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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:
1/16/19 - 02/13/19
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
1M1901150004-01-R3.ZNF

FCC ID: **ZNFV450PM**

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

DUT Type: Portable Handset
Application Type: Class II Permissive Change
FCC Rule Part(s): CFR §2.1093
Model: LM-V450PM
Additional Model(s): LMV450PM, V450PM, LM-V500XM, LMV500XM, V500XM
Permissive Change(s): See FCC Change Document

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	0.17	0.99	0.99	N/A
PCE	CDMA/EVDO BC0 (§22H)	824.70 - 848.31 MHz	0.18	1.10	1.16	N/A
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.19	0.66	1.12	2.67
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.10	0.73	0.63	N/A
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	0.10	0.35	0.49	N/A
PCE	UMTS 850	826.40 - 846.60 MHz	0.17	1.10	1.10	N/A
PCE	UMTS 1750	1712.4 - 1752.6 MHz	0.14	0.59	0.98	2.42
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.17	0.59	1.15	2.66
PCE	LTE Band 71	665.5 - 695.5 MHz	0.11	0.46	0.46	N/A
PCE	LTE Band 12	699.7 - 715.3 MHz	0.14	0.56	0.56	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	0.13	0.65	0.65	N/A
PCE	LTE Band 26 (Cell)	814.7 - 848.3 MHz	0.16	0.78	0.78	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	0.14	0.53	1.09	2.87
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	0.21	0.67	1.07	2.71
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	0.75	0.70	1.01	N/A
PCE	NR Band n41	2496-2690 MHz	0.21	0.23	0.24	N/A
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.97	0.36	0.36	N/A
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	0.26	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.75	0.28	N/A	1.30
NII	U-NII-2C	5500 - 5720 MHz	0.28	0.37	N/A	1.29
NII	U-NII-3	5745 - 5825 MHz	0.34	0.80	0.80	N/A
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.13	N/A	N/A	N/A
Simultaneous SAR per KDB 690783 D01v01r03:			1.59	1.58	1.59	3.96

Note: This revised Test Report (S/N: 1M1901150004-01-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*
UMTS Band 5 (850 MHz)	Maximum	**25.5**	**25.5**	**25.5**
	Nominal	**25.0**	**25.0**	**25.0**
UMTS Band 4 (1750 MHz)	Maximum	**25.2**	**25.2**	**25.2**
	Nominal	**24.7**	**24.7**	**24.7**
UMTS Band 2 (1900 MHz)	Maximum	**25.2**	**25.2**	**25.2**
	Nominal	**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*
UMTS Band 4 (1750 MHz)	Maximum	**23.7**	**23.7**	**23.7**
	Nominal	**23.2**	**23.2**	**23.2**
UMTS Band 2 (1900 MHz)	Maximum	**23.7**	**23.7**	**23.7**
	Nominal	**23.2**	**23.2**	**23.2**

Mode / Band		Modulated Average (dBm)
PCS CDMA/EVDO	Maximum	**23.7**
	Nominal	**23.2**

Mode / Band		Modulated Average (dBm)
LTE Band 66 (AWS)	Maximum	**23.7**
	Nominal	**23.2**
LTE Band 4 (AWS)	Maximum	**23.7**
	Nominal	**23.2**
LTE Band 25 (PCS)	Maximum	**23.7**
	Nominal	**23.2**
LTE Band 2 (PCS)	Maximum	**23.7**
	Nominal	**23.2**

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 - 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-2A and 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)	2554.5 (510900)	2592.99 (518598)	2631.51 (526302)	2670.0 (534000)
NR Band n41: 60MHz	2526.0 (505200)	2559.51 (511902)	2592.99 (518598)	2626.5 (525300)	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:

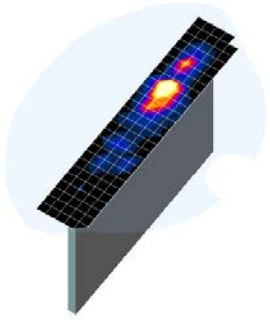


Figure 4-1
Sample SAR Area Scan

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].

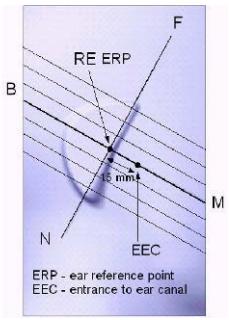


Figure 5-1
Close-Up Side view of ERP

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

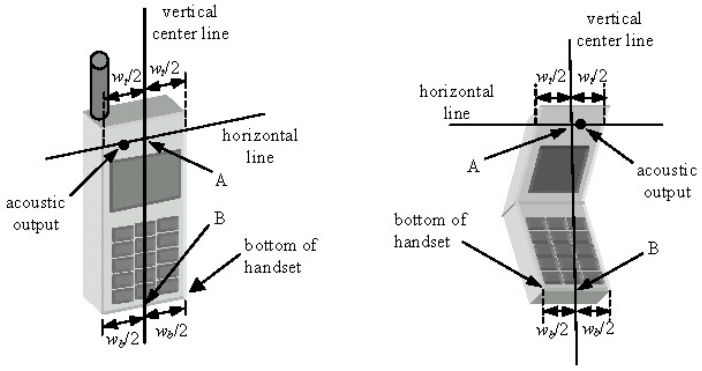


Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

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.

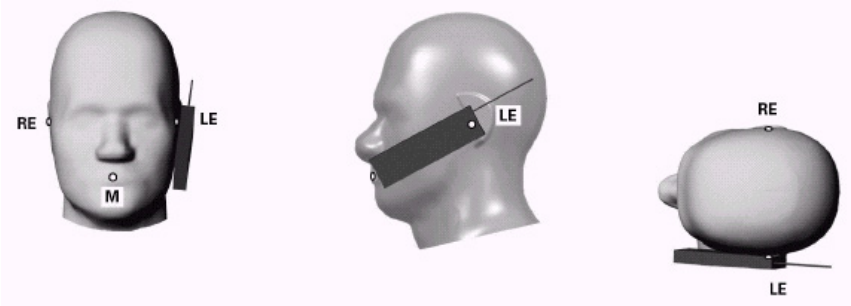


Figure 6-1 Front, Side and Top View of Cheek Position

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).

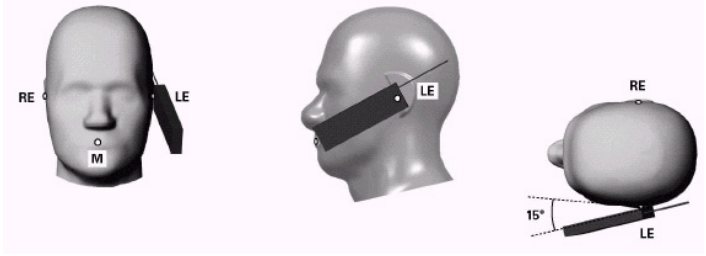


Figure 6-2 Front, Side and Top View of Ear/15º Tilt Position

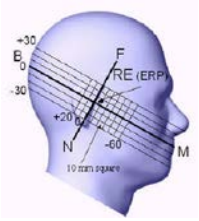


Figure 6-3
Side view w/ relevant markings

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.

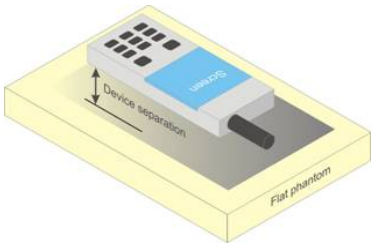


Figure 6-4
Sample Body-Worn Diagram

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	25.09	25.02	25.16	25.07	25.22	25.30	24.92
Cellular	1013	22H	824.7	24.94	25.24	25.02	24.89	25.27	25.22	25.10
	384	22H	836.52	25.15	24.95	25.27	25.14	25.19	25.04	24.88
	777	22H	848.31	24.99	25.15	25.16	25.12	25.22	25.23	25.14
PCS	25	24E	1851.25	24.82	24.64	24.70	24.87	24.99	25.04	25.00
	600	24E	1880	24.84	24.78	24.77	24.72	24.95	25.06	25.10
	1175	24E	1908.75	24.88	24.82	24.76	24.89	24.96	25.06	25.13

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	23.14	23.12	23.21	23.31	23.41	23.51	23.41
	600	24E	1880	23.29	23.31	23.45	23.13	23.38	23.60	23.69
	1175	24E	1908.75	23.33	23.35	23.25	23.31	23.38	23.67	23.66

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	26.84	26.71
	190	33.46	**33.51**	29.15	26.78	26.73
	251	33.49	**33.52**	29.26	26.81	26.90
GSM 1900	512	31.06	**31.16**	27.45	25.11	25.21
	661	31.11	**31.09**	27.31	25.17	25.16
	810	31.01	**31.00**	27.19	25.63	25.33
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	17.81	20.69
	190	24.43	**24.48**	23.13	17.75	20.71
	251	24.46	**24.49**	23.24	17.78	20.88
GSM 1900	512	22.03	**22.13**	21.43	16.08	19.19
	661	22.08	**22.06**	21.29	16.14	19.14
	810	21.98	**21.97**	21.17	16.60	19.31
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	25.23	25.33	24.94	24.99	24.97	25.20	25.09	25.06	-
99		12.2 kbps AMR	25.34	25.25	25.31	25.09	25.05	25.01	25.20	25.18	24.97	-
6	HSDPA	Subtest 1	25.16	25.40	25.35	24.91	25.05	25.04	24.92	25.00	25.07	0
6		Subtest 2	25.16	25.35	25.39	24.95	25.15	25.03	24.94	25.15	25.07	0
6		Subtest 3	24.65	24.74	24.49	24.45	24.52	24.57	24.58	24.64	24.46	0.5
6		Subtest 4	24.77	24.71	24.81	24.57	24.65	24.70	24.55	24.47	24.69	0.5
6	HSUPA	Subtest 1	25.22	25.14	25.32	24.56	24.51	24.57	24.38	24.57	24.71	0
6		Subtest 2	23.23	23.40	23.17	23.01	22.87	23.20	22.89	23.00	22.94	2
6		Subtest 3	24.35	24.14	24.42	24.01	23.84	24.12	23.90	24.08	24.07	1
6		Subtest 4	23.13	23.43	23.40	22.96	23.00	23.07	23.07	22.99	22.92	2
6		Subtest 5	25.27	25.25	25.15	24.32	24.46	24.50	24.23	24.31	24.60	0

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	23.36	23.51	23.51	23.59	23.63	23.49	-
99		12.2 kbps AMR	23.50	23.58	23.56	23.64	23.57	23.35	-
6	HSDPA	Subtest 1	23.45	23.54	23.49	23.33	23.44	23.55	0
6		Subtest 2	23.49	23.54	23.59	23.34	23.46	23.53	0
6		Subtest 3	22.98	23.15	23.15	22.97	23.09	23.01	0.5
6		Subtest 4	23.05	23.01	23.10	22.96	22.89	23.20	0.5
6	HSUPA	Subtest 1	23.13	23.05	23.00	22.81	23.00	23.14	0
6		Subtest 2	21.51	21.48	21.68	21.27	21.46	21.43	2
6		Subtest 3	22.43	22.35	22.69	22.45	22.62	22.54	1
6		Subtest 4	21.49	21.49	21.43	21.53	21.53	21.35	2
6		Subtest 5	22.65	22.93	23.04	22.73	22.74	23.10	0

