters used (interpolated):

$f = 680.5 \text{ MHz}$ ;  $\sigma = 0.935 \text{ S/m}$ ;  $\epsilon_r = 54.58$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-06-2017; Ambient Temp: 22.6°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3318; ConvF(6.46, 6.46, 6.46); Calibrated: 9/22/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

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

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

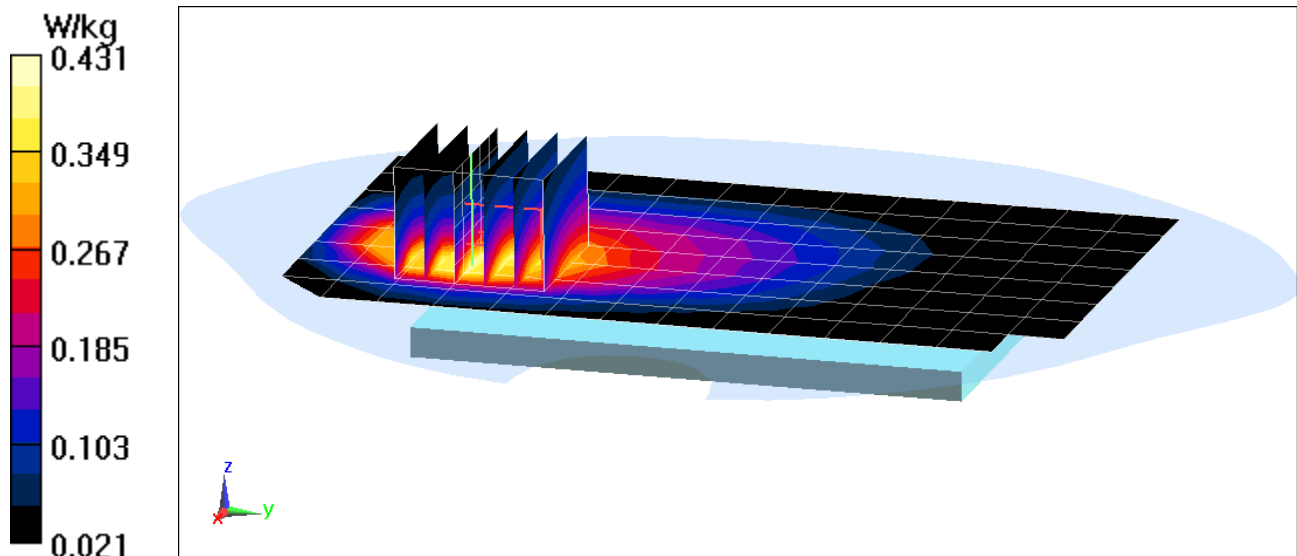
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 20.74 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.585 W/kg

**SAR(1 g) = 0.364 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium: 750 Body Medium parameters used (interpolated):

$f = 707.5$  MHz;  $\sigma = 0.945$  S/m;  $\epsilon_r = 54.522$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-06-2017; Ambient Temp: 22.6°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3318; ConvF(6.46, 6.46, 6.46); Calibrated: 9/22/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

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

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 12, Body SAR, Back side, Mid.ch,  
10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset**

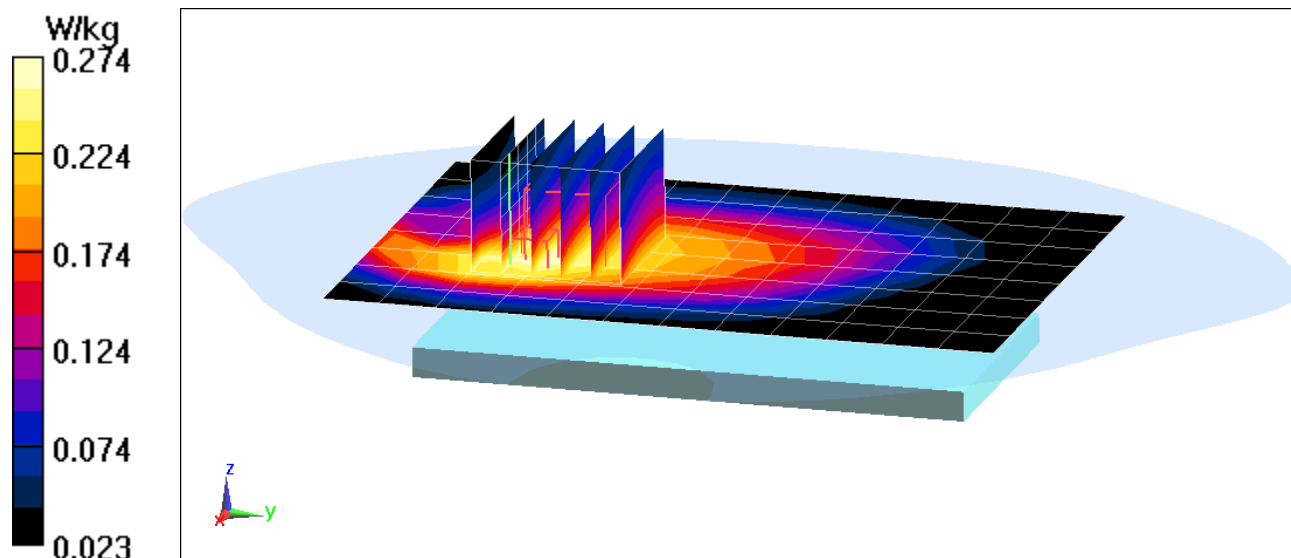
**Area Scan (9x13x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 16.66 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.343 W/kg

**SAR(1 g) = 0.242 W/kg**





# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

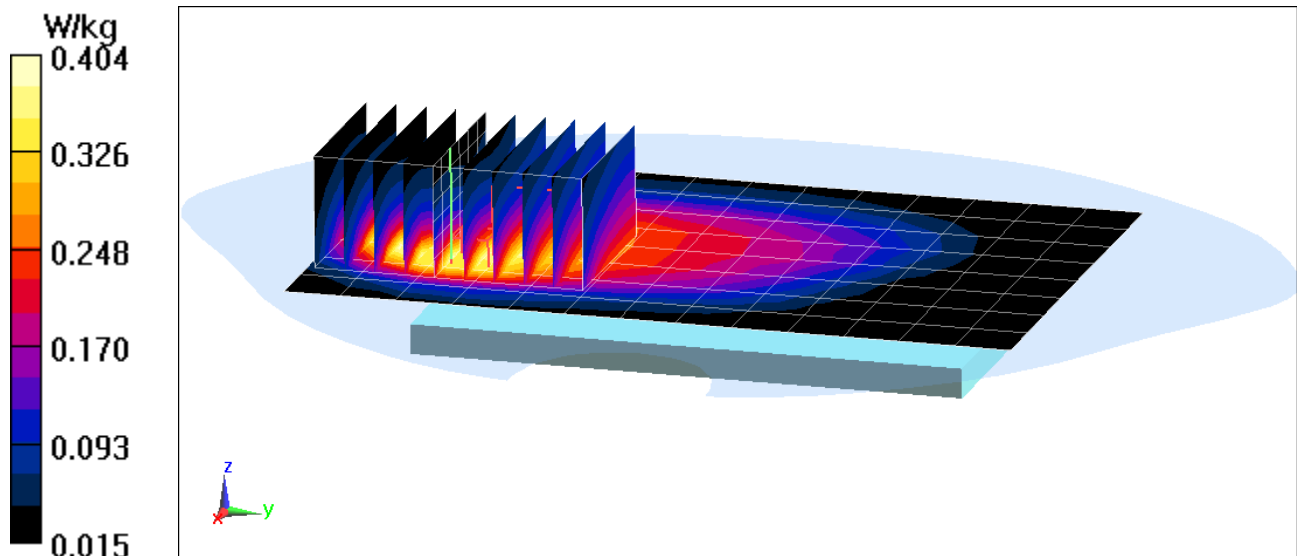
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1  
Medium: 750 Body Medium parameters used (interpolated):  
 $f = 707.5 \text{ MHz}$ ;  $\sigma = 0.945 \text{ S/m}$ ;  $\epsilon_r = 54.522$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-06-2017; Ambient Temp: 22.6°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3318; ConvF(6.46, 6.46, 6.46); Calibrated: 9/22/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1334; Calibrated: 6/14/2017  
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 12, Body SAR, Back side, Mid.ch,  
10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset**

**Area Scan (9x14x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
**Zoom Scan (7x10x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 19.38 V/m; Power Drift = 0.01 dB  
Peak SAR (extrapolated) = 0.560 W/kg  
**SAR(1 g) = 0.341 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1

Medium: 750 Body Medium parameters used (interpolated):

$f = 782 \text{ MHz}$ ;  $\sigma = 0.973 \text{ S/m}$ ;  $\epsilon_r = 54.369$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-06-2017; Ambient Temp: 22.6°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3318; ConvF(6.46, 6.46, 6.46); Calibrated: 9/22/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

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

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

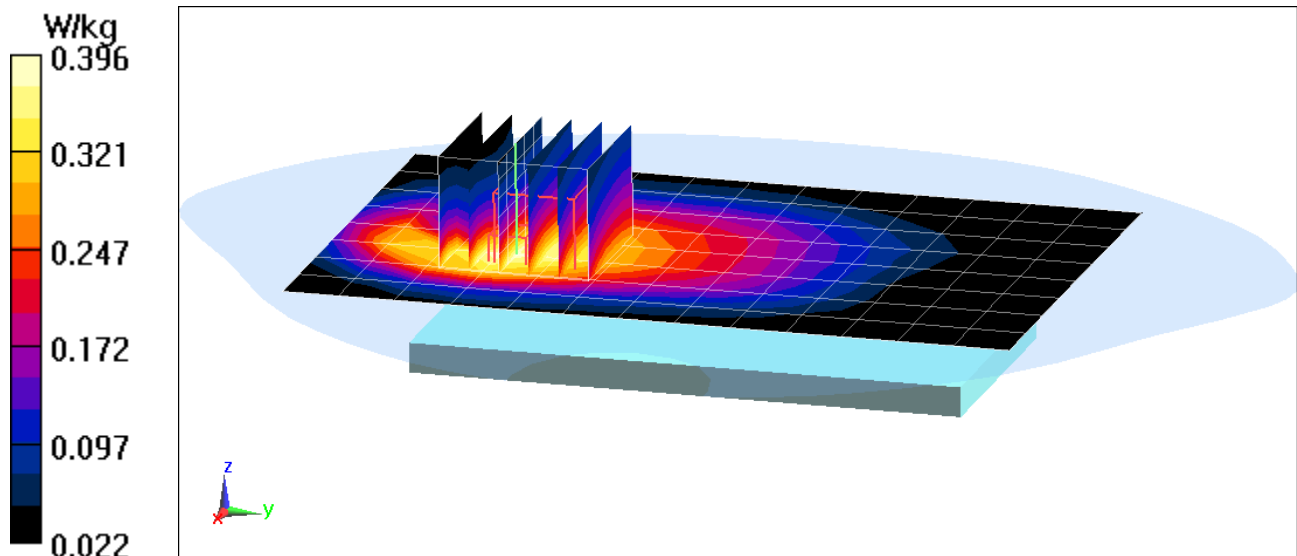
**Area Scan (9x14x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 19.74 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.501 W/kg

**SAR(1 g) = 0.348 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1

Medium: 750 Body Medium parameters used (interpolated):

$f = 782 \text{ MHz}$ ;  $\sigma = 0.973 \text{ S/m}$ ;  $\epsilon_r = 54.369$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-06-2017; Ambient Temp: 22.6°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3318; ConvF(6.46, 6.46, 6.46); Calibrated: 9/22/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

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

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

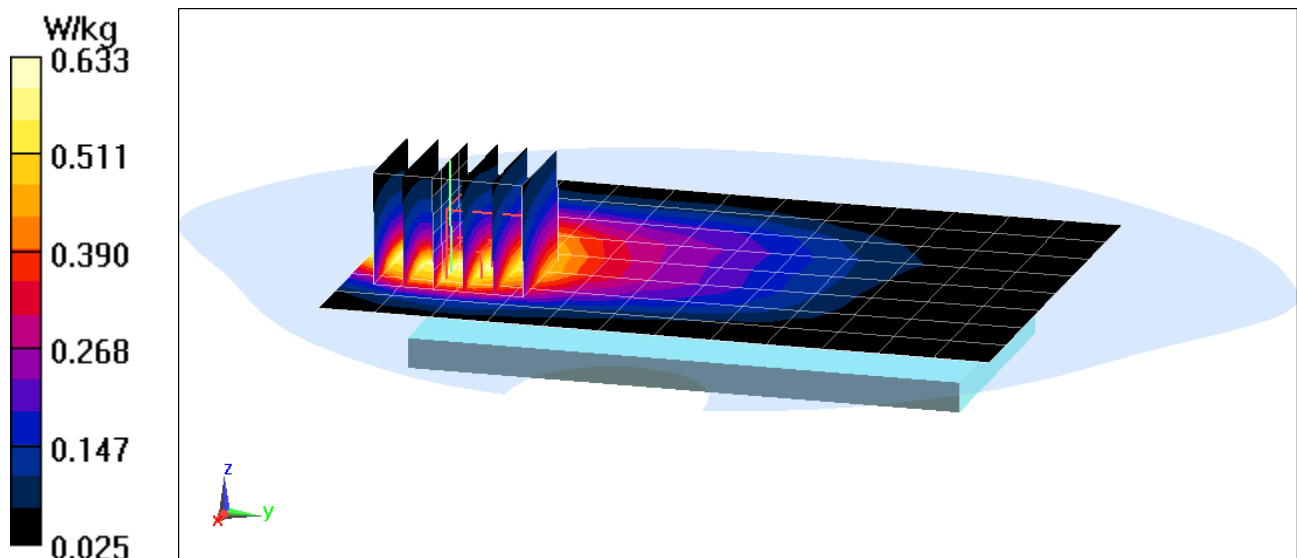
**Area Scan (9x13x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 24.57 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.889 W/kg

**SAR(1 g) = 0.534 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

Communication System: UID 0, LTE Band 14; Frequency: 793 MHz; Duty Cycle: 1:1

Medium: 750 Body Medium parameters used (interpolated):

$f = 793 \text{ MHz}$ ;  $\sigma = 0.966 \text{ S/m}$ ;  $\epsilon_r = 54.516$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-09-2017; Ambient Temp: 20.8°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3318; ConvF(6.46, 6.46, 6.46); Calibrated: 9/22/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

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

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 14, Body SAR, Back side, Mid.ch,  
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

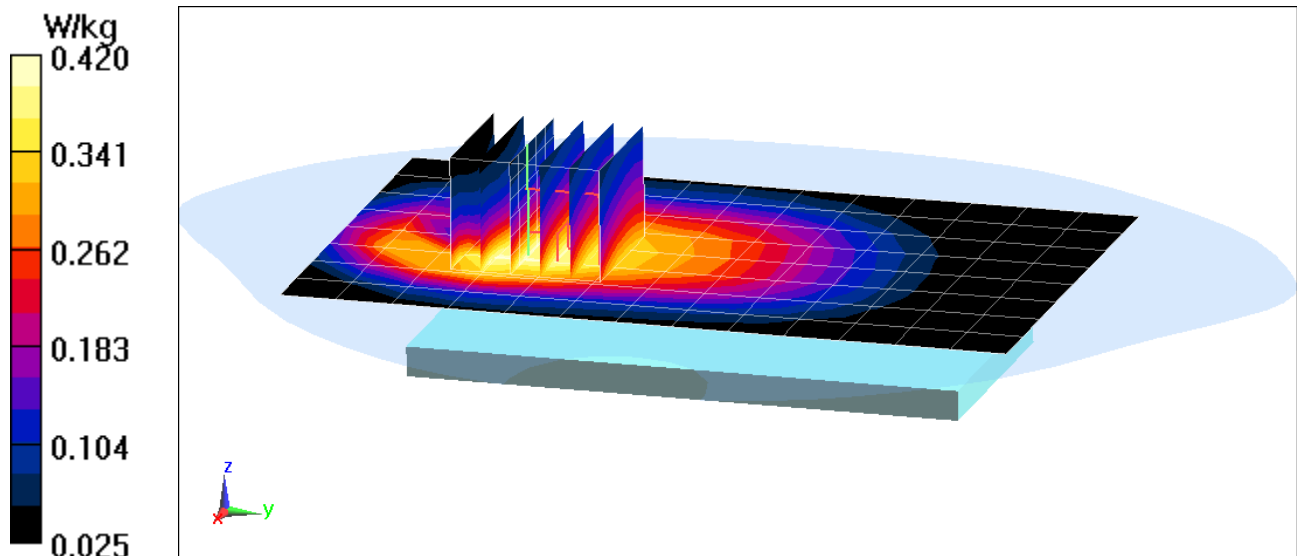
**Area Scan (9x14x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 20.52 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.518 W/kg

**SAR(1 g) = 0.374 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

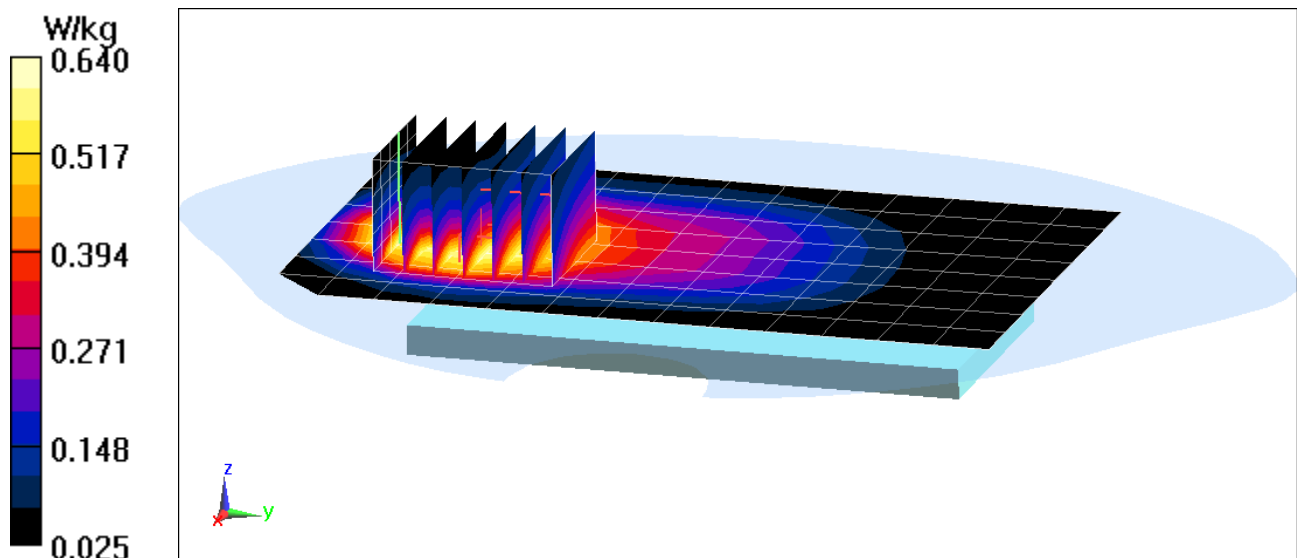
Communication System: UID 0, LTE Band 14; Frequency: 793 MHz; Duty Cycle: 1:1  
Medium: 750 Body Medium parameters used (interpolated):  
 $f = 793 \text{ MHz}$ ;  $\sigma = 0.966 \text{ S/m}$ ;  $\epsilon_r = 54.516$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-09-2017; Ambient Temp: 20.8°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3318; ConvF(6.46, 6.46, 6.46); Calibrated: 9/22/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1334; Calibrated: 6/14/2017  
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 14, Body SAR, Back side, Mid.ch,  
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

