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SAR EVALUATION REPORT

Applicant Name:
LG Electronics U.S.A., Inc.
1000 Sylvan Avenue
Englewood Cliffs, NJ 07632
United States

Date of Testing:
11/28/18 - 01/31/19
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
1M1811230205-01-R3.ZNF

FCC ID: **ZNFV450PM**

APPLICANT: **LG ELECTRONICS U.S.A., INC.**

DUT Type:	Portable Handset
Application Type:	Certification
FCC Rule Part(s):	CFR §2.1093
Model:	LM-V450PM
Additional Model(s):	LMV450PM, V450PM

Equipment Class	Band & Mode	Tx Frequency	SAR			
			1g Head (W/kg)	1g Body-Worn (W/kg)	1g Hotspot (W/kg)	10g Phablet (W/kg)
PCE	CDMA/EVDO BC10 (§90S)	817.90 - 823.10 MHz	0.13	0.75	0.73	N/A
PCE	CDMA/EVDO BC0 (§22H)	824.70 - 848.31 MHz	0.14	0.85	0.85	N/A
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.21	0.80	1.17	2.84
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	< 0.1	0.57	0.54	N/A
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	0.10	0.30	0.45	N/A
PCE	UMTS 850	826.40 - 846.60 MHz	0.14	0.92	0.92	N/A
PCE	UMTS 1750	1712.4 - 1752.6 MHz	< 0.1	0.41	0.75	2.79
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.19	0.57	0.94	2.45
PCE	LTE Band 71	665.5 - 695.5 MHz	0.11	0.44	0.44	N/A
PCE	LTE Band 12	699.7 - 715.3 MHz	0.14	0.54	0.54	N/A
PCE	LTE Band 17	706.5 - 713.5 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 13	779.5 - 784.5 MHz	0.16	0.75	0.75	N/A
PCE	LTE Band 26 (Cell)	814.7 - 848.3 MHz	< 0.1	0.94	0.94	N/A
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 66 (AWS)	1710.7 - 1779.3 MHz	< 0.1	0.46	0.79	3.02
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	0.15	0.68	1.07	2.48
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 41	2498.5 - 2687.5 MHz	0.35	0.61	0.61	N/A
PCE	NR Band n41	2496 - 2690 MHz	<0.1	0.36	0.43	N/A
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.95	0.26	0.37	N/A
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	0.42	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.98	0.41	N/A	1.70
NII	U-NII-2C	5500 - 5720 MHz	0.25	0.48	N/A	2.17
NII	U-NII-3	5745 - 5825 MHz	0.27	0.94	0.94	N/A
DSS/DTS	Bluetooth	2402 - 2480 MHz	< 0.1	N/A	N/A	N/A
Simultaneous SAR per KDB 690783 D01v01r03:			1.59	1.56	1.59	3.96

Note: This revised Test Report (S/N: 1M1811230205-01-R3.ZNF) 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

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

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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
CDMA/EVDO BC10 (§90S)	Voice/Data	817.90 - 823.10 MHz
CDMA/EVDO BC0 (§22H)	Voice/Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 71	Voice/Data	665.5 - 695.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 17	Voice/Data	706.5 - 713.5 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 26 (Cell)	Voice/Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 66 (AWS)	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
NR Band n41	Data	2496 - 2690 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
MST	Data	555 Hz - 8.33 kHz
WMC	Data	500 Hz - 4 kHz

1.2 Power Reduction for SAR

This device uses a power reduction mechanism for SAR compliance. The power reduction mechanism is activated when the device is used in close proximity to the user's body. FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device. 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 Output Power

Mode / Band		Voice (dBm)	Burst Average GMSK (dBm)		Burst Average 8-PSK (dBm)	
		1 TX Slot	*1 TX Slots*	*2 TX Slots*	*1 TX Slots*	*2 TX Slots*
GSM/GPRS/EDGE 850	Maximum	**33.7**	**33.7**	**29.5**	**27.0**	**27.0**
	Nominal	**33.2**	**33.2**	**29.0**	**26.5**	**26.5**
GSM/GPRS/EDGE 1900	Maximum	**31.2**	**31.2**	**27.5**	**26.0**	**26.0**
	Nominal	**30.7**	**30.7**	**27.0**	**25.5**	**25.5**

Mode / Band		Modulated Average (dBm)			
		3GPP WCDMA	*3GPP HSDPA*	*3GPP HSUPA*	*3GPP DC-HSDPA*
UMTS Band 5 (850 MHz)	Maximum	**25.5**	**25.5**	**25.5**	**25.5**
	Nominal	**25.0**	**25.0**	**25.0**	**25.0**
UMTS Band 4 (1750 MHz)	Maximum	**25.2**	**25.2**	**25.2**	**25.2**
	Nominal	**24.7**	**24.7**	**24.7**	**24.7**
UMTS Band 2 (1900 MHz)	Maximum	**25.2**	**25.2**	**25.2**	**25.2**
	Nominal	**24.7**	**24.7**	**24.7**	**24.7**

Mode / Band		Modulated Average (dBm)
CDMA/EVDO BC10 (§90S)	Maximum	**25.5**
	Nominal	**25.0**
CDMA/EVDO BC0 (§22H)	Maximum	**25.5**
	Nominal	**25.0**
PCS CDMA/EVDO	Maximum	**25.2**
	Nominal	**24.7**

Mode / Band		Modulated Average (dBm)
LTE Band 71	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 12	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 17	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 13	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 26 (Cell)	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 5 (Cell)	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 66 (AWS)	Maximum	**25.2**
	Nominal	**24.7**
LTE Band 4 (AWS)	Maximum	**25.2**
	Nominal	**24.7**
LTE Band 25 (PCS)	Maximum	**25.2**
	Nominal	**24.7**
LTE Band 2 (PCS)	Maximum	**25.2**
	Nominal	**24.7**
LTE Band 41 (PC3)	Maximum	**25.2**
	Nominal	**24.7**
LTE Band 41 (PC2)	Maximum	**27.7**
	Nominal	**27.2**

Mode / Band		Modulated Average (dBm)
NR Band n41	Maximum	**24.7**
	Nominal	**24.2**
NR Band n41 (adjusted for duty cycle)	Maximum	**18.4**
	Nominal	**17.9**
LTE Band 41 (during EN-DC mode)	Maximum	**18.9**
	Nominal	**18.4**

Note: For final implementation, NR slot configuration is synchronized using LTE uplink/downlink frame configuration 2 (extended cyclic prefix uplink duty cycle = 23.33%) However, EN-DC transmission on test DUT is only possible using FTM mode with continuous transmission (duty cycle = 100%). SAR testing was performed using FTM mode at maximum output power adjusted for duty cycle to mimic final 23.33% cycle.

Mode / Band		Modulated Average - Single Tx Chain (dBm)		
		Ch. 1-2	Ch. 3-9	Ch. 10-11
IEEE 802.11b (2.4 GHz)	Maximum	**20.5**		
	Nominal	**19.5**		
IEEE 802.11g (2.4 GHz)	Maximum	**17.5**	**19.5**	**18.0**
	Nominal	**16.5**	**18.5**	**17.0**
IEEE 802.11n (2.4 GHz)	Maximum	**16.5**	**18.5**	**17.0**
	Nominal	**15.5**	**17.5**	**16.0**
IEEE 802.11ac (2.4 GHz)	Maximum	**16.5**	**18.5**	**17.0**
	Nominal	**15.5**	**17.5**	**16.0**

Mode / Band		Modulated Average - MIMO (dBm)		
		Ch. 1-2	Ch. 3-9	Ch. 10-11
IEEE 802.11b (2.4 GHz)	Maximum	23.5		
	Nominal	22.5		
IEEE 802.11g (2.4 GHz)	Maximum	20.5	22.5	21.0
	Nominal	19.5	21.5	20.0
IEEE 802.11n (2.4 GHz)	Maximum	19.5	21.5	20.0
	Nominal	18.5	20.5	19.0
IEEE 802.11ac (2.4 GHz)	Maximum	19.5	21.5	20.0
	Nominal	18.5	20.5	19.0

Mode / Band		Modulated Average - Single Tx Chain (dBm)							
		20 MHz Bandwidth						40 MHz Bandwidth	80 MHz Bandwidth
Channel		36	40	44-52	56	60-153	157-165	38-159	42-155
IEEE 802.11a (5 GHz)	Maximum	17.0	18.0	17.0	18.0	17.0	18.0		
	Nominal	16.0	17.0	16.0	17.0	16.0	17.0		
IEEE 802.11n (5 GHz)	Maximum	17.0	18.0	17.0	18.0	17.0	18.0	16.0	
	Nominal	16.0	17.0	16.0	17.0	16.0	17.0	15.0	
IEEE 802.11ac (5 GHz)	Maximum	17.0	18.0	17.0	18.0	17.0	18.0	16.0	13.5
	Nominal	16.0	17.0	16.0	17.0	16.0	17.0	15.0	12.5

Mode / Band		Modulated Average - MIMO (dBm)							
		20 MHz Bandwidth						40 MHz Bandwidth	80 MHz Bandwidth
Channel		36	40	44-52	56	60-153	157-165	38-159	42-155
IEEE 802.11a (5 GHz)	Maximum	20.0	21.0	20.0	21.0	20.0	21.0		
	Nominal	19.0	20.0	19.0	20.0	19.0	20.0		
IEEE 802.11n (5 GHz)	Maximum	20.0	21.0	20.0	21.0	20.0	21.0	19.0	
	Nominal	19.0	20.0	19.0	20.0	19.0	20.0	18.0	
IEEE 802.11ac (5 GHz)	Maximum	20.0	21.0	20.0	21.0	20.0	21.0	19.0	16.5
	Nominal	19.0	20.0	19.0	20.0	19.0	20.0	18.0	15.5

Mode / Band		Modulated Average - Single Tx Chain (dBm)
Bluetooth	Maximum	12.5
	Nominal	11.5
Bluetooth LE	Maximum	8.0
	Nominal	7.0

1.3.2 Reduced Output Power

Mode / Band		Modulated Average (dBm)			
		3GPP WCDMA	*3GPP HSDPA*	*3GPP HSUPA*	*3GPP DC-HSDPA*
UMTS Band 4 (1750 MHz)	Maximum	**24.2**	**24.2**	**24.2**	**24.2**
	Nominal	**23.7**	**23.7**	**23.7**	**23.7**
UMTS Band 2 (1900 MHz)	Maximum	**24.2**	**24.2**	**24.2**	**24.2**
	Nominal	**23.7**	**23.7**	**23.7**	**23.7**

Mode / Band		Modulated Average (dBm)
PCS CDMA/EVDO	Maximum	**24.2**
	Nominal	**23.7**

Mode / Band		Modulated Average (dBm)
LTE Band 66 (AWS)	Maximum	**24.2**
	Nominal	**23.7**
LTE Band 4 (AWS)	Maximum	**24.2**
	Nominal	**23.7**
LTE Band 25 (PCS)	Maximum	**24.2**
	Nominal	**23.7**
LTE Band 2 (PCS)	Maximum	**24.2**
	Nominal	**23.7**

Mode / Band		Modulated Average (dBm)		
		Ch. 1-2	Ch. 3-9	Ch. 10-11
IEEE 802.11b (2.4 GHz)	Maximum	**18.0**		
	Nominal	**17.0**		
IEEE 802.11g (2.4 GHz)	Maximum	**17.5**	**18.0**	**18.0**
	Nominal	**16.5**	**17.0**	**17.0**
IEEE 802.11n (2.4 GHz)	Maximum	**16.5**	**18.0**	**17.0**
	Nominal	**15.5**	**17.0**	**16.0**
IEEE 802.11ac (2.4 GHz)	Maximum	**16.5**	**18.0**	**17.0**
	Nominal	**15.5**	**17.0**	**16.0**

Mode / Band		Modulated Average - MIMO (dBm)		
		Ch. 1-2	Ch. 3-9	Ch. 10-11
IEEE 802.11b (2.4 GHz)	Maximum	**21.0**		
	Nominal	**20.0**		
IEEE 802.11g (2.4 GHz)	Maximum	**20.5**	**21.0**	**21.0**
	Nominal	**19.5**	**20.0**	**20.0**
IEEE 802.11n (2.4 GHz)	Maximum	**19.5**	**21.0**	**20.0**
	Nominal	**18.5**	**20.0**	**19.0**
IEEE 802.11ac (2.4 GHz)	Maximum	**19.5**	**21.0**	**20.0**
	Nominal	**18.5**	**20.0**	**19.0**

1.3.3 Reduced Output Power during Scenarios with 2.4 GHz WLAN Ant 1 and 5 GHz WLAN Ant 2

Mode / Band		Modulated Average (dBm)		
		Ch. 1-2	Ch. 3-9	Ch. 10-11
IEEE 802.11b (2.4 GHz)	Maximum	**18.0**		
	Nominal	**17.0**		
IEEE 802.11g (2.4 GHz)	Maximum	**17.5**	**18.0**	**18.0**
	Nominal	**16.5**	**17.0**	**17.0**
IEEE 802.11n (2.4 GHz)	Maximum	**16.5**	**18.0**	**17.0**
	Nominal	**15.5**	**17.0**	**16.0**
IEEE 802.11ac (2.4 GHz)	Maximum	**16.5**	**18.0**	**17.0**
	Nominal	**15.5**	**17.0**	**16.0**

Mode / Band		Modulated Average - Single Tx Chain (dBm)		
		20 MHz Bandwidth	40 MHz Bandwidth	80 MHz Bandwidth
Channel		36-165	38-159	42-155
IEEE 802.11a (5 GHz)	Maximum	**15.0**		
	Nominal	**14.0**		
IEEE 802.11n (5 GHz)	Maximum	**15.0**	**15.0**	
	Nominal	**14.0**	**14.0**	
IEEE 802.11ac (5 GHz)	Maximum	**15.0**	**15.0**	**13.5**
	Nominal	**14.0**	**14.0**	**12.5**

1.4 DUT Antenna Locations

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

Table 1-1
Device Edges/Sides for SAR Testing

Mode	Back	Front	Top	Bottom	Right	Left
EVDO BC10 (§90S)	Yes	Yes	No	Yes	Yes	No
EVDO BC0 (§22H)	Yes	Yes	No	Yes	Yes	No
PCS EVDO	Yes	Yes	No	Yes	No	Yes
GPRS 850	Yes	Yes	No	Yes	Yes	No
GPRS 1900	Yes	Yes	No	Yes	No	Yes
UMTS 850	Yes	Yes	No	Yes	Yes	No
UMTS 1750	Yes	Yes	No	Yes	No	Yes
UMTS 1900	Yes	Yes	No	Yes	No	Yes
LTE Band 71	Yes	Yes	No	Yes	Yes	No
LTE Band 12	Yes	Yes	No	Yes	Yes	No
LTE Band 13	Yes	Yes	No	Yes	Yes	No
LTE Band 26 (Cell)	Yes	Yes	No	Yes	Yes	No
LTE Band 66 (AWS)	Yes	Yes	No	Yes	No	Yes
LTE Band 25 (PCS)	Yes	Yes	No	Yes	No	Yes
LTE Band 41	Yes	Yes	No	Yes	Yes	No
NR Band n41	Yes	Yes	No	Yes	Yes	Yes
2.4 GHz WLAN Ant 1	Yes	Yes	Yes	No	Yes	No
2.4 GHz WLAN Ant 2	Yes	Yes	Yes	No	Yes	No
5 GHz WLAN Ant 1	Yes	Yes	Yes	No	Yes	No
5 GHz WLAN Ant 2	Yes	Yes	Yes	No	Yes	No

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

1.5 Near Field Communications (NFC) Antenna

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

1.6 Simultaneous Transmission Capabilities

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

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

Table 1-2
Simultaneous Transmission Scenarios

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

1. 2.4 GHz WLAN, and 2.4 GHz Bluetooth share the same antenna path and cannot transmit simultaneously.
2. All licensed modes share the same antenna path and cannot transmit simultaneously.
3. When the user utilizes multiple services in UMTS 3G mode it uses multi-Radio Access Bearer or multi-RAB. The power control is based on a physical control channel (Dedicated Physical Control Channel [DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the UMTS+WLAN scenario also represents the UMTS Voice/DATA + WLAN Hotspot scenario.
4. Per the manufacturer, WIFI Direct is expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Simultaneous transmission scenarios involving WIFI direct are that listed in the above table.
5. 5 GHz Wireless Router is only supported for the U-NII-1 and U-NII-3 by S/W, therefore 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. 802.11a/g/n/ac supports CDD and STBC and 802.11n/ac additionally supports SDM. Each WLAN antenna can transmit independently or together when operating with MIMO.
7. This device supports VOLTE.
8. This device supports VoWIFI
9. This device supports Bluetooth Tethering.
10. NR implementation is limited to EN-DC operations only, with LTE Band 41 acting as the anchor band.

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, head and body-worn SAR were 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-2A & U-NII-2C WIFI, only 2.4 GHz, U-NII-1 and U-NII-3 WIFI Hotspot SAR tests and combinations are considered for SAR with respect to Wireless Router configurations according to FCC KDB 941225 D06v02r01.

Per FCC KDB 447498 D01v06, the 1g SAR exclusion threshold for distances <50mm is defined by the following equation:

$$\frac{Max\ Power\ of\ Channel\ (mW)}{Test\ Separation\ Dist\ (mm)} * \sqrt{Frequency(GHz)} \leq 3.0$$

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, body-worn and hotspot Bluetooth SAR was not required; [(18/10)* √2.480] = 2.8< 3.0. Per KDB Publication 447498 D01v06, the maximum power of the channel was rounded to the nearest mW before calculation.

Per FCC KDB 447498 D01v06, the 10g SAR exclusion threshold for distances <50mm is defined by the following equation:

$$\frac{Max\ Power\ of\ Channel\ (mW)}{Test\ Separation\ Dist\ (mm)} * \sqrt{Frequency(GHz)} \leq 7.5$$

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, phablet Bluetooth SAR was not required; [(18/ 5)* √2.480] = 5.7< 7.5. Per KDB Publication 447498 D01v06, the maximum power of the channel was rounded to the nearest mW before calculation.

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

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

(B) Licensed Transmitter(s)

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.

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

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

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

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 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. The downlink carrier aggregation exclusion analysis can be found in Appendix H.

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

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

This device supports 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 14.1).

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

NR implementation of n41 is limited to EN-DC operations only, with LTE Band 41 acting as the anchor band. Per FCC Guidance, SAR tests for EN-DC operation were performed with both n41 and LTE B41 active. Please see Section 11 for more details.

1.8 Guidance Applied

- IEEE 1528-2013
- FCC KDB Publication 941225 D01v03r01, D05v02r04, D05Av01r02, D06v02r01 (2G/3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v02r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v06 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r04, D02v01r02 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D04v01r03 (Phablet Procedures)
- FCC KDB Publication 616217 D04v01r02 (Proximity Sensor)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- May 2017 TCB Workshop Notes (LTE Band 41 Power Class 2/3)
- April 2018 TCB Workshop Notes (LTE Carrier Aggregation)

1.9 Device Serial Numbers

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

2 LTE AND NR OPERATIONS INFORMATION

LTE Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 71 (665.5 - 695.5 MHz)				
	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 17 (706.5 - 713.5 MHz)				
	LTE Band 13 (779.5 - 784.5 MHz)				
	LTE Band 26 (Cell) (814.7 - 848.3 MHz)				
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)				
	LTE Band 66 (AWS) (1710.7 - 1779.3 MHz)				
	LTE Band 4 (AWS) (1710.7 - 1754.3 MHz)				
	LTE Band 25 (PCS) (1850.7 - 1914.3 MHz)				
	LTE Band 2 (PCS) (1850.7 - 1909.3 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
Channel Bandwidths	LTE Band 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 26 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz				
	LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 66 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 25 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 2 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 71: 5 MHz	665.5 (133147)		680.5 (133297)	695.5 (133447)	
LTE Band 71: 10 MHz	668 (133172)		680.5 (133297)	693 (133422)	
LTE Band 71: 15 MHz	670.5 (133197)		680.5 (133297)	690.5 (133397)	
LTE Band 71: 20 MHz	673 (133222)		680.5 (133297)	688 (133372)	
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)		707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)		707.5 (23095)	711 (23130)	
LTE Band 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 26 (Cell): 1.4 MHz	814.7 (26697)		831.5 (26865)	848.3 (27033)	
LTE Band 26 (Cell): 3 MHz	815.5 (26705)		831.5 (26865)	847.5 (27025)	
LTE Band 26 (Cell): 5 MHz	816.5 (26715)		831.5 (26865)	846.5 (27015)	
LTE Band 26 (Cell): 10 MHz	819 (26740)		831.5 (26865)	844 (26990)	
LTE Band 26 (Cell): 15 MHz	821.5 (26765)		831.5 (26865)	841.5 (26965)	
LTE Band 5 (Cell): 1.4 MHz	824.7 (20407)		836.5 (20525)	848.3 (20643)	
LTE Band 5 (Cell): 3 MHz	825.5 (20415)		836.5 (20525)	847.5 (20635)	
LTE Band 5 (Cell): 5 MHz	826.5 (20425)		836.5 (20525)	846.5 (20625)	
LTE Band 5 (Cell): 10 MHz	829 (20450)		836.5 (20525)	844 (20600)	
LTE Band 66 (AWS): 1.4 MHz	1710.7 (131979)		1745 (132322)	1779.3 (132665)	
LTE Band 66 (AWS): 3 MHz	1711.5 (131987)		1745 (132322)	1778.5 (132657)	
LTE Band 66 (AWS): 5 MHz	1712.5 (131997)		1745 (132322)	1777.5 (132647)	
LTE Band 66 (AWS): 10 MHz	1715 (132022)		1745 (132322)	1775 (132622)	
LTE Band 66 (AWS): 15 MHz	1717.5 (132047)		1745 (132322)	1772.5 (132597)	
LTE Band 66 (AWS): 20 MHz	1720 (132072)		1745 (132322)	1770 (132572)	
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)		1732.5 (20175)	1754.3 (20393)	
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)		1732.5 (20175)	1753.5 (20385)	
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)		1732.5 (20175)	1752.5 (20375)	
LTE Band 4 (AWS): 10 MHz	1715 (20000)		1732.5 (20175)	1750 (20350)	
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)		1732.5 (20175)	1747.5 (20325)	
LTE Band 4 (AWS): 20 MHz	1720 (20050)		1732.5 (20175)	1745 (20300)	
LTE Band 25 (PCS): 1.4 MHz	1850.7 (26047)		1882.5 (26365)	1914.3 (26683)	
LTE Band 25 (PCS): 3 MHz	1851.5 (26055)		1882.5 (26365)	1913.5 (26675)	
LTE Band 25 (PCS): 5 MHz	1852.5 (26065)		1882.5 (26365)	1912.5 (26665)	
LTE Band 25 (PCS): 10 MHz	1855 (26090)		1882.5 (26365)	1910 (26640)	
LTE Band 25 (PCS): 15 MHz	1857.5 (26115)		1882.5 (26365)	1907.5 (26615)	
LTE Band 25 (PCS): 20 MHz	1860 (26140)		1882.5 (26365)	1905 (26590)	
LTE Band 2 (PCS): 1.4 MHz	1850.7 (18607)		1880 (18900)	1909.3 (19193)	
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)		1880 (18900)	1908.5 (19185)	
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)		1880 (18900)	1907.5 (19175)	
LTE Band 2 (PCS): 10 MHz	1855 (18650)		1880 (18900)	1905 (19150)	
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)		1880 (18900)	1902.5 (19125)	
LTE Band 2 (PCS): 20 MHz	1860 (18700)		1880 (18900)	1900 (19100)	
LTE Band 41: 5 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
UE Category	DL UE Cat 19, UL UE Cat 13				
Modulations Supported in UL	QPSK, 16QAM, 64QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5? (manufacturer attestation to be provided)	YES				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
LTE Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations				
LTE Additional Information	This device does not support full CA features on 3GPP Release 15. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. The following LTE Release 15 Features are not supported: Relay, HetNet, Enhanced MIMO, eICIC, WIFI Offloading, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

NR Operations Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	NR Band n41 (2496 - 2690 MHz)				
Channel Bandwidths	NR Band n41: 40MHz, 60MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
NR Band n41: 40MHz	2516.0 (503202)	510900 (2554.5 MHz)	2592.99 (518598)	526302 (2631.51 MHz)	2670.0 (534000)
NR Band n41: 60MHz	2526.0 (505200)	511902 (2559.51 MHz)	2592.99 (518598)	525300 (2626.5 MHz)	2659.98 (531996)
SCS	30				
Modulations Supported in UL	CP-OFDM QPSK, CP-OFDM 16QAM, CP-OFDM 64QAM				
MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3~6.2.5? (manufacturer attestation to be provided)	YES				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
LTE Anchor Band	LTE Band 41				

3 INTRODUCTION

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

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

3.1 SAR Definition

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

Equation 3-1
SAR Mathematical Equation

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

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

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

where:

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

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

4 DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

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

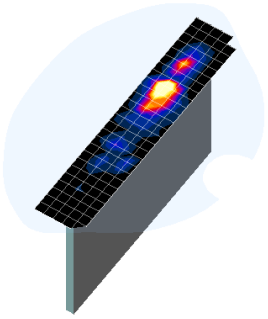


Figure 4-1
Sample SAR Area Scan

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):

   a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 4-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).

   b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.

   c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

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

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

*Also compliant to IEEE 1528-2013 Table 6

5 DEFINITION OF REFERENCE POINTS

5.1 EAR REFERENCE POINT

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

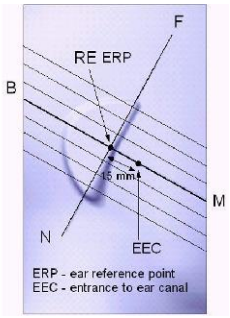


Figure 5-1
Close-Up Side view of ERP

5.2 HANDSET REFERENCE POINTS

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

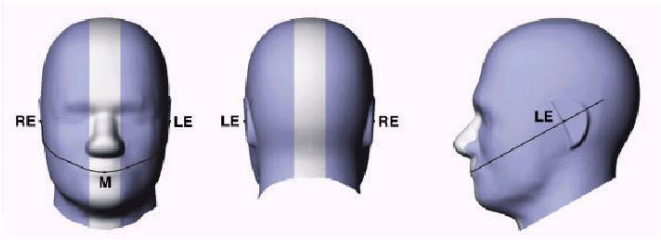


Figure 5-2
Front, back and side view of SAM Twin Phantom

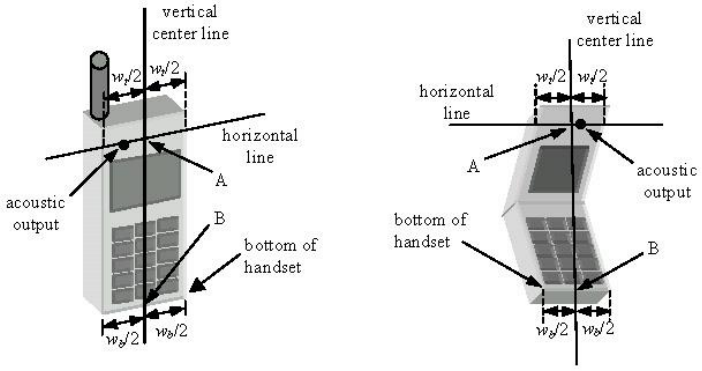


Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

6 TEST CONFIGURATION POSITIONS

6.1 Device Holder

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

6.2 Positioning for Cheek

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

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

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

6.3 Positioning for Ear / 15º Tilt

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

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

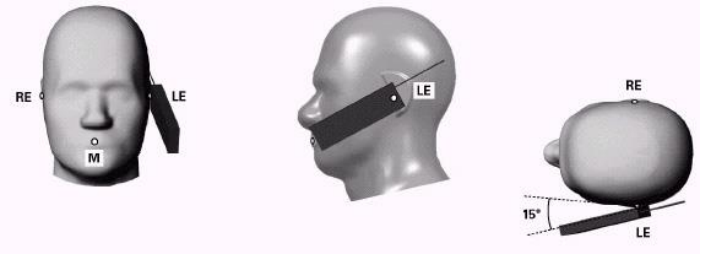


Figure 6-2 Front, Side and Top View of Ear/15º Tilt Position

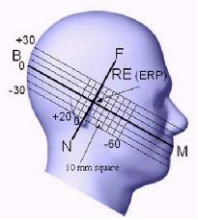


Figure 6-3
Side view w/ relevant markings

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

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

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

6.5 Body-Worn Accessory Configurations

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.

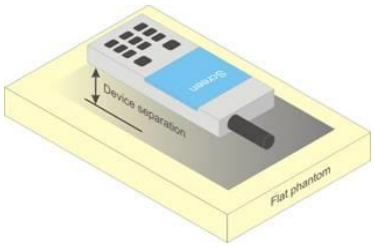


Figure 6-4
Sample Body-Worn Diagram

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

contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

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

6.6 Extremity Exposure Configurations

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

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

6.7 Wireless Router Configurations

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

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

6.8 Phablet Configurations

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

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

6.9 Proximity Sensor Considerations

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

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

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

7 RF EXPOSURE LIMITS

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

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

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

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

8 FCC MEASUREMENT PROCEDURES

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

8.1 Measured and Reported SAR

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

8.2 3G SAR Test Reduction Procedure

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

8.3 Procedures Used to Establish RF Signal for SAR

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

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

8.4 SAR Measurement Conditions for 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.

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

Table 8-1
Parameters for Max. Power for RC1

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

Table 8-2
Parameters for Max. Power for RC3

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

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

8.4.2 Head SAR Measurements

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

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

8.4.3 Body-worn SAR Measurements

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

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

8.4.4 Body-worn SAR Measurements for EVDO Devices

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

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

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.

8.5 SAR Measurement Conditions for UMTS

8.5.1 Output Power Verification

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

8.5.2 Head SAR Measurements

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

8.5.3 Body SAR Measurements

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

8.5.4 SAR Measurements with Rel 5 HSDPA

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

8.5.5 SAR Measurements with Rel 6 HSUPA

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

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

8.5.6 SAR Measurement Conditions for DC-HSDPA

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

8.6 SAR Measurement Conditions for LTE

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

8.6.1 Spectrum Plots for RB Configurations

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

8.6.2 MPR

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

8.6.3 A-MPR

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

8.6.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
   i. The required channel and offset combination with the highest maximum output power is required for SAR.

ii. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.

b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.
c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.
d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to ½ dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is <1.45 W/kg.

8.6.5 TDD

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

8.6.6 Downlink Only Carrier Aggregation

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

8.7 SAR Testing with 802.11 Transmitters

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

8.7.1 General Device Setup

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

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

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

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

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

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

8.7.4 Initial Test Position Procedure

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

8.7.5 2.4 GHz SAR Test Requirements

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

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

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

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

8.7.6 OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. When the maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

8.7.7 Initial Test Configuration Procedure

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

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is ≤ 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements (See Section 8.7.6). When 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

8.7.8 Subsequent Test Configuration Procedures

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

8.7.9 MIMO SAR considerations

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

9 RF CONDUCTED POWERS

9.1 CDMA Conducted Powers

Table 9-1
Maximum Conducted Power

Band	Channel	Rule Part	Frequency	SO55 [dBm]	SO55 [dBm]	SO75 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	RC11	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	564	90S	820.1	25.01	25.24	25.17	25.22	25.27	25.33	25.36
Cellular	1013	22H	824.7	25.04	25.17	25.20	25.16	25.18	25.30	25.11
	384	22H	836.52	25.17	25.32	25.06	25.25	25.10	25.20	25.13
	777	22H	848.31	25.14	25.33	25.08	25.30	25.10	25.12	25.29
PCS	25	24E	1851.25	24.81	24.93	24.82	24.99	24.92	25.00	24.90
	600	24E	1880	24.79	24.99	24.98	24.92	24.90	24.97	25.02
	1175	24E	1908.75	24.84	24.99	24.73	24.92	24.77	24.83	25.02

Table 9-2
Reduced Conducted Power

Band	Channel	Rule Part	Frequency	SO55 [dBm]	SO55 [dBm]	SO75 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	RC11	FCH+SCH	FCH	(RTAP)	(RETAP)
PCS	25	24E	1851.25	23.85	24.00	23.88	23.94	23.97	23.95	23.90
	600	24E	1880	23.87	23.85	24.03	23.85	23.88	23.91	23.99
	1175	24E	1908.75	23.83	24.09	23.67	23.82	23.75	23.86	23.94

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

9.2 GSM Conducted Powers

Table 9-3
Maximum Conducted Power

Maximum Burst-Averaged Output Power						
		Voice	*GPRS/EDGE Data (GMSK)*		*EDGE Data (8-PSK)*	
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**
GSM 850	128	33.50	**33.62**	29.16	26.88	26.83
	190	33.46	**33.51**	29.15	26.80	26.74
	251	33.49	**33.52**	29.26	26.90	26.80
GSM 1900	512	31.06	**31.16**	26.45	25.24	25.24
	661	31.11	**31.09**	26.31	25.24	25.26
	810	31.01	**31.00**	26.45	25.50	25.34

Calculated Maximum Frame-Averaged Output Power						
		Voice	*GPRS/EDGE Data (GMSK)*		*EDGE Data (8-PSK)*	
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**
GSM 850	128	24.47	**24.59**	23.14	17.85	20.81
	190	24.43	**24.48**	23.13	17.77	20.72
	251	24.46	**24.49**	23.24	17.87	20.78
GSM 1900	512	22.03	**22.13**	20.43	16.21	19.22
	661	22.08	**22.06**	20.29	16.21	19.24
	810	21.98	**21.97**	20.43	16.47	19.32

GSM 850	**Frame Avg.Targets:**	24.17	**24.17**	22.98	17.47	20.48
GSM 1900		21.67	**21.67**	20.98	16.47	19.48

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: 10 (Max 2 Tx uplink slots)
EDGE Multislot class: 10 (Max 2 Tx uplink slots)
DTM Multislot Class: N/A

Figure 9-2
Power Measurement Setup

9.3 UMTS Conducted Powers

Table 9-4
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	25.33	25.24	25.31	24.96	25.03	25.00	25.10	25.07	25.06	-
99		12.2 kbps AMR	25.26	25.22	25.26	25.05	25.14	24.97	25.11	25.09	25.06	-
6	HSDPA	Subtest 1	25.30	25.37	25.39	25.03	25.09	25.11	24.99	24.98	25.10	0
6		Subtest 2	25.23	25.37	25.31	24.99	25.02	25.04	24.96	25.03	25.05	0
6		Subtest 3	24.74	24.71	24.63	24.46	24.56	24.56	24.58	24.54	24.51	0.5
6		Subtest 4	24.64	24.74	24.70	24.57	24.58	24.64	24.52	24.57	24.63	0.5
6	HSUPA	Subtest 1	25.33	25.16	25.33	24.44	24.52	24.65	24.38	24.50	24.66	0
6		Subtest 2	23.19	23.37	23.23	22.97	22.91	23.10	22.93	22.97	23.06	2
6		Subtest 3	24.29	24.16	24.36	23.94	23.96	24.15	23.93	23.99	24.05	1
6		Subtest 4	23.24	23.33	23.32	23.04	23.01	23.00	23.00	22.97	23.01	2
6		Subtest 5	25.36	25.21	25.29	24.35	24.44	24.53	24.31	24.39	24.59	0
8	DC-HSDPA	Subtest 1	25.23	25.27	25.30	25.06	25.10	25.11	25.09	25.02	25.11	0
8		Subtest 2	25.22	25.34	25.37	25.07	25.04	25.12	25.09	24.98	25.01	0
8		Subtest 3	24.68	24.73	24.58	24.52	24.50	24.54	24.51	24.57	24.52	0.5
8		Subtest 4	24.65	24.74	24.67	24.47	24.59	24.56	24.54	24.54	24.64	0.5

Table 9-5
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	23.95	24.04	24.00	24.11	24.05	24.06	-
99		12.2 kbps AMR	24.13	24.18	23.94	24.15	24.11	24.06	-
6	HSDPA	Subtest 1	24.00	24.19	24.11	23.96	23.98	24.14	0
6		Subtest 2	24.02	24.10	23.97	23.99	24.09	24.05	0
6		Subtest 3	23.38	23.60	23.67	23.52	23.61	23.47	0.5
6		Subtest 4	23.67	23.51	23.61	23.66	23.58	23.66	0.5
6	HSUPA	Subtest 1	23.42	23.48	23.56	23.38	23.44	23.63	0
6		Subtest 2	21.93	21.95	22.09	21.93	21.97	22.09	2
6		Subtest 3	22.93	22.95	23.16	22.99	22.95	23.06	1
6		Subtest 4	22.06	21.98	21.99	22.03	21.98	22.06	2
6		Subtest 5	23.38	23.36	23.42	23.35	23.32	23.51	0
8	DC-HSDPA	Subtest 1	24.00	24.19	24.19	24.07	23.99	24.12	0
8		Subtest 2	24.03	24.08	24.00	24.09	23.98	24.11	0
8		Subtest 3	23.54	23.54	23.58	23.45	23.51	23.50	0.5
8		Subtest 4	23.38	23.56	23.67	23.65	23.47	23.63	0.5

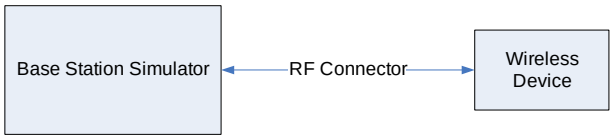


Figure 9-3
Power Measurement Setup

9.4 LTE Conducted Powers

9.4.1 LTE Band 71

Table 9-6
LTE Band 71 Conducted Powers - 20 MHz Bandwidth

LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 133297 (680.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	25.40	0	0
	1	50	25.41		0
	1	99	**25.43**		0
	50	0	24.32	0-1	1
	50	25	**24.49**		1
	50	50	24.30		1
	100	0	24.39		1
16QAM	1	0	24.37	0-1	1
	1	50	24.38		1
	1	99	24.38		1
	50	0	23.36	0-2	2
	50	25	23.39		2
	50	50	23.26		2
	100	0	23.37		2
64QAM	1	0	23.29	0-2	2
	1	50	23.27		2
	1	99	23.24		2
	50	0	22.25	0-3	3
	50	25	22.29		3
	50	50	22.17		3
	100	0	22.32		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 9-7
LTE Band 71 Conducted Powers - 15 MHz Bandwidth

LTE Band 71 15 MHz Bandwidth					
Modulation	**RB Size**	**RB Offset**	**Mid Channel** **133297 (680.5 MHz)** **Conducted Power [dBm]**	**MPR Allowed per 3GPP [dB]**	**MPR [dB]**
QPSK	1	0	25.30	0	0
	1	36	25.39		0
	1	74	25.27		0
	36	0	24.50	0-1	1
	36	18	24.49		1
	36	37	24.35		1
	75	0	24.44		1
16QAM	1	0	24.31	0-1	1
	1	36	24.43		1
	1	74	24.39		1
	36	0	23.46	0-2	2
	36	18	23.46		2
	36	37	23.34		2
	75	0	23.41		2
64QAM	1	0	23.20	0-2	2
	1	36	23.43		2
	1	74	23.25		2
	36	0	22.32	0-3	3
	36	18	22.34		3
	36	37	22.33		3
	75	0	22.29		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.

Table 9-8
LTE Band 71 Conducted Powers - 10 MHz Bandwidth

LTE Band 71 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 133172 (668.0 MHz)	Mid Channel 133297 (680.5 MHz)	High Channel 133422 (693.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.15	25.37	25.39	0	0
	1	25	25.17	25.39	25.39		0
	1	49	25.19	25.39	25.34		0
	25	0	24.31	24.48	24.40	0-1	1
	25	12	24.31	24.43	24.47		1
	25	25	24.35	24.39	24.39		1
	50	0	24.39	24.46	24.44		1
16QAM	1	0	24.22	24.45	24.43	0-1	1
	1	25	24.23	24.39	24.48		1
	1	49	24.31	24.44	24.45		1
	25	0	23.29	23.48	23.40	0-2	2
	25	12	23.37	23.43	23.46		2
	25	25	23.32	23.35	23.39		2
	50	0	23.34	23.41	23.46		2
64QAM	1	0	23.20	23.31	23.41	0-2	2
	1	25	23.09	23.26	23.35		2
	1	49	23.28	23.40	23.38		2
	25	0	22.20	22.46	22.32	0-3	3
	25	12	22.36	22.34	22.33		3
	25	25	22.31	22.28	22.30		3
	50	0	22.33	22.41	22.42		3

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

LTE Band 71 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 133147 (665.5 MHz)	Mid Channel 133297 (680.5 MHz)	High Channel 133447 (695.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.12	25.42	25.36	0	0
	1	12	25.01	25.36	25.40		0
	1	24	25.32	25.33	25.33		0
	12	0	24.30	24.46	24.38	0-1	1
	12	6	24.18	24.47	24.31		1
	12	13	24.22	24.44	24.40		1
	25	0	24.22	24.44	24.44		1
16QAM	1	0	24.11	24.46	24.50	0-1	1
	1	12	24.21	24.42	24.43		1
	1	24	24.24	24.39	24.46		1
	12	0	23.29	23.44	23.42	0-2	2
	12	6	23.24	23.31	23.31		2
	12	13	23.26	23.48	23.48		2
	25	0	23.28	23.44	23.39		2
64QAM	1	0	23.05	23.43	23.41	0-2	2
	1	12	23.14	23.28	23.32		2
	1	24	23.15	23.28	23.41		2
	12	0	22.27	22.34	22.36	0-3	3
	12	6	22.23	22.17	22.20		3
	12	13	22.15	22.37	22.37		3
	25	0	22.18	22.34	22.37		3

9.4.2 LTE Band 12

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

LTE Band 12 10 MHz Bandwidth					
Modulation	**RB Size**	**RB Offset**	**Mid Channel** **23095** **(707.5 MHz)** **Conducted Power [dBm]**	**MPR Allowed per 3GPP [dB]**	**MPR [dB]**
QPSK	1	0	25.24	0	0
	1	25	**25.30**		0
	1	49	25.19		0
	25	0	24.38	0-1	1
	25	12	**24.41**		1
	25	25	24.30		1
	50	0	24.37		1
16QAM	1	0	24.49	0-1	1
	1	25	24.45		1
	1	49	24.35		1
	25	0	23.38	0-2	2
	25	12	23.32		2
	25	25	23.28		2
	50	0	23.30		2
64QAM	1	0	23.46	0-2	2
	1	25	23.35		2
	1	49	23.31		2
	25	0	22.34	0-3	3
	25	12	22.19		3
	25	25	22.17		3
	50	0	22.16		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 9-11
LTE Band 12 Conducted Powers - 5 MHz Bandwidth

LTE Band 12 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23035 (701.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23155 (713.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.29	25.41	25.30	0	0
	1	12	25.24	25.45	25.26		0
	1	24	25.16	25.27	25.22		0
	12	0	24.38	24.41	24.27	0-1	1
	12	6	24.34	24.35	24.25		1
	12	13	24.28	24.23	24.22		1
	25	0	24.40	24.36	24.25		1
16QAM	1	0	24.46	24.39	24.46	0-1	1
	1	12	24.49	24.44	24.41		1
	1	24	24.45	24.29	24.32		1
	12	0	23.48	23.44	23.44	0-2	2
	12	6	23.50	23.41	23.39		2
	12	13	23.43	23.36	23.40		2
	25	0	23.41	23.43	23.36		2
64QAM	1	0	23.41	23.29	23.33	0-2	2
	1	12	23.41	23.35	23.32		2
	1	24	23.43	23.26	23.26		2
	12	0	22.36	22.39	22.38	0-3	3
	12	6	22.45	22.35	22.37		3
	12	13	22.40	22.22	22.30		3
	25	0	22.28	22.30	22.31		3

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

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23025 (700.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23165 (714.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.23	25.33	25.12	0	0
	1	7	25.39	25.45	25.22		0
	1	14	25.37	25.24	25.11		0
	8	0	24.36	24.43	24.25	0-1	1
	8	4	24.49	24.47	24.15		1
	8	7	24.48	24.38	24.20		1
	15	0	24.48	24.40	24.22		1
16QAM	1	0	24.46	24.49	24.28	0-1	1
	1	7	24.49	24.50	24.32		1
	1	14	24.45	24.46	24.15		1
	8	0	23.19	23.29	23.11	0-2	2
	8	4	23.31	23.28	23.20		2
	8	7	23.26	23.25	23.12		2
	15	0	23.38	23.29	23.07		2
64QAM	1	0	23.38	23.45	23.23	0-2	2
	1	7	23.44	23.39	23.31		2
	1	14	23.39	23.33	23.11		2
	8	0	22.08	22.27	22.02	0-3	3
	8	4	22.24	22.24	22.09		3
	8	7	22.18	22.12	22.05		3
	15	0	22.28	22.26	21.93		3

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

LTE Band 12 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23017 (699.7 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23173 (715.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.20	25.30	25.08	0	0
	1	2	25.15	25.24	25.15		0
	1	5	25.18	25.26	25.06		0
	3	0	25.28	25.31	25.11		0
	3	2	25.30	25.23	25.21		0
	3	3	25.15	25.33	25.12		0
	6	0	24.28	24.37	24.15	0-1	1
16QAM	1	0	24.34	24.42	24.07	0-1	1
	1	2	24.36	24.45	24.18		1
	1	5	24.27	24.48	24.03		1
	3	0	24.10	24.18	24.01		1
	3	2	24.15	24.22	24.03		1
	3	3	24.11	24.12	23.97		1
	6	0	23.50	23.39	23.19	0-2	2
64QAM	1	0	23.33	23.39	23.04	0-2	2
	1	2	23.28	23.35	23.10		2
	1	5	23.13	23.42	22.96		2
	3	0	23.03	23.12	23.00		2
	3	2	23.05	23.09	22.94		2
	3	3	22.97	23.09	22.89		2
	6	0	22.47	22.28	22.09	0-3	3

9.4.3 LTE Band 13

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

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	25.15	0	0
	1	25	**25.33**		0
	1	49	25.26		0
	25	0	**24.48**	0-1	1
	25	12	24.34		1
	25	25	24.42		1
	50	0	24.33		1
16QAM	1	0	24.24	0-1	1
	1	25	24.41		1
	1	49	24.38		1
	25	0	23.34	0-2	2
	25	12	23.33		2
	25	25	23.26		2
	50	0	23.26		2
64QAM	1	0	23.21	0-2	2
	1	25	23.40		2
	1	49	23.37		2
	25	0	22.24	0-3	3
	25	12	22.19		3
	25	25	22.22		3
	50	0	22.16		3

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

LTE Band 13 5 MHz Bandwidth					
Modulation	**RB Size**	**RB Offset**	**Mid Channel** **23230 (782.0 MHz)** **Conducted Power [dBm]**	**MPR Allowed per 3GPP [dB]**	**MPR [dB]**
QPSK	1	0	25.14	0	0
	1	12	25.25		0
	1	24	25.30		0
	12	0	24.33	0-1	1
	12	6	24.42		1
	12	13	24.43		1
	25	0	24.42		1
16QAM	1	0	24.39	0-1	1
	1	12	24.47		1
	1	24	24.43		1
	12	0	23.34	0-2	2
	12	6	23.36		2
	12	13	23.29		2
	25	0	23.31		2
64QAM	1	0	23.37	0-2	2
	1	12	23.37		2
	1	24	23.31		2
	12	0	22.31	0-3	3
	12	6	22.32		3
	12	13	22.17		3
	25	0	22.18		3

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

9.4.4 LTE Band 26 (Cell)

Table 9-16
LTE Band 26 (Cell) Conducted Powers - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 26865 (831.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	25.33	0	0
	1	36	**25.39**		0
	1	74	25.19		0
	36	0	**24.36**	0-1	1
	36	18	24.31		1
	36	37	24.21		1
	75	0	24.27		1
16QAM	1	0	24.47	0-1	1
	1	36	24.32		1
	1	74	24.16		1
	36	0	23.42	0-2	2
	36	18	23.38		2
	36	37	23.27		2
	75	0	23.38		2
64QAM	1	0	23.42	0-2	2
	1	36	23.19		2
	1	74	23.10		2
	36	0	22.30	0-3	3
	36	18	22.37		3
	36	37	22.21		3
	75	0	22.30		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 9-17
LTE Band 26 (Cell) Conducted Powers - 10 MHz Bandwidth

LTE Band 26 (Cell) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26740 (819.0 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 26990 (844.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.12	25.36	25.16	0	0
	1	25	25.18	25.25	25.08		0
	1	49	25.09	25.18	25.04		0
	25	0	24.28	24.35	24.18	0-1	1
	25	12	24.23	24.35	24.16		1
	25	25	24.15	24.27	24.13		1
	50	0	24.20	24.27	24.11		1
16QAM	1	0	24.21	24.41	24.34	0-1	1
	1	25	24.19	24.31	24.29		1
	1	49	24.15	24.19	24.12		1
	25	0	23.33	23.38	23.25	0-2	2
	25	12	23.28	23.37	23.26		2
	25	25	23.25	23.31	23.20		2
	50	0	23.25	23.35	23.22		2
64QAM	1	0	23.16	23.41	23.28	0-2	2
	1	25	23.06	23.28	23.27		2
	1	49	23.09	23.19	22.99		2
	25	0	22.23	22.27	22.23	0-3	3
	25	12	22.19	22.24	22.17		3
	25	25	22.21	22.20	22.11		3
	50	0	22.18	22.27	22.19		3

Table 9-18
LTE Band 26 (Cell) Conducted Powers - 5 MHz Bandwidth

LTE Band 26 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26715 (816.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27015 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.32	25.26	25.20	0	0
	1	12	25.30	25.19	25.12		0
	1	24	25.31	25.23	25.08		0
	12	0	24.26	24.33	24.25	0-1	1
	12	6	24.28	24.28	24.24		1
	12	13	24.35	24.23	24.26		1
	25	0	24.36	24.29	24.24		1
16QAM	1	0	24.24	24.35	24.31	0-1	1
	1	12	24.24	24.33	24.24		1
	1	24	24.26	24.30	24.13		1
	12	0	23.30	23.45	23.38	0-2	2
	12	6	23.31	23.47	23.37		2
	12	13	23.37	23.39	23.30		2
	25	0	23.47	23.38	23.33		2
64QAM	1	0	23.20	23.31	23.30	0-2	2
	1	12	23.13	23.24	23.18		2
	1	24	23.24	23.16	23.06		2
	12	0	22.17	22.34	22.34	0-3	3
	12	6	22.21	22.39	22.33		3
	12	13	22.37	22.34	22.26		3
	25	0	22.35	22.25	22.26		3

Table 9-19
LTE Band 26 (Cell) Conducted Powers - 3 MHz Bandwidth

LTE Band 26 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26705 (815.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27025 (847.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.16	25.25	25.19	0	0
	1	7	25.27	25.31	25.21		0
	1	14	25.12	25.19	25.01		0
	8	0	24.28	24.28	24.22	0-1	1
	8	4	24.29	24.30	24.27		1
	8	7	24.24	24.24	24.03		1
	15	0	24.23	24.27	24.22		1
16QAM	1	0	24.23	24.34	24.35	0-1	1
	1	7	24.34	24.39	24.38		1
	1	14	24.16	24.26	24.18		1
	8	0	23.37	23.27	23.31	0-2	2
	8	4	23.41	23.28	23.29		2
	8	7	23.34	23.22	23.12		2
	15	0	23.29	23.35	23.26		2
64QAM	1	0	23.16	23.26	23.23	0-2	2
	1	7	23.30	23.38	23.25		2
	1	14	23.06	23.17	23.08		2
	8	0	22.23	22.21	22.30	0-3	3
	8	4	22.34	22.22	22.16		3
	8	7	22.21	22.20	22.00		3
	15	0	22.23	22.24	22.22		3

Table 9-20
LTE Band 26 (Cell) Conducted Powers -1.4 MHz Bandwidth

LTE Band 26 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26697 (814.7 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27033 (848.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.20	25.18	25.05	0	0
	1	2	25.26	25.22	25.04		0
	1	5	25.19	25.14	25.00		0
	3	0	25.03	25.14	25.03		0
	3	2	25.10	25.20	25.02		0
	3	3	25.06	25.15	25.09		0
	6	0	24.08	24.21	24.04	0-1	1
16QAM	1	0	24.04	24.24	24.20	0-1	1
	1	2	24.14	24.30	24.24		1
	1	5	24.03	24.23	24.07		1
	3	0	24.13	24.19	24.03		1
	3	2	24.14	24.08	24.01		1
	3	3	24.10	24.04	24.11		1
	6	0	23.11	23.36	23.06	0-2	2
64QAM	1	0	23.00	23.15	23.11	0-2	2
	1	2	23.04	23.23	23.14		2
	1	5	22.98	23.23	23.02		2
	3	0	23.08	23.08	23.00		2
	3	2	23.03	23.03	22.87		2
	3	3	23.10	22.91	22.98		2
	6	0	21.99	22.35	21.95	0-3	3

9.4.5 LTE Band 66 (AWS)

Table 9-21
LTE Band 66 (AWS) Conducted Powers - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132072 (1720.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132572 (1770.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.10	25.00	25.16	0	0
	1	50	25.08	24.96	24.94		0
	1	99	24.95	**25.18**	25.14		0
	50	0	23.95	**24.13**	24.10	0-1	1
	50	25	24.00	24.05	24.02		1
	50	50	23.96	24.08	24.05		1
	100	0	24.06	24.08	24.06		1
16QAM	1	0	23.96	24.16	24.19	0-1	1
	1	50	24.19	24.12	24.02		1
	1	99	24.18	23.99	23.99		1
	50	0	23.08	22.91	23.19	0-2	2
	50	25	22.98	22.87	22.98		2
	50	50	22.96	23.08	23.16		2
	100	0	23.02	22.87	22.93		2
64QAM	1	0	23.00	22.93	22.87	0-2	2
	1	50	23.12	23.08	23.05		2
	1	99	22.98	23.01	22.90		2
	50	0	21.98	21.91	22.19	0-3	3
	50	25	22.01	22.17	21.94		3
	50	50	21.90	21.98	21.94		3
	100	0	21.92	22.17	21.87		3

Table 9-22
LTE Band 66 (AWS) Conducted Powers - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132047 (1717.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132597 (1772.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.94	25.05	25.14	0	0
	1	36	25.16	25.00	24.88		0
	1	74	25.11	25.17	25.09		0
	36	0	24.04	24.07	24.07	0-1	1
	36	18	24.02	24.09	24.00		1
	36	37	24.00	24.09	24.00		1
	75	0	23.93	24.14	24.02		1
16QAM	1	0	24.15	23.94	24.18	0-1	1
	1	36	24.17	24.20	23.91		1
	1	74	23.99	23.96	24.14		1
	36	0	23.10	22.94	22.88	0-2	2
	36	18	23.15	23.13	22.93		2
	36	37	23.05	23.11	22.92		2
	75	0	23.05	23.18	22.95		2
64QAM	1	0	23.13	23.16	22.91	0-2	2
	1	36	23.09	23.06	22.88		2
	1	74	23.16	23.17	23.08		2
	36	0	21.91	22.06	22.13	0-3	3
	36	18	21.94	22.14	22.02		3
	36	37	22.12	22.09	22.16		3
	75	0	22.07	22.19	21.93		3

Table 9-23
LTE Band 66 (AWS) Conducted Powers - 10 MHz Bandwidth

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132022 (1715.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132622 (1775.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.00	25.03	25.16	0	0
	1	25	25.12	25.17	25.16		0
	1	49	25.18	25.19	25.19		0
	25	0	23.89	23.96	24.13	0-1	1
	25	12	24.02	24.15	24.13		1
	25	25	23.89	23.99	24.02		1
	50	0	24.03	23.95	24.01		1
16QAM	1	0	24.11	23.88	24.07	0-1	1
	1	25	24.01	24.15	23.96		1
	1	49	24.11	24.05	23.93		1
	25	0	23.08	22.92	23.06	0-2	2
	25	12	23.10	23.07	23.20		2
	25	25	23.02	22.99	22.99		2
	50	0	23.02	22.93	23.13		2
64QAM	1	0	22.94	22.90	23.18	0-2	2
	1	25	23.01	23.07	23.16		2
	1	49	23.01	23.03	23.13		2
	25	0	22.09	22.00	22.02	0-3	3
	25	12	22.17	21.93	22.20		3
	25	25	21.96	21.92	22.10		3
	50	0	22.07	21.91	22.16		3

Table 9-24
LTE Band 66 (AWS) Conducted Powers - 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131997 (1712.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132647 (1777.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.09	25.05	25.05	0	0
	1	12	24.87	25.07	25.01		0
	1	24	25.13	24.93	25.19		0
	12	0	23.88	24.17	24.13	0-1	1
	12	6	23.87	24.15	23.97		1
	12	13	24.09	23.97	23.95		1
	25	0	23.94	23.94	24.02		1
16QAM	1	0	23.96	23.98	24.18	0-1	1
	1	12	24.08	24.20	23.91		1
	1	24	24.06	24.14	24.19		1
	12	0	23.00	23.04	23.06	0-2	2
	12	6	23.05	23.16	23.19		2
	12	13	23.07	23.06	23.19		2
	25	0	22.98	23.10	23.10		2
64QAM	1	0	23.09	23.07	22.88	0-2	2
	1	12	23.10	23.05	22.93		2
	1	24	23.17	23.18	23.18		2
	12	0	22.06	22.06	21.92	0-3	3
	12	6	21.87	22.16	22.16		3
	12	13	22.04	22.09	22.12		3
	25	0	21.99	22.03	22.00		3

Table 9-25
LTE Band 66 (AWS) Conducted Powers - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131987 (1711.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132657 (1778.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.05	25.00	25.01	0	0
	1	7	25.07	25.12	24.98		0
	1	14	24.98	25.19	24.92		0
	8	0	24.00	24.06	24.17	0-1	1
	8	4	23.96	23.87	23.92		1
	8	7	24.20	24.17	23.91		1
	15	0	24.08	24.10	23.89		1
16QAM	1	0	24.13	23.89	24.03	0-1	1
	1	7	24.10	23.87	24.06		1
	1	14	23.94	24.17	24.07		1
	8	0	22.96	23.01	23.11	0-2	2
	8	4	22.91	23.18	22.93		2
	8	7	23.13	23.15	23.05		2
	15	0	23.19	23.11	22.87		2
64QAM	1	0	22.93	23.12	23.11	0-2	2
	1	7	22.95	23.18	23.17		2
	1	14	22.99	23.09	23.15		2
	8	0	22.01	21.88	22.12	0-3	3
	8	4	22.10	22.08	22.16		3
	8	7	22.10	21.93	22.04		3
	15	0	22.16	22.10	22.07		3

Table 9-26
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 131979 (1710.7 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132665 (1779.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.08	24.95	24.89	0	0
	1	2	25.06	24.87	25.12		0
	1	5	24.88	25.07	25.11		0
	3	0	24.94	25.09	25.17		0
	3	2	25.18	25.05	25.01		0
	3	3	25.15	25.14	24.94		0
	6	0	23.87	24.16	24.02	0-1	1
16QAM	1	0	24.01	23.88	23.97	0-1	1
	1	2	23.93	23.93	24.17		1
	1	5	23.95	24.01	24.17		1
	3	0	24.05	23.92	24.13		1
	3	2	23.91	24.16	23.97		1
	3	3	24.06	24.04	24.02		1
	6	0	23.17	23.03	23.08	0-2	2
64QAM	1	0	23.02	22.96	23.02	0-2	2
	1	2	23.17	23.03	23.03		2
	1	5	22.87	23.06	23.15		2
	3	0	23.13	22.96	23.14		2
	3	2	23.03	23.02	23.15		2
	3	3	22.99	22.91	23.17		2
	6	0	22.20	22.06	21.88	0-3	3

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

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132072 (1720.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132572 (1770.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.07	24.11	24.08	0	0
	1	50	24.00	**24.18**	23.91		0
	1	99	23.92	24.15	24.17		0
	50	0	24.03	23.98	24.13	0-1	0
	50	25	23.88	23.95	23.88		0
	50	50	24.01	**24.16**	24.12		0
	100	0	24.05	24.06	24.03		0
16QAM	1	0	24.07	23.90	24.09	0-1	0
	1	50	24.13	24.03	24.17		0
	1	99	23.89	24.18	24.14		0
	50	0	23.06	22.98	22.96	0-2	1
	50	25	23.10	22.90	23.13		1
	50	50	23.11	23.17	22.99		1
	100	0	22.97	23.06	23.13		1
64QAM	1	0	22.95	22.94	23.15	0-2	1
	1	50	23.02	23.14	23.08		1
	1	99	23.01	23.05	22.89		1
	50	0	21.98	22.16	22.14	0-3	2
	50	25	22.15	22.01	22.02		2
	50	50	21.88	21.99	22.07		2
	100	0	21.93	22.06	21.92		2