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	**25.18**	0	0
	1	50	25.08		0
	1	99	25.02		0
	50	0	**24.26**	0-1	1
	50	25	24.04		1
	50	50	24.00		1
	100	0	24.22		1
16QAM	1	0	24.18	0-1	1
	1	50	23.89		1
	1	99	24.22		1
	50	0	23.06	0-2	2
	50	25	22.95		2
	50	50	23.12		2
	100	0	23.03		2
64QAM	1	0	23.12	0-2	2
	1	50	22.98		2
	1	99	22.99		2
	50	0	21.94	0-3	3
	50	25	22.11		3
	50	50	22.15		3
	100	0	21.95		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	25.09	0	0
	1	36	25.03		0
	1	74	25.00		0
	36	0	23.98	0-1	1
	36	18	24.12		1
	36	37	24.04		1
	75	0	23.95		1
16QAM	1	0	24.24	0-1	1
	1	36	24.02		1
	1	74	24.25		1
	36	0	23.22	0-2	2
	36	18	22.98		2
	36	37	23.19		2
	75	0	22.92		2
64QAM	1	0	23.12	0-2	2
	1	36	22.97		2
	1	74	23.06		2
	36	0	22.25	0-3	3
	36	18	21.99		3
	36	37	22.04		3
	75	0	22.24		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	25.24	25.03	0	0
	1	25	25.17	25.08	25.04		0
	1	49	24.99	25.23	25.32		0
	25	0	24.01	24.00	24.05	0-1	1
	25	12	24.18	24.14	23.91		1
	25	25	24.09	24.13	24.14		1
	50	0	24.10	24.03	24.11		1
16QAM	1	0	24.25	23.93	23.99	0-1	1
	1	25	23.91	24.01	24.07		1
	1	49	24.03	24.17	23.98		1
	25	0	22.99	23.14	23.13	0-2	2
	25	12	23.23	23.14	22.94		2
	25	25	23.14	23.09	22.84		2
	50	0	23.12	23.02	23.14		2
64QAM	1	0	23.16	23.26	23.04	0-2	2
	1	25	22.93	22.97	23.17		2
	1	49	23.10	23.01	23.15		2
	25	0	22.02	21.87	22.19	0-3	3
	25	12	21.99	22.08	22.22		3
	25	25	22.04	22.08	22.16		3
	50	0	22.28	22.08	22.04		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	25.11	25.25	25.07	0	0
	1	12	24.97	25.27	24.99		0
	1	24	24.95	25.00	25.04		0
	12	0	24.18	24.12	24.09	0-1	1
	12	6	24.12	24.24	24.28		1
	12	13	24.10	23.98	24.23		1
	25	0	24.09	24.19	24.26		1
16QAM	1	0	24.14	24.05	24.01	0-1	1
	1	12	23.84	23.98	24.12		1
	1	24	23.99	24.13	24.04		1
	12	0	23.06	23.03	23.05	0-2	2
	12	6	23.02	22.92	23.00		2
	12	13	23.01	23.03	23.19		2
	25	0	23.04	23.06	23.12		2
64QAM	1	0	23.02	23.26	23.20	0-2	2
	1	12	23.06	22.96	22.96		2
	1	24	23.01	22.92	23.01		2
	12	0	22.13	22.29	22.01	0-3	3
	12	6	21.99	22.14	21.97		3
	12	13	22.11	22.19	21.95		3
	25	0	22.15	22.09	22.15		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	25.22	0	0
	1	25	25.22		0
	1	49	**25.33**		0
	25	0	24.22	0-1	1
	25	12	**24.26**		1
	25	25	24.08		1
	50	0	24.24		1
16QAM	1	0	24.35	0-1	1
	1	25	24.14		1
	1	49	24.35		1
	25	0	23.22	0-2	2
	25	12	23.10		2
	25	25	22.98		2
	50	0	23.22		2
64QAM	1	0	23.21	0-2	2
	1	25	23.30		2
	1	49	23.10		2
	25	0	22.07	0-3	3
	25	12	21.87		3
	25	25	22.09		3
	50	0	22.24		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	25.07	25.00	25.36	0	0
	1	12	25.13	24.84	24.84		0
	1	24	25.09	24.98	25.21		0
	12	0	24.23	24.05	24.08	0-1	1
	12	6	24.06	24.16	24.16		1
	12	13	24.30	24.29	23.89		1
	25	0	24.12	24.16	24.16		1
16QAM	1	0	23.97	24.13	23.95	0-1	1
	1	12	23.95	24.19	24.04		1
	1	24	24.12	24.21	23.99		1
	12	0	22.93	23.21	23.12	0-2	2
	12	6	23.14	23.29	22.99		2
	12	13	23.25	23.14	22.94		2
	25	0	23.29	22.87	23.07		2
64QAM	1	0	23.19	23.21	22.90	0-2	2
	1	12	22.97	23.11	23.15		2
	1	24	23.28	23.01	23.18		2
	12	0	22.09	22.24	21.98	0-3	3
	12	6	22.13	22.22	22.02		3
	12	13	22.34	22.08	22.15		3
	25	0	22.01	21.99	22.15		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	25.19	24.99	25.13	0	0
	1	7	25.28	25.17	25.04		0
	1	14	25.34	25.01	25.03		0
	8	0	24.22	24.04	24.07	0-1	1
	8	4	24.08	24.16	24.21		1
	8	7	24.15	24.13	24.24		1
	15	0	24.07	24.27	24.07		1
16QAM	1	0	23.84	24.17	23.94	0-1	1
	1	7	24.17	24.00	24.16		1
	1	14	24.18	24.12	24.24		1
	8	0	22.98	23.18	23.10	0-2	2
	8	4	23.14	22.96	23.04		2
	8	7	23.22	22.97	23.00		2
	15	0	23.19	23.10	23.14		2
64QAM	1	0	23.26	22.97	23.10	0-2	2
	1	7	22.89	23.04	23.15		2
	1	14	22.90	23.04	23.28		2
	8	0	21.95	21.84	22.21	0-3	3
	8	4	21.96	22.29	22.19		3
	8	7	22.17	22.17	21.90		3
	15	0	22.30	22.17	21.91		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	24.87	25.19	25.16	0	0
	1	2	25.22	25.23	24.97		0
	1	5	24.96	24.92	25.31		0
	3	0	24.97	25.01	25.17		0
	3	2	25.33	25.10	24.98		0
	3	3	25.20	25.27	25.10		0
	6	0	24.03	24.21	24.12	0-1	1
16QAM	1	0	23.96	24.18	24.23	0-1	1
	1	2	23.85	24.15	24.10		1
	1	5	23.99	24.22	24.08		1
	3	0	24.15	24.19	24.16		1
	3	2	24.16	24.00	24.08		1
	3	3	24.13	24.16	24.24		1
	6	0	23.27	23.18	22.91	0-2	2
64QAM	1	0	23.05	23.00	23.16	0-2	2
	1	2	23.11	23.04	23.22		2
	1	5	22.95	23.22	23.09		2
	3	0	23.08	22.97	23.17		2
	3	2	23.06	23.33	22.98		2
	3	3	22.97	23.06	23.00		2
	6	0	22.03	22.29	22.31	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	**25.19**	0	0
	1	25	24.89		0
	1	49	25.17		0
	25	0	**24.20**	0-1	1
	25	12	23.90		1
	25	25	23.92		1
	50	0	23.98		1
16QAM	1	0	24.13	0-1	1
	1	25	24.20		1
	1	49	24.25		1
	25	0	23.30	0-2	2
	25	12	23.05		2
	25	25	23.21		2
	50	0	23.07		2
64QAM	1	0	23.01	0-2	2
	1	25	22.97		2
	1	49	22.95		2
	25	0	21.86	0-3	3
	25	12	22.30		3
	25	25	22.07		3
	50	0	21.96		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	25.27	0	0
	1	12	25.14		0
	1	24	24.94		0
	12	0	24.00	0-1	1
	12	6	24.18		1
	12	13	24.19		1
	25	0	24.27		1
16QAM	1	0	24.14	0-1	1
	1	12	24.01		1
	1	24	24.15		1
	12	0	23.08	0-2	2
	12	6	23.26		2
	12	13	23.38		2
	25	0	23.27		2
64QAM	1	0	23.16	0-2	2
	1	12	22.94		2
	1	24	23.01		2
	12	0	22.31	0-3	3
	12	6	22.33		3
	12	13	22.10		3
	25	0	21.90		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	25.14	0	0
	1	36	**25.17**		0
	1	74	24.86		0
	36	0	23.89	0-1	1
	36	18	**24.36**		1
	36	37	24.02		1
	75	0	24.29		1
16QAM	1	0	24.13	0-1	1
	1	36	24.27		1
	1	74	24.29		1
	36	0	23.32	0-2	2
	36	18	23.10		2
	36	37	23.23		2
	75	0	23.15		2
64QAM	1	0	23.17	0-2	2
	1	36	23.04		2
	1	74	22.98		2
	36	0	22.12	0-3	3
	36	18	22.02		3
	36	37	22.15		3
	75	0	22.21		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	25.06	25.15	25.23	0	0
	1	25	25.00	25.15	24.95		0
	1	49	25.29	25.23	25.03		0
	25	0	24.18	23.87	23.98	0-1	1
	25	12	23.92	24.21	23.84		1
	25	25	24.34	24.28	23.97		1
	50	0	24.19	24.21	24.33		1
16QAM	1	0	24.23	24.24	23.90	0-1	1
	1	25	24.33	24.08	24.12		1
	1	49	24.01	24.06	24.27		1
	25	0	23.30	22.94	22.88	0-2	2
	25	12	23.12	23.13	23.12		2
	25	25	23.20	23.33	23.23		2
	50	0	23.22	23.08	23.30		2
64QAM	1	0	23.15	23.17	23.03	0-2	2
	1	25	23.28	23.24	23.01		2
	1	49	23.02	23.03	23.29		2
	25	0	22.23	22.26	22.23	0-3	3
	25	12	22.07	21.96	22.04		3
	25	25	22.16	21.99	22.07		3
	50	0	22.36	22.05	22.17		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	25.15	24.99	25.09	0	0
	1	12	25.25	24.96	25.14		0
	1	24	25.14	24.93	24.99		0
	12	0	23.96	24.14	24.01	0-1	1
	12	6	23.95	24.35	24.08		1
	12	13	23.98	23.95	23.85		1
	25	0	24.07	24.05	24.00		1
16QAM	1	0	23.97	24.13	24.25	0-1	1
	1	12	24.17	24.03	24.34		1
	1	24	24.28	24.25	24.22		1
	12	0	23.08	22.97	22.99	0-2	2
	12	6	22.95	23.12	23.03		2
	12	13	23.12	23.16	22.88		2
	25	0	23.29	23.25	23.13		2
64QAM	1	0	23.18	23.09	23.18	0-2	2
	1	12	23.18	23.00	23.31		2
	1	24	22.97	23.17	23.35		2
	12	0	22.13	21.99	21.91	0-3	3
	12	6	21.99	22.28	22.38		3
	12	13	22.29	22.23	21.89		3
	25	0	22.15	22.04	22.04		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	25.05	25.04	25.01	0	0
	1	7	25.24	25.00	25.09		0
	1	14	25.14	25.08	25.25		0
	8	0	24.28	24.02	24.16	0-1	1
	8	4	24.08	23.94	24.30		1
	8	7	24.04	24.12	24.10		1
	15	0	23.92	23.97	24.16		1