**Area Scan (9x14x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (6x7x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Reference Value = 24.68 V/m; Power Drift = 0.02 dB  
Peak SAR (extrapolated) = 0.914 W/kg  
**SAR(1 g) = 0.543 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used (interpolated):

$f = 831.5$  MHz;  $\sigma = 0.97$  S/m;  $\epsilon_r = 52.881$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-15-2017; Ambient Temp: 24.1°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3209; ConvF(6.36, 6.36, 6.36); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1415; Calibrated: 3/13/2017

Phantom: SAM Right; Type: QD000P40CD; Serial: 1800

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 26 (Cell.), Body SAR, Back side, Mid.ch,  
15 MHz Bandwidth, QPSK, 1 RB, 74 RB Offset**

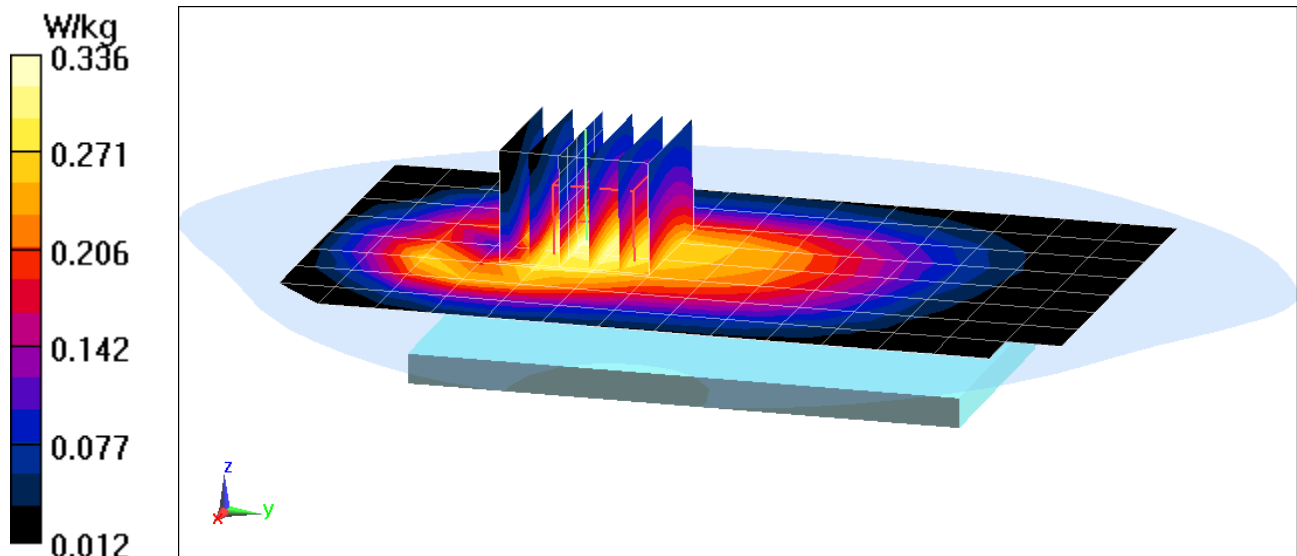
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 18.36 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.396 W/kg

**SAR(1 g) = 0.301 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used (interpolated):

$f = 831.5 \text{ MHz}$ ;  $\sigma = 0.97 \text{ S/m}$ ;  $\epsilon_r = 52.881$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-15-2017; Ambient Temp: 24.1°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3209; ConvF(6.36, 6.36, 6.36); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1415; Calibrated: 3/13/2017

Phantom: SAM Right; Type: QD000P40CD; Serial: 1800

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 26 (Cell.), Body SAR, Back side, Mid.ch,  
15 MHz Bandwidth, QPSK, 1 RB, 74 RB Offset**

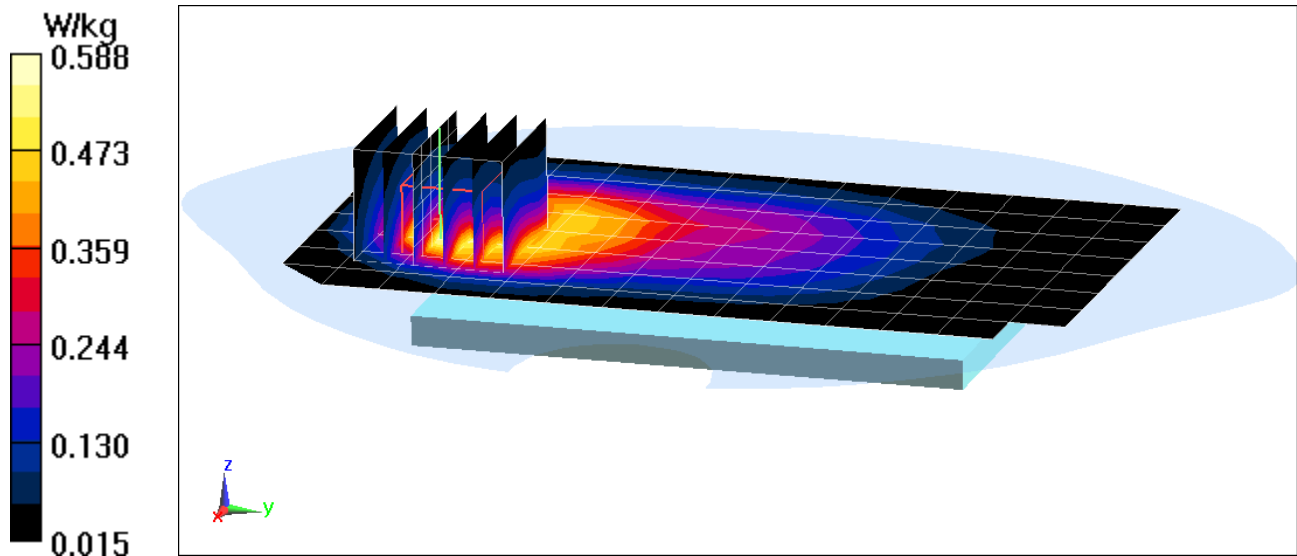
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 23.67 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.828 W/kg

**SAR(1 g) = 0.477 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

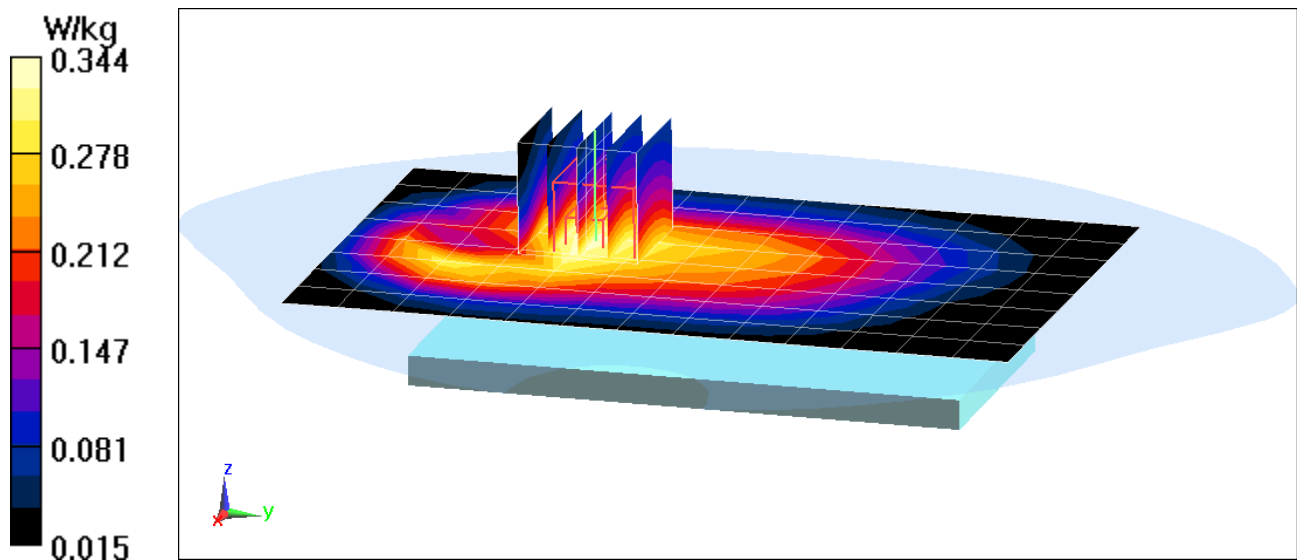
Communication System: UID 0, LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1  
Medium: 835 Body Medium parameters used (interpolated):  
 $f = 836.5 \text{ MHz}$ ;  $\sigma = 0.975 \text{ S/m}$ ;  $\epsilon_r = 52.831$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-15-2017; Ambient Temp: 24.1°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3209; ConvF(6.36, 6.36, 6.36); Calibrated: 3/14/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1415; Calibrated: 3/13/2017  
Phantom: SAM Right; Type: QD000P40CD; Serial: 1800  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 5 (Cell.), Body SAR, Back side, Mid.ch,  
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

**Area Scan (9x14x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 18.56 V/m; Power Drift = -0.01 dB  
Peak SAR (extrapolated) = 0.409 W/kg  
**SAR(1 g) = 0.311 W/kg**





# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E78**

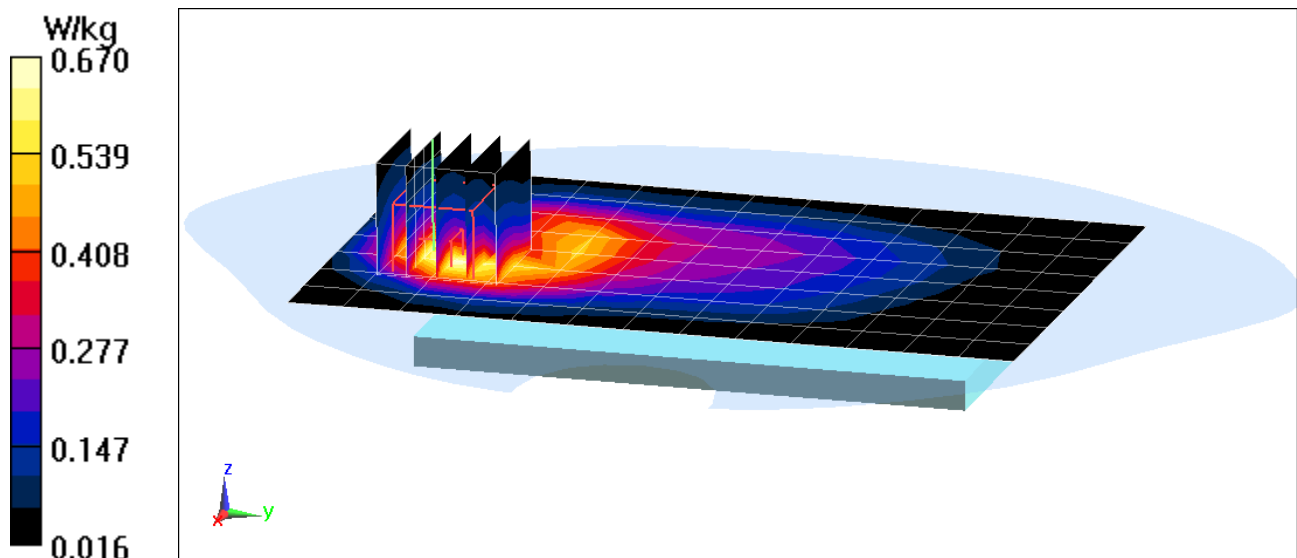
Communication System: UID 0, LTE Band 5; Frequency: 836.5 MHz; Duty Cycle: 1:1  
Medium: 835 Body Medium parameters used (interpolated):  
 $f = 836.5 \text{ MHz}$ ;  $\sigma = 0.975 \text{ S/m}$ ;  $\epsilon_r = 52.831$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-15-2017; Ambient Temp: 24.1°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3209; ConvF(6.36, 6.36, 6.36); Calibrated: 3/14/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1415; Calibrated: 3/13/2017  
Phantom: SAM Right; Type: QD000P40CD; Serial: 1800  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 5 (Cell.), Body SAR, Back side, Mid.ch,  
10 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

**Area Scan (9x14x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 24.96 V/m; Power Drift = -0.08 dB  
Peak SAR (extrapolated) = 0.981 W/kg  
**SAR(1 g) = 0.556 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E6C**

Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1745 MHz; Duty Cycle: 1:1

Medium: 1750 Body Medium parameters used (interpolated):

$f = 1745 \text{ MHz}$ ;  $\sigma = 1.492 \text{ S/m}$ ;  $\epsilon_r = 51.983$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-06-2017; Ambient Temp: 21.7°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3209; ConvF(5.13, 5.13, 5.13); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1415; Calibrated: 3/13/2017

Phantom: SAM Left; Type: QD000P40CD; Serial: 1692

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 66 (AWS), Body SAR, Back side, Mid.ch,  
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

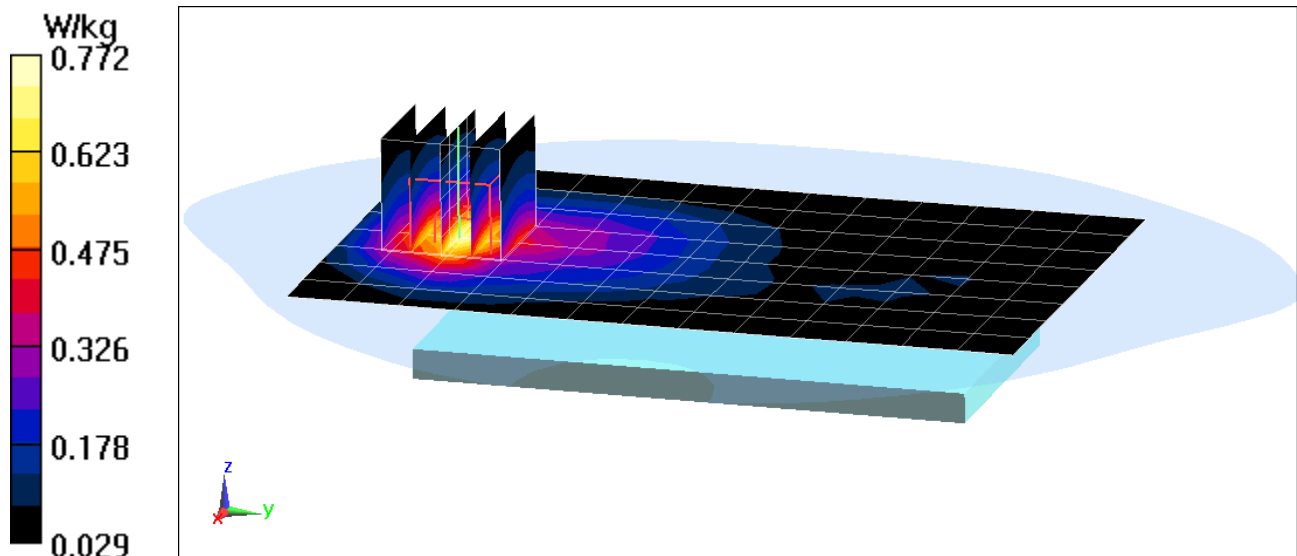
**Area Scan (9x14x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 22.23 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.986 W/kg

**SAR(1 g) = 0.647 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E58**

Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1770 MHz; Duty Cycle: 1:1

Medium: 1750 Body Medium parameters used (interpolated):

$f = 1770 \text{ MHz}$ ;  $\sigma = 1.519 \text{ S/m}$ ;  $\epsilon_r = 51.879$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-06-2017; Ambient Temp: 21.7°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3209; ConvF(5.13, 5.13, 5.13); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1415; Calibrated: 3/13/2017

Phantom: SAM Left; Type: QD000P40CD; Serial: 1692

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 66 (AWS), Body SAR, Bottom Edge, High.ch,  
20 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset**

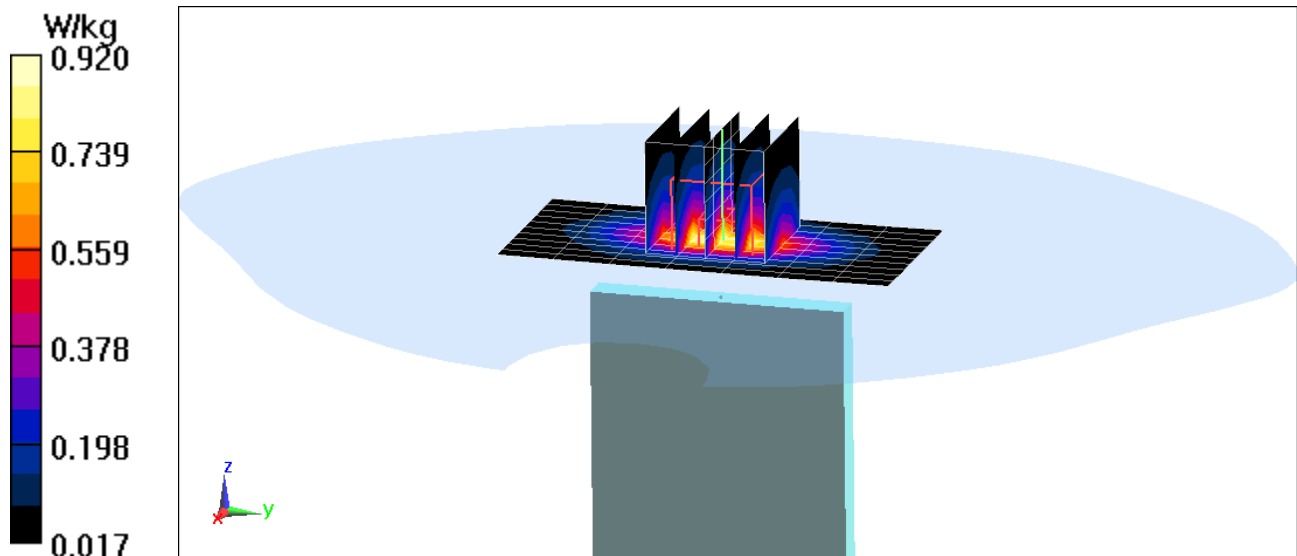
**Area Scan (11x8x1):** Measurement grid: dx=5mm, dy=15mm