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

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132047 (1717.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132597 (1772.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.94	24.06	24.05	0	0
	1	36	23.91	24.05	24.16		0
	1	74	24.06	23.89	24.11		0
	36	0	23.88	23.91	24.11	0-1	0
	36	18	24.04	24.05	24.10		0
	36	37	24.08	24.13	24.16		0
	75	0	24.07	24.15	23.99		0
16QAM	1	0	23.93	24.07	23.90	0-1	0
	1	36	23.94	23.91	23.87		0
	1	74	24.10	24.01	23.95		0
	36	0	22.92	23.03	23.03	0-2	1
	36	18	23.17	22.96	22.93		1
	36	37	23.11	22.98	23.13		1
	75	0	23.18	22.95	23.12		1
64QAM	1	0	23.16	22.99	22.90	0-2	1
	1	36	22.97	22.90	23.07		1
	1	74	23.09	23.06	22.87		1
	36	0	21.90	22.11	22.03	0-3	2
	36	18	22.20	22.00	21.94		2
	36	37	22.20	22.09	22.13		2
	75	0	22.16	22.13	22.10		2

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

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132022 (1715.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132622 (1775.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.11	24.18	24.14	0	0
	1	25	23.95	23.95	23.99		0
	1	49	24.13	23.91	23.94		0
	25	0	24.15	23.88	24.08	0-1	0
	25	12	23.95	24.12	24.18		0
	25	25	24.07	24.15	23.96		0
	50	0	23.98	23.95	24.02		0
16QAM	1	0	24.07	24.17	24.06	0-1	0
	1	25	23.97	24.11	24.10		0
	1	49	24.16	23.93	24.10		0
	25	0	23.00	23.07	23.00	0-2	1
	25	12	22.92	23.18	23.17		1
	25	25	23.19	23.08	23.19		1
	50	0	23.20	22.88	22.92		1
64QAM	1	0	23.20	23.07	23.12	0-2	1
	1	25	22.93	22.88	22.97		1
	1	49	22.87	23.08	23.10		1
	25	0	22.17	22.12	22.07	0-3	2
	25	12	22.00	22.17	22.12		2
	25	25	22.07	22.17	22.05		2
	50	0	21.98	22.06	22.17		2

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

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131997 (1712.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132647 (1777.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.15	24.12	24.00	0	0
	1	12	24.06	23.87	24.09		0
	1	24	24.19	24.14	23.93		0
	12	0	23.93	24.09	24.18	0-1	0
	12	6	23.93	23.89	24.13		0
	12	13	23.97	23.88	24.10		0
	25	0	24.13	24.09	24.03		0
16QAM	1	0	24.17	24.00	23.99	0-1	0
	1	12	24.13	23.87	24.13		0
	1	24	24.15	24.03	24.18		0
	12	0	22.89	23.05	23.15	0-2	1
	12	6	23.10	23.09	23.14		1
	12	13	23.00	22.98	23.19		1
	25	0	22.91	23.10	23.09		1
64QAM	1	0	22.95	22.87	22.96	0-2	1
	1	12	23.11	23.00	23.00		1
	1	24	23.18	23.14	23.07		1
	12	0	22.08	22.06	22.12	0-3	2
	12	6	22.00	22.19	22.09		2
	12	13	21.94	22.19	21.91		2
	25	0	21.93	21.94	22.17		2

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

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131987 (1711.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132657 (1778.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.05	24.12	24.05	0	0
	1	7	24.11	23.97	24.16		0
	1	14	24.18	24.00	24.09		0
	8	0	24.08	24.08	24.06	0-1	0
	8	4	23.96	23.89	24.06		0
	8	7	24.13	24.00	23.94		0
	15	0	24.11	24.02	24.13		0
16QAM	1	0	24.14	24.01	24.09	0-1	0
	1	7	24.20	23.91	23.92		0
	1	14	23.98	23.99	23.93		0
	8	0	22.91	22.97	23.12	0-2	1
	8	4	22.94	22.92	23.19		1
	8	7	23.07	23.15	22.88		1
	15	0	22.97	23.03	23.14		1
64QAM	1	0	23.19	22.87	23.12	0-2	1
	1	7	23.20	22.97	23.09		1
	1	14	23.18	23.09	23.18		1
	8	0	22.05	22.10	22.02	0-3	2
	8	4	22.03	21.93	21.92		2
	8	7	22.15	21.95	22.13		2
	15	0	21.90	22.07	22.13		2

Table 9-32
LTE Band 66 (AWS) Reduced Conducted Powers -1.4 MHz Bandwidth

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131979 (1710.7 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132665 (1779.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.00	23.91	24.02	0	0
	1	2	23.95	23.94	24.04		0
	1	5	24.03	24.13	24.17		0
	3	0	24.17	24.04	24.17		0
	3	2	24.06	23.90	24.12		0
	3	3	23.98	24.04	24.06		0
	6	0	24.01	24.12	23.89	0-1	0
16QAM	1	0	23.99	24.05	24.16	0-1	0
	1	2	23.96	24.13	24.00		0
	1	5	24.19	24.18	23.91		0
	3	0	23.94	23.94	24.16		0
	3	2	23.88	23.90	23.88		0
	3	3	23.98	24.02	24.02		0
	6	0	23.01	22.94	23.10	0-2	1
64QAM	1	0	23.12	23.02	23.18	0-2	1
	1	2	22.93	23.03	23.07		1
	1	5	23.11	23.01	22.89		1
	3	0	23.10	22.89	23.17		1
	3	2	22.95	22.94	22.95		1
	3	3	23.17	23.10	23.04		1
	6	0	21.89	22.11	22.17	0-3	2

9.4.6 LTE Band 25 (PCS)

Table 9-33
LTE Band 25 (PCS) Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.13	25.00	25.13	0	0
	1	50	24.97	24.90	**25.17**		0
	1	99	24.72	24.72	24.86		0
	50	0	24.07	23.99	24.08	0-1	1
	50	25	23.96	23.92	**24.12**		1
	50	50	23.93	23.80	23.91		1
	100	0	23.98	23.93	24.00		1
16QAM	1	0	24.12	23.92	24.18	0-1	1
	1	50	23.97	23.86	24.19		1
	1	99	23.70	23.66	24.00		1
	50	0	23.15	23.10	23.11	0-2	2
	50	25	23.08	22.98	23.12		2
	50	50	22.95	22.95	23.04		2
	100	0	23.02	22.97	23.10		2
64QAM	1	0	23.10	22.90	23.04	0-2	2
	1	50	22.93	22.82	23.15		2
	1	99	22.59	22.57	22.98		2
	50	0	22.03	21.96	21.98	0-3	3
	50	25	22.06	21.86	21.98		3
	50	50	21.94	21.91	21.95		3
	100	0	21.99	21.94	22.01		3

Table 9-34
LTE Band 25 (PCS) Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26115 (1857.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26615 (1907.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.06	24.95	25.18	0	0
	1	36	24.86	24.88	25.05		0
	1	74	24.90	24.89	24.85		0
	36	0	24.04	23.91	24.11	0-1	1
	36	18	23.88	23.86	24.06		1
	36	37	23.92	23.82	23.94		1
	75	0	23.97	23.82	23.95		1
16QAM	1	0	24.18	23.98	24.17	0-1	1
	1	36	23.91	23.89	24.06		1
	1	74	23.90	23.81	23.88		1
	36	0	23.11	23.01	23.12	0-2	2
	36	18	23.00	22.96	23.18		2
	36	37	22.99	22.91	23.01		2
	75	0	23.05	22.98	23.01		2
64QAM	1	0	23.17	22.92	23.14	0-2	2
	1	36	22.81	22.85	22.97		2
	1	74	22.81	22.73	22.80		2
	36	0	22.06	21.90	22.12	0-3	3
	36	18	21.97	21.90	22.12		3
	36	37	21.90	21.80	21.92		3
	75	0	21.92	21.96	21.89		3

Table 9-35
LTE Band 25 (PCS) Conducted Powers - 10 MHz Bandwidth

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26090 (1855.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26640 (1910.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.95	24.94	25.02	0	0
	1	25	24.87	24.87	24.95		0
	1	49	24.88	24.81	24.75		0
	25	0	23.98	23.90	24.06	0-1	1
	25	12	23.90	23.86	24.07		1
	25	25	23.84	23.63	23.90		1
	50	0	23.94	23.86	23.92		1
16QAM	1	0	24.05	23.85	24.13	0-1	1
	1	25	23.90	23.90	24.15		1
	1	49	23.82	23.77	23.97		1
	25	0	23.10	22.98	23.14	0-2	2
	25	12	22.94	22.93	23.17		2
	25	25	22.89	22.86	23.03		2
	50	0	23.04	22.94	23.02		2
64QAM	1	0	23.00	22.81	23.11	0-2	2
	1	25	22.85	22.77	23.07		2
	1	49	22.82	22.76	22.96		2
	25	0	22.03	21.88	22.04	0-3	3
	25	12	21.80	21.86	22.13		3
	25	25	21.79	21.82	21.96		3
	50	0	22.01	21.86	22.01		3

Table 9-36
LTE Band 25 (PCS) Conducted Powers - 5 MHz Bandwidth

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26065 (1852.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26665 (1912.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.06	24.92	24.96	0	0
	1	12	24.88	24.86	24.91		0
	1	24	24.86	24.87	24.75		0
	12	0	24.01	23.86	24.03	0-1	1
	12	6	23.99	23.85	23.91		1
	12	13	23.91	23.80	23.89		1
	25	0	23.96	23.85	23.89		1
16QAM	1	0	24.01	23.90	24.07	0-1	1
	1	12	23.87	23.86	24.02		1
	1	24	23.84	23.85	23.90		1
	12	0	23.06	23.03	23.18	0-2	2
	12	6	23.06	23.03	23.02		2
	12	13	22.91	23.02	22.99		2
	25	0	23.10	22.94	22.96		2
64QAM	1	0	22.89	22.84	23.03	0-2	2
	1	12	22.75	22.77	22.91		2
	1	24	22.71	22.77	22.80		2
	12	0	22.04	22.01	22.05	0-3	3
	12	6	21.96	21.99	22.01		3
	12	13	21.83	21.99	21.93		3
	25	0	22.06	21.89	21.89		3

Table 9-37
LTE Band 25 (PCS) Conducted Powers - 3 MHz Bandwidth

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26055 (1851.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26675 (1913.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.72	24.64	25.02	0	0
	1	7	24.92	24.84	24.68		0
	1	14	24.72	24.72	24.70		0
	8	0	23.84	23.71	23.89	0-1	1
	8	4	24.00	23.84	23.72		1
	8	7	23.94	23.63	23.87		1
	15	0	23.92	23.64	23.87		1
16QAM	1	0	23.94	23.74	24.11	0-1	1
	1	7	24.05	23.93	24.10		1
	1	14	23.80	23.64	23.84		1
	8	0	23.09	22.73	22.96	0-2	2
	8	4	23.11	22.77	22.95		2
	8	7	23.08	22.82	22.91		2
	15	0	23.00	22.79	22.96		2
64QAM	1	0	22.92	22.63	23.08	0-2	2
	1	7	22.94	22.82	23.03		2
	1	14	22.68	22.54	22.75		2
	8	0	22.04	21.69	21.86	0-3	3
	8	4	22.10	21.64	21.93		3
	8	7	22.00	21.82	21.85		3
	15	0	21.87	21.66	21.86		3

Table 9-38
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 26047 (1850.7 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26683 (1914.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.63	24.79	24.57	0	0
	1	2	24.88	24.87	24.53		0
	1	5	24.83	24.87	24.74		0
	3	0	24.86	24.82	24.80		0
	3	2	24.75	24.96	24.85		0
	3	3	24.70	24.76	24.43		0
	6	0	23.92	23.96	23.86	0-1	1
16QAM	1	0	23.80	24.14	23.63	0-1	1
	1	2	23.97	24.11	23.84		1
	1	5	23.81	24.06	23.72		1
	3	0	23.78	23.73	23.69		1
	3	2	23.69	23.63	23.62		1
	3	3	23.71	23.72	23.77		1
	6	0	23.08	22.98	22.84	0-2	2
64QAM	1	0	22.72	23.10	22.62	0-2	2
	1	2	22.85	23.09	22.83		2
	1	5	22.70	23.05	22.69		2
	3	0	22.72	22.66	22.59		2
	3	2	22.68	22.60	22.53		2
	3	3	22.68	22.64	22.70		2
	6	0	21.94	21.98	21.70	0-3	3

Table 9-39
LTE Band 25 (PCS) Reduced Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.96	23.75	23.77	0	0
	1	50	23.83	23.81	23.95		0
	1	99	23.72	23.95	**24.10**		0
	50	0	23.97	**24.03**	23.90	0-1	0
	50	25	23.87	23.75	23.78		0
	50	50	23.96	23.75	23.93		0
	100	0	23.98	23.75	23.71		0
16QAM	1	0	23.93	23.71	23.72	0-1	0
	1	50	23.71	23.85	23.91		0
	1	99	23.82	23.80	23.92		0
	50	0	22.71	22.83	22.71	0-2	1
	50	25	22.87	22.73	22.79		1
	50	50	22.82	22.88	22.78		1
	100	0	22.79	23.00	22.88		1
64QAM	1	0	22.79	22.76	22.97	0-2	1
	1	50	22.88	22.87	22.74		1
	1	99	22.88	22.96	22.95		1
	50	0	21.82	21.84	21.79	0-3	2
	50	25	21.72	21.97	21.73		2
	50	50	22.01	21.77	22.03		2
	100	0	21.77	21.97	21.73		2

Table 9-40
LTE Band 25 (PCS) Reduced Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26115 (1857.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26615 (1907.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.90	24.03	23.73	0	0
	1	36	23.79	23.93	23.79		0
	1	74	23.87	23.75	23.76		0
	36	0	23.88	23.98	23.72	0-1	0
	36	18	23.87	24.00	23.96		0
	36	37	23.82	23.95	23.91		0
	75	0	23.75	23.71	23.86		0
16QAM	1	0	24.03	24.02	23.88	0-1	0
	1	36	24.03	23.78	23.86		0
	1	74	23.75	23.98	23.88		0
	36	0	22.75	22.80	22.88	0-2	1
	36	18	22.98	22.96	22.95		1
	36	37	22.73	23.00	22.94		1
	75	0	23.02	22.79	22.81		1
64QAM	1	0	22.93	23.03	22.73	0-2	1
	1	36	22.87	22.94	23.03		1
	1	74	22.90	22.91	22.80		1
	36	0	21.70	22.03	21.77	0-3	2
	36	18	21.78	21.70	21.96		2
	36	37	21.93	21.75	21.81		2
	75	0	21.82	22.02	21.74		2

Table 9-41
LTE Band 25 (PCS) Reduced Conducted Powers - 10 MHz Bandwidth

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26090 (1855.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26640 (1910.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.71	24.03	23.95	0	0
	1	25	23.85	23.88	23.73		0
	1	49	23.93	23.92	23.90		0
	25	0	23.87	23.71	23.82	0-1	0
	25	12	23.71	23.73	23.76		0
	25	25	23.77	23.71	23.98		0
	50	0	23.79	24.01	23.84		0
16QAM	1	0	23.79	23.71	23.86	0-1	0
	1	25	23.75	23.81	23.86		0
	1	49	23.71	23.82	23.84		0
	25	0	22.85	22.89	22.76	0-2	1
	25	12	22.87	22.97	22.85		1
	25	25	22.98	22.72	22.81		1
	50	0	22.71	22.85	23.00		1
64QAM	1	0	22.97	22.88	22.84	0-2	1
	1	25	22.87	22.99	22.84		1
	1	49	22.99	22.73	22.95		1
	25	0	21.78	21.91	21.75	0-3	2
	25	12	21.75	21.83	21.99		2
	25	25	21.84	21.75	21.90		2
	50	0	21.92	21.93	21.96		2

Table 9-42
LTE Band 25 (PCS) Reduced Conducted Powers - 5 MHz Bandwidth

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26065 (1852.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26665 (1912.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.02	23.83	23.73	0	0
	1	12	23.70	23.94	23.81		0
	1	24	23.95	24.00	24.00		0
	12	0	23.91	23.92	23.95	0-1	0
	12	6	23.90	23.71	23.86		0
	12	13	23.87	24.02	23.89		0
	25	0	23.87	23.73	23.76		0
16QAM	1	0	23.75	23.88	23.70	0-1	0
	1	12	24.01	23.77	23.85		0
	1	24	23.72	24.02	23.92		0
	12	0	22.83	22.92	23.03	0-2	1
	12	6	22.77	22.96	22.96		1
	12	13	22.74	22.75	22.99		1
	25	0	22.83	22.74	22.89		1
64QAM	1	0	22.82	23.03	22.74	0-2	1
	1	12	22.93	22.88	22.78		1
	1	24	22.74	22.86	22.72		1
	12	0	22.01	21.72	21.73	0-3	2
	12	6	21.94	21.73	21.94		2
	12	13	21.83	21.75	21.79		2
	25	0	21.92	21.80	21.94		2

Table 9-43
LTE Band 25 (PCS) Reduced Conducted Powers - 3 MHz Bandwidth

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26055 (1851.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26675 (1913.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.85	24.00	23.74	0	0
	1	7	23.93	24.02	23.87		0
	1	14	23.93	24.03	23.93		0
	8	0	23.99	23.74	23.71	0-1	0
	8	4	23.97	23.86	23.83		0
	8	7	23.89	23.87	23.75		0
	15	0	23.90	23.71	23.91		0
16QAM	1	0	23.88	23.87	23.91	0-1	0
	1	7	23.86	23.94	23.88		0
	1	14	23.97	23.77	24.01		0
	8	0	22.95	22.96	22.80	0-2	1
	8	4	22.74	22.98	22.93		1
	8	7	22.79	22.79	22.75		1
	15	0	22.74	22.89	22.74		1
64QAM	1	0	22.86	22.94	22.79	0-2	1
	1	7	22.92	22.80	22.99		1
	1	14	22.75	22.85	22.93		1
	8	0	21.89	21.83	21.98	0-3	2
	8	4	21.74	21.97	21.97		2
	8	7	21.76	22.03	21.75		2
	15	0	22.02	21.80	21.83		2

Table 9-44
LTE Band 25 (PCS) Reduced Conducted Powers -1.4 MHz Bandwidth

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26047 (1850.7 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26683 (1914.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	23.93	23.94	23.87	0	0
	1	2	24.00	23.71	23.80		0
	1	5	23.90	23.78	23.70		0
	3	0	23.94	23.76	23.98		0
	3	2	24.01	23.92	23.73		0
	3	3	24.02	23.95	23.98		0
	6	0	23.89	23.91	24.02	0-1	0
16QAM	1	0	23.92	23.73	23.98	0-1	0
	1	2	23.91	23.86	23.75		0
	1	5	23.87	24.03	23.72		0
	3	0	23.89	24.03	23.98		0
	3	2	23.79	23.96	23.97		0
	3	3	23.81	23.83	23.71		0
	6	0	22.72	22.79	22.72	0-2	1
64QAM	1	0	22.81	22.73	22.88	0-2	1
	1	2	22.77	22.86	23.00		1
	1	5	22.74	22.80	22.74		1
	3	0	22.86	22.76	22.79		1
	3	2	22.78	22.75	22.95		1
	3	3	22.70	23.03	22.98		1
	6	0	21.90	21.96	21.85	0-3	2

9.4.7 LTE Band 41

Table 9-45
LTE Band 41 PC3 Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	24.75	24.63	24.73	24.77	**24.79**	0	0
	1	50	24.76	24.76	24.72	24.71	24.72		0
	1	99	24.76	24.60	24.72	24.70	24.72		0
	50	0	23.85	23.81	23.71	23.83	**23.87**	0-1	1
	50	25	23.79	23.79	23.83	23.82	23.70		1
	50	50	23.86	23.71	23.75	23.77	23.70		1
	100	0	23.84	23.78	23.81	23.76	23.76		1
16QAM	1	0	23.82	23.87	23.75	23.77	23.78	0-1	1
	1	50	23.82	23.74	23.63	23.76	23.77		1
	1	99	23.78	23.85	23.75	23.71	23.73		1
	50	0	22.72	22.86	22.82	22.77	22.73	0-2	2
	50	25	22.84	22.80	22.81	22.77	22.76		2
	50	50	22.78	22.87	22.68	22.75	22.73		2
	100	0	22.83	22.77	22.72	22.75	22.73		2
64QAM	1	0	22.78	22.79	22.64	22.72	22.69	0-2	2
	1	50	22.80	22.67	22.59	22.70	22.65		2
	1	99	22.75	22.75	22.64	22.60	22.63		2
	50	0	21.68	21.74	21.76	21.63	21.65	0-3	3
	50	25	21.80	21.72	21.81	21.69	21.75		3
	50	50	21.73	21.77	21.58	21.71	21.64		3
	100	0	21.74	21.70	21.60	21.69	21.73		3

Table 9-46
LTE Band 41 PC3 Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	24.82	24.94	24.80	24.77	24.82	0	0
	1	36	24.74	24.78	24.73	24.72	24.72		0
	1	74	24.78	24.77	24.72	24.73	24.78		0
	36	0	23.86	23.86	23.83	23.81	23.79	0-1	1
	36	18	23.89	23.82	23.84	23.80	23.74		1
	36	37	23.85	23.78	23.75	23.81	23.73		1
	75	0	23.85	23.75	23.82	23.78	23.72		1
16QAM	1	0	23.89	24.03	23.95	23.77	23.92	0-1	1
	1	36	23.81	23.91	23.88	23.73	23.81		1
	1	74	23.80	23.85	23.85	23.70	23.81		1
	36	0	22.87	22.83	22.86	22.82	22.71	0-2	2
	36	18	22.86	22.79	22.83	22.80	22.78		2
	36	37	22.82	22.72	22.79	22.73	22.74		2
	75	0	22.86	22.82	22.80	22.73	22.73		2
64QAM	1	0	22.75	23.03	22.92	22.70	22.88	0-2	2
	1	36	22.78	22.77	22.77	22.60	22.74		2
	1	74	22.77	22.79	22.71	22.65	22.78		2
	36	0	21.86	21.75	21.77	21.78	21.69	0-3	3
	36	18	21.78	21.66	21.69	21.76	21.75		3
	36	37	21.70	21.69	21.72	21.68	21.70		3
	75	0	21.85	21.69	21.67	21.68	21.63		3

Table 9-47
LTE Band 41 PC3 Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	24.74	25.02	25.01	24.94	24.96	0	0
	1	25	24.72	24.76	24.75	24.79	24.79		0
	1	49	24.74	24.78	24.75	24.77	24.88		0
	25	0	23.82	23.78	23.90	23.92	23.84	0-1	1
	25	12	23.80	23.78	23.78	23.83	23.79		1
	25	25	23.77	23.73	23.73	23.75	23.83		1
	50	0	23.81	23.77	23.88	23.85	23.81		1
16QAM	1	0	23.95	24.11	24.10	23.95	24.08	0-1	1
	1	25	23.77	23.90	23.86	23.74	23.83		1
	1	49	23.73	23.83	23.72	23.73	23.73		1
	25	0	22.84	22.81	22.98	22.93	22.81	0-2	2
	25	12	22.79	22.80	22.81	22.78	22.73		2
	25	25	22.73	22.73	22.75	22.72	22.77		2
	50	0	22.78	22.75	22.92	22.91	22.77		2
64QAM	1	0	22.88	23.09	23.01	22.91	23.02	0-2	2
	1	25	22.71	22.84	22.80	22.66	22.75		2
	1	49	22.60	22.80	22.59	22.59	22.69		2
	25	0	21.79	21.75	21.93	21.83	21.80	0-3	3
	25	12	21.68	21.71	21.78	21.72	21.71		3
	25	25	21.69	21.60	21.65	21.68	21.76		3
	50	0	21.72	21.62	21.91	21.77	21.74		3

Table 9-48
LTE Band 41 PC3 Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	24.98	25.04	25.03	25.03	24.99	0	0
	1	12	24.81	24.81	24.78	24.76	24.71		0
	1	24	24.81	24.79	24.75	24.72	24.72		0
	12	0	23.95	23.82	24.00	23.99	23.90	0-1	1
	12	6	23.85	23.79	23.84	23.96	23.79		1
	12	13	23.70	23.71	23.78	23.72	23.81		1
	25	0	23.74	23.79	23.92	23.93	23.80		1
16QAM	1	0	24.01	23.91	24.20	24.04	23.85	0-1	1
	1	12	23.88	23.85	23.96	23.79	23.78		1
	1	24	23.77	23.84	23.84	23.76	23.72		1
	12	0	22.91	22.82	23.00	22.99	22.88	0-2	2
	12	6	22.81	22.80	22.85	22.90	22.76		2
	12	13	22.87	22.70	22.80	22.71	22.83		2
	25	0	22.83	22.77	22.92	22.89	22.79		2
64QAM	1	0	23.01	22.89	23.12	22.99	22.78	0-2	2
	1	12	22.85	22.72	22.88	22.77	22.73		2
	1	24	22.74	22.78	22.82	22.63	22.70		2
	12	0	21.82	21.79	21.95	21.91	21.85	0-3	3
	12	6	21.76	21.68	21.82	21.82	21.62		3
	12	13	21.86	21.67	21.70	21.59	21.76		3
	25	0	21.72	21.64	21.84	21.86	21.71		3

Table 9-49
LTE Band 41 PC2 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	27.43	**27.69**	27.52	27.52	27.32	0	0
	1	50	27.30	27.41	27.38	27.36	27.28		0
	1	99	27.22	27.32	27.27	27.25	27.21		0
	50	0	26.53	26.41	26.54	**26.58**	26.50	0-1	1
	50	25	26.47	26.35	26.38	26.53	26.37		1
	50	50	26.22	26.33	26.31	26.21	26.37		1
	100	0	26.34	26.36	26.41	26.49	26.38		1
16QAM	1	0	26.59	26.50	26.62	26.42	26.47	0-1	1
	1	50	26.39	26.28	26.59	26.43	26.28		1
	1	99	26.28	26.20	26.45	26.33	26.24		1
	50	0	25.46	25.41	25.59	25.55	25.48	0-2	2
	50	25	25.39	25.35	25.42	25.48	25.38		2
	50	50	25.20	25.26	25.35	25.12	25.23		2
	100	0	25.33	25.36	25.45	25.47	25.40		2
64QAM	1	0	25.46	25.42	25.50	25.28	25.44	0-2	2
	1	50	25.39	25.15	25.48	25.31	25.26		2
	1	99	25.17	25.16	25.42	25.29	25.13		2
	50	0	24.34	24.35	24.47	24.45	24.38	0-3	3
	50	25	24.33	24.22	24.36	24.36	24.29		3
	50	50	24.11	24.24	24.34	24.00	24.15		3
	100	0	24.32	24.34	24.40	24.40	24.33		3

Table 9-50
LTE Band 41 PC2 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	27.32	27.51	27.60	27.63	27.69	0	0
	1	36	27.37	27.21	27.46	27.41	27.40		0
	1	74	27.33	27.31	27.37	27.34	27.30		0
	36	0	26.52	26.38	26.58	26.52	26.43	0-1	1
	36	18	26.49	26.22	26.46	26.44	26.21		1
	36	37	26.40	26.34	26.44	26.33	26.35		1
	75	0	26.49	26.33	26.53	26.58	26.45		1
16QAM	1	0	26.49	26.65	26.70	26.61	26.66	0-1	1
	1	36	26.22	26.54	26.54	26.48	26.51		1
	1	74	26.37	26.48	26.46	26.35	26.40		1
	36	0	25.49	25.37	25.65	25.65	25.52	0-2	2
	36	18	25.50	25.36	25.46	25.48	25.34		2
	36	37	25.42	25.36	25.46	25.33	25.30		2
	75	0	25.50	25.35	25.53	25.51	25.50		2
64QAM	1	0	25.57	25.62	25.70	25.59	25.69	0-2	2
	1	36	25.10	25.46	25.42	25.46	25.44		2
	1	74	25.30	25.40	25.33	25.33	25.30		2
	36	0	24.47	24.30	24.54	24.57	24.50	0-3	3
	36	18	24.46	24.32	24.33	24.37	24.32		3
	36	37	24.39	24.31	24.33	24.30	24.23		3
	75	0	24.46	24.22	24.46	24.47	24.49		3

Table 9-51
LTE Band 41 PC2 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	27.41	27.54	27.60	27.34	27.50	0	0
	1	25	27.31	27.32	27.34	27.41	27.21		0
	1	49	27.41	27.36	27.40	27.36	27.38		0
	25	0	26.53	26.37	26.32	26.43	26.42	0-1	1
	25	12	26.57	26.42	26.47	26.22	26.32		1
	25	25	26.43	26.32	26.43	26.46	26.37		1
	50	0	26.52	26.32	26.48	26.47	26.21		1
16QAM	1	0	26.57	26.69	26.69	26.43	26.60	0-1	1
	1	25	26.45	26.53	26.63	26.48	26.52		1
	1	49	26.37	26.47	26.58	26.33	26.46		1
	25	0	25.57	25.22	25.49	25.33	25.45	0-2	2
	25	12	25.52	25.21	25.47	25.49	25.22		2
	25	25	25.44	25.29	25.43	25.47	25.32		2
	50	0	25.51	25.34	25.48	25.48	25.43		2
64QAM	1	0	25.45	25.59	25.60	25.32	25.48	0-2	2
	1	25	25.37	25.41	25.57	25.44	25.40		2
	1	49	25.23	25.35	25.46	25.23	25.36		2
	25	0	24.55	24.13	24.40	24.23	24.40	0-3	3
	25	12	24.45	24.14	24.37	24.44	24.14		3
	25	25	24.37	24.17	24.39	24.47	24.26		3
	50	0	24.42	24.27	24.35	24.37	24.43		3

Table 9-52
LTE Band 41 PC2 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	27.52	27.41	27.55	27.58	27.57	0	0
	1	12	27.60	27.70	27.41	27.56	27.52		0
	1	24	27.53	27.50	27.53	27.50	27.53		0
	12	0	26.64	26.56	26.58	26.53	26.58	0-1	1
	12	6	26.62	26.58	26.57	26.42	26.57		1
	12	13	26.64	26.55	26.54	26.56	26.51		1
	25	0	26.61	26.56	26.64	26.52	26.54		1
16QAM	1	0	26.64	26.63	26.41	26.61	26.69	0-1	1
	1	12	26.62	26.69	26.53	26.60	26.66		1
	1	24	26.56	26.67	26.52	26.56	26.64		1
	12	0	25.42	25.68	25.63	25.53	25.67	0-2	2
	12	6	25.63	25.62	25.41	25.53	25.65		2
	12	13	25.57	25.63	25.54	25.52	25.61		2
	25	0	25.62	25.55	25.51	25.54	25.52		2
64QAM	1	0	25.51	25.49	25.33	25.61	25.64	0-2	2
	1	12	25.49	25.62	25.47	25.57	25.59		2
	1	24	25.47	25.56	25.42	25.47	25.63		2
	12	0	24.32	24.59	24.55	24.48	24.58	0-3	3
	12	6	24.50	24.54	24.35	24.49	24.59		3
	12	13	24.45	24.56	24.53	24.41	24.59		3
	25	0	24.49	24.54	24.45	24.41	24.38		3

9.4.8 NR Band n41 Conducted Powers

Table 9-53
NR Band n41 Conducted Powers - 60 MHz Bandwidth (Not Adjusted for Duty Cycle)

NR Band n41 @ 24.2dBm 60 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 505200 (2526.00 MHz)	Low-Mid Channel 511902 (2559.51 MHz)	Mid Channel 518598 (2592.99 MHz)	Mid-High Channel 525300 (2626.5 MHz)	High Channel 531996 (2659.98 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
CP-OFDM QPSK	1	0	21.50	21.25	21.10	21.06	21.00	0-3	3
	1	1	23.90	24.00	24.19	24.13	23.82	0-1.5	0
	1	81	24.60	23.96	23.80	23.65	23.85		0
	1	160	24.44	23.99	23.86	23.88	23.77		0
	1	161	21.58	21.51	21.62	20.77	20.88	0-3	3
	81	0	21.13	21.11	21.07	20.98	21.03		3
	81	40	24.20	23.60	23.93	23.33	24.23	0-1.5	0
	81	81	21.68	20.70	20.72	20.61	21.01	0-3	3
	162	0	20.82	20.92	21.03	20.88	21.02		3
CP-OFDM 16QAM	1	0	23.50	23.10	23.67	22.71	23.40	0-3	1
	1	81	22.95	22.67	23.14	22.60	22.57	0-2	1
	1	161	23.17	22.70	23.06	23.10	23.65	0-3	1
	81	0	23.02	22.12	23.21	22.99	23.13		1
	81	40	22.89	22.02	22.85	22.87	23.13	0-2	1
	81	81	22.71	21.90	22.74	22.77	23.46	0-3	1
	162	0	22.42	22.10	23.02	22.10	22.78		1
CP-OFDM 64QAM	1	0	20.71	20.44	20.55	20.12	20.88	0-3.5	3.5
	1	81	20.83	20.81	21.03	20.88	20.34		3.5
	1	161	20.95	20.88	20.90	20.65	20.94		3.5
	81	0	21.12	21.15	21.04	20.88	20.90		3.5
	81	40	21.15	20.20	20.92	20.77	20.82		3.5
	81	81	20.75	20.88	20.77	20.74	20.74		3.5
	162	0	21.00	20.94	21.03	20.92	20.62		3.5

Table 9-54
NR Band n41 Conducted Powers - 40 MHz Bandwidth (Not Adjusted for Duty Cycle)

NR Band n41 @ 24.2dBm 40 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]
			503202 (2516.00 MHz)	510900 (2554.5 MHz)	518598 (2592.99 MHz)	526302 (2631.51 MHz)	534000 (2670 MHz)		
			Conducted Power [dBm]						
CP-OFDM QPSK	1	0	21.14	21.11	21.28	21.44	20.80	0-3	3
	1	1	23.92	23.65	24.17	23.30	23.75	0-1.5	0
	1	52	23.81	23.22	23.93	23.12	23.90		0
	1	104	23.88	23.15	23.76	23.35	23.76		0
	1	105	21.65	21.55	21.61	21.70	21.64	0-3	3
	53	0	21.13	20.66	21.17	21.12	21.19		3
	53	26	24.30	24.29	24.23	24.01	24.19	0-1.5	0
	53	53	20.93	20.44	21.00	20.93	21.08	0-3	3
	106	0	21.13	21.10	21.13	20.75	21.07		3
CP-OFDM 16QAM	1	0	23.47	23.24	23.46	23.35	23.51	0-3	1
	1	52	23.12	23.15	23.58	23.33	23.33	0-2	1
	1	105	23.09	22.95	23.15	23.10	23.22	0-3	1
	53	0	23.28	23.25	23.02	23.10	23.01		1
	53	26	23.05	22.55	23.15	22.71	22.99	0-2	1
	53	53	22.93	22.45	23.08	22.97	22.84	0-3	1
	106	0	22.59	22.45	23.15	22.78	23.07		1
CP-OFDM 64QAM	1	0	20.89	20.33	20.91	21.03	20.87	0-3.5	3.5
	1	52	20.64	20.21	20.66	20.81	20.74		3.5
	1	105	20.99	20.85	20.88	20.85	21.17		3.5
	53	0	21.16	20.60	20.93	21.11	21.13		3.5
	53	26	21.06	20.45	20.93	21.03	21.06		3.5
	53	53	20.86	20.31	20.91	20.89	20.88		3.5
	106	0	20.94	20.33	21.01	21.01	20.96		3.5

Table 9-55
NR Band n41 Conducted Powers - 60 MHz Bandwidth (Adjusted for Duty Cycle)

NR Band n41 60 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 505200 (2526.00 MHz)	Low-Mid Channel 511902 (2559.51 MHz)	Mid Channel 518598 (2592.99 MHz)	Mid-High Channel 525300 (2626.5 MHz)	High Channel 531996 (2659.98 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
CP-OFDM QPSK	1	0	15.39	14.98	15.25	14.77	14.92	0-3	3
	1	1	18.17	17.44	**18.23**	17.91	17.89	0-1.5	0
	1	81	17.89	17.14	17.53	17.71	17.50		0
	1	160	17.62	17.60	17.67	17.60	17.68		0
	1	161	14.66	14.51	14.53	14.56	14.57	0-3	3
	81	0	15.37	15.01	15.15	15.13	15.16		3
	81	40	17.74	17.84	**17.98**	17.89	17.65	0-1.5	0
	81	81	15.06	14.88	14.65	14.78	15.19	0-3	3
	162	0	15.04	15.01	15.06	14.98	15.16		3
CP-OFDM 16QAM	1	0	14.55	14.88	15.35	15.17	14.56	0-3	3
	1	81	16.07	15.77	15.48	15.80	16.30	0-2	2
	1	161	15.11	14.77	14.59	15.01	15.07	0-3	3
	81	0	15.25	15.17	15.18	14.21	15.31		3
	81	40	16.06	16.02	15.95	15.91	16.00	0-2	2
	81	81	14.98	14.89	14.89	14.77	14.87	0-3	3
	162	0	15.08	15.02	15.09	14.80	15.26		3
CP-OFDM 64QAM	1	0	14.53	14.41	14.25	14.33	13.94	0-3.5	3.5
	1	81	14.13	14.44	14.50	14.38	14.44		3.5
	1	161	13.98	14.46	14.89	14.43	13.97		3.5
	81	0	14.35	14.22	14.23	14.11	14.00		3.5
	81	40	13.97	14.11	14.14	13.98	14.84		3.5
	81	81	14.02	14.05	14.89	14.83	13.92		3.5
	162	0	14.23	14.01	14.08	13.99	13.93		3.5

Table 9-56
NR Band n41 Conducted Powers - 40 MHz Bandwidth (Adjusted for Duty Cycle)

NR Band n41 40 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]
			503202 (2516.00 MHz)	510900 (2554.5 MHz)	518598 (2592.99 MHz)	526302 (2631.51 MHz)	534000 (2670 MHz)		
			Conducted Power [dBm]						
CP-OFDM QPSK	1	0	15.00	14.55	15.12	14.44	14.90	0-3	3
	1	1	17.93	17.44	17.99	17.52	17.71	0-1.5	0
	1	52	17.92	17.51	17.93	17.46	17.79		0
	1	104	17.76	17.88	18.28	17.82	17.84		0
	1	105	14.66	14.89	14.79	14.86	15.00	0-3	3
	53	0	14.91	14.55	14.80	15.01	15.03		3
	53	26	18.08	17.41	18.37	17.96	17.42	0-1.5	0
	53	53	14.92	14.22	14.43	14.93	15.22	0-3	3
	106	0	15.33	15.22	15.16	15.06	15.30		3
CP-OFDM 16QAM	1	0	15.35	14.78	14.56	14.57	15.28	0-3	3
	1	52	16.32	15.83	16.30	16.22	15.46	0-2	2
	1	105	14.88	14.55	15.09	15.12	15.22	0-3	3
	53	0	15.23	15.23	15.36	15.05	15.15		3
	53	26	16.07	15.21	15.46	16.02	16.33	0-2	2
	53	53	14.88	15.01	15.14	14.94	15.10	0-3	3
	106	0	15.08	15.13	15.27	14.97	14.77		3
CP-OFDM 64QAM	1	0	14.20	14.32	14.50	14.44	14.44	0-3.5	3.5
	1	52	14.77	14.32	14.45	14.32	14.35		3.5
	1	105	14.88	14.01	14.26	14.10	14.41		3.5
	53	0	14.13	14.30	14.39	14.15	14.37		3.5
	53	26	14.16	14.32	14.49	14.11	14.75		3.5
	53	53	14.03	14.22	14.35	14.01	14.22		3.5
	106	0	14.04	14.06	14.08	14.07	14.24		3.5

Table 9-57
LTE Band 41 Conducted Powers - 20 MHz Bandwidth (nominal output power 18.4 dBm) during EN-DC Operations

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	18.61	18.50	18.20	18.21	18.08	0	0
	1	50	18.55	18.45	18.54	18.45	18.50		0
	1	99	18.46	18.56	18.26	18.06	18.46		0

Note: LTE Band 41 anchor transmission was active during NR Band n41 SAR evaluations at the power levels adjusted for LTE B41 duty cycle in table 9-55.

9.4.9 LTE Uplink Carrier Aggregation Conducted Powers

Table 9-58
LTE Uplink Carrier Aggregation Conducted Powers

	PCC							SCC							Power	
Combination	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C(1)	LTE B41	20	41490	2680.0	QPSK	1	0	LTE B41	20	41292	2660.2	QPSK	1	99	24.93	24.79

Notes:

1. This device supports uplink carrier aggregation for LTE CA_41C(1) 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 FCC Guidance, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
3. Uplink carrier aggregation is only possible when the device is operating with Power Class 3 for LTE Band 41.

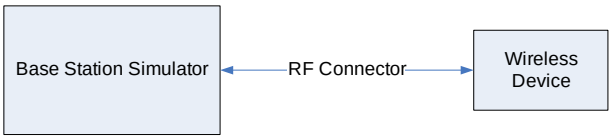


Figure 9-4
Power Measurement Setup

9.5 WLAN Conducted Powers

Table 9-59
2.4 GHz WLAN Maximum Average RF Power – Ant 1

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ac
		Average	Average	Average	Average
2412	1	20.10	16.91	16.18	16.16
2417	2	N/A	16.85	16.00	16.00
2422	3	N/A	19.25	17.96	18.02
2437	6	20.15	19.15	17.90	17.95
2452	9	N/A	19.26	18.12	18.00
2457	10	N/A	17.40	16.18	16.20
2462	11	**20.34**	17.78	16.52	16.47

Table 9-60
2.4 GHz WLAN Maximum Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ac
		Average	Average	Average	Average
2412	1	**20.30**	17.45	16.49	16.49
2417	2	N/A	17.45	16.27	16.30
2422	3	N/A	19.37	18.34	18.00
2437	6	20.12	19.33	18.25	18.30
2452	9	N/A	19.48	18.32	18.09
2457	10	N/A	17.99	16.87	16.86
2462	11	20.22	17.98	16.95	16.97

Table 9-61
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
		Average	Average	Average
5180	36	16.54	16.43	16.40
5200	40	17.70	17.50	17.43
5220	44	16.73	16.53	16.54
5240	48	16.69	16.46	16.40
5260	52	16.70	16.52	16.50
5280	56	**17.62**	17.44	17.42
5300	60	16.62	16.50	16.37
5320	64	16.62	16.45	16.52
5500	100	16.66	16.53	16.56
5600	120	16.82	16.66	16.70
5620	124	16.71	16.65	16.54
5720	144	**16.86**	16.81	16.77
5745	149	16.97	16.80	16.79
5785	157	17.85	17.70	17.72
5805	161	17.89	17.73	17.72
5825	165	**17.90**	17.54	17.68

Table 9-62
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
		Average	Average	Average
5180	36	16.48	16.49	16.47
5200	40	**17.51**	17.53	17.53
5220	44	16.64	16.50	16.41
5240	48	16.65	16.54	16.54
5260	52	16.62	16.61	16.50
5280	56	**17.72**	17.62	17.64
5300	60	16.60	16.57	16.40
5320	64	16.47	16.51	16.38
5500	100	**16.80**	16.66	16.62
5600	120	16.72	16.63	16.67
5620	124	16.70	16.54	16.60
5720	144	16.41	16.30	16.38
5745	149	16.43	16.28	16.27
5785	157	17.56	17.38	17.42
5805	161	**17.97**	17.77	17.73
5825	165	17.62	17.41	17.40

Table 9-63
5 GHz WLAN Maximum Average RF Power – MIMO

5GHz (20MHz) 802.11n Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
5180	36	16.43	16.49	19.47
5200	40	**17.50**	**17.53**	**20.53**
5220	44	16.53	16.50	19.53
5240	48	16.46	16.54	19.51
5260	52	16.52	16.61	19.58
5280	56	**17.44**	**17.62**	**20.54**
5300	60	16.50	16.57	19.55
5320	64	16.45	16.51	19.49
5500	100	16.53	16.66	19.61
5600	120	**16.66**	**16.63**	**19.66**
5620	124	16.65	16.54	19.61
5720	144	16.81	16.30	19.57
5745	149	16.80	16.28	19.56
5785	157	17.70	17.38	20.55
5805	161	**17.73**	**17.77**	**20.76**
5825	165	17.54	17.41	20.49

Table 9-64
Maximum Output Powers During Conditions with 2.4 GHz and 5 GHz WLAN

5GHz (40MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11n	802.11ac
		Average	Average
5190	38	**14.52**	14.50
5230	46	14.50	14.49
5270	54	**14.51**	14.55
5310	62	14.47	14.48
5510	102	14.48	14.47
5590	118	**14.77**	14.78
5630	126	14.64	14.67
5710	142	14.62	14.64
5755	151	14.77	14.77
5795	159	**14.83**	14.82

Table 9-65
2.4 GHz WLAN Reduced Average RF Power – Ant 1

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ac
		Average	Average	Average	Average
2412	1	17.62	17.18	16.31	16.27
2422	3	N/A	17.30	17.25	17.22
2437	6	**17.80**	17.78	17.59	17.56
2452	9	N/A	N/A	17.06	17.05
2462	11	17.69	17.76	16.50	16.47

Table 9-66
2.4 GHz WLAN Reduced Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ac
		Average	Average	Average	Average
2412	1	17.77	17.43	16.43	16.41
2422	3	N/A	17.58	17.60	17.75
2437	6	**17.99**	17.98	17.88	17.89
2452	9	N/A	N/A	17.80	17.90
2462	11	17.62	17.74	16.56	16.57

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

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

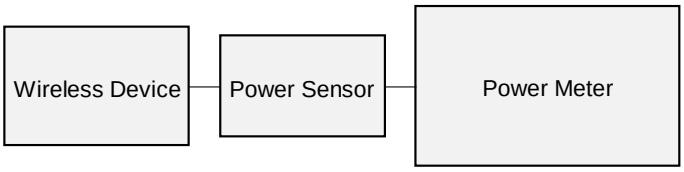


Figure 9-5
Power Measurement Setup

9.6 Bluetooth Conducted Powers

Table 9-67
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	10.97	12.491
2441	1.0	39	**11.67**	14.686
2480	1.0	78	11.66	14.639
2402	2.0	0	10.32	10.765
2441	2.0	39	11.04	12.706
2480	2.0	78	10.91	12.331
2402	3.0	0	10.34	10.814
2441	3.0	39	11.09	12.859
2480	3.0	78	11.05	12.744

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

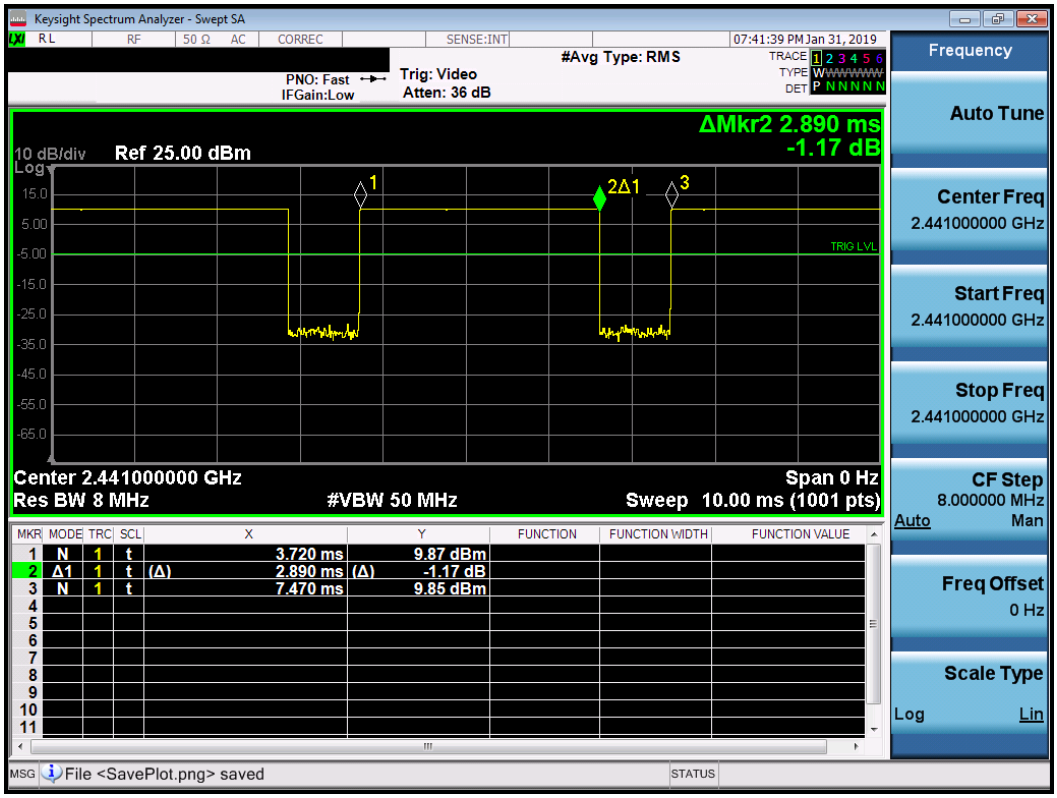


Figure 9-6
Bluetooth Transmission Plot

Equation 9-1
Bluetooth Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.890ms}{3.750ms} * 100\% = 77.1\%$$

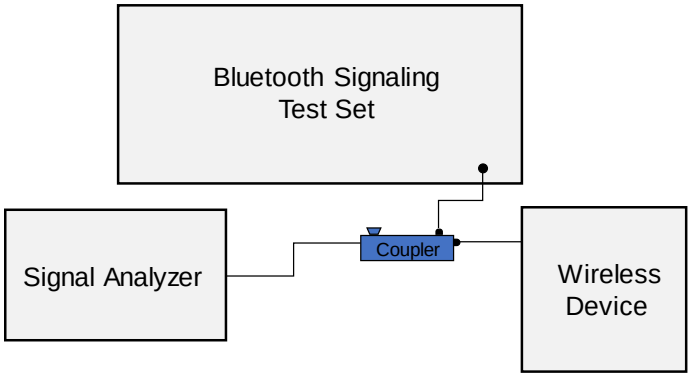


Figure 9-7
Power Measurement Setup

10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
Measured Tissue Properties – Head

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
1/8/2019	750H	19.7	680	0.866	41.400	0.888	42.305	-2.48%	-2.14%
			695	0.871	41.356	0.889	42.227	-2.02%	-2.06%
			700	0.873	41.346	0.889	42.201	-1.80%	-2.03%
			710	0.877	41.315	0.890	42.149	-1.46%	-1.98%
			740	0.887	41.201	0.893	41.994	-0.67%	-1.89%
			755	0.892	41.158	0.894	41.916	-0.22%	-1.81%
			770	0.898	41.105	0.895	41.838	0.34%	-1.75%
			785	0.903	41.053	0.896	41.760	0.78%	-1.69%
12/19/2018	835H	21.9	820	0.914	43.153	0.899	41.578	1.67%	3.79%
			835	0.929	42.966	0.900	41.500	3.22%	3.53%
			850	0.944	42.786	0.916	41.500	3.06%	3.10%
12/26/2018	835H	20.3	820	0.897	42.927	0.899	41.578	-0.22%	3.24%
			835	0.912	42.746	0.900	41.500	1.33%	3.00%
			850	0.927	42.554	0.916	41.500	1.20%	2.54%
1/2/2019	835H	20.7	820	0.897	42.154	0.899	41.578	-0.22%	1.39%
			835	0.910	41.959	0.900	41.500	1.11%	1.11%
			850	0.926	41.774	0.916	41.500	1.09%	0.66%
1/3/2019	1750H	19.6	1710	1.338	38.834	1.348	40.142	-0.74%	-3.26%
			1750	1.363	38.770	1.371	40.079	-0.58%	-3.27%
			1790	1.386	38.709	1.394	40.016	-0.57%	-3.27%
1/7/2019	1750H	20.5	1710	1.316	39.615	1.348	40.142	-2.37%	-1.31%
			1750	1.341	39.591	1.371	40.079	-2.19%	-1.22%
			1790	1.369	39.539	1.394	40.016	-1.79%	-1.19%
12/22/2018	1900H	22.3	1850	1.373	39.993	1.400	40.000	-1.93%	-0.02%
			1880	1.404	39.859	1.400	40.000	0.29%	-0.35%
			1910	1.434	39.745	1.400	40.000	2.43%	-0.64%
11/28/2018	2450H	24.2	2400	1.719	38.988	1.756	39.289	-2.11%	-0.77%
			2450	1.772	38.839	1.800	39.200	-1.56%	-0.92%
			2500	1.825	38.669	1.855	39.136	-1.62%	-1.19%
12/24/2018	2450H	23.2	2400	1.740	38.538	1.756	39.289	-0.91%	-1.91%
			2450	1.797	38.399	1.800	39.200	-0.17%	-2.04%
			2500	1.850	38.191	1.855	39.136	-0.27%	-2.41%
			2550	1.907	38.021	1.909	39.073	-0.10%	-2.69%
			2600	1.961	37.812	1.964	39.009	-0.15%	-3.07%
			2650	2.018	37.644	2.018	38.945	0.00%	-3.34%
			2700	2.075	37.428	2.073	38.882	0.10%	-3.74%
1/8/2019	2450H	19.4	2600	1.963	39.523	1.964	39.009	-0.05%	1.32%
			2650	2.006	39.435	2.018	38.945	-0.59%	1.26%
			2700	2.048	39.336	2.073	38.882	-1.21%	1.17%
1/9/2019	2450H	21.0	2400	1.828	40.510	1.756	39.289	4.10%	3.11%
			2450	1.869	40.474	1.800	39.200	3.83%	3.25%
			2500	1.909	40.396	1.855	39.136	2.91%	3.22%
11/28/2018	5200H-5800H	22.5	5180	4.637	34.924	4.635	36.009	0.04%	-3.01%
			5200	4.657	34.876	4.655	35.986	0.04%	-3.08%
			5220	4.669	34.818	4.676	35.963	-0.15%	-3.18%
			5240	4.697	34.787	4.696	35.940	0.02%	-3.21%
			5260	4.723	34.738	4.717	35.917	0.13%	-3.28%
			5280	4.742	34.710	4.737	35.894	0.11%	-3.30%
			5300	4.773	34.661	4.758	35.871	0.32%	-3.37%
			5320	4.792	34.652	4.778	35.849	0.29%	-3.34%
			5500	4.989	34.344	4.963	35.643	0.52%	-3.64%
			5520	5.011	34.266	4.983	35.620	0.56%	-3.80%
			5540	5.043	34.221	5.004	35.597	0.78%	-3.87%
			5560	5.074	34.209	5.024	35.574	1.00%	-3.84%
			5580	5.095	34.193	5.045	35.551	0.99%	-3.82%
			5600	5.107	34.137	5.065	35.529	0.83%	-3.92%
			5620	5.130	34.098	5.086	35.506	0.87%	-3.97%
			5640	5.164	34.086	5.106	35.483	1.14%	-3.94%
			5660	5.178	34.032	5.127	35.460	0.99%	-4.03%
			5680	5.210	33.952	5.147	35.437	1.22%	-4.19%
			5700	5.228	33.948	5.168	35.414	1.16%	-4.14%
			5745	5.278	33.835	5.214	35.363	1.23%	-4.32%
			5765	5.298	33.830	5.234	35.340	1.22%	-4.27%
			5785	5.331	33.789	5.255	35.317	1.45%	-4.33%
			5800	5.344	33.735	5.270	35.300	1.40%	-4.43%
			5805	5.347	33.717	5.275	35.294	1.36%	-4.47%
			5825	5.381	33.693	5.296	35.271	1.60%	-4.47%
01/07/2019	5250H	20.6	5180	4.497	35.405	4.635	36.009	-2.98%	-1.68%
			5200	4.524	35.391	4.655	35.986	-2.81%	-1.65%
			5220	4.534	35.365	4.676	35.963	-3.04%	-1.66%
			5240	4.553	35.330	4.696	35.940	-3.05%	-1.70%
			5260	4.575	35.295	4.717	35.917	-3.01%	-1.73%
			5280	4.602	35.239	4.737	35.894	-2.85%	-1.82%
			5300	4.620	35.211	4.758	35.871	-2.90%	-1.84%
			5320	4.627	35.197	4.778	35.849	-3.16%	-1.82%

Table 10-2
Measured Tissue Properties – Body

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (˚C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
11/28/2018	750B	21.2	680	0.922	53.345	0.958	55.804	-3.76%	-4.41%
			695	0.927	53.301	0.959	55.745	-3.34%	-4.38%
			700	0.929	53.293	0.959	55.726	-3.13%	-4.37%
			710	0.933	53.276	0.960	55.687	-2.81%	-4.33%
			740	0.945	53.230	0.963	55.570	-1.87%	-4.21%
			755	0.950	53.200	0.964	55.512	-1.45%	-4.16%
			770	0.956	53.164	0.965	55.453	-0.93%	-4.13%
			785	0.960	53.135	0.966	55.395	-0.62%	-4.08%
12/11/2018	835B	20.6	820	0.968	54.697	0.969	55.258	-0.10%	-1.02%
			835	0.974	54.661	0.970	55.200	0.41%	-0.98%
			850	0.980	54.621	0.988	55.154	-0.81%	-0.97%
12/13/2018	835B	20.0	820	0.997	54.975	0.969	55.258	2.89%	-0.51%
			835	1.003	54.950	0.970	55.200	3.40%	-0.45%
			850	1.010	54.918	0.988	55.154	2.23%	-0.43%
12/17/2018	835B	20.5	820	0.990	52.657	0.969	55.258	2.17%	-4.71%
			835	0.995	52.605	0.970	55.200	2.58%	-4.70%
			850	1.001	52.547	0.988	55.154	1.32%	-4.73%
1/7/2019	835B	20.8	820	0.963	54.688	0.969	55.258	-0.62%	-1.03%
			835	0.968	54.669	0.970	55.200	-0.21%	-0.96%
			850	0.974	54.635	0.988	55.154	-1.42%	-0.94%
1/14/2019	835B	19.8	820	0.993	54.254	0.969	55.258	2.48%	-1.82%
			835	1.000	54.240	0.970	55.200	3.09%	-1.74%
			850	1.006	54.218	0.988	55.154	1.82%	-1.70%
12/3/2018	1750B	20.0	1710	1.488	51.039	1.463	53.537	1.71%	-4.67%
			1750	1.532	50.872	1.488	53.432	2.96%	-4.79%
			1790	1.575	50.682	1.514	53.326	4.03%	-4.96%
1/9/2019	1750B	20.9	1710	1.460	51.761	1.463	53.537	-0.21%	-3.32%
			1750	1.505	51.647	1.488	53.432	1.14%	-3.34%
			1790	1.550	51.413	1.514	53.326	2.38%	-3.59%
1/31/2019	1750B	19.8	1710	1.452	51.514	1.463	53.537	-0.75%	-3.78%
			1750	1.480	51.469	1.488	53.432	-0.54%	-3.67%
			1790	1.511	51.419	1.514	53.326	-0.20%	-3.58%
11/28/2018	1900B	21.8	1850	1.516	51.382	1.520	53.300	-0.26%	-3.60%
			1880	1.560	51.262	1.520	53.300	2.63%	-3.82%
			1910	1.590	51.164	1.520	53.300	4.61%	-4.01%
12/2/2018	1900B	22.8	1850	1.521	52.465	1.520	53.300	0.07%	-1.57%
			1880	1.554	52.359	1.520	53.300	2.24%	-1.77%
			1910	1.589	52.273	1.520	53.300	4.54%	-1.93%
12/3/2018	1900B	20.8	1850	1.460	51.953	1.520	53.300	-3.95%	-2.53%
			1880	1.495	51.861	1.520	53.300	-1.64%	-2.70%
			1910	1.530	51.764	1.520	53.300	0.66%	-2.88%
12/5/2018	1900B	23.5	1850	1.517	51.165	1.520	53.300	-0.20%	-4.01%
			1880	1.550	51.085	1.520	53.300	1.97%	-4.16%
			1910	1.583	50.992	1.520	53.300	4.14%	-4.33%
12/19/2018	1900B	22.3	1850	1.518	53.708	1.520	53.300	-0.13%	0.77%
			1880	1.551	53.602	1.520	53.300	2.04%	0.57%
			1910	1.584	53.462	1.520	53.300	4.21%	0.30%
1/4/2019	1900B	22.1	1850	1.498	51.636	1.520	53.300	-1.45%	-3.12%
			1880	1.532	51.518	1.520	53.300	0.79%	-3.34%
			1910	1.565	51.393	1.520	53.300	2.96%	-3.58%
1/14/2019	1900B	23.0	1850	1.492	53.283	1.520	53.300	-1.84%	-0.03%
			1880	1.533	53.246	1.520	53.300	0.86%	-0.10%
			1910	1.567	53.089	1.520	53.300	3.09%	-0.40%

Table 10-3
Measured Tissue Properties – Body

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
12/12/2018	2450B	23.0	2400	1.981	51.864	1.902	52.767	4.15%	-1.71%
			2450	2.038	51.736	1.950	52.700	4.51%	-1.83%
			2500	2.099	51.550	2.021	52.636	3.86%	-2.06%
12/20/2018	2450B	23.0	2400	1.974	52.035	1.902	52.767	3.79%	-1.39%
			2450	2.030	51.940	1.950	52.700	4.10%	-1.44%
			2500	2.089	51.768	2.021	52.636	3.36%	-1.65%
			2550	2.147	51.654	2.092	52.573	2.63%	-1.75%
			2600	2.211	51.505	2.163	52.509	2.22%	-1.91%
			2650	2.269	51.353	2.234	52.445	1.57%	-2.08%
			2700	2.334	51.196	2.305	52.382	1.26%	-2.26%
1/7/2019	2450B	23.5	2400	1.981	53.014	1.902	52.767	4.15%	0.47%
			2450	2.039	52.871	1.950	52.700	4.56%	0.32%
			2500	2.099	52.702	2.021	52.636	3.86%	0.13%
			2550	2.156	52.545	2.092	52.573	3.06%	-0.05%
			2600	2.220	52.401	2.163	52.509	2.64%	-0.21%
			2650	2.278	52.240	2.234	52.445	1.97%	-0.39%
			2700	2.341	52.107	2.305	52.382	1.56%	-0.52%
12/03/2018	5200B-5800B	22.0	5180	5.310	47.783	5.276	49.041	0.64%	-2.57%
			5200	5.352	47.765	5.299	49.014	1.00%	-2.55%
			5220	5.371	47.755	5.323	48.987	0.90%	-2.51%
			5240	5.397	47.753	5.346	48.960	0.95%	-2.47%
			5260	5.402	47.653	5.369	48.933	0.61%	-2.62%
			5280	5.442	47.651	5.393	48.906	0.91%	-2.57%
			5300	5.480	47.638	5.416	48.879	1.18%	-2.54%
			5320	5.499	47.598	5.439	48.851	1.10%	-2.56%
			5500	5.749	47.280	5.650	48.607	1.75%	-2.73%
			5520	5.782	47.278	5.673	48.580	1.92%	-2.68%
			5540	5.844	47.163	5.696	48.553	2.60%	-2.86%
			5560	5.841	47.139	5.720	48.526	2.12%	-2.86%
			5580	5.896	47.137	5.743	48.499	2.66%	-2.81%
			5600	5.888	47.127	5.766	48.471	2.12%	-2.77%
			5620	5.946	47.117	5.790	48.444	2.69%	-2.74%
			5640	5.966	47.007	5.813	48.417	2.63%	-2.91%
			5660	6.037	46.998	5.837	48.390	3.43%	-2.88%
			5680	6.047	46.938	5.860	48.363	3.19%	-2.95%
			5700	6.052	46.832	5.883	48.336	2.87%	-3.11%
			5745	6.136	46.816	5.936	48.275	3.37%	-3.02%
			5765	6.203	46.814	5.959	48.248	4.09%	-2.97%
			5785	6.207	46.757	5.982	48.220	3.76%	-3.03%
			5800	6.197	46.583	6.000	48.200	3.28%	-3.35%
			5805	6.212	46.599	6.006	48.193	3.43%	-3.31%
			5825	6.263	46.680	6.029	48.166	3.88%	-3.09%
01/03/2019	5200B-5800B	21.7	5180	5.307	47.482	5.276	49.041	0.59%	-3.18%
			5200	5.321	47.426	5.299	49.014	0.42%	-3.24%
			5220	5.356	47.399	5.323	48.987	0.62%	-3.24%
			5240	5.377	47.382	5.346	48.960	0.58%	-3.22%
			5260	5.427	47.316	5.369	48.933	1.08%	-3.30%
			5280	5.466	47.288	5.393	48.906	1.35%	-3.31%
			5300	5.477	47.257	5.416	48.879	1.13%	-3.32%
			5320	5.494	47.173	5.439	48.851	1.01%	-3.43%
			5500	5.752	46.860	5.650	48.607	1.81%	-3.59%
			5520	5.779	46.843	5.673	48.580	1.87%	-3.58%
			5540	5.819	46.752	5.696	48.553	2.16%	-3.71%
			5560	5.852	46.752	5.720	48.526	2.31%	-3.66%
			5580	5.882	46.729	5.743	48.499	2.42%	-3.65%
			5600	5.888	46.674	5.766	48.471	2.12%	-3.71%
			5620	5.927	46.624	5.790	48.444	2.37%	-3.76%
			5640	5.967	46.562	5.813	48.417	2.65%	-3.83%
			5660	6.003	46.584	5.837	48.390	2.84%	-3.73%
			5680	6.013	46.528	5.860	48.363	2.61%	-3.79%
			5700	6.052	46.454	5.883	48.336	2.87%	-3.89%
			5745	6.132	46.377	5.936	48.275	3.30%	-3.93%
			5765	6.157	46.380	5.959	48.248	3.32%	-3.87%
			5785	6.173	46.358	5.982	48.220	3.19%	-3.86%
			5800	6.197	46.298	6.000	48.200	3.28%	-3.95%
			5805	6.204	46.279	6.006	48.193	3.30%	-3.97%
			5825	6.235	46.256	6.029	48.166	3.42%	-3.97%

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.