16QAM	1	0	24.06	24.09	24.08	0-1	1
	1	7	24.00	23.99	24.13		1
	1	14	24.16	24.16	24.21		1
	8	0	23.10	23.07	23.09	0-2	2
	8	4	23.22	23.15	23.06		2
	8	7	23.19	23.25	23.14		2
	15	0	23.25	23.21	23.17		2
64QAM	1	0	23.17	22.99	23.25	0-2	2
	1	7	23.19	23.21	22.99		2
	1	14	23.14	22.98	22.93		2
	8	0	22.35	21.87	22.13	0-3	3
	8	4	22.03	21.96	21.93		3
	8	7	22.27	22.06	22.26		3
	15	0	22.06	22.10	22.24		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	25.18	25.02	25.03	0	0
	1	2	25.15	25.05	24.97		0
	1	5	25.00	25.34	25.33		0
	3	0	25.08	25.19	25.26		0
	3	2	25.21	25.24	25.10		0
	3	3	25.12	24.94	25.14		0
	6	0	24.21	23.97	24.17	0-1	1
16QAM	1	0	24.31	24.00	24.24	0-1	1
	1	2	23.96	24.35	24.15		1
	1	5	24.02	24.01	24.29		1
	3	0	24.24	24.13	24.25		1
	3	2	24.26	24.11	23.90		1
	3	3	24.12	24.12	23.98		1
	6	0	23.13	23.13	23.05	0-2	2
64QAM	1	0	23.22	23.21	23.07	0-2	2
	1	2	23.21	23.22	22.91		2
	1	5	23.08	23.13	22.94		2
	3	0	23.24	23.24	23.13		2
	3	2	23.06	23.09	23.14		2
	3	3	22.97	23.16	22.96		2
	6	0	22.08	22.19	22.28	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	24.78	24.78	24.89	0	0
	1	50	24.85	24.90	24.95		0
	1	99	**25.04**	24.97	24.91		0
	50	0	**24.14**	23.99	23.77	0-1	1
	50	25	23.79	24.02	24.03		1
	50	50	24.04	23.87	24.13		1
	100	0	24.06	24.10	23.76		1
16QAM	1	0	24.02	24.15	24.12	0-1	1
	1	50	23.98	24.16	23.75		1
	1	99	23.84	23.77	23.91		1
	50	0	22.76	22.84	22.90	0-2	2
	50	25	22.78	22.90	22.93		2
	50	50	23.12	22.97	23.11		2
	100	0	22.95	22.79	23.20		2
64QAM	1	0	22.81	22.71	22.83	0-2	2
	1	50	22.84	22.98	22.97		2
	1	99	22.96	22.83	22.90		2
	50	0	22.15	21.81	22.05	0-3	3
	50	25	22.12	21.94	22.10		3
	50	50	21.75	22.06	21.72		3
	100	0	21.92	22.19	22.10		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	24.87	24.95	24.88	0	0
	1	36	24.73	24.76	25.01		0
	1	74	24.81	24.86	24.95		0
	36	0	23.74	24.19	24.15	0-1	1
	36	18	24.11	23.86	24.03		1
	36	37	23.86	24.12	23.86		1
	75	0	23.84	23.84	24.08		1
16QAM	1	0	23.74	23.71	24.15	0-1	1
	1	36	23.78	23.75	24.17		1
	1	74	23.74	23.95	23.97		1
	36	0	22.92	22.87	22.75	0-2	2
	36	18	23.03	22.86	23.08		2
	36	37	22.71	23.19	22.83		2
	75	0	22.73	22.84	22.94		2
64QAM	1	0	23.02	23.05	22.71	0-2	2
	1	36	22.79	23.10	22.90		2
	1	74	22.83	22.88	23.18		2
	36	0	22.01	21.80	21.82	0-3	3
	36	18	21.76	21.93	21.96		3
	36	37	22.08	21.72	21.95		3
	75	0	21.93	21.80	22.05		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	25.02	24.84	25.04	0	0
	1	25	24.77	24.90	25.12		0
	1	49	24.77	25.13	25.06		0
	25	0	23.79	23.75	23.93	0-1	1
	25	12	24.13	23.78	23.90		1
	25	25	24.18	23.89	23.85		1
	50	0	24.12	24.14	23.87		1
16QAM	1	0	23.94	23.84	23.86	0-1	1
	1	25	23.93	24.03	23.97		1
	1	49	24.03	24.00	24.19		1
	25	0	22.71	22.82	23.01	0-2	2
	25	12	22.77	22.88	22.88		2
	25	25	22.96	22.97	23.05		2
	50	0	23.13	22.86	22.70		2
64QAM	1	0	23.17	23.07	23.04	0-2	2
	1	25	23.06	22.97	22.98		2
	1	49	22.90	23.11	23.09		2
	25	0	21.70	21.70	22.18	0-3	3
	25	12	21.72	21.96	22.13		3
	25	25	21.84	22.09	22.09		3
	50	0	21.78	21.80	22.06		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	24.77	25.14	25.11	0	0
	1	12	24.79	24.99	24.92		0
	1	24	24.87	24.80	25.20		0
	12	0	23.86	23.90	23.74	0-1	1
	12	6	24.02	24.03	24.05		1
	12	13	23.85	24.19	23.81		1
	25	0	23.88	24.05	24.09		1
16QAM	1	0	23.71	23.90	23.99	0-1	1
	1	12	24.12	24.01	24.05		1
	1	24	23.75	24.07	23.74		1
	12	0	23.15	23.01	23.03	0-2	2
	12	6	22.91	23.19	23.14		2
	12	13	22.91	23.14	22.82		2
	25	0	23.19	23.15	23.17		2
64QAM	1	0	23.01	23.01	22.73	0-2	2
	1	12	22.72	23.01	23.13		2
	1	24	23.08	23.19	22.96		2
	12	0	22.16	21.74	22.11	0-3	3
	12	6	22.03	21.80	21.79		3
	12	13	22.04	22.19	22.04		3
	25	0	21.76	21.88	21.92		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	25.08	24.88	25.10	0	0
	1	7	24.84	24.96	24.81		0
	1	14	24.85	24.73	24.92		0
	8	0	23.89	24.13	23.76	0-1	1
	8	4	23.89	24.05	24.03		1
	8	7	23.78	23.93	23.74		1
	15	0	23.85	23.82	23.89		1
16QAM	1	0	23.95	24.09	23.91	0-1	1
	1	7	24.06	23.84	23.77		1
	1	14	24.14	24.00	24.13		1
	8	0	22.84	22.70	23.11	0-2	2
	8	4	23.06	22.74	23.15		2
	8	7	22.82	23.04	22.96		2
	15	0	22.85	22.74	23.03		2
64QAM	1	0	23.06	23.17	22.91	0-2	2
	1	7	23.15	22.97	23.08		2
	1	14	22.73	22.77	22.90		2
	8	0	22.08	21.95	22.18	0-3	3
	8	4	22.09	22.09	21.89		3
	8	7	22.16	22.11	22.11		3
	15	0	21.78	22.16	21.86		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	24.97	24.75	25.12	0	0
	1	2	25.09	24.91	24.71		0
	1	5	24.73	24.83	25.16		0
	3	0	24.81	25.09	24.82		0
	3	2	25.10	24.77	24.83		0
	3	3	24.76	24.70	25.05		0
	6	0	23.85	24.17	24.16	0-1	1
16QAM	1	0	24.03	23.80	24.01	0-1	1
	1	2	23.92	24.02	24.07		1
	1	5	23.88	23.70	24.03		1
	3	0	24.12	23.80	24.15		1
	3	2	23.85	24.10	24.07		1
	3	3	23.79	24.03	23.86		1
	6	0	22.77	22.96	23.13	0-2	2
64QAM	1	0	22.90	23.06	23.15	0-2	2
	1	2	23.18	23.00	22.74		2
	1	5	22.94	22.74	22.75		2
	3	0	22.89	23.07	22.87		2
	3	2	23.12	23.18	22.72		2
	3	3	23.16	23.05	22.99		2
	6	0	21.88	21.80	21.99	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	23.34	23.33	23.42	0	0
	1	50	23.19	**23.53**	23.51		0
	1	99	23.49	23.46	23.39		0
	50	0	23.14	23.34	23.50	0-1	0
	50	25	23.23	23.14	23.46		0
	50	50	23.37	**23.58**	23.39		0
	100	0	23.14	23.38	23.42		0
16QAM	1	0	23.38	23.10	23.57	0-1	0
	1	50	23.46	23.36	23.54		0
	1	99	23.19	23.25	23.46		0
	50	0	22.40	22.15	22.26	0-2	1
	50	25	22.58	22.23	22.35		1
	50	50	22.59	22.37	22.48		1
	100	0	22.06	22.52	22.16		1
64QAM	1	0	22.09	22.40	22.13	0-2	1
	1	50	22.22	22.21	22.30		1
	1	99	22.03	22.11	22.21		1
	50	0	21.39	21.33	21.43	0-3	2
	50	25	21.54	21.34	21.22		2
	50	50	21.39	21.19	21.38		2
	100	0	21.43	21.48	21.13		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	23.21	23.30	23.24	0	0
	1	36	23.26	23.32	23.29		0
	1	74	23.21	23.42	23.45		0
	36	0	23.37	23.41	23.14	0-1	0
	36	18	23.41	23.63	23.32		0
	36	37	23.40	23.34	23.40		0
	75	0	23.37	23.04	23.33		0
16QAM	1	0	23.45	23.10	23.45	0-1	0
	1	36	23.47	23.32	23.15		0
	1	74	23.37	23.30	23.19		0
	36	0	22.18	22.33	22.44	0-2	1
	36	18	22.20	22.15	22.20		1
	36	37	22.23	22.24	22.32		1
	75	0	22.32	22.17	22.38		1
64QAM	1	0	22.31	22.53	22.54	0-2	1
	1	36	22.19	22.48	22.43		1
	1	74	22.28	22.49	22.06		1
	36	0	21.27	21.20	21.14	0-3	2
	36	18	21.29	21.28	21.17		2
	36	37	21.25	21.33	21.48		2
	75	0	21.40	21.20	21.35		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	23.51	23.64	23.08	0	0
	1	25	23.27	23.46	23.62		0
	1	49	23.22	23.38	23.33		0
	25	0	23.40	23.44	23.55	0-1	0
	25	12	23.52	23.51	23.26		0
	25	25	23.43	23.26	23.14		0
	50	0	23.51	23.11	23.39		0
16QAM	1	0	23.64	23.26	23.39	0-1	0
	1	25	23.45	23.25	23.12		0
	1	49	23.35	23.23	23.42		0
	25	0	22.43	22.26	22.34	0-2	1
	25	12	22.29	22.41	22.21		1
	25	25	22.24	22.22	22.54		1
	50	0	22.29	22.62	22.38		1
64QAM	1	0	22.05	22.20	22.32	0-2	1
	1	25	22.59	22.38	22.47		1
	1	49	22.26	22.08	22.29		1
	25	0	21.21	21.34	21.48	0-3	2
	25	12	21.54	21.50	21.55		2
	25	25	21.51	21.13	21.45		2
	50	0	21.31	21.47	21.55		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	23.26	23.26	23.40	0	0
	1	12	23.47	23.58	23.06		0
	1	24	23.36	23.30	23.12		0
	12	0	23.13	23.16	23.60	0-1	0
	12	6	23.46	23.36	23.21		0
	12	13	23.25	23.44	23.55		0
	25	0	23.49	23.20	23.35		0
16QAM	1	0	23.36	23.45	23.54	0-1	0
	1	12	23.51	23.38	23.54		0