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

Reference Value = 23.91 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.23 W/kg

**SAR(1 g) = 0.741 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E6C**

Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1905 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1905$  MHz;  $\sigma = 1.574$  S/m;  $\epsilon_r = 52.669$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-06-2017; Ambient Temp: 23.8°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(7.98, 7.98, 7.98); Calibrated: 7/17/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1322; Calibrated: 7/13/2017

Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

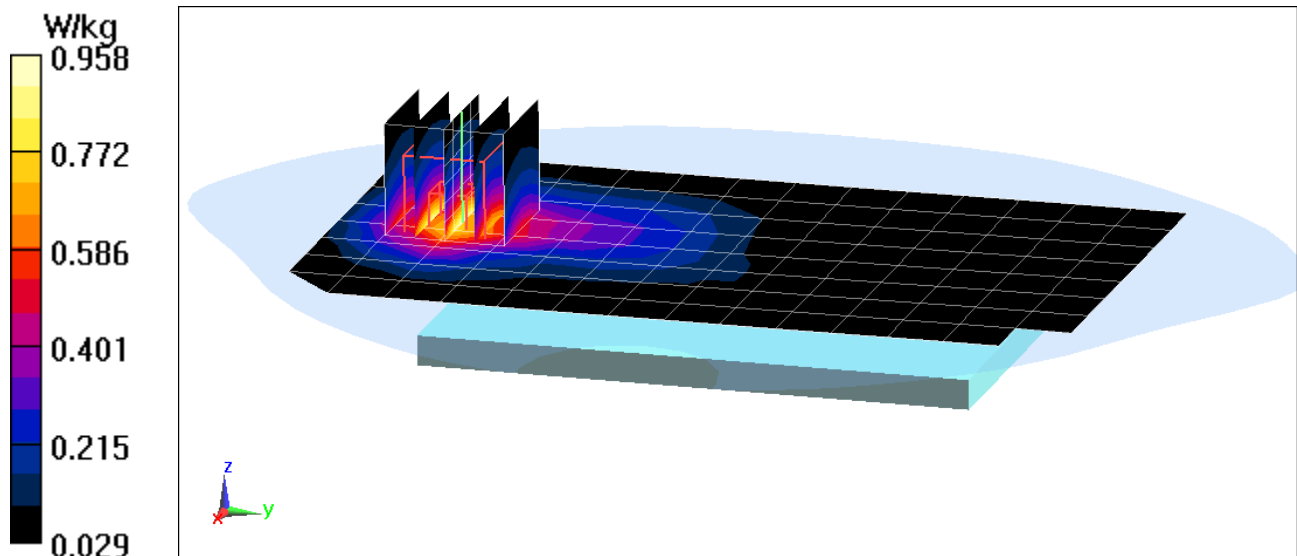
**Area Scan (9x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 22.11 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.12 W/kg

**SAR(1 g) = 0.713 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20E58**

Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1905 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1905 \text{ MHz}$ ;  $\sigma = 1.577 \text{ S/m}$ ;  $\epsilon_r = 52.98$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-08-2017; Ambient Temp: 23.7°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3209; ConvF(4.93, 4.93, 4.93); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1415; Calibrated: 3/13/2017

Phantom: SAM Right; Type: QD000P40CD; Serial: 1800

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 25 (PCS), Body SAR, Bottom Edge, High.ch,  
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

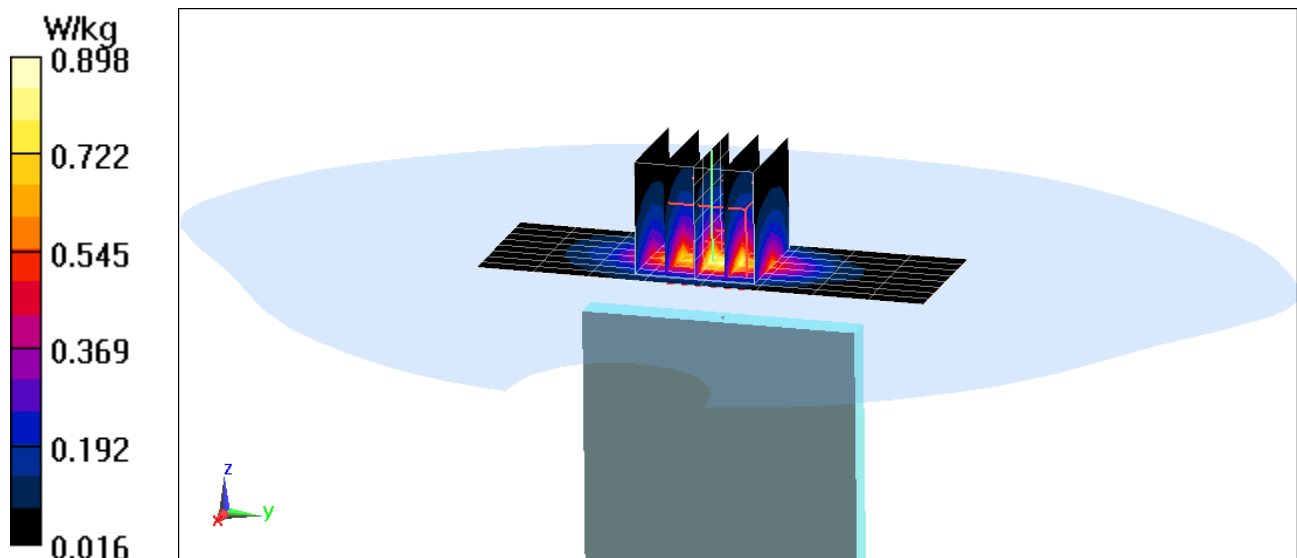
**Area Scan (9x9x1):** Measurement grid: dx=5mm, dy=15mm

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

Reference Value = 22.22 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.22 W/kg

**SAR(1 g) = 0.734 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 5FCA1**

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

Medium: 2450 Body Medium parameters used:

$f = 2310$  MHz;  $\sigma = 1.782$  S/m;  $\epsilon_r = 52.545$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-27-2017; Ambient Temp: 22.0°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3213; ConvF(4.69, 4.69, 4.69); Calibrated: 2/10/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/9/2017

Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

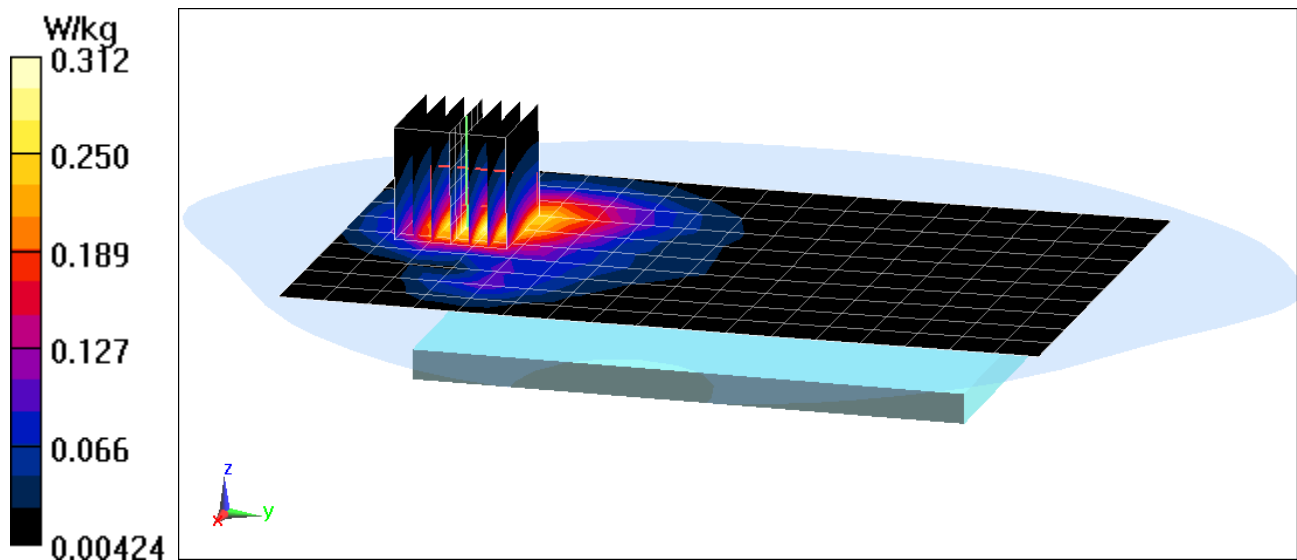
**Area Scan (11x18x1):** Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 12.73 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.458 W/kg

**SAR(1 g) = 0.256 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20F0D**

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

Medium: 2450 Body Medium parameters used:

$f = 2310$  MHz;  $\sigma = 1.823$  S/m;  $\epsilon_r = 52.487$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-06-2017; Ambient Temp: 22.0°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3213; ConvF(4.69, 4.69, 4.69); Calibrated: 2/10/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/9/2017

Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

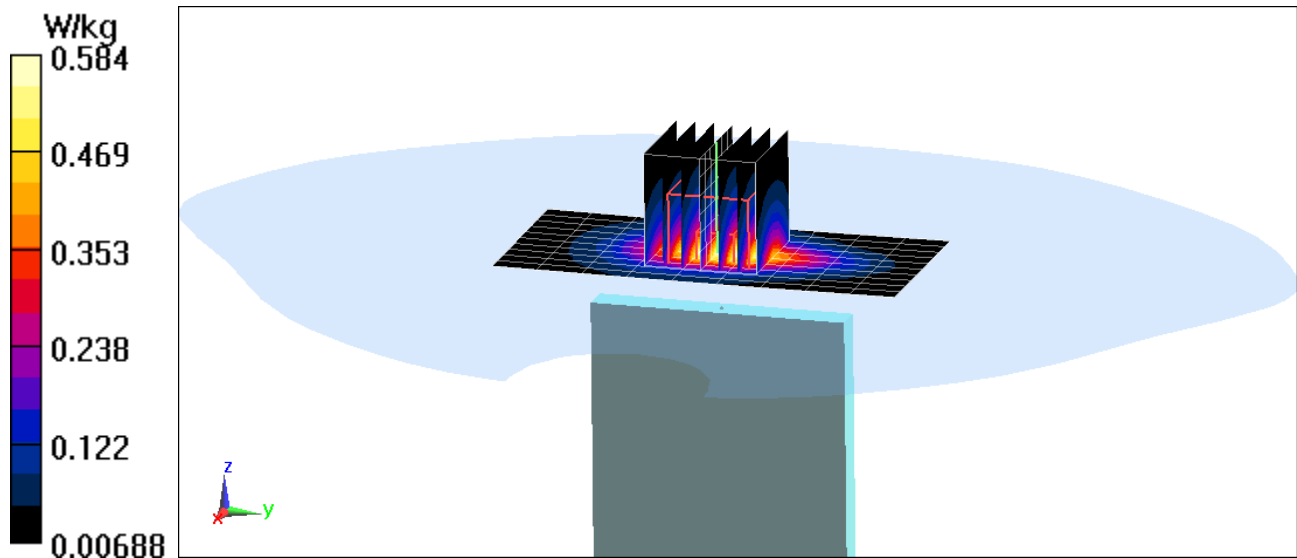
**Area Scan (11x10x1):** Measurement grid: dx=5mm, dy=12mm

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

Reference Value = 17.29 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.841 W/kg

**SAR(1 g) = 0.466 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 5FCA1**

Communication System: UID 0, LTE Band 7; Frequency: 2560 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used (interpolated):

$f = 2560$  MHz;  $\sigma = 2.114$  S/m;  $\epsilon_r = 51.696$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-27-2017; Ambient Temp: 22.0°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3213; ConvF(4.32, 4.32, 4.32); Calibrated: 2/10/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/9/2017

Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

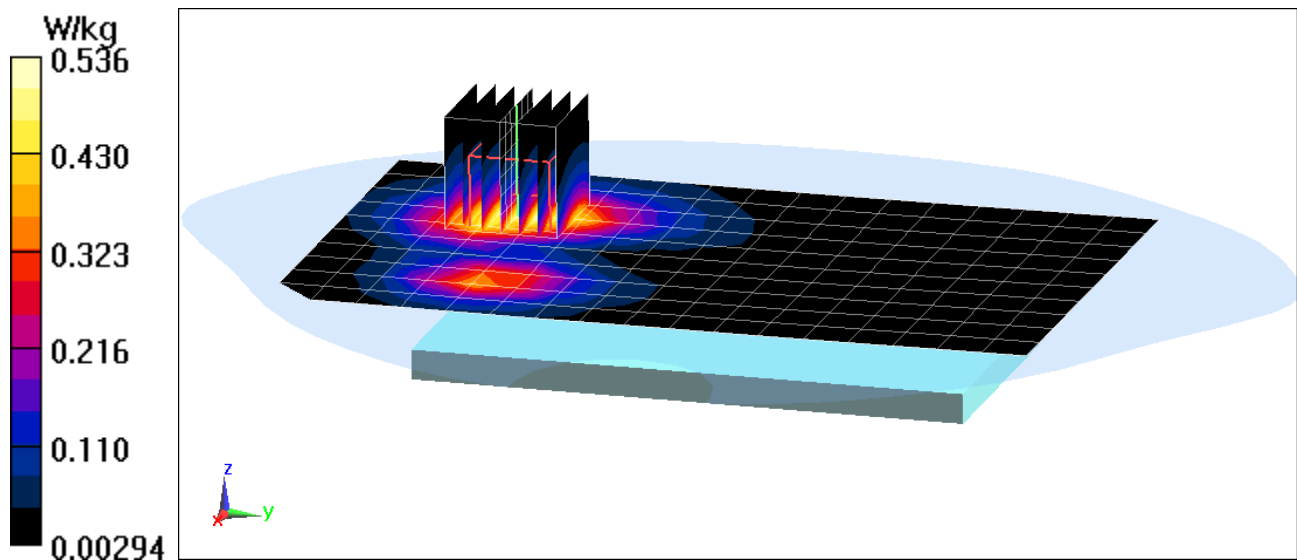
**Area Scan (11x18x1):** Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 15.02 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.874 W/kg

**SAR(1 g) = 0.433 W/kg**





# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 5FE0E**

Communication System: UID 0, \_LTE Band 7; Frequency: 2560 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used (interpolated):

$f = 2560$  MHz;  $\sigma = 2.114$  S/m;  $\epsilon_r = 51.696$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-27-2017; Ambient Temp: 22.0°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3213; ConvF(4.32, 4.32, 4.32); Calibrated: 2/10/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/9/2017

Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 7, Antenna A, Body SAR, Bottom Edge, High.ch,  
20 MHz Bandwidth, QPSK, 50 RB, 25 RB Offset**

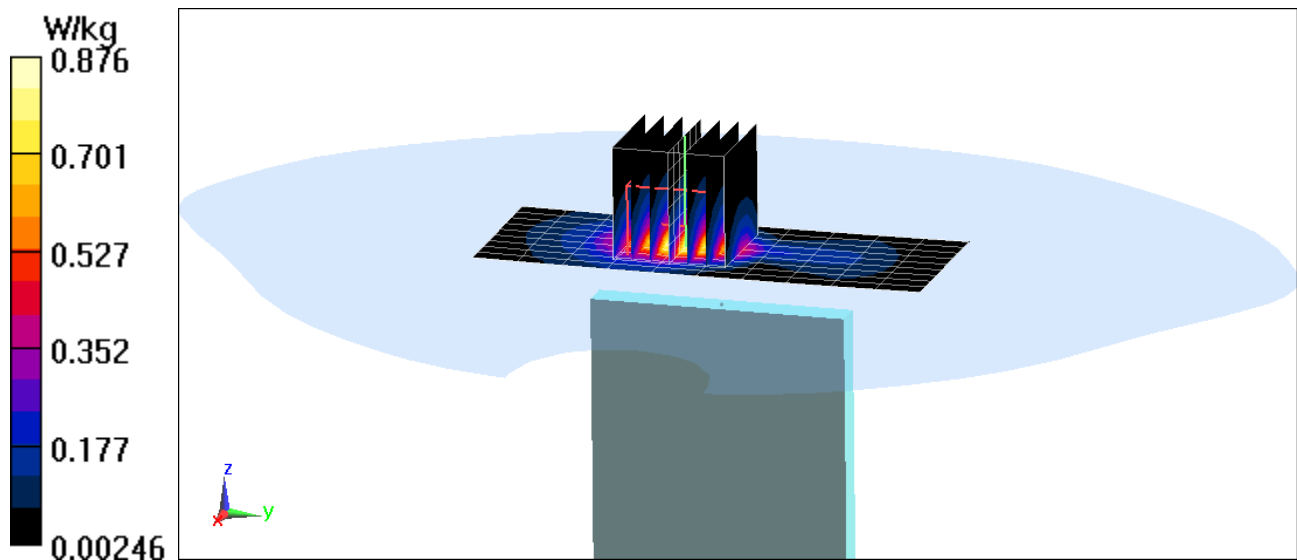
**Area Scan (10x11x1):** Measurement grid: dx=5mm, dy=12mm

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

Reference Value = 19.37 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.38 W/kg

**SAR(1 g) = 0.678 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EEA**

Communication System: UID 0, LTE Band 41 (Class 2); Frequency: 2549.5 MHz; Duty Cycle: 1:2.31

Medium: 2450 Body Medium parameters used:

$f = 2550$  MHz;  $\sigma = 2.144$  S/m;  $\epsilon_r = 51.628$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-15-2017; Ambient Temp: 23.3°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3213; ConvF(4.32, 4.32, 4.32); Calibrated: 2/10/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/9/2017

Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

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

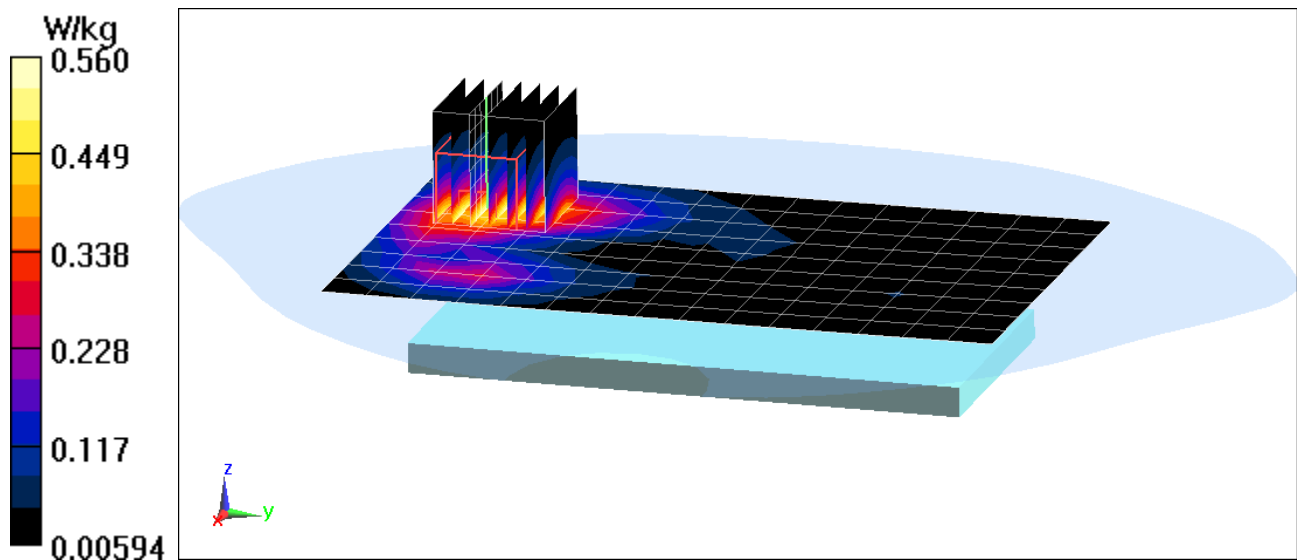
**Area Scan (10x16x1):** Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 15.35 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.859 W/kg

**SAR(1 g) = 0.461 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 20EE6**

Communication System: UID 0, LTE Band 41 (Class 3); Frequency: 2549.5 MHz; Duty Cycle: 1:1.58

Medium: 2450 Body Medium parameters used:

$f = 2550$  MHz;  $\sigma = 2.132$  S/m;  $\epsilon_r = 52.879$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-20-2017; Ambient Temp: 21.9°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3213; ConvF(4.32, 4.32, 4.32); Calibrated: 2/10/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/9/2017

Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: LTE Band 41 PC3 ULCA, Body SAR, Bottom Edge,  
PCC: 20 MHz Bandwidth, QPSK Ch 40185, 1 RB, 0 RB Offset  
SCC: 20 MHz Bandwidth, QPSK Ch 39987, 1 RB, 99 RB Offset**

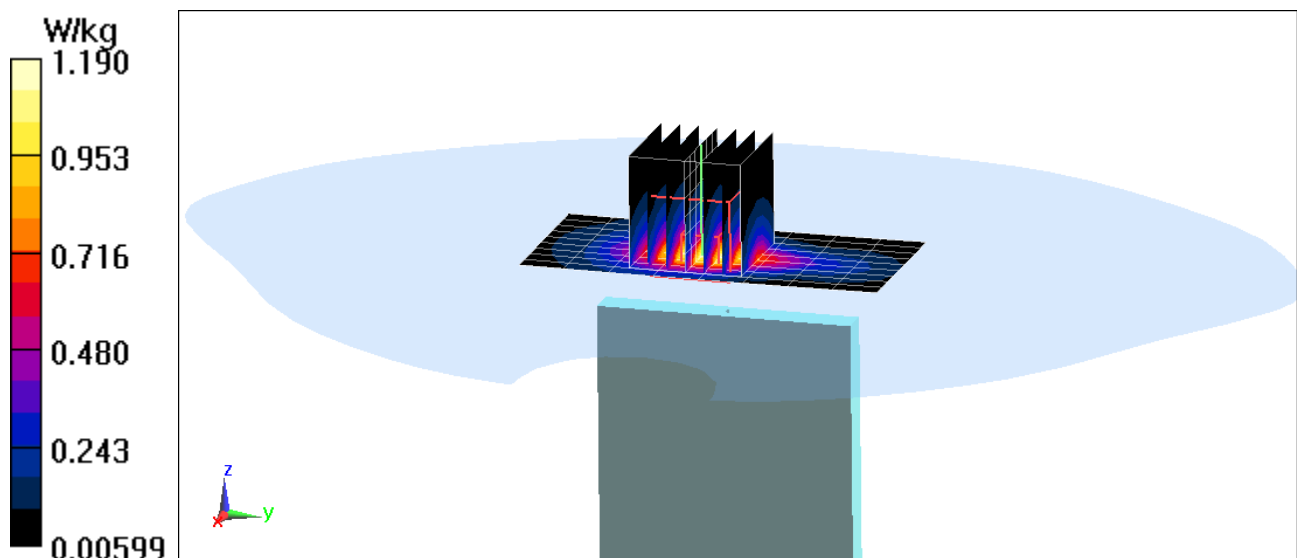
**Area Scan (10x9x1):** Measurement grid: dx=5mm, dy=12mm

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

Reference Value = 22.39 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.86 W/kg

**SAR(1 g) = 0.913 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 5ED58**

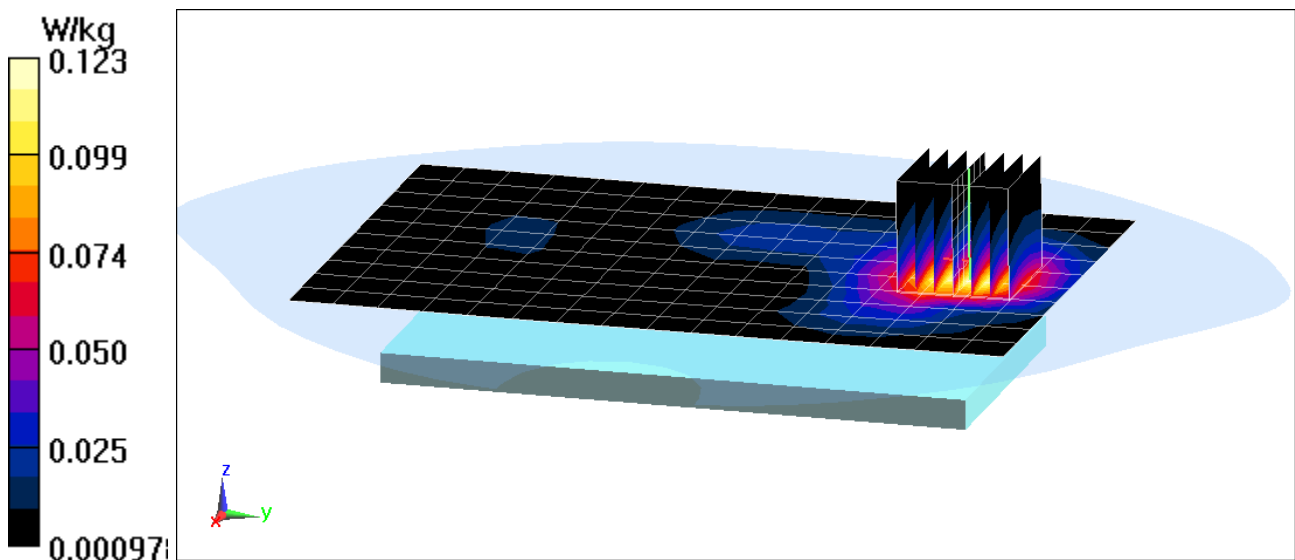
Communication System: UID 0, 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1  
Medium: 2450 Body Medium parameters used (interpolated):  
 $f = 2462$  MHz;  $\sigma = 2.061$  S/m;  $\epsilon_r = 53.327$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-23-2017; Ambient Temp: 21.7°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3213; ConvF(4.53, 4.53, 4.53); Calibrated: 2/10/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1272; Calibrated: 2/9/2017  
Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758  
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: IEEE 802.11b, Antenna 1, 22 MHz Bandwidth, Body SAR, Ch 11, 1 Mbps, Back Side**

**Area Scan (11x17x1):** Measurement grid: dx=12mm, dy=12mm  
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 7.394 V/m; Power Drift = 0.01 dB  
Peak SAR (extrapolated) = 0.184 W/kg  
**SAR(1 g) = 0.100 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 5ED58**

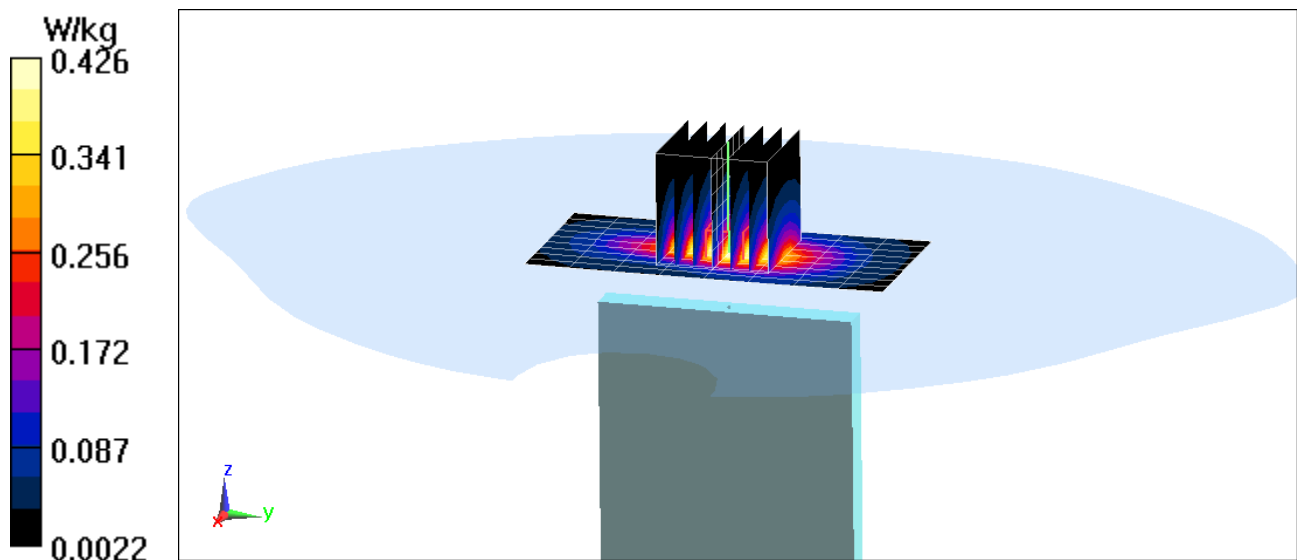
Communication System: UID 0, 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1  
Medium: 2450 Body Medium parameters used (interpolated):  
 $f = 2412 \text{ MHz}$ ;  $\sigma = 1.943 \text{ S/m}$ ;  $\epsilon_r = 53.369$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-20-2017; Ambient Temp: 21.9°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3213; ConvF(4.53, 4.53, 4.53); Calibrated: 2/10/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1272; Calibrated: 2/9/2017  
Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758  
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: IEEE 802.11b, Antenna 2, 22 MHz Bandwidth, Body SAR, Ch 1, 1 Mbps, Top Edge**

**Area Scan (10x9x1):** Measurement grid: dx=5mm, dy=12mm  
**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm  
Reference Value = 14.33 V/m; Power Drift = -0.05 dB  
Peak SAR (extrapolated) = 0.642 W/kg  
**SAR(1 g) = 0.339 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 5ED58**

Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5720 MHz; Duty Cycle: 1:1  
Medium: 5 GHz Body Medium parameters used (interpolated):  
 $f = 5720$  MHz;  $\sigma = 6.067$  S/m;  $\epsilon_r = 46.929$ ;  $\rho = 1000$  kg/m<sup>3</sup>,  
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-24-2017; Ambient Temp: 20.8°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7308; ConvF(4.5, 4.5, 4.5); Calibrated: 8/16/2017,  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: IEEE 802.11a, Antenna 2, U-NII-2C, 20 MHz Bandwidth,  
Body SAR, Ch 144, 6 Mbps, Back Side**

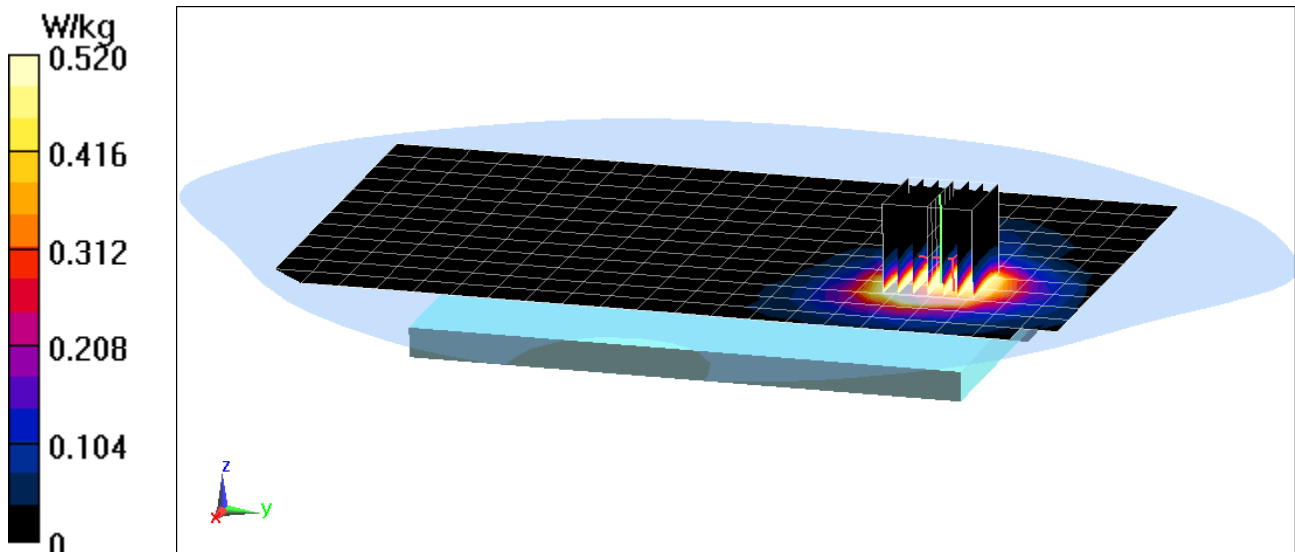
**Area Scan (13x11x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 10.75 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 2.94 W/kg

**SAR(1 g) = 0.673 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 5ED58**

Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5825 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5825 \text{ MHz}$ ;  $\sigma = 6.206 \text{ S/m}$ ;  $\epsilon_r = 46.745$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-24-2017; Ambient Temp: 20.8°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7308; ConvF(4.5, 4.5, 4.5); Calibrated: 8/16/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

**Mode: IEEE 802.11a, Antenna 2, UNII-3, 20 MHz Bandwidth,  
Body SAR, Ch 165, 6 Mbps, Back Side**

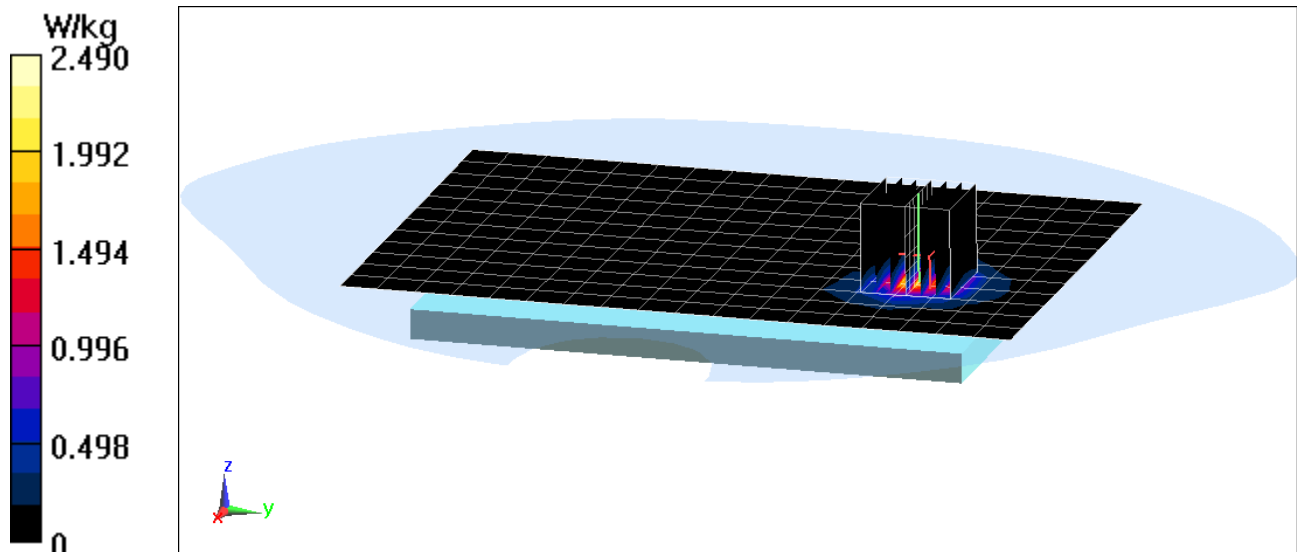
**Area Scan (13x19x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 12.84 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 4.84 W/kg

**SAR(1 g) = 0.955 W/kg**



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 5AEE5**

Communication System: UID 0, Bluetooth; Frequency: 2402 MHz; Duty Cycle: 1:1.294

Medium: 2450 Body Medium parameters used (interpolated):

$f = 2402$  MHz;  $\sigma = 1.977$  S/m;  $\epsilon_r = 53.546$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-23-2017; Ambient Temp: 21.7°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3213; ConvF(4.53, 4.53, 4.53); Calibrated: 2/10/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/9/2017

Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: Bluetooth, Body SAR, Ch 0, 1 Mbps, Back Side**