Test System Verification

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

Table 10-4
System Verification Results – 1g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	$Deviation_{1g}$ (%)
M	750	HEAD	01/08/2019	21.5	19.7	0.200	1003	3287	1.700	8.280	8.500	2.66%
G	835	HEAD	12/19/2018	23.0	22.1	0.200	4d047	7410	2.040	9.470	10.200	7.71%
G	835	HEAD	12/26/2018	21.7	20.3	0.200	4d047	7410	1.970	9.470	9.850	4.01%
G	835	HEAD	01/02/2019	21.7	20.7	0.200	4d047	7410	1.980	9.470	9.900	4.54%
M	1750	HEAD	01/03/2019	20.2	19.6	0.100	1148	3287	3.600	36.400	36.000	-1.10%
I	1750	HEAD	01/07/2019	20.3	20.5	0.100	1150	7406	3.410	36.500	34.100	-6.58%
H	1900	HEAD	12/22/2018	20.7	22.3	0.100	5d080	7409	3.970	39.800	39.700	-0.25%
G	2450	HEAD	11/28/2018	23.0	23.9	0.100	797	7410	5.200	52.700	52.000	-1.33%
I	2450	HEAD	12/24/2018	20.1	23.2	0.100	719	7406	5.260	51.900	52.600	1.35%
G	2450	HEAD	01/09/2019	22.4	20.8	0.100	797	7410	5.450	52.700	54.500	3.42%
I	2600	HEAD	12/24/2018	20.1	23.2	0.100	1064	7406	5.930	57.000	59.300	4.04%
I	2600	HEAD	01/08/2019	22.6	20.8	0.100	1071	7406	5.910	56.300	59.100	4.97%
H	5250	HEAD	11/28/2018	22.3	20.7	0.050	1237	7409	3.900	81.300	78.000	-4.06%
H	5250	HEAD	01/07/2019	21.2	20.6	0.050	1191	7409	3.650	78.900	73.000	-7.48%
H	5600	HEAD	11/28/2018	22.3	20.7	0.050	1237	7409	4.190	85.700	83.800	-2.22%
H	5750	HEAD	11/28/2018	22.3	20.7	0.050	1237	7409	3.790	80.600	75.800	-5.96%
D	750	BODY	11/28/2018	22.1	20.5	0.200	1003	7357	1.670	8.580	8.350	-2.68%
I	835	BODY	12/11/2018	22.3	21.0	0.200	4d132	7406	1.980	9.710	9.900	1.96%
I	835	BODY	12/13/2018	20.4	20.0	0.200	4d047	7406	2.000	9.710	10.000	2.99%
J	835	BODY	12/17/2018	20.1	20.5	0.200	4d047	3347	1.970	9.710	9.850	1.44%
J	835	BODY	01/07/2019	20.9	20.8	0.200	4d133	3347	1.970	9.750	9.850	1.03%
I	835	BODY	01/14/2019	20.3	21.1	0.200	4d047	7406	2.030	9.710	10.150	4.53%
M	1750	BODY	01/09/2019	20.7	20.9	0.100	1148	3287	3.520	37.000	35.200	-4.86%
J	1750	BODY	01/31/2019	21.0	19.8	0.100	1150	3347	3.670	36.600	36.700	0.27%
E	1900	BODY	11/28/2018	21.2	20.8	0.100	5d148	3213	3.890	39.600	38.900	-1.77%
H	1900	BODY	12/02/2018	21.9	21.8	0.100	5d080	7409	4.190	39.200	41.900	6.89%
E	1900	BODY	12/03/2018	21.3	20.8	0.100	5d148	3332	4.210	39.600	42.100	6.31%
E	1900	BODY	12/05/2018	24.5	23.3	0.100	5d148	3332	4.150	39.600	41.500	4.80%
G	1900	BODY	01/14/2019	23.4	22.2	0.100	5d149	7410	4.070	39.400	40.700	3.30%
K	2450	BODY	12/12/2018	22.7	22.8	0.100	719	3319	5.340	50.100	53.400	6.59%
K	2450	BODY	12/20/2018	23.2	22.4	0.100	797	3319	5.280	51.100	52.800	3.33%
K	2450	BODY	01/07/2019	22.6	21.6	0.100	797	3319	5.220	51.100	52.200	2.15%
K	2600	BODY	12/20/2018	23.2	22.4	0.100	1071	3319	5.660	54.200	56.600	4.43%
K	2600	BODY	01/07/2019	22.6	21.6	0.100	1071	3319	5.520	54.200	55.200	1.85%
L	5250	BODY	01/03/2019	21.5	21.0	0.050	1191	7308	3.580	77.000	71.600	-7.01%
L	5600	BODY	01/03/2019	21.5	21.0	0.050	1191	7308	3.900	79.200	78.000	-1.52%
L	5750	BODY	01/03/2019	21.5	21.0	0.050	1191	7308	3.500	76.100	70.000	-8.02%

Table 10-5
System Verification Results – 10g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{10g} (W/kg)	1 W Target SAR_{10g} (W/kg)	1 W Normalized SAR_{10g} (W/kg)	Deviation$_{10g}$ (%)
J	1750	BODY	12/03/2018	19.7	20.0	0.100	1148	3347	2.000	19.800	20.000	1.01%
M	1750	BODY	01/09/2019	20.7	20.9	0.100	1148	3287	1.880	19.800	18.800	-5.05%
H	1900	BODY	12/02/2018	21.9	21.8	0.100	5d080	7409	2.140	20.600	21.400	3.88%
E	1900	BODY	12/19/2018	21.6	22.3	0.100	5d148	3332	2.000	20.900	20.000	-4.31%
E	1900	BODY	01/04/2019	21.9	21.7	0.100	5d149	3332	2.100	20.700	21.000	1.45%
D	5250	BODY	12/03/2018	23.0	21.5	0.050	1191	7357	1.010	21.600	20.200	-6.48%
D	5600	BODY	12/03/2018	23.0	21.5	0.050	1191	7357	1.070	22.200	21.400	-3.60%
D	5750	BODY	12/03/2018	23.0	21.5	0.050	1191	7357	1.050	21.200	21.000	-0.94%

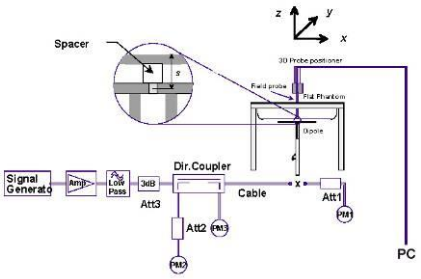


Figure 10-1
System Verification Setup Diagram

Figure 10-2
System Verification Setup Photo

11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
CDMA BC10 (§90S) 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)	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.24	0.07	Right	Cheek	00064	1:1	0.087	1.062	0.092	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.24	0.16	Right	Tilt	00064	1:1	0.059	1.062	0.063	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.24	0.12	Left	Cheek	00064	1:1	0.101	1.062	0.107	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.24	-0.19	Left	Tilt	00064	1:1	0.051	1.062	0.054	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.36	0.16	Right	Cheek	00065	1:1	0.098	1.033	0.101	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.36	0.14	Right	Tilt	00065	1:1	0.057	1.033	0.059	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.36	-0.20	Left	Cheek	00065	1:1	0.130	1.033	0.134	A1
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.36	0.06	Left	Tilt	00065	1:1	0.067	1.033	0.069	
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	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	25.5	25.32	-0.11	Right	Cheek	00064	1:1	0.088	1.042	0.092	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.32	0.13	Right	Tilt	00064	1:1	0.062	1.042	0.065	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.32	0.06	Left	Cheek	00064	1:1	0.124	1.042	0.129	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.32	0.12	Left	Tilt	00064	1:1	0.054	1.042	0.056	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.13	-0.05	Right	Cheek	00065	1:1	0.083	1.089	0.090	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.13	-0.04	Right	Tilt	00065	1:1	0.063	1.089	0.069	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.13	0.01	Left	Cheek	00065	1:1	0.132	1.089	0.144	A2
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.13	0.19	Left	Tilt	00065	1:1	0.069	1.089	0.075	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-3
PCS CDMA 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	600	PCS CDMA	RC3 / SO55	25.2	24.99	0.10	Right	Cheek	00065	1:1	0.191	1.050	0.201	
1880.00	600	PCS CDMA	RC3 / SO55	25.2	24.99	-0.09	Right	Tilt	00065	1:1	0.113	1.050	0.119	
1880.00	600	PCS CDMA	RC3 / SO55	25.2	24.99	0.04	Left	Cheek	00065	1:1	0.167	1.050	0.175	
1880.00	600	PCS CDMA	RC3 / SO55	25.2	24.99	-0.03	Left	Tilt	00065	1:1	0.102	1.050	0.107	
1880.00	600	PCS CDMA	EVDO Rev. A	25.2	25.02	0.05	Right	Cheek	00065	1:1	0.201	1.042	0.209	A3
1880.00	600	PCS CDMA	EVDO Rev. A	25.2	25.02	0.05	Right	Tilt	00065	1:1	0.097	1.042	0.101	
1880.00	600	PCS CDMA	EVDO Rev. A	25.2	25.02	-0.07	Left	Cheek	00065	1:1	0.165	1.042	0.172	
1880.00	600	PCS CDMA	EVDO Rev. A	25.2	25.02	0.03	Left	Tilt	00065	1:1	0.104	1.042	0.108	
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	# of Time Slots	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.7	33.46	-0.09	Right	Cheek	00064	1	1:8.3	0.051	1.057	0.054	
836.60	190	GSM 850	GSM	33.7	33.46	-0.17	Right	Tilt	00064	1	1:8.3	0.035	1.057	0.037	
836.60	190	GSM 850	GSM	33.7	33.46	-0.03	Left	Cheek	00064	1	1:8.3	0.065	1.057	0.069	A4
836.60	190	GSM 850	GSM	33.7	33.46	-0.12	Left	Tilt	00064	1	1:8.3	0.023	1.057	0.024	
836.60	190	GSM 850	GPRS	33.7	33.51	-0.12	Right	Cheek	00064	1	1:8.3	0.051	1.045	0.053	
836.60	190	GSM 850	GPRS	33.7	33.51	0.12	Right	Tilt	00064	1	1:8.3	0.036	1.045	0.038	
836.60	190	GSM 850	GPRS	33.7	33.51	0.08	Left	Cheek	00064	1	1:8.3	0.060	1.045	0.063	
836.60	190	GSM 850	GPRS	33.7	33.51	0.17	Left	Tilt	00064	1	1:8.3	0.029	1.045	0.030	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11-5
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	# of Time Slots	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GSM	31.2	31.11	0.14	Right	Cheek	00064	1	1:8.3	0.094	1.021	0.096	A5
1880.00	661	GSM 1900	GSM	31.2	31.11	-0.05	Right	Tilt	00064	1	1:8.3	0.061	1.021	0.062	
1880.00	661	GSM 1900	GSM	31.2	31.11	0.13	Left	Cheek	00064	1	1:8.3	0.085	1.021	0.087	
1880.00	661	GSM 1900	GSM	31.2	31.11	0.04	Left	Tilt	00064	1	1:8.3	0.066	1.021	0.067	
1880.00	661	GSM 1900	GPRS	31.2	31.09	0.05	Right	Cheek	00064	1	1:8.3	0.091	1.026	0.093	
1880.00	661	GSM 1900	GPRS	31.2	31.09	-0.02	Right	Tilt	00064	1	1:8.3	0.060	1.026	0.062	
1880.00	661	GSM 1900	GPRS	31.2	31.09	0.20	Left	Cheek	00064	1	1:8.3	0.083	1.026	0.085	
1880.00	661	GSM 1900	GPRS	31.2	31.09	-0.16	Left	Tilt	00064	1	1:8.3	0.076	1.026	0.078	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11-6
UMTS 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	4183	UMTS 850	RMC	25.5	25.24	-0.03	Right	Cheek	00064	1:1	0.114	1.062	0.121	
836.60	4183	UMTS 850	RMC	25.5	25.24	0.12	Right	Tilt	00064	1:1	0.072	1.062	0.076	
836.60	4183	UMTS 850	RMC	25.5	25.24	0.12	Left	Cheek	00064	1:1	0.130	1.062	0.138	A6
836.60	4183	UMTS 850	RMC	25.5	25.24	0.12	Left	Tilt	00064	1:1	0.057	1.062	0.061	
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	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	25.2	25.03	0.01	Right	Cheek	00065	1:1	0.078	1.040	0.081	
1732.40	1412	UMTS 1750	RMC	25.2	25.03	-0.19	Right	Tilt	00065	1:1	0.068	1.040	0.071	
1732.40	1412	UMTS 1750	RMC	25.2	25.03	0.04	Left	Cheek	00065	1:1	0.083	1.040	0.086	A7
1732.40	1412	UMTS 1750	RMC	25.2	25.03	0.13	Left	Tilt	00065	1:1	0.058	1.040	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 11-8
UMTS 1900 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	9400	UMTS 1900	RMC	25.2	25.07	0.20	Right	Cheek	00064	1:1	0.188	1.030	0.194	A8
1880.00	9400	UMTS 1900	RMC	25.2	25.07	0.00	Right	Tilt	00064	1:1	0.115	1.030	0.118	
1880.00	9400	UMTS 1900	RMC	25.2	25.07	0.05	Left	Cheek	00064	1:1	0.144	1.030	0.148	
1880.00	9400	UMTS 1900	RMC	25.2	25.07	-0.13	Left	Tilt	00064	1:1	0.121	1.030	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							

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	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
680.50	133297	Mid	LTE Band 71	20	25.5	25.43	-0.01	0	Right	Cheek	QPSK	1	99	00056	1:1	0.108	1.016	0.110	A9
680.50	133297	Mid	LTE Band 71	20	24.5	24.49	0.19	1	Right	Cheek	QPSK	50	25	00056	1:1	0.097	1.002	0.097	
680.50	133297	Mid	LTE Band 71	20	25.5	25.43	0.12	0	Right	Tilt	QPSK	1	99	00056	1:1	0.068	1.016	0.069	
680.50	133297	Mid	LTE Band 71	20	24.5	24.49	-0.02	1	Right	Tilt	QPSK	50	25	00056	1:1	0.065	1.002	0.065	
680.50	133297	Mid	LTE Band 71	20	25.5	25.43	-0.01	0	Left	Cheek	QPSK	1	99	00056	1:1	0.104	1.016	0.106	
680.50	133297	Mid	LTE Band 71	20	24.5	24.49	0.14	1	Left	Cheek	QPSK	50	25	00056	1:1	0.093	1.002	0.093	
680.50	133297	Mid	LTE Band 71	20	25.5	25.43	-0.12	0	Left	Tilt	QPSK	1	99	00056	1:1	0.059	1.016	0.060	
680.50	133297	Mid	LTE Band 71	20	24.5	24.49	0.01	1	Left	Tilt	QPSK	50	25	00056	1:1	0.051	1.002	0.051	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-10
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	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	25.5	25.30	0.12	0	Right	Cheek	QPSK	1	25	00056	1:1	0.132	1.047	0.138	A10
707.50	23095	Mid	LTE Band 12	10	24.5	24.41	0.03	1	Right	Cheek	QPSK	25	12	00056	1:1	0.117	1.021	0.119	
707.50	23095	Mid	LTE Band 12	10	25.5	25.30	0.12	0	Right	Tilt	QPSK	1	25	00056	1:1	0.079	1.047	0.083	
707.50	23095	Mid	LTE Band 12	10	24.5	24.41	0.00	1	Right	Tilt	QPSK	25	12	00056	1:1	0.069	1.021	0.070	
707.50	23095	Mid	LTE Band 12	10	25.5	25.30	0.02	0	Left	Cheek	QPSK	1	25	00056	1:1	0.124	1.047	0.130	
707.50	23095	Mid	LTE Band 12	10	24.5	24.41	0.08	1	Left	Cheek	QPSK	25	12	00056	1:1	0.119	1.021	0.121	
707.50	23095	Mid	LTE Band 12	10	25.5	25.30	0.04	0	Left	Tilt	QPSK	1	25	00056	1:1	0.059	1.047	0.062	
707.50	23095	Mid	LTE Band 12	10	24.5	24.41	0.05	1	Left	Tilt	QPSK	25	12	00056	1:1	0.055	1.021	0.056	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram											

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	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	25.5	25.33	-0.10	0	Right	Cheek	QPSK	1	25	00056	1:1	0.136	1.040	0.141	
782.00	23230	Mid	LTE Band 13	10	24.5	24.48	0.08	1	Right	Cheek	QPSK	25	0	00056	1:1	0.103	1.005	0.104	
782.00	23230	Mid	LTE Band 13	10	25.5	25.33	0.07	0	Right	Tilt	QPSK	1	25	00056	1:1	0.102	1.040	0.106	
782.00	23230	Mid	LTE Band 13	10	24.5	24.48	0.00	1	Right	Tilt	QPSK	25	0	00056	1:1	0.069	1.005	0.069	
782.00	23230	Mid	LTE Band 13	10	25.5	25.33	0.07	0	Left	Cheek	QPSK	1	25	00056	1:1	0.154	1.040	0.160	A11
782.00	23230	Mid	LTE Band 13	10	24.5	24.48	0.00	1	Left	Cheek	QPSK	25	0	00056	1:1	0.116	1.005	0.117	
782.00	23230	Mid	LTE Band 13	10	25.5	25.33	-0.03	0	Left	Tilt	QPSK	1	25	00056	1:1	0.082	1.040	0.085	
782.00	23230	Mid	LTE Band 13	10	24.5	24.48	0.05	1	Left	Tilt	QPSK	25	0	00056	1:1	0.064	1.005	0.064	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-12
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	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.39	0.07	0	Right	Cheek	QPSK	1	36	00057	1:1	0.050	1.026	0.051	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	0.04	1	Right	Cheek	QPSK	36	0	00057	1:1	0.037	1.033	0.038	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.39	-0.12	0	Right	Tilt	QPSK	1	36	00057	1:1	0.031	1.026	0.032	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	0.12	1	Right	Tilt	QPSK	36	0	00057	1:1	0.023	1.033	0.024	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.39	0.12	0	Left	Cheek	QPSK	1	36	00057	1:1	0.053	1.026	0.054	A12
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	-0.12	1	Left	Cheek	QPSK	36	0	00057	1:1	0.039	1.033	0.040	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.39	0.12	0	Left	Tilt	QPSK	1	36	00057	1:1	0.021	1.026	0.022	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	0.12	1	Left	Tilt	QPSK	36	0	00057	1:1	0.016	1.033	0.017	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-13
LTE Band 66 (AWS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.18	0.15	0	Right	Cheek	QPSK	1	99	00057	1:1	0.078	1.005	0.078	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.13	-0.05	1	Right	Cheek	QPSK	50	0	00057	1:1	0.074	1.016	0.075	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.18	0.08	0	Right	Tilt	QPSK	1	99	00057	1:1	0.055	1.005	0.055	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.13	0.12	1	Right	Tilt	QPSK	50	0	00057	1:1	0.053	1.016	0.054	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.18	-0.02	0	Left	Cheek	QPSK	1	99	00057	1:1	0.079	1.005	0.079	A13
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.13	0.18	1	Left	Cheek	QPSK	50	0	00057	1:1	0.064	1.016	0.065	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.18	0.16	0	Left	Tilt	QPSK	1	99	00057	1:1	0.049	1.005	0.049	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.13	0.12	1	Left	Tilt	QPSK	50	0	00057	1:1	0.044	1.016	0.045	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-14
LTE Band 25 (PCS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.17	0.16	0	Right	Cheek	QPSK	1	50	00056	1:1	0.146	1.007	0.147	A14
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.12	0.04	1	Right	Cheek	QPSK	50	25	00056	1:1	0.137	1.019	0.140	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.17	-0.13	0	Right	Tilt	QPSK	1	50	00056	1:1	0.092	1.007	0.093	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.12	0.04	1	Right	Tilt	QPSK	50	25	00056	1:1	0.084	1.019	0.086	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.17	0.07	0	Left	Cheek	QPSK	1	50	00056	1:1	0.123	1.007	0.124	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.12	0.09	1	Left	Cheek	QPSK	50	25	00056	1:1	0.112	1.019	0.114	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.17	0.02	0	Left	Tilt	QPSK	1	50	00056	1:1	0.086	1.007	0.087	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.12	-0.01	1	Left	Tilt	QPSK	50	25	00056	1:1	0.083	1.019	0.085	
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 11-15
LTE Band 41 Head SAR

MEASUREMENT RESULTS																					
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	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	2680.00	41490	High	LTE Band 41	20	25.2	24.79	0.04	0	Right	Cheek	QPSK	1	0	00056	1:1.58	0.169	1.099	0.186	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	23.87	-0.09	1	Right	Cheek	QPSK	50	0	00056	1:1.58	0.155	1.079	0.167	
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	27.7	27.32	-0.10	0	Right	Cheek	QPSK	1	0	00056	1:2.31	0.187	1.091	0.204	
2 CC Uplink - Power Class 3	PCC	2680.00	41490	High	LTE Band 41	20	25.2	24.93	0.00	0	Right	Cheek	QPSK	1	0	00056	1:1.58	0.327	1.064	**0.348**	A15
	SCC	2660.20	41292											1	99						
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	25.2	24.79	0.02	0	Right	Tilt	QPSK	1	0	00056	1:1.58	0.046	1.099	0.051	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	23.87	0.12	1	Right	Tilt	QPSK	50	0	00056	1:1.58	0.032	1.079	0.035	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	25.2	24.79	-0.03	0	Left	Cheek	QPSK	1	0	00056	1:1.58	0.073	1.099	0.080	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	23.87	0.04	1	Left	Cheek	QPSK	50	0	00056	1:1.58	0.050	1.079	0.054	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	25.2	24.79	-0.17	0	Left	Tilt	QPSK	1	0	00056	1:1.58	0.035	1.099	0.038	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	23.87	0.11	1	Left	Tilt	QPSK	50	0	00056	1:1.58	0.025	1.079	0.027	
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
EN-DC DC_41A-n41A Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Test Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
2592.99	518598	Mid	NR Band n41	60	18.4	18.23	0.03	0	Right	Cheek	CP-OFDM-QPSK	1	1	00568	1:1	0.064	1.040	0.066	
2592.99	518598	Mid	NR Band n41	60	18.4	17.98	0.19	0	Right	Cheek	CP-OFDM-QPSK	81	40	00568	1:1	0.070	1.102	0.077	
2526.00	505200	Low	NR Band n41	60	18.4	18.17	0.15	0	Right	Tilt	CP-OFDM-QPSK	1	1	00568	1:1	0.044	1.054	0.046	
2592.99	518598	Mid	NR Band n41	60	18.4	18.23	-0.11	0	Right	Tilt	CP-OFDM-QPSK	1	1	00568	1:1	0.080	1.040	0.083	A16
2592.99	518598	Mid	NR Band n41	60	18.4	17.98	0.02	0	Right	Tilt	CP-OFDM-QPSK	81	40	00568	1:1	0.077	1.102	0.085	
2659.98	531996	High	NR Band n41	60	18.4	17.89	0.09	0	Right	Tilt	CP-OFDM-QPSK	1	1	00568	1:1	0.014	1.125	0.016	
2592.99	518598	Mid	NR Band n41	40	18.4	18.28	0.18	0	Right	Tilt	CP-OFDM-QPSK	1	104	00568	1:1	0.043	1.028	0.044	
2592.99	518598	Mid	NR Band n41	40	18.4	18.37	0.03	0	Right	Tilt	CP-OFDM-QPSK	53	26	00568	1:1	0.048	1.007	0.049	
2592.99	518598	Mid	NR Band n41	60	18.4	18.23	-0.02	0	Left	Cheek	CP-OFDM-QPSK	1	1	00568	1:1	0.017	1.040	0.018	
2592.99	518598	Mid	NR Band n41	60	18.4	17.98	0.03	0	Left	Cheek	CP-OFDM-QPSK	81	40	00568	1:1	0.017	1.102	0.019	
2592.99	518598	Mid	NR Band n41	60	18.4	18.23	0.04	0	Left	Tilt	CP-OFDM-QPSK	1	1	00568	1:1	0.042	1.040	0.043	
2592.99	518598	Mid	NR Band n41	60	18.4	17.98	0.02	0	Left	Tilt	CP-OFDM-QPSK	81	40	00568	1:1	0.042	1.102	0.046	

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

LTE Transmission	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	UL/DL Frame Configuration	MPR [dB]	Modulation	RB Size	RB Offset	Test Duty Cycle
	MHz	Ch.											
FTM mode	2680.00	41490	High	LTE Band 41	20	18.9	18.08	N/A	0	QPSK	1	0	1:1

Note: During SAR testing for EN-DC conditions per FCC guidance, LTE Band 41 anchor transmission was active during NR Band n41 SAR evaluations in tables 11-16. Additional SAR investigations determined LTE Band 41 transmission had no effect on NR Band n41 SAR levels due to spatial separation of transmitting antennas, thus LTE Band 41 anchor configuration was not changed between SAR tests.

Table 11-17
DTS Head SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2437	6	802.11b	DSSS	22	18.0	17.80	-0.19	Right	Cheek	1	00071	1	99.3	0.481	0.330	1.047	1.007	0.348	
2437	6	802.11b	DSSS	22	18.0	17.80	-0.21	Right	Tilt	1	00071	1	99.3	0.547	-	1.047	1.007	-	
2437	6	802.11b	DSSS	22	18.0	17.80	0.18	Left	Cheek	1	00071	1	99.3	1.246	0.692	1.047	1.007	0.730	
2412	1	802.11b	DSSS	22	18.0	17.62	-0.02	Left	Tilt	1	00071	1	99.3	1.012	0.557	1.091	1.007	0.612	
2437	6	802.11b	DSSS	22	18.0	17.80	0.08	Left	Tilt	1	00071	1	99.3	1.095	0.897	1.047	1.007	**0.946**	A17
2462	11	802.11b	DSSS	22	18.0	17.69	0.05	Left	Tilt	1	00071	1	99.3	1.235	0.648	1.074	1.007	0.701	
2437	6	802.11b	DSSS	22	18.0	17.99	0.15	Right	Cheek	2	00071	1	99.4	0.172	-	1.002	1.006	-	
2437	6	802.11b	DSSS	22	18.0	17.99	0.19	Right	Tilt	2	00071	1	99.4	0.044	-	1.002	1.006	-	
2437	6	802.11b	DSSS	22	18.0	17.99	0.14	Left	Cheek	2	00071	1	99.4	0.683	0.344	1.002	1.006	0.347	
2437	6	802.11b	DSSS	22	18.0	17.99	0.17	Left	Tilt	2	00071	1	99.4	0.135	-	1.002	1.006	-	
2437	6	802.11b	DSSS	22	18.0	17.80	0.19	Left	Tilt	1	00071	1	99.3	1.543	0.811	1.047	1.007	0.855	

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

Note: Blue entry represents variability measurement.

Table 11-18
NII Head SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5280	56	802.11a	OFDM	20	18.0	17.62	0.19	Right	Cheek	1	00070	6	98.3	0.689	0.338	1.091	1.017	0.375	
5280	56	802.11a	OFDM	20	18.0	17.62	0.19	Right	Tilt	1	00070	6	98.3	0.655	-	1.091	1.017	-	
5260	52	802.11a	OFDM	20	17.0	16.70	0.15	Left	Cheek	1	00070	6	98.3	1.859	0.725	1.072	1.017	0.790	
5280	56	802.11a	OFDM	20	18.0	17.62	0.04	Left	Cheek	1	00070	6	98.3	2.046	0.882	1.091	1.017	**0.979**	A18
5300	60	802.11a	OFDM	20	17.0	16.62	0.16	Left	Cheek	1	00070	6	98.3	1.534	0.588	1.091	1.017	0.652	
5320	64	802.11a	OFDM	20	18.0	16.62	0.18	Left	Cheek	1	00070	6	98.3	1.432	0.651	1.374	1.017	0.910	
5260	52	802.11a	OFDM	20	18.0	16.70	0.19	Left	Tilt	1	00070	6	98.3	1.534	0.554	1.349	1.017	0.760	
5280	56	802.11a	OFDM	20	18.0	17.62	0.18	Left	Tilt	1	00070	6	98.3	1.872	0.786	1.091	1.017	0.872	
5280	56	802.11a	OFDM	20	18.0	17.72	0.15	Right	Cheek	2	00070	6	98.3	0.238	-	1.067	1.017	-	
5280	56	802.11a	OFDM	20	18.0	17.72	0.18	Right	Tilt	2	00070	6	98.3	0.228	-	1.067	1.017	-	
5280	56	802.11a	OFDM	20	18.0	17.72	0.17	Left	Cheek	2	00070	6	98.3	0.546	0.208	1.067	1.017	0.226	
5280	56	802.11a	OFDM	20	18.0	17.72	0.17	Left	Tilt	2	00070	6	98.3	0.431	-	1.067	1.017	-	
5280	56	802.11a	OFDM	20	18.0	17.62	0.04	Left	Cheek	1	00070	6	98.3	1.643	0.800	1.091	1.017	0.888	
5720	144	802.11a	OFDM	20	17.0	16.86	0.08	Right	Cheek	1	00070	6	98.3	0.262	-	1.033	1.017	-	
5720	144	802.11a	OFDM	20	17.0	16.86	0.12	Right	Tilt	1	00070	6	98.3	0.259	-	1.033	1.017	-	
5720	144	802.11a	OFDM	20	17.0	16.86	-0.15	Left	Cheek	1	00070	6	98.3	0.621	0.193	1.033	1.017	0.203	
5720	144	802.11a	OFDM	20	17.0	16.86	0.17	Left	Tilt	1	00070	6	98.3	0.523	-	1.033	1.017	-	
5500	100	802.11a	OFDM	20	17.0	16.80	0.15	Right	Cheek	2	00070	6	98.3	0.204	-	1.047	1.017	-	
5500	100	802.11a	OFDM	20	17.0	16.80	0.13	Right	Tilt	2	00070	6	98.3	0.260	-	1.047	1.017	-	
5500	100	802.11a	OFDM	20	17.0	16.80	0.19	Left	Cheek	2	00070	6	98.3	0.592	-	1.047	1.017	-	
5500	100	802.11a	OFDM	20	17.0	16.80	0.16	Left	Tilt	2	00070	6	98.3	0.675	0.235	1.047	1.017	0.250	
5825	165	802.11a	OFDM	20	18.0	17.90	0.19	Right	Cheek	1	00070	6	98.3	0.354	-	1.023	1.017	-	
5825	165	802.11a	OFDM	20	18.0	17.90	0.03	Right	Tilt	1	00070	6	98.3	0.351	-	1.023	1.017	-	
5825	165	802.11a	OFDM	20	18.0	17.90	0.14	Left	Cheek	1	00070	6	98.3	0.524	0.209	1.023	1.017	0.217	
5825	165	802.11a	OFDM	20	18.0	17.90	0.19	Left	Tilt	1	00070	6	98.3	0.524	-	1.023	1.017	-	
5805	161	802.11a	OFDM	20	18.0	17.97	0.16	Right	Cheek	2	00070	6	98.3	0.360	-	1.007	1.017	-	
5805	161	802.11a	OFDM	20	18.0	17.97	0.14	Right	Tilt	2	00070	6	98.3	0.319	-	1.007	1.017	-	
5805	161	802.11a	OFDM	20	18.0	17.97	0.16	Left	Cheek	2	00070	6	98.3	0.589	0.260	1.007	1.017	0.266	
5805	161	802.11a	OFDM	20	18.0	17.97	0.04	Left	Tilt	2	00070	6	98.3	0.569	-	1.007	1.017	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Head 1.6 W/kg (mW/g) averaged over 1 gram					

Note: Blue entry represents variability measurement.

Table 11-19
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)	
2441.00	39	Bluetooth	FHSS	12.5	11.67	0.13	Right	Cheek	00071	1	77.1	0.020	1.211	1.297	0.031	
2441.00	39	Bluetooth	FHSS	12.5	11.67	0.04	Right	Tilt	00071	1	77.1	0.029	1.211	1.297	0.046	
2441.00	39	Bluetooth	FHSS	12.5	11.67	0.13	Left	Cheek	00071	1	77.1	0.046	1.211	1.297	0.072	
2441.00	39	Bluetooth	FHSS	12.5	11.67	0.15	Left	Tilt	00071	1	77.1	0.055	1.211	1.297	**0.086**	A19
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 11-20
GSM/UMTS/CDMA Body-Worn SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	# of Time Slots	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	25.27	0.01	10 mm	00065	N/A	1:1	back	0.714	1.054	0.753	A20
824.70	1013	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.18	-0.03	10 mm	00065	N/A	1:1	back	0.591	1.076	0.636	
836.52	384	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.10	0.00	10 mm	00065	N/A	1:1	back	0.779	1.096	0.854	A22
848.31	777	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.10	0.01	10 mm	00065	N/A	1:1	back	0.743	1.096	0.814	
1851.25	25	PCS CDMA	TDSO / SO32	25.2	24.92	-0.01	10 mm	00065	N/A	1:1	back	0.619	1.067	0.660	
1880.00	600	PCS CDMA	TDSO / SO32	25.2	24.90	0.05	10 mm	00065	N/A	1:1	back	0.647	1.072	0.694	
1908.75	1175	PCS CDMA	TDSO / SO32	25.2	24.77	0.03	10 mm	00065	N/A	1:1	back	0.723	1.104	0.798	A24
836.60	190	GSM 850	GSM	33.7	33.46	-0.04	10 mm	00064	1	1:8.3	back	0.543	1.057	0.574	A26
836.60	190	GSM 850	GPRS	33.7	33.51	-0.02	10 mm	00064	1	1:8.3	back	0.518	1.045	0.541	
1880.00	661	GSM 1900	GSM	31.2	31.11	-0.01	10 mm	00064	1	1:8.3	back	0.276	1.021	0.282	
1880.00	661	GSM 1900	GPRS	31.2	31.09	-0.14	10 mm	00064	1	1:8.3	back	0.292	1.026	0.300	A28
826.40	4132	UMTS 850	RMC	25.5	25.33	-0.07	10 mm	00064	N/A	1:1	back	0.748	1.040	0.778	
836.60	4183	UMTS 850	RMC	25.5	25.24	-0.03	10 mm	00064	N/A	1:1	back	0.864	1.062	0.918	A30
846.60	4233	UMTS 850	RMC	25.5	25.31	-0.06	10 mm	00064	N/A	1:1	back	0.850	1.045	0.888	
1732.40	1412	UMTS 1750	RMC	25.2	25.03	-0.05	10 mm	00064	N/A	1:1	back	0.395	1.040	0.411	A31
1880.00	9400	UMTS 1900	RMC	25.2	25.07	0.01	10 mm	00064	N/A	1:1	back	0.557	1.030	0.574	A33
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 11-21
LTE Body-Worn SAR

MEASUREMENT RESULTS																					
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
680.50	133297	Mid	LTE Band 71	20	25.5	25.43	0.02	0	00057	QPSK	1	99	10 mm	back	1:1	0.429	1.016	0.436	A35
680.50	133297	Mid	LTE Band 71	20	24.5	24.49	-0.03	1	00057	QPSK	50	25	10 mm	back	1:1	0.354	1.002	0.355	
707.50	23095	Mid	LTE Band 12	10	25.5	25.30	0.07	0	00057	QPSK	1	25	10 mm	back	1:1	0.515	1.047	0.539	A36
707.50	23095	Mid	LTE Band 12	10	24.5	24.41	-0.01	1	00057	QPSK	25	12	10 mm	back	1:1	0.477	1.021	0.487	
782.00	23230	Mid	LTE Band 13	10	25.5	25.33	-0.19	0	00057	QPSK	1	25	10 mm	back	1:1	0.725	1.040	0.754	A37
782.00	23230	Mid	LTE Band 13	10	24.5	24.48	-0.03	1	00057	QPSK	25	0	10 mm	back	1:1	0.585	1.005	0.588	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.39	-0.05	0	00057	QPSK	1	36	10 mm	back	1:1	0.894	1.026	0.917	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	0.01	1	00057	QPSK	36	0	10 mm	back	1:1	0.654	1.033	0.676	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.27	-0.05	1	00057	QPSK	75	0	10 mm	back	1:1	0.723	1.054	0.762	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.39	0.00	0	00057	QPSK	1	36	10 mm	back	1:1	0.912	1.026	**0.936**	A38
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.18	0.09	0	00057	QPSK	1	99	10 mm	back	1:1	0.458	1.005	0.460	A39
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.13	-0.01	1	00057	QPSK	50	0	10 mm	back	1:1	0.321	1.016	0.326	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.2	25.13	-0.05	0	00056	QPSK	1	0	10 mm	back	1:1	0.614	1.016	0.624	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.00	-0.02	0	00056	QPSK	1	0	10 mm	back	1:1	0.647	1.047	0.677	A41
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.17	-0.04	0	00056	QPSK	1	50	10 mm	back	1:1	0.626	1.007	0.630	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.12	-0.02	1	00056	QPSK	50	25	10 mm	back	1:1	0.547	1.019	0.557	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram							

Note: Blue entry represents variability measurement.

Table 11-22
LTE Band 41 Body-Worn SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	25.2	24.79	-0.06	0	00056	QPSK	1	0	10 mm	back	1:1.58	0.364	1.099	0.400	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	23.87	0.00	1	00056	QPSK	50	0	10 mm	back	1:1.58	0.231	1.079	0.249	
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	27.7	27.32	-0.12	0	00056	QPSK	1	0	10 mm	back	1:2.31	0.410	1.091	0.447	
2 CC Uplink - Power Class 3	PCC	2680.00	41490	High	LTE Band 41	20	25.2	24.93	-0.17	0	00056	QPSK	1	0	10 mm	back	1:1.58	0.572	1.064	0.609	A43
	SCC	2660.20	41292										1	99							
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram						

Table 11-23
EN-DC DC_41A-n41A Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Test Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
2592.99	518598	Mid	NR Band n41	60	18.4	18.23	0.10	0	00568	CP-OFDM-QPSK	1	1	10 mm	back	1:1	0.343	1.040	0.357	A45
2592.99	518598	Mid	NR Band n41	60	18.4	17.98	-0.02	0	00568	CP-OFDM-QPSK	81	40	10 mm	back	1:1	0.298	1.102	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					

LTE Transmission	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	UL/DL Frame Configuration	MPR [dB]	Modulation	RB Size	RB Offset	Test Duty Cycle
	MHz	Ch.											
FTM mode	2680.00	41490	High	LTE Band 41	20	18.9	18.08	N/A	0	QPSK	1	0	1:1

Note: During SAR testing for EN-DC conditions per FCC guidance, LTE Band 41 anchor transmission was active during NR Band n41 SAR evaluations in tables 11-23. Additional SAR investigations determined LTE Band 41 transmission had no effect on NR Band n41 SAR levels due to spatial separation of transmitting antennas, thus LTE Band 41 anchor configuration was not changed between SAR tests.

Table 11-24
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	20.34	-0.12	10 mm	1	00071	1	back	99.3	0.299	0.249	1.038	1.007	**0.260**	A47
2412	1	802.11b	DSSS	22	20.5	20.30	0.16	10 mm	2	00071	1	back	99.4	0.262	0.199	1.047	1.006	0.210	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Body** **1.6 W/kg (mW/g)** averaged over 1 gram											

Table 11-25
NII Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5280	56	802.11a	OFDM	20	18.0	17.62	-0.09	10 mm	1	00071	6	back	98.3	0.556	0.322	1.091	1.017	0.357	
5280	56	802.11a	OFDM	20	18.0	17.72	0.19	10 mm	2	00071	6	back	98.3	0.678	0.377	1.067	1.017	0.409	
5720	144	802.11a	OFDM	20	17.0	16.86	0.18	10 mm	1	00071	6	back	98.3	0.248	0.162	1.033	1.017	0.170	
5500	100	802.11a	OFDM	20	17.0	16.80	0.14	10 mm	2	00071	6	back	98.3	0.868	0.453	1.047	1.017	0.482	
5825	165	802.11a	OFDM	20	18.0	17.90	-0.13	10 mm	1	00071	6	back	98.3	0.331	0.193	1.023	1.017	0.201	
5785	157	802.11a	OFDM	20	18.0	17.56	-0.05	10 mm	2	00071	6	back	98.3	1.708	0.744	1.107	1.017	0.838	
5805	161	802.11a	OFDM	20	18.0	17.97	-0.04	10 mm	2	00071	6	back	98.3	1.984	0.800	1.007	1.017	0.819	
5825	165	802.11a	OFDM	20	18.0	17.62	0.03	10 mm	2	00071	6	back	98.3	2.129	0.843	1.091	1.017	**0.935**	A49
5825	165	802.11a	OFDM	20	18.0	17.62	-0.07	10 mm	2	00071	6	back	98.3	2.065	0.831	1.091	1.017	0.922	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Body** **1.6 W/kg (mW/g)** averaged over 1 gram											

Note: Blue entry represents variability measurement.

Table 11-26
NII MIMO Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
5280	56	802.11n	OFDM	20	18.0	17.44	18.0	17.62	0.15	10 mm	MIMO	00071	13	back	98.1	0.781	0.345	1.138	1.019	0.400	
5600	120	802.11n	OFDM	20	17.0	16.66	17.0	16.63	-0.04	10 mm	MIMO	00071	13	back	98.1	1.027	0.486	1.089	1.019	0.539	
5785	157	802.11n	OFDM	20	18.0	17.70	18.0	17.38	0.03	10 mm	MIMO	00071	13	back	98.1	1.661	0.710	1.153	1.019	0.834	
5805	161	802.11n	OFDM	20	18.0	17.73	18.0	17.77	0.10	10 mm	MIMO	00071	13	back	98.1	1.588	0.727	1.064	1.019	0.788	
5825	165	802.11n	OFDM	20	18.0	17.54	18.0	17.41	-0.01	10 mm	MIMO	00071	13	back	98.1	1.645	0.757	1.146	1.019	0.884	
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 21.0 dBm maximum allowed MIMO power shown in the documentation for channels 56, 157, 161, and 165, each antenna transmits at a maximum allowed power of 18.0 dBm.
To achieve the 20.0 dBm maximum allowed MIMO power shown in the documentation for channel 120 each antenna transmits at a maximum allowed power of 17.0 dBm.

Table 11-27
NII Body-Worn SAR for Conditions with 2.4 GHz Ant 1 and 5GHz Ant 2 WLAN

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	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	15.0	14.51	0.02	10 mm	2	00071	13.5	back	97.3	0.344	0.143	1.119	1.028	0.164	
5590	118	802.11n	OFDM	40	15.0	14.77	0.08	10 mm	2	00071	13.5	back	97.3	0.682	0.288	1.054	1.028	0.312	
5795	159	802.11n	OFDM	40	15.0	14.83	-0.01	10 mm	2	00071	13.5	back	97.3	0.897	0.341	1.040	1.028	0.365	
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 was additionally evaluated at the maximum allowed output power during operations with simultaneous 2.4 GHz Ant 1 and 5 GHz Ant 2 WLAN. 2.4 GHz Ant1 WIFI was not transmitting during the above evaluations.

11.3 Standalone Hotspot SAR Data

Table 11-28
GPRS/UMTS/CDMA Hotspot SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	# of GPRS Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.33	-0.01	10 mm	00065	N/A	1:1	back	0.704	1.040	0.732	A21
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.33	-0.01	10 mm	00065	N/A	1:1	front	0.500	1.040	0.520	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.33	-0.01	10 mm	00065	N/A	1:1	bottom	0.225	1.040	0.234	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.33	-0.12	10 mm	00065	N/A	1:1	right	0.326	1.040	0.339	
824.70	1013	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.30	-0.02	10 mm	00065	N/A	1:1	back	0.593	1.047	0.621	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.20	-0.05	10 mm	00065	N/A	1:1	back	0.791	1.072	0.848	A23
848.31	777	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.12	0.01	10 mm	00065	N/A	1:1	back	0.752	1.091	0.820	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.20	-0.03	10 mm	00065	N/A	1:1	front	0.525	1.072	0.563	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.20	-0.05	10 mm	00065	N/A	1:1	bottom	0.227	1.072	0.243	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.20	0.03	10 mm	00065	N/A	1:1	right	0.403	1.072	0.432	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	24.97	0.04	10 mm	00065	N/A	1:1	back	0.709	1.054	0.747	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	24.97	-0.03	10 mm	00065	N/A	1:1	front	0.698	1.054	0.736	
1851.25	25	PCS CDMA	EVDO Rev. 0	25.2	25.00	0.02	10 mm	00065	N/A	1:1	bottom	0.953	1.047	0.998	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	24.97	0.06	10 mm	00065	N/A	1:1	bottom	0.986	1.054	1.039	
1908.75	1175	PCS CDMA	EVDO Rev. 0	25.2	24.83	-0.03	10 mm	00065	N/A	1:1	bottom	1.070	1.089	**1.165**	A25
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	24.97	0.01	10 mm	00065	N/A	1:1	left	0.220	1.054	0.232	
1908.75	1175	PCS CDMA	EVDO Rev. 0	25.2	24.83	0.00	10 mm	00065	N/A	1:1	bottom	1.070	1.089	1.165	
836.60	190	GSM 850	GPRS	33.7	33.51	-0.02	10 mm	00064	1	1:8.3	back	0.518	1.045	0.541	A27
836.60	190	GSM 850	GPRS	33.7	33.51	0.06	10 mm	00064	1	1:8.3	front	0.338	1.045	0.353	
836.60	190	GSM 850	GPRS	33.7	33.51	0.19	10 mm	00064	1	1:8.3	bottom	0.185	1.045	0.193	
836.60	190	GSM 850	GPRS	33.7	33.51	-0.04	10 mm	00064	1	1:8.3	right	0.322	1.045	0.336	
1880.00	661	GSM 1900	GPRS	31.2	31.09	-0.14	10 mm	00064	1	1:8.3	back	0.292	1.026	0.300	
1880.00	661	GSM 1900	GPRS	31.2	31.09	-0.12	10 mm	00064	1	1:8.3	front	0.292	1.026	0.300	
1880.00	661	GSM 1900	GPRS	31.2	31.09	-0.09	10 mm	00064	1	1:8.3	bottom	0.442	1.026	0.453	A29
1880.00	661	GSM 1900	GPRS	31.2	31.09	0.04	10 mm	00064	1	1:8.3	left	0.076	1.026	0.078	
826.40	4132	UMTS 850	RMC	25.5	25.33	-0.07	10 mm	00064	N/A	1:1	back	0.748	1.040	0.778	
836.60	4183	UMTS 850	RMC	25.5	25.24	-0.03	10 mm	00064	N/A	1:1	back	0.864	1.062	0.918	A30
846.60	4233	UMTS 850	RMC	25.5	25.31	-0.06	10 mm	00064	N/A	1:1	back	0.850	1.045	0.888	
836.60	4183	UMTS 850	RMC	25.5	25.24	0.00	10 mm	00064	N/A	1:1	front	0.683	1.062	0.725	
836.60	4183	UMTS 850	RMC	25.5	25.24	0.08	10 mm	00064	N/A	1:1	bottom	0.291	1.062	0.309	
836.60	4183	UMTS 850	RMC	25.5	25.24	0.01	10 mm	00064	N/A	1:1	right	0.517	1.062	0.549	
1732.40	1412	UMTS 1750	RMC	25.2	25.03	-0.05	10 mm	00064	N/A	1:1	back	0.395	1.040	0.411	
1732.40	1412	UMTS 1750	RMC	25.2	25.03	0.00	10 mm	00064	N/A	1:1	front	0.406	1.040	0.422	
1712.40	1312	UMTS 1750	RMC	25.2	24.96	-0.05	10 mm	00064	N/A	1:1	bottom	0.707	1.057	0.747	A32
1732.40	1412	UMTS 1750	RMC	25.2	25.03	-0.08	10 mm	00064	N/A	1:1	bottom	0.700	1.040	0.728	
1752.60	1513	UMTS 1750	RMC	25.2	25.00	-0.02	10 mm	00064	N/A	1:1	bottom	0.695	1.047	0.728	
1732.40	1412	UMTS 1750	RMC	25.2	25.03	-0.11	10 mm	00064	N/A	1:1	left	0.148	1.040	0.154	
1880.00	9400	UMTS 1900	RMC	25.2	25.07	0.01	10 mm	00064	N/A	1:1	back	0.557	1.030	0.574	
1880.00	9400	UMTS 1900	RMC	25.2	25.07	-0.01	10 mm	00064	N/A	1:1	front	0.537	1.030	0.553	
1852.40	9262	UMTS 1900	RMC	25.2	25.10	0.00	10 mm	00064	N/A	1:1	bottom	0.864	1.023	0.884	
1880.00	9400	UMTS 1900	RMC	25.2	25.07	0.06	10 mm	00064	N/A	1:1	bottom	0.835	1.030	0.860	
1907.60	9538	UMTS 1900	RMC	25.2	25.06	-0.05	10 mm	00064	N/A	1:1	bottom	0.913	1.033	0.943	A34
1880.00	9400	UMTS 1900	RMC	25.2	25.07	-0.01	10 mm	00064	N/A	1:1	left	0.206	1.030	0.212	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram				

Note: Blue entry represents variability measurement.

Table 11-29
LTE Band 71 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
680.50	133297	Mid	LTE Band 71	20	25.5	25.43	0.02	0	00057	QPSK	1	99	10 mm	back	1:1	0.429	1.016	0.436	A35
680.50	133297	Mid	LTE Band 71	20	24.5	24.49	-0.03	1	00057	QPSK	50	25	10 mm	back	1:1	0.354	1.002	0.355	
680.50	133297	Mid	LTE Band 71	20	25.5	25.43	-0.15	0	00057	QPSK	1	99	10 mm	front	1:1	0.339	1.016	0.344	
680.50	133297	Mid	LTE Band 71	20	24.5	24.49	-0.12	1	00057	QPSK	50	25	10 mm	front	1:1	0.279	1.002	0.280	
680.50	133297	Mid	LTE Band 71	20	25.5	25.43	0.09	0	00057	QPSK	1	99	10 mm	bottom	1:1	0.073	1.016	0.074	
680.50	133297	Mid	LTE Band 71	20	24.5	24.49	0.06	1	00057	QPSK	50	25	10 mm	bottom	1:1	0.061	1.002	0.061	
680.50	133297	Mid	LTE Band 71	20	25.5	25.43	0.01	0	00057	QPSK	1	99	10 mm	right	1:1	0.199	1.016	0.202	
680.50	133297	Mid	LTE Band 71	20	24.5	24.49	0.02	1	00057	QPSK	50	25	10 mm	right	1:1	0.169	1.002	0.169	
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
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	25.5	25.30	0.07	0	00057	QPSK	1	25	10 mm	back	1:1	0.515	1.047	0.539	A36
707.50	23095	Mid	LTE Band 12	10	24.5	24.41	-0.01	1	00057	QPSK	25	12	10 mm	back	1:1	0.477	1.021	0.487	
707.50	23095	Mid	LTE Band 12	10	25.5	25.30	0.02	0	00057	QPSK	1	25	10 mm	front	1:1	0.403	1.047	0.422	
707.50	23095	Mid	LTE Band 12	10	24.5	24.41	0.00	1	00057	QPSK	25	12	10 mm	front	1:1	0.367	1.021	0.375	
707.50	23095	Mid	LTE Band 12	10	25.5	25.30	-0.02	0	00057	QPSK	1	25	10 mm	bottom	1:1	0.120	1.047	0.126	
707.50	23095	Mid	LTE Band 12	10	24.5	24.41	0.10	1	00057	QPSK	25	12	10 mm	bottom	1:1	0.112	1.021	0.114	
707.50	23095	Mid	LTE Band 12	10	25.5	25.30	0.14	0	00057	QPSK	1	25	10 mm	right	1:1	0.166	1.047	0.174	
707.50	23095	Mid	LTE Band 12	10	24.5	24.41	0.02	1	00057	QPSK	25	12	10 mm	right	1:1	0.149	1.021	0.152	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram						

Table 11-31
LTE Band 13 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
782.00	23230	Mid	LTE Band 13	10	25.5	25.33	-0.19	0	00057	QPSK	1	25	10 mm	back	1:1	0.725	1.040	0.754	A37
782.00	23230	Mid	LTE Band 13	10	24.5	24.48	-0.03	1	00057	QPSK	25	0	10 mm	back	1:1	0.585	1.005	0.588	
782.00	23230	Mid	LTE Band 13	10	25.5	25.33	0.00	0	00057	QPSK	1	25	10 mm	front	1:1	0.565	1.040	0.588	
782.00	23230	Mid	LTE Band 13	10	24.5	24.48	-0.01	1	00057	QPSK	25	0	10 mm	front	1:1	0.459	1.005	0.461	
782.00	23230	Mid	LTE Band 13	10	25.5	25.33	-0.06	0	00057	QPSK	1	25	10 mm	bottom	1:1	0.246	1.040	0.256	
782.00	23230	Mid	LTE Band 13	10	24.5	24.48	0.00	1	00057	QPSK	25	0	10 mm	bottom	1:1	0.182	1.005	0.183	
782.00	23230	Mid	LTE Band 13	10	25.5	25.33	0.05	0	00057	QPSK	1	25	10 mm	right	1:1	0.345	1.040	0.359	
782.00	23230	Mid	LTE Band 13	10	24.5	24.48	0.00	1	00057	QPSK	25	0	10 mm	right	1:1	0.283	1.005	0.284	
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 11-32
LTE Band 26 (Cell) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.39	-0.05	0	00057	QPSK	1	36	10 mm	back	1:1	0.894	1.026	0.917	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	0.01	1	00057	QPSK	36	0	10 mm	back	1:1	0.654	1.033	0.676	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.27	-0.05	1	00057	QPSK	75	0	10 mm	back	1:1	0.723	1.054	0.762	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.39	0.01	0	00057	QPSK	1	36	10 mm	front	1:1	0.640	1.026	0.657	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	0.03	1	00057	QPSK	36	0	10 mm	front	1:1	0.474	1.033	0.490	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.39	0.02	0	00057	QPSK	1	36	10 mm	bottom	1:1	0.311	1.026	0.319	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	0.02	1	00057	QPSK	36	0	10 mm	bottom	1:1	0.232	1.033	0.240	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.39	0.06	0	00057	QPSK	1	36	10 mm	right	1:1	0.506	1.026	0.519	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	0.02	1	00057	QPSK	36	0	10 mm	right	1:1	0.377	1.033	0.389	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.39	0.00	0	00057	QPSK	1	36	10 mm	back	1:1	0.912	1.026	0.936	A38
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram												

Note: Blue entry represents variability measurement.