	1	24	23.62	23.57	23.23		0
	12	0	22.30	22.33	22.26	0-2	1
	12	6	22.43	22.12	22.47		1
	12	13	22.29	22.52	22.37		1
	25	0	22.40	22.48	22.56		1
64QAM	1	0	22.24	22.48	22.25	0-2	1
	1	12	22.16	22.16	22.37		1
	1	24	22.34	22.46	22.16		1
	12	0	21.45	21.44	21.17	0-3	2
	12	6	21.36	21.56	21.41		2
	12	13	21.35	21.30	21.27		2
	25	0	21.39	21.22	21.32		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	23.51	23.31	23.47	0	0
	1	7	23.17	23.25	23.23		0
	1	14	23.23	23.55	23.17		0
	8	0	23.11	23.53	23.29	0-1	0
	8	4	23.40	23.11	23.55		0
	8	7	23.45	23.30	23.50		0
	15	0	23.27	23.47	23.29		0
16QAM	1	0	23.29	23.43	23.46	0-1	0
	1	7	23.43	23.43	23.41		0
	1	14	23.18	23.40	23.16		0
	8	0	22.27	22.26	22.38	0-2	1
	8	4	22.33	22.23	22.37		1
	8	7	22.37	22.28	22.60		1
	15	0	22.32	22.14	22.62		1
64QAM	1	0	22.19	22.35	22.28	0-2	1
	1	7	22.47	22.42	22.47		1
	1	14	22.20	22.45	22.03		1
	8	0	21.54	21.63	21.25	0-3	2
	8	4	21.54	21.47	21.46		2
	8	7	21.64	21.44	21.40		2
	15	0	21.13	21.21	21.50		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	23.41	23.57	23.49	0	0
	1	2	23.20	23.61	23.34		0
	1	5	23.28	23.54	23.38		0
	3	0	23.52	23.39	23.41		0
	3	2	23.41	23.51	23.39		0
	3	3	23.47	23.23	23.30		0
	6	0	23.16	23.56	23.31	0-1	0
16QAM	1	0	23.28	23.54	23.19	0-1	0
	1	2	23.52	23.48	23.50		0
	1	5	23.39	23.47	23.30		0
	3	0	23.20	23.08	23.18		0
	3	2	23.31	23.37	23.49		0
	3	3	23.39	23.39	23.13		0
	6	0	22.29	22.52	22.43	0-2	1
64QAM	1	0	22.23	22.21	22.16	0-2	1
	1	2	22.21	22.24	22.40		1
	1	5	22.09	22.12	22.20		1
	3	0	22.28	22.50	22.49		1
	3	2	22.15	22.36	22.18		1
	3	3	22.50	22.41	22.32		1
	6	0	21.15	21.27	21.46	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	24.78	**25.10**	24.76	0	0
	1	50	25.01	24.90	24.97		0
	1	99	24.71	24.94	25.05		0
	50	0	24.08	23.87	23.79	0-1	1
	50	25	24.14	**24.16**	23.92		1
	50	50	23.98	23.79	23.72		1
	100	0	24.13	23.86	23.87		1
16QAM	1	0	23.81	23.94	24.14	0-1	1
	1	50	23.80	24.17	23.93		1
	1	99	24.03	24.17	23.87		1
	50	0	23.06	23.05	23.09	0-2	2
	50	25	23.05	23.06	23.12		2
	50	50	22.75	23.17	22.76		2
	100	0	22.84	23.16	23.13		2
64QAM	1	0	22.96	23.14	23.19	0-2	2
	1	50	22.82	22.70	23.03		2
	1	99	23.03	23.12	22.88		2
	50	0	21.97	21.94	21.82	0-3	3
	50	25	21.95	22.13	21.82		3
	50	50	21.73	21.89	21.80		3
	100	0	21.74	21.73	22.00		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	24.78	25.17	25.02	0	0
	1	36	24.97	25.07	25.19		0
	1	74	24.87	24.77	25.07		0
	36	0	24.14	23.82	23.79	0-1	1
	36	18	23.90	23.79	24.15		1
	36	37	24.15	24.06	23.97		1
	75	0	23.73	24.19	24.08		1
16QAM	1	0	23.72	24.05	24.11	0-1	1
	1	36	23.73	23.83	24.13		1
	1	74	23.92	23.86	23.87		1
	36	0	23.04	23.02	23.10	0-2	2
	36	18	23.18	22.73	22.90		2
	36	37	23.17	22.98	23.17		2
	75	0	22.95	23.07	22.88		2
64QAM	1	0	22.93	23.08	23.11	0-2	2
	1	36	22.92	22.85	23.19		2
	1	74	23.18	22.84	23.13		2
	36	0	22.03	22.15	21.87	0-3	3
	36	18	21.99	21.87	21.81		3
	36	37	22.07	21.85	21.93		3
	75	0	22.03	22.03	22.06		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	25.09	24.83	24.77	0	0
	1	25	24.87	24.87	24.90		0
	1	49	24.79	24.92	25.11		0
	25	0	23.96	24.19	23.95	0-1	1
	25	12	23.80	23.99	23.76		1
	25	25	24.18	23.96	24.16		1
	50	0	23.91	24.16	23.76		1
16QAM	1	0	24.09	23.79	23.75	0-1	1
	1	25	24.08	23.80	23.72		1
	1	49	23.86	23.90	23.74		1
	25	0	23.15	22.91	23.07	0-2	2
	25	12	22.85	23.19	23.13		2
	25	25	23.04	23.18	23.08		2
	50	0	22.90	23.02	22.80		2
64QAM	1	0	22.81	23.08	22.83	0-2	2
	1	25	22.80	22.73	23.20		2
	1	49	22.90	23.00	22.77		2
	25	0	21.88	22.18	21.83	0-3	3
	25	12	21.89	22.00	21.92		3
	25	25	21.86	22.10	22.06		3
	50	0	22.12	22.15	22.16		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	24.88	25.11	0	0
	1	12	25.06	25.15	25.05		0
	1	24	24.73	24.91	24.78		0
	12	0	23.78	24.18	24.14	0-1	1
	12	6	23.75	23.98	23.74		1
	12	13	23.87	23.79	24.06		1
	25	0	23.91	24.10	23.87		1
16QAM	1	0	23.79	23.75	23.99	0-1	1
	1	12	23.77	23.77	23.97		1
	1	24	23.76	23.76	23.82		1
	12	0	23.07	23.06	23.13	0-2	2
	12	6	22.94	22.82	23.08		2
	12	13	23.02	22.95	22.85		2
	25	0	22.88	22.86	23.13		2
64QAM	1	0	23.16	22.77	22.75	0-2	2
	1	12	23.13	23.01	22.73		2
	1	24	22.93	23.04	23.12		2
	12	0	21.75	21.92	22.14	0-3	3
	12	6	21.78	22.13	22.13		3
	12	13	22.15	21.89	22.19		3
	25	0	22.09	21.86	22.08		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	24.73	24.79	24.91	0	0
	1	7	24.93	24.70	25.11		0
	1	14	24.79	24.92	25.01		0
	8	0	23.78	24.12	23.75	0-1	1
	8	4	24.18	24.09	23.93		1
	8	7	23.72	23.86	23.75		1
	15	0	24.12	24.16	24.03		1
16QAM	1	0	23.78	24.20	23.91	0-1	1
	1	7	23.92	23.71	23.82		1
	1	14	23.82	24.03	23.95		1
	8	0	22.98	22.96	22.80	0-2	2
	8	4	22.83	22.85	22.95		2
	8	7	23.00	23.16	23.04		2
	15	0	22.80	23.01	23.17		2
64QAM	1	0	23.13	22.87	23.13	0-2	2
	1	7	22.97	23.14	22.99		2
	1	14	22.76	23.09	23.00		2
	8	0	22.13	21.73	22.03	0-3	3
	8	4	21.90	21.98	21.85		3
	8	7	22.08	21.87	22.02		3
	15	0	22.10	22.11	21.75		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	24.81	24.80	24.90	0	0
	1	2	24.83	24.78	24.84		0
	1	5	24.81	24.86	24.83		0
	3	0	25.16	24.75	25.11		0
	3	2	24.82	24.76	25.14		0
	3	3	24.89	25.16	25.00		0
	6	0	23.89	24.18	24.19	0-1	1
16QAM	1	0	24.02	23.73	23.85	0-1	1
	1	2	23.95	24.03	23.77		1
	1	5	24.02	23.74	23.94		1
	3	0	23.71	23.93	23.93		1
	3	2	23.85	24.08	23.81		1
	3	3	23.80	24.07	23.86		1
	6	0	23.20	22.89	22.85	0-2	2
64QAM	1	0	22.82	22.85	22.97	0-2	2
	1	2	22.86	23.07	22.92		2
	1	5	23.16	23.11	22.73		2
	3	0	22.70	23.05	22.93		2
	3	2	22.89	22.79	22.76		2
	3	3	22.71	22.72	22.70		2
	6	0	21.91	22.08	21.93	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	23.63	23.50	23.34	0	0
	1	50	23.38	23.33	23.46		0
	1	99	23.56	23.25	**23.66**		0
	50	0	23.40	23.40	**23.58**	0-1	0
	50	25	23.11	23.17	23.39		0
	50	50	23.48	23.25	23.21		0
	100	0	23.55	23.50	23.45		0
16QAM	1	0	23.41	23.31	23.44	0-1	0
	1	50	23.25	23.28	23.20		0
	1	99	23.08	23.61	23.37		0
	50	0	22.43	22.37	22.24	0-2	1
	50	25	22.39	22.11	22.30		1
	50	50	22.61	22.62	22.56		1
	100	0	22.32	22.37	22.32		1
64QAM	1	0	22.44	22.18	22.44	0-2	1
	1	50	22.51	22.16	22.11		1
	1	99	22.18	22.49	22.37		1
	50	0	21.48	21.39	21.21	0-3	2
	50	25	21.08	21.28	21.27		2
	50	50	21.59	21.51	21.37		2
	100	0	21.12	21.21	21.37		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	23.33	23.13	23.22	0	0
	1	36	23.18	23.47	23.20		0
	1	74	23.36	23.50	23.57		0
	36	0	23.22	23.58	23.47	0-1	0
	36	18	23.05	23.25	23.14		0
	36	37	23.13	23.47	23.47		0
	75	0	23.21	23.40	23.20		0
16QAM	1	0	23.38	23.45	23.22	0-1	0
	1	36	23.25	23.29	23.57		0
	1	74	23.49	23.28	23.59		0
	36	0	22.14	22.37	22.29	0-2	1
	36	18	22.20	22.60	22.30		1
	36	37	22.27	22.44	22.48		1
	75	0	22.05	22.45	22.43		1
64QAM	1	0	22.23	22.16	22.24	0-2	1
	1	36	22.26	22.10	22.33		1
	1	74	22.35	22.18	22.40		1
	36	0	21.47	21.60	21.17	0-3	2
	36	18	21.15	21.31	21.48		2
	36	37	21.47	21.27	21.48		2
	75	0	21.27	21.19	21.20		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	23.38	23.20	23.32	0	0
	1	25	23.29	23.29	23.56		0
	1	49	23.19	23.22	23.09		0
	25	0	23.46	23.21	23.38	0-1	0
	25	12	23.27	23.61	23.22		0
	25	25	23.20	23.29	23.50		0
	50	0	23.45	23.32	23.44		0
16QAM	1	0	23.43	23.43	23.19	0-1	0
	1	25	23.13	23.58	23.32		0
	1	49	23.09	23.28	23.30		0
	25	0	22.38	22.17	22.27	0-2	1