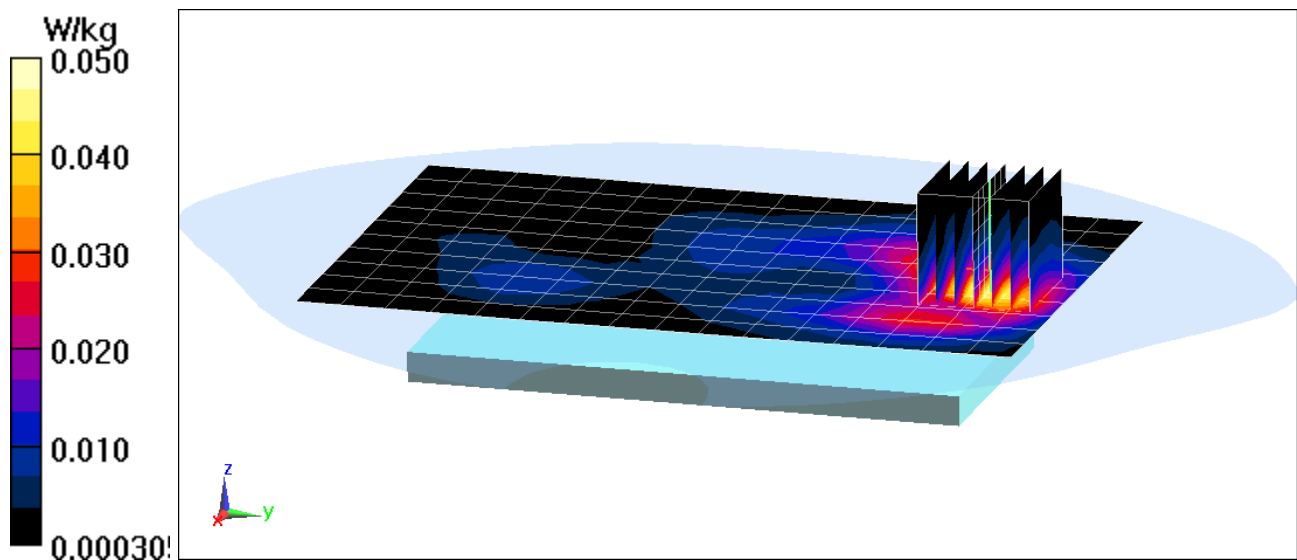
**Area Scan (11x17x1):** Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 4.846 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.0740 W/kg

**SAR(1 g) = 0.041 W/kg**





# PCTEST ENGINEERING LABORATORY, INC.

**DUT: A3LSMG960U; Type: Portable Handset; Serial: 5AEE5**

Communication System: UID 0, Bluetooth; Frequency: 2402 MHz; Duty Cycle: 1:1.294

Medium: 2450 Body Medium parameters used (interpolated):

$f = 2402$  MHz;  $\sigma = 1.977$  S/m;  $\epsilon_r = 53.546$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-23-2017; Ambient Temp: 21.7°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3213; ConvF(4.53, 4.53, 4.53); Calibrated: 2/10/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/9/2017

Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

**Mode: Bluetooth, Body SAR, Ch 0, 1 Mbps, Top Edge**

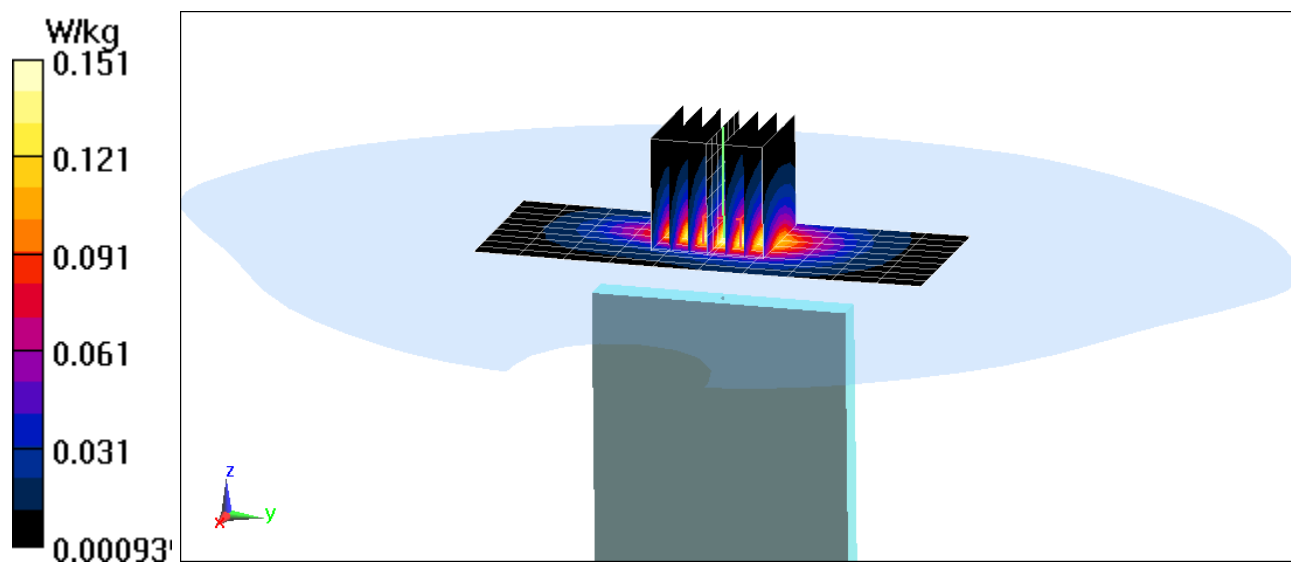
**Area Scan (10x11x1):** Measurement grid: dx=5mm, dy=12mm

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

Reference Value = 8.359 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.224 W/kg

**SAR(1 g) = 0.119 W/kg**



## APPENDIX B: SYSTEM VERIFICATION

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 750 MHz; Type: D750V3; Serial: 1161**

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: 750 Head Medium parameters used (interpolated):

$f = 750 \text{ MHz}$ ;  $\sigma = 0.887 \text{ S/m}$ ;  $\epsilon_r = 42.46$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-13-2017; Ambient Temp: 21.9°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3332; ConvF(6.81, 6.81, 6.81); Calibrated: 8/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 8/9/2017

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

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 750 MHz System Verification at 23.0 dBm (200 mW)

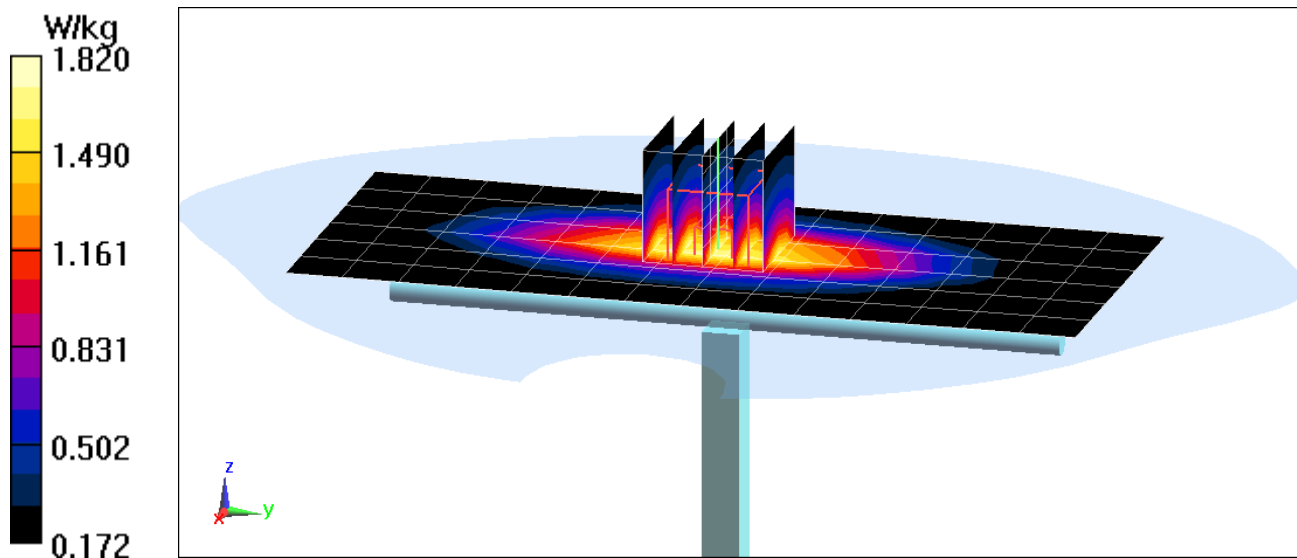
**Area Scan (7x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 2.26 W/kg

**SAR(1 g) = 1.56 W/kg**

Deviation(1 g) = -4.53%



# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: 750 Head Medium parameters used (interpolated):

$f = 750 \text{ MHz}$ ;  $\sigma = 0.889 \text{ S/m}$ ;  $\epsilon_r = 42.044$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-20-2017; Ambient Temp: 21.6°C; Tissue Temp: 20.2°C

Probe: ES3DV3 - SN3318; ConvF(6.72, 6.72, 6.72); Calibrated: 9/22/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

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

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 750 MHz System Verification at 23.0 dBm (200 mW)

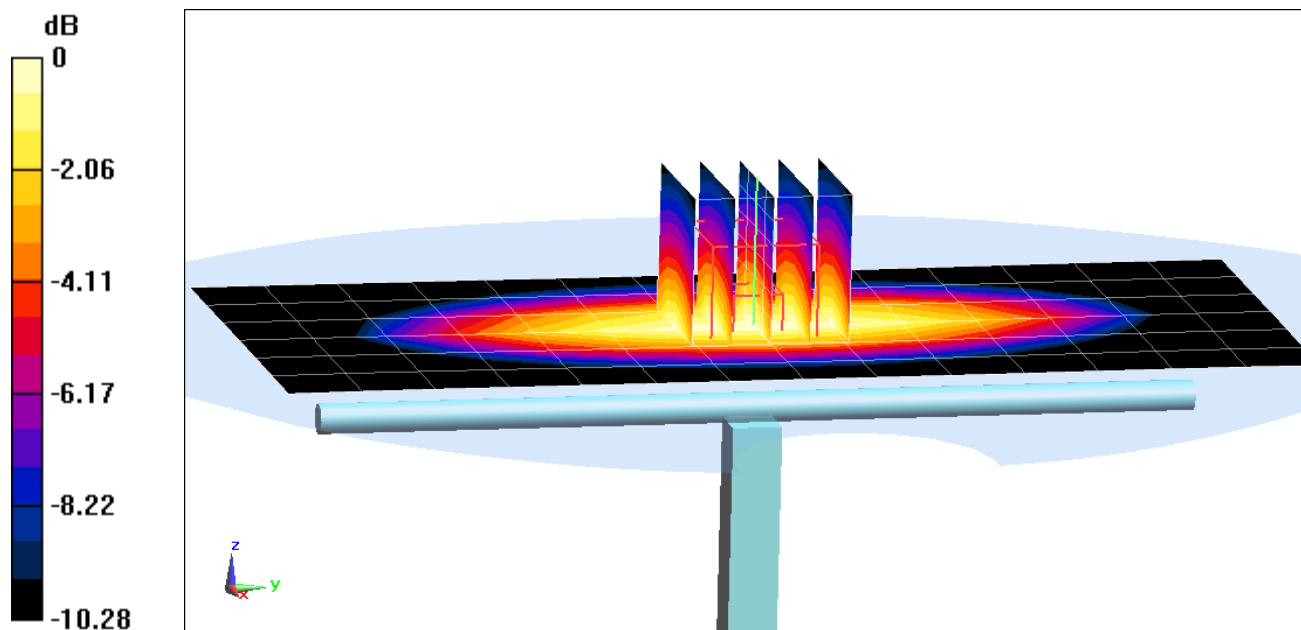
**Area Scan (7x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 2.45 W/kg

**SAR(1 g) = 1.65 W/kg**

Deviation(1 g) = -1.43%



0 dB = 1.92 W/kg = 2.83 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d133**

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$ ;  $\sigma = 0.903 \text{ S/m}$ ;  $\epsilon_r = 41.568$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-08-2017; Ambient Temp: 22.9°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7406; ConvF(9.97, 9.97, 9.97); Calibrated: 4/18/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1407; Calibrated: 4/11/2017

Phantom: SAM Right; Type: QD000P40CD; Serial: TP:7535

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

## 835 MHz System Verification at 23.0 dBm (200 mW)

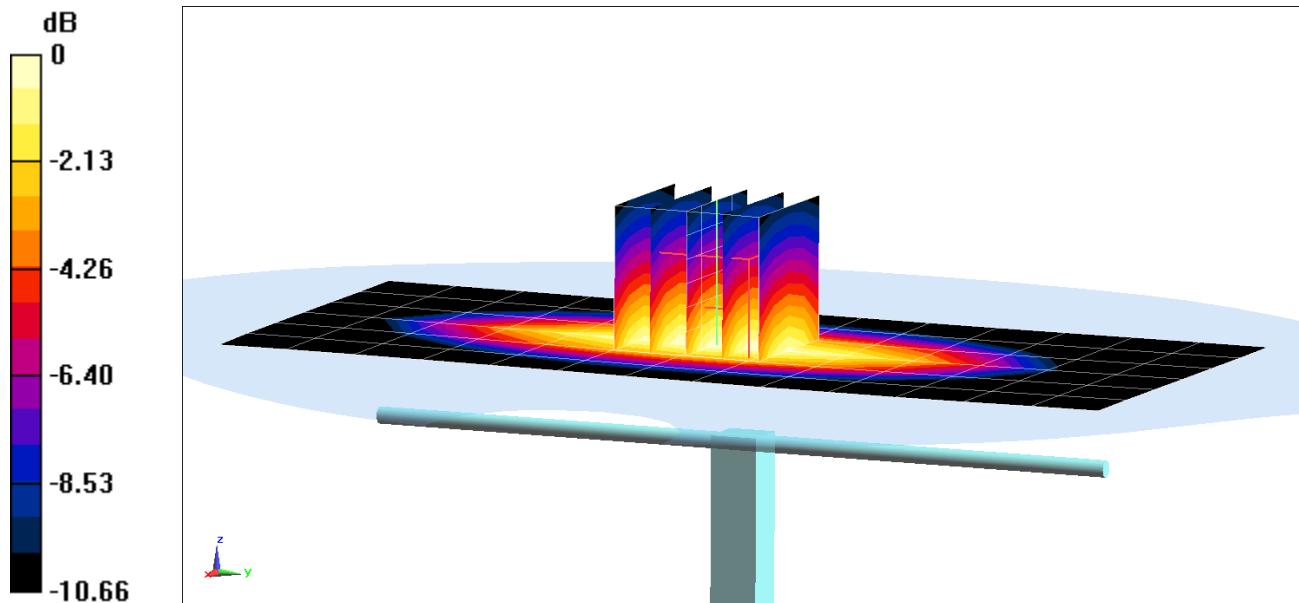
**Area Scan (7x14x1):** Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 2.91 W/kg

**SAR(1 g) = 1.95 W/kg**

Deviation(1 g) = 2.42%



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

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d133**

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$ ;  $\sigma = 0.902 \text{ S/m}$ ;  $\epsilon_r = 40.759$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-12-2017; Ambient Temp: 21.5°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7410; ConvF(10.08, 10.08, 10.08); Calibrated: 7/17/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1322; Calibrated: 7/13/2017

Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

## 835 MHz System Verification at 23.0 dBm (200 mW)

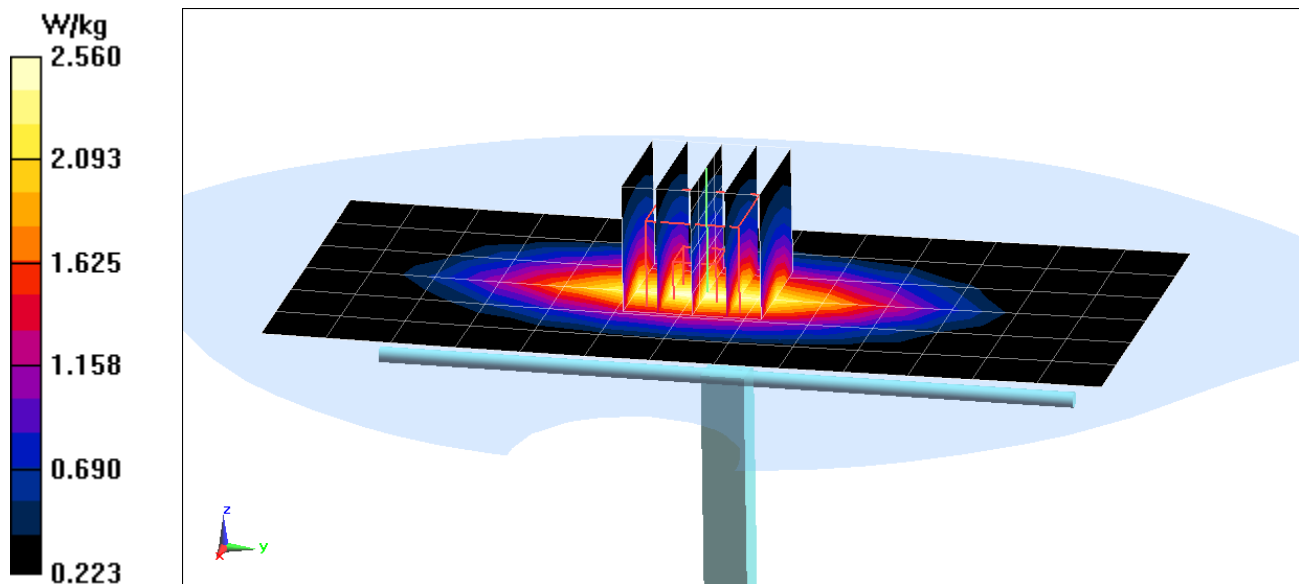
**Area Scan (7x14x1):** Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 2.85 W/kg

**SAR(1 g) = 1.94 W/kg**

Deviation(1 g) = 1.89%



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1148**

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Head Medium parameters used:

$f = 1750 \text{ MHz}$ ;  $\sigma = 1.407 \text{ S/m}$ ;  $\epsilon_r = 38.893$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-06-2017; Ambient Temp: 22.4°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3319; ConvF(5.38, 5.38, 5.38); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1368; Calibrated: 3/8/2017

Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

## 1750 MHz System Verification at 20.0 dBm (100 mW)

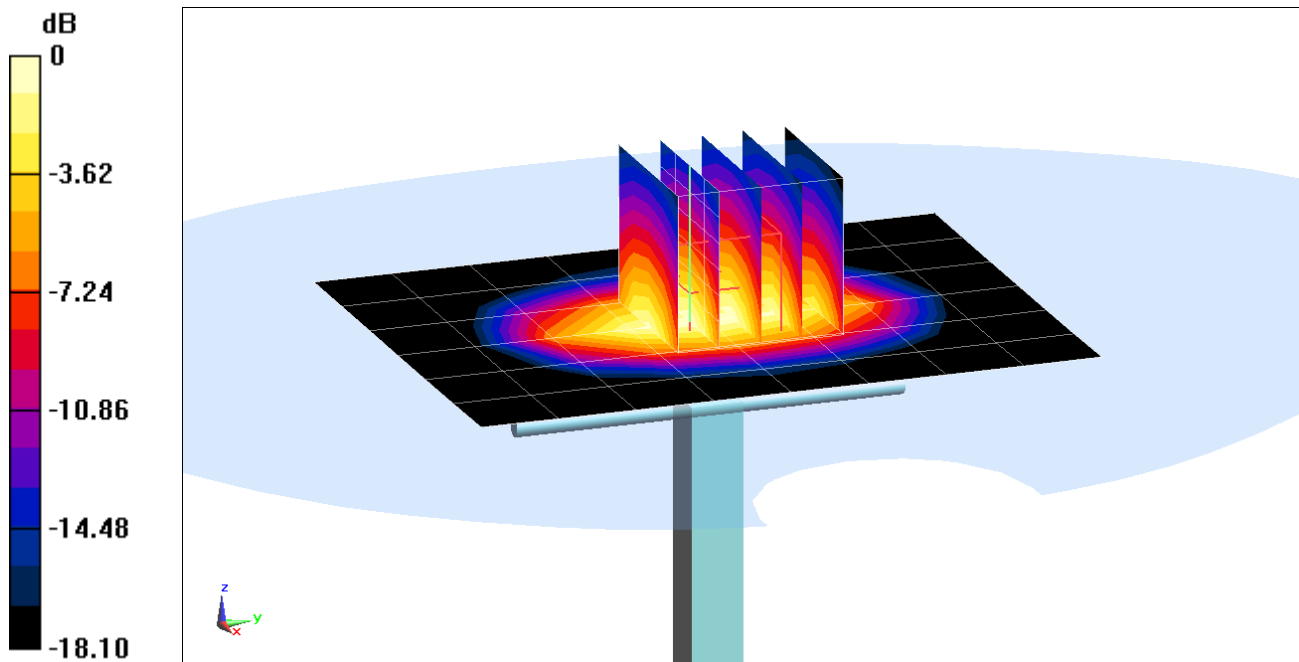
**Area Scan (7x9x1):** Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 6.48 W/kg

**SAR(1 g) = 3.58 W/kg**

Deviation(1 g) = -1.65%



0 dB = 4.44 W/kg = 6.47 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d149**

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Head Medium parameters used (interpolated):

$f = 1900$  MHz;  $\sigma = 1.431$  S/m;  $\epsilon_r = 39.928$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-08-2017; Ambient Temp: 21.7°C; Tissue Temp: 21.2°C

Probe: ES3DV3 - SN3332; ConvF(5.33, 5.33, 5.33); Calibrated: 8/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1323; Calibrated: 8/9/2017

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

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

## 1900 MHz System Verification at 20.0 dBm (100 mW)

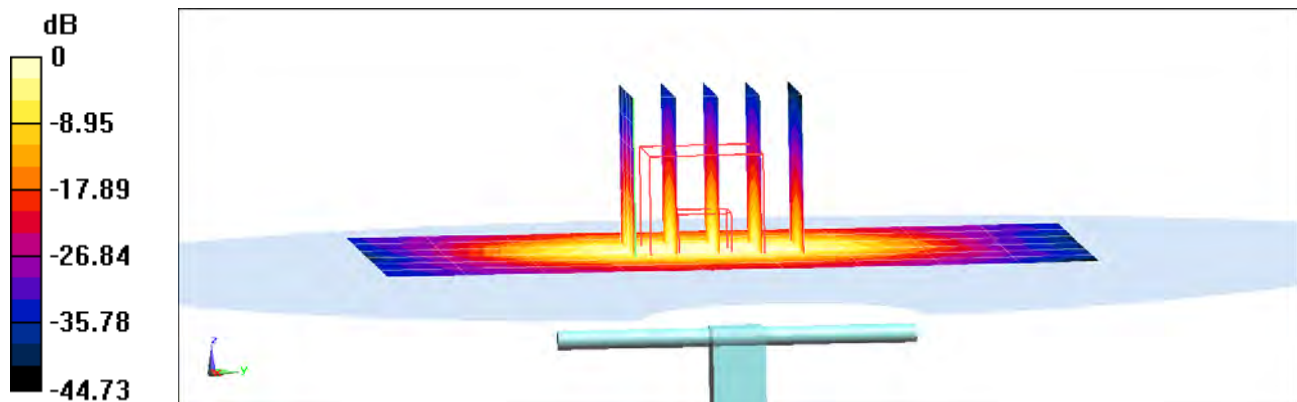
**Area Scan (7x10x1):** Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 7.66 W/kg

**SAR(1 g) = 4.22 W/kg**

Deviation(1 g) = 6.57%



0 dB = 4.48 W/kg = 6.51 dBW/kg



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 2300 MHz; Type: D2300V3; Serial: 1073**

Communication System: UID 0, CW; Frequency: 2300 MHz; Duty Cycle: 1:1

Medium: 2450 Head Medium parameters used:

$f = 2300$  MHz;  $\sigma = 1.719$  S/m;  $\epsilon_r = 38.713$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-07-2017; Ambient Temp: 24.3°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3319; ConvF(4.86, 4.86, 4.86); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1368; Calibrated: 3/8/2017

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

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 2300 MHz System Verification at 20.0 dBm (100 mW)

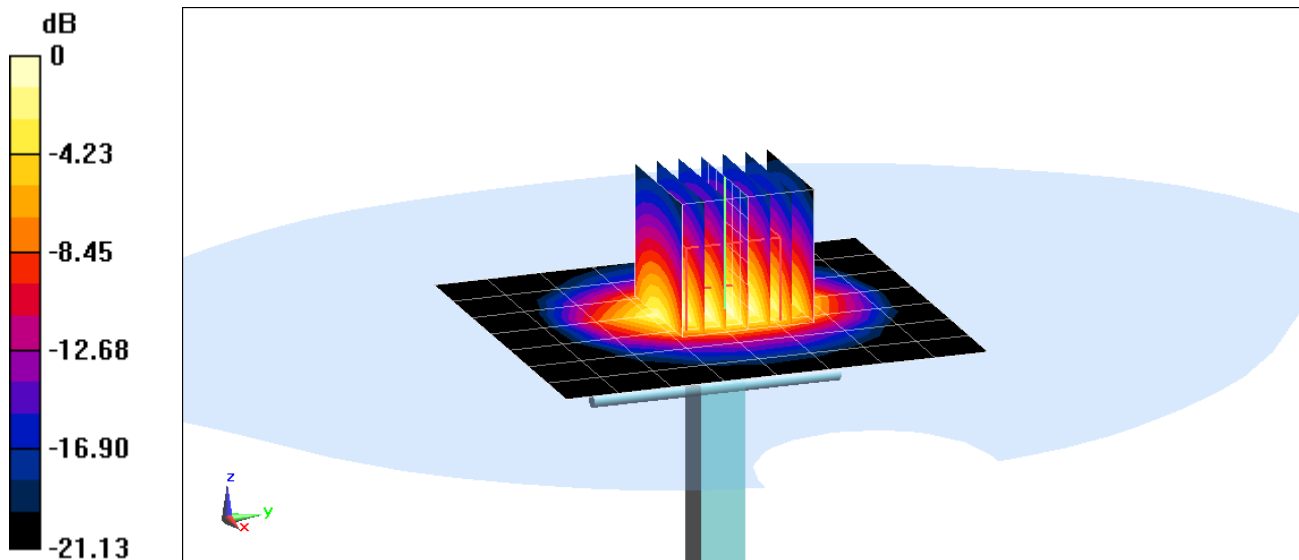
**Area Scan (8x9x1):** Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 10.3 W/kg

**SAR(1 g) = 5.20 W/kg**

Deviation(1 g) = 7.00%



0 dB = 6.78 W/kg = 8.31 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Medium parameters used:

$f = 2450 \text{ MHz}$ ;  $\sigma = 1.872 \text{ S/m}$ ;  $\epsilon_r = 39.47$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-21-2017; Ambient Temp: 23.1°C; Tissue Temp: 22.1°C

Probe: ES3DV3 - SN3319; ConvF(4.6, 4.6, 4.6); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1368; Calibrated: 3/8/2017

Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 2450 MHz System Verification at 20.0 dBm (100 mW)

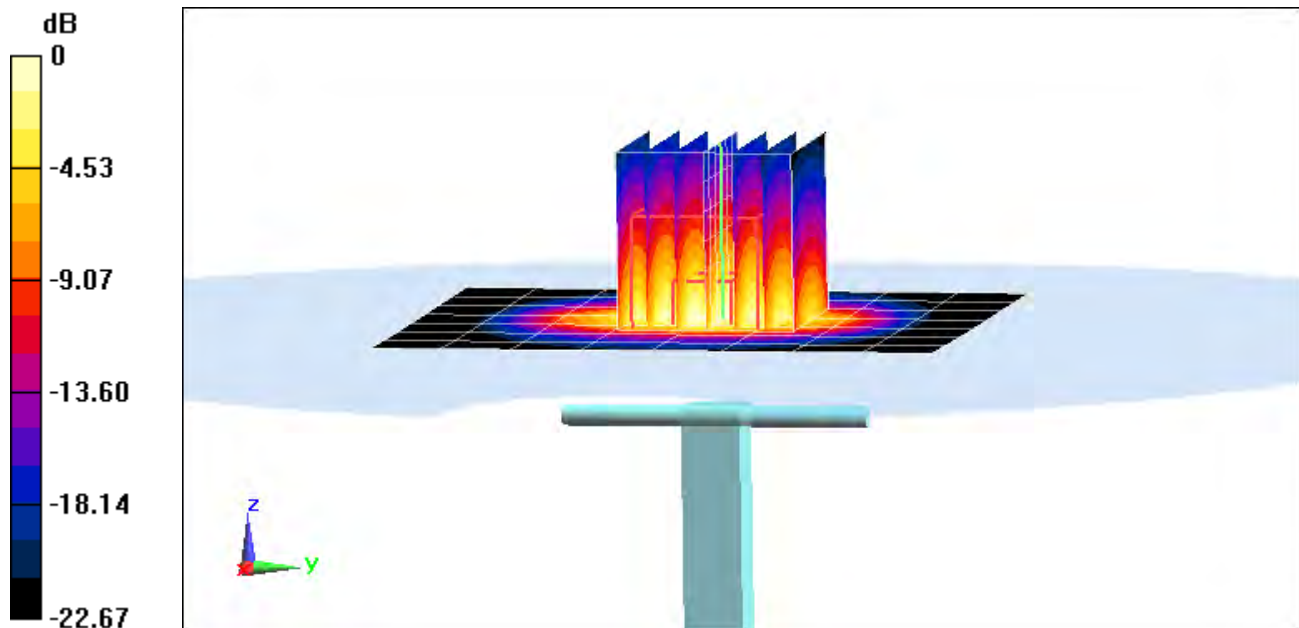
**Area Scan (8x9x1):** Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 11.0 W/kg

**SAR(1 g) = 5.26 W/kg**

Deviation(1 g) = -0.38%



0 dB = 6.88 W/kg = 8.38 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: 2450 Head Medium parameters used:

$f = 2600$  MHz;  $\sigma = 2.053$  S/m;  $\epsilon_r = 40.115$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-15-2017; Ambient Temp: 22.5°C; Tissue Temp: 21.7°C

Probe: ES3DV3 - SN3319; ConvF(4.41, 4.41, 4.41); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1368; Calibrated: 3/8/2017

Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

## 2600 MHz System Verification at 20.0 dBm (100 mW)

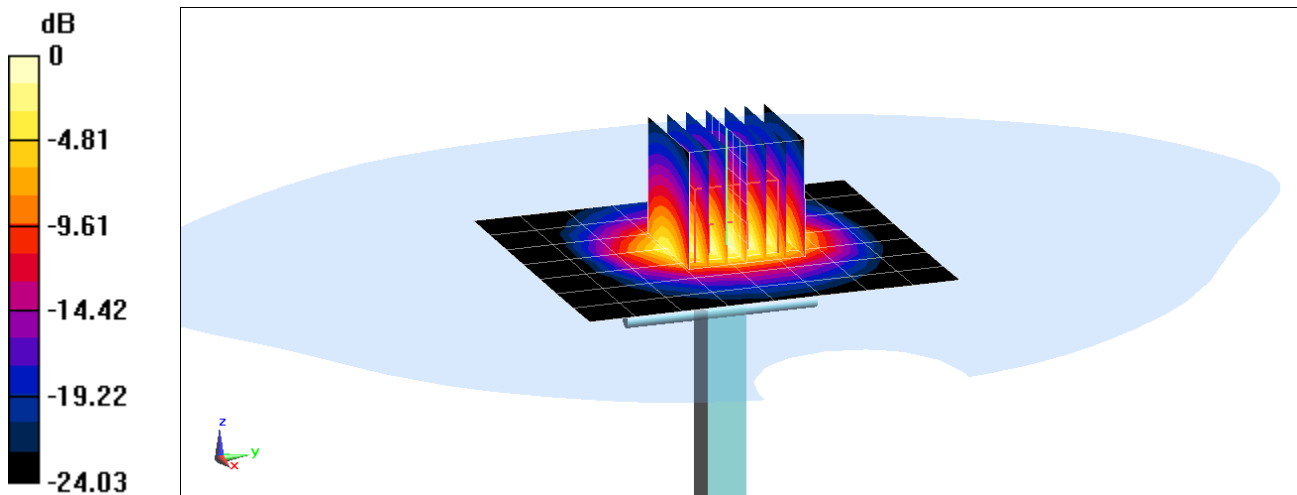
**Area Scan (8x9x1):** Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 12.8 W/kg

**SAR(1 g) = 5.90 W/kg**

Deviation(1 g) = 4.61%



0 dB = 7.92 W/kg = 8.99 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057**

Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1

Medium: 5GHz Medium parameters used (interpolated):  
 $f = 5250 \text{ MHz}$ ;  $\sigma = 4.525 \text{ S/m}$ ;  $\epsilon_r = 36.211$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-24-2017; Ambient Temp: 21.7°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3914; ConvF(5.49, 5.49, 5.49); Calibrated: 2/13/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/9/2017

Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 5250 MHz System Verification at 17.0 dBm (50 mW)

**Area Scan (7x7x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 17.5 W/kg

**SAR(1 g) = 4.07 W/kg**

Deviation(1 g) = -0.25%



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057**

Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: 5GHz Medium parameters used:

$f = 5600 \text{ MHz}$ ;  $\sigma = 4.885 \text{ S/m}$ ;  $\epsilon_r = 35.743$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-24-2017; Ambient Temp: 21.7°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3914; ConvF(4.94, 4.94, 4.94); Calibrated: 2/13/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/9/2017

Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 5600 MHz System Verification at 17.0 dBm (50 mW)

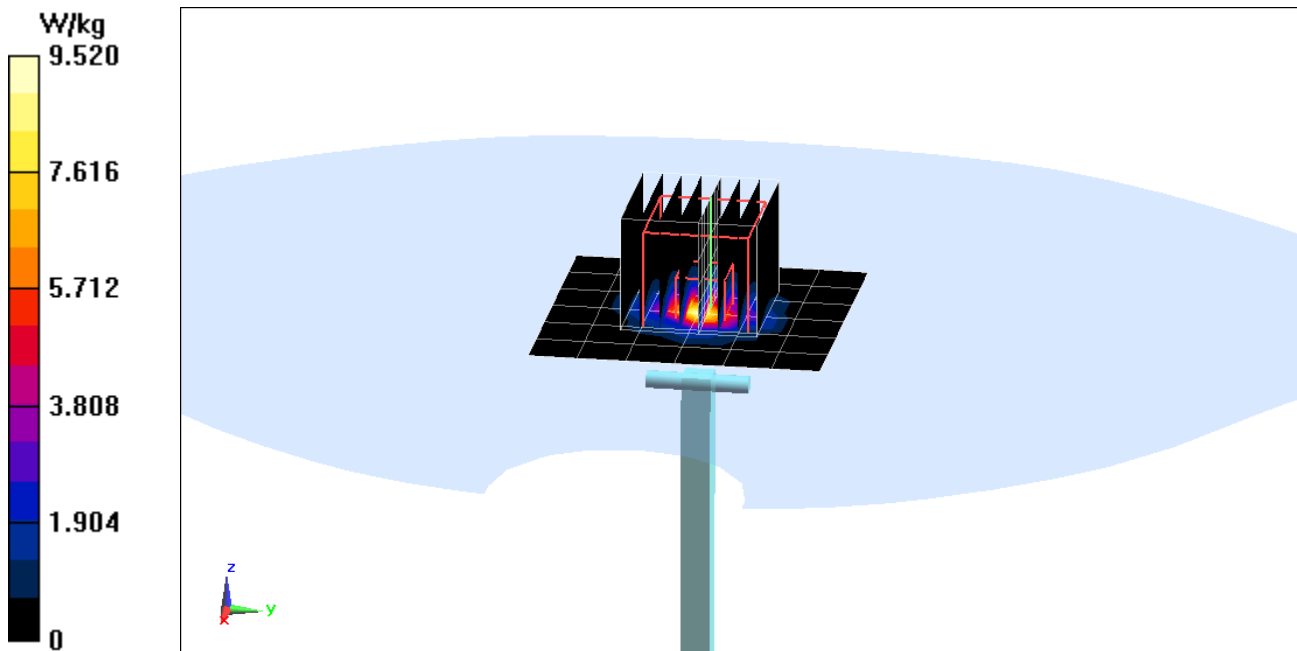
**Area Scan (7x7x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 17.1 W/kg

**SAR(1 g) = 3.93 W/kg**

Deviation(1 g) = -6.09%



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057**

Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1

Medium: 5GHz Medium parameters used (interpolated):  
 $f = 5750$  MHz;  $\sigma = 5.048$  S/m;  $\epsilon_r = 35.521$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-24-2017; Ambient Temp: 21.7°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3914; ConvF(4.91, 4.91, 4.91); Calibrated: 2/13/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/9/2017

Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

## 5750 MHz System Verification at 17.0 dBm (50 mW)

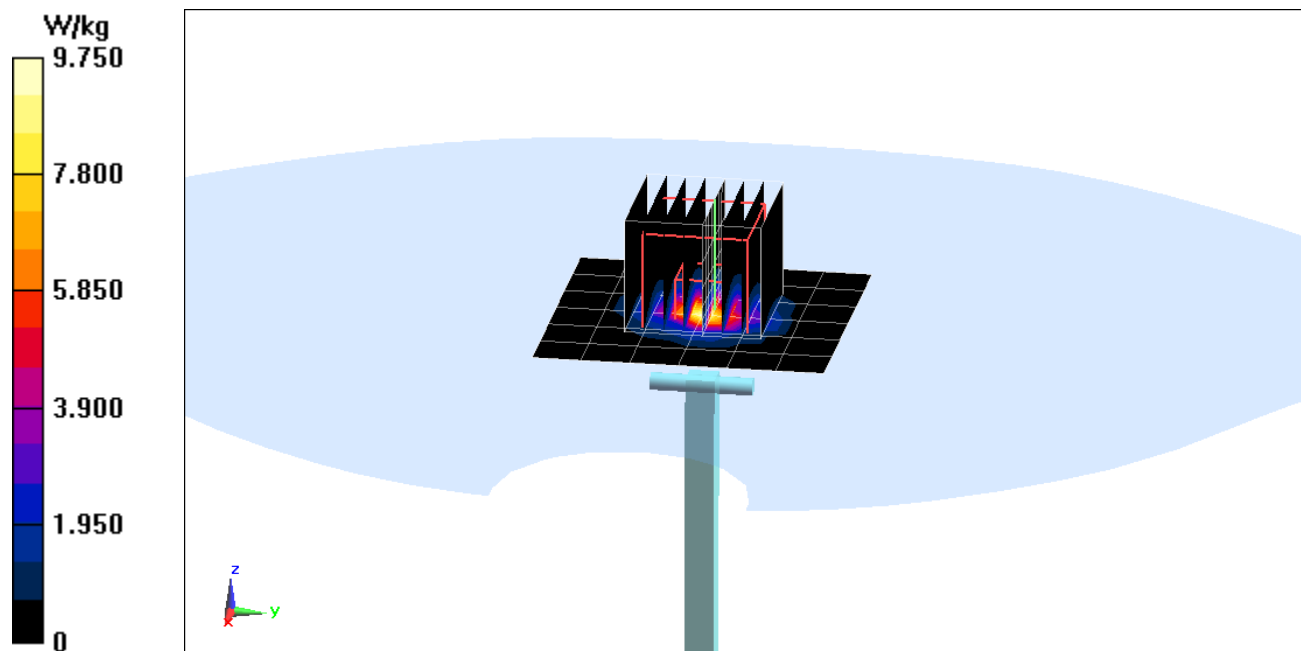
**Area Scan (7x7x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 18.2 W/kg

**SAR(1 g) = 4.02 W/kg**

Deviation(1 g) = 0.50%



# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: 750 Body Medium parameters used (interpolated):

$f = 750 \text{ MHz}$ ;  $\sigma = 0.961 \text{ S/m}$ ;  $\epsilon_r = 54.445$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-06-2017; Ambient Temp: 22.6°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3318; ConvF(6.46, 6.46, 6.46); Calibrated: 9/22/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

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

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 750 MHz System Verification at 23.0 dBm (200 mW)

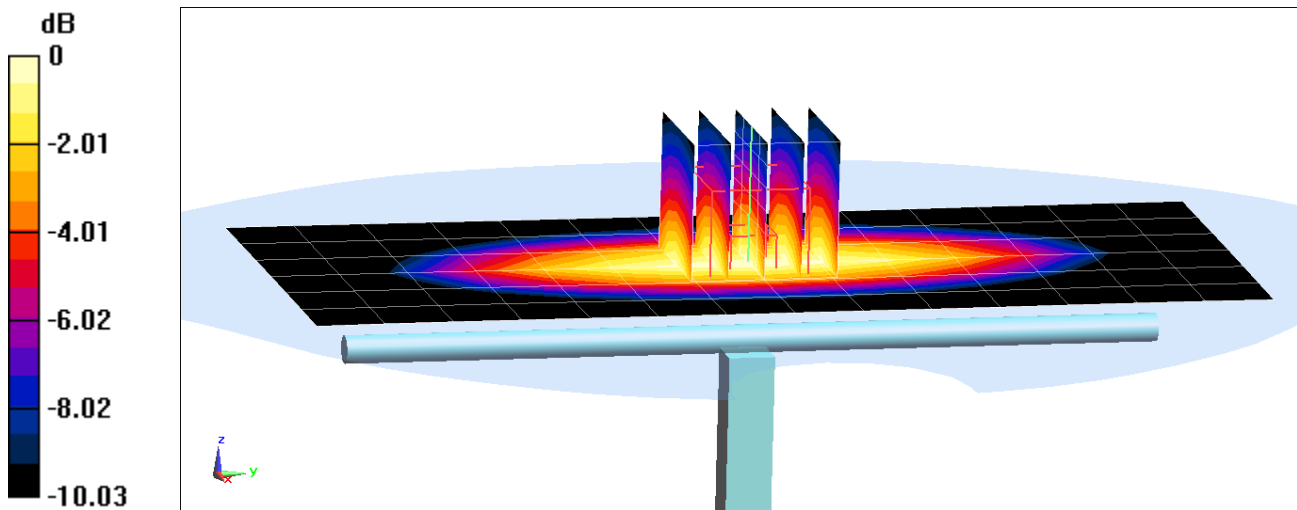
**Area Scan (7x15x1):** Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 2.59 W/kg

**SAR(1 g) = 1.76 W/kg**

Deviation(1 g) = 2.21%



0 dB = 2.06 W/kg = 3.14 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d132**

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used:

$f = 835 \text{ MHz}$ ;  $\sigma = 0.994 \text{ S/m}$ ;  $\epsilon_r = 53.062$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-06-2017; Ambient Temp: 22.4°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7406; ConvF(9.77, 9.77, 9.77); Calibrated: 4/18/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1407; Calibrated: 4/11/2017

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

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 835 MHz System Verification at 23.0 dBm (200 mW)

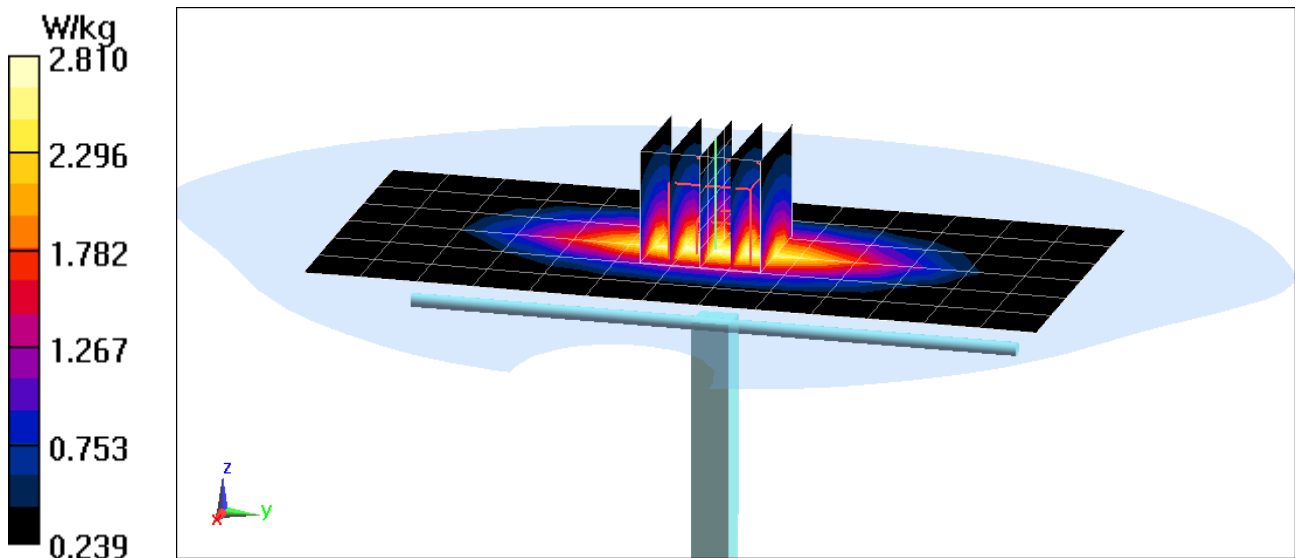
**Area Scan (7x14x1):** Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 3.18 W/kg

**SAR(1 g) = 2.1 W/kg**

Deviation(1 g) = 7.14%





# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d133**

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used:

$f = 835 \text{ MHz}$ ;  $\sigma = 0.974 \text{ S/m}$ ;  $\epsilon_r = 52.846$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-15-2017; Ambient Temp: 24.1°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3209; ConvF(6.36, 6.36, 6.36); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1415; Calibrated: 3/13/2017

Phantom: SAM Right; Type: QD000P40CD; Serial: 1800

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 835 MHz System Verification at 23.0 dBm (200 mW)

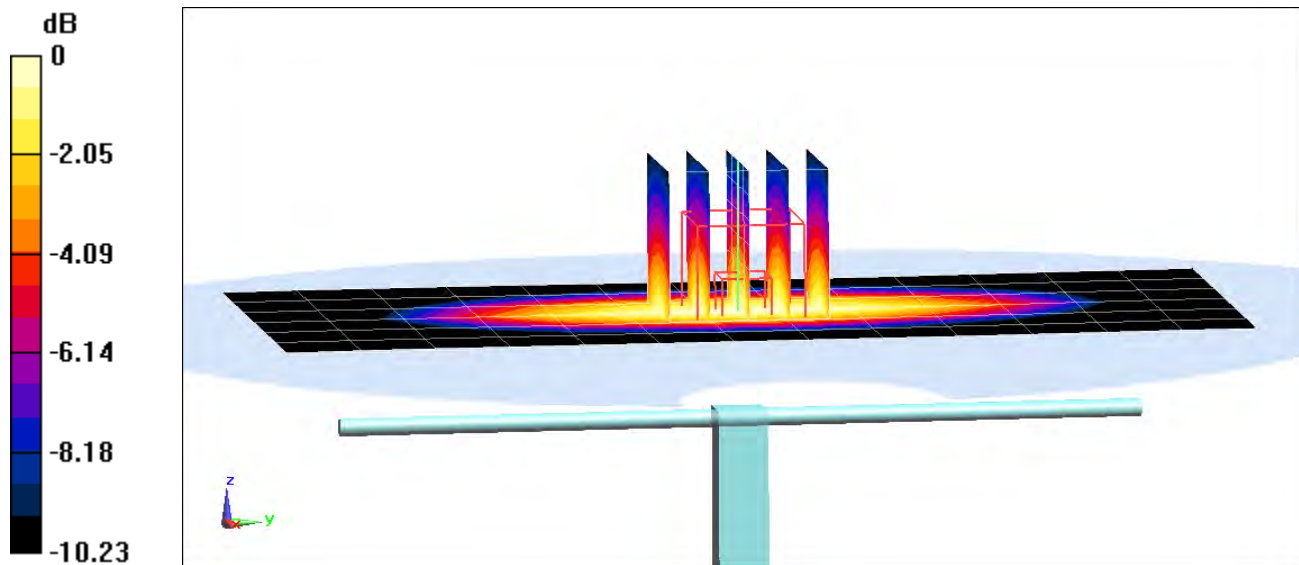
**Area Scan (7x14x1):** Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 2.82 W/kg

**SAR(1 g) = 1.96 W/kg**

Deviation(1 g) = 4.14%



0 dB = 2.26 W/kg = 3.54 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Body Medium parameters used:

$f = 1750 \text{ MHz}$ ;  $\sigma = 1.505 \text{ S/m}$ ;  $\epsilon_r = 51.635$ ;  $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-03-2017; Ambient Temp: 21.9°C; Tissue Temp: 21.7°C

Probe: ES3DV3 - SN3209; ConvF(5.13, 5.13, 5.13); Calibrated: 3/14/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1415; Calibrated: 3/13/2017

Phantom: SAM Left; Type: QD000P40CD; Serial: 1692

Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

## 1750 MHz System Verification at 20.0 dBm (100 mW)

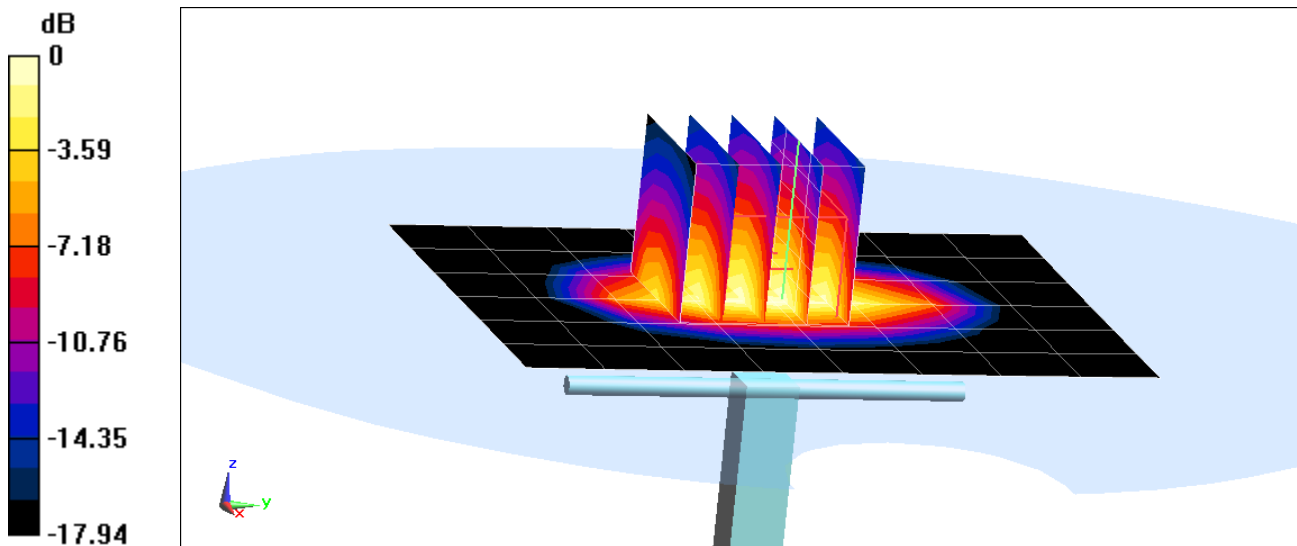
**Area Scan (7x9x1):** Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 6.88 W/kg

**SAR(1 g) = 3.93 W/kg**

Deviation(1 g) = 7.67%



0 dB = 4.89 W/kg = 6.89 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1  
Medium: 1900 Body Medium parameters used (interpolated):  
 $f = 1900$  MHz;  $\sigma = 1.568$  S/m;  $\epsilon_r = 52.683$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-06-2017; Ambient Temp: 23.8°C; Tissue Temp: 21.4°C

Probe: EX3DV4 - SN7410; ConvF(7.98, 7.98, 7.98); Calibrated: 7/17/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1322; Calibrated: 7/13/2017

Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759  
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 1900 MHz System Verification at 20.0 dBm (100 mW)

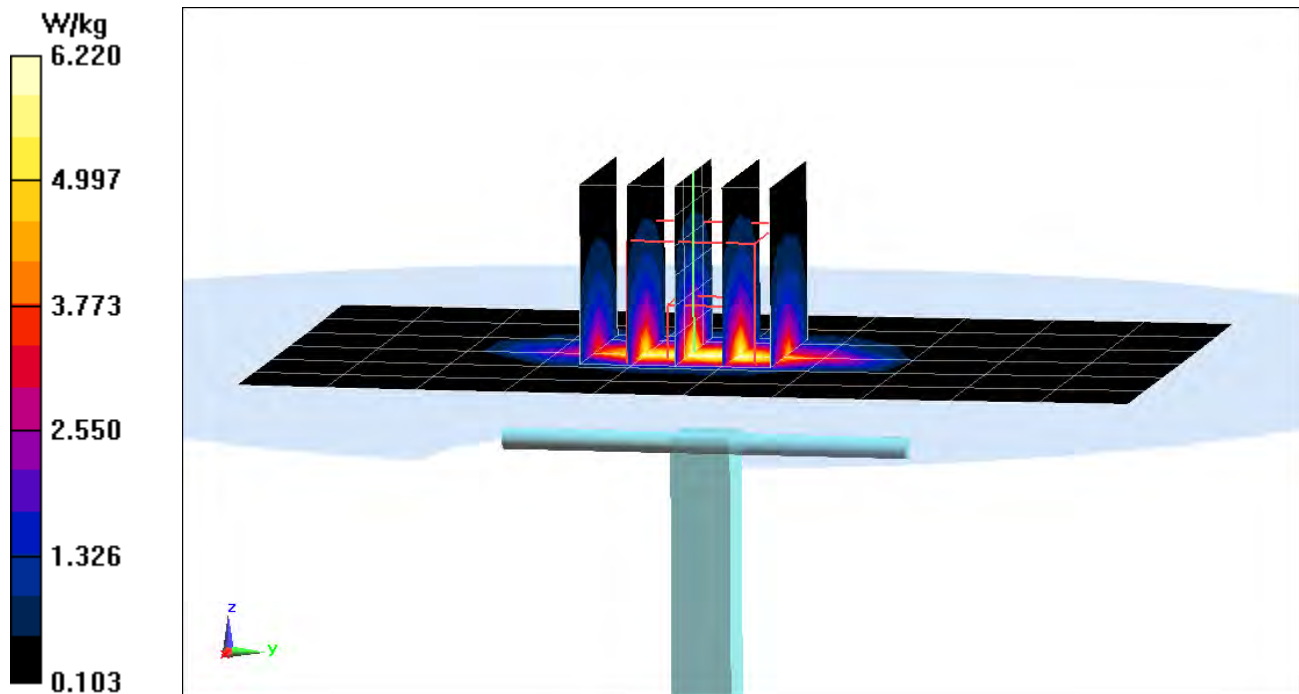
**Area Scan (7x11x1):** Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 7.29 W/kg