Table 11-33
LTE Band 66 (AWS) Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.18	0.09	0	00057	QPSK	1	99	10 mm	back	1:1	0.458	1.005	0.460	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.13	-0.01	1	00057	QPSK	50	0	10 mm	back	1:1	0.321	1.016	0.326	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.18	-0.04	0	00057	QPSK	1	99	10 mm	front	1:1	0.453	1.005	0.455	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.13	-0.01	1	00057	QPSK	50	0	10 mm	front	1:1	0.313	1.016	0.318	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.10	-0.19	0	00057	QPSK	1	0	10 mm	bottom	1:1	0.768	1.023	0.786	A40
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.18	0.00	0	00057	QPSK	1	99	10 mm	bottom	1:1	0.665	1.005	0.668	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	25.16	0.02	0	00057	QPSK	1	0	10 mm	bottom	1:1	0.547	1.009	0.552	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.13	0.11	1	00057	QPSK	50	0	10 mm	bottom	1:1	0.492	1.016	0.500	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.18	0.09	0	00057	QPSK	1	99	10 mm	left	1:1	0.183	1.005	0.184	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.13	0.00	1	00057	QPSK	50	0	10 mm	left	1:1	0.134	1.016	0.136	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-34
LTE Band 25 (PCS) Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.2	25.13	-0.05	0	00056	QPSK	1	0	10 mm	back	1:1	0.614	1.016	0.624	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.00	-0.02	0	00056	QPSK	1	0	10 mm	back	1:1	0.647	1.047	0.677	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.17	-0.04	0	00056	QPSK	1	50	10 mm	back	1:1	0.626	1.007	0.630	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.12	-0.02	1	00056	QPSK	50	25	10 mm	back	1:1	0.547	1.019	0.557	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.17	0.04	0	00056	QPSK	1	50	10 mm	front	1:1	0.613	1.007	0.617	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.12	0.01	1	00056	QPSK	50	25	10 mm	front	1:1	0.543	1.019	0.553	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.2	25.13	-0.08	0	00056	QPSK	1	0	10 mm	bottom	1:1	0.966	1.016	0.981	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.00	-0.01	0	00056	QPSK	1	0	10 mm	bottom	1:1	0.959	1.047	1.004	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.17	-0.12	0	00056	QPSK	1	50	10 mm	bottom	1:1	1.060	1.007	1.067	A42
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.2	24.07	-0.03	1	00056	QPSK	50	0	10 mm	bottom	1:1	0.872	1.030	0.898	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	23.99	-0.04	1	00056	QPSK	50	0	10 mm	bottom	1:1	0.875	1.050	0.919	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.12	-0.02	1	00056	QPSK	50	25	10 mm	bottom	1:1	0.955	1.019	0.973	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.00	-0.03	1	00056	QPSK	100	0	10 mm	bottom	1:1	0.955	1.047	1.000	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.17	0.10	0	00056	QPSK	1	50	10 mm	left	1:1	0.215	1.007	0.217	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.12	0.10	1	00056	QPSK	50	25	10 mm	left	1:1	0.184	1.019	0.187	
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 11-35
LTE Band 41 Hotspot SAR

MEASUREMENT RESULTS																					
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	25.2	24.79	-0.06	0	00056	QPSK	1	0	10 mm	back	1:1.58	0.364	1.099	0.400	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	23.87	0.00	1	00056	QPSK	50	0	10 mm	back	1:1.58	0.231	1.079	0.249	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	25.2	24.79	0.00	0	00056	QPSK	1	0	10 mm	front	1:1.58	0.196	1.099	0.215	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	23.87	0.05	1	00056	QPSK	50	0	10 mm	front	1:1.58	0.132	1.079	0.142	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	25.2	24.79	0.01	0	00056	QPSK	1	0	10 mm	bottom	1:1.58	0.073	1.099	0.080	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	23.87	-0.11	1	00056	QPSK	50	0	10 mm	bottom	1:1.58	0.047	1.079	0.051	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	25.2	24.79	-0.11	0	00056	QPSK	1	0	10 mm	right	1:1.58	0.404	1.099	0.444	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	23.87	-0.01	1	00056	QPSK	50	0	10 mm	right	1:1.58	0.264	1.079	0.285	
1 CC Uplink - Power Class 2	N/A	2680.00	41490	High	LTE Band 41	20	27.7	27.32	-0.11	0	00056	QPSK	1	0	10 mm	right	1:2.31	0.488	1.091	0.532	
2 CC Uplink - Power Class 3	PCC	2680.00	41490	High	LTE Band 41	20	25.2	24.93	-0.04	0	00056	QPSK	1	0	10 mm	right	1:1.58	0.572	1.064	0.609	A44
	SCC	2660.20	41292										1	99							
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram						

Table 11-36
EN-DC DC_41A-n41A Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Test Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
2592.99	518598	Mid	NR Band n41	60	18.4	18.23	0.10	0	00568	CP-OFDM-QPSK	1	1	10 mm	back	1:1	0.343	1.040	0.357	
2592.99	518598	Mid	NR Band n41	60	18.4	17.98	-0.02	0	00568	CP-OFDM-QPSK	81	40	10 mm	back	1:1	0.298	1.102	0.328	
2592.99	518598	Mid	NR Band n41	60	18.4	18.23	-0.14	0	00568	CP-OFDM-QPSK	1	1	10 mm	front	1:1	0.120	1.040	0.125	
2592.99	518598	Mid	NR Band n41	60	18.4	17.98	-0.13	0	00568	CP-OFDM-QPSK	81	40	10 mm	front	1:1	0.102	1.102	0.112	
2592.99	518598	Mid	NR Band n41	60	18.4	18.23	0.08	0	00568	CP-OFDM-QPSK	1	1	10 mm	bottom	1:1	0.063	1.040	0.065	
2592.99	518598	Mid	NR Band n41	60	18.4	17.98	-0.18	0	00568	CP-OFDM-QPSK	81	40	10 mm	bottom	1:1	0.059	1.102	0.065	
2592.99	518598	Mid	NR Band n41	60	18.4	18.23	0.19	0	00568	CP-OFDM-QPSK	1	1	10 mm	right	1:1	0.338	1.040	0.352	
2592.99	518598	Mid	NR Band n41	60	18.4	17.98	0.17	0	00568	CP-OFDM-QPSK	81	40	10 mm	right	1:1	0.334	1.102	0.368	
2526.00	505200	Low	NR Band n41	60	18.4	18.17	-0.20	0	00568	CP-OFDM-QPSK	1	1	10 mm	left	1:1	0.097	1.054	0.102	
2592.99	518598	Mid	NR Band n41	60	18.4	18.23	0.17	0	00568	CP-OFDM-QPSK	1	1	10 mm	left	1:1	0.390	1.040	0.406	
2592.99	518598	Mid	NR Band n41	60	18.4	17.98	-0.02	0	00568	CP-OFDM-QPSK	81	40	10 mm	left	1:1	0.393	1.102	0.433	A46
2659.98	531996	High	NR Band n41	60	18.4	17.89	-0.03	0	00568	CP-OFDM-QPSK	1	1	10 mm	left	1:1	0.042	1.125	0.047	
2592.99	518598	Mid	NR Band n41	40	18.4	18.28	-0.03	0	00568	CP-OFDM-QPSK	1	104	10 mm	left	1:1	0.065	1.028	0.067	
2592.99	518598	Mid	NR Band n41	40	18.4	18.37	-0.18	0	00568	CP-OFDM-QPSK	53	26	10 mm	left	1:1	0.079	1.007	0.080	

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

LTE Transmission	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	UL/DL Frame Configuration	MPR [dB]	Modulation	RB Size	RB Offset	Test Duty Cycle
	MHz	Ch.											
FTM mode	2680.00	41490	High	LTE Band 41	20	18.9	18.08	N/A	0	QPSK	1	0	1:1

Note: During SAR testing for EN-DC conditions per FCC guidance, LTE Band 41 anchor transmission was active during NR Band n41 SAR evaluations in tables 11-36. Additional SAR investigations determined LTE Band 41 transmission had no effect on NR Band n41 SAR levels due to spatial separation of transmitting antennas, thus LTE Band 41 anchor configuration was not changed between SAR tests.

Table 11-37
WLAN Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2462	11	802.11b	DSSS	22	20.5	20.34	-0.12	10 mm	1	00071	1	back	99.3	0.299	0.249	1.038	1.007	0.260	
2462	11	802.11b	DSSS	22	20.5	20.34	0.17	10 mm	1	00071	1	front	99.3	0.223	-	1.038	1.007	-	
2462	11	802.11b	DSSS	22	20.5	20.34	0.13	10 mm	1	00071	1	top	99.3	0.422	0.358	1.038	1.007	**0.374**	A48
2462	11	802.11b	DSSS	22	20.5	20.34	0.12	10 mm	1	00071	1	right	99.3	0.126	-	1.038	1.007	-	
2412	1	802.11b	DSSS	22	20.5	20.30	0.16	10 mm	2	00071	1	back	99.4	0.262	0.199	1.047	1.006	0.210	
2412	1	802.11b	DSSS	22	20.5	20.30	0.14	10 mm	2	00071	1	front	99.4	0.108	-	1.047	1.006	-	
2412	1	802.11b	DSSS	22	20.5	20.30	0.15	10 mm	2	00071	1	top	99.4	0.026	-	1.047	1.006	-	
2412	1	802.11b	DSSS	22	20.5	20.30	0.01	10 mm	2	00071	1	right	99.4	0.200	-	1.047	1.006	-	
5200	40	802.11a	OFDM	20	18.0	17.70	0.13	10 mm	1	00071	6	back	98.3	0.465	0.287	1.072	1.017	0.313	
5200	40	802.11a	OFDM	20	18.0	17.70	-0.04	10 mm	1	00071	6	front	98.3	0.214	-	1.072	1.017	-	
5200	40	802.11a	OFDM	20	18.0	17.70	0.19	10 mm	1	00071	6	top	98.3	0.232	-	1.072	1.017	-	
5200	40	802.11a	OFDM	20	18.0	17.70	0.13	10 mm	1	00071	6	right	98.3	0.395	-	1.072	1.017	-	
5200	40	802.11a	OFDM	20	18.0	17.51	0.17	10 mm	2	00071	6	back	98.3	0.660	0.369	1.119	1.017	0.420	
5200	40	802.11a	OFDM	20	18.0	17.51	0.17	10 mm	2	00071	6	front	98.3	0.058	0.030	1.119	1.017	0.034	
5200	40	802.11a	OFDM	20	18.0	17.51	0.15	10 mm	2	00071	6	top	98.3	0.108	-	1.119	1.017	-	
5200	40	802.11a	OFDM	20	18.0	17.51	0.13	10 mm	2	00071	6	right	98.3	0.259	0.186	1.119	1.017	0.212	
5825	165	802.11a	OFDM	20	18.0	17.90	-0.13	10 mm	1	00071	6	back	98.3	0.331	0.193	1.023	1.017	0.201	
5825	165	802.11a	OFDM	20	18.0	17.90	0.19	10 mm	1	00071	6	front	98.3	0.101	-	1.023	1.017	-	
5825	165	802.11a	OFDM	20	18.0	17.90	0.14	10 mm	1	00071	6	top	98.3	0.160	-	1.023	1.017	-	
5825	165	802.11a	OFDM	20	18.0	17.90	-0.14	10 mm	1	00071	6	right	98.3	0.191	-	1.023	1.017	-	
5785	157	802.11a	OFDM	20	18.0	17.56	-0.05	10 mm	2	00071	6	back	98.3	1.708	0.744	1.107	1.017	0.838	
5805	161	802.11a	OFDM	20	18.0	17.97	-0.04	10 mm	2	00071	6	back	98.3	1.984	0.800	1.007	1.017	0.819	
5825	165	802.11a	OFDM	20	18.0	17.62	0.03	10 mm	2	00071	6	back	98.3	2.129	0.843	1.091	1.017	**0.935**	A49
5805	161	802.11a	OFDM	20	18.0	17.97	0.17	10 mm	2	00071	6	front	98.3	0.041	0.013	1.007	1.017	0.013	
5805	161	802.11a	OFDM	20	18.0	17.97	0.16	10 mm	2	00071	6	top	98.3	0.152	-	1.007	1.017	-	
5805	161	802.11a	OFDM	20	18.0	17.97	0.19	10 mm	2	00071	6	right	98.3	0.759	0.389	1.007	1.017	0.398	
5825	165	802.11a	OFDM	20	18.0	17.62	-0.07	10 mm	2	00071	6	back	98.3	2.065	0.831	1.091	1.017	0.922	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**														**Body** **1.6 W/kg (mW/g)** averaged over 1 gram					

Note: Blue entry represents variability measurement.

Table 11-38
NII 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)	
5200	40	802.11n	OFDM	20	18.0	17.50	18.0	17.53	0.19	10 mm	MIMO	00071	13	back	98.1	0.720	0.337	1.122	1.019	0.385	
5200	40	802.11n	OFDM	20	18.0	17.50	18.0	17.53	0.16	10 mm	MIMO	00071	13	front	98.1	0.228	0.095	1.122	1.019	0.109	
5200	40	802.11n	OFDM	20	18.0	17.50	18.0	17.53	-0.12	10 mm	MIMO	00071	13	top	98.1	0.258	-	1.122	1.019	-	
5200	40	802.11n	OFDM	20	18.0	17.50	18.0	17.53	-0.13	10 mm	MIMO	00071	13	right	98.1	0.446	0.200	1.122	1.019	0.229	
5785	157	802.11n	OFDM	20	18.0	17.70	18.0	17.38	0.03	10 mm	MIMO	00071	13	back	98.1	1.661	0.710	1.153	1.019	0.834	
5805	161	802.11n	OFDM	20	18.0	17.73	18.0	17.77	0.10	10 mm	MIMO	00071	13	back	98.1	1.588	0.727	1.064	1.019	0.788	
5825	165	802.11n	OFDM	20	18.0	17.54	18.0	17.41	-0.01	10 mm	MIMO	00071	13	back	98.1	1.645	0.757	1.146	1.019	0.884	
5805	161	802.11n	OFDM	20	18.0	17.73	18.0	17.77	-0.19	10 mm	MIMO	00071	13	front	98.1	0.094	0.031	1.064	1.019	0.034	
5805	161	802.11n	OFDM	20	18.0	17.73	18.0	17.77	-0.18	10 mm	MIMO	00071	13	top	98.1	0.191	-	1.064	1.019	-	
5805	161	802.11n	OFDM	20	18.0	17.73	18.0	17.77	0.19	10 mm	MIMO	00071	13	right	98.1	0.611	0.269	1.064	1.019	0.292	
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 21.0 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18.0 dBm.

Table 11-39
WLAN Hotspot SAR for Conditions with 2.4 GHz Ant 1 and 5 GHz Ant 2 WLAN

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	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)	
5190	38	802.11n	OFDM	40	15.0	14.52	0.17	10 mm	2	00071	13.5	back	97.3	0.330	0.134	1.117	1.028	0.154	
5190	38	802.11n	OFDM	40	15.0	14.52	-0.12	10 mm	2	00071	13.5	front	97.3	0.025	-	1.117	1.028	-	
5190	38	802.11n	OFDM	40	15.0	14.52	0.19	10 mm	2	00071	13.5	top	97.3	0.043	-	1.117	1.028	-	
5190	38	802.11n	OFDM	40	15.0	14.52	0.13	10 mm	2	00071	13.5	right	97.3	0.125	-	1.117	1.028	-	
5795	159	802.11n	OFDM	40	15.0	14.83	-0.01	10 mm	2	00071	13.5	back	97.3	0.897	0.341	1.040	1.028	0.365	
5795	159	802.11n	OFDM	40	15.0	14.83	0.19	10 mm	2	00071	13.5	front	97.3	0.018	-	1.040	1.028	-	
5795	159	802.11n	OFDM	40	15.0	14.83	0.19	10 mm	2	00071	13.5	top	97.3	0.045	-	1.040	1.028	-	
5795	159	802.11n	OFDM	40	15.0	14.83	0.00	10 mm	2	00071	13.5	right	97.3	0.296	-	1.040	1.028	-	
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 was additionally evaluated at the maximum allowed output power during operations with simultaneous 2.4 GHz Ant 1 and 5 GHz Ant 2 WLAN. 2.4 GHz Ant1 WIFI was not transmitting during the above evaluations

11.4 Standalone Phablet SAR Data

Table 11-40
UMTS/CDMA Phablet SAR Data

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Duty Cycle	Side	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	24.97	0.04	2 mm	00065	1:1	back	1.410	1.054	1.486	
1851.25	25	PCS CDMA	EVDO Rev. 0	25.2	25.00	-0.08	1 mm	00065	1:1	front	2.290	1.047	2.398	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	24.97	-0.04	1 mm	00065	1:1	front	2.090	1.054	2.203	
1908.75	1175	PCS CDMA	EVDO Rev. 0	25.2	24.83	-0.13	1 mm	00065	1:1	front	2.370	1.089	2.581	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	24.97	-0.02	3 mm	00065	1:1	bottom	1.410	1.054	1.486	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	24.97	-0.14	0 mm	00065	1:1	right	0.000	1.054	0.000	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	24.97	-0.12	0 mm	00065	1:1	left	0.915	1.054	0.964	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.2	23.95	-0.10	0 mm	00065	1:1	back	2.190	1.059	2.319	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	23.91	0.02	0 mm	00065	1:1	back	2.240	1.069	2.395	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.2	23.86	0.03	0 mm	00065	1:1	back	2.400	1.081	2.594	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.2	23.95	-0.12	0 mm	00065	1:1	front	2.680	1.059	2.838	A50
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	23.91	-0.20	0 mm	00065	1:1	front	2.610	1.069	2.790	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.2	23.86	-0.18	0 mm	00065	1:1	front	2.600	1.081	2.811	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.2	23.95	-0.13	0 mm	00065	1:1	bottom	2.370	1.059	2.510	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.2	23.91	-0.11	0 mm	00065	1:1	bottom	2.170	1.069	2.320	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.2	23.86	-0.06	0 mm	00065	1:1	bottom	2.190	1.081	2.367	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.2	23.95	-0.05	0 mm	00065	1:1	front	2.450	1.059	2.595	
1732.40	1412	UMTS 1750	RMC	25.2	25.03	-0.03	2 mm	00064	1:1	back	1.010	1.040	1.050	
1732.40	1412	UMTS 1750	RMC	25.2	25.03	-0.07	1 mm	00064	1:1	front	1.150	1.040	1.196	
1732.40	1412	UMTS 1750	RMC	25.2	25.03	-0.02	3 mm	00064	1:1	bottom	1.250	1.040	1.300	
1732.40	1412	UMTS 1750	RMC	25.2	25.03	0.04	0 mm	00064	1:1	right	0.000	1.040	0.000	
1732.40	1412	UMTS 1750	RMC	25.2	25.03	-0.05	0 mm	00064	1:1	left	0.483	1.040	0.502	
1732.40	1412	UMTS 1750	RMC	24.2	24.04	-0.06	0 mm	00064	1:1	back	1.620	1.038	1.682	
1732.40	1412	UMTS 1750	RMC	24.2	24.04	-0.12	0 mm	00064	1:1	front	1.700	1.038	1.765	
1712.40	1312	UMTS 1750	RMC	24.2	23.95	0.08	0 mm	00064	1:1	bottom	2.350	1.059	2.489	
1732.40	1412	UMTS 1750	RMC	24.2	24.04	-0.05	0 mm	00064	1:1	bottom	2.690	1.038	2.792	A51
1752.60	1513	UMTS 1750	RMC	24.2	24.00	0.03	0 mm	00064	1:1	bottom	2.430	1.047	2.544	
1880.00	9400	UMTS 1900	RMC	25.2	25.07	-0.05	2 mm	00064	1:1	back	1.390	1.030	1.432	
1852.40	9262	UMTS 1900	RMC	25.2	25.10	-0.14	1 mm	00064	1:1	front	2.250	1.023	2.302	
1880.00	9400	UMTS 1900	RMC	25.2	25.07	-0.20	1 mm	00064	1:1	front	2.380	1.030	2.451	A52
1907.60	9538	UMTS 1900	RMC	25.2	25.06	-0.06	1 mm	00064	1:1	front	2.270	1.033	2.345	
1880.00	9400	UMTS 1900	RMC	25.2	25.07	0.15	3 mm	00064	1:1	bottom	1.200	1.030	1.236	
1880.00	9400	UMTS 1900	RMC	25.2	25.07	-0.01	0 mm	00064	1:1	right	0.000	1.030	0.000	
1880.00	9400	UMTS 1900	RMC	25.2	25.07	-0.13	0 mm	00064	1:1	left	0.798	1.030	0.822	
1852.40	9262	UMTS 1900	RMC	24.2	24.11	-0.01	0 mm	00064	1:1	back	2.000	1.021	2.042	
1880.00	9400	UMTS 1900	RMC	24.2	24.05	0.03	0 mm	00064	1:1	back	2.030	1.035	2.101	
1907.60	9538	UMTS 1900	RMC	24.2	24.06	-0.03	0 mm	00064	1:1	back	2.190	1.033	2.262	
1852.40	9262	UMTS 1900	RMC	24.2	24.11	-0.05	0 mm	00064	1:1	front	2.290	1.021	2.338	
1880.00	9400	UMTS 1900	RMC	24.2	24.05	-0.15	0 mm	00064	1:1	front	2.260	1.035	2.339	
1907.60	9538	UMTS 1900	RMC	24.2	24.06	-0.11	0 mm	00064	1:1	front	2.240	1.033	2.314	
1852.40	9262	UMTS 1900	RMC	24.2	24.11	0.05	0 mm	00064	1:1	bottom	2.110	1.021	2.154	
1880.00	9400	UMTS 1900	RMC	24.2	24.05	-0.01	0 mm	00064	1:1	bottom	1.980	1.035	2.049	
1907.60	9538	UMTS 1900	RMC	24.2	24.06	0.01	0 mm	00064	1:1	bottom	2.080	1.033	2.149	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Phablet 4.0 W/kg (mW/g) averaged over 10 grams			

Note: Blue entry represents variability measurement.

Table 11-41
LTE Phablet SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.18	-0.04	0	00057	QPSK	1	99	2 mm	back	1:1	1.100	1.005	1.106	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.13	0.02	1	00057	QPSK	50	0	2 mm	back	1:1	0.786	1.016	0.799	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.18	0.01	0	00057	QPSK	1	99	1 mm	front	1:1	0.968	1.005	0.973	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.13	-0.01	1	00057	QPSK	50	0	1 mm	front	1:1	0.710	1.016	0.721	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.18	-0.07	0	00057	QPSK	1	99	3 mm	bottom	1:1	1.050	1.005	1.055	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.13	0.04	1	00057	QPSK	50	0	3 mm	bottom	1:1	0.780	1.016	0.792	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	25.18	0.00	0	00057	QPSK	1	99	0 mm	left	1:1	0.454	1.005	0.456	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.13	-0.12	1	00057	QPSK	50	0	0 mm	left	1:1	0.310	1.016	0.315	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.18	-0.01	0	00057	QPSK	1	50	0 mm	back	1:1	1.220	1.005	1.226	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.16	0.04	0	00057	QPSK	50	50	0 mm	back	1:1	1.270	1.009	1.281	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.18	-0.03	0	00057	QPSK	1	50	0 mm	front	1:1	1.010	1.005	1.015	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.16	0.02	0	00057	QPSK	50	50	0 mm	front	1:1	1.050	1.009	1.059	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.07	0.04	0	00057	QPSK	1	0	0 mm	bottom	1:1	2.930	1.030	3.018	A53
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.18	-0.02	0	00057	QPSK	1	50	0 mm	bottom	1:1	2.250	1.005	2.261	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.17	0.09	0	00057	QPSK	1	99	0 mm	bottom	1:1	2.320	1.007	2.336	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.03	0.00	0	00057	QPSK	50	0	0 mm	bottom	1:1	2.550	1.040	2.652	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.16	0.03	0	00057	QPSK	50	50	0 mm	bottom	1:1	2.350	1.009	2.371	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.2	24.13	0.04	0	00057	QPSK	50	0	0 mm	bottom	1:1	2.550	1.016	2.591	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.06	-0.01	0	00057	QPSK	100	0	0 mm	bottom	1:1	2.330	1.033	2.407	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.07	-0.15	0	00057	QPSK	1	0	0 mm	bottom	1:1	2.830	1.030	2.915	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.17	-0.03	0	00057	QPSK	1	50	2 mm	back	1:1	0.961	1.007	0.968	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.12	0.07	1	00057	QPSK	50	25	2 mm	back	1:1	0.869	1.019	0.886	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.2	25.13	-0.02	0	00057	QPSK	1	0	1 mm	front	1:1	1.780	1.016	1.808	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.00	-0.12	0	00057	QPSK	1	0	1 mm	front	1:1	1.890	1.047	1.979	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.17	-0.16	0	00057	QPSK	1	50	1 mm	front	1:1	2.050	1.007	2.064	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.12	0.01	1	00057	QPSK	50	25	1 mm	front	1:1	0.973	1.019	0.991	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.00	-0.09	1	00057	QPSK	100	0	1 mm	front	1:1	0.986	1.047	1.032	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.17	-0.09	0	00057	QPSK	1	50	3 mm	bottom	1:1	1.120	1.007	1.128	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.12	-0.10	1	00057	QPSK	50	25	3 mm	bottom	1:1	1.030	1.019	1.050	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.17	0.12	0	00057	QPSK	1	50	0 mm	left	1:1	0.652	1.007	0.657	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.12	-0.09	1	00057	QPSK	50	25	0 mm	left	1:1	0.607	1.019	0.619	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.2	23.96	-0.02	0	00057	QPSK	1	0	0 mm	back	1:1	1.610	1.057	1.702	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	23.95	-0.02	0	00057	QPSK	1	99	0 mm	back	1:1	1.820	1.059	1.927	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.10	0.03	0	00057	QPSK	1	99	0 mm	back	1:1	2.000	1.023	2.046	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.03	-0.07	0	00057	QPSK	50	0	0 mm	back	1:1	1.710	1.040	1.778	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.2	23.98	-0.02	0	00057	QPSK	100	0	0 mm	back	1:1	1.620	1.052	1.704	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.2	23.96	-0.07	0	00057	QPSK	1	0	0 mm	front	1:1	2.070	1.057	2.188	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	23.95	-0.04	0	00057	QPSK	1	99	0 mm	front	1:1	2.210	1.059	2.340	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.10	-0.17	0	00057	QPSK	1	99	0 mm	front	1:1	2.270	1.023	2.322	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.2	23.97	-0.10	0	00057	QPSK	50	0	0 mm	front	1:1	2.070	1.054	2.182	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.03	-0.04	0	00057	QPSK	50	0	0 mm	front	1:1	2.130	1.040	2.215	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	23.93	-0.14	0	00057	QPSK	50	50	0 mm	front	1:1	2.330	1.064	2.479	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.2	23.98	-0.14	0	00057	QPSK	100	0	0 mm	front	1:1	2.100	1.052	2.209	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.2	23.96	-0.08	0	00057	QPSK	1	0	0 mm	bottom	1:1	2.280	1.057	2.410	A54
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	23.95	-0.02	0	00057	QPSK	1	99	0 mm	bottom	1:1	2.050	1.059	2.171	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	24.10	-0.03	0	00057	QPSK	1	99	0 mm	bottom	1:1	2.140	1.023	2.189	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.2	23.97	-0.10	0	00057	QPSK	50	0	0 mm	bottom	1:1	2.260	1.054	2.382	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.03	-0.05	0	00057	QPSK	50	0	0 mm	bottom	1:1	2.110	1.040	2.194	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	23.93	-0.10	0	00057	QPSK	50	50	0 mm	bottom	1:1	2.220	1.064	2.362	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.2	23.98	-0.04	0	00057	QPSK	100	0	0 mm	bottom	1:1	2.210	1.052	2.325	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Phablet 4.0 W/kg (mW/g) averaged over 10 grams			

Note: Blue entry represents variability measurement.

Table 11-42
WLAN Phablet SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5280	56	802.11a	OFDM	20	18.0	17.62	-0.10	0 mm	1	00071	6	back	98.3	12.652	1.170	1.091	1.017	1.298	
5280	56	802.11a	OFDM	20	18.0	17.62	0.16	0 mm	1	00071	6	front	98.3	6.926	0.661	1.091	1.017	0.733	
5280	56	802.11a	OFDM	20	18.0	17.62	0.11	0 mm	1	00071	6	top	98.3	3.343	-	1.091	1.017	-	
5280	56	802.11a	OFDM	20	18.0	17.62	-0.07	0 mm	1	00071	6	right	98.3	5.998	-	1.091	1.017	-	
5280	56	802.11a	OFDM	20	18.0	17.72	0.17	0 mm	2	00071	6	back	98.3	17.729	1.570	1.067	1.017	1.704	
5280	56	802.11a	OFDM	20	18.0	17.72	-0.17	0 mm	2	00071	6	front	98.3	0.752	0.118	1.067	1.017	0.128	
5280	56	802.11a	OFDM	20	18.0	17.72	0.14	0 mm	2	00071	6	top	98.3	0.863	-	1.067	1.017	-	
5280	56	802.11a	OFDM	20	18.0	17.72	0.12	0 mm	2	00071	6	right	98.3	2.593	0.365	1.067	1.017	0.396	
5720	144	802.11a	OFDM	20	17.0	16.86	-0.01	0 mm	1	00071	6	back	98.3	7.242	0.656	1.033	1.017	0.689	
5720	144	802.11a	OFDM	20	17.0	16.86	0.12	0 mm	1	00071	6	front	98.3	1.568	-	1.033	1.017	-	
5720	144	802.11a	OFDM	20	17.0	16.86	-0.07	0 mm	1	00071	6	top	98.3	0.979	-	1.033	1.017	-	
5720	144	802.11a	OFDM	20	17.0	16.86	0.16	0 mm	1	00071	6	right	98.3	1.498	-	1.033	1.017	-	
5500	100	802.11a	OFDM	20	17.0	16.80	0.15	0 mm	2	00071	6	back	98.3	20.830	1.770	1.047	1.017	1.885	
5600	120	802.11a	OFDM	20	17.0	16.72	0.13	0 mm	2	00071	6	back	98.3	11.441	1.930	1.067	1.017	2.094	A55
5720	144	802.11a	OFDM	20	17.0	16.41	0.19	0 mm	2	00071	6	back	98.3	15.992	1.860	1.146	1.017	**2.168**	
5500	100	802.11a	OFDM	20	17.0	16.80	0.13	0 mm	2	00071	6	front	98.3	1.273	0.118	1.047	1.017	0.126	
5500	100	802.11a	OFDM	20	17.0	16.80	0.10	0 mm	2	00071	6	top	98.3	1.203	-	1.047	1.017	-	
5500	100	802.11a	OFDM	20	17.0	16.80	-0.04	0 mm	2	00071	6	right	98.3	3.209	0.432	1.047	1.017	0.460	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT	**Phablet**
Spatial Peak	**4.0 W/kg (mW/g)**
Uncontrolled Exposure/General Population	averaged over 10 grams

Table 11-43
NII MIMO Phablet 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	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.														W/kg	(W/kg)			(W/kg)	
5280	56	802.11n	OFDM	20	18.0	17.44	18.0	17.62	-0.14	0 mm	00071	13	back	98.1	19.788	1.400	1.138	1.019	1.623	
5280	56	802.11n	OFDM	20	18.0	17.44	18.0	17.62	0.19	0 mm	00071	13	front	98.1	4.697	0.582	1.138	1.019	0.675	
5280	56	802.11n	OFDM	20	18.0	17.44	18.0	17.62	0.07	0 mm	00071	13	top	98.1	4.421	-	1.138	1.019	-	
5280	56	802.11n	OFDM	20	18.0	17.44	18.0	17.62	-0.14	0 mm	00071	13	right	98.1	5.849	0.593	1.138	1.019	0.688	
5500	100	802.11n	OFDM	20	17.0	16.53	17.0	16.66	-0.21	0 mm	00071	13	back	98.1	23.350	1.560	1.114	1.019	1.771	
5600	120	802.11n	OFDM	20	17.0	16.66	17.0	16.63	-0.12	0 mm	00071	13	back	98.1	25.111	1.720	1.089	1.019	1.909	
5720	144	802.11n	OFDM	20	17.0	16.81	17.0	16.30	-0.12	0 mm	00071	13	back	98.1	24.459	1.550	1.175	1.019	1.856	
5600	120	802.11n	OFDM	20	17.0	16.66	17.0	16.63	0.00	0 mm	00071	13	front	98.1	2.812	0.282	1.089	1.019	0.313	
5600	120	802.11n	OFDM	20	17.0	16.66	17.0	16.63	0.19	0 mm	00071	13	top	98.1	3.239	-	1.089	1.019	-	
5600	120	802.11n	OFDM	20	17.0	16.66	17.0	16.63	0.19	0 mm	00071	13	right	98.1	3.663	0.376	1.089	1.019	0.417	

ANSI / IEEE C95.1 1992 - SAFETY LIMIT	**Phablet**
Spatial Peak	**4.0 W/kg (mW/g)**
Uncontrolled Exposure/General Population	averaged over 10 grams

To achieve the 21.0 dBm maximum allowed MIMO power shown in the documentation for channels 56, each antenna transmits at a maximum allowed power of 18.0 dBm.
To achieve the 20.0 dBm maximum allowed MIMO power shown in the documentation for channels 100, 120, and 144 each antenna transmits at a maximum allowed power of 17.0 dBm.

11.5 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D01v06.
2. Batteries are fully charged at the beginning of the SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 10 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB Publication 648474 D04v01r03, body-worn SAR was evaluated without a headset connected to the device. Since the standalone reported body-worn SAR was ≤ 1.2 W/kg, no additional body-worn SAR evaluations using a headset cable were required.
8. Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 13 for variability analysis.
9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 6.7 for more details).
10. Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is > 160 mm and < 200 mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.
11. This device 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.
12. Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds below.

GSM Test Notes:

1. Body-Worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
2. Justification for reduced test configurations per KDB Publication 941225 D01v03r01 and October 2013 TCB Workshop Notes: The source-based frame-averaged output power was evaluated for all GPRS/EDGE slot configurations. The configuration with the highest target frame averaged output power was evaluated for hotspot SAR. When the maximum frame-averaged powers are equivalent across two or more slots (within 0.25 dB), the configuration with the most number of time slots was tested.
3. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel was used.
4. GPRS was additionally evaluated for head and body-worn exposure conditions to address possible VoIP scenarios.

CDMA Notes:

1. Head SAR for CDMA2000 mode was tested under RC3/SO55 per FCC KDB Publication 941225 D01v03r01.

2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. EVDO Rev0 and RevA and TDSO / SO32 FCH+SCH SAR tests were not required per the 3G SAR Test Reduction Procedure in FCC KDB Publication 941225 D01v03r01.
3. CDMA Wireless Router SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 according to KDB 941225 D01v03r01 procedures for data devices. Wireless Router SAR tests for Subtype 2 of Rev.A and 1x RTT configurations were not required per the 3G SAR Test Reduction Policy in KDB Publication 941225 D01v03r01.
4. Head SAR was additionally evaluated using EVDO Rev. A to determine compliance for VoIP operations.
5. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel was used.
6. CDMA 1X Advanced technology was not required for SAR since the maximum allowed output powers for 1X Advanced was not more than 0.25 dB higher than the maximum powers for 1X.

UMTS Notes:

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

LTE Notes:

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

8. For LTE Band 41, per FCC guidance, SAR was first measured with only a single carrier active in the uplink (carrier aggregation not active). For each exposure condition, the uplink CA scenario with two component carriers was additionally tested for the configuration with the highest SAR when carrier aggregation was not active. The SCC was configured with the closest available contiguous channel. The two component carriers were configured so the resource blocks are physically allocated side by side to achieve the maximum output power.

NR Notes

1. NR implementation of n41 is limited to EN-DC operations only, with LTE Band 41 acting as the anchor band. Per FCC Guidance, SAR tests for EN-DC operation were performed with both n41 and LTE B41 transmitting simultaneously. A single probe calibration factor covered transmission for both operations and the highest 1g SAR among both distributions was captured in the measurement.
2. For final implementation, NR slot configuration is synchronized using LTE uplink/downlink frame configuration 2 (extended cyclic prefix uplink duty cycle = 23.33%) However, EN-DC transmission on test DUT is only possible using FTM mode with continuous transmission (duty cycle = 100%). SAR testing was performed using FTM mode at maximum output power adjusted for duty cycle to mimic final 23.33% cycle.
3. The LTE Band 41 configuration with the worst-case standalone SAR for typical LTE operations was selected as the anchor configuration for the EN-DC testing. Additional SAR investigations determined LTE Band 41 transmission had no effect on NR Band n41 SAR levels due to spatial separation of transmitting antennas, thus LTE Band 41 anchor configuration was not changed between SAR tests. The anchor configuration for LTE Band 41 is shown above. The SAR test guidance in FCC KDB Publication 941225 D05v02r02 was used as a guideline for selecting for NR configurations. Some additional conducted powers for 1 RB size test cases were considered for NR band n41 when MPR=0.

WLAN Notes:

1. For held-to-ear, hotspot, and phablet operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g evaluations, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 8.7.5 for more information.
3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 8.7.6 for more information.
4. Per KDB Publication 248227 D01v02r02, SAR for MIMO was evaluated by following the simultaneous SAR provisions from KDB Publication 447498 D01v06 by either evaluating the sum of the 1g SAR values of each antenna transmitting independently or making a SAR measurement with both antennas transmitting simultaneously. Please see Section 12 for complete analysis.
5. When the maximum reported 1g averaged SAR is ≤0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.
6. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The

reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.

Bluetooth Notes

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

12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

12.1 Introduction

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

12.2 Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore, simultaneous transmission analysis is required. Per FCC KDB Publication 447498 D01v06 4.3.2 and IEEE 1528-2013 Section 6.3.4.1.2, simultaneous transmission SAR test exclusion may be applied when the sum of the 1g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is ≤1.6 W/kg. The different test positions in an exposure condition may be considered collectively to determine SAR test exclusion according to the sum of 1g or 10g SAR.

When standalone SAR is not required to be measured, per FCC KDB 447498 D01v06 4.3.2 b), the following equation must be used to estimate the standalone 1g SAR for simultaneous transmission assessment involving that transmitter.

$$\text{Estimated SAR} = \frac{\sqrt{f(GHz)}}{7.5} * \frac{(\text{Max Power of channel, mW})}{\text{Min. Separation Distance, mm}}$$

When standalone SAR is not required to be measured, per FCC KDB 447498 D01v06 4.3.2 b), the following equation must be used to estimate the standalone 10g SAR for simultaneous transmission assessment involving that transmitter.

$$\text{Estimated SAR} = \frac{\sqrt{f(GHz)}}{18.75} * \frac{(\text{Max Power of channel, mW})}{\text{Min. Separation Distance, mm}}$$

Table 12-1
Estimated SAR

Mode	Frequency	Maximum Allowed Power	Separation Distance (Body)	Estimated SAR (Body)	Separation Distance (Phablet)	Estimated SAR (Phablet)
	[MHz]	[dBm]	[mm]	[W/kg]	[mm]	[W/kg]
Bluetooth	2480	12.50	10	0.378	5	0.302

Note: Per KDB Publication 447498 D01v06, the maximum power of the channel was rounded to the nearest mW before calculation.

12.3 Head SAR Simultaneous Transmission Analysis

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

Table 12-2
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)	0.134	0.946	0.347	1.080	0.481	1.427
	CDMA/EVDO BC0 (§22H)	0.144	0.946	0.347	1.090	0.491	1.437
	PCS CDMA/EVDO	0.209	0.946	0.347	1.155	0.556	**1.502**
	GSM/GPRS 850	0.069	0.946	0.347	1.015	0.416	1.362
	GSM/GPRS 1900	0.096	0.946	0.347	1.042	0.443	1.389
	UMTS 850	0.138	0.946	0.347	1.084	0.485	1.431
	UMTS 1750	0.086	0.946	0.347	1.032	0.433	1.379
	UMTS 1900	0.194	0.946	0.347	1.140	0.541	1.487
	LTE Band 71	0.110	0.946	0.347	1.056	0.457	1.403
	LTE Band 12	0.138	0.946	0.347	1.084	0.485	1.431
	LTE Band 13	0.160	0.946	0.347	1.106	0.507	1.453
	LTE Band 26 (Cell)	0.054	0.946	0.347	1.000	0.401	1.347
	LTE Band 66 (AWS)	0.079	0.946	0.347	1.025	0.426	1.372
	LTE Band 25 (PCS)	0.147	0.946	0.347	1.093	0.494	1.440
	LTE Band 41	0.348	0.946	0.347	1.294	0.695	See Table Below

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)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	Right Cheek	0.348	0.348	0.347*	0.696	0.695	1.043
	Right Tilt	0.051	0.946*	0.347*	0.997	0.398	**1.344**
	Left Cheek	0.080	0.730	0.347	0.810	0.427	1.157
	Left Tilt	0.038	0.946	0.347*	0.984	0.385	1.331

Simult Tx	Configuration	EN-DC (DC_41A-n41A) 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	Right Cheek	0.077	0.348	0.347*	0.425	0.424	0.772
	Right Tilt	0.085	0.946*	0.347*	1.031	0.432	**1.378**
	Left Cheek	0.019	0.730	0.347	0.749	0.366	1.096
	Left Tilt	0.046	0.946	0.347*	0.992	0.393	1.339

Table 12-3
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)	0.134	0.979	0.266	1.113	0.400	1.379
	CDMA/EVDO BC0 (§22H)	0.144	0.979	0.266	1.123	0.410	1.389
	PCS CDMA/EVDO	0.209	0.979	0.266	1.188	0.475	1.454
	GSM/GPRS 850	0.069	0.979	0.266	1.048	0.335	1.314
	GSM/GPRS 1900	0.096	0.979	0.266	1.075	0.362	1.341
	UMTS 850	0.138	0.979	0.266	1.117	0.404	1.383
	UMTS 1750	0.086	0.979	0.266	1.065	0.352	1.331
	UMTS 1900	0.194	0.979	0.266	1.173	0.460	1.439
	LTE Band 71	0.110	0.979	0.266	1.089	0.376	1.355
	LTE Band 12	0.138	0.979	0.266	1.117	0.404	1.383
	LTE Band 13	0.160	0.979	0.266	1.139	0.426	1.405
	LTE Band 26 (Cell)	0.054	0.979	0.266	1.033	0.320	1.299
	LTE Band 66 (AWS)	0.079	0.979	0.266	1.058	0.345	1.324
	LTE Band 25 (PCS)	0.147	0.979	0.266	1.126	0.413	1.392
	LTE Band 41	0.348	0.979	0.266	1.327	0.614	**1.593**

Simult Tx	Configuration	EN-DC (DC_41A-n41A) 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	Right Cheek	0.077	0.375	0.266*	0.452	0.343	0.718
	Right Tilt	0.085	0.979*	0.266*	1.064	0.351	**1.330**
	Left Cheek	0.019	0.979	0.266	0.998	0.285	1.264
	Left Tilt	0.046	0.872	0.250	0.918	0.296	1.168

Table 12-4
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 and 5 GHz WLAN Ant 2 (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 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)	0.134	0.946	0.266	1.080	0.400	1.346
	CDMA/EVDO BC0 (§22H)	0.144	0.946	0.266	1.090	0.410	1.356
	PCS CDMA/EVDO	0.209	0.946	0.266	1.155	0.475	1.421
	GSM/GPRS 850	0.069	0.946	0.266	1.015	0.335	1.281
	GSM/GPRS 1900	0.096	0.946	0.266	1.042	0.362	1.308
	UMTS 850	0.138	0.946	0.266	1.084	0.404	1.350
	UMTS 1750	0.086	0.946	0.266	1.032	0.352	1.298
	UMTS 1900	0.194	0.946	0.266	1.140	0.460	1.406
	LTE Band 71	0.110	0.946	0.266	1.056	0.376	1.322
	LTE Band 12	0.138	0.946	0.266	1.084	0.404	1.350
	LTE Band 13	0.160	0.946	0.266	1.106	0.426	1.372
	LTE Band 26 (Cell)	0.054	0.946	0.266	1.000	0.320	1.266
	LTE Band 66 (AWS)	0.079	0.946	0.266	1.025	0.345	1.291
	LTE Band 25 (PCS)	0.147	0.946	0.266	1.093	0.413	1.359
	LTE Band 41	0.348	0.946	0.266	1.294	0.614	**1.560**

Simult Tx	Configuration	EN-DC (DC_41A-n41A) SAR (W/kg)	2.4 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	Right Cheek	0.077	0.348	0.266*	0.425	0.343	0.691
	Right Tilt	0.085	0.946*	0.266*	1.031	0.351	**1.297**
	Left Cheek	0.019	0.730	0.266	0.749	0.285	1.015
	Left Tilt	0.046	0.946	0.250	0.992	0.296	1.242

Table 12-5
Simultaneous Transmission Scenario with Bluetooth (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	CDMA/EVDO BC10 (§90S)	0.134	0.086	0.220
	CDMA/EVDO BC0 (§22H)	0.144	0.086	0.230
	PCS CDMA/EVDO	0.209	0.086	0.295
	GSM/GPRS 850	0.069	0.086	0.155
	GSM/GPRS 1900	0.096	0.086	0.182
	UMTS 850	0.138	0.086	0.224
	UMTS 1750	0.086	0.086	0.172
	UMTS 1900	0.194	0.086	0.280
	LTE Band 71	0.110	0.086	0.196
	LTE Band 12	0.138	0.086	0.224
	LTE Band 13	0.160	0.086	0.246
	LTE Band 26 (Cell)	0.054	0.086	0.140
	LTE Band 66 (AWS)	0.079	0.086	0.165
	LTE Band 25 (PCS)	0.147	0.086	0.233
	LTE Band 41	0.348	0.086	**0.434**

Simult Tx	Configuration	EN-DC (DC_41A-n41A) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	Right Cheek	0.077	0.031	0.108
	Right Tilt	0.085	0.045	0.130
	Left Cheek	0.019	0.072	0.091
	Left Tilt	0.046	0.086	**0.132**

12.4 Body-Worn Simultaneous Transmission Analysis

Table 12-6
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Body-Worn 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
Body-Worn	CDMA BC10 (§90S)	0.753	0.260	0.210	1.013	0.963	1.223
	CDMA BC0 (§22H)	0.854	0.260	0.210	1.114	1.064	1.324
	PCS CDMA	0.798	0.260	0.210	1.058	1.008	1.268
	GSM/GPRS 850	0.574	0.260	0.210	0.834	0.784	1.044
	GSM/GPRS 1900	0.300	0.260	0.210	0.560	0.510	0.770
	UMTS 850	0.918	0.260	0.210	1.178	1.128	1.388
	UMTS 1750	0.411	0.260	0.210	0.671	0.621	0.881
	UMTS 1900	0.574	0.260	0.210	0.834	0.784	1.044
	LTE Band 71	0.436	0.260	0.210	0.696	0.646	0.906
	LTE Band 12	0.539	0.260	0.210	0.799	0.749	1.009
	LTE Band 13	0.754	0.260	0.210	1.014	0.964	1.224
	LTE Band 26 (Cell)	0.936	0.260	0.210	1.196	1.146	**1.406**
	LTE Band 66 (AWS)	0.460	0.260	0.210	0.720	0.670	0.930
	LTE Band 25 (PCS)	0.677	0.260	0.210	0.937	0.887	1.147
	LTE Band 41	0.609	0.260	0.210	0.869	0.819	1.079

Configuration	EN-DC (DC_41A-n41A) 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
Back Side	0.357	0.260	0.210	0.617	0.567	**0.827**

Table 12-7
Simultaneous Transmission Scenario with 5 GHz WLAN (Body-Worn 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)		SPLSR
		1	2	3	1+2	1+3	1+3
Body-Worn	CDMA BC10 (§90S)	0.753	0.357	0.935	1.110	See Note 1	0.02
	CDMA BC0 (§22H)	0.854	0.357	0.935	1.211	See Note 1	0.02
	PCS CDMA	0.798	0.357	0.935	1.155	See Note 1	0.02
	GSM/GPRS 850	0.574	0.357	0.935	0.931	1.509	N/A
	GSM/GPRS 1900	0.300	0.357	0.935	0.657	1.235	N/A
	UMTS 850	0.918	0.357	0.935	1.275	See Note 1	0.02
	UMTS 1750	0.411	0.357	0.935	0.768	1.346	N/A
	UMTS 1900	0.574	0.357	0.935	0.931	1.509	N/A
	LTE Band 71	0.436	0.357	0.935	0.793	1.371	N/A
	LTE Band 12	0.539	0.357	0.935	0.896	1.474	N/A
	LTE Band 13	0.754	0.357	0.935	1.111	See Note 1	0.02
	LTE Band 26 (Cell)	0.936	0.357	0.935	1.293	See Note 1	0.02
	LTE Band 66 (AWS)	0.460	0.357	0.935	0.817	1.395	N/A
	LTE Band 25 (PCS)	0.677	0.357	0.935	1.034	See Note 1	0.01
	LTE Band 41	0.609	0.357	0.935	0.966	**1.544**	N/A

Configuration	EN-DC (DC_41A-n41A) 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
Back Side	0.357	0.357	0.935	0.714	**1.292**

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body-Worn	CDMA BC10 (§90S)	0.753	0.884	See Note 1	0.02
	CDMA BC0 (§22H)	0.854	0.884	See Note 1	0.02
	PCS CDMA	0.798	0.884	See Note 1	0.02
	GSM/GPRS 850	0.574	0.884	1.458	N/A
	GSM/GPRS 1900	0.300	0.884	1.184	N/A
	UMTS 850	0.918	0.884	See Note 1	0.02
	UMTS 1750	0.411	0.884	1.295	N/A
	UMTS 1900	0.574	0.884	1.458	N/A
	LTE Band 71	0.436	0.884	1.320	N/A
	LTE Band 12	0.539	0.884	1.423	N/A
	LTE Band 13	0.754	0.884	See Note 1	0.02
	LTE Band 26 (Cell)	0.936	0.884	See Note 1	0.02
	LTE Band 66 (AWS)	0.460	0.884	1.344	N/A
	LTE Band 25 (PCS)	0.677	0.884	**1.561**	N/A
	LTE Band 41	0.609	0.884	1.493	N/A

Configuration	EN-DC (DC_41A-n41A) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
	1	2	1+2
Back Side	0.357	0.884	**1.241**

Table 12-8
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 and 5 GHz WLAN Ant 2 (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 14 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	CDMA BC10 (§90S)	0.753	0.260	0.365	1.378
	CDMA BC0 (§22H)	0.854	0.260	0.365	1.479
	PCS CDMA	0.798	0.260	0.365	1.423
	GSM/GPRS 850	0.574	0.260	0.365	1.199
	GSM/GPRS 1900	0.300	0.260	0.365	0.925
	UMTS 850	0.918	0.260	0.365	1.543
	UMTS 1750	0.411	0.260	0.365	1.036
	UMTS 1900	0.574	0.260	0.365	1.199
	LTE Band 71	0.436	0.260	0.365	1.061
	LTE Band 12	0.539	0.260	0.365	1.164
	LTE Band 13	0.754	0.260	0.365	1.379
	LTE Band 26 (Cell)	0.936	0.260	0.365	**1.561**
	LTE Band 66 (AWS)	0.460	0.260	0.365	1.085
	LTE Band 25 (PCS)	0.677	0.260	0.365	1.302
	LTE Band 41	0.609	0.260	0.365	1.234

Configuration	EN-DC (DC_41A-n41A) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 14 dBm SAR (W/kg)	Σ SAR (W/kg)
	1	2	3	1+2+3
Back Side	0.357	0.260	0.365	**0.982**

Table 12-9
Simultaneous Transmission Scenario with Bluetooth (Body-Worn 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
Body-Worn	CDMA BC10 (§90S)	0.753	0.378	1.131
	CDMA BC0 (§22H)	0.854	0.378	1.232
	PCS CDMA	0.798	0.378	1.176
	GSM/GPRS 850	0.574	0.378	0.952
	GSM/GPRS 1900	0.300	0.378	0.678
	UMTS 850	0.918	0.378	1.296
	UMTS 1750	0.411	0.378	0.789
	UMTS 1900	0.574	0.378	0.952
	LTE Band 71	0.436	0.378	0.814
	LTE Band 12	0.539	0.378	0.917
	LTE Band 13	0.754	0.378	1.132
	LTE Band 26 (Cell)	0.936	0.378	**1.314**
	LTE Band 66 (AWS)	0.460	0.378	0.838
	LTE Band 25 (PCS)	0.677	0.378	1.055
	LTE Band 41	0.609	0.378	0.987

Configuration	EN-DC (DC_41A-n41A) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
	1	2	1+2
Back Side	0.357	0.378	**0.735**

Notes:
1. No evaluation was performed to determine the aggregate 1g SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.04 per FCC KDB 447498 D01v06. See Section 12.7 for detailed SPLS ratio analysis.
2. Bluetooth SAR was not required to be measured per FCC KDB Publication 447498 D01v06. Estimated SAR results were used in the above table to determine simultaneous transmission SAR test exclusion.

12.5 Hotspot SAR Simultaneous Transmission Analysis

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

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

Table 12-10
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)	0.732	0.374	0.210	1.106	0.942	1.316
	EVDO BC0 (§22H)	0.848	0.374	0.210	1.222	1.058	1.432
	PCS EVDO	1.165	0.374	0.210	**1.539**	1.375	See Table Below
	GPRS 850	0.541	0.374	0.210	0.915	0.751	1.125
	GPRS 1900	0.453	0.374	0.210	0.827	0.663	1.037
	UMTS 850	0.918	0.374	0.210	1.292	1.128	1.502
	UMTS 1750	0.747	0.374	0.210	1.121	0.957	1.331
	UMTS 1900	0.943	0.374	0.210	1.317	1.153	1.527
	LTE Band 71	0.436	0.374	0.210	0.810	0.646	1.020
	LTE Band 12	0.539	0.374	0.210	0.913	0.749	1.123
	LTE Band 13	0.754	0.374	0.210	1.128	0.964	1.338
	LTE Band 26 (Cell)	0.936	0.374	0.210	1.310	1.146	1.520
	LTE Band 66 (AWS)	0.786	0.374	0.210	1.160	0.996	1.370
	LTE Band 25 (PCS)	1.067	0.374	0.210	1.441	1.277	See Table Below
	LTE Band 41	0.609	0.374	0.210	0.983	0.819	1.193

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)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.747	0.260	0.210	1.217
	Front	0.736	0.374*	0.210*	**1.320**
	Top	-	0.374	0.210*	0.584
	Bottom	1.165	-	-	1.165
	Right	-	0.374*	0.210*	0.584
	Left	0.232	-	-	0.232

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.677	0.260	0.210	1.147
	Front	0.617	0.374*	0.210*	**1.201**
	Top	-	0.374	0.210*	0.584
	Bottom	1.067	-	-	1.067
	Right	-	0.374*	0.210*	0.584
	Left	0.217	-	-	0.217

Simult Tx	Configuration	EN-DC (DC_41A-n41A) 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+3
Hotspot SAR	Back	0.357	0.260	0.210	0.827
	Front	0.125	0.374*	0.210*	0.709
	Top	-	0.374	0.210*	0.584
	Bottom	0.065	-	-	0.065
	Right	0.368	0.374*	0.210*	**0.952**
	Left	0.433	-	-	0.433

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)	0.732	0.313	0.935	1.045	See Table Below
	EVDO BC0 (§22H)	0.848	0.313	0.935	1.161	See Table Below
	PCS EVDO	1.165	0.313	0.935	1.478	See Table Below
	GPRS 850	0.541	0.313	0.935	0.854	1.476
	GPRS 1900	0.453	0.313	0.935	0.766	1.388
	UMTS 850	0.918	0.313	0.935	1.231	See Table Below
	UMTS 1750	0.747	0.313	0.935	1.060	See Table Below
	UMTS 1900	0.943	0.313	0.935	1.256	See Table Below
	LTE Band 71	0.436	0.313	0.935	0.749	1.371
	LTE Band 12	0.539	0.313	0.935	0.852	1.474
	LTE Band 13	0.754	0.313	0.935	1.067	See Table Below
	LTE Band 26 (Cell)	0.936	0.313	0.935	1.249	See Table Below
	LTE Band 66 (AWS)	0.786	0.313	0.935	1.099	See Table Below
	LTE Band 25 (PCS)	1.067	0.313	0.935	1.380	See Table Below
	LTE Band 41	0.609	0.313	0.935	0.922	**1.544**

Simult Tx	Configuration	EVDO BC10 (§90S) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Hotspot SAR	Back	0.732	0.935	See Note 1	0.02
	Front	0.520	0.034	0.554	N/A
	Top	-	0.935*	**0.935**	N/A
	Bottom	0.234	-	0.234	N/A
	Right	0.339	0.398	0.737	N/A
	Left	-	-	-	N/A

Simult Tx	Configuration	EVDO BC0 (§22H) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Hotspot SAR	Back	0.848	0.935	See Note 1	0.02
	Front	0.563	0.034	0.597	N/A
	Top	-	0.935*	**0.935**	N/A
	Bottom	0.243	-	0.243	N/A
	Right	0.432	0.398	0.830	N/A

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Hotspot SAR	Back	0.747	0.935	See Note 1	0.02
	Front	0.736	0.034	0.770	N/A
	Top	-	0.935*	0.935	N/A
	Bottom	1.165	-	**1.165**	N/A
	Right	-	0.398	0.398	N/A
	Left	0.232	-	0.232	N/A

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
Hotspot SAR	Back	0.918	0.935	See Note 1	0.02
	Front	0.725	0.034	0.759	N/A
	Top	-	0.935*	0.935	N/A
	Bottom	0.309	-	0.309	N/A
	Right	0.549	0.398	**0.947**	N/A

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.411	0.935	**1.346**
	Front	0.422	0.034	0.456
	Top	-	0.935*	0.935
	Bottom	0.747	-	0.747
	Right	-	0.398	0.398
	Left	0.154	-	0.154

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.574	0.935	**1.509**
	Front	0.553	0.034	0.587
	Top	-	0.935*	0.935
	Bottom	0.943	-	0.943
	Right	-	0.398	0.398
	Left	0.212	-	0.212

Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Hotspot SAR	Back	0.754	0.935	See Note 1	0.02
	Front	0.588	0.034	0.622	N/A
	Top	-	0.935*	**0.935**	N/A
	Bottom	0.256	-	0.256	N/A
	Right	0.359	0.398	0.757	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
		1	2	1+2	1+2
Hotspot SAR	Back	0.936	0.935	See Note 1	0.02
	Front	0.657	0.034	0.691	N/A
	Top	-	0.935*	**0.935**	N/A
	Bottom	0.319	-	0.319	N/A
	Right	0.519	0.398	0.917	N/A

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.460	0.935	**1.395**
	Front	0.455	0.034	0.489
	Top	-	0.935*	0.935
	Bottom	0.786	-	0.786
	Right	-	0.398	0.398
	Left	0.184	-	0.184

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Hotspot SAR	Back	0.677	0.935	See Note 1	0.01
	Front	0.617	0.034	0.651	N/A
	Top	-	0.935*	0.935	N/A
	Bottom	1.067	-	**1.067**	N/A
	Right	-	0.398	0.398	N/A
	Left	0.217	-	0.217	N/A

Simult Tx	Configuration	EN-DC (DC_41A-n41A) 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	Back	0.357	0.313	0.935	0.670	**1.292**
	Front	0.125	0.313*	0.013	0.438	0.138
	Top	-	0.313*	0.935*	0.584	0.584
	Bottom	0.065	-	-	0.065	0.065
	Right	0.368	0.313*	0.438	0.681	0.806
	Left	0.433	-	-	0.433	0.433

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.732	0.884	See Table Below
	EVDO BC0 (§22H)	0.848	0.884	See Table Below
	PCS EVDO	1.165	0.884	See Table Below
	GPRS 850	0.541	0.884	1.425
	GPRS 1900	0.453	0.884	1.337
	UMTS 850	0.918	0.884	See Table Below
	UMTS 1750	0.747	0.884	See Table Below
	UMTS 1900	0.943	0.884	See Table Below
	LTE Band 71	0.436	0.884	1.320
	LTE Band 12	0.539	0.884	1.423
	LTE Band 13	0.754	0.884	See Table Below
	LTE Band 26 (Cell)	0.936	0.884	See Table Below
	LTE Band 66 (AWS)	0.786	0.884	See Table Below
	LTE Band 25 (PCS)	1.067	0.884	See Table Below
	LTE Band 41	0.609	0.884	**1.493**

Simult Tx	Configuration	EVDO BC10 (§90S) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	EVDO BC0 (§22H) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Hotspot SAR	Back	0.732	0.884	See Note 1	0.02	Hotspot SAR	Back	0.848	0.884	See Note 1	0.02
	Front	0.520	0.109	0.629	N/A		Front	0.563	0.109	0.672	N/A
	Top	-	0.884*	**0.884**	N/A		Top	-	0.884*	**0.884**	N/A
	Bottom	0.234	-	0.234	N/A		Bottom	0.243	-	0.243	N/A
	Right	0.339	0.292	0.631	N/A		Right	0.432	0.292	0.724	N/A
	Left	-	-	-	N/A		Left	-	-	-	N/A

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Hotspot SAR	Back	0.747	0.884	See Note 1	0.01	Hotspot SAR	Back	0.918	0.884	See Note 1	0.02
	Front	0.736	0.109	0.845	N/A		Front	0.725	0.109	0.834	N/A
	Top	-	0.884*	0.884	N/A		Top	-	0.884*	**0.884**	N/A
	Bottom	1.165	-	**1.165**	N/A		Bottom	0.309	-	0.309	N/A
	Right	-	0.292	0.292	N/A		Right	0.549	0.292	0.841	N/A
	Left	0.232	-	0.232	N/A		Left	-	-	-	N/A

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Hotspot SAR	Back	0.411	0.884	**1.295**	Hotspot SAR	Back	0.574	0.884	**1.458**
	Front	0.422	0.109	0.531		Front	0.553	0.109	0.662
	Top	-	0.884*	0.884		Top	-	0.884*	0.884
	Bottom	0.747	-	0.747		Bottom	0.943	-	0.943
	Right	-	0.292	0.292		Right	-	0.292	0.292
	Left	0.154	-	0.154		Left	0.212	-	0.212

Simult Tx	Configuration	LTE Band 13 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR	Simult Tx	Configuration	LTE Band 26 (Cell) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2			1	2	1+2	1+2
Hotspot SAR	Back	0.754	0.884	See Note 1	0.02	Hotspot SAR	Back	0.936	0.884	See Note 1	0.02
	Front	0.588	0.109	0.697	N/A		Front	0.657	0.109	0.766	N/A
	Top	-	0.884*	**0.884**	N/A		Top	-	0.884*	**0.884**	N/A
	Bottom	0.256	-	0.256	N/A		Bottom	0.319	-	0.319	N/A
	Right	0.359	0.292	0.651	N/A		Right	0.519	0.292	0.811	N/A
	Left	-	-	-	N/A		Left	-	-	-	N/A

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2			1	2	1+2
Hotspot SAR	Back	0.460	0.884	**1.344**	Hotspot SAR	Back	0.677	0.884	**1.561**
	Front	0.455	0.109	0.564		Front	0.617	0.109	0.726
	Top	-	0.884*	0.884		Top	-	0.884*	0.884
	Bottom	0.786	-	0.786		Bottom	1.067	-	1.067
	Right	-	0.292	0.292		Right	-	0.292	0.292
	Left	0.184	-	0.184		Left	0.217	-	0.217

Simult Tx	Configuration	EN-DC (DC_41A-n41A) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.357	0.884	**1.241**
	Front	0.125	0.109	0.234
	Top	-	0.884*	0.584
	Bottom	0.065	-	0.065
	Right	0.368	0.292	0.660
	Left	0.433	-	0.433

Table 12-12
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 and 5 GHz WLAN Ant 2 (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 14 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.732	0.374	0.365	1.471
	EVDO BC0 (§22H)	0.848	0.374	0.365	**1.587**
	PCS EVDO	1.165	0.374	0.365	See Table Below
	GPRS 850	0.541	0.374	0.365	1.280
	GPRS 1900	0.453	0.374	0.365	1.192
	UMTS 850	0.918	0.374	0.365	See Table Below
	UMTS 1750	0.747	0.374	0.365	1.486
	UMTS 1900	0.943	0.374	0.365	See Table Below
	LTE Band 71	0.436	0.374	0.365	1.175
	LTE Band 12	0.539	0.374	0.365	1.278
	LTE Band 13	0.754	0.374	0.365	1.493
	LTE Band 26 (Cell)	0.936	0.374	0.365	See Table Below
	LTE Band 66 (AWS)	0.786	0.374	0.365	1.525
	LTE Band 25 (PCS)	1.067	0.374	0.365	See Table Below
	LTE Band 41	0.609	0.374	0.365	1.348

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 14 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.747	0.260	0.365	1.372
	Front	0.736	0.374*	0.365*	**1.475**
	Top	-	0.374	0.365*	0.739
	Bottom	1.165	-	-	1.165
	Right	-	0.374*	0.365*	0.739
	Left	0.232	-	-	0.232

Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 14 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.918	0.260	0.365	**1.543**
	Front	0.725	0.374*	0.365*	1.464
	Top	-	0.374	0.365*	0.739
	Bottom	0.309	-	-	0.309
	Right	0.549	0.374*	0.365*	1.288
	Left	-	-	-	0.000

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 14 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.574	0.260	0.365	1.199
	Front	0.553	0.374*	0.365*	**1.292**
	Top	-	0.374	0.365*	0.739
	Bottom	0.943	-	-	0.943
	Right	-	0.374*	0.365*	0.739
	Left	0.212	-	-	0.212

Simult Tx	Configuration	LTE Band 26 (Cell) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 14 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.936	0.260	0.365	**1.561**
	Front	0.657	0.374*	0.365*	1.396
	Top	-	0.374	0.365*	0.739
	Bottom	0.319	-	-	0.319
	Right	0.519	0.374*	0.365*	1.258
	Left	-	-	-	0.000

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 14 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.677	0.260	0.365	1.302
	Front	0.617	0.374*	0.365*	**1.356**
	Top	-	0.374	0.365*	0.739
	Bottom	1.067	-	-	1.067
	Right	-	0.374*	0.365*	0.739
	Left	0.217	-	-	0.217

Simult Tx	Configuration	EN-DC (DC_41A-n41A) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 14 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.357	0.260	0.365	**0.982**
	Front	0.125	0.374*	0.365*	0.864
	Top	-	0.374	0.365*	0.584
	Bottom	0.065	-	-	0.065
	Right	0.368	0.374*	0.065	0.807
	Left	0.433	-	-	0.433

Table 12-13
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)	0.732	0.378	1.110
	EVDO BC0 (§22H)	0.848	0.378	1.226
	PCS EVDO	1.165	0.378	**1.543**
	GPRS 850	0.541	0.378	0.919
	GPRS 1900	0.453	0.378	0.831
	UMTS 850	0.918	0.378	1.296
	UMTS 1750	0.747	0.378	1.125
	UMTS 1900	0.943	0.378	1.321
	LTE Band 71	0.436	0.378	0.814
	LTE Band 12	0.539	0.378	0.917
	LTE Band 13	0.754	0.378	1.132
	LTE Band 26 (Cell)	0.936	0.378	1.314
	LTE Band 66 (AWS)	0.786	0.378	1.164
	LTE Band 25 (PCS)	1.067	0.378	1.445
	LTE Band 41	0.609	0.378	0.987

Simult Tx	EN-DC (DC_41A-n41A) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
	1	2	1+2
Hotspot	0.368	0.378	**0.746**

Notes:

1. No evaluation was performed to determine the aggregate 1g SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.04 per FCC KDB 447498 D01v06. See Section 12.7 for detailed SPLS ratio analysis.