	25	12	22.07	22.50	22.41		1
	25	25	22.40	22.29	22.12		1
	50	0	22.24	22.54	22.21		1
64QAM	1	0	22.21	22.22	22.50	0-2	1
	1	25	22.66	22.26	22.31		1
	1	49	22.47	22.08	22.16		1
	25	0	21.54	21.13	21.33	0-3	2
	25	12	21.32	21.34	21.54		2
	25	25	21.08	21.49	21.25		2
	50	0	21.53	21.56	21.15		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	23.51	23.16	23.17	0	0
	1	12	23.41	23.36	23.50		0
	1	24	23.36	23.33	23.44		0
	12	0	23.22	23.37	23.40	0-1	0
	12	6	23.66	23.14	23.19		0
	12	13	23.02	23.10	23.12		0
	25	0	23.47	23.38	23.45		0
16QAM	1	0	23.17	23.60	23.15	0-1	0
	1	12	23.21	23.61	23.24		0
	1	24	23.35	23.30	23.11		0
	12	0	22.65	22.15	22.13	0-2	1
	12	6	22.41	22.39	22.31		1
	12	13	22.23	22.24	22.35		1
	25	0	22.39	22.18	22.25		1
64QAM	1	0	22.10	22.18	22.29	0-2	1
	1	12	22.36	22.57	22.44		1
	1	24	22.09	22.39	22.49		1
	12	0	21.40	21.61	21.33	0-3	2
	12	6	21.39	21.24	21.38		2
	12	13	21.35	21.28	21.54		2
	25	0	21.22	21.23	21.11		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	23.18	23.48	23.46	0	0
	1	7	23.20	23.28	23.49		0
	1	14	23.44	23.13	23.60		0
	8	0	23.32	23.20	23.38	0-1	0
	8	4	23.34	23.58	23.38		0
	8	7	23.18	23.26	23.28		0
	15	0	23.22	23.28	23.12		0
16QAM	1	0	23.32	23.44	23.44	0-1	0
	1	7	23.38	23.58	23.37		0
	1	14	23.19	23.21	23.49		0
	8	0	22.06	22.40	22.22	0-2	1
	8	4	22.48	22.19	22.29		1
	8	7	22.26	22.29	22.40		1
	15	0	22.17	22.18	22.12		1
64QAM	1	0	22.17	22.54	22.37	0-2	1
	1	7	22.12	22.37	22.27		1
	1	14	22.20	22.52	22.08		1
	8	0	21.20	21.61	21.21	0-3	2
	8	4	21.25	21.45	21.13		2
	8	7	21.40	21.62	21.51		2
	15	0	21.28	21.53	21.55		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	23.49	23.53	23.54	0	0
	1	2	23.36	23.15	23.14		0
	1	5	23.54	23.14	23.46		0
	3	0	23.48	23.59	23.21		0
	3	2	23.59	23.45	23.32		0
	3	3	23.17	23.18	23.27		0
	6	0	23.43	23.60	23.28	0-1	0
16QAM	1	0	23.32	23.13	23.35	0-1	0
	1	2	23.06	23.26	23.46		0
	1	5	23.10	23.33	23.17		0
	3	0	23.16	23.33	23.54		0
	3	2	23.25	23.53	23.23		0
	3	3	23.31	23.38	23.34		0
	6	0	22.48	22.11	22.55	0-2	1
64QAM	1	0	22.06	22.51	22.24	0-2	1
	1	2	22.53	22.48	22.40		1
	1	5	22.14	22.50	22.40		1
	3	0	22.51	22.45	22.27		1
	3	2	22.37	22.50	22.32		1
	3	3	22.42	22.20	22.23		1
	6	0	21.25	21.22	21.56	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	24.65	24.62	**25.08**	24.74	24.65	0	0
	1	50	24.64	24.96	24.73	24.74	24.75		0
	1	99	24.84	24.86	24.68	24.75	24.78		0
	50	0	23.70	**24.09**	23.70	23.64	23.80	0-1	1
	50	25	23.86	23.65	23.71	23.78	24.04		1
	50	50	23.69	23.63	23.92	23.75	23.70		1
	100	0	23.96	23.71	23.79	23.73	23.94		1
16QAM	1	0	23.86	23.73	23.73	23.70	23.94	0-1	1
	1	50	23.92	23.88	23.79	23.63	23.64		1
	1	99	23.97	23.72	23.62	23.77	23.76		1
	50	0	22.64	22.82	22.73	22.84	22.70	0-2	2
	50	25	22.67	22.77	22.60	22.67	22.91		2
	50	50	22.87	22.85	22.99	22.56	23.00		2
	100	0	23.02	22.93	22.67	22.67	23.03		2
64QAM	1	0	22.64	22.86	23.05	22.96	22.90	0-2	2
	1	50	22.87	22.90	22.87	22.66	22.83		2
	1	99	22.83	22.75	22.94	22.78	22.89		2
	50	0	21.82	21.76	21.78	21.92	21.72	0-3	3
	50	25	21.69	21.75	21.98	22.01	21.65		3
	50	50	21.75	22.01	21.73	21.85	21.95		3
	100	0	21.86	21.65	21.82	21.88	21.65		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	24.92	24.84	24.73	24.76	24.84	0	0
	1	36	24.97	24.73	24.82	24.74	24.81		0
	1	74	25.04	24.93	24.96	25.06	25.01		0
	36	0	23.77	23.82	23.97	23.66	23.80	0-1	1
	36	18	23.88	23.92	23.59	23.68	23.80		1
	36	37	23.93	23.71	23.87	23.74	23.93		1
	75	0	23.94	24.04	23.76	23.54	23.85		1
16QAM	1	0	23.85	23.93	23.83	23.67	23.84	0-1	1
	1	36	23.94	23.96	23.95	23.98	23.94		1
	1	74	23.88	23.94	23.67	23.83	23.86		1
	36	0	22.77	22.93	22.71	23.06	22.78	0-2	2
	36	18	22.63	22.59	23.02	22.61	22.70		2
	36	37	22.73	22.86	22.71	22.97	22.69		2
	75	0	22.82	22.82	22.94	22.59	23.00		2
64QAM	1	0	22.88	22.84	22.66	23.00	22.84	0-2	2
	1	36	22.89	22.84	22.88	22.95	22.74		2
	1	74	22.85	22.69	22.75	22.86	22.89		2
	36	0	21.74	22.05	21.76	21.87	21.78	0-3	3
	36	18	21.90	21.74	21.71	21.76	21.93		3
	36	37	21.87	21.63	21.69	21.69	21.75		3
	75	0	21.64	21.71	21.82	21.64	21.81		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	24.92	24.74	24.71	24.57	25.01	0	0
	1	25	24.76	24.75	24.60	24.70	24.94		0
	1	49	24.66	24.97	24.60	24.66	24.92		0
	25	0	23.90	23.75	23.84	23.82	23.96	0-1	1
	25	12	23.77	23.88	23.80	23.66	23.72		1
	25	25	24.03	23.76	23.87	23.67	23.96		1
	50	0	23.65	23.87	23.78	24.05	23.61		1
16QAM	1	0	24.00	23.73	24.02	23.91	24.00	0-1	1
	1	25	23.60	23.89	23.71	23.66	23.99		1
	1	49	23.92	23.99	23.81	23.80	23.76		1
	25	0	22.87	22.88	22.91	22.74	22.96	0-2	2
	25	12	22.62	22.88	22.98	22.81	22.72		2
	25	25	22.60	22.65	22.93	22.94	22.67		2
	50	0	22.83	22.86	22.83	22.94	22.79		2
64QAM	1	0	22.71	22.85	22.95	23.02	22.85	0-2	2
	1	25	22.79	22.73	23.01	22.91	22.69		2
	1	49	22.55	22.72	22.68	22.72	22.79		2
	25	0	21.73	21.65	21.69	21.92	21.64	0-3	3
	25	12	21.89	21.76	21.82	22.04	21.67		3
	25	25	21.85	21.73	21.92	21.77	22.03		3
	50	0	21.66	21.76	21.98	21.70	22.00		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	24.88	24.90	24.71	24.83	24.72	0	0
	1	12	24.79	24.66	24.65	24.66	24.75		0
	1	24	24.99	24.85	24.74	24.79	24.89		0
	12	0	23.72	23.67	23.71	23.72	23.96	0-1	1
	12	6	23.66	24.02	23.95	23.75	23.70		1
	12	13	23.70	23.73	23.56	23.93	23.94		1
	25	0	23.76	23.66	23.75	23.67	23.94		1
16QAM	1	0	23.97	23.69	23.68	23.87	23.56	0-1	1
	1	12	23.69	23.88	23.88	23.87	23.94		1
	1	24	23.76	23.73	23.90	23.63	23.98		1
	12	0	22.68	23.04	22.79	22.94	22.86	0-2	2
	12	6	23.04	22.99	22.78	22.78	22.62		2
	12	13	22.87	23.02	22.72	22.98	22.66		2
	25	0	22.63	22.93	22.92	23.03	22.89		2
64QAM	1	0	22.87	22.88	22.91	22.91	22.88	0-2	2
	1	12	22.95	22.97	22.73	22.97	22.65		2
	1	24	22.87	22.88	22.69	22.95	22.97		2
	12	0	21.90	21.85	21.93	21.80	21.66	0-3	3
	12	6	21.59	21.96	21.89	21.70	21.74		3
	12	13	21.70	21.69	21.61	21.99	21.87		3
	25	0	21.69	21.92	21.86	21.61	21.73		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	27.20	27.17	27.31	27.52	27.35	0	0
	1	50	27.41	27.39	27.48	27.36	27.49		0
	1	99	27.28	27.54	27.34	27.43	27.18		0
	50	0	26.20	26.20	26.25	26.27	26.35	0-1	1
	50	25	26.28	26.18	26.35	26.12	26.39		1
	50	50	26.35	26.21	26.44	26.51	26.28		1
	100	0	26.50	26.16	26.47	26.31	26.20		1
16QAM	1	0	26.37	26.36	26.23	26.18	26.33	0-1	1
	1	50	26.12	26.48	26.28	26.20	26.05		1
	1	99	26.15	26.49	26.19	26.21	26.27		1
	50	0	25.16	25.56	25.49	25.45	25.15	0-2	2
	50	25	25.45	25.50	25.08	25.11	25.44		2
	50	50	25.49	25.44	25.22	25.54	25.42		2
	100	0	25.41	25.33	25.36	25.28	25.45		2
64QAM	1	0	25.54	25.29	25.38	25.25	25.36	0-2	2
	1	50	25.34	25.21	25.13	25.32	25.40		2
	1	99	25.35	25.35	25.50	25.40	25.14		2
	50	0	24.26	24.31	24.25	24.33	24.15	0-3	3
	50	25	24.36	24.42	24.51	24.20	24.47		3
	50	50	24.33	24.15	24.19	24.23	24.53		3
	100	0	24.31	24.44	24.29	24.21	24.34		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	27.34	27.42	27.42	27.44	27.37	0	0
	1	36	27.24	27.55	27.47	27.38	27.39		0
	1	74	27.24	27.40	27.15	27.34	27.10		0
	36	0	26.14	26.36	26.31	26.41	26.31	0-1	1
	36	18	26.19	26.27	26.19	26.46	26.58		1
	36	37	26.46	26.49	26.48	26.51	26.46		1
	75	0	26.09	26.46	26.15	26.11	26.33		1
16QAM	1	0	26.21	26.46	26.39	26.19	26.25	0-1	1
	1	36	26.29	26.47	26.41	26.22	26.46		1