**SAR(1 g) = 4.13 W/kg**

Deviation(1 g) = 0.98%



# PCTEST ENGINEERING LABORATORY, INC.

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

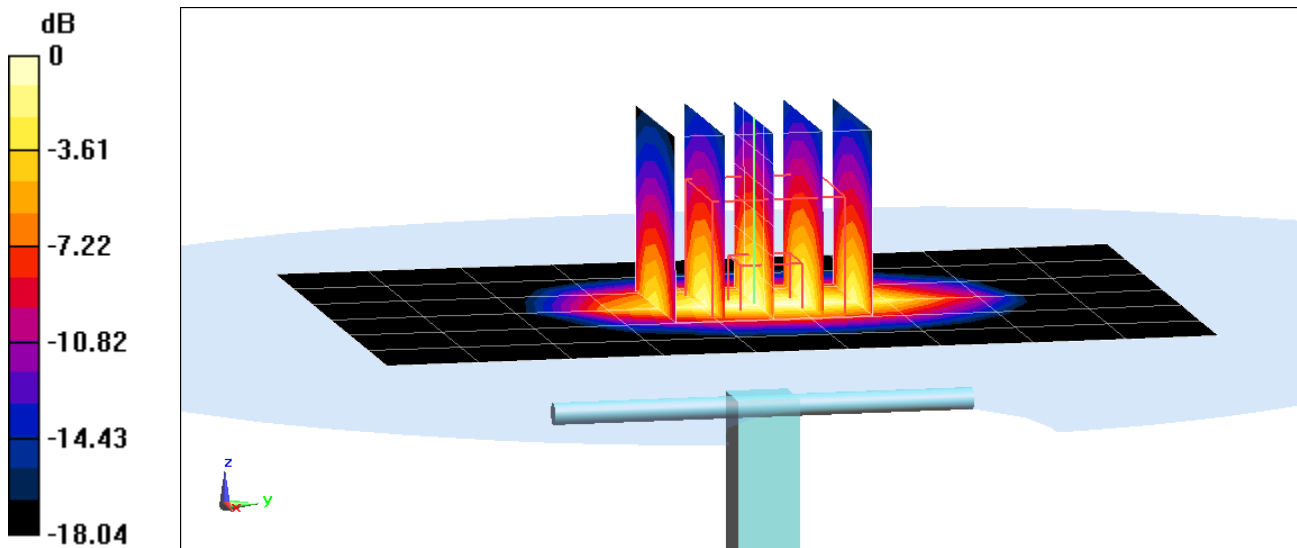
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1  
Medium: 1900 Body Medium parameters used (interpolated):  
 $f = 1900$  MHz;  $\sigma = 1.572$  S/m;  $\epsilon_r = 52.994$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-08-2017; Ambient Temp: 23.7°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3209; ConvF(4.93, 4.93, 4.93); Calibrated: 3/14/2017;  
Sensor-Surface: 3mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1415; Calibrated: 3/13/2017  
Phantom: SAM Right; Type: QD000P40CD; Serial: 1800  
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 1900 MHz System Verification at 20.0 dBm (100 mW)

**Area Scan (7x10x1):** Measurement grid: dx=15mm, dy=15mm  
**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
Peak SAR (extrapolated) = 7.19 W/kg  
**SAR(1 g) = 4.05 W/kg**  
Deviation(1 g) = -0.98%



0 dB = 5.10 W/kg = 7.08 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2300 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used:

$f = 2300$  MHz;  $\sigma = 1.81$  S/m;  $\epsilon_r = 52.528$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-06-2017; Ambient Temp: 22.0°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3213; ConvF(4.69, 4.69, 4.69); Calibrated: 2/10/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/9/2017

Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 2300 MHz System Verification at 20.0 dBm (100 mW)

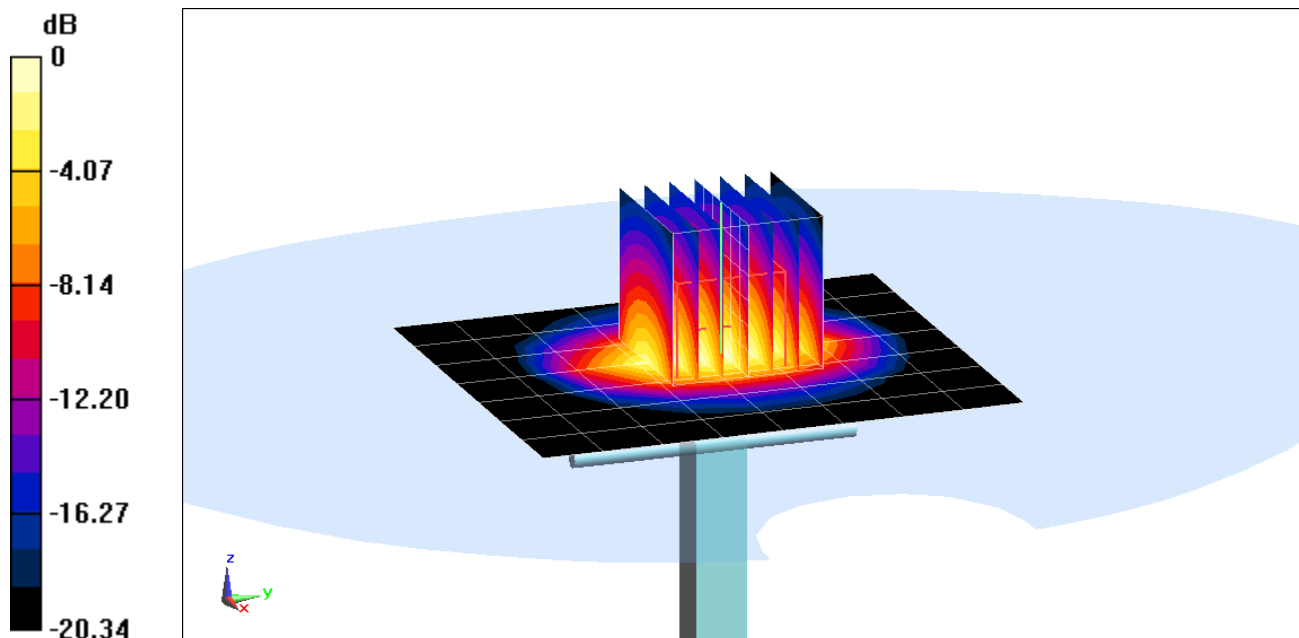
**Area Scan (8x9x1):** Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 8.99 W/kg

**SAR(1 g) = 4.57 W/kg**

Deviation(1 g) = -4.99%



0 dB = 5.94 W/kg = 7.74 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 719**

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used:

$f = 2450$  MHz;  $\sigma = 2.044$  S/m;  $\epsilon_r = 53.38$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-23-2017; Ambient Temp: 21.7°C; Tissue Temp: 21.0°C

Probe: ES3DV3 - SN3213; ConvF(4.53, 4.53, 4.53); Calibrated: 2/10/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/9/2017

Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 2450 MHz System Verification at 20.0 dBm (100 mW)

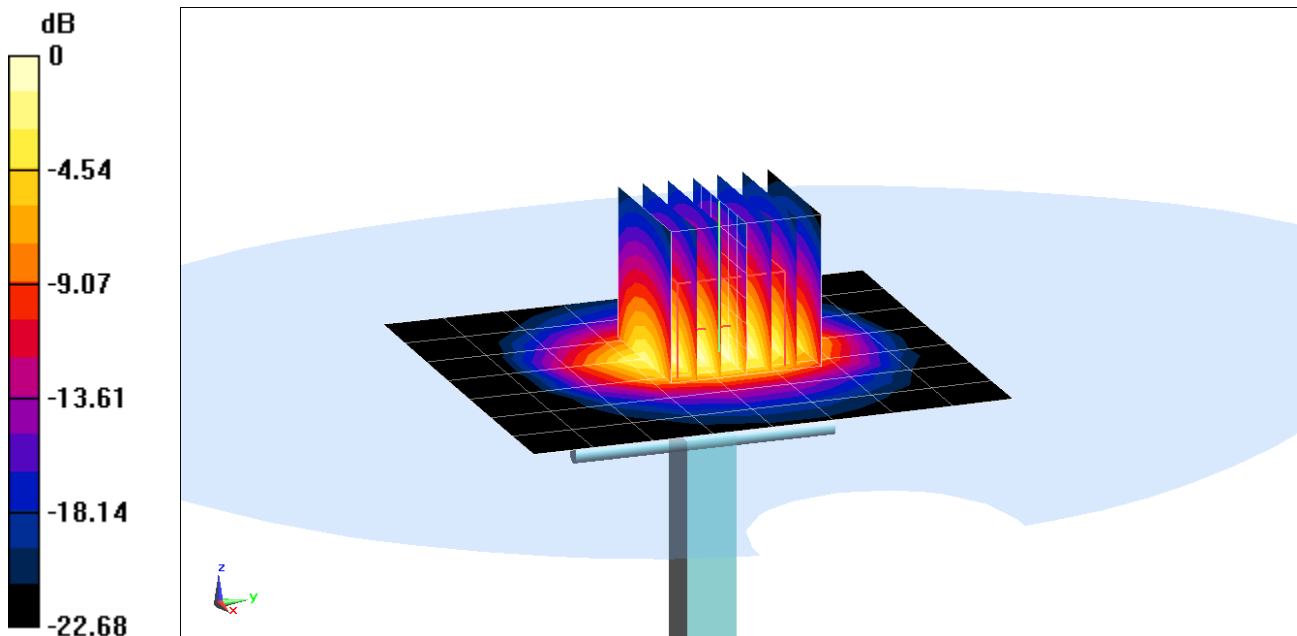
**Area Scan (8x9x1):** Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 11.1 W/kg

**SAR(1 g) = 5.26 W/kg**

Deviation(1 g) = 4.99%



# PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used:

$f = 2600$  MHz;  $\sigma = 2.215$  S/m;  $\epsilon_r = 51.438$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-15-2017; Ambient Temp: 23.3°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3213; ConvF(4.32, 4.32, 4.32); Calibrated: 2/10/2017;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/9/2017

Phantom: SAM Front; Type: QD000P40CD; Serial: TP:1758

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 2600 MHz System Verification at 20.0 dBm (100 mW)

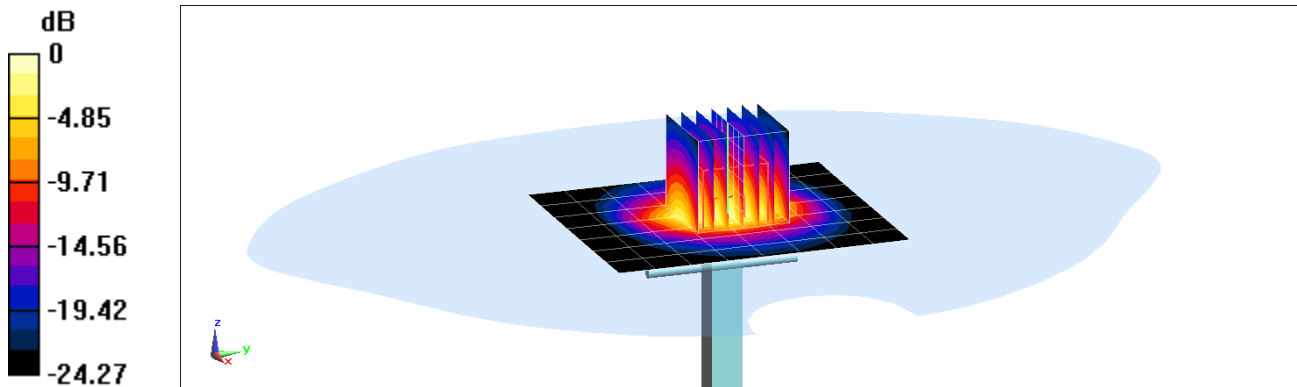
**Area Scan (8x9x1):** Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 12.9 W/kg

**SAR(1 g) = 5.81 W/kg**

Deviation(1 g) = 6.22%



0 dB = 7.78 W/kg = 8.91 dBW/kg

# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057**

Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1  
Medium: 5 GHz Body Medium parameters used (interpolated):  
 $f = 5250$  MHz;  $\sigma = 5.421$  S/m;  $\epsilon_r = 47.703$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-24-2017; Ambient Temp: 20.8°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7308; ConvF(4.84, 4.84, 4.84); Calibrated: 8/16/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687  
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.10 (7417)

## 5250 MHz System Verification at 17.0 dBm (50 mW)

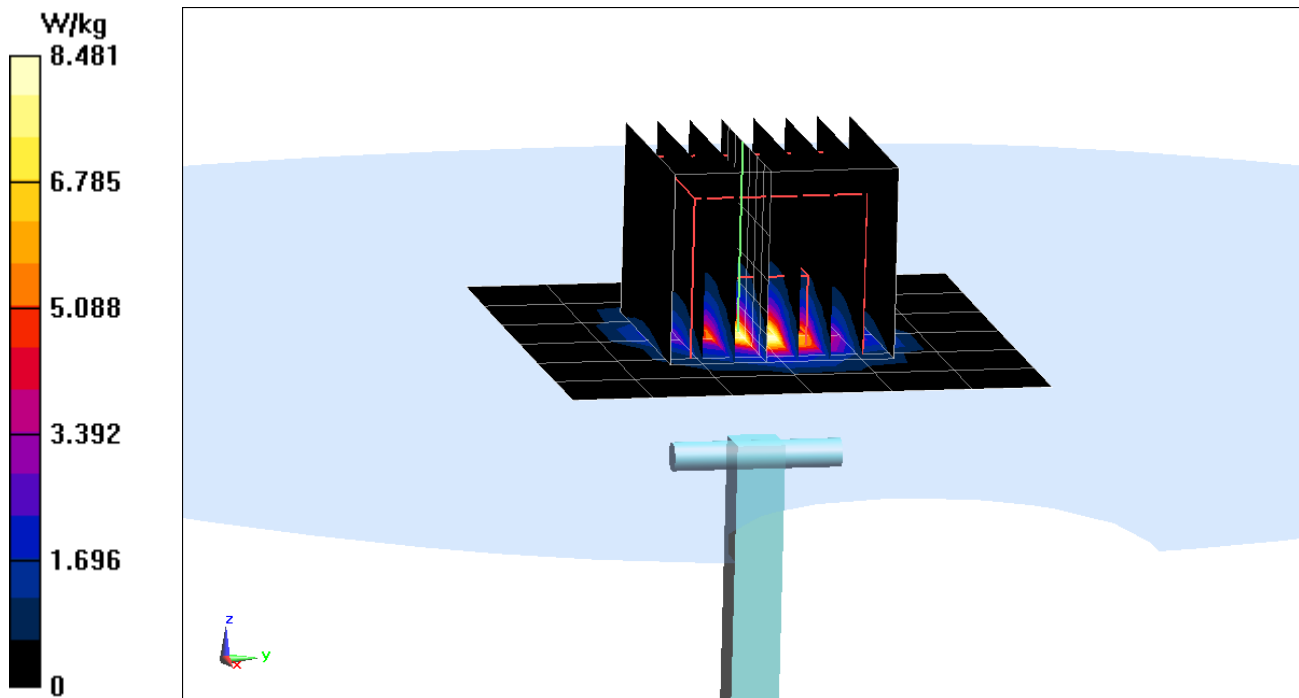
**Area Scan (7x7x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 16.3 W/kg

**SAR(1 g) = 3.52 W/kg**

Deviation(1 g) = -5.63%





# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057**

Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body Medium parameters used:

$f = 5600$  MHz;  $\sigma = 5.899$  S/m;  $\epsilon_r = 47.142$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-24-2017; Ambient Temp: 20.8°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7308; ConvF(4.23, 4.23, 4.23); Calibrated: 8/16/2017;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687

Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 5600 MHz System Verification at 17.0 dBm (50 mW)

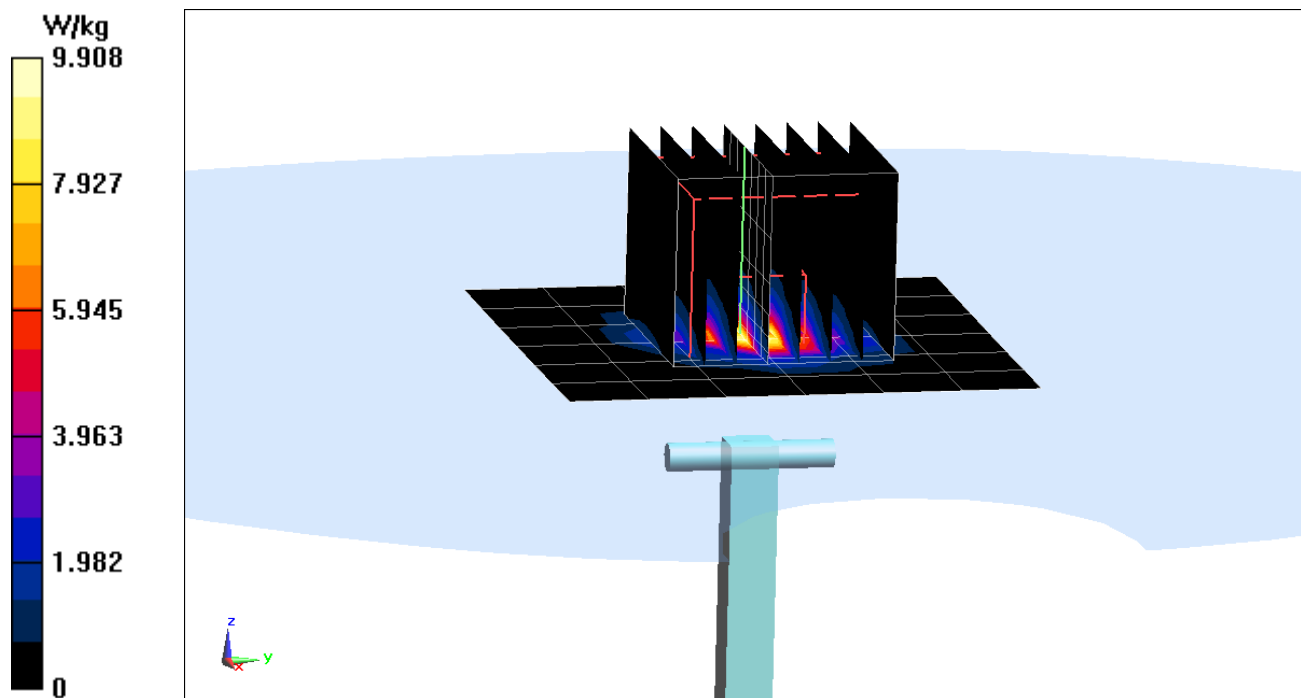
**Area Scan (7x7x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 19.0 W/kg

**SAR(1 g) = 3.82 W/kg**

Deviation(1 g) = -3.17%



# PCTEST ENGINEERING LABORATORY, INC.

**DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1057**

Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1  
Medium: 5 GHz Body Medium parameters used (interpolated):  
 $f = 5750$  MHz;  $\sigma = 6.105$  S/m;  $\epsilon_r = 46.896$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-24-2017; Ambient Temp: 20.8°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7308; ConvF(4.5, 4.5, 4.5); Calibrated: 8/16/2017;  
Sensor-Surface: 1.4mm (Mechanical Surface Detection)  
Electronics: DAE4 Sn1334; Calibrated: 6/14/2017

Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687  
Measurement SW: DASY52, Version 52.10;SEMCAD X Version 14.6.10 (7417)

## 5750 MHz System Verification at 17.0 dBm (50 mW)

**Area Scan (7x7x1):** Measurement grid: dx=10mm, dy=10mm

**Zoom Scan (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 18.5 W/kg

**SAR(1 g) = 3.58 W/kg**

Deviation(1 g) = -5.17%