12.6 Phablet Simultaneous Transmission Analysis

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

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

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

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

Table 12-14
Simultaneous Transmission Scenario with 5 GHz WLAN (Phablet)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Phablet SAR	PCS EVDO	2.838	1.298	2.168	See Table Below	See Table Below
	UMTS 1750	2.792	1.298	2.168	See Table Below	See Table Below
	UMTS 1900	2.451	1.298	2.168	3.749	See Table Below
	LTE Band 66 (AWS)	3.018	1.298	2.168	See Table Below	See Table Below
	LTE Band 25 (PCS)	2.479	1.298	2.168	**3.777**	See Table Below

Simult Tx	Configuration	PCS EVDO 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
Phablet SAR	Back	2.594	1.298	2.168	**3.892**	See Note 1	0.07
	Front	2.838	0.733	0.128	3.571	2.966	N/A
	Top	-	1.298*	2.168*	1.298	2.168	N/A
	Bottom	2.510	-	-	2.510	2.510	N/A
	Right	-	1.298*	0.460	1.298	0.460	N/A
	Left	0.964	-	-	0.964	0.964	N/A

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Phablet SAR	Back	1.682	1.298	2.168	2.980	**3.850**
	Front	1.765	0.733	0.128	2.498	1.893
	Top	-	1.298*	2.168*	1.298	2.168
	Bottom	2.792	-	-	2.792	2.792
	Right	-	1.298*	0.460	1.298	0.460
	Left	0.502	-	-	0.502	0.502

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		SPLSR
		1	2	3	1+2	1+3	1+3
Phablet SAR	Back	2.262	1.298	2.168	**3.560**	See Note 1	0.06
	Front	2.451	0.733	0.128	3.184	2.579	N/A
	Top	-	1.298*	2.168*	1.298	2.168	N/A
	Bottom	2.154	-	-	2.154	2.154	N/A
	Right	-	1.298*	0.460	1.298	0.460	N/A
	Left	0.822	-	-	0.822	0.822	N/A

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Phablet SAR	Back	1.281	1.298	2.168	2.579	**3.449**
	Front	1.059	0.733	0.128	1.792	1.187
	Top	-	1.298*	2.168*	1.298	2.168
	Bottom	3.018	-	-	3.018	3.018
	Right	-	1.298*	0.460	1.298	0.460
	Left	0.456	-	-	0.456	0.456

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	3	1+3	1+2
Phablet SAR	Back	2.046	2.168	See Note 1	0.06
	Front	2.479	0.128	2.607	N/A
	Top	-	2.168*	2.168	N/A
	Bottom	2.410	-	2.410	N/A
	Right	-	0.460	0.460	N/A
	Left	0.657	-	0.657	N/A

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Phablet SAR	Back	2.594	1.909	See Note 1	0.07
	Front	2.838	0.675	**3.513**	N/A
	Top	-	1.909*	1.909	N/A
	Bottom	2.510	-	2.510	N/A
	Right	-	0.688	0.688	N/A
	Left	0.964	-	0.964	N/A

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Back	1.682	1.909	**3.591**
	Front	1.765	0.675	2.440
	Top	-	1.909*	1.909
	Bottom	2.792	-	2.792
	Right	-	0.688	0.688
	Left	0.502	-	0.502

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Phablet SAR	Back	2.262	1.909	See Note 1	0.06
	Front	2.451	0.675	**3.126**	N/A
	Top	-	1.909*	1.909	N/A
	Bottom	2.154	-	2.154	N/A
	Right	-	0.688	0.688	N/A
	Left	0.822	-	0.822	N/A

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Back	1.281	1.909	**3.190**
	Front	1.059	0.675	1.734
	Top	-	1.909*	1.909
	Bottom	3.018	-	3.018
	Right	-	0.688	0.688
	Left	0.456	-	0.456

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	Back	2.046	1.909	**3.955**
	Front	2.479	0.675	3.154
	Top	-	1.909*	1.909
	Bottom	2.410	-	2.410
	Right	-	0.688	0.688
	Left	0.657	-	0.657

Notes:
1. No evaluation was performed to determine the aggregate 10g SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.10 per FCC KDB 447498 D01v06. See Section 12.7 for detailed SPLS ratio analysis.
2. For SAR summation, the highest reported SAR across all test distances was used as the most conservative evaluation for simultaneous transmission analysis for each device edge.

12.7 SPLSR Evaluation and Analysis

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

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

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

12.7.1 Body-Worn and Hotspot Back Side SPLSR Evaluation and Analysis

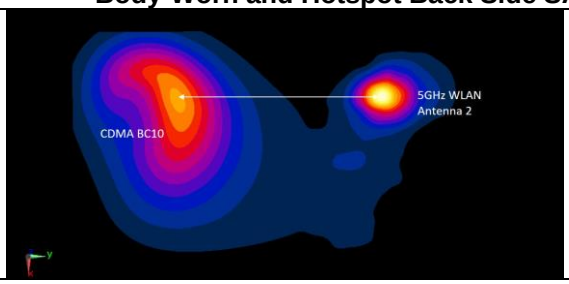
Table 12-15
Peak SAR Locations for Body-Worn and Hotspot Back Side

Mode/Band	x (mm)	y (mm)
5 GHz WLAN Ant 2	-56.00	52.00
5 GHz WLAN MIMO	-53.00	53.00
Cell. CDMA BC10	-53.50	-43.50
Cell. EVDO BC10	-53.50	-43.50
Cell. CDMA BC0	-53.50	-45.00
Cell. EVDO BC0	-53.50	-46.50
PCS CDMA	-25.00	-73.50
PCS EVDO	-7.50	-81.50
UMTS 850	-65.50	-51.00
LTE Band 13	-52.00	-56.00
LTE Band 26 (Cell)	-53.50	-55.50
LTE Band 25 (PCS)	-6.50	-81.50

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

Antenna Pair		Standalone SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$	
5 GHz WLAN Ant 2	Cell. CDMA BC10	0.935	0.753	1.688	95.53	0.02	1
5 GHz WLAN Ant 2	Cell. EVDO BC10	0.935	0.732	1.667	95.53	0.02	2
5 GHz WLAN Ant 2	Cell. CDMA BC0	0.935	0.854	1.789	97.03	0.02	3
5 GHz WLAN Ant 2	Cell. EVDO BC0	0.935	0.848	1.783	98.53	0.02	4
5 GHz WLAN Ant 2	PCS CDMA	0.935	0.798	1.733	129.27	0.02	5
5 GHz WLAN Ant 2	PCS EVDO	0.935	0.747	1.682	142.04	0.02	6
5 GHz WLAN Ant 2	UMTS 850	0.935	0.918	1.853	103.44	0.02	7
5 GHz WLAN Ant 2	LTE Band 13	0.935	0.754	1.689	108.07	0.02	8
5 GHz WLAN Ant 2	LTE Band 26 (Cell)	0.935	0.936	1.871	107.53	0.02	9
5 GHz WLAN Ant 2	LTE Band 25 (PCS)	0.935	0.677	1.612	142.38	0.01	10
5 GHz WLAN MIMO	Cell. CDMA BC10	0.884	0.753	1.637	96.50	0.02	11
5 GHz WLAN MIMO	Cell. EVDO BC10	0.884	0.732	1.616	96.50	0.02	12
5 GHz WLAN MIMO	Cell. CDMA BC0	0.884	0.854	1.738	98.00	0.02	13
5 GHz WLAN MIMO	Cell. EVDO BC0	0.884	0.848	1.732	99.50	0.02	14
5 GHz WLAN MIMO	PCS CDMA	0.884	0.798	1.682	129.56	0.02	15
5 GHz WLAN MIMO	PCS EVDO	0.884	0.747	1.631	141.99	0.01	16
5 GHz WLAN MIMO	UMTS 850	0.884	0.918	1.802	104.75	0.02	17
5 GHz WLAN MIMO	LTE Band 13	0.884	0.754	1.638	109.00	0.02	18
5 GHz WLAN MIMO	LTE Band 26 (Cell)	0.884	0.936	1.820	108.50	0.02	19

Table 12-17
Body-Worn and Hotspot Back Side SAR to Peak Location Separation Ratio Plots



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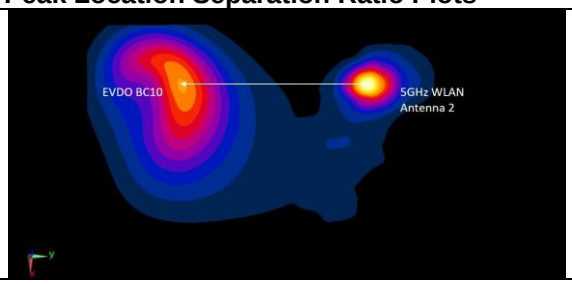

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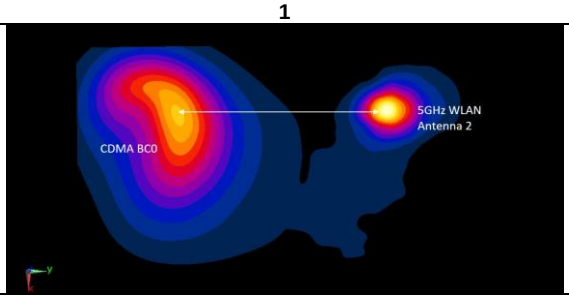

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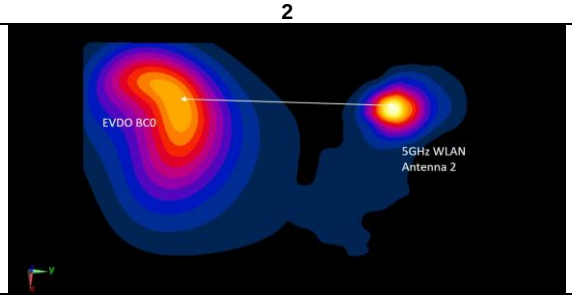

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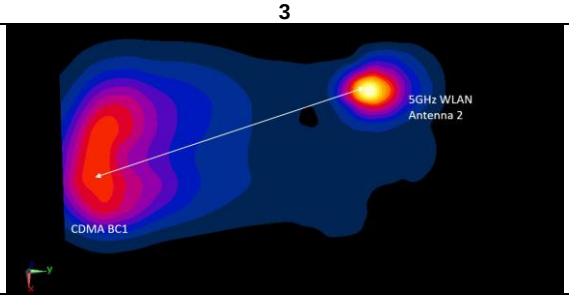

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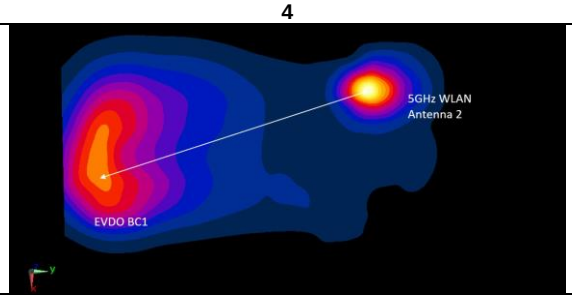

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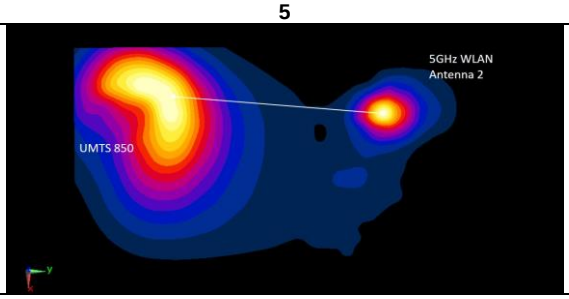

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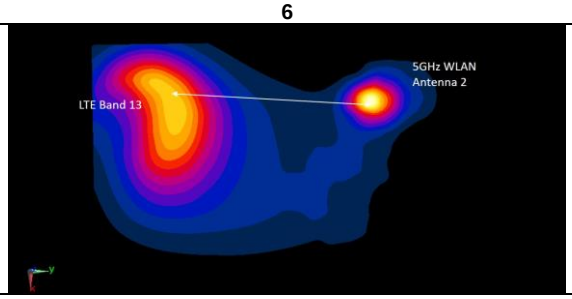

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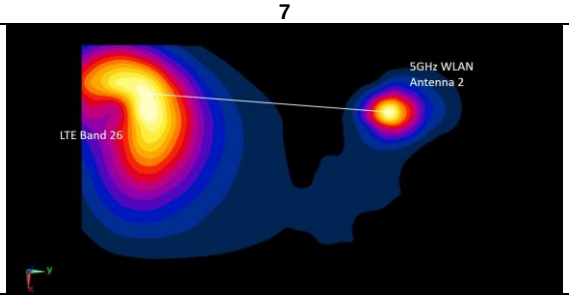

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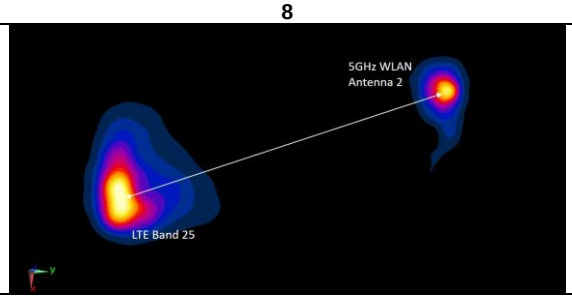

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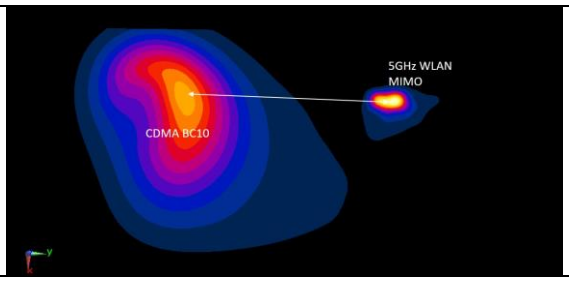

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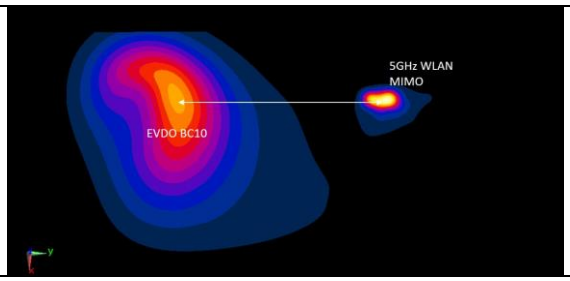

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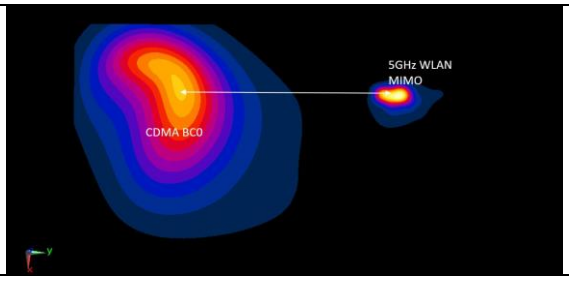

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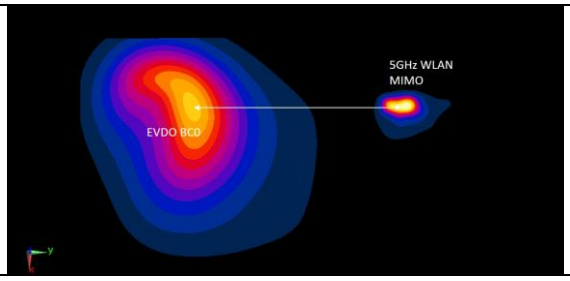

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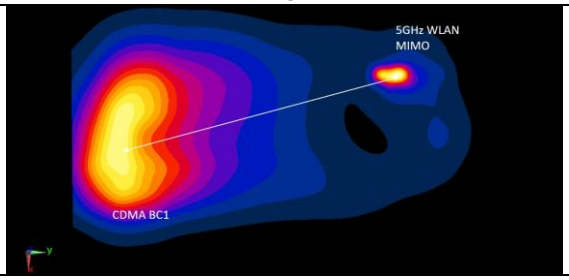

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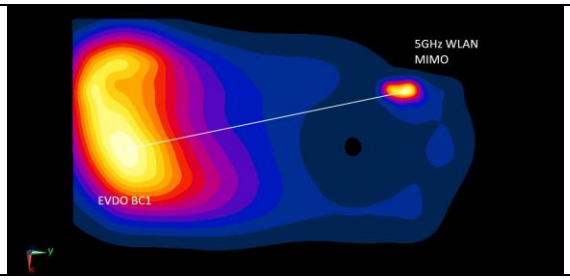

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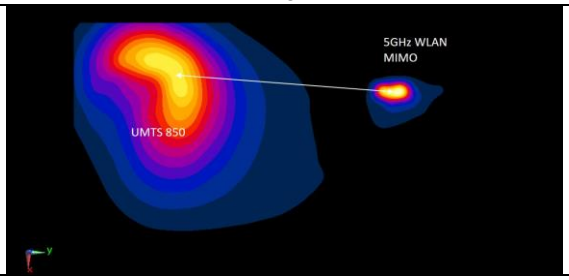

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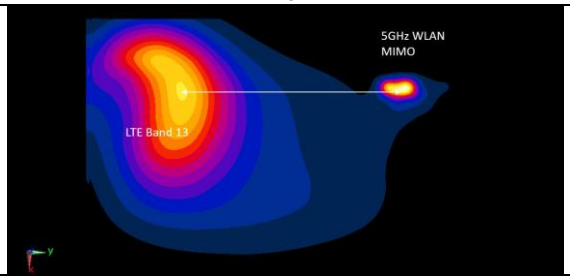

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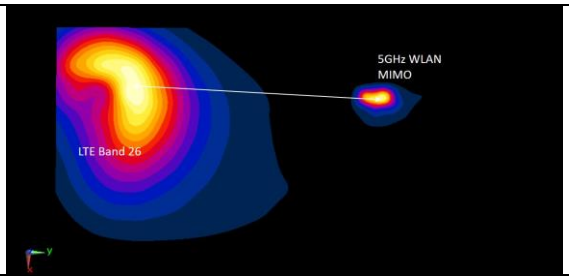

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12.7.2 Phablet Back Side SPLSR Evaluation and Analysis

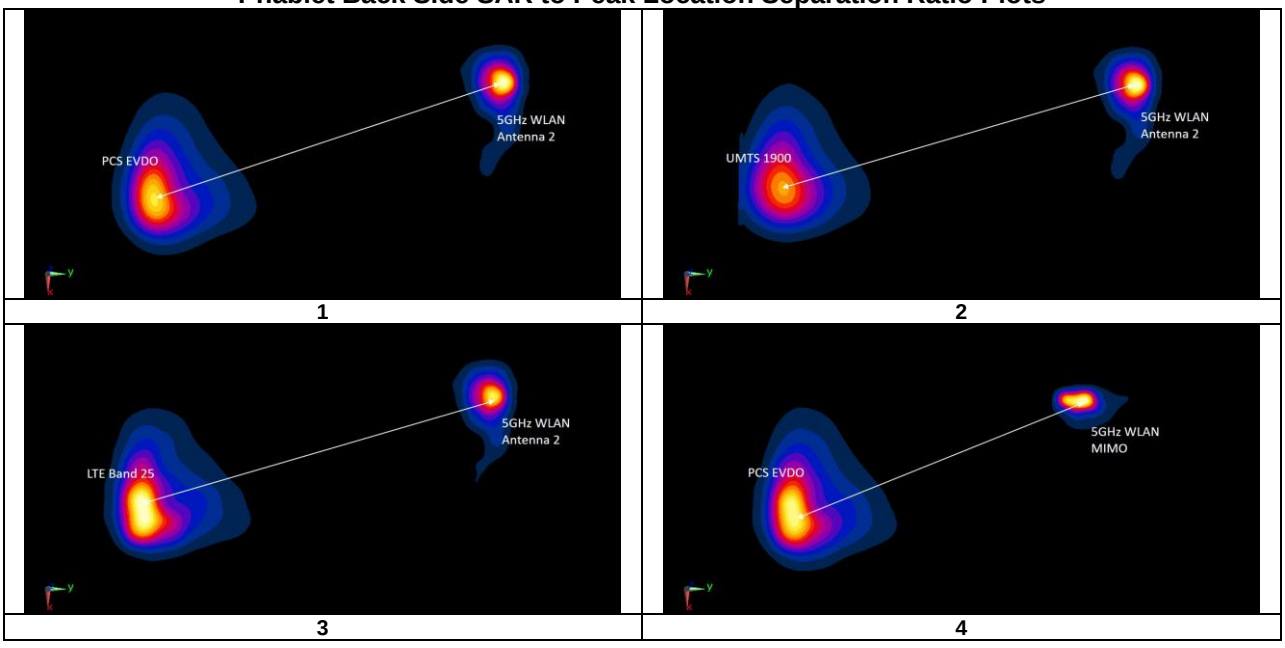
Table 12-18
Peak SAR Locations for Phablet Back Side

Mode/Band	x (mm)	y (mm)
5 GHz WLAN Ant 2	-51.00	53.00
5 GHz WLAN MIMO	-54.00	52.00
PCS CDMA	5.50	-72.00
UMTS 1900	-2.00	-80.00
LTE Band 25 (PCS)	-2.50	-72.00

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

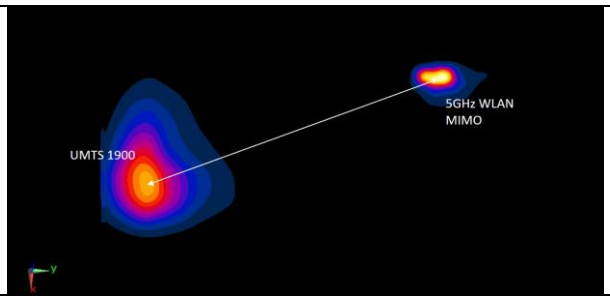
Antenna Pair		Standalone SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$	
5 GHz WLAN Ant 2	PCS CDMA	2.168	2.594	4.762	139.00	0.07	1
5 GHz WLAN Ant 2	UMTS 1900	2.168	2.262	4.430	143.62	0.06	2
5 GHz WLAN Ant 2	LTE Band 25 (PCS)	2.168	2.046	4.214	135.95	0.06	3
5 GHz WLAN MIMO	PCS CDMA	1.909	2.594	4.503	137.54	0.07	4
5 GHz WLAN MIMO	UMTS 1900	1.909	2.262	4.171	141.87	0.06	5

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



1 | 2

3 | 4



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12.8 Simultaneous Transmission Conclusion

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

13 SAR MEASUREMENT VARIABILITY

13.1 Measurement Variability

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

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

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

Table 13-1
Head SAR Measurement Variability Results

HEAD VARIABILITY RESULTS														
Band	FREQUENCY		Mode/Band	Service	Side	Test Position	Data Rate (Mbps)	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)	
2450	2437.00	6	802.11b, 22 MHz Bandwidth	DSSS , ANT 1	Left	Tilt	1	0.897	0.811	1.11	N/A	N/A	N/A	N/A
5250	5280.00	56	802.11a, 20 MHz Bandwidth	OFDM , ANT 1	Left	Cheek	6	0.882	0.800	1.10	N/A	N/A	N/A	N/A
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 13-2
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)	
850	831.50	26865	LTE Band 26 (Cell), 15 MHz Bandwidth	QPSK, 1 RB, 36 RB Offset	N/A	back	10 mm	0.894	0.912	1.02	N/A	N/A	N/A	N/A
1900	1908.75	1175	PCS CDMA	EVDO Rev. 0	N/A	bottom	10 mm	1.070	1.070	1.00	N/A	N/A	N/A	N/A
5750	5825.00	165	802.11a, 20 MHz Bandwidth	OFDM , ANT 2	6	back	10 mm	0.843	0.831	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									

Table 13-3
Phablet SAR Measurement Variability Results

PHABLET VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Spacing	Measured SAR (10g)	1st Repeated SAR (10g)	Ratio	2nd Repeated SAR (10g)	Ratio	3rd Repeated SAR (10g)	Ratio
	MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1750	1720.00	132072	LTE Band 66 (AWS), 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	bottom	0 mm	2.930	2.830	1.04	N/A	N/A	N/A	N/A
1900	1851.25	25	PCS CDMA	EVDO Rev. 0	front	0 mm	2.680	2.450	1.09	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**							**Phablet** **4.0 W/kg (mW/g)** averaged over 10 grams						

13.2 Measurement Uncertainty

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

14 ADDITIONAL TESTING PER FCC GUIDANCE

14.1 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 was < 10% and all reported SAR values were < 1.4 W/kg for 1g and < 3.5 W/kg for 10g.

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

Table 14-1
LTE Band 41 Head Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.2	27.7
Measured Output Power (dBm)	24.79	27.32
Measured SAR (W/kg)	0.169	0.187
Measured Power (mW)	301.30	539.51
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	190.72	233.61
% deviation from expected linearity		-9.66%

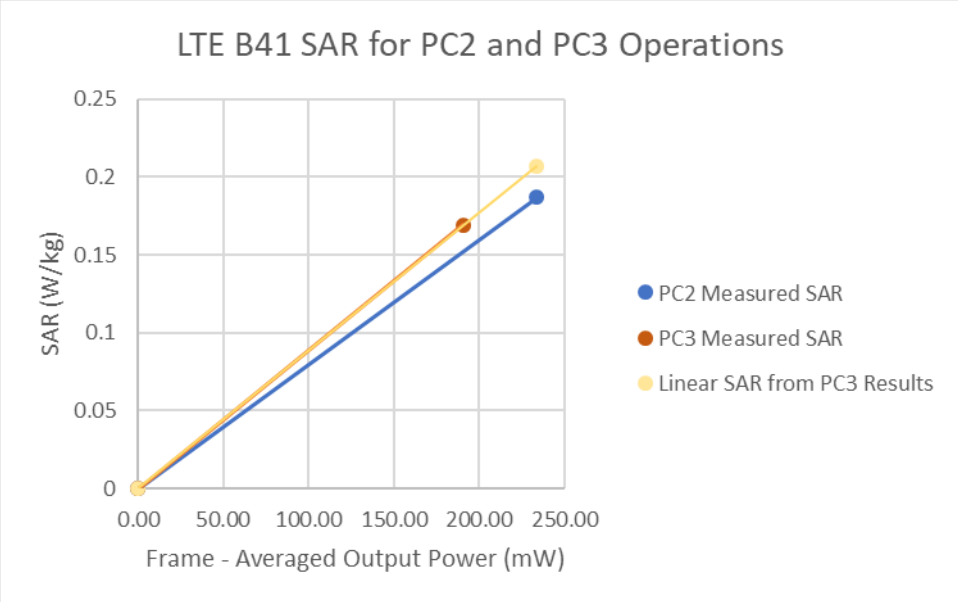

Figure 14-1
LTE Band 41 Head Linearity

Table 14-2
LTE Band 41 Body-Worn Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.2	27.7
Measured Output Power (dBm)	24.79	27.32
Measured SAR (W/kg)	0.364	0.410
Measured Power (mW)	301.30	539.51
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	190.72	233.61
% deviation from expected linearity		-8.04%

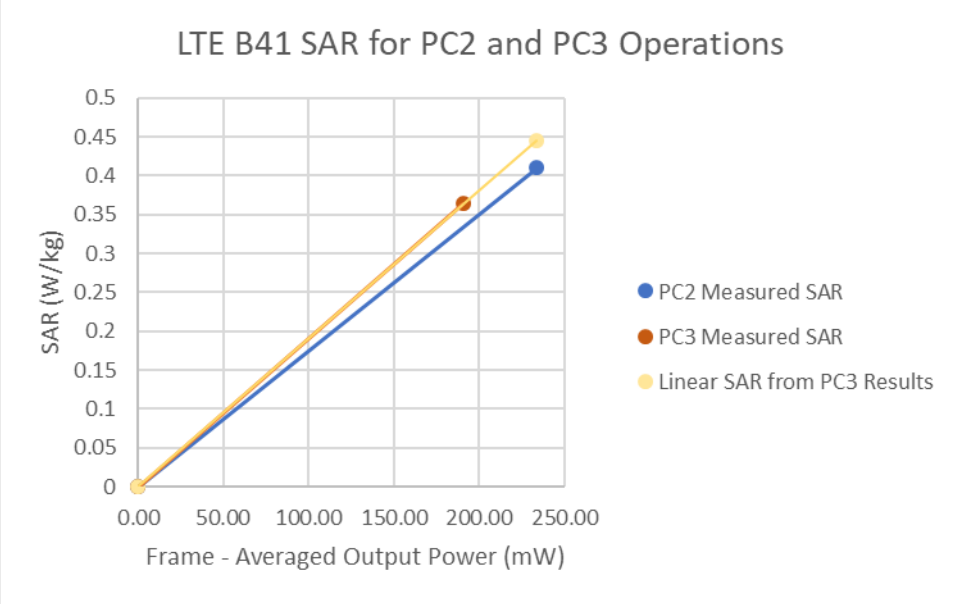

Figure 14-2
LTE Band 41 Body-Worn Linearity

Table 14-3
LTE Band 41 Hotspot Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.2	27.7
Measured Output Power (dBm)	24.79	27.32
Measured SAR (W/kg)	0.404	0.488
Measured Power (mW)	301.30	539.51
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	190.72	233.61
% deviation from expected linearity		-1.38%

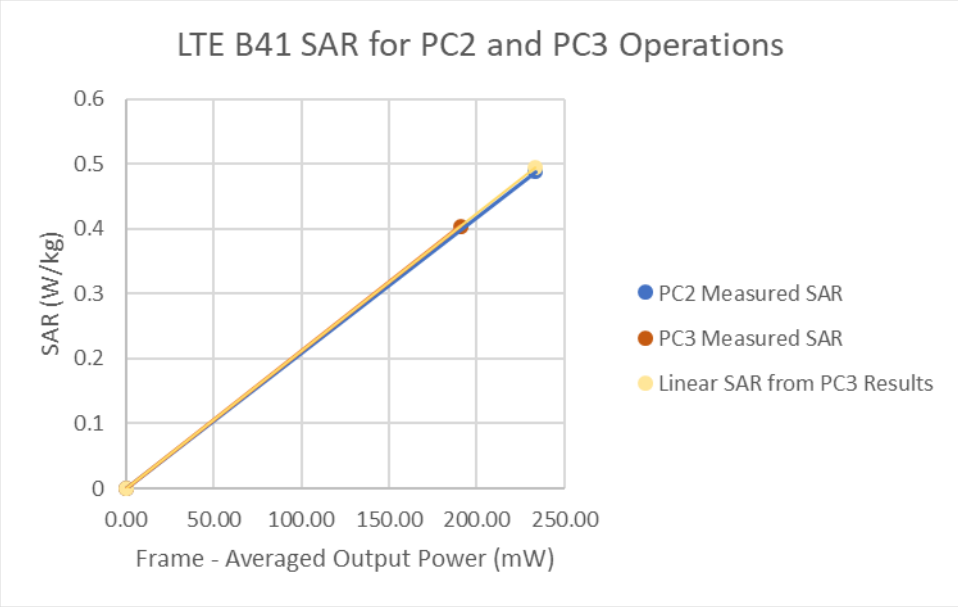

Figure 14-3
LTE Band 41 Hotspot Linearity

15 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	85033E	3.5mm Standard Calibration Kit	8/13/2018	Annual	8/13/2019	MY53402352
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	CBT	N/A	CBT	3051A00187
Agilent	8648D	(9kHz-4GHz) Signal Generator	CBT	N/A	CBT	3629U00687
Agilent	8753E	(30kHz-6GHz) Network Analyzer	9/28/2018	Annual	9/28/2019	JP38020182
Agilent	8753ES	S-Parameter Network Analyzer	2/8/2018	Annual	2/8/2019	US39170122
Agilent	8753ES	Network Analyzer	2/21/2018	Annual	2/21/2019	MY40001472
Agilent	8753ES	S-Parameter Network Analyzer	7/30/2018	Annual	7/30/2019	MY40000670
Agilent	8753ES	S-Parameter Vector Network Analyzer	8/30/2018	Annual	8/30/2019	MY40003841
Agilent	8753ES	S-Parameter Network Analyzer	10/2/2018	Annual	10/2/2019	US39170118
Agilent	E4432B	ESG-D Series Signal Generator	4/19/2018	Annual	4/19/2019	US40053896
Agilent	E4438C	ESG Vector Signal Generator	3/21/2017	Biennial	3/21/2019	MY45090700
Agilent	E4438C	ESG Vector Signal Generator	3/23/2017	Biennial	3/23/2019	MY42082659
Agilent	E4440A	PSA Series Spectrum Analyzer	11/14/2018	Annual	11/14/2019	MY46186272
Agilent	E5515C	Wireless Communications Test Set	3/4/2016	Triennial	3/4/2019	GB45360985
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46170464
Agilent	N5182A	MXG Vector Signal Generator	1/24/2018	Annual	1/24/2019	MY47420651
Agilent	N5182A	MXG Vector Signal Generator	4/18/2018	Annual	4/18/2019	MY47420800
Agilent	N9020A	MXA Signal Analyzer	1/24/2018	Annual	1/24/2019	US46470561
Agilent	N9030A	PXA Signal Analyzer (44GHz)	5/25/2018	Annual	5/25/2019	MY52350166
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	343972
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	343971
Anritsu	MA24106A	USB Power Sensor	7/17/2018	Annual	7/17/2019	1827527
Anritsu	MA24106A	USB Power Sensor	3/12/2018	Annual	3/12/2019	1344555
Anritsu	MA24106A	USB Power Sensor	3/12/2018	Annual	3/12/2019	1349501
Anritsu	MA24106A	USB Power Sensor	3/12/2018	Annual	3/12/2019	1344557
Anritsu	MA2411B	Pulse Power Sensor	3/2/2018	Annual	3/2/2019	1339018
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1126066
Anritsu	ML2495A	Power Meter	10/21/2018	Annual	10/21/2019	941001
Anritsu	ML2495A	Power Meter	11/20/2018	Annual	11/20/2019	1039008
Anritsu	ML2496A	Power Meter	5/21/2018	Annual	5/21/2019	1351001
Anritsu	ML2496A	Power Meter	6/19/2018	Annual	6/19/2019	1306009
Anritsu	MT8820C	Radio Communication Analyzer	6/27/2018	Annual	6/27/2019	6201240328
Anritsu	MT8821C	Radio Communication Analyzer	7/24/2018	Annual	7/24/2019	6201664756
Anritsu	MT8821C	Radio Communication Analyzer	7/26/2018	Annual	7/26/2019	6201144418
Anritsu	MT8862A	Wireless Connectivity Test Set	7/3/2018	Annual	7/3/2019	6261782395
COMTech	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M15SA00-009
Control Company	4040	Therm./ Clock/ Humidity Monitor	3/1/2017	Biennial	3/1/2019	170152009
Control Company	4040	Therm./Clock/Humidity Monitor	3/31/2017	Biennial	3/31/2019	170232394
Control Company	4352	Ultra Long Stem Thermometer	2/14/2017	Biennial	2/14/2019	170112507
Control Company	4352	Ultra Long Stem Thermometer	3/3/2017	Biennial	3/3/2019	170155534
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/4/2018	Annual	6/4/2019	MY53401181
Keysight Technologies	AT/N6705B	DC Power Supply	N/A			MY53001315
Keysight Technologies	U3401A	Digital Multimeter	5/17/2018	Annual	5/17/2019	MY57201470
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mitutoyo	CD-6"CSX	Digital Caliper	4/18/2018	Biennial	4/18/2020	13264165
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Pasternack	NC-100	Torque Wrench	4/18/2018	Annual	4/18/2019	N/A
Pasternack	NC-100	Torque Wrench	4/18/2018	Annual	4/18/2019	1445
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	5/18/2018	Annual	5/18/2019	109892
Rohde & Schwarz	CMW500	Radio Communication Tester	4/5/2018	Annual	4/5/2019	128633
Rohde & Schwarz	CMW500	Radio Communication Tester	4/20/2018	Annual	4/20/2019	128635
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	5/29/2018	Annual	5/29/2019	161662
Rohde & Schwarz	CMW500	Radio Communication Tester	6/8/2018	Annual	6/8/2019	112347
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/15/2018	Annual	5/15/2019	1070
SPEAG	D1750V2	1750 MHz SAR Dipole	5/9/2017	Biennial	5/9/2019	1148
SPEAG	D1750V2	1750 MHz SAR Dipole	10/22/2018	Annual	10/22/2019	1150
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Annual	10/23/2019	5d080
SPEAG	D1900V2	1900 MHz SAR Dipole	2/7/2018	Annual	2/7/2019	5d148
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Annual	10/23/2019	5d149
SPEAG	D2450V2	2450 MHz SAR Dipole	9/11/2017	Biennial	9/11/2019	797
SPEAG	D2450V2	2450 MHz SAR Dipole	8/17/2017	Biennial	8/17/2019	719
SPEAG	D2600V2	2600 MHz SAR Dipole	6/7/2017	Biennial	6/7/2019	1064
SPEAG	D2600V2	2600 MHz SAR Dipole	9/13/2016	Triennial	9/13/2019	1071
SPEAG	D5GHzV2	5 GHz SAR Dipole	8/10/2018	Annual	8/10/2019	1237
SPEAG	D5GHzV2	5 GHz SAR Dipole	9/21/2016	Triennial	9/21/2019	1191
SPEAG	D750V3	750 MHz SAR Dipole	1/15/2018	Annual	1/15/2019	1003
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	4d047
SPEAG	D835V2	835 MHz SAR Dipole	1/15/2018	Annual	1/15/2019	4d132
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	4d133
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/18/2018	Annual	10/18/2019	1333
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/11/2018	Annual	7/11/2019	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/22/2018	Annual	5/22/2019	859
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/18/2018	Annual	6/18/2019	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/11/2018	Annual	4/11/2019	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/15/2018	Annual	2/15/2019	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/18/2018	Annual	6/18/2019	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/9/2018	Annual	2/9/2019	1272
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/7/2018	Annual	3/7/2019	1368
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/3/2018	Annual	10/3/2019	1558
SPEAG	ES3DV3	SAR Probe	10/22/2018	Annual	10/22/2019	3287
SPEAG	ES3DV3	SAR Probe	3/27/2018	Annual	3/27/2019	3347
SPEAG	ES3DV3	SAR Probe	2/13/2018	Annual	2/13/2019	3213
SPEAG	ES3DV3	SAR Probe	8/22/2018	Annual	8/22/2019	3332
SPEAG	ES3DV3	SAR Probe	3/13/2018	Annual	3/13/2019	3319
SPEAG	EX3DV4	SAR Probe	7/20/2018	Annual	7/20/2019	7410
SPEAG	EX3DV4	SAR Probe	5/22/2018	Annual	5/22/2019	7406
SPEAG	EX3DV4	SAR Probe	6/25/2018	Annual	6/25/2019	7409
SPEAG	EX3DV4	SAR Probe	4/18/2018	Annual	4/18/2019	7357
SPEAG	EX3DV4	SAR Probe	8/23/2018	Annual	8/23/2019	7308

Note: All equipment was used solely within its calibration period.

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

16 MEASUREMENT UNCERTAINTIES

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

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: ZNFV450PM; Type: Portable Handset; Serial: 00065

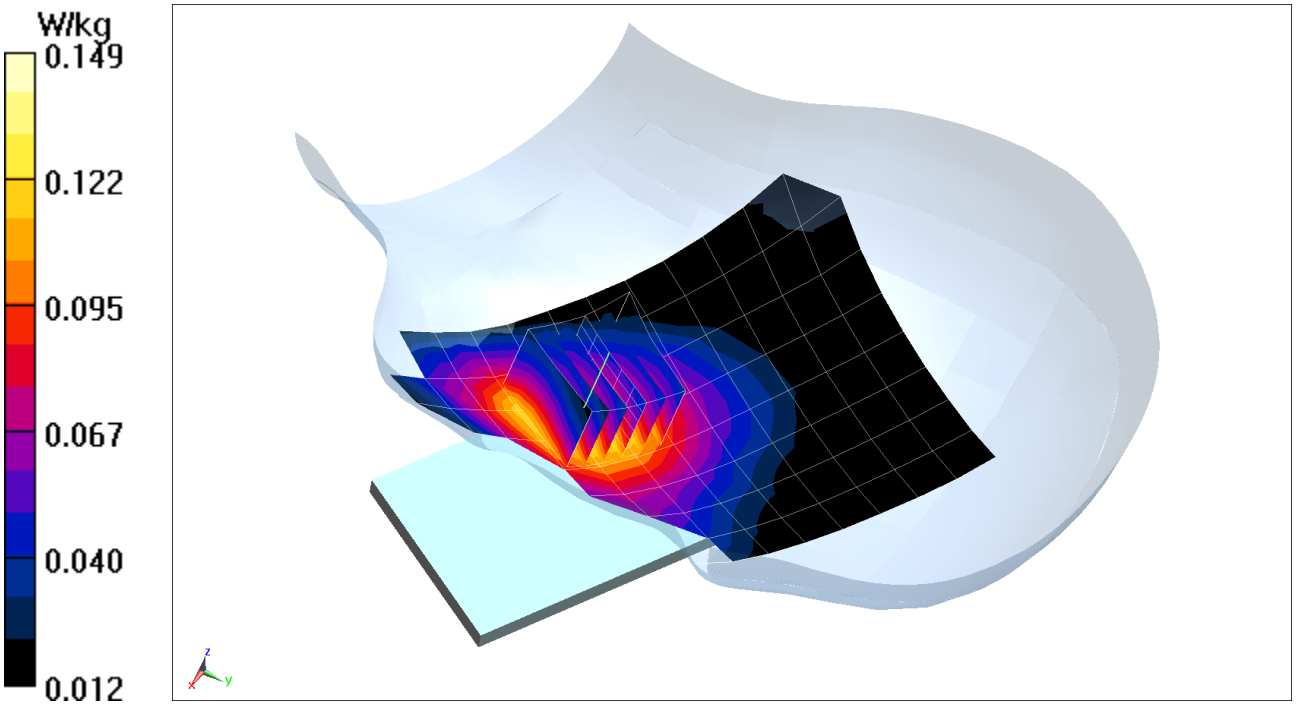
Communication System: UID 0, Cellular CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.897 S/m; ε_r = 42.153; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-02-2019; Ambient Temp: 21.7°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 820.1 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Cell. EVDO Rev. A, Rule Part 90S, Left Head, Cheek, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.32 V/m; Power Drift = -0.20 dB
Peak SAR (extrapolated) = 0.159 W/kg
SAR(1 g) = 0.130 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFV450PM; Type: Portable Handset; Serial: 00065

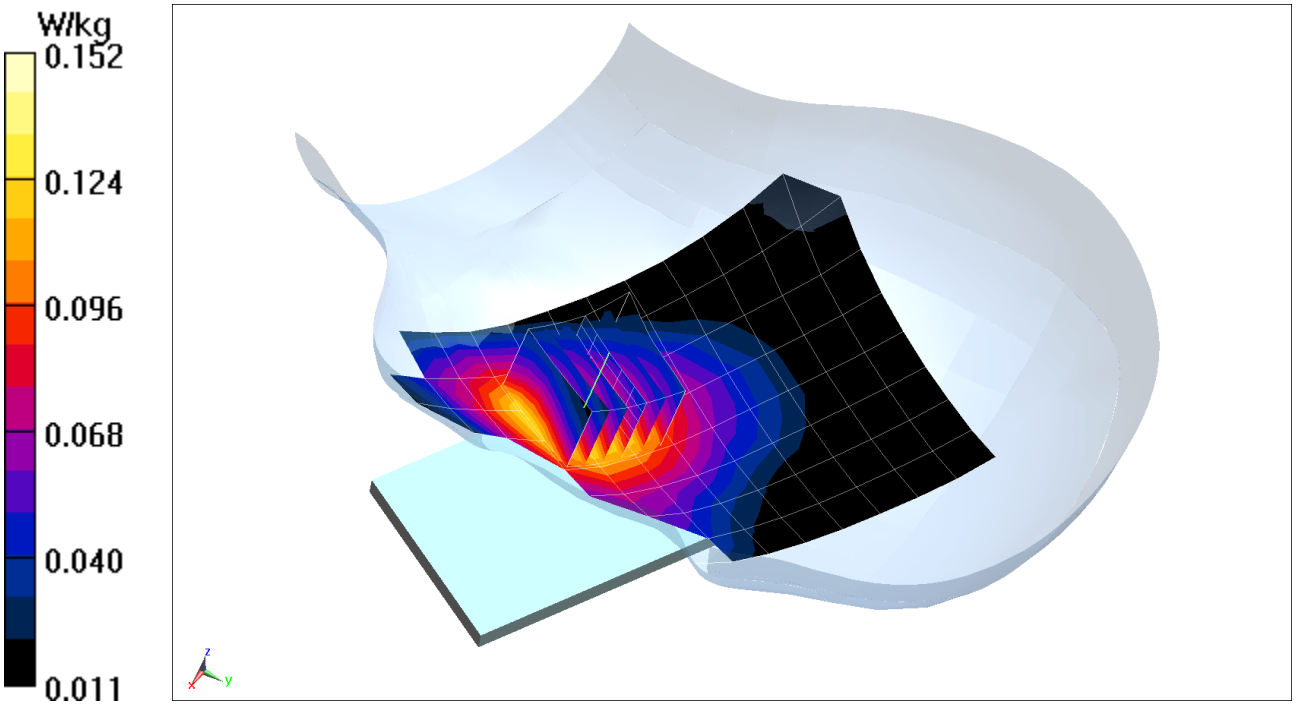
Communication System: UID 0, Cellular CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
$f = 836.52$ MHz; $\sigma = 0.912$ S/m; $\varepsilon_r = 41.94$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 01-02-2019; Ambient Temp: 21.7°C; Tissue Temp: 20.7°C

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

Mode: Cell. EVDO Rev. A, Rule Part 22H, Left Head, Cheek, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.31 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.164 W/kg
SAR(1 g) = 0.132 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFV450PM; Type: Portable Handset; Serial: 00065

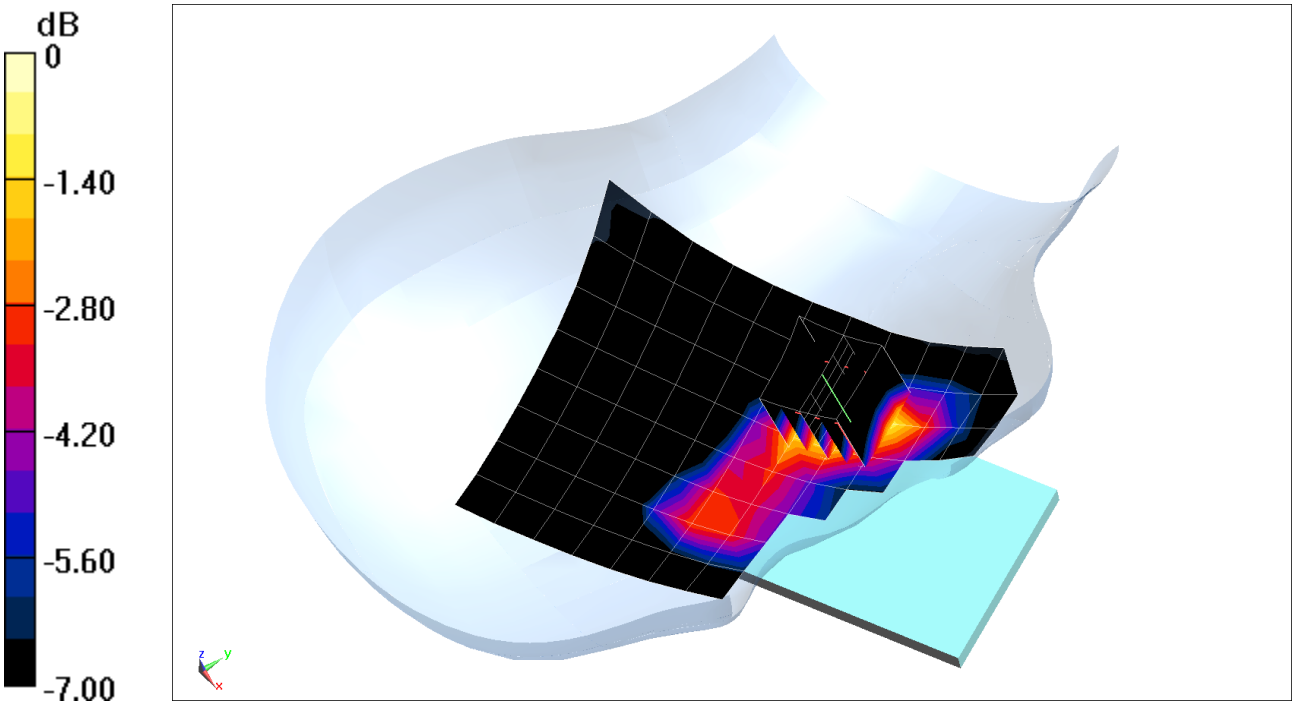
Communication System: UID 0, CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.404 S/m; ε_r = 39.859; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-22-2018; Ambient Temp: 20.7°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1880 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.55 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.314 W/kg
SAR(1 g) = 0.201 W/kg



0 dB = 0.271 W/kg = -5.67 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

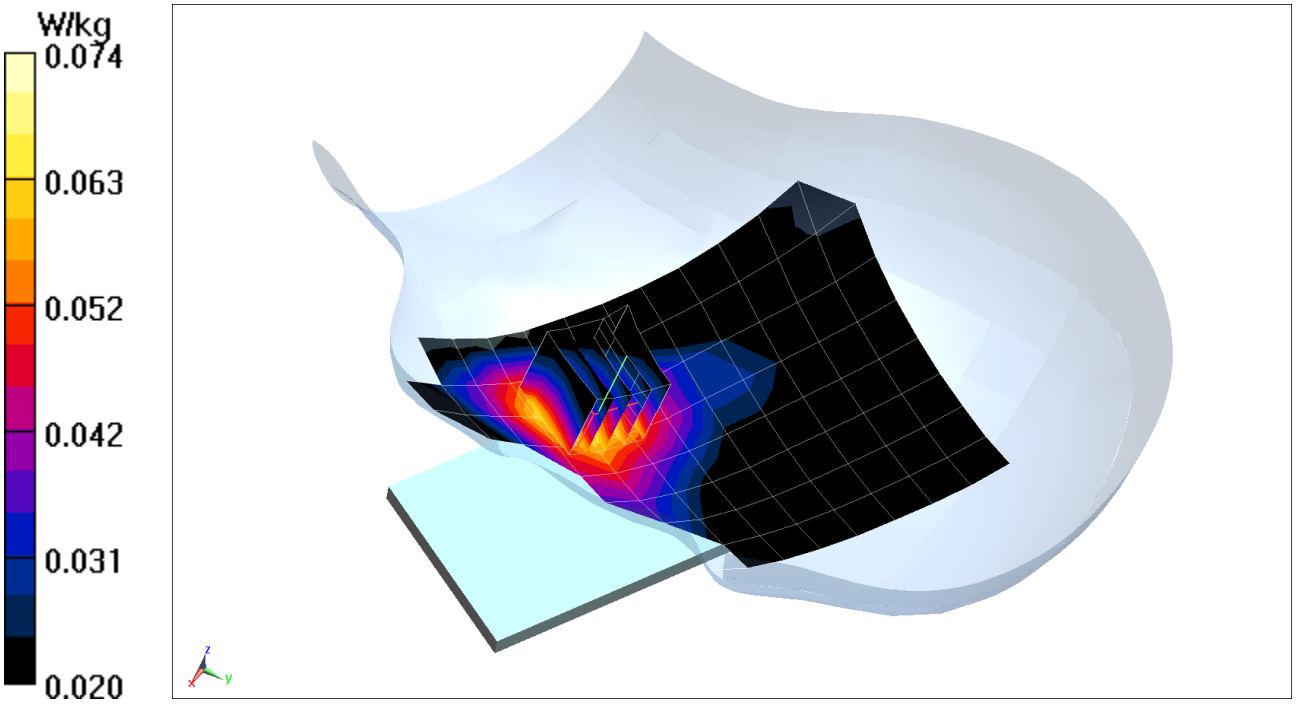
Communication System: UID 0, GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.914 S/m; ε_r = 42.726; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 12-26-2018; Ambient Temp: 21.7°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 836.6 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GSM 850, 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 = 8.429 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.0820 W/kg
SAR(1 g) = 0.065 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

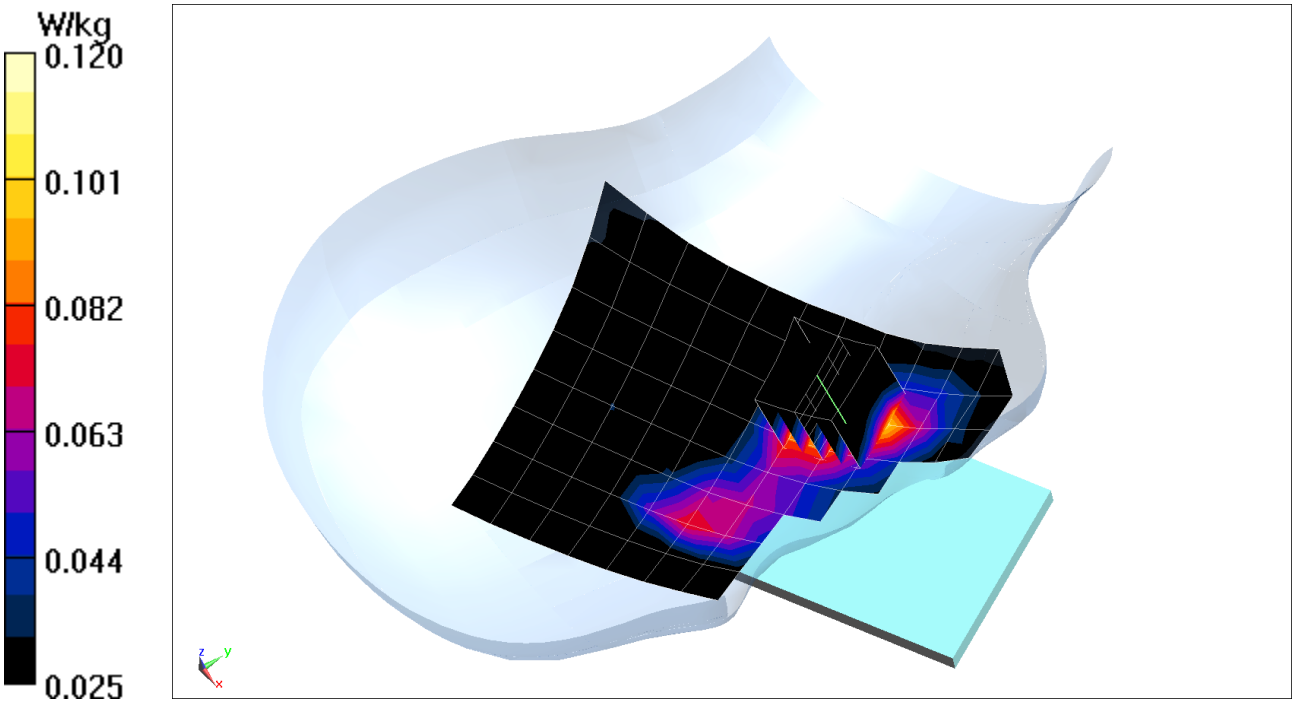
Communication System: UID 0, GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.404 S/m; ε_r = 39.859; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-22-2018; Ambient Temp: 20.7°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1880 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GSM 1900, 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 = 8.373 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.148 W/kg
SAR(1 g) = 0.094 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