	1	74	26.24	26.50	26.42	26.40	26.16		1
	36	0	25.18	25.43	25.12	25.52	25.28	0-2	2
	36	18	25.47	25.25	25.37	25.05	25.38		2
	36	37	25.48	25.41	25.29	25.54	25.54		2
	75	0	25.20	25.31	25.18	25.15	25.30		2
64QAM	1	0	25.28	25.16	25.36	25.40	25.36	0-2	2
	1	36	25.21	25.10	25.41	25.21	25.18		2
	1	74	25.14	25.50	25.40	25.55	25.12		2
	36	0	24.42	24.38	24.28	24.25	24.27	0-3	3
	36	18	24.30	24.19	24.46	24.42	24.50		3
	36	37	24.29	24.41	24.23	24.42	24.44		3
	75	0	24.13	24.24	24.46	24.25	24.45		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	27.38	27.47	27.37	27.49	27.30	0	0
	1	25	27.17	27.21	27.43	27.26	27.33		0
	1	49	27.34	27.20	27.15	27.42	27.45		0
	25	0	26.43	26.42	26.46	26.18	26.43	0-1	1
	25	12	26.16	26.30	26.27	26.41	26.38		1
	25	25	26.25	26.09	26.32	26.09	26.08		1
	50	0	26.25	26.37	26.41	26.37	26.25		1
16QAM	1	0	26.10	26.25	26.46	26.36	26.12	0-1	1
	1	25	26.25	26.18	26.25	26.27	26.20		1
	1	49	26.29	26.25	26.37	26.34	26.51		1
	25	0	25.32	25.59	25.32	25.21	25.38	0-2	2
	25	12	25.48	25.50	25.16	25.35	25.15		2
	25	25	25.53	25.34	25.57	25.53	25.37		2
	50	0	25.23	25.21	25.36	25.38	25.48		2
64QAM	1	0	25.43	25.15	25.35	25.46	25.20	0-2	2
	1	25	25.14	25.52	25.36	25.44	25.50		2
	1	49	25.49	25.13	25.17	25.07	25.33		2
	25	0	24.39	24.47	24.42	24.20	24.04	0-3	3
	25	12	24.52	24.40	24.20	24.29	24.10		3
	25	25	24.20	24.34	24.41	24.38	24.47		3
	50	0	24.20	24.35	24.25	24.19	24.27		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	27.33	27.08	27.15	27.31	27.43	0	0
	1	12	27.51	27.35	27.41	27.12	27.45		0
	1	24	27.48	27.31	27.13	27.38	27.55		0
	12	0	26.28	26.09	26.12	26.27	26.21	0-1	1
	12	6	26.30	26.33	26.15	26.42	26.24		1
	12	13	26.32	26.36	26.07	26.27	26.17		1
	25	0	26.14	26.31	26.27	26.28	26.27		1
16QAM	1	0	26.44	26.13	26.53	26.23	26.29	0-1	1
	1	12	26.34	26.39	26.10	26.46	26.12		1
	1	24	26.39	26.53	26.16	26.30	26.42		1
	12	0	25.41	25.09	25.42	25.06	25.30	0-2	2
	12	6	25.47	25.25	25.26	25.18	25.33		2
	12	13	25.29	25.28	25.46	25.48	25.18		2
	25	0	25.22	25.11	25.38	25.31	25.42		2
64QAM	1	0	25.13	25.39	25.45	25.21	25.19	0-2	2
	1	12	25.32	25.19	25.49	25.34	25.26		2
	1	24	25.42	25.19	25.38	25.45	25.29		2
	12	0	24.18	24.30	24.14	24.43	24.20	0-3	3
	12	6	24.24	24.29	24.30	24.18	24.35		3
	12	13	24.21	24.46	24.34	24.15	24.09		3
	25	0	24.37	24.35	24.32	24.22	24.46		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	21.22	21.62	21.69	21.60	21.38	0-3	3
	1	1	22.74	22.90	23.07	23.10	22.80	0-1.5	1.5
	1	81	22.20	22.69	22.77	22.84	22.69		1.5
	1	160	22.03	22.93	22.74	22.91	22.66		1.5
	1	161	20.52	21.19	21.28	21.29	21.20	0-3	3
	81	0	21.15	21.40	21.54	21.61	21.16		3
	81	40	22.46	22.90	22.87	22.88	22.69	0-1.5	1.5
	81	81	20.84	21.47	21.32	21.41	21.22	0-3	3
	162	0	21.02	21.33	21.43	21.62	21.24		3
CP-OFDM 16QAM	1	0	21.67	20.94	20.94	20.79	21.52	0-3	3
	1	81	22.15	22.70	22.66	22.70	22.25	0-2	2
	1	161	21.04	21.40	21.56	21.62	21.45	0-3	3
	81	0	21.18	21.61	21.64	21.44	21.21		3
	81	40	21.91	22.39	22.58	22.51	22.18	0-2	2
	81	81	20.80	21.39	21.50	21.51	21.13	0-3	3
	162	0	20.94	21.47	21.53	21.62	21.17		3
CP-OFDM 64QAM	1	0	20.68	20.75	20.93	20.98	21.07	0-3.5	3.5
	1	81	20.16	20.80	21.05	21.04	20.68		3.5
	1	161	20.04	21.15	20.98	21.00	20.95		3.5
	81	0	20.62	21.17	21.13	21.13	20.72		3.5
	81	40	20.50	20.76	20.98	21.11	20.67		3.5
	81	81	20.31	21.00	21.00	21.09	20.66		3.5
	162	0	20.45	21.09	21.08	21.00	20.77		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	21.18	21.62	21.69	21.60	21.26	0-3	3
	1	1	22.78	22.52	22.75	22.71	22.72	0-1.5	1.5
	1	52	22.39	22.72	22.66	22.64	22.84		1.5
	1	104	22.14	22.47	22.54	22.48	22.83		1.5
	1	105	20.70	21.49	21.51	21.50	21.31	0-3	3
	53	0	21.30	20.80	20.85	20.99	21.52		3
	53	26	22.71	22.73	22.82	22.77	22.78	0-1.5	1.5
	53	53	21.00	20.82	20.80	21.03	21.45	0-3	3
	106	0	21.11	20.99	20.84	20.59	21.52		3
CP-OFDM 16QAM	1	0	21.70	21.51	21.30	21.53	20.73	0-3	3
	1	52	22.42	21.97	22.14	22.10	22.60	0-2	2
	1	105	21.21	21.13	21.06	21.14	20.87	0-3	3
	53	0	21.27	20.71	20.86	20.85	21.41		3
	53	26	22.09	21.77	21.77	21.66	22.41	0-2	2
	53	53	20.95	21.65	21.70	21.51	21.44	0-3	3
	106	0	21.11	20.81	20.84	20.93	21.51		3
CP-OFDM 64QAM	1	0	20.72	20.77	20.78	20.70	20.81	0-3.5	3.5
	1	52	20.41	20.45	20.61	20.63	20.81		3.5
	1	105	20.26	20.40	20.52	20.50	20.88		3.5
	53	0	20.93	20.86	20.92	20.89	21.04		3.5
	53	26	20.72	20.89	20.86	20.86	20.96		3.5
	53	53	20.45	20.87	20.81	20.66	21.06		3.5
	106	0	20.61	20.74	20.78	20.55	21.05		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	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			505200 (2526.00 MHz)	511902 (2559.51 MHz)	518598 (2592.99 MHz)	525300 (2626.5 MHz)	531996 (2659.98 MHz)		
			Conducted Power [dBm]						
CP-OFDM QPSK	1	0	14.96	14.56	14.57	14.69	15.06	0-3	3
	1	1	16.31	16.55	**16.65**	16.63	16.00	0-1.5	1.5
	1	81	16.53	16.40	16.20	16.16	16.64		1.5
	1	160	16.37	15.99	16.15	15.98	16.09		1.5
	1	161	15.32	15.03	15.12	15.22	14.78	0-3	3
	81	0	14.91	15.25	15.31	15.36	15.00		3
	81	40	16.51	16.23	**16.55**	16.13	15.95	0-1.5	1.5
	81	81	14.64	15.34	15.17	14.97	14.90	0-3	3
	162	0	14.79	15.13	15.21	15.13	14.95		3
CP-OFDM 16QAM	1	0	14.45	14.98	14.72	14.59	14.48	0-3	3
	1	81	15.87	16.14	16.40	16.03	16.05	0-2	2
	1	161	14.82	15.02	15.16	15.23	15.35	0-3	3
	81	0	14.91	15.21	15.38	15.22	15.07		3
	81	40	15.73	16.20	16.31	16.03	15.96	0-2	2
	81	81	14.65	15.30	15.10	15.11	14.89	0-3	3
	162	0	14.76	15.35	15.27	15.20	14.90		3
CP-OFDM 64QAM	1	0	14.01	14.70	14.78	14.13	14.04	0-3.5	3.5
	1	81	14.51	14.30	14.36	14.29	14.62		3.5
	1	161	14.33	14.30	14.27	14.09	14.85		3.5
	81	0	14.88	14.43	14.31	14.39	14.02		3.5
	81	40	14.65	13.97	14.16	14.36	14.83		3.5
	81	81	14.51	14.01	14.11	14.31	14.85		3.5
	162	0	14.78	14.38	14.35	14.32	13.98		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	15.06	14.75	14.57	14.52	15.01	0-3	3
	1	1	15.62	15.61	15.59	15.43	16.90	0-1.5	1.5
	1	52	16.88	16.58	16.54	16.57	16.11		1.5
	1	104	16.52	16.24	16.34	16.31	15.40		1.5
	1	105	14.45	15.26	15.10	15.09	15.12	0-3	3
	53	0	15.10	14.71	14.61	14.51	15.25		3
	53	26	15.99	16.23	16.52	16.48	16.26	0-1.5	1.5
	53	53	14.75	14.46	14.53	14.26	15.21	0-3	3
	106	0	15.00	14.56	14.58	14.60	15.35		3
CP-OFDM 16QAM	1	0	14.50	15.14	14.94	15.04	14.42	0-3	3
	1	52	15.21	15.54	15.80	15.80	15.46	0-2	2
	1	105	14.97	14.80	14.72	14.84	14.52	0-3	3
	53	0	15.04	14.63	14.55	14.40	15.23		3
	53	26	15.88	15.63	15.58	15.66	16.23	0-2	2
	53	53	14.68	14.49	14.48	14.57	15.16	0-3	3
	106	0	14.81	14.67	14.47	14.42	15.21		3
CP-OFDM 64QAM	1	0	14.04	14.69	14.57	14.88	14.02	0-3.5	3.5
	1	52	14.81	14.19	14.43	14.54	14.07		3.5
	1	105	14.49	14.26	14.29	14.52	14.07		3.5
	53	0	14.04	14.59	14.63	14.62	14.22		3.5
	53	26	14.89	14.38	14.50	14.28	14.29		3.5
	53	53	14.74	14.51	14.57	14.70	14.25		3.5
	106	0	14.82	14.48	14.52	14.53	14.29		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)		
QPSK	1	0	18.61	18.42	18.21	18.16	18.15	0	0
	1	50	18.56	18.57	18.58	18.70	18.50		0
	1	99	18.46	18.68	18.19	18.27	18.35		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	39750	2506.0	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	0	25.04	24.84
CA_41C (1)	LTE B41	20	40620	2593.0	QPSK	1	0	LTE B41	20	40422	2573.2	QPSK	1	99	25.20	25.08

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
2.4 GHz WLAN Maximum Average RF Power – MIMO

2.4GHz 802.11g Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
2412	1	16.91	17.45	20.20
2422	3	19.25	19.37	22.32
2437	6	19.15	19.33	22.25
2452	9	19.26	19.48	**22.38**
2462	11	17.78	17.98	20.89

Table 9-62
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 9-63
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 9-64
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 9-65
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 9-66
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 9-67
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

Table 9-68
2.4 GHz WLAN Reduced Average RF Power – MIMO

2.4GHz 802.11n Conducted Power [dBm]				
Freq [MHz]	**Channel**	**ANT1**	**ANT2**	**MIMO**
2412	1	16.31	16.43	19.38
2422	3	17.25	17.60	20.44
2437	6	17.59	17.88	**20.75**
2452	9	17.06	17.80	20.46
2462	11	16.50	16.56	19.54

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.

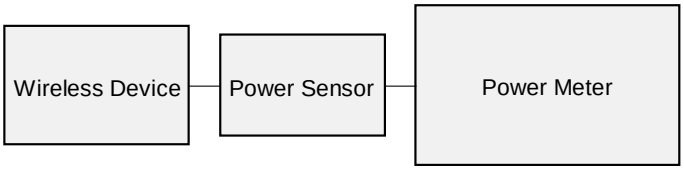


Figure 9-5
Power Measurement Setup

9.6 Bluetooth Conducted Powers

Table 9-69
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.

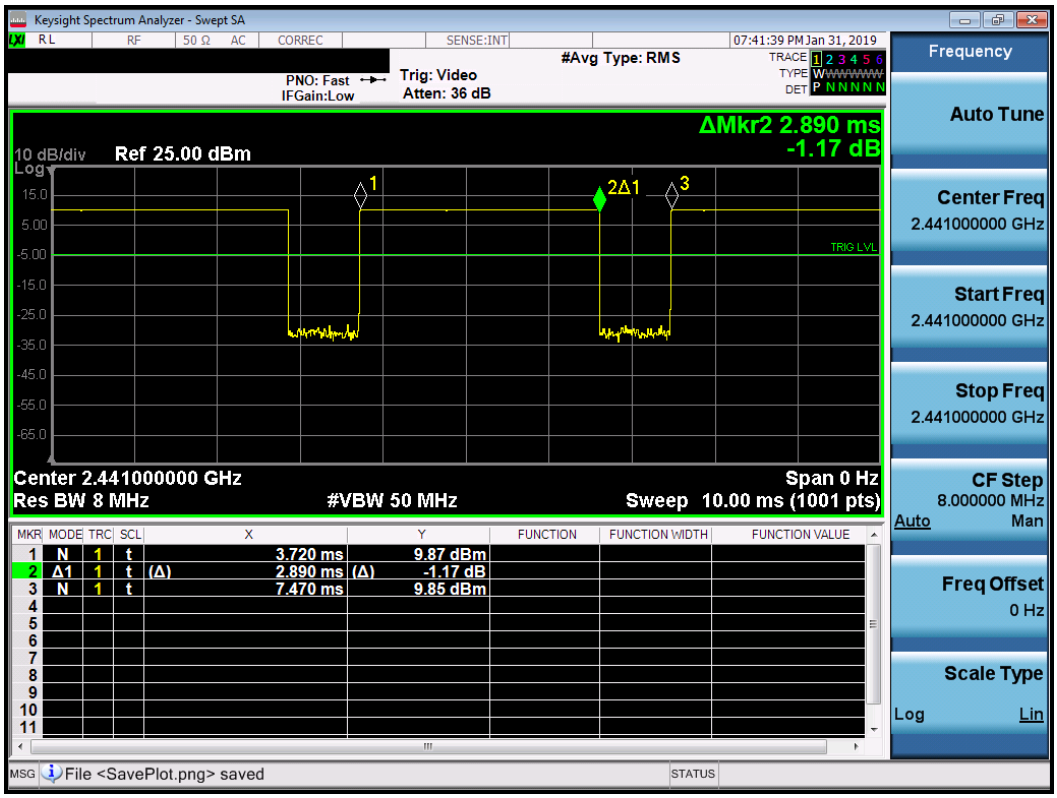


Figure 9-6
Bluetooth Transmission Plot

Equation 9-1
Bluetooth Duty Cycle Calculation

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

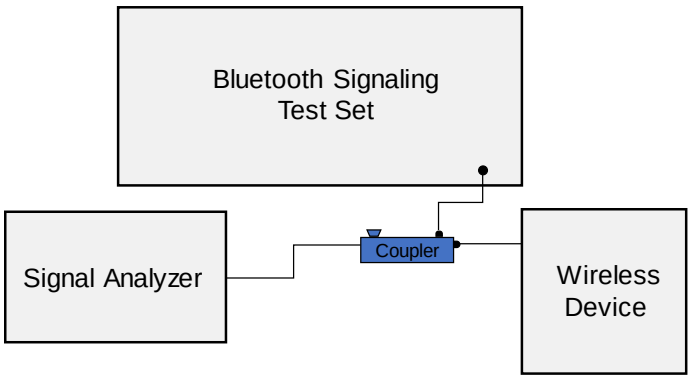


Figure 9-7
Power Measurement Setup

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
1/28/2019	750H	20.8	680	0.854	42.480	0.888	42.305	-3.83%	0.41%
			695	0.859	42.436	0.889	42.227	-3.37%	0.49%
			700	0.861	42.418	0.889	42.201	-3.15%	0.51%
			710	0.864	42.381	0.890	42.149	-2.92%	0.55%
			740	0.875	42.294	0.893	41.994	-2.02%	0.71%
			755	0.880	42.241	0.894	41.916	-1.57%	0.78%
			770	0.885	42.187	0.895	41.838	-1.12%	0.83%
			785	0.890	42.131	0.896	41.760	-0.67%	0.89%
1/23/2019	835H	21.2	820	0.938	40.599	0.899	41.578	4.34%	-2.35%
			835	0.942	40.568	0.900	41.500	4.67%	-2.25%
			850	0.946	40.539	0.916	41.500	3.28%	-2.32%
2/4/2019	1750H	21.1	1710	1.366	41.930	1.348	40.142	1.34%	4.45%
			1750	1.387	41.854	1.371	40.079	1.17%	4.43%
			1790	1.410	41.786	1.394	40.016	1.15%	4.42%
1/17/2019	1900H	20.6	1850	1.406	39.331	1.400	40.000	0.43%	-1.67%
			1880	1.426	39.310	1.400	40.000	1.86%	-1.72%
			1910	1.445	39.274	1.400	40.000	3.21%	-1.82%
2/4/2019	1900H	21.1	1850	1.399	38.617	1.400	40.000	-0.07%	-3.46%
			1880	1.417	38.578	1.400	40.000	1.21%	-3.55%
			1910	1.436	38.536	1.400	40.000	2.57%	-3.66%
1/18/2019	2450H	20.5	2400	1.777	39.114	1.756	39.289	1.20%	-0.45%
			2450	1.815	39.021	1.800	39.200	0.83%	-0.46%
			2500	1.852	38.951	1.855	39.136	-0.16%	-0.47%
1/29/2019	2450H	21.1	2400	1.790	38.607	1.756	39.289	1.94%	-1.74%
			2450	1.830	38.536	1.800	39.200	1.67%	-1.69%
			2500	1.864	38.478	1.855	39.136	0.49%	-1.68%
1/22/2019	2600H	20.5	2500	1.899	39.204	1.855	39.136	2.37%	0.17%
			2550	1.945	39.120	1.909	39.073	1.89%	0.12%
			2600	1.984	39.014	1.964	39.009	1.02%	0.01%
1/24/2019	2600H	20.5	2500	1.855	38.050	1.855	39.136	0.00%	-2.77%
			2550	1.895	37.968	1.909	39.073	-0.73%	-2.83%
			2600	1.937	37.885	1.964	39.009	-1.37%	-2.88%
01/28/2019	5200H-5800H	19.7	5180	4.620	36.123	4.635	36.009	-0.32%	0.32%
			5200	4.651	36.096	4.655	35.986	-0.09%	0.31%
			5220	4.674	36.100	4.676	35.963	-0.04%	0.38%
			5240	4.689	36.050	4.696	35.940	-0.15%	0.31%
			5260	4.710	36.011	4.717	35.917	-0.15%	0.26%
			5280	4.729	35.992	4.737	35.894	-0.17%	0.27%
			5300	4.753	35.960	4.758	35.871	-0.11%	0.25%
			5320	4.761	35.934	4.778	35.849	-0.36%	0.24%
			5500	4.952	35.663	4.963	35.643	-0.22%	0.06%
			5520	4.985	35.632	4.983	35.620	0.04%	0.03%
			5540	4.996	35.606	5.004	35.597	-0.16%	0.03%
			5560	5.037	35.574	5.024	35.574	0.26%	0.00%
			5580	5.052	35.559	5.045	35.551	0.14%	0.02%
			5600	5.063	35.531	5.065	35.529	-0.04%	0.01%
			5620	5.098	35.477	5.086	35.506	0.24%	-0.08%
			5640	5.123	35.469	5.106	35.483	0.33%	-0.04%
			5660	5.145	35.454	5.127	35.460	0.35%	-0.02%
			5680	5.168	35.401	5.147	35.437	0.41%	-0.10%
			5700	5.184	35.362	5.168	35.414	0.31%	-0.15%
			5745	5.242	35.361	5.214	35.363	0.54%	-0.01%
			5765	5.268	35.275	5.234	35.340	0.65%	-0.18%
			5785	5.292	35.261	5.255	35.317	0.70%	-0.16%
			5800	5.308	35.247	5.270	35.300	0.72%	-0.15%
			5805	5.311	35.247	5.275	35.294	0.68%	-0.13%
			5825	5.328	35.245	5.296	35.271	0.60%	-0.07%