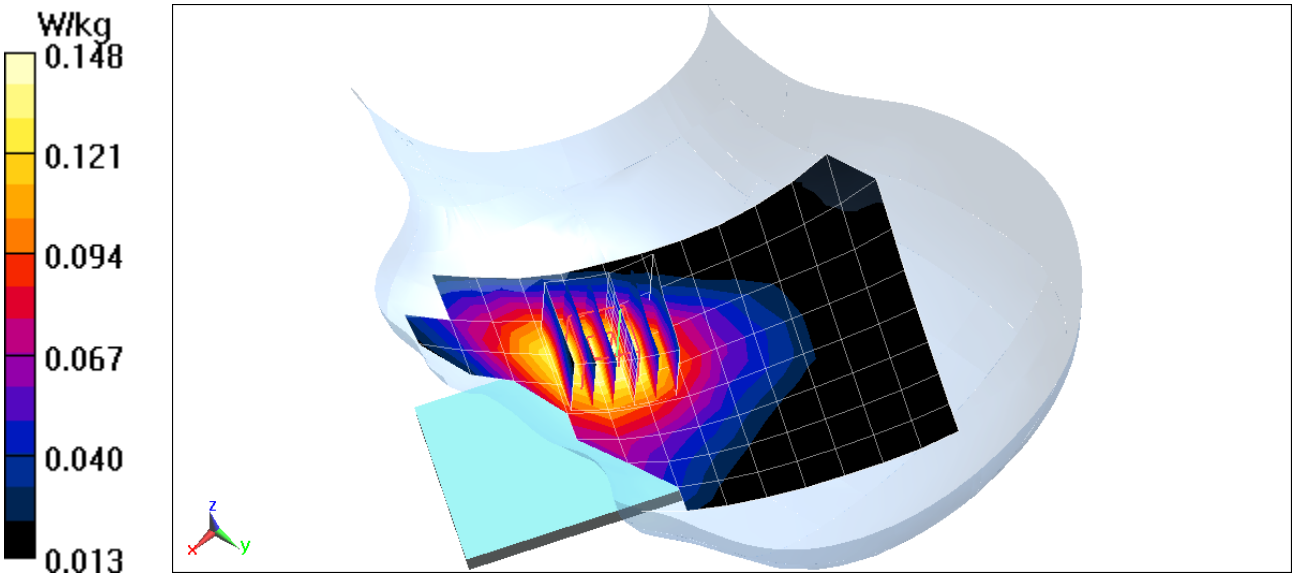
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.931 S/m; ε_r = 42.947; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-19-2018; Ambient Temp: 23.0°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 836.6 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.91 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.160 W/kg
SAR(1 g) = 0.130 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00065

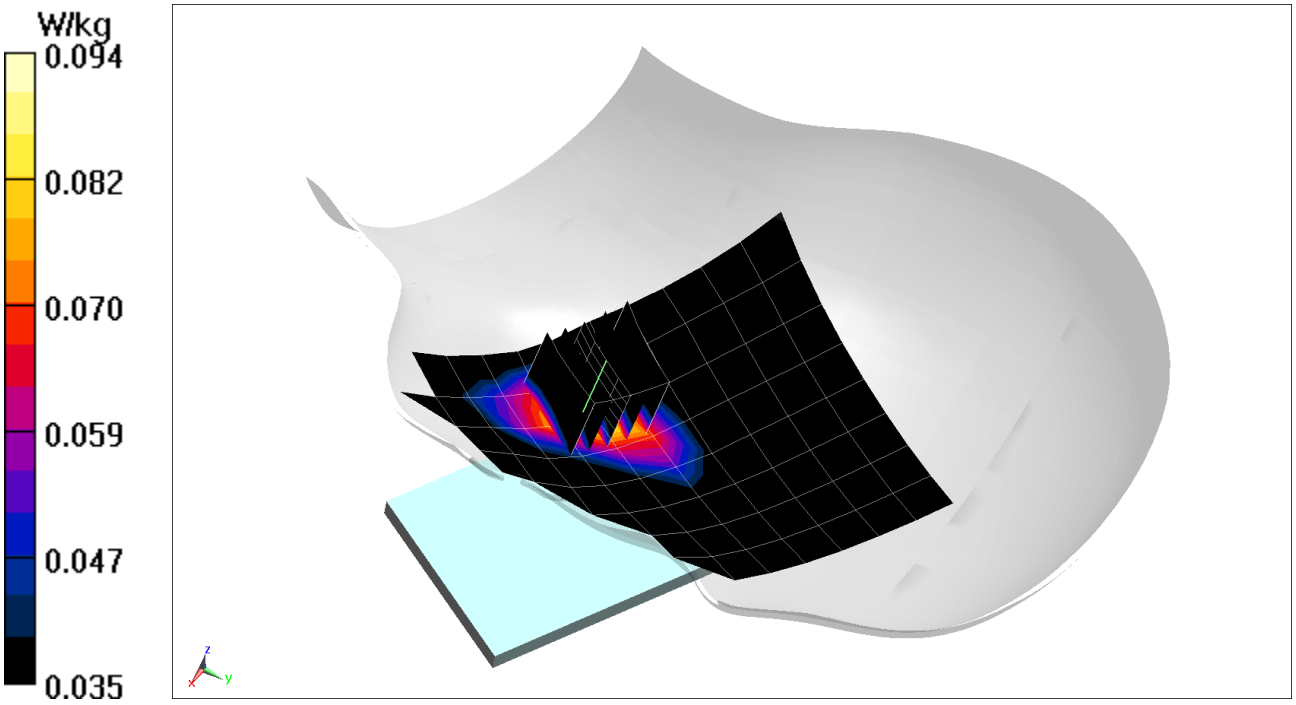
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 & 1900 Head Medium parameters used (interpolated):
f = 1732.4 MHz; σ = 1.352 S/m; ε_r = 38.798; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-03-2019; Ambient Temp: 20.2°C; Tissue Temp: 19.6°C

Probe: ES3DV3 - SN3287; ConvF(5.48, 5.48, 5.48) @ 1732.4 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.142 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.126 W/kg
SAR(1 g) = 0.083 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

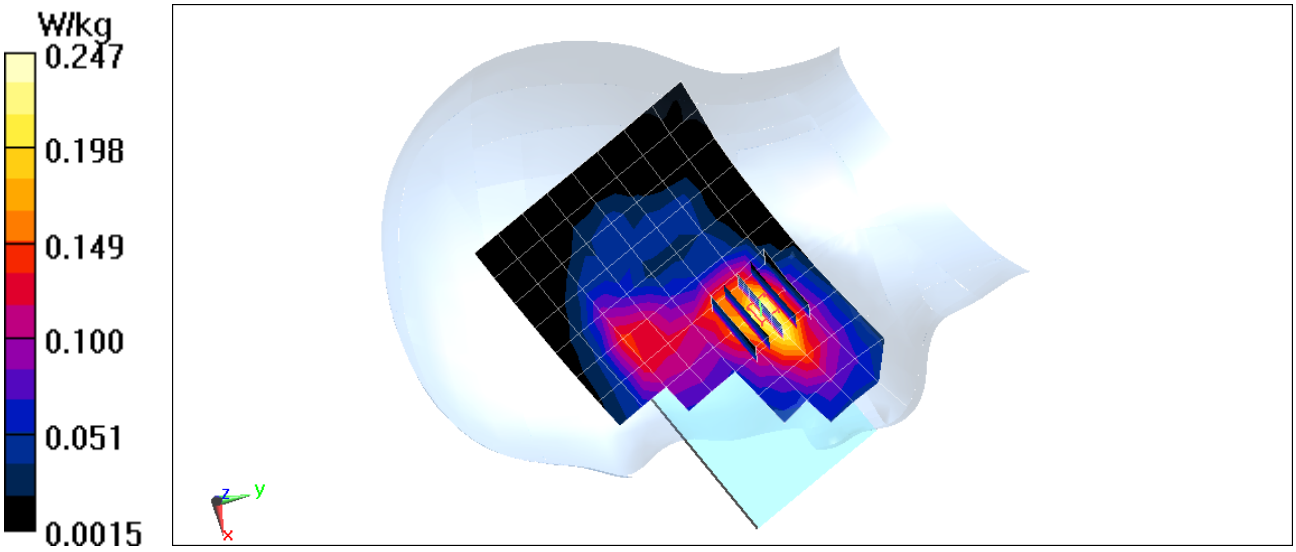
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.404 S/m; ε_r = 39.859; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 12-22-2018; Ambient Temp: 20.7°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1880 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1900, 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 = 11.89 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 0.295 W/kg
SAR(1 g) = 0.188 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00056

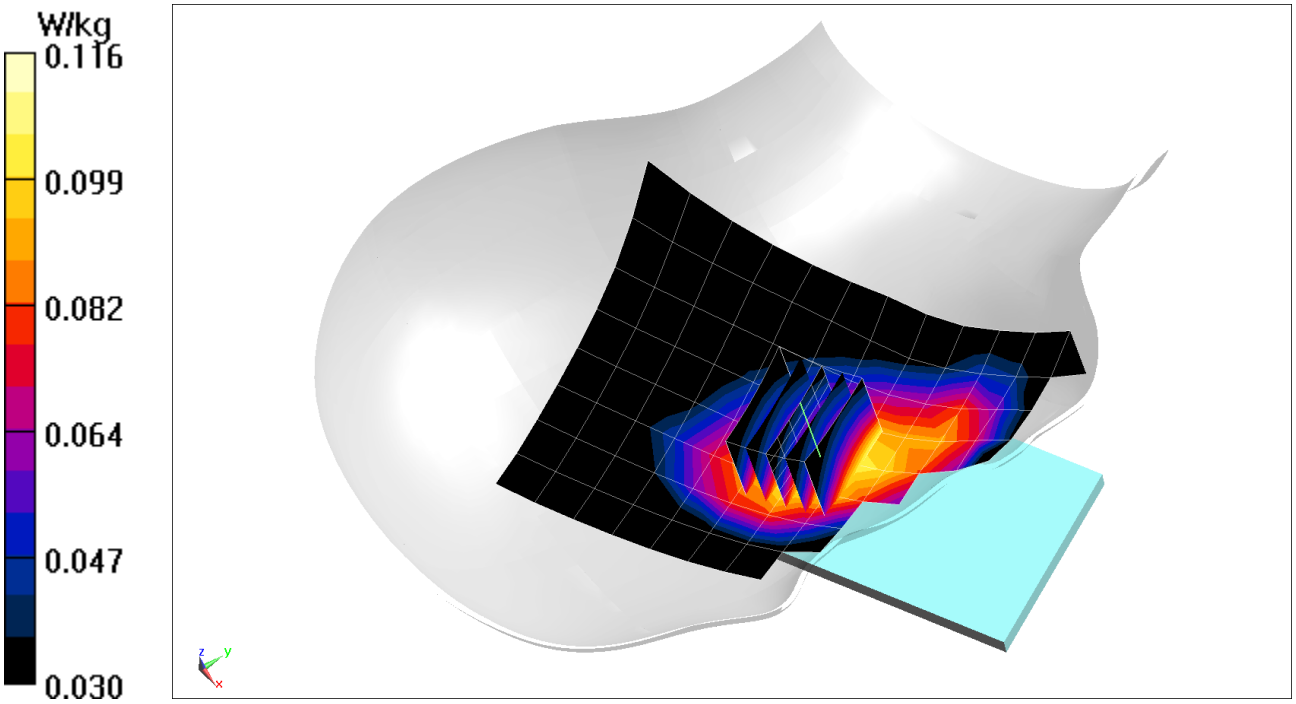
Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 680.5 MHz; σ = 0.866 S/m; ε_r = 41.399; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-08-2019; Ambient Temp: 21.5°C; Tissue Temp: 19.7°C

Probe: ES3DV3 - SN3287; ConvF(6.76, 6.76, 6.76) @ 680.5 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 71, Right Head, Cheek, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 99 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 = 11.51 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.132 W/kg
SAR(1 g) = 0.108 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00056

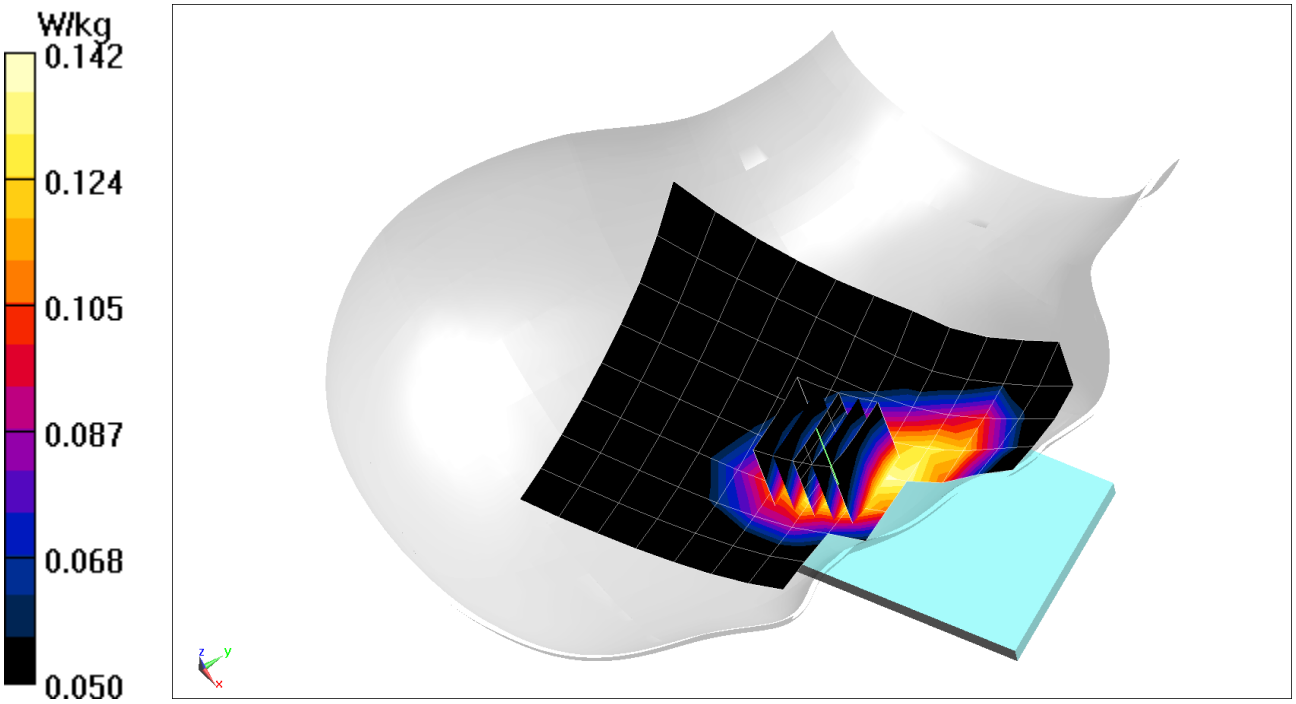
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
$f = 707.5$ MHz; $\sigma = 0.876$ S/m; $\varepsilon_r = 41.323$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 01-08-2019; Ambient Temp: 21.5°C; Tissue Temp: 19.7°C

Probe: ES3DV3 - SN3287; ConvF(6.76, 6.76, 6.76) @ 707.5 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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 = 12.94 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.158 W/kg
SAR(1 g) = 0.132 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00056

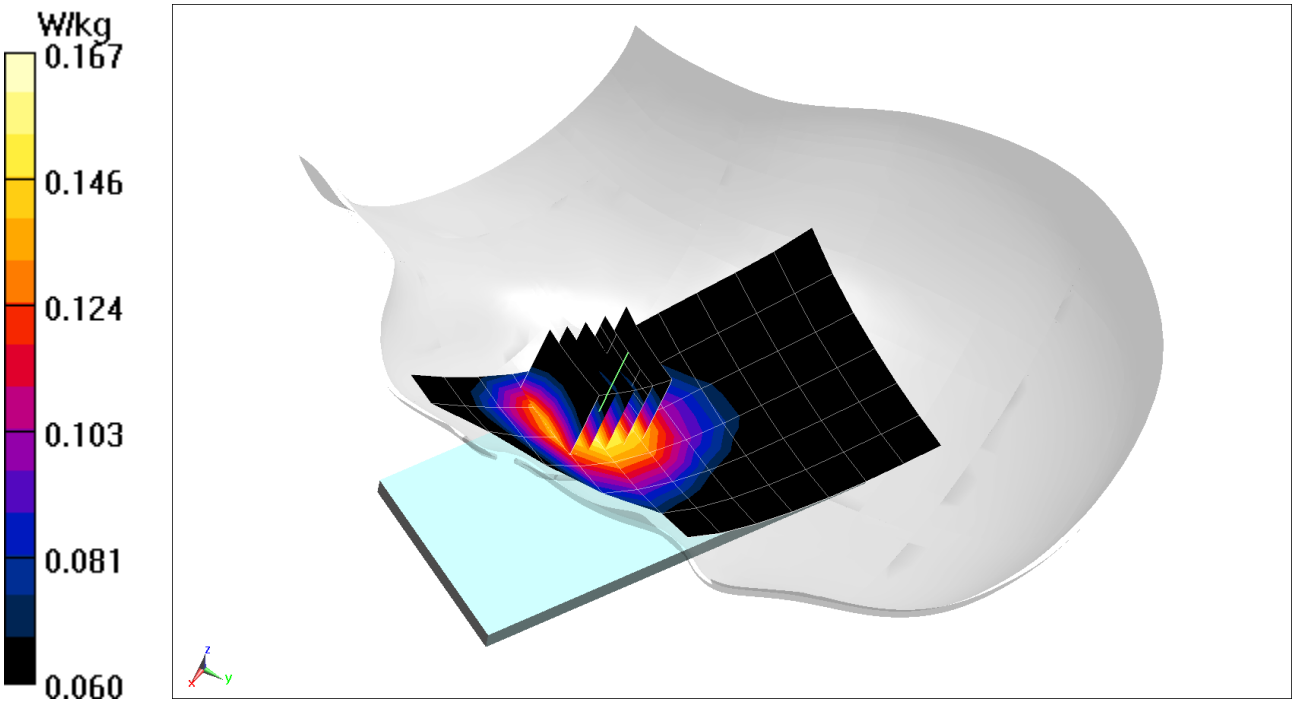
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 782 MHz; σ = 0.902 S/m; ε_r = 41.063; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-08-2019; Ambient Temp: 21.5°C; Tissue Temp: 19.7°C

Probe: ES3DV3 - SN3287; ConvF(6.76, 6.76, 6.76) @ 782 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 13, Left Head, Cheek, Mid.ch, QPSK,
10 MHz Bandwidth, 1 RB, 25 RB Offset

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.86 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.190 W/kg
SAR(1 g) = 0.154 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00057

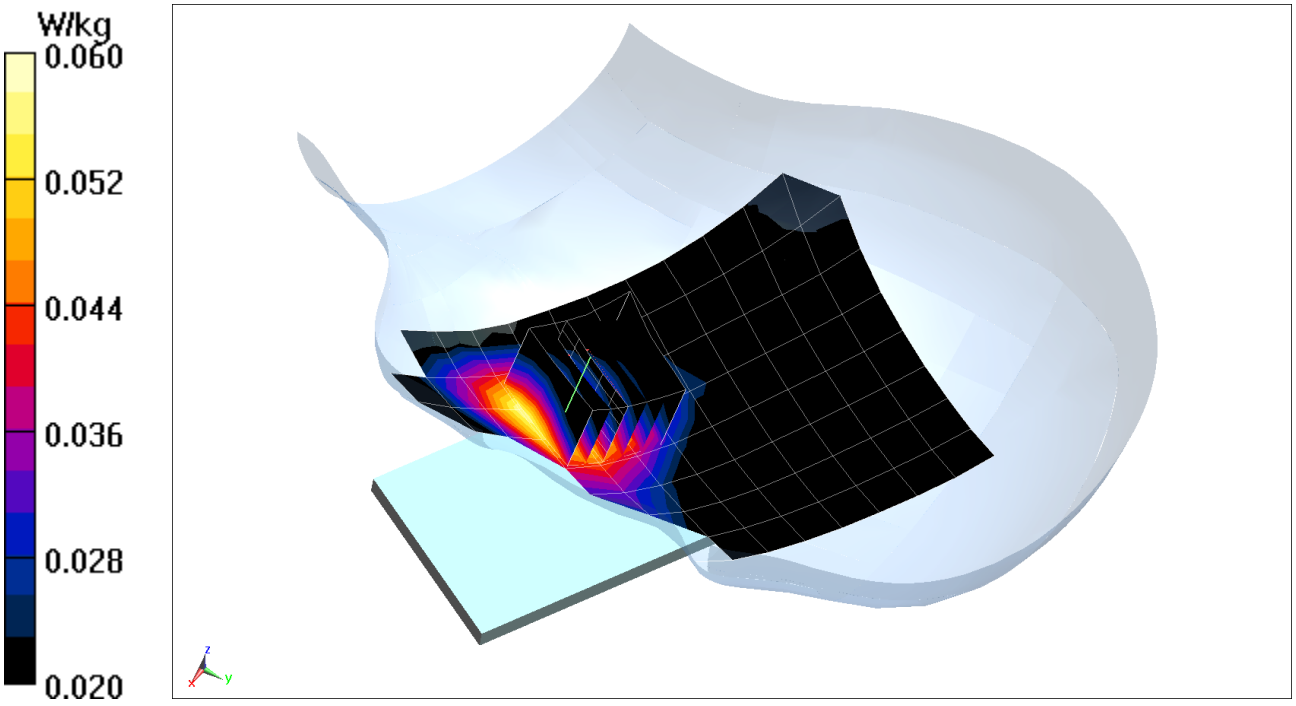
Communication System: UID 0, LTE Band 26 (PCS); Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.907 S/m; ε_r = 42.005; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-02-2019; Ambient Temp: 21.7°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 831.5 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 26 (Cell), Left Head, Cheek, Mid.ch,
15 MHz Bandwidth, QPSK, 1 RB, 36 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.956 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.0650 W/kg
SAR(1 g) = 0.053 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00057

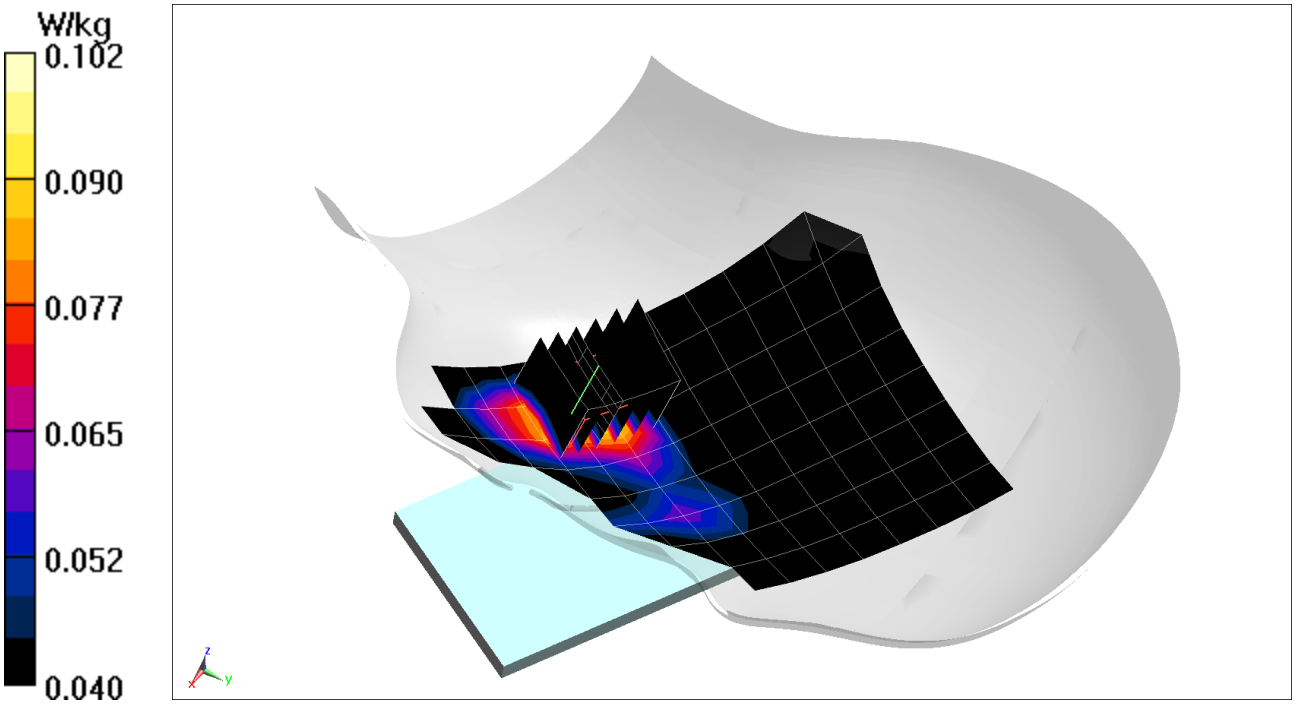
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1745 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
$f = 1745$ MHz; $\sigma = 1.338$ S/m; $\varepsilon_r = 39.594$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 01-07-2019; Ambient Temp: 20.3°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7406; ConvF(8.58, 8.58, 8.58) @ 1745 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), Left Head, Cheek, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.096 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.114 W/kg
SAR(1 g) = 0.079 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00056

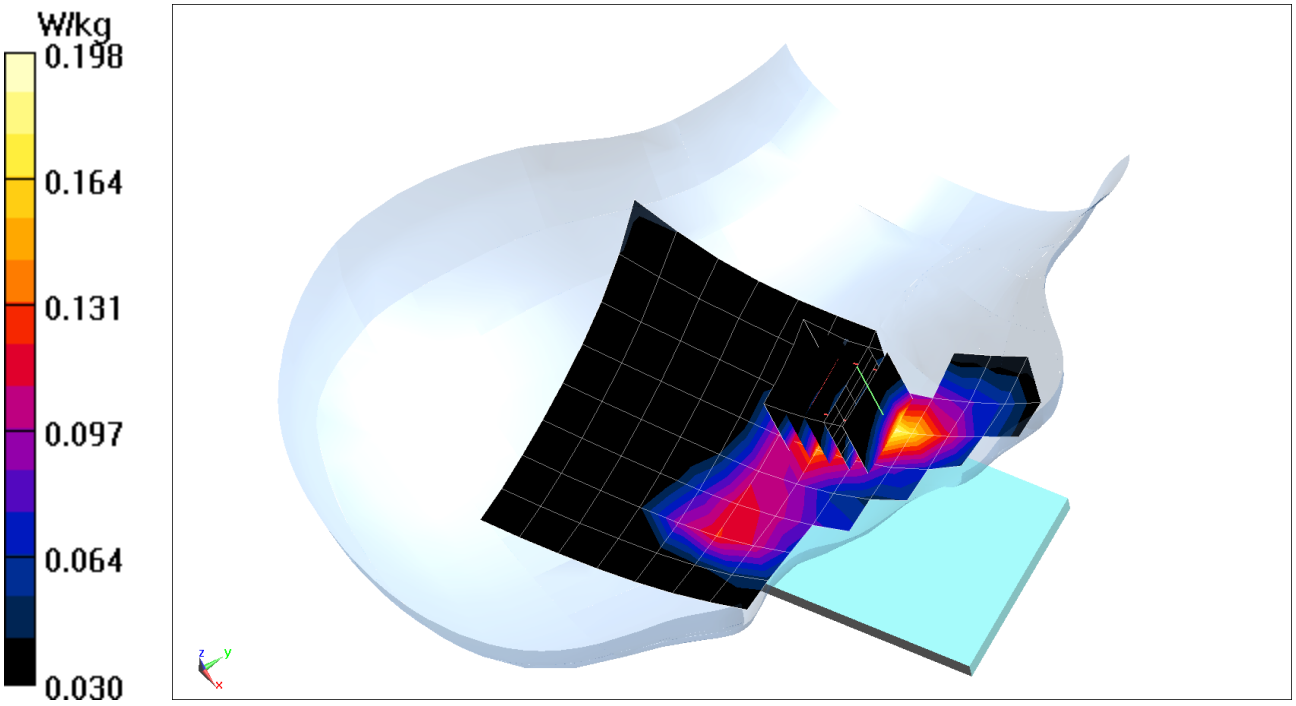
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1905 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):|
$f = 1905$ MHz; $\sigma = 1.429$ S/m; $\varepsilon_r = 39.764$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 12-22-2018; Ambient Temp: 20.7°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1905 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.78 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.235 W/kg
SAR(1 g) = 0.146 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00056

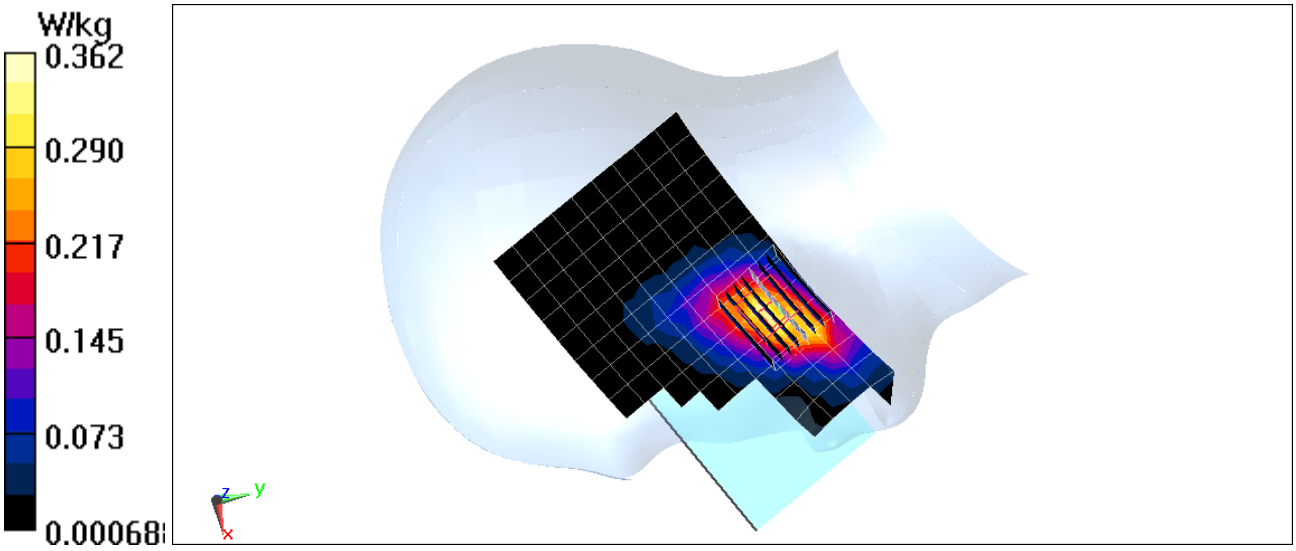
Communication System: UID 0, LTE Band 41; Frequency: 2680 MHz; Duty Cycle: 1:1.58
Medium: 2450 Head Medium parameters used (interpolated):
$f = 2680$ MHz; $\sigma = 2.031$ S/m; $\varepsilon_r = 39.376$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 01-08-2019; Ambient Temp: 22.6°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7406; ConvF(7.4, 7.4, 7.4) @ 2680 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 41 ULCA, Right Head, Cheek, High.ch,
PCC: 20 MHz Bandwidth, QPSK, Ch. 41490, 1 RB, 0 RB Offset
SCC: 20 MHz Bandwidth, QPSK, Ch. 41292, 1 RB, 99 RB Offset

Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (8x9x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.12 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.650 W/kg
SAR(1 g) = 0.327 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00568

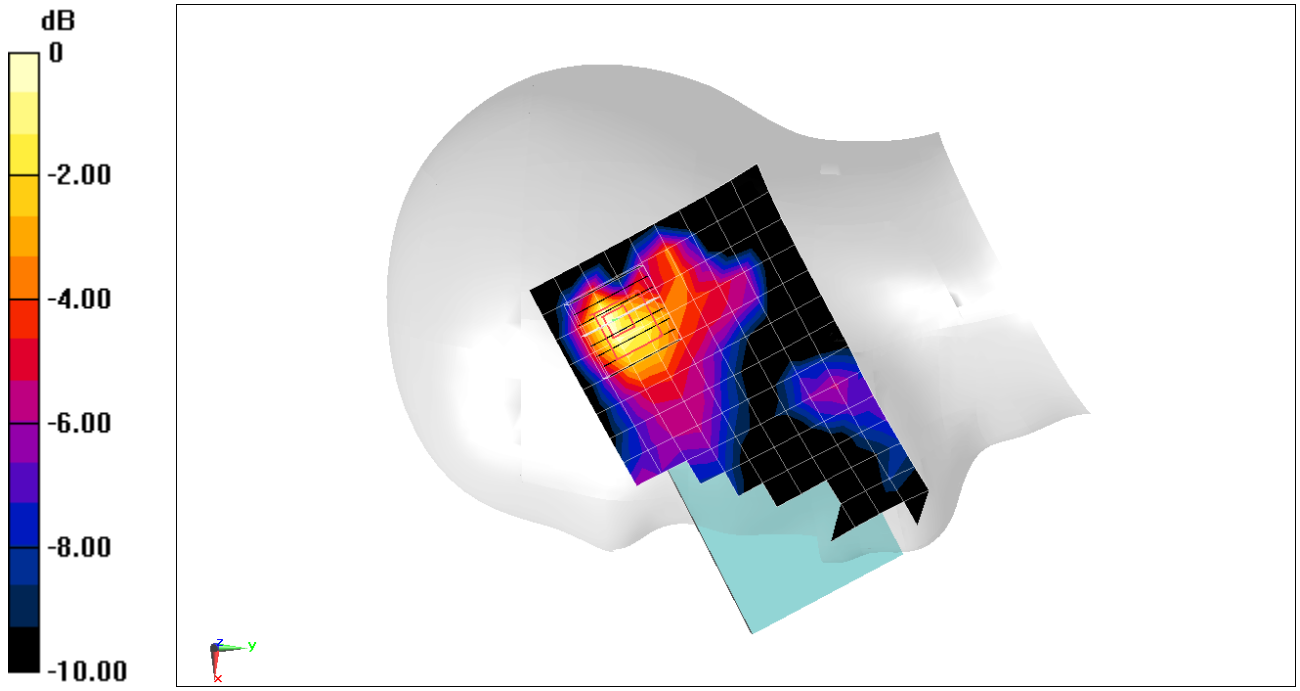
Communication System: UID 0, Frequency: 2592.99 MHz; Duty Cycle: 1:1
Medium: 2600 Head; Medium parameters used (interpolated):
f = 2592.99 MHz; σ = 1.953 S/m; ε_r = 37.841; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-24-2018; Ambient Temp: 20.10°C; Tissue Temp: 23.20°C

Probe: EX3DV4 - SN7406; ConvF(7.4, 7.4, 7.4) @ 2592.99 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: EN-DC DC_41A-n41A SAR (with LTE Band 41 transmitting simultaneously)
Right Head, Tilt, Mid.ch, 60 MHz Bandwidth
CP-OFDM QPSK, 1 RB, 1 RB Offset

Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.429 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.166 W/kg
SAR(1 g) = 0.080 W/kg



0 dB = 0.131 W/kg = -8.83 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 00071

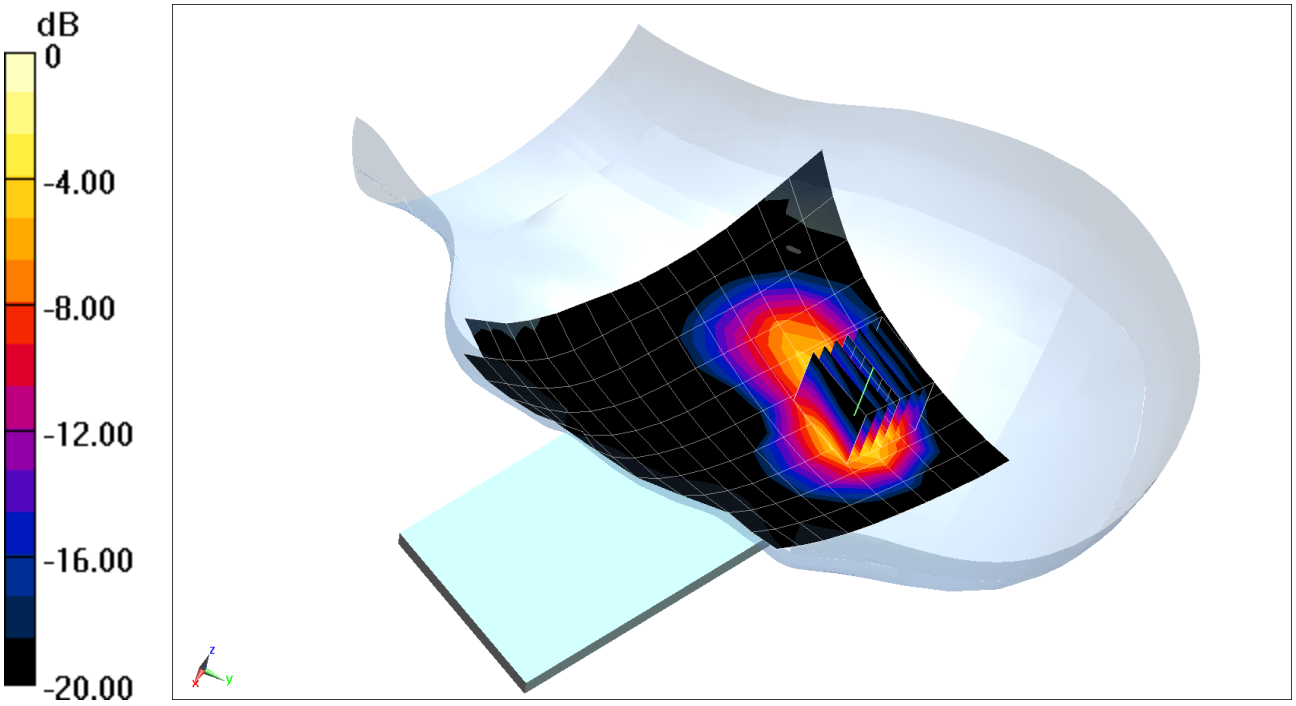
Communication System: UID 0, _IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.858 S/m; ε_r = 40.483; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-09-2019; Ambient Temp: 22.4°C; Tissue Temp: 20.8°C

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

Mode: IEEE 802.11b Antenna 1,
22 MHz Bandwidth, Left Head, Tilt, Ch 6, 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 = 15.87 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 2.21 W/kg
SAR(1 g) = 0.897 W/kg



0 dB = 1.68 W/kg = 2.25 dBW/kg

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DUT: ZNFV450PM; Type: Portable Handset; Serial: 00070

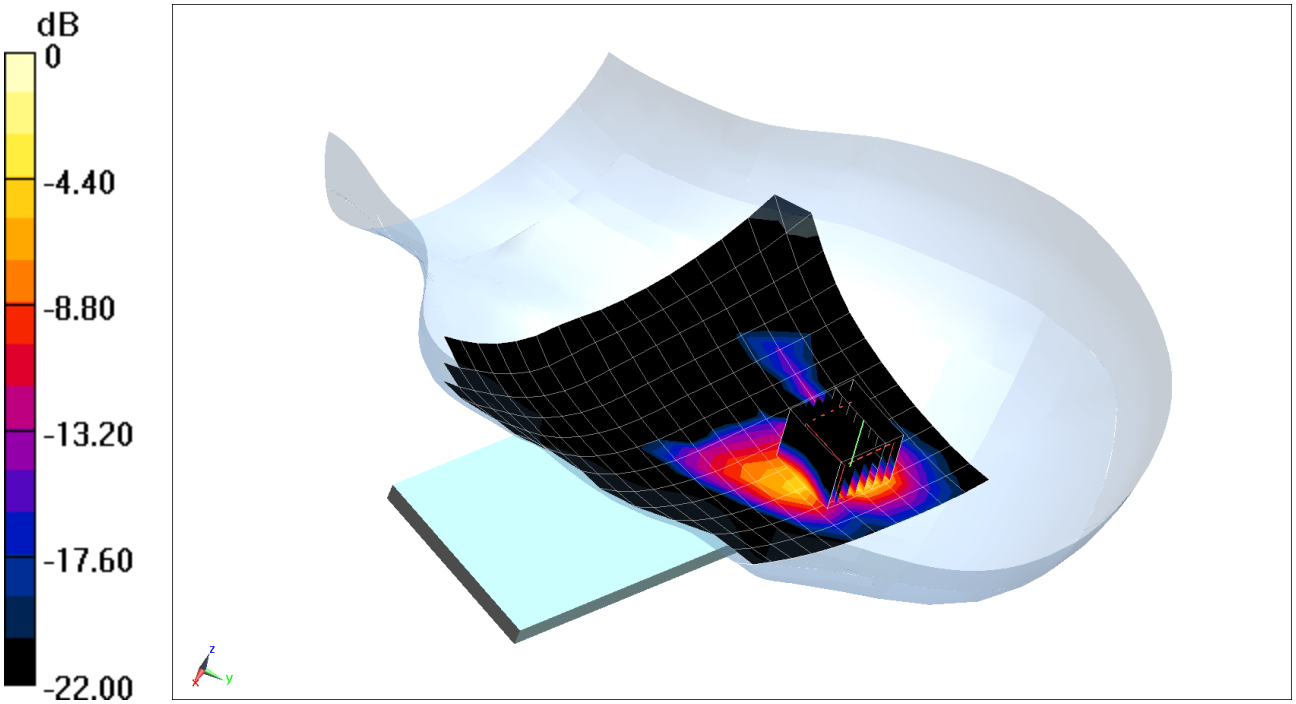
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5280 MHz; Duty Cycle: 1:1
Medium: 5250 - 5750 Head Medium parameters used:
f = 5280 MHz; σ = 4.742 S/m; ε_r = 34.71; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 11-28-2018; Ambient Temp: 22.3.°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7409; ConvF(5.2, 5.2, 5.2) @ 5280 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a Antenna 1, U-NII-2A,
20 MHz Bandwidth, Left Head, Cheek, Ch 56, 6 Mbps

Area Scan (13x21x1): 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 = 0.9870 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 4.23 W/kg
SAR(1 g) = 0.882 W/kg



0 dB = 2.24 W/kg = 3.50 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 00071

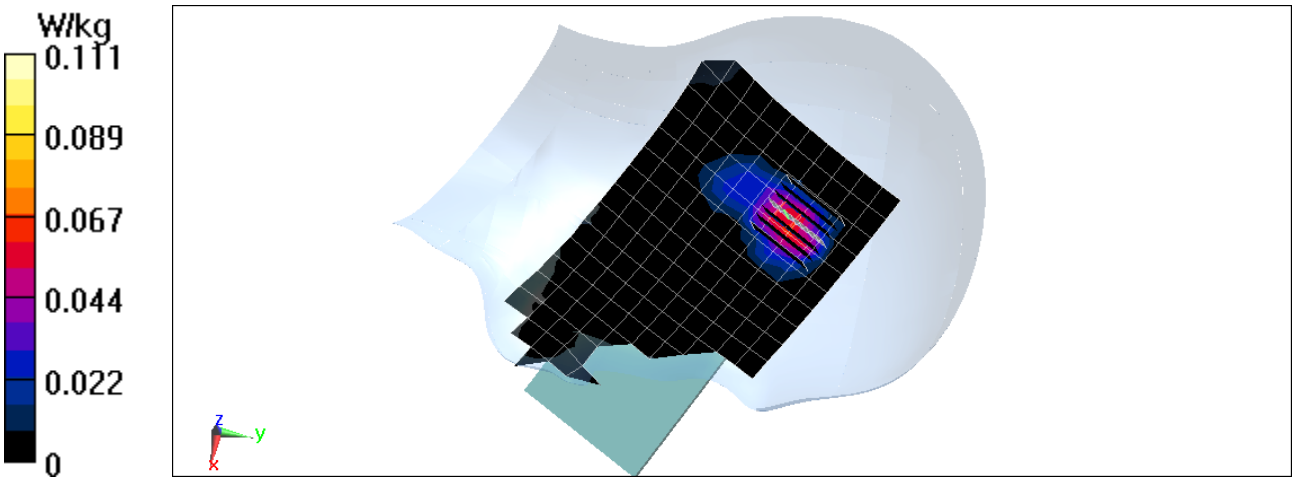
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.297
Medium: 2450 Head Medium parameters used (interpolated):
f = 2441 MHz; σ = 1.762 S/m; ε_r = 38.866; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 11-28-2018; Ambient Temp: 23.0°C; Tissue Temp: 23.9°C

Probe: EX3DV4 - SN7410; ConvF(7.5, 7.5, 7.5) @ 2441 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Bluetooth, Left Head, Tilt, Ch 39, 1 Mbps

Area Scan (11x19x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.910 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.150 W/kg
SAR(1 g) = 0.055 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00065

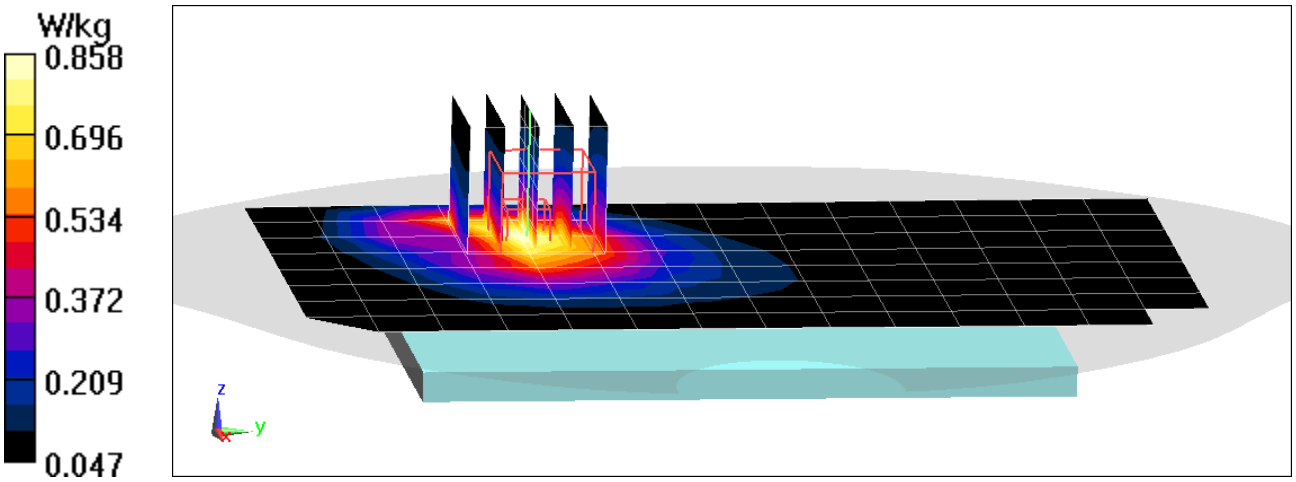
Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.963 S/m; ε_r = 54.688; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-07-2019; Ambient Temp: 20.9°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3347; ConvF(6.37, 6.37, 6.37) @ 820.1 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Cell. CDMA BC10, 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 = 28.80 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.714 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00065

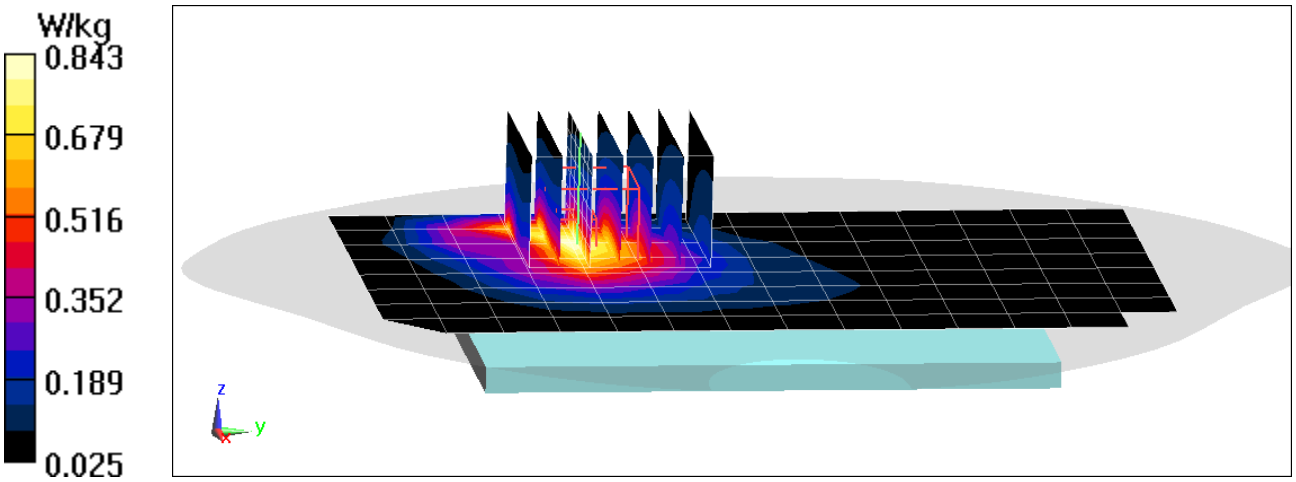
Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.963 S/m; ε_r = 54.688; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-07-2019; Ambient Temp: 20.9°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3347; ConvF(6.37, 6.37, 6.37) @ 820.1 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Cell. EVDO BC10, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.53 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.704 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00065

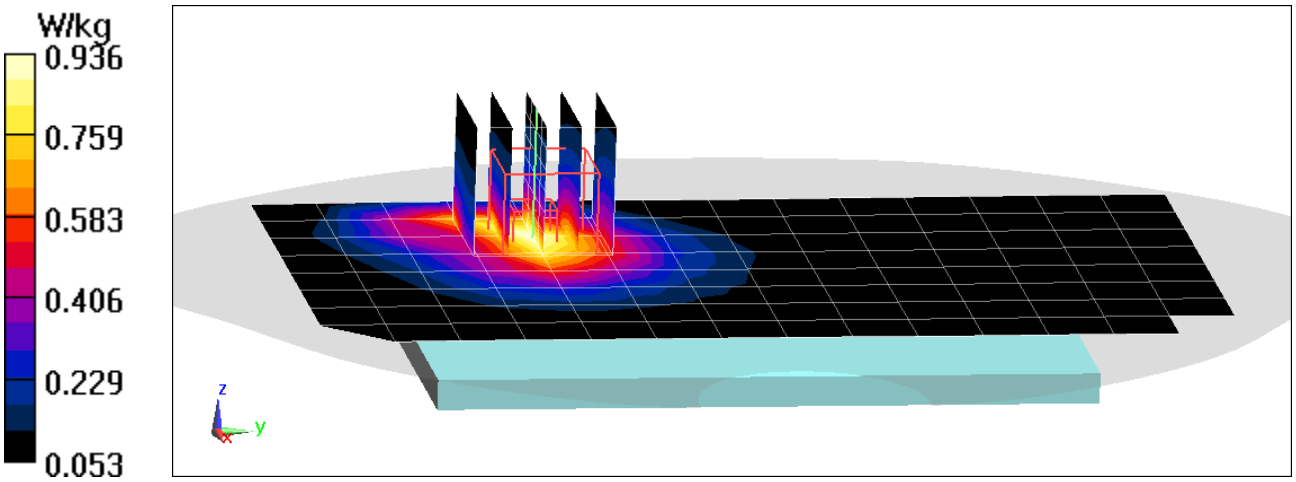
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 MHz Body Medium parameters used (interpolated):
$f = 836.52$ MHz; $\sigma = 0.996$ S/m; $\varepsilon_r = 52.599$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-17-2018; Ambient Temp: 20.1°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3347; ConvF(6.37, 6.37, 6.37) @ 836.52 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.53 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.30 W/kg
SAR(1 g) = 0.779 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00065

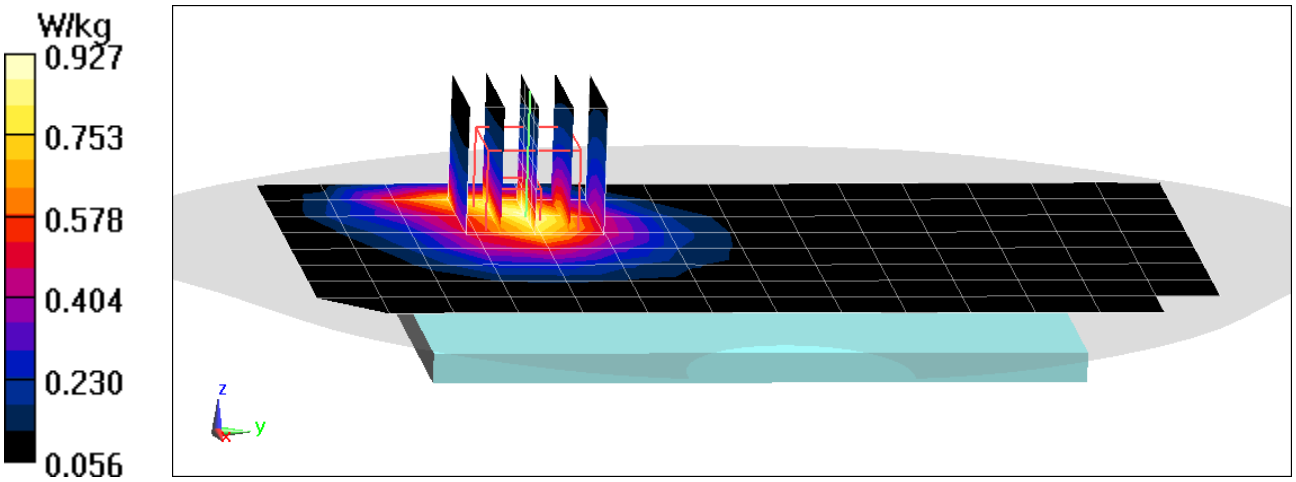
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.969 S/m; ε_r = 54.666; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-07-2019; Ambient Temp: 20.9°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3347; ConvF(6.37, 6.37, 6.37) @ 836.52 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Cell. EVDO, 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 = 29.98 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.791 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00065

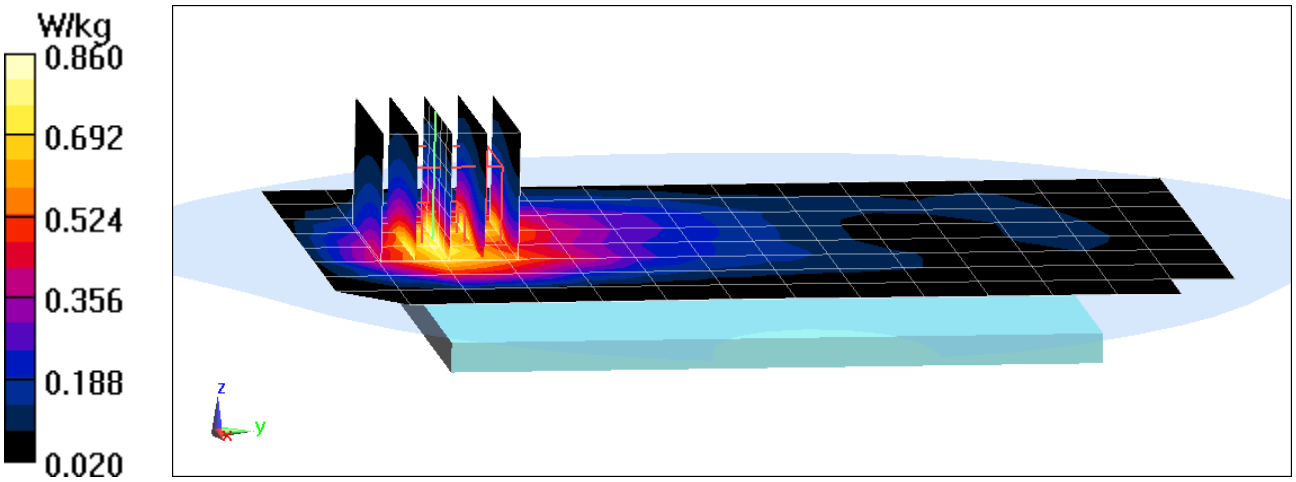
Communication System: UID 0, CDMA; Frequency: 1908.75 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1908.75 MHz; σ = 1.582 S/m; ε_r = 50.996; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-05-2018; Ambient Temp: 24.5°C; Tissue Temp: 23.3°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1908.75 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.27 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.723 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00065

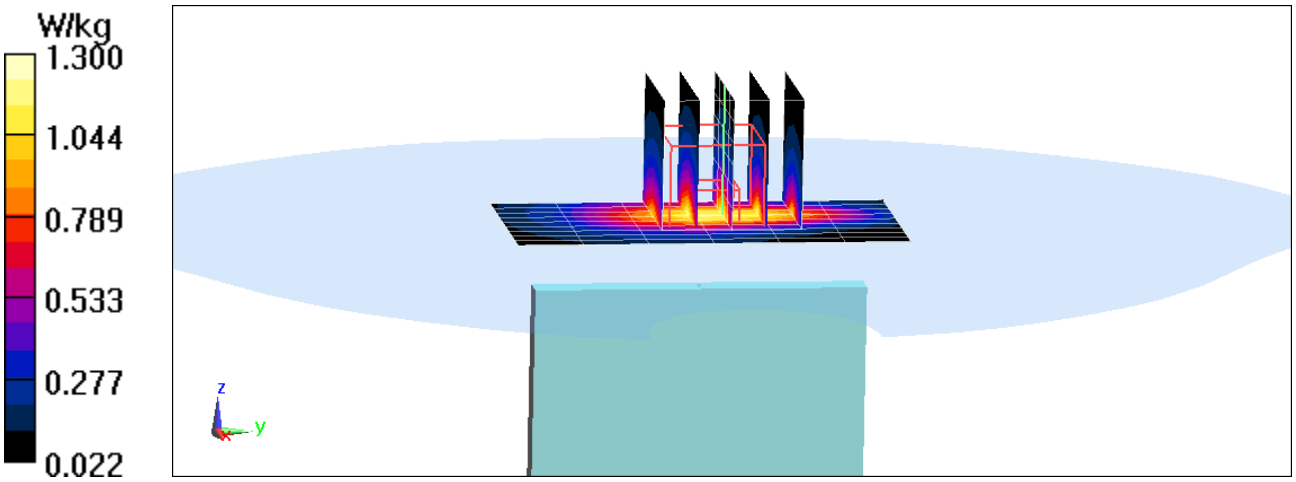
Communication System: UID 0, CDMA; Frequency: 1908.75 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1908.75 MHz; σ = 1.589 S/m; ε_r = 51.168; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

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

Probe: ES3DV3 - SN3213; ConvF(4.88, 4.88, 4.88) @ 1908.75 MHz; Calibrated: 2/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.81 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.77 W/kg
SAR(1 g) = 1.07 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

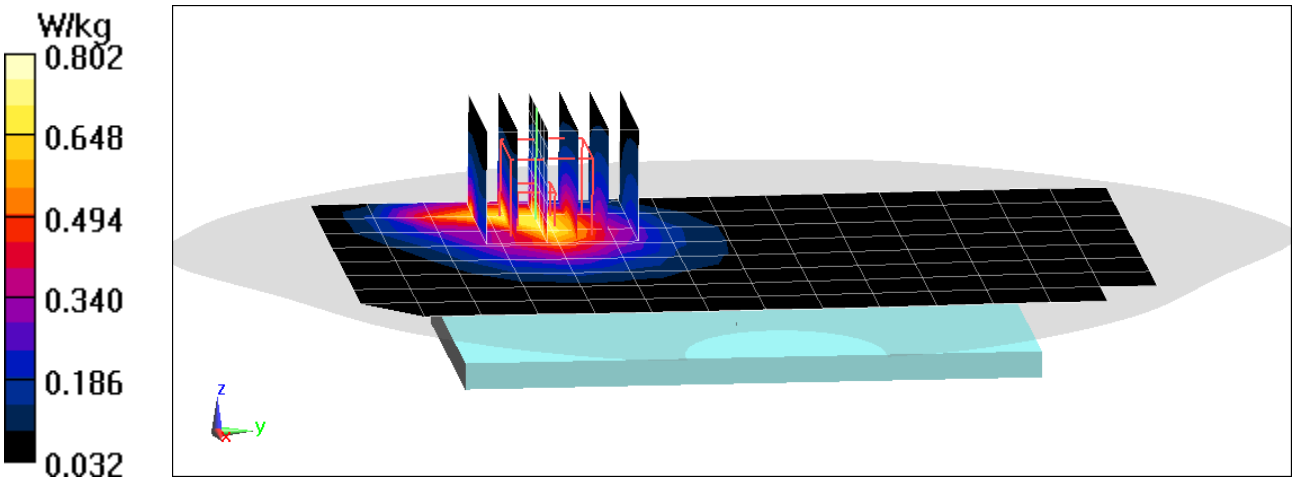
Communication System: UID 0, GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1.004 S/m; ε_r = 54.947; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-13-2018; Ambient Temp: 20.4°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 836.6 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.31 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.953 W/kg
SAR(1 g) = 0.543 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

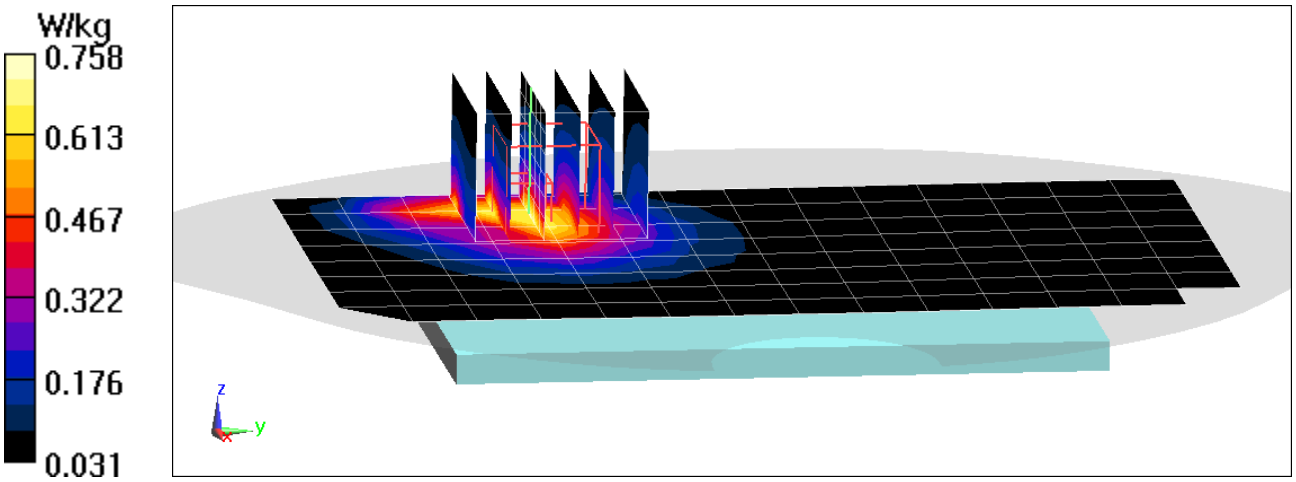
Communication System: UID 0, GSM GPRS; 1 Tx slot; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 1.004 S/m; ε_r = 54.947; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-13-2018; Ambient Temp: 20.4°C; Tissue Temp: 20.0°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 836.6 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GPRS 850, Body SAR, Back side, Mid.ch, 1 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 = 23.63 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.899 W/kg
SAR(1 g) = 0.518 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

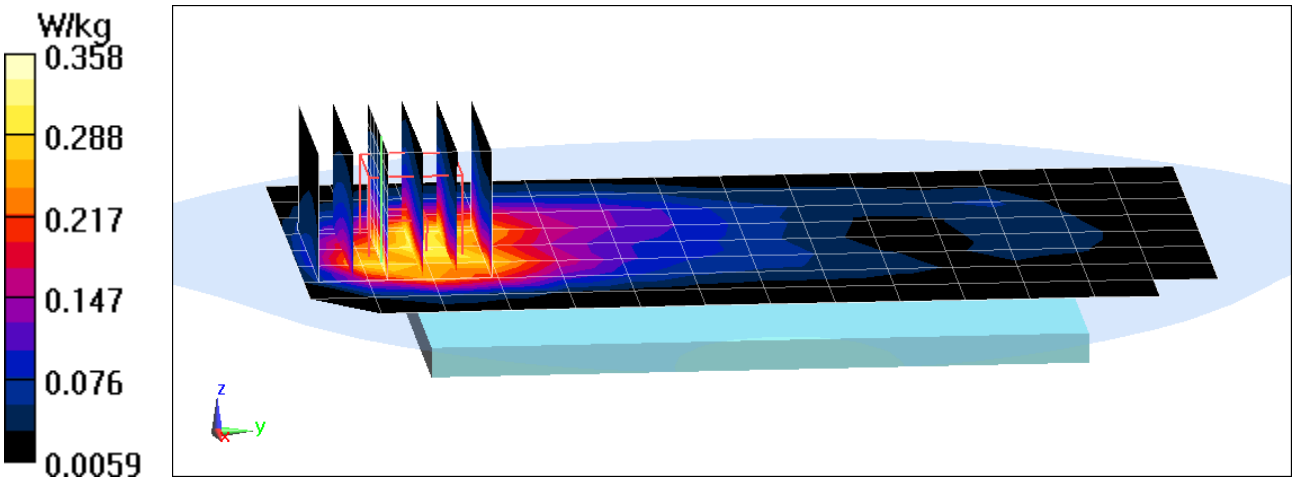
Communication System: UID 0, _GSM GPRS; 1 Tx slot; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.495 S/m; ε_r = 51.861; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-03-2018; Ambient Temp: 21.3°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1880 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GPRS 1900, Body SAR, Back side, Mid.ch, 1 Tx Slots

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.13 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.481 W/kg
SAR(1 g) = 0.292 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

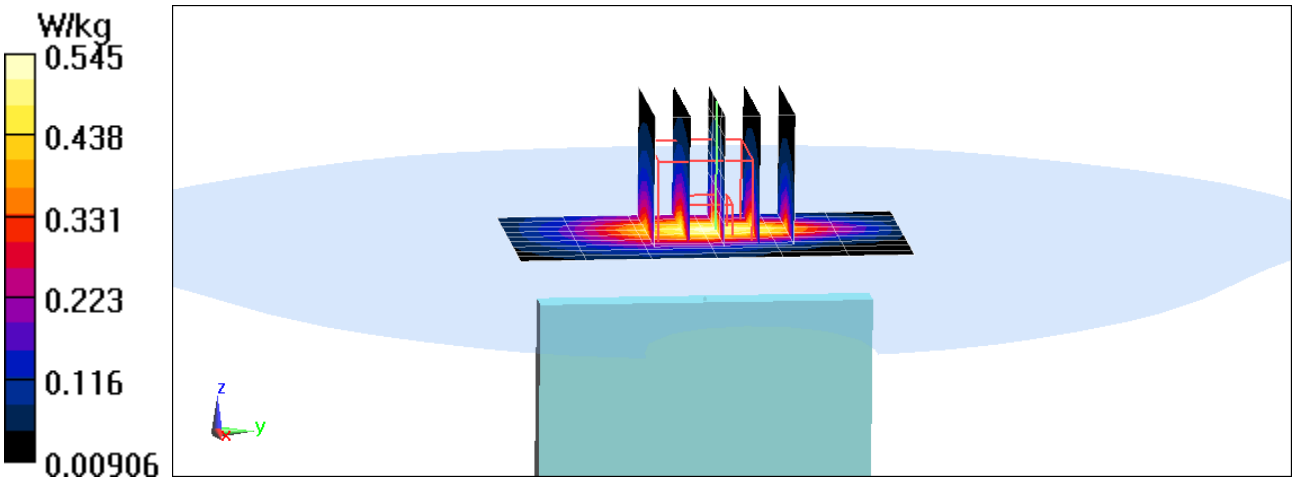
Communication System: UID 0, _GSM GPRS; 1 Tx slot; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.495 S/m; ε_r = 51.861; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-03-2018; Ambient Temp: 21.3°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1880 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: GPRS 1900, Body SAR, Bottom Edge, Mid.ch, 1 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 = 18.56 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.743 W/kg
SAR(1 g) = 0.442 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

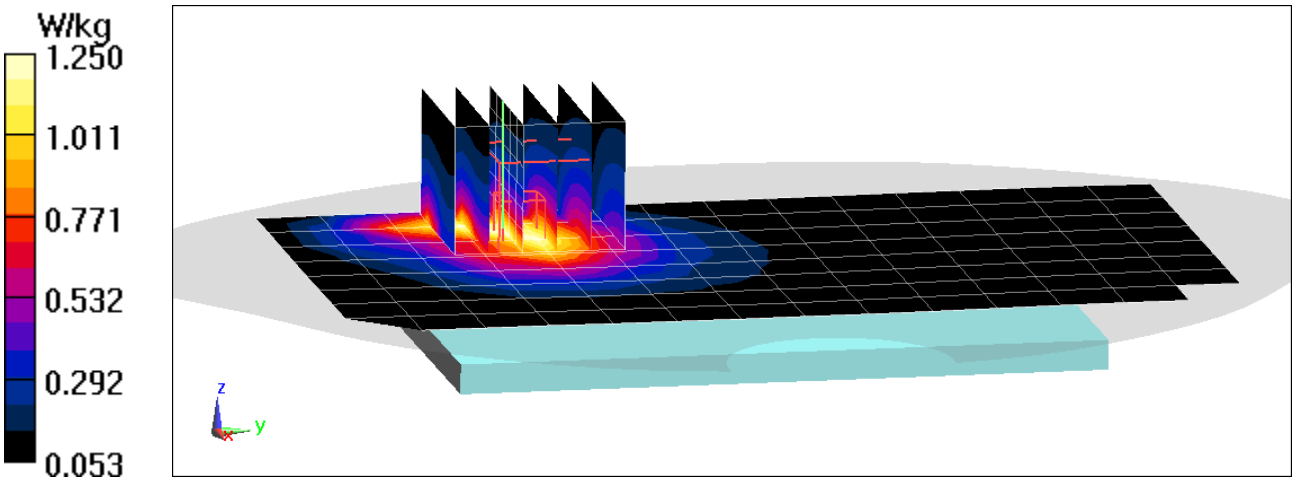
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.975 S/m; ε_r = 54.657; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-11-2018; Ambient Temp: 22.3°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 836.6 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 30.75 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.49 W/kg
SAR(1 g) = 0.864 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

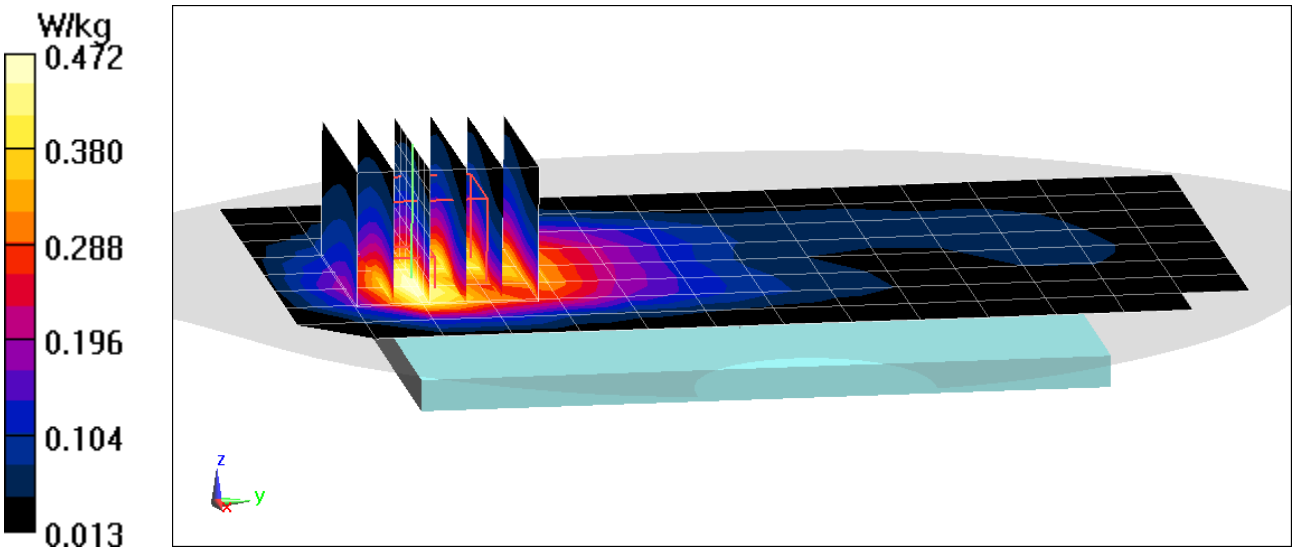
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.4 MHz; σ = 1.468 S/m; ε_r = 51.489; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-31-2019; Ambient Temp: 21.1°C; Tissue Temp: 19.8°C

Probe: ES3DV3 - SN3347; ConvF(5.17, 5.17, 5.17) @ 1732.4 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.32 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.632 W/kg
SAR(1 g) = 0.395 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

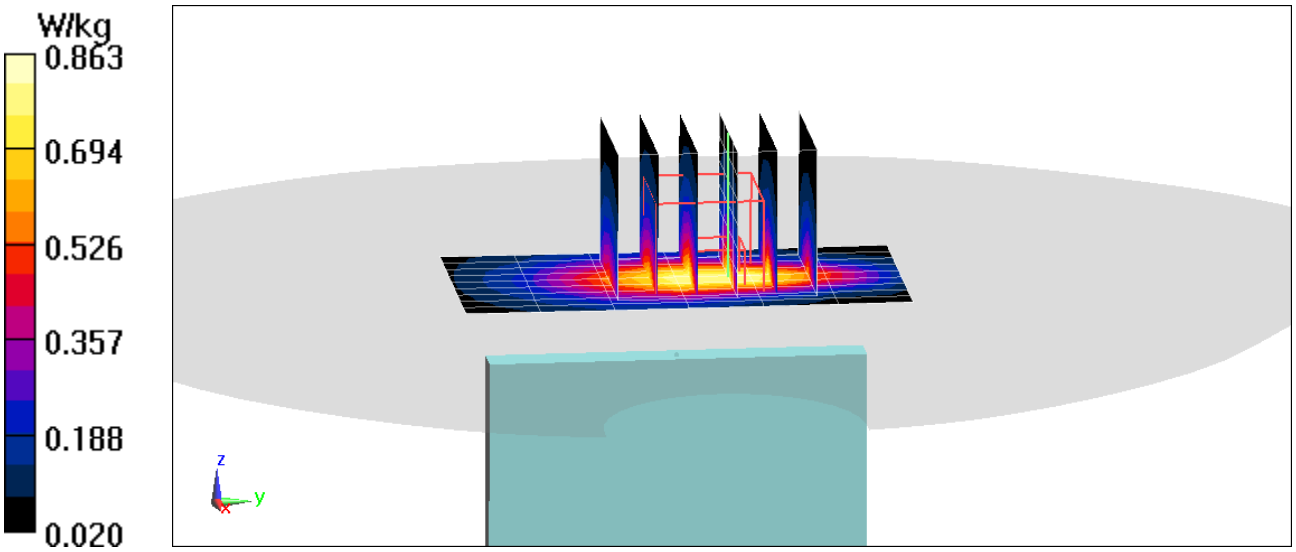
Communication System: UID 0, _UMTS; Frequency: Frequency: 1712.4 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1712.4 MHz; σ = 1.454 S/m; ε_r = 51.511; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-31-2019; Ambient Temp: 21.1°C; Tissue Temp: 19.8°C

Probe: ES3DV3 - SN3347; ConvF(5.17, 5.17, 5.17) @ 1712.4 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.76 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.707 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

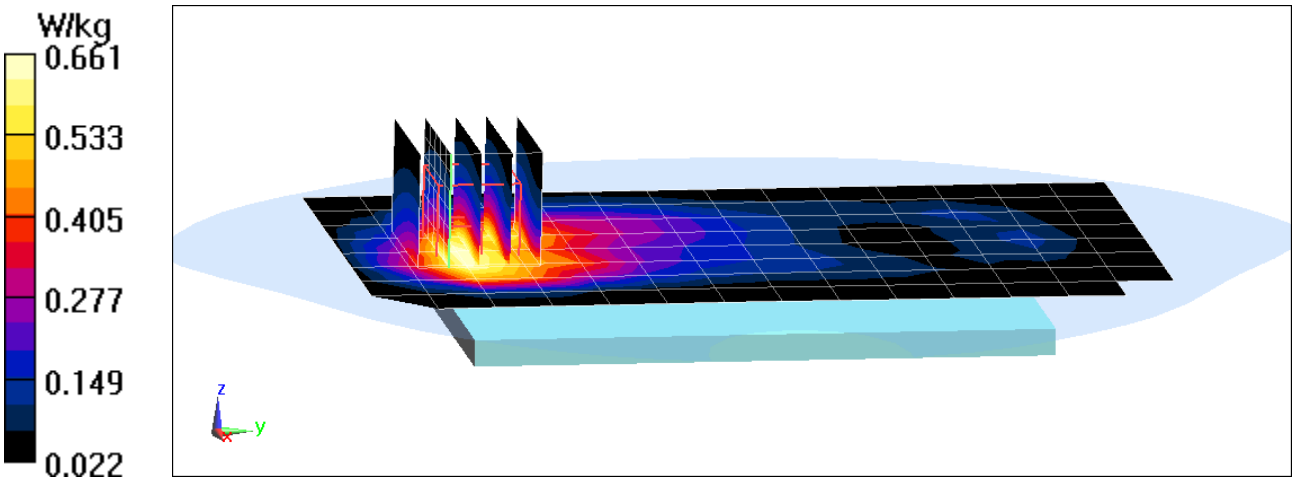
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.495 S/m; ε_r = 51.861; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-03-2018; Ambient Temp: 21.3°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1880 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.19 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.893 W/kg
SAR(1 g) = 0.557 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

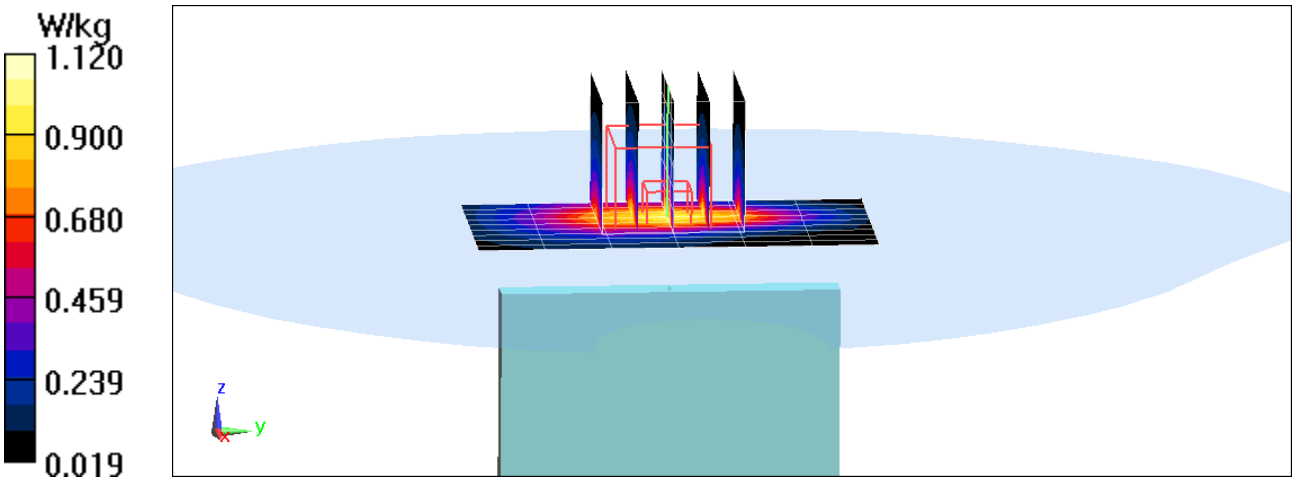
Communication System: UID 0, _UMTS; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
$f = 1907.6$ MHz; $\sigma = 1.527$ S/m; $\varepsilon_r = 51.772$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-03-2018; Ambient Temp: 21.3°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1907.6 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.46 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 0.913 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00057

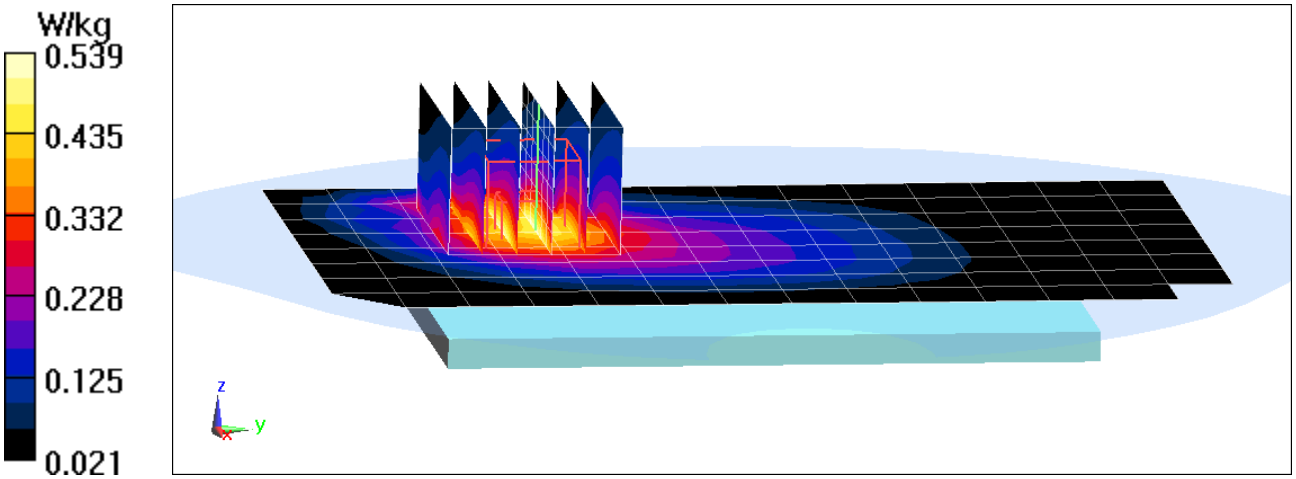
Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 680.5 MHz; σ = 0.922 S/m; ε_r = 53.344; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-28-2018; Ambient Temp: 22.1°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7357; ConvF(10.37, 10.37, 10.37) @ 680.5 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 71, Body SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.43 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.625 W/kg
SAR(1 g) = 0.429 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00057

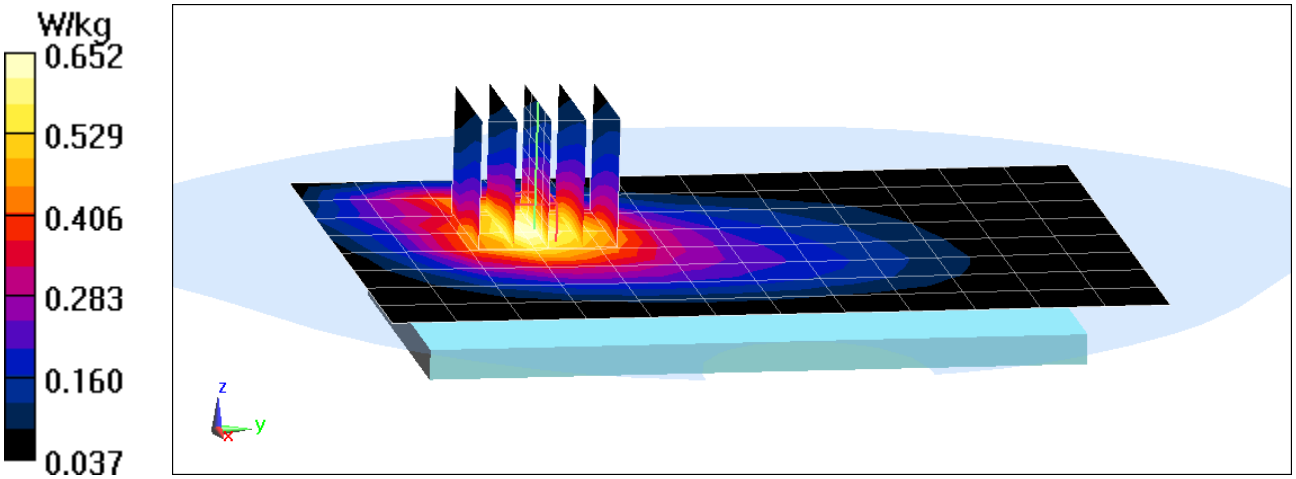
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.932 S/m; ε_r = 53.28; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-28-2018; Ambient Temp: 22.1°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7357; ConvF(10.37, 10.37, 10.37) @ 707.5 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 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 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.90 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.727 W/kg
SAR(1 g) = 0.515 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00057

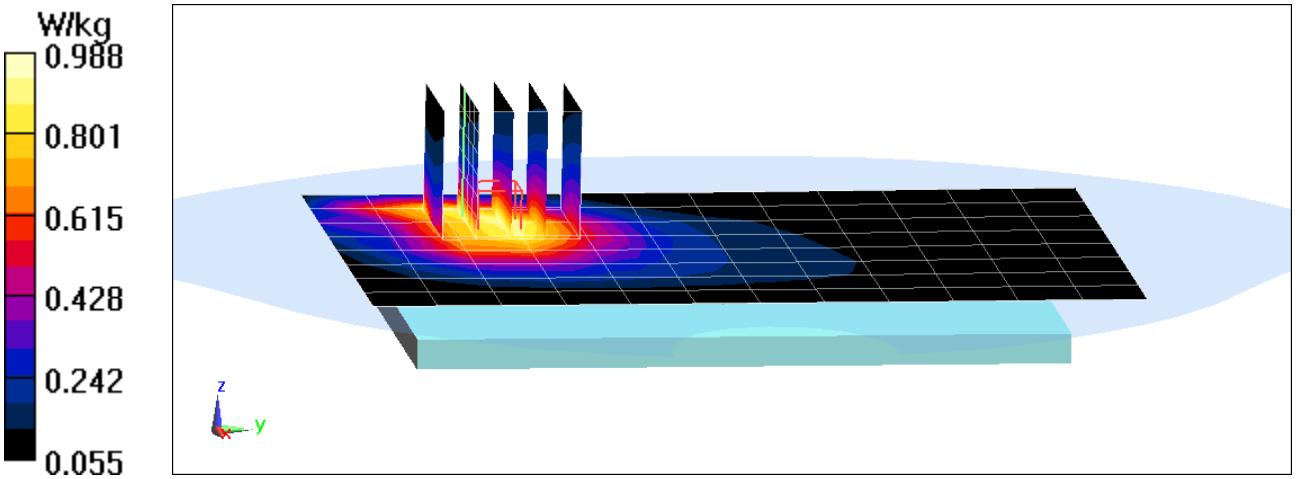
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 782 MHz; σ = 0.959 S/m; ε_r = 53.141; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-28-2018; Ambient Temp: 22.1°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7357; ConvF(10.37, 10.37, 10.37) @ 782 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 13, 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 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.96 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.725 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00057

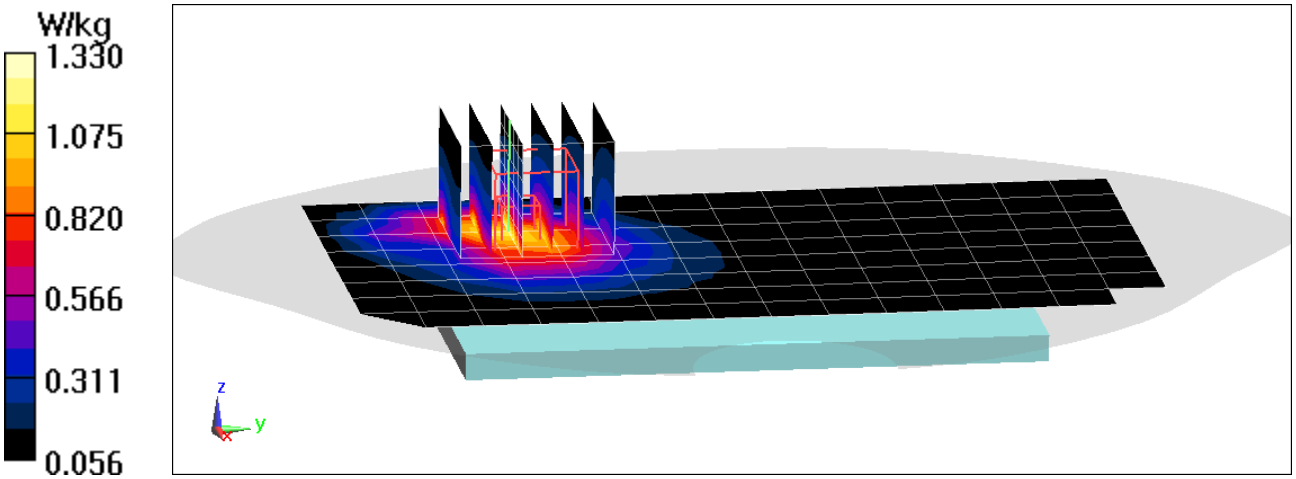
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.998 S/m; ε_r = 54.243; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-14-2019; Ambient Temp: 20.3°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 831.5 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V5.0 Back Right; Type: QD 000 P40 CD; Serial: 1692
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.12 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.55 W/kg
SAR(1 g) = 0.912 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00057

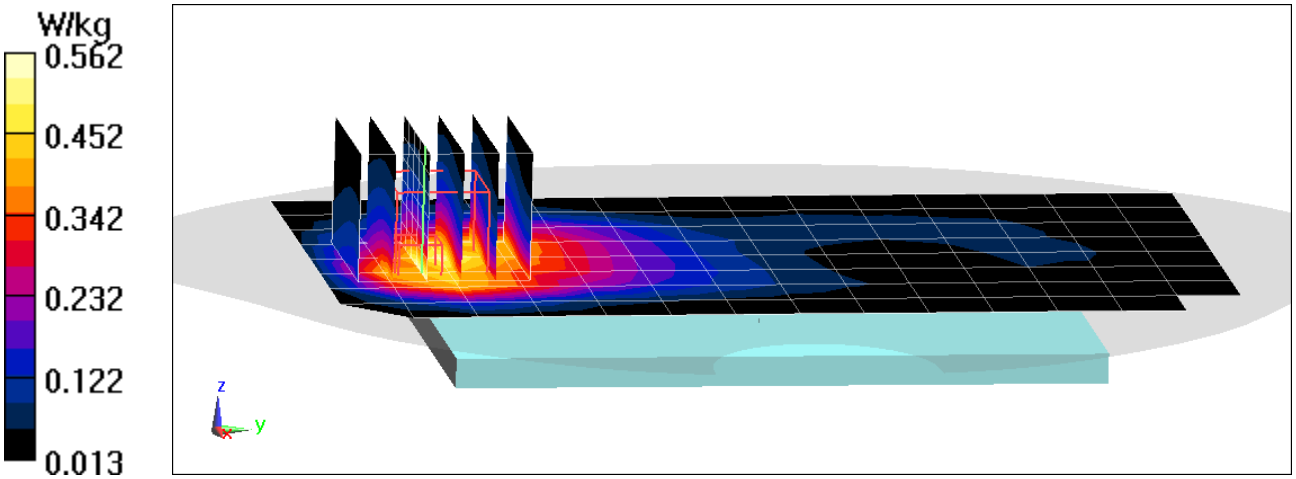
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1745 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1745 MHz; σ = 1.499 S/m; ε_r = 51.661; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-09-2019; Ambient Temp: 20.7°C; Tissue Temp: 20.9°C

Probe: ES3DV3 - SN3287; ConvF(4.98, 4.98, 4.98) @ 1745 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), Body SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 99 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 = 17.94 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.741 W/kg
SAR(1 g) = 0.458 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00057

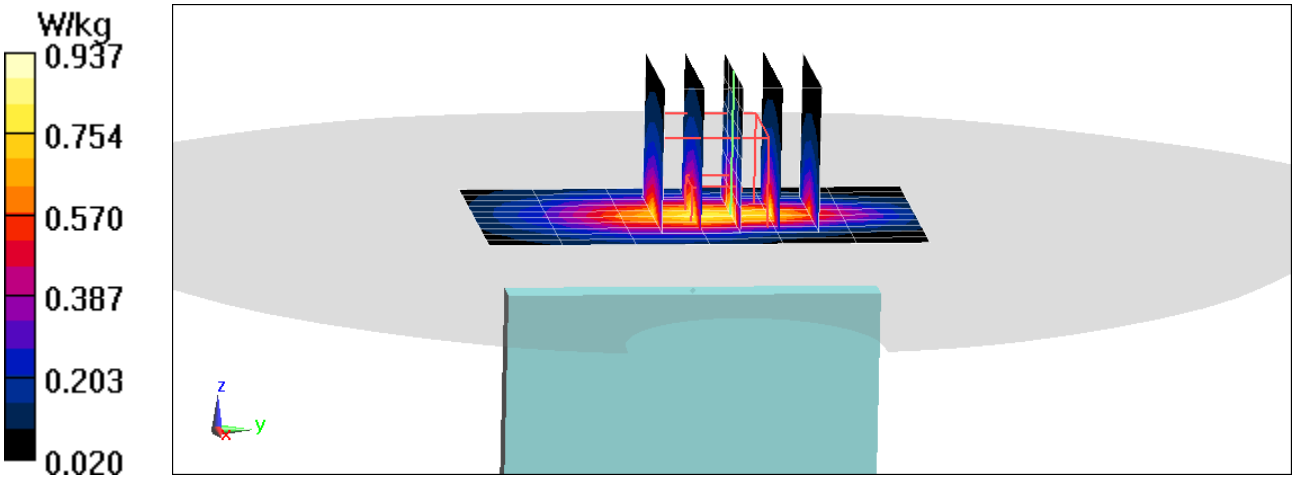
Communication System: UID 0, _LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
$f = 1720$ MHz; $\sigma = 1.471$ S/m; $\varepsilon_r = 51.733$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-09-2019; Ambient Temp: 20.7°C; Tissue Temp: 20.9°C

Probe: ES3DV3 - SN3287; ConvF(4.98, 4.98, 4.98) @ 1720 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), Body SAR, Bottom Edge, Low.ch, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (11x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.84 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.768 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00056

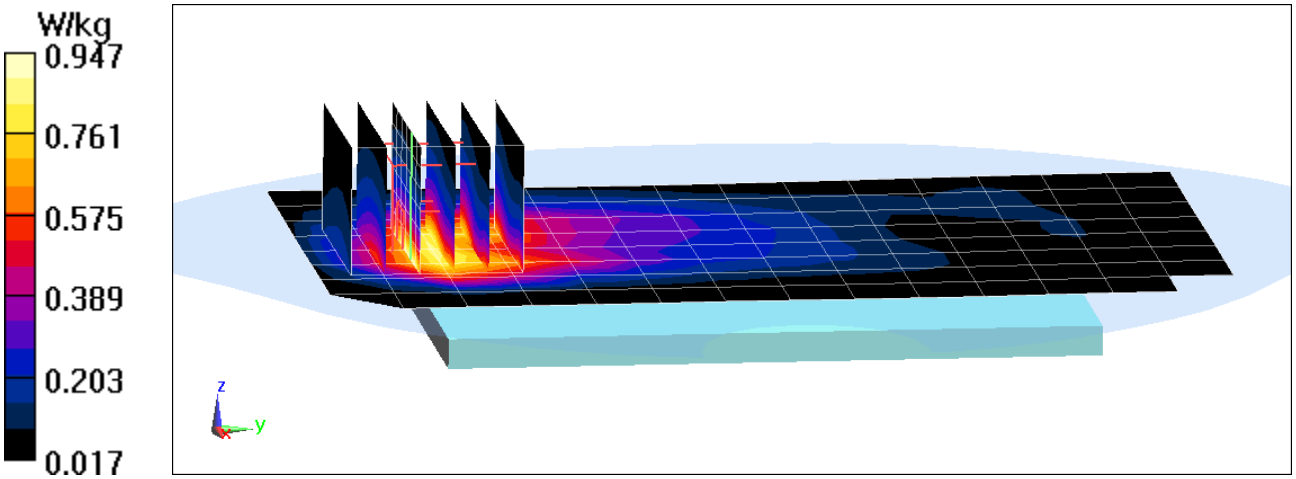
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1882.5 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
$f = 1882.5$ MHz; $\sigma = 1.536$ S/m; $\varepsilon_r = 53.233$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-14-2019; Ambient Temp: 23.4°C; Tissue Temp: 22.2°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1882.5 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Left; Type: QD000P40CA; Serial: TP:82355
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.74 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.647 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00056

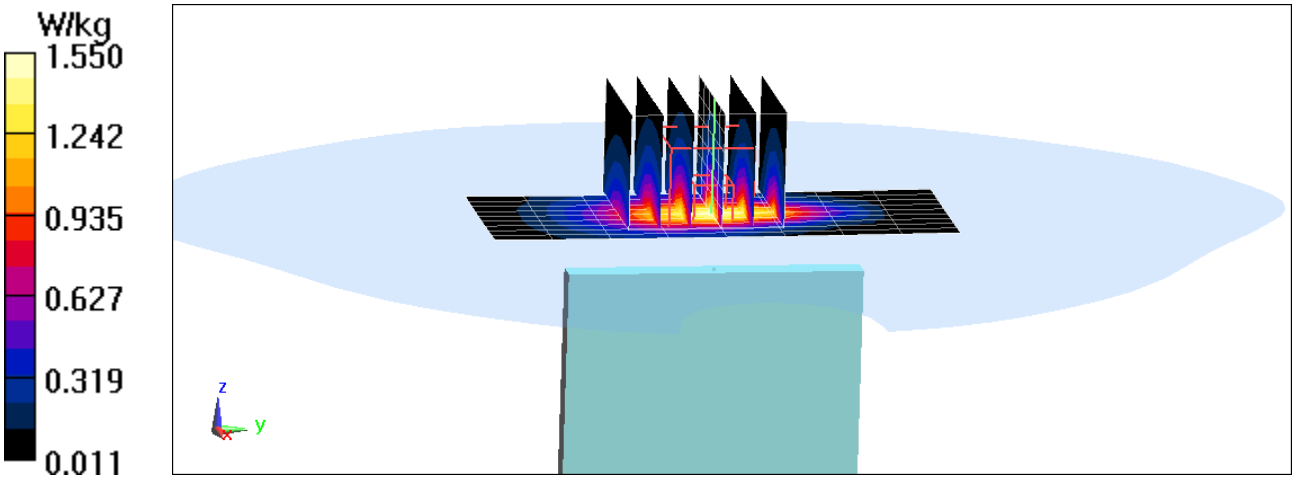
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1905 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
$f = 1905$ MHz; $\sigma = 1.561$ S/m; $\varepsilon_r = 53.115$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-14-2019; Ambient Temp: 23.4°C; Tissue Temp: 22.2°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1905 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Left; Type: QD000P40CA; Serial: TP:82355
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 25 (PCS), Body SAR, Bottom Edge, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.58 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 1.80 W/kg
SAR(1 g) = 1.06 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFV450PM; Type: Portable Handset; Serial: 00056

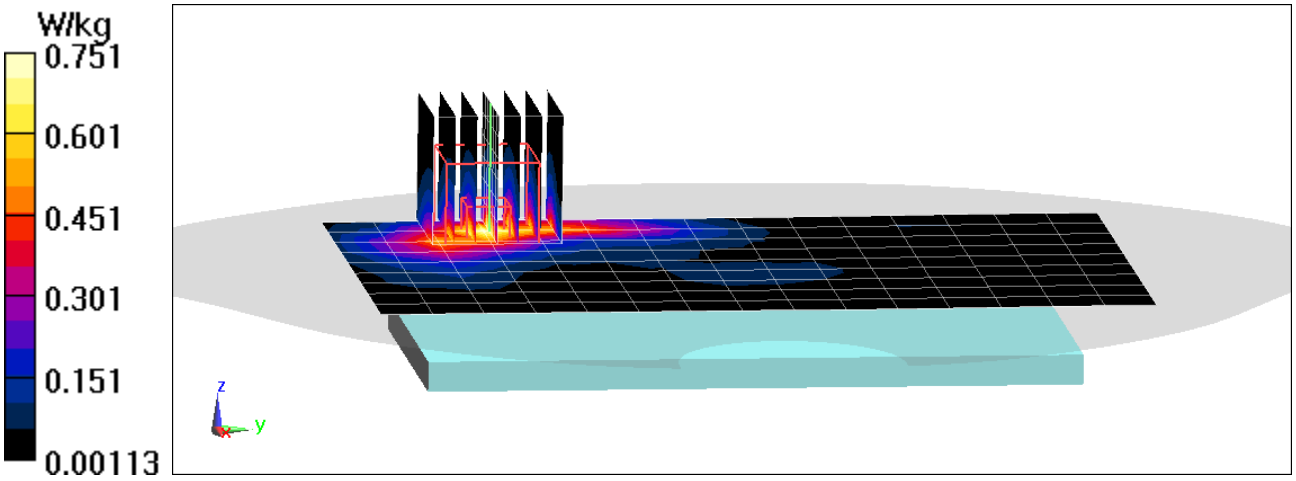
Communication System: UID 0, LTE Band 41 (Class 3); Frequency: 2680 MHz; Duty Cycle: 1:1.58
Medium: 2450 Body Medium parameters used (interpolated):
f = 2680 MHz; σ = 2.316 S/m; ε_r = 52.16; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-07-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.6°C

Probe: ES3DV3 - SN3319; ConvF(4.33, 4.33, 4.33) @ 2680 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 41 ULCA, Body SAR, Back side, High.ch,
PCC: 20 MHz Bandwidth, QPSK, Ch. 41490, 1 RB, 0 RB Offset
SCC: 20 MHz Bandwidth, QPSK, Ch. 41292, 1 RB, 99 RB Offset

Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.18 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.572 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00056

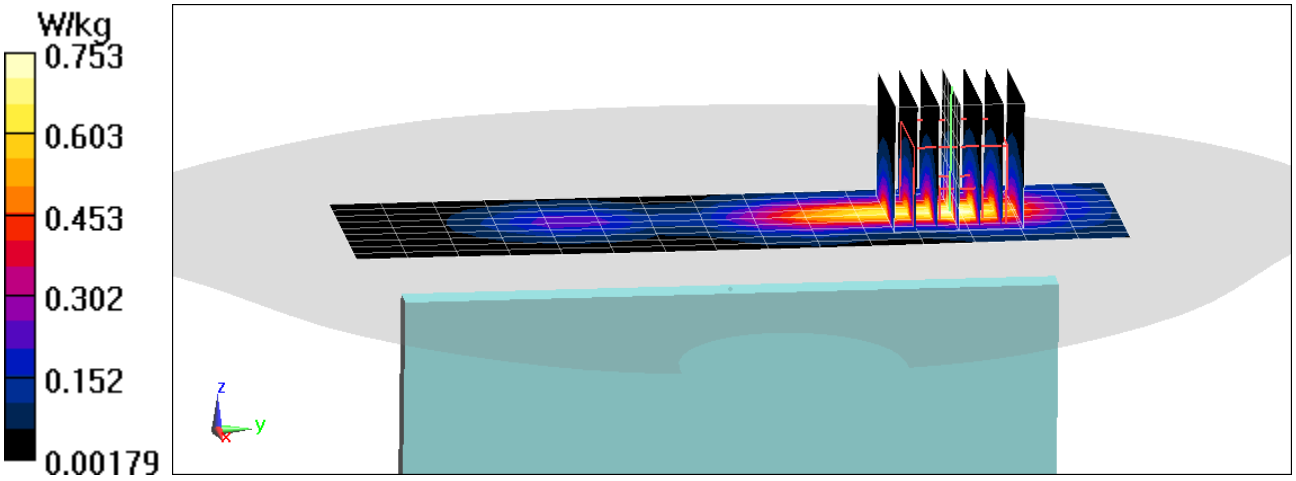
Communication System: UID 0, _LTE Band 41; Frequency: 2680 MHz; Duty Cycle: 1:1.58
Medium: 2450 Body Medium parameters used (interpolated):
$f = 2680$ MHz; $\sigma = 2.316$ S/m; $\varepsilon_r = 52.16$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-07-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.6°C

Probe: ES3DV3 - SN3319; ConvF(4.33, 4.33, 4.33) @ 2680 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 41 ULCA, Body SAR, Right Edge, High.ch,
PCC: 20 MHz Bandwidth, QPSK, Ch. 41490, 1 RB, 0 RB Offset
SCC: 20 MHz Bandwidth, QPSK, Ch. 41292, 1 RB, 99 RB Offset

Area Scan (10x16x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.99 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.572 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00568

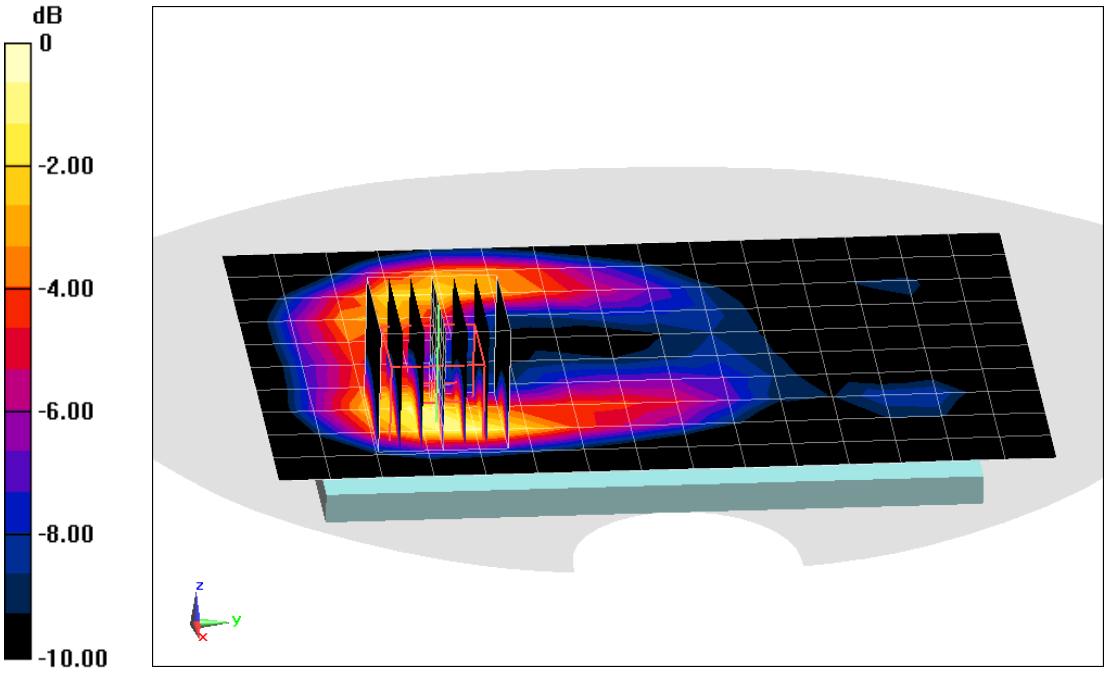
Communication System: UID 0, Frequency: 2592.99 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2592.99 MHz; σ = 2.202 S/m; ε_r = 51.526; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-20-2018; Ambient Temp: 23.2°C; Tissue Temp: 22.4°C

Probe: ES3DV3 – SN3319; ConvF(4.33, 4.33, 4.33) @ 2592.99 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: EN-DC DC_41A-n41A SAR (with LTE Band 41 transmitting simultaneously)
Body SAR, Back side, Mid.ch, 60 MHz Bandwidth
CP-OFDM QPSK, 1 RB, 1 RB Offset

Area Scan (11x16x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.32 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.721 W/kg
SAR(1 g) = 0.343 W/kg



0 dB = 0.448 W/kg = -3.49 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 00568

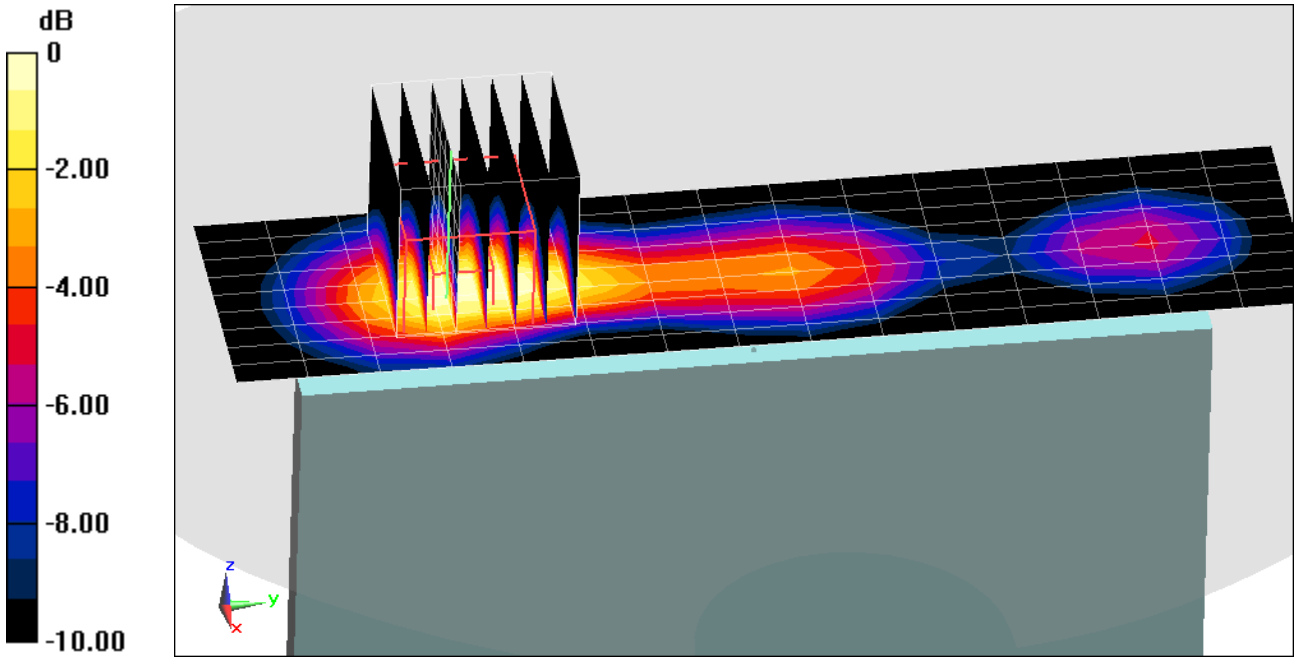
Communication System: UID 0, Frequency: 2592.99 MHz; Duty Cycle: 1:1
Medium: 2450 Body; Medium parameters used (interpolated):
f = 2592.99 MHz; σ = 2.202 S/m; ε_r = 51.526; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-20-2018; Ambient Temp: 23.2°C; Tissue Temp: 22.4°C

Probe: ES3DV3 – SN3319; ConvF(4.33, 4.33, 4.33) @ 2592.99 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: EN-DC DC_41A-n41A SAR (with LTE Band 41 transmitting simultaneously)
Body SAR, Left Edge, Mid.ch, 60 MHz Bandwidth
CP-OFDM QPSK, 81 RB, 40 RB Offset

Area Scan (10x16x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.07 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.836 W/kg
SAR(1 g) = 0.393 W/kg



0 dB = 0.502 W/kg = -2.99 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 00071

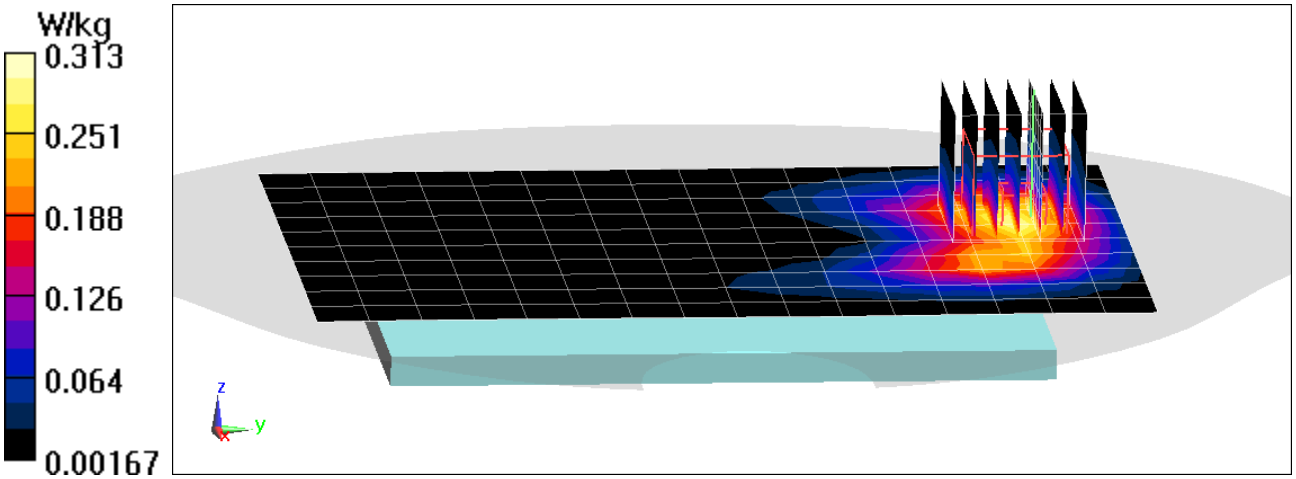
Communication System: UID 0, _IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 2.053 S/m; ε_r = 51.691; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-12-2018; Ambient Temp: 22.7°C; Tissue Temp: 22.8°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2462 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11b, 22 MHz Bandwidth,
Antenna 1, 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 = 1.386 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.477 W/kg
SAR(1 g) = 0.249 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00071

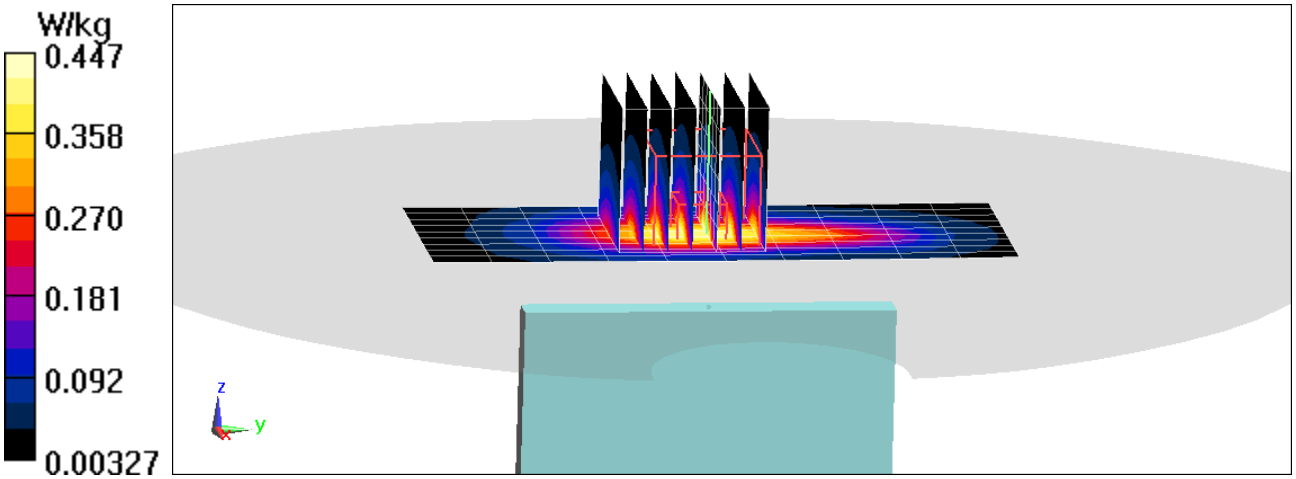
Communication System: UID 0, _IEEE 802.11b; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2462 MHz; σ = 2.053 S/m; ε_r = 51.691; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-12-2018; Ambient Temp: 22.7°C; Tissue Temp: 22.8°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2462 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11b, 22 MHz Bandwidth,
Antenna 1, Body SAR, Ch 11, 1 Mbps, Top Edge

Area Scan (10x11x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.92 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.675 W/kg
SAR(1 g) = 0.358 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00071

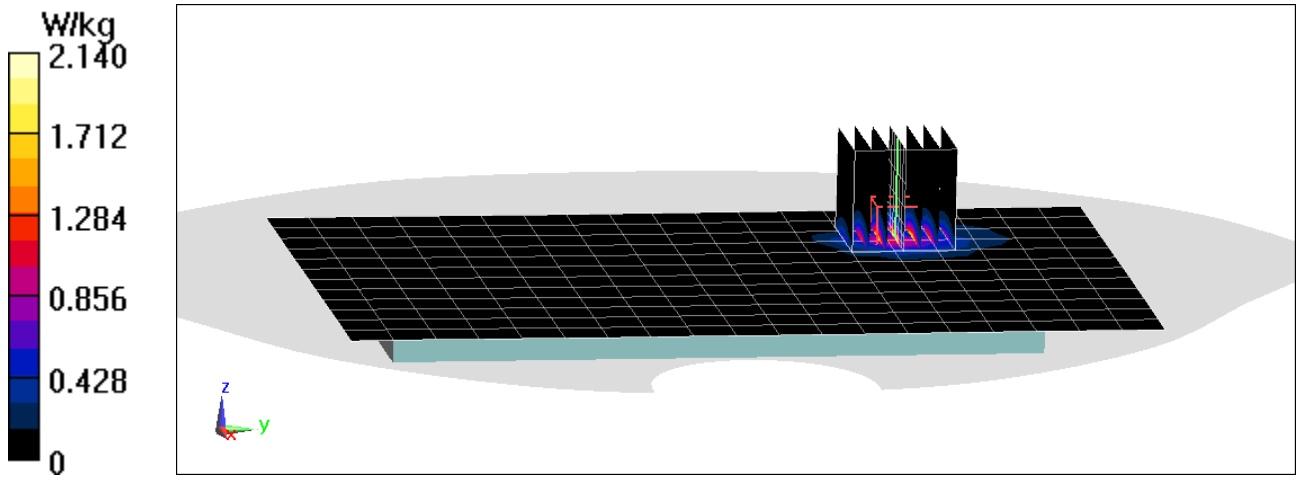
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5825 MHz; σ = 6.235 S/m; ε_r = 46.256; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-03-2019; Ambient Temp: 21.5°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7308; ConvF(4.18, 4.18, 4.18) @ 5825 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a, UNII-3, 20 MHz Bandwidth,
Antenna 2, Body SAR, Ch 165, 6 Mbps, Back Side

Area Scan (13x20x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 12.29 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.74 W/kg
SAR(1 g) = 0.843 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00065

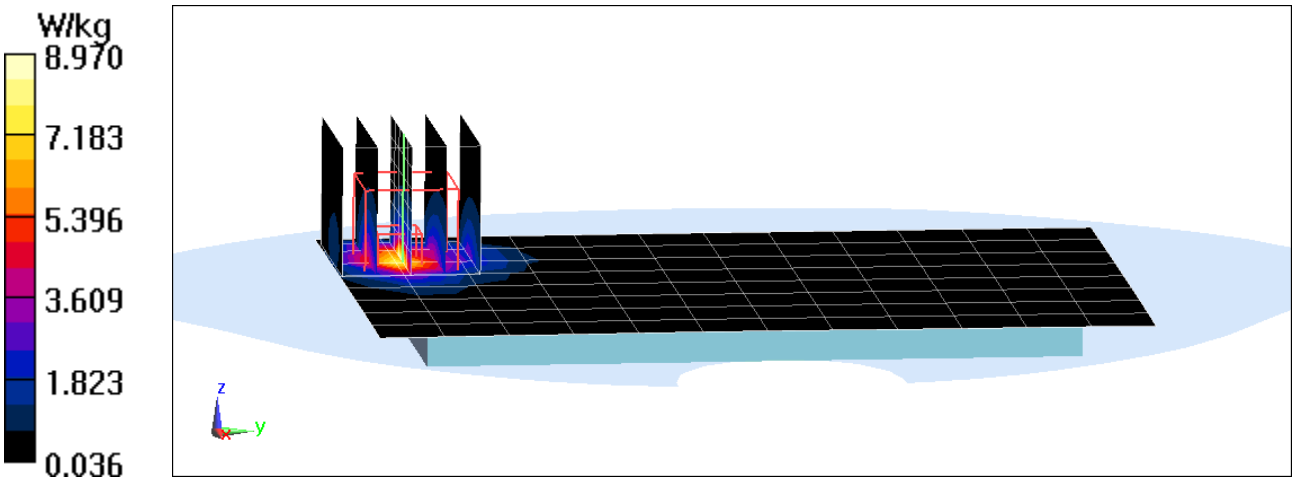
Communication System: UID 0, CDMA; Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1851.25 MHz; σ = 1.519 S/m; ε_r = 53.704; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-19-2018; Ambient Temp: 21.6°C; Tissue Temp: 22.3°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1851.25 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: PCS EVDO, Phablet SAR, Front side, Low.ch

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 68.05 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 15.8 W/kg
SAR(10 g) = 2.68 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

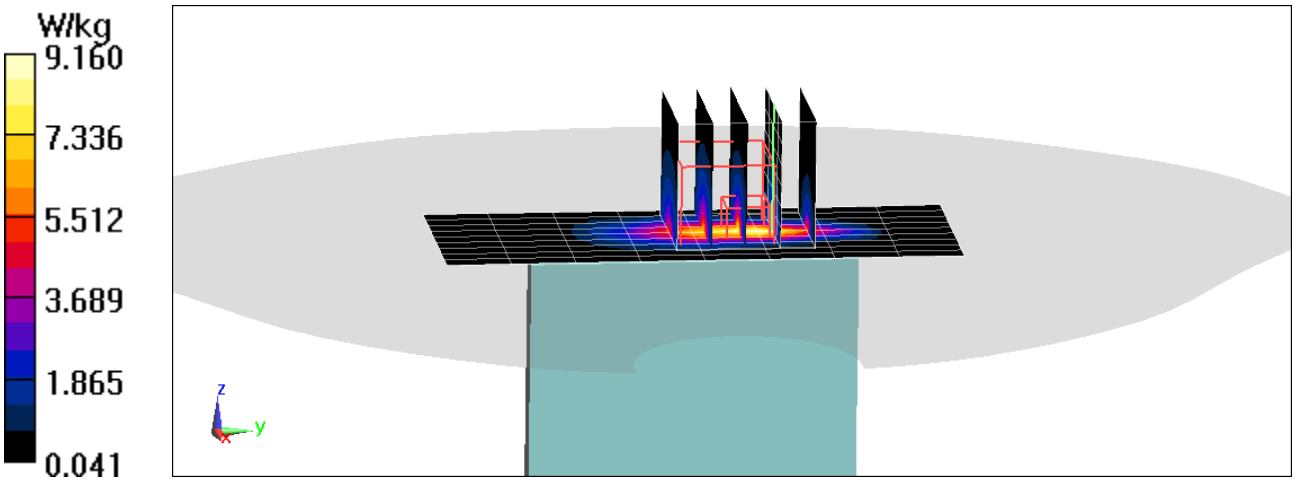
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.4 MHz; σ = 1.513 S/m; ε_r = 50.945; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-03-2018; Ambient Temp: 19.7°C; Tissue Temp: 20.0°C

Probe: ES3DV3 - SN3347; ConvF(5.17, 5.17, 5.17) @ 1732.4 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1750, Phablet SAR, Bottom Edge, Mid.ch

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 70.28 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 15.0 W/kg
SAR(10 g) = 2.69 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00064

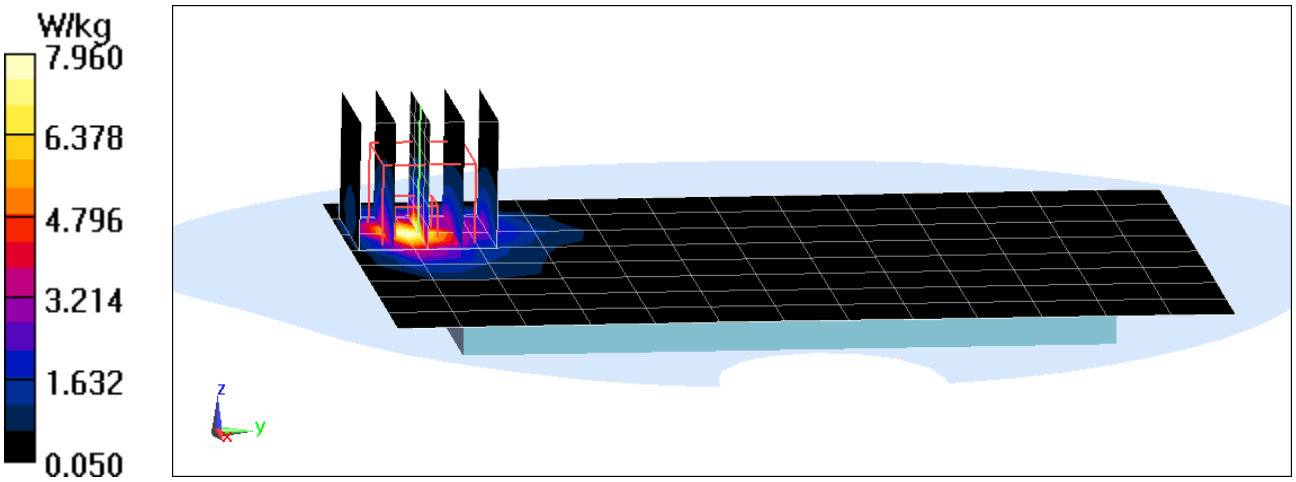
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.532 S/m; ε_r = 51.518; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.10 cm

Test Date: 01-04-2019; Ambient Temp: 21.9°C; Tissue Temp: 22.1°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1880 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1900, Phablet SAR, Front side, Mid.ch

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 67.07 V/m; Power Drift = -0.20 dB
Peak SAR (extrapolated) = 13.6 W/kg
SAR(10 g) = 2.38 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00057

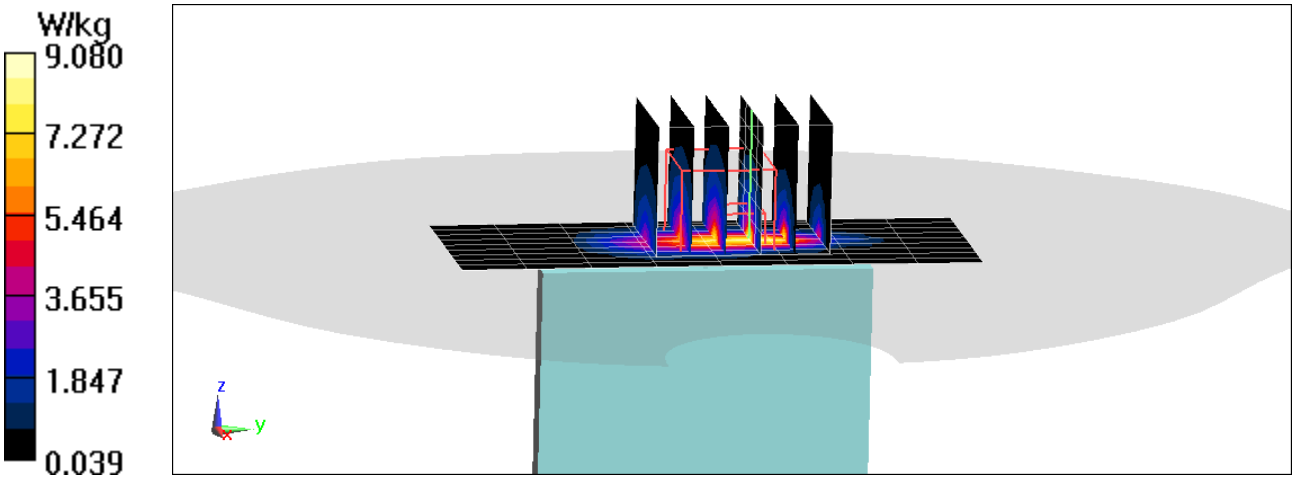
Communication System: UID 0, _LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
$f = 1720$ MHz; $\sigma = 1.471$ S/m; $\varepsilon_r = 51.733$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-09-2019; Ambient Temp: 20.7°C; Tissue Temp: 20.9°C

Probe: ES3DV3 - SN3287; ConvF(4.98, 4.98, 4.98) @ 1720 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), Phablet SAR, Bottom Edge, Low.ch, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 73.73 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 14.3 W/kg
SAR(10 g) = 2.93 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00057

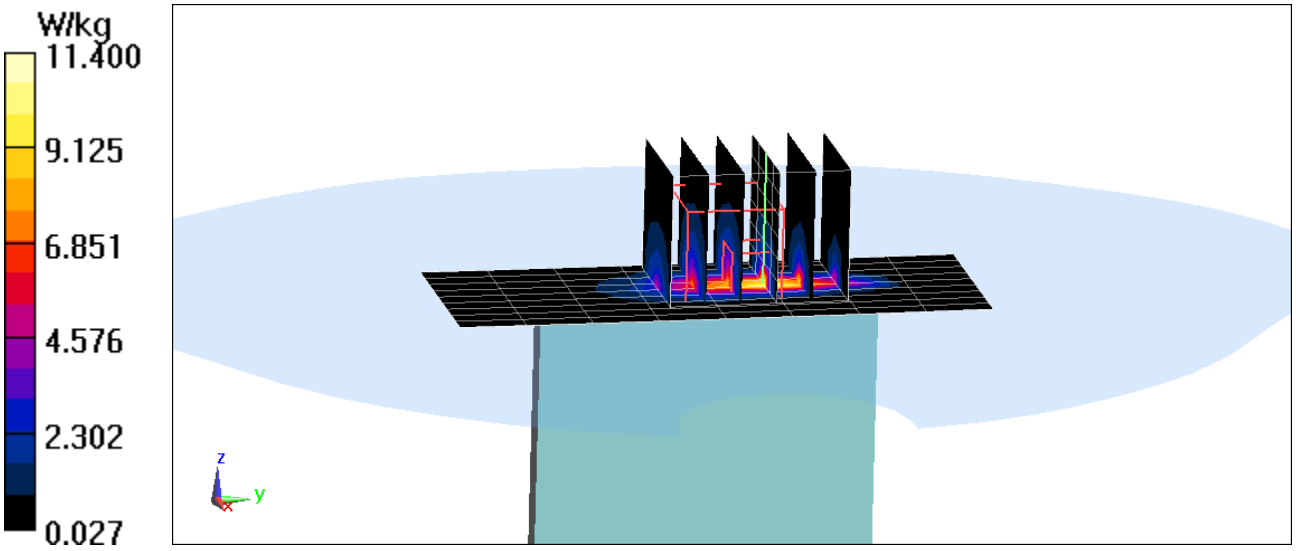
Communication System: UID 0, _LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1860 MHz; σ = 1.532 S/m; ε_r = 52.43; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

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

Probe: EX3DV4 - SN7409; ConvF(7.6, 7.6, 7.6) @ 1860 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 25 (PCS), Phablet SAR, Bottom Edge, Low.ch, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 63.94 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 13.9 W/kg
SAR(10 g) = 2.28 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 00071

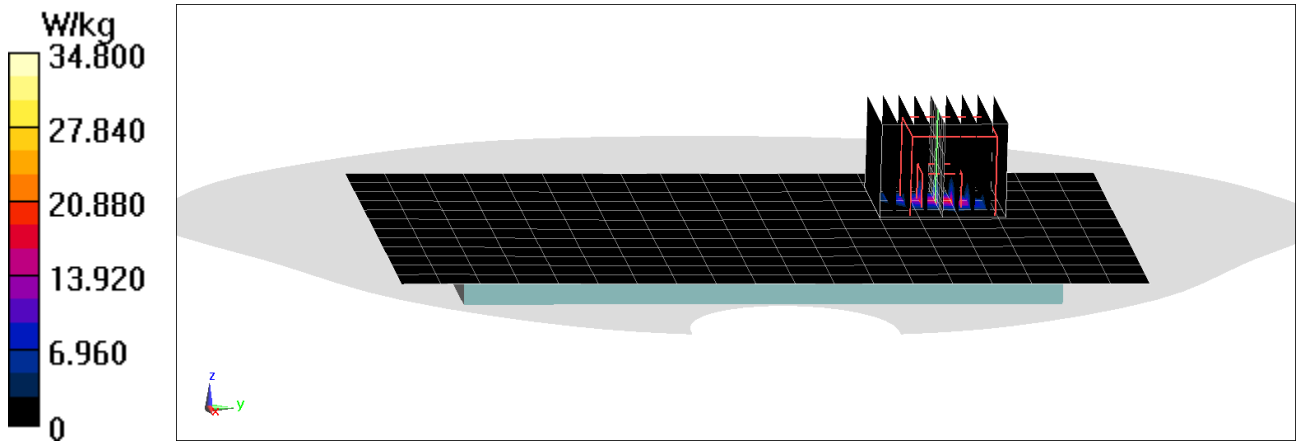
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5GHz Body Medium parameters used:
f = 5600 MHz; σ = 5.888 S/m; ε_r = 47.127; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 12-03-2018; Ambient Temp: 23.0°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(4.2, 4.2, 4.2) @ 5600 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a, U-NII-2C, 20 MHz Bandwidth,
Antenna 2, Phablet SAR, Ch 120, 6 Mbps, Back Side

Area Scan (13x11x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 45.53 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 82.9 W/kg
SAR(10 g) = 1.93 W/kg



APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1003

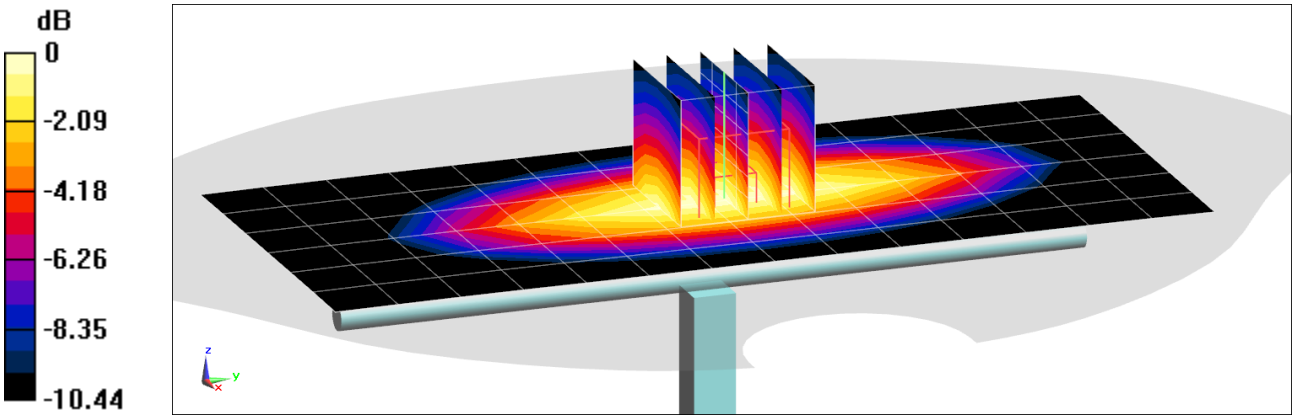
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Head; Medium parameters used (interpolated):
f = 750 MHz; σ = 0.89 S/m; ε_r = 41.172; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-08-2019; Ambient Temp: 21.5°C; Tissue Temp: 19.7°C

Probe: ES3DV3 - SN3287; ConvF(6.76, 6.76, 6.76) @ 750 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

750 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.55 W/kg
SAR(1 g) = 1.7 W/kg
Deviation(1 g) = 2.66%



0 dB = 1.99 W/kg = 2.99 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

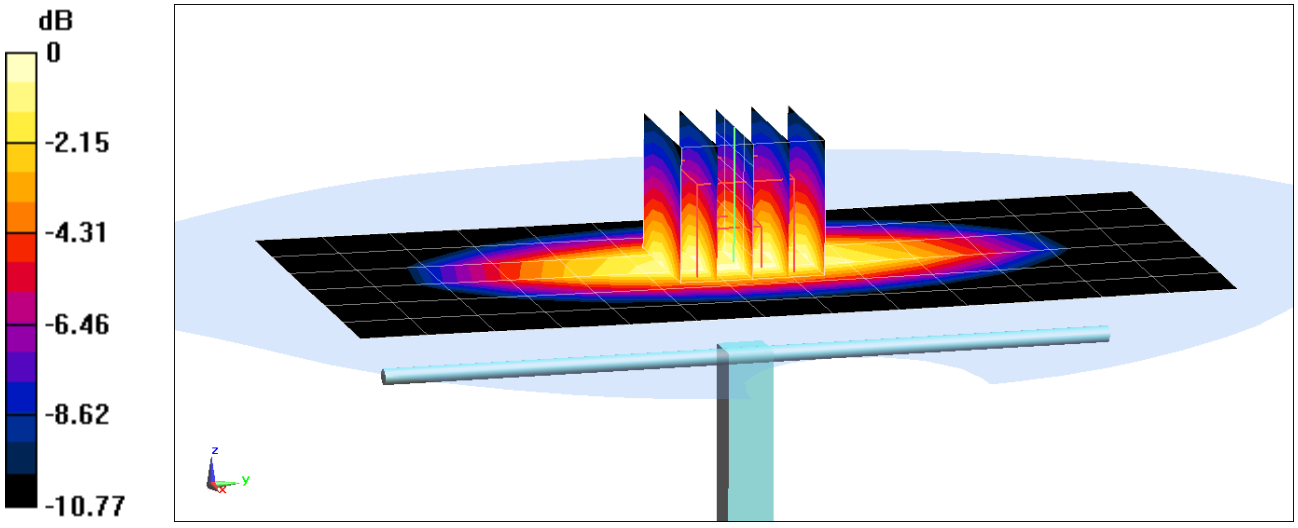
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.929 S/m; ε_r = 42.966; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-19-2018; Ambient Temp: 23.0°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 835 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 3.05 W/kg
SAR(1 g) = 2.04 W/kg
Deviation(1 g) = 7.71%



0 dB = 2.71 W/kg = 4.33 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1148

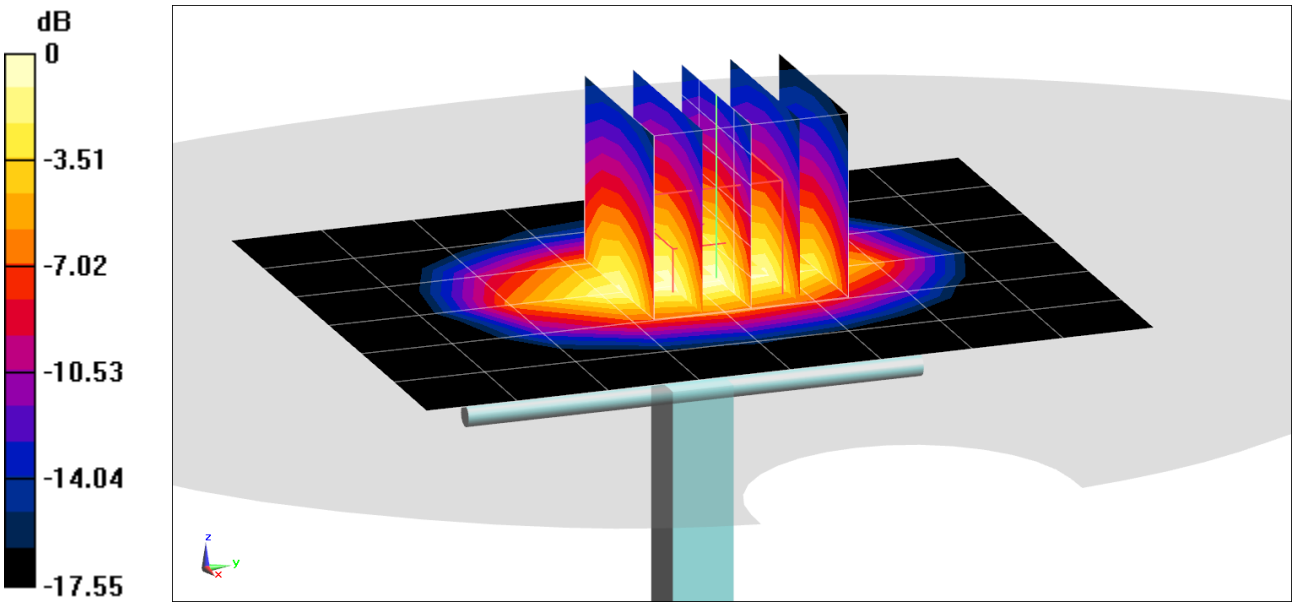
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head; Medium parameters used:
f = 1750 MHz; σ = 1.363 S/m; ε_r = 38.77; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-03-2019; Ambient Temp: 20.2°C; Tissue Temp: 19.6°C

Probe: ES3DV3 - SN3287; ConvF(5.48, 5.48, 5.48) @ 1750 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 6.51 W/kg
SAR(1 g) = 3.6 W/kg
Deviation(1 g) = -1.10%



0 dB = 4.45 W/kg = 6.48 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

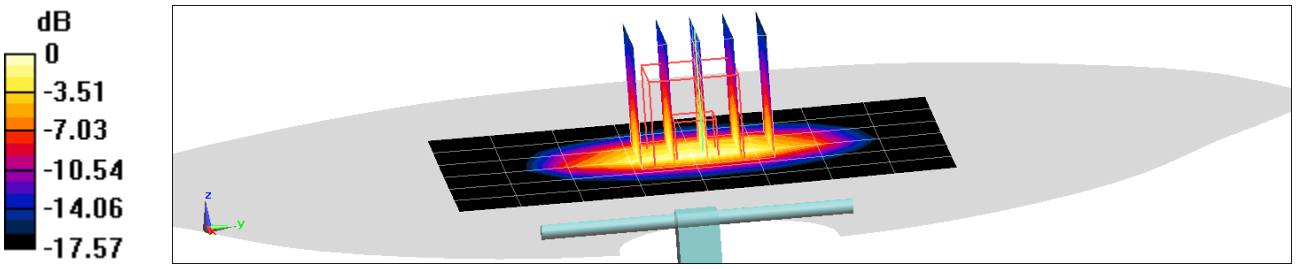
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head; Medium parameters used:
f = 1750 MHz; σ = 1.341 S/m; ε_r = 39.591; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-07-2019; Ambient Temp: 20.3°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7406; ConvF(8.58, 8.58, 8.58) @ 1750 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 6.30 W/kg
SAR(1 g) = 3.41 W/kg
Deviation(1 g) = -6.58%



0 dB = 5.28 W/kg = 7.23 dBW/kg

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

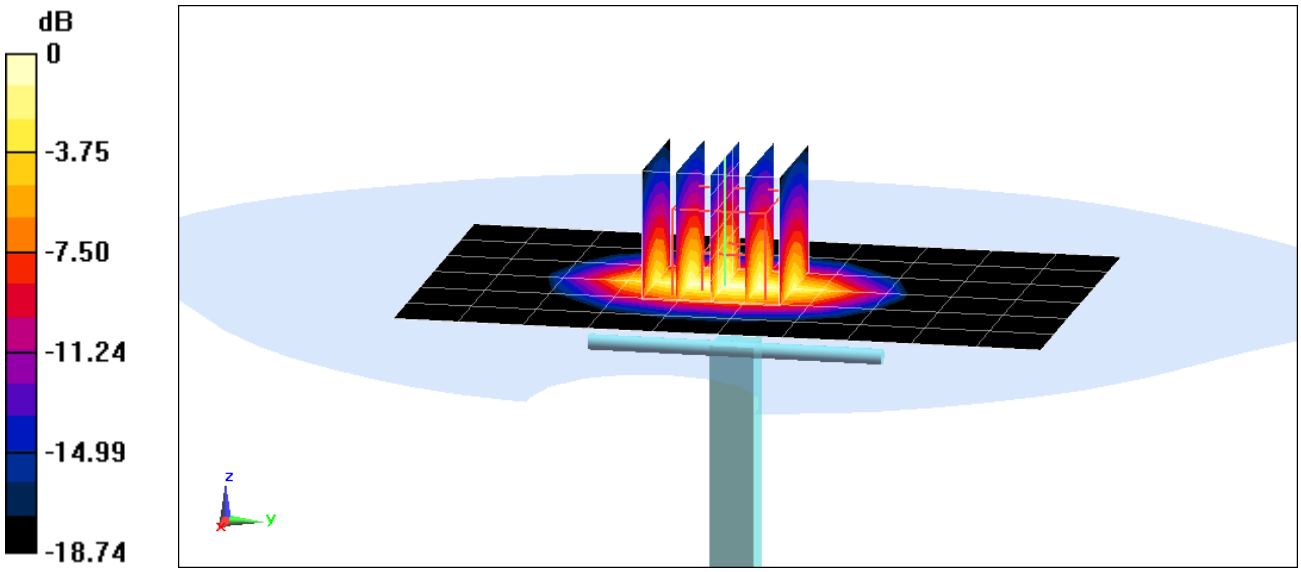
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.424 S/m; ε_r = 39.783; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-22-2018; Ambient Temp: 20.7°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1900 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.64 W/kg
SAR(1 g) = 3.97 W/kg
Deviation(1 g) = -0.25%



0 dB = 6.34 W/kg = 8.02 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 719

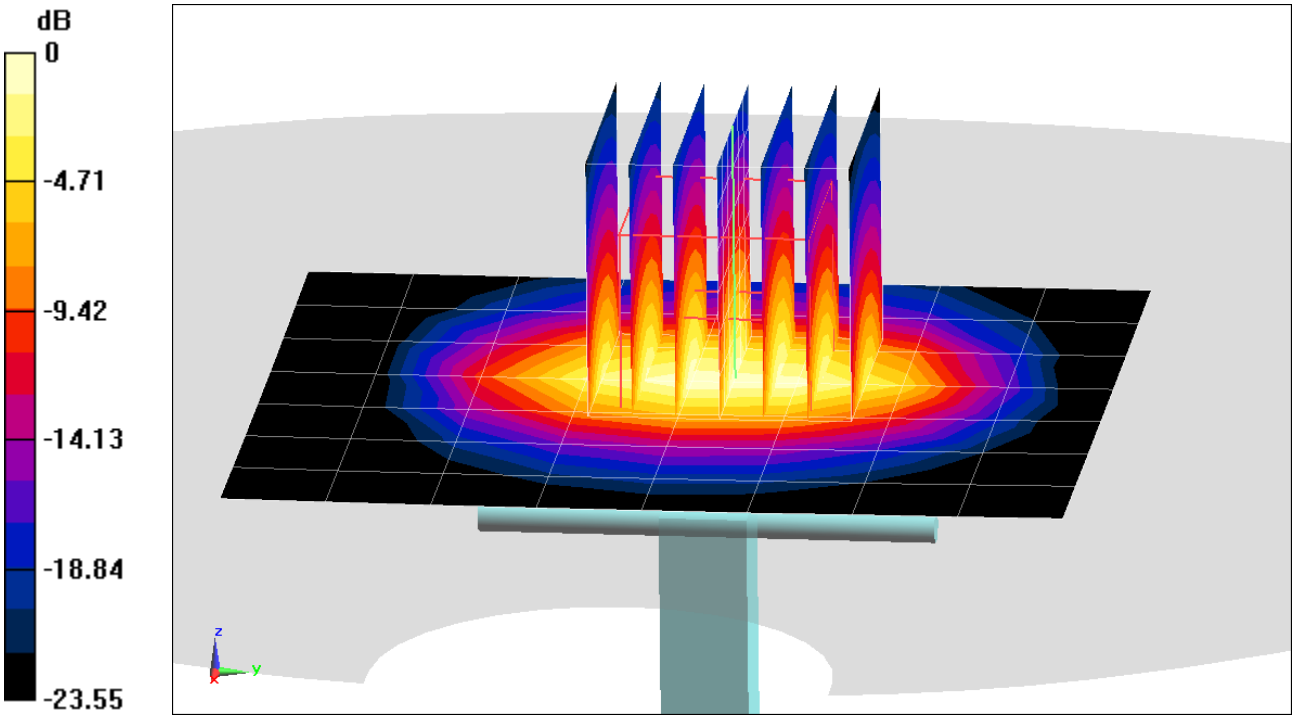
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used:
f = 2450 MHz; σ = 1.797 S/m; ε_r = 38.399; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-24-2018; Ambient Temp: 20.1°C; Tissue Temp: 23.2°C

Probe: EX3DV4 - SN7406; ConvF(7.54, 7.54, 7.54) @ 2450 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.5 W/kg
SAR(1 g) = 5.26 W/kg
Deviation(1 g) = 1.35%



0 dB = 9.39 W/kg = 9.73 dBW/kg

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

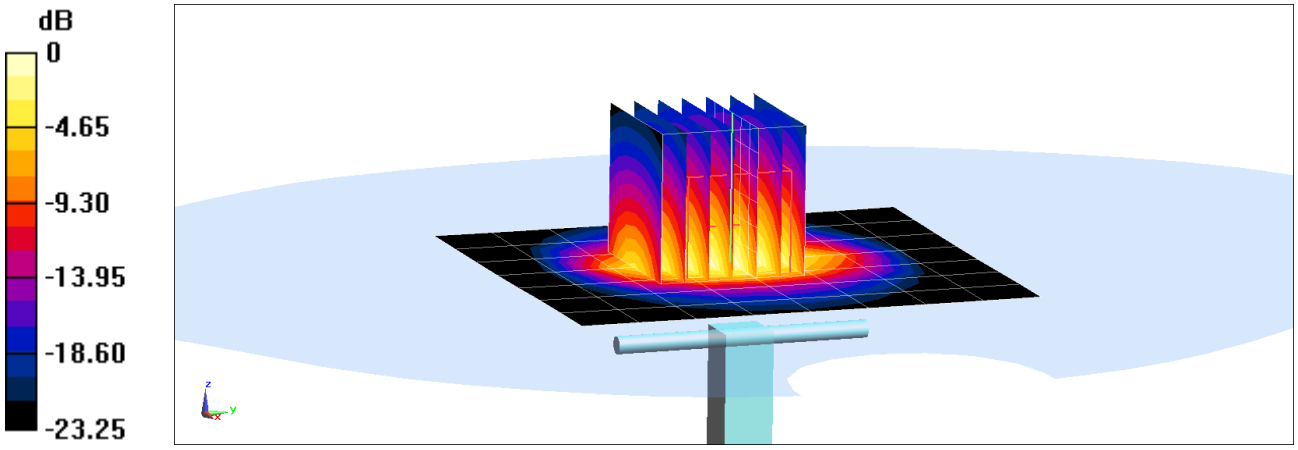
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.869 S/m; ε_r = 40.474; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-09-2019; Ambient Temp: 22.4°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7410; ConvF(7.5, 7.5, 7.5) @ 2450 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2450 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 11.4 W/kg
SAR(1 g) = 5.45 W/kg
Deviation(1 g) = 3.42%



0 dB = 9.10 W/kg = 9.59 dBW/kg

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

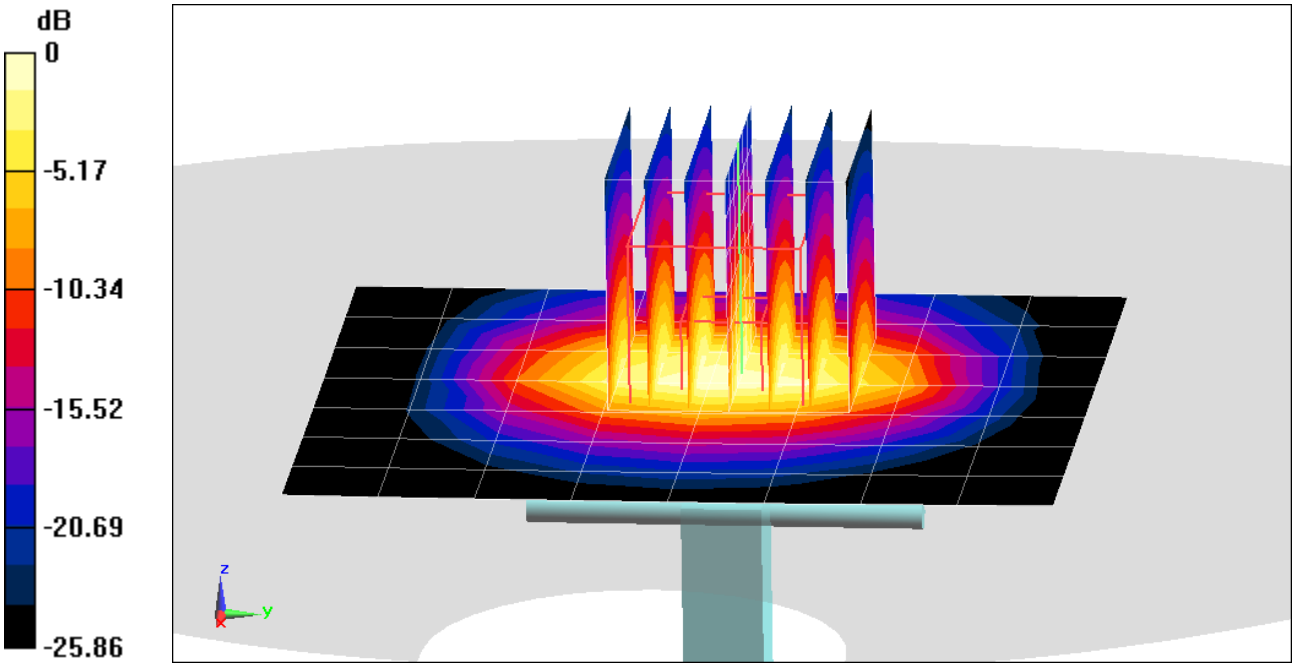
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2600 Head; Medium parameters used:
f = 2600 MHz; σ = 1.961 S/m; ε_r = 37.812; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-24-2018; Ambient Temp: 20.1°C; Tissue Temp: 23.2°C

Probe: EX3DV4 - SN7406; ConvF(7.4, 7.4, 7.4) @ 2600 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2600 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 13.7 W/kg
SAR(1 g) = 5.93 W/kg
Deviation(1 g) = 4.04%



0 dB = 10.4 W/kg = 10.17 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1071

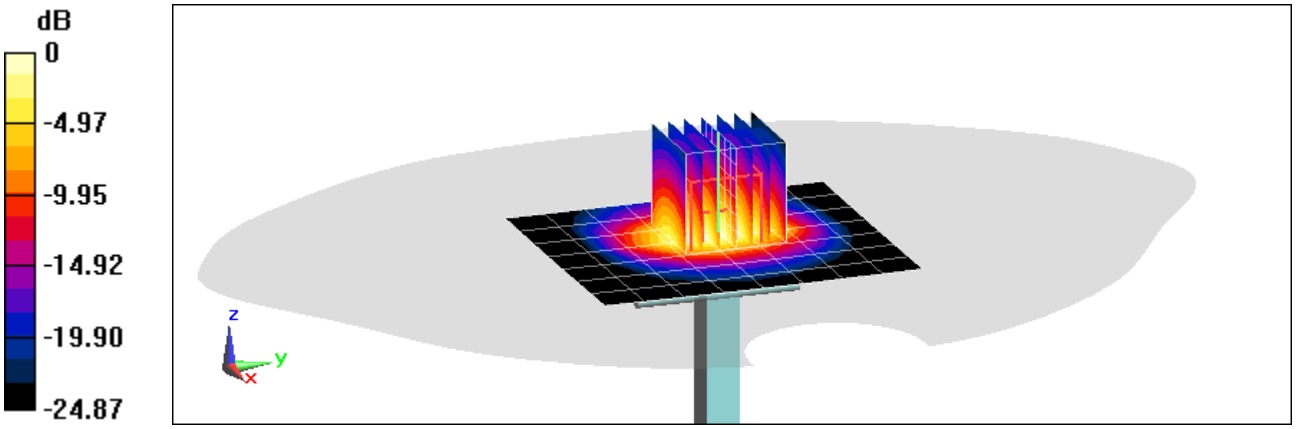
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2600 Head; Medium parameters used:
f = 2600 MHz; σ = 1.963 S/m; ε_r = 39.523; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-08-2019; Ambient Temp: 22.6°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7406; ConvF(7.4, 7.4, 7.4) @ 2600 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

2600 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 13.1 W/kg
SAR(1 g) = 5.91 W/kg
Deviation(1 g) = 4.97%



0 dB = 10.2 W/kg = 10.09 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

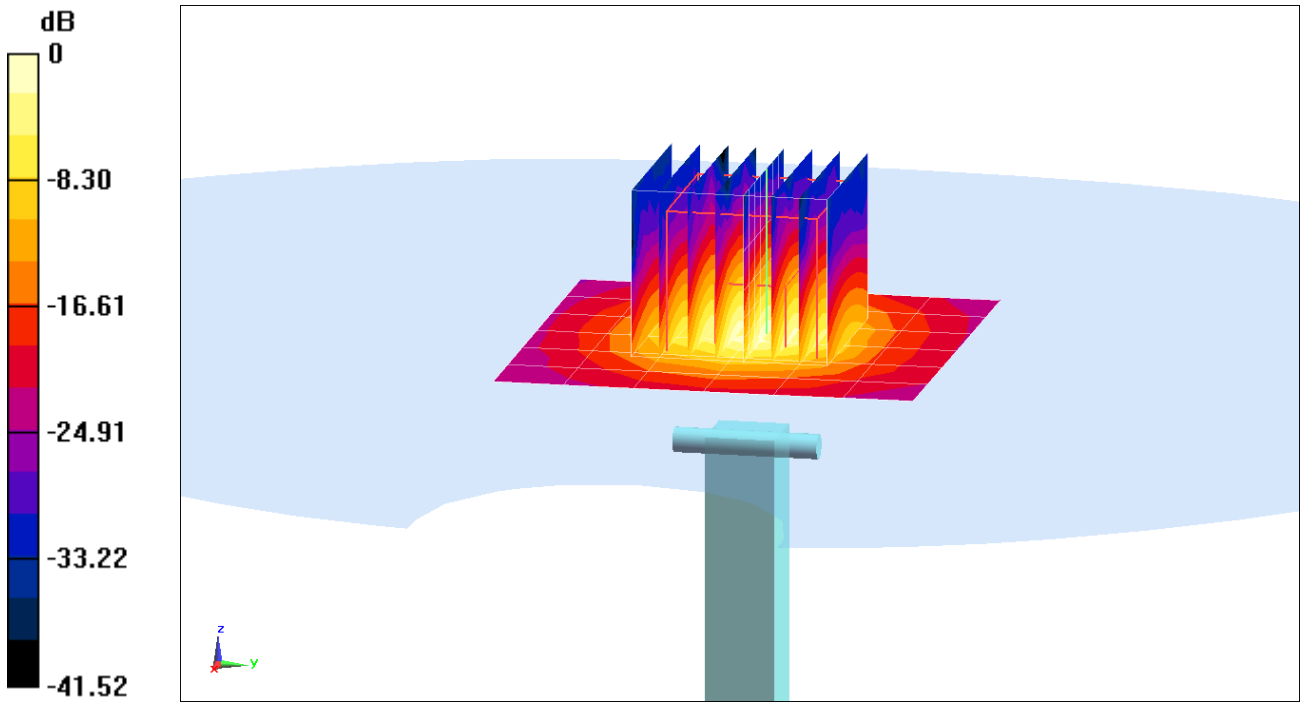
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5250 - 5750 Head; Medium parameters used (interpolated):
f = 5250 MHz; σ = 4.71 S/m; ε_r = 34.763; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-28-2018; Ambient Temp: 22.3°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7409; ConvF(5.2, 5.2, 5.2) @ 5250 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

5250 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 15.7 W/kg
SAR(1 g) = 3.9 W/kg
Deviation(1 g) = -4.06%



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

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

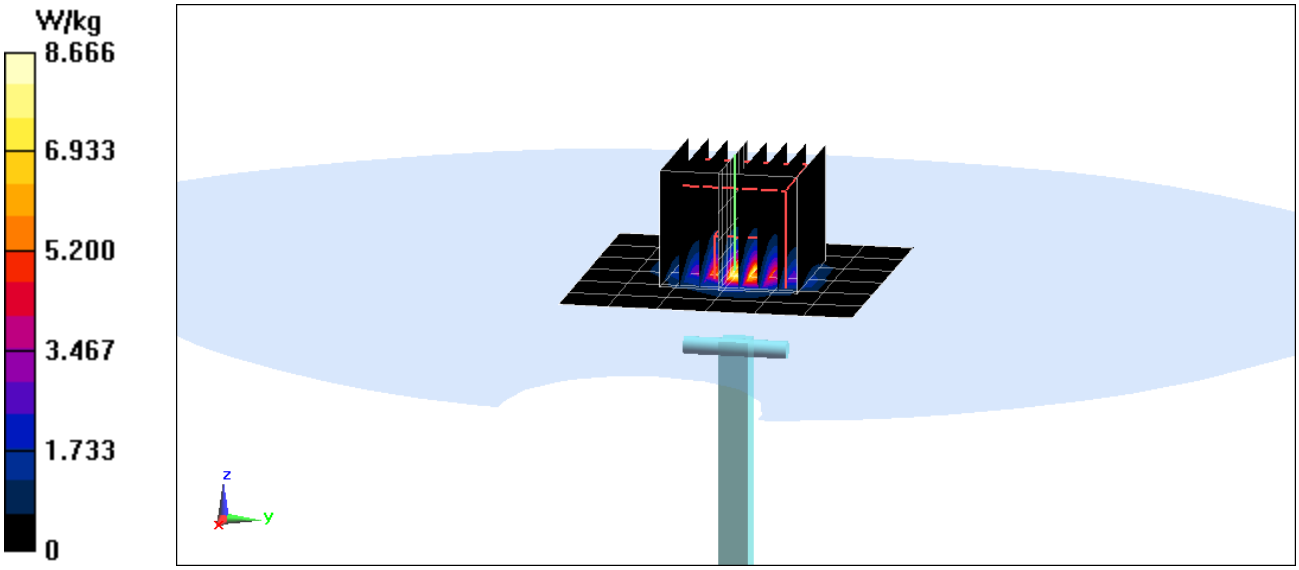
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used (interpolated):
f = 5250 MHz; σ = 4.564 S/m; ε_r = 35.313; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-07-2019; Ambient Temp: 21.2°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7409; ConvF(5.2, 5.2, 5.2) @ 5250 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

5250 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 15.1 W/kg
SAR(1 g) = 3.65 W/kg
Deviation(1 g) = -7.48%



DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

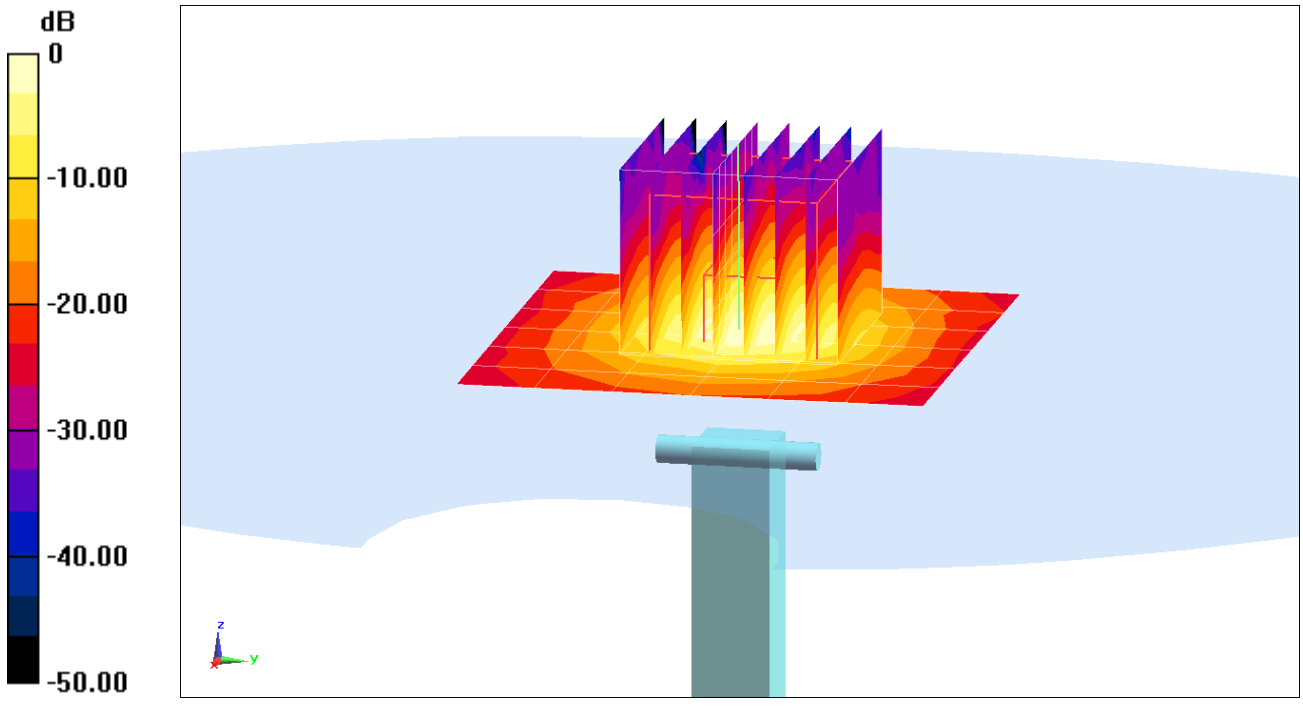
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5250 - 5750 Head; Medium parameters used:
f = 5600 MHz; σ = 5.107 S/m; ε_r = 34.137; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-28-2018; Ambient Temp: 22.3°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7409; ConvF(4.77, 4.77, 4.77) @ 5600 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

5600 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 18.1 W/kg
SAR(1 g) = 4.19 W/kg
Deviation(1 g) = -2.22%



0 dB = 10.1 W/kg = 10.04 dBW/kg

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

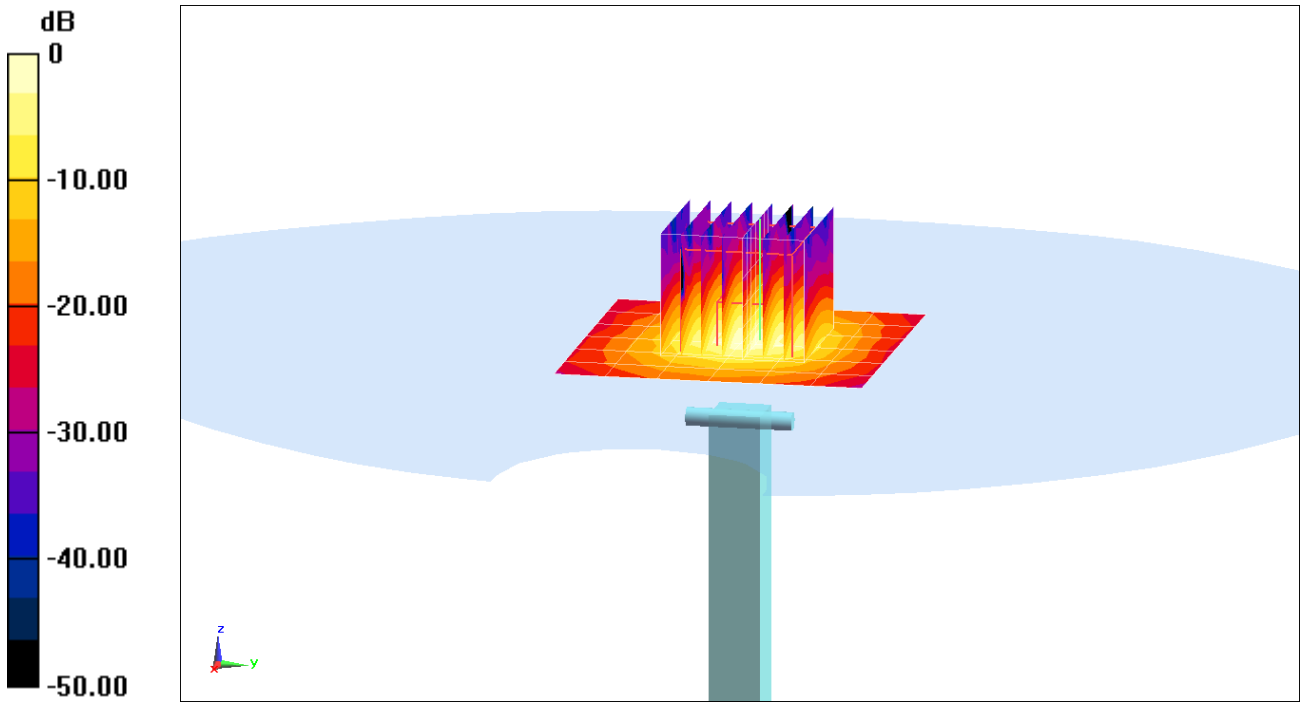
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5250 - 5750 Head; Medium parameters used (interpolated):
f = 5750 MHz; σ = 5.283 S/m; ε_r = 33.834; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 11-28-2018; Ambient Temp: 22.3°C; Tissue Temp: 20.7°C

Probe: EX3DV4 - SN7409; ConvF(4.82, 4.82, 4.82) @ 5750 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

5750 MHz System Verification at 17.0 dBm (50 mW)

Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Peak SAR (extrapolated) = 17.4 W/kg
SAR(1 g) = 3.79 W/kg
Deviation(1 g) = -5.96%



0 dB = 9.35 W/kg = 9.71 dBW/kg

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1003

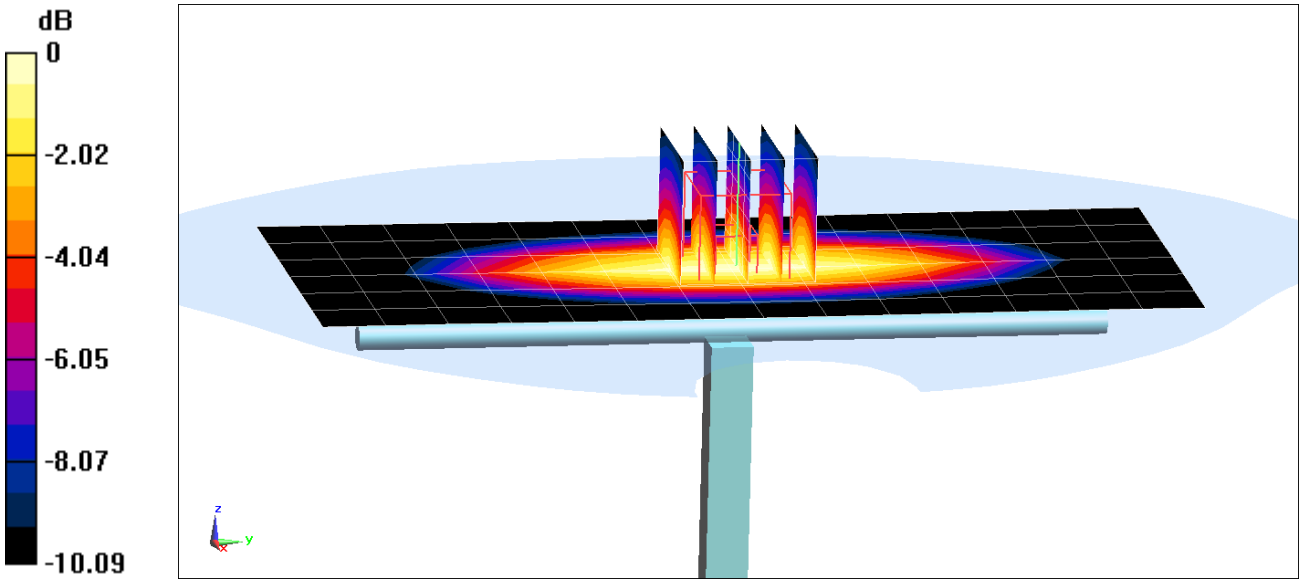
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 750 MHz; σ = 0.948 S/m; ε_r = 53.21; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 11-28-2018; Ambient Temp: 22.1°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7357; ConvF(10.37, 10.37, 10.37) @ 750 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

750 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.51 W/kg
SAR(1 g) = 1.67 W/kg
Deviation(1 g) = -2.68%



0 dB = 2.22 W/kg = 3.46 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d132

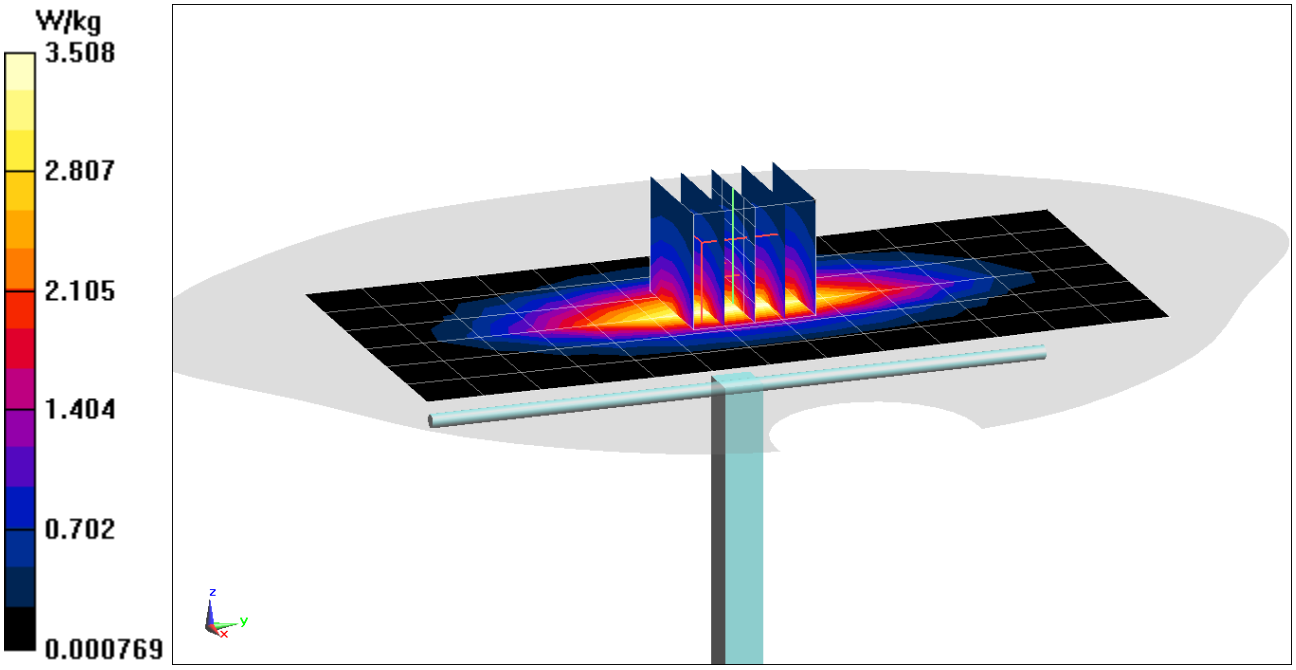
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body; Medium parameters used:
f = 835 MHz; σ = 0.974 S/m; ε_r = 54.661; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-11-2018; Ambient Temp: 22.3°C; Tissue Temp: 21.0°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 835 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.99 W/kg
SAR(1 g) = 1.98 W/kg
Deviation(1 g) = 1.96%



PCTEST ENGINEERING LABORATORY, INC.

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

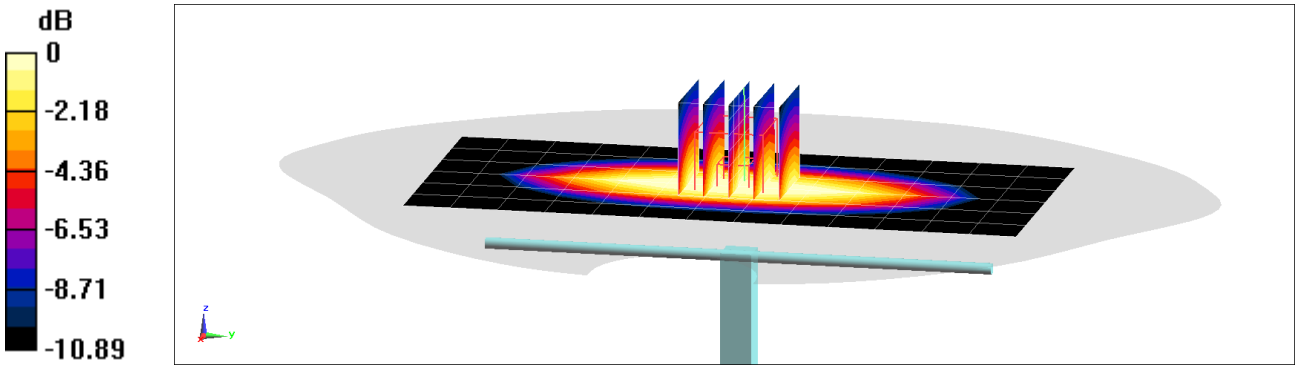
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 MHz Body Medium parameters used:
f = 835 MHz; σ = 0.995 S/m; ε_r = 52.605; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-17-2018; Ambient Temp: 20.1°C; Tissue Temp: 20.5°C

Probe: ES3DV3 - SN3347; ConvF(6.37, 6.37, 6.37) @ 835 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.95 W/kg
SAR(1 g) = 1.97 W/kg
Deviation(1 g) = 1.44%



0 dB = 2.24 W/kg = 3.50 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d133

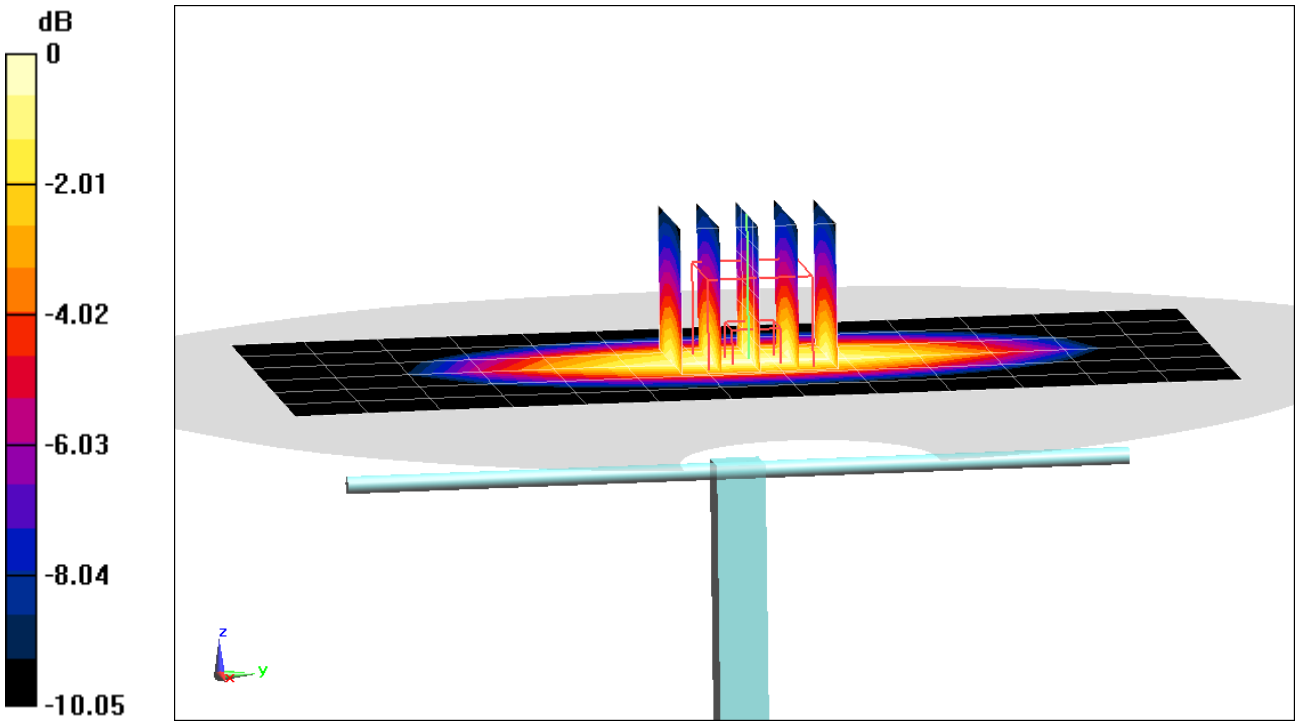
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.968 S/m; ε_r = 54.669; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-07-2019; Ambient Temp: 20.9°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3347; ConvF(6.37, 6.37, 6.37) @ 835 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.87 W/kg
SAR(1 g) = 1.97 W/kg
Deviation(1 g) = 1.03%



0 dB = 2.30 W/kg = 3.62 dBW/kg