Table 10-2
Measured Tissue Properties – Body

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	% dev σ	% dev ε
2/6/2019	750B	22.5	680	0.957	54.284	0.958	55.804	-0.10%	-2.72%
			695	0.963	54.243	0.959	55.745	0.42%	-2.69%
			700	0.965	54.229	0.959	55.726	0.63%	-2.69%
			710	0.968	54.204	0.960	55.687	0.83%	-2.66%
			740	0.980	54.125	0.963	55.570	1.77%	-2.60%
			755	0.986	54.082	0.964	55.512	2.28%	-2.58%
			770	0.992	54.041	0.965	55.453	2.80%	-2.55%
			785	0.998	54.010	0.966	55.395	3.31%	-2.50%
1/18/2019	835B	20.5	820	0.961	54.174	0.969	55.258	-0.83%	-1.96%
			835	0.976	54.071	0.970	55.200	0.62%	-2.05%
			850	0.991	53.946	0.988	55.154	0.30%	-2.19%
1/21/2019	835B	20.3	820	0.971	54.323	0.969	55.258	0.21%	-1.69%
			835	0.986	54.197	0.970	55.200	1.65%	-1.82%
			850	1.000	54.058	0.988	55.154	1.21%	-1.99%
1/23/2019	835B	20.3	820	0.957	53.543	0.969	55.258	-1.24%	-3.10%
			835	0.971	53.402	0.970	55.200	0.10%	-3.26%
			850	0.990	53.252	0.988	55.154	0.20%	-3.45%
1/21/2019	1750B	20.9	1710	1.461	51.904	1.463	53.537	-0.14%	-3.05%
			1750	1.488	51.840	1.488	53.432	0.00%	-2.98%
			1790	1.513	51.791	1.514	53.326	-0.07%	-2.88%
1/24/2019	1750B	20.2	1710	1.488	51.095	1.463	53.537	1.71%	-4.56%
			1750	1.518	51.068	1.488	53.432	2.02%	-4.42%
			1790	1.551	51.006	1.514	53.326	2.44%	-4.35%
2/4/2019	1750B	20.2	1710	1.470	51.441	1.463	53.537	0.48%	-3.92%
			1750	1.499	51.377	1.488	53.432	0.74%	-3.85%
			1790	1.528	51.316	1.514	53.326	0.92%	-3.77%
1/16/2019	1900B	22.4	1850	1.488	52.524	1.520	53.300	-2.11%	-1.46%
			1880	1.521	52.410	1.520	53.300	0.07%	-1.67%
			1910	1.555	52.312	1.520	53.300	2.30%	-1.85%
1/18/2019	1900B	22.5	1850	1.476	52.822	1.520	53.300	-2.89%	-0.90%
			1880	1.508	52.736	1.520	53.300	-0.79%	-1.06%
			1910	1.539	52.645	1.520	53.300	1.25%	-1.23%
1/21/2019	1900B	20.0	1850	1.528	51.042	1.520	53.300	0.53%	-4.24%
			1880	1.549	50.989	1.520	53.300	1.91%	-4.34%
			1910	1.570	50.936	1.520	53.300	3.29%	-4.44%
2/5/2019	1900B	22.3	1850	1.528	54.433	1.520	53.300	0.53%	2.13%
			1880	1.563	54.321	1.520	53.300	2.83%	1.92%
			1910	1.595	54.211	1.520	53.300	4.93%	1.71%
1/27/2019	2450B-2600B	23.1	2400	1.972	51.266	1.902	52.767	3.68%	-2.84%
			2450	2.028	51.137	1.950	52.700	4.00%	-2.97%
			2500	2.087	50.995	2.021	52.636	3.27%	-3.12%
			2550	2.146	50.869	2.092	52.573	2.58%	-3.24%
			2600	2.208	50.704	2.163	52.509	2.08%	-3.44%
			2650	2.265	50.557	2.234	52.445	1.39%	-3.60%
			2700	2.331	50.398	2.305	52.382	1.13%	-3.79%
2/13/2019	2450B	22.2	2400	1.973	52.148	1.902	52.767	3.73%	-1.17%
			2450	2.034	52.017	1.950	52.700	4.31%	-1.30%
			2500	2.093	51.855	2.021	52.636	3.56%	-1.48%
1/17/2019	2600B	24.5	2500	2.073	50.472	2.021	52.636	2.57%	-4.11%
			2550	2.134	50.325	2.092	52.573	2.01%	-4.28%
			2600	2.195	50.186	2.163	52.509	1.48%	-4.42%

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
01/21/2019	5200B-5800B	19.3	5180	5.367	47.870	5.276	49.041	1.72%	-2.39%
			5200	5.394	47.807	5.299	49.014	1.79%	-2.46%
			5220	5.430	47.789	5.323	48.987	2.01%	-2.45%
			5240	5.466	47.711	5.346	48.960	2.24%	-2.55%
			5260	5.486	47.681	5.369	48.933	2.18%	-2.56%
			5280	5.504	47.640	5.393	48.906	2.06%	-2.59%
			5300	5.539	47.621	5.416	48.879	2.27%	-2.57%
			5320	5.574	47.559	5.439	48.851	2.48%	-2.64%
			5500	5.819	47.231	5.650	48.607	2.99%	-2.83%
			5520	5.851	47.140	5.673	48.580	3.14%	-2.96%
			5540	5.884	47.108	5.696	48.553	3.30%	-2.98%
			5560	5.919	47.083	5.720	48.526	3.48%	-2.97%
			5580	5.952	47.066	5.743	48.499	3.64%	-2.95%
			5600	5.977	47.026	5.766	48.471	3.66%	-2.98%
			5620	6.007	46.923	5.790	48.444	3.75%	-3.14%
			5640	6.030	46.895	5.813	48.417	3.73%	-3.14%
			5660	6.065	46.893	5.837	48.390	3.91%	-3.09%
			5680	6.102	46.867	5.860	48.363	4.13%	-3.09%
			5700	6.121	46.851	5.883	48.336	4.05%	-3.07%
			5745	6.193	46.707	5.936	48.275	4.33%	-3.25%
			5765	6.242	46.679	5.959	48.248	4.75%	-3.25%
			5785	6.260	46.665	5.982	48.220	4.65%	-3.22%
			5800	6.278	46.620	6.000	48.200	4.63%	-3.28%
			5805	6.288	46.614	6.006	48.193	4.70%	-3.28%
			5825	6.322	46.579	6.029	48.166	4.86%	-3.29%
02/06/2019	5200B-5800B	20.6	5180	5.325	47.478	5.276	49.041	0.93%	-3.19%
			5200	5.347	47.421	5.299	49.014	0.91%	-3.25%
			5220	5.388	47.370	5.323	48.987	1.22%	-3.30%
			5240	5.409	47.322	5.346	48.960	1.18%	-3.35%
			5260	5.445	47.302	5.369	48.933	1.42%	-3.33%
			5280	5.474	47.299	5.393	48.906	1.50%	-3.29%
			5300	5.499	47.205	5.416	48.879	1.53%	-3.42%
			5320	5.528	47.194	5.439	48.851	1.64%	-3.39%
			5500	5.778	46.833	5.650	48.607	2.27%	-3.65%
			5520	5.817	46.806	5.673	48.580	2.54%	-3.65%
			5540	5.847	46.768	5.696	48.553	2.65%	-3.68%
			5560	5.875	46.713	5.720	48.526	2.71%	-3.74%
			5580	5.907	46.668	5.743	48.499	2.86%	-3.78%
			5600	5.926	46.639	5.766	48.471	2.77%	-3.78%
			5620	5.960	46.600	5.790	48.444	2.94%	-3.81%
			5640	6.000	46.547	5.813	48.417	3.22%	-3.86%
			5660	6.024	46.476	5.837	48.390	3.20%	-3.96%
			5680	6.064	46.469	5.860	48.363	3.48%	-3.92%
			5700	6.082	46.459	5.883	48.336	3.38%	-3.88%
			5745	6.156	46.347	5.936	48.275	3.71%	-3.99%
			5765	6.196	46.304	5.959	48.248	3.98%	-4.03%
			5785	6.213	46.303	5.982	48.220	3.86%	-3.98%
			5800	6.235	46.277	6.000	48.200	3.92%	-3.99%
			5805	6.248	46.263	6.006	48.193	4.03%	-4.00%
			5825	6.287	46.188	6.029	48.166	4.28%	-4.11%

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)	$Deviation_{1g}$ (%)
G	750	HEAD	01/28/2019	21.5	20.8	0.200	1161	7410	1.610	8.030	8.050	0.25%
G	835	HEAD	01/23/2019	23.5	21.2	0.200	4d133	7410	1.990	9.430	9.950	5.51%
H	1750	HEAD	02/04/2019	22.3	21.1	0.100	1008	7409	3.790	36.200	37.900	4.70%
M	1900	HEAD	01/17/2019	21.1	20.6	0.100	5d148	3287	4.250	40.100	42.500	5.99%
G	1900	HEAD	02/04/2019	21.5	21.1	0.100	5d149	7410	3.950	39.300	39.500	0.51%
H	2450	HEAD	01/18/2019	21.4	20.5	0.100	797	7409	5.460	52.700	54.600	3.61%
G	2450	HEAD	01/29/2019	23.2	21.1	0.100	981	7410	5.190	52.300	51.900	-0.76%
H	2600	HEAD	01/22/2019	21.9	20.4	0.100	1004	7409	5.750	55.900	57.500	2.86%
H	2600	HEAD	01/24/2019	21.9	20.3	0.100	1004	7409	5.720	55.900	57.200	2.33%
H	5250	HEAD	01/28/2019	19.8	19.5	0.050	1191	7409	3.790	78.900	75.800	-3.93%
H	5600	HEAD	01/28/2019	19.8	19.5	0.050	1191	7409	4.010	83.600	80.200	-4.07%
H	5750	HEAD	01/28/2019	19.8	19.5	0.050	1191	7409	3.890	79.100	77.800	-1.64%
E	750	BODY	02/06/2019	24.0	22.0	0.200	1054	3589	1.750	8.610	8.750	1.63%
D	835	BODY	01/18/2019	21.7	20.5	0.200	4d047	7357	1.950	9.710	9.750	0.41%
D	835	BODY	01/21/2019	21.0	20.3	0.200	4d047	7357	1.960	9.710	9.800	0.93%
D	835	BODY	01/23/2019	22.1	20.3	0.200	4d047	7357	1.990	9.710	9.950	2.47%
J	1750	BODY	01/21/2019	21.5	20.9	0.100	1008	3347	3.610	37.400	36.100	-3.48%
J	1750	BODY	02/04/2019	20.0	20.2	0.100	1150	3347	3.620	36.600	36.200	-1.09%
G	1900	BODY	01/16/2019	23.5	21.8	0.100	5d149	7410	4.200	39.400	42.000	6.60%
G	1900	BODY	01/18/2019	23.4	21.8	0.100	5d149	7410	3.860	39.400	38.600	-2.03%
E	1900	BODY	01/21/2019	21.2	20.0	0.100	5d080	3332	4.230	39.200	42.300	7.91%
E	1900	BODY	02/05/2019	22.1	23.1	0.100	5d080	3589	4.050	39.200	40.500	3.32%
K	2450	BODY	01/27/2019	22.2	22.9	0.100	981	3319	5.220	50.900	52.200	2.55%
K	2450	BODY	02/13/2019	21.9	21.1	0.100	981	3319	5.110	50.900	51.100	0.39%
K	2600	BODY	01/17/2019	23.4	22.5	0.100	1004	3319	5.530	54.800	55.300	0.91%
K	2600	BODY	01/27/2019	22.2	22.9	0.100	1004	3319	5.630	54.800	56.300	2.74%
L	5250	BODY	02/06/2019	21.3	20.6	0.050	1057	7308	3.580	75.900	71.600	-5.67%
L	5600	BODY	02/06/2019	21.3	20.6	0.050	1057	7308	3.930	79.900	78.600	-1.63%
L	5750	BODY	02/06/2019	21.3	20.6	0.050	1057	7308	3.520	76.700	70.400	-8.21%

Table 10-5
System Verification Results – 10g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{10g} (W/kg)	1 W Target SAR_{10g} (W/kg)	1 W Normalized SAR_{10g} (W/kg)	$Deviation_{10g}$ (%)
J	1750	BODY	01/21/2019	21.5	20.9	0.100	1008	3347	1.920	19.900	19.200	-3.52%
J	1750	BODY	01/24/2019	20.8	20.2	0.100	1150	3347	2.030	19.400	20.300	4.64%
G	1900	BODY	01/16/2019	23.5	21.8	0.100	5d149	7410	2.170	20.700	21.700	4.83%
E	1900	BODY	01/21/2019	21.2	20.0	0.100	5d080	3332	2.180	20.600	21.800	5.83%
L	5250	BODY	01/21/2019	20.6	20.7	0.050	1057	7308	1.030	21.100	20.600	-2.37%
L	5600	BODY	01/21/2019	20.6	20.7	0.050	1057	7308	1.120	22.300	22.400	0.45%
L	5750	BODY	01/21/2019	20.6	20.7	0.050	1057	7308	1.020	21.200	20.400	-3.77%

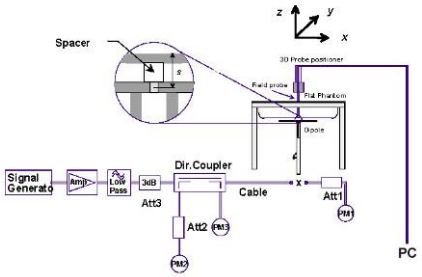


Figure 10-1
System Verification Setup Diagram

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	25.02	0.15	Right	Cheek	01858	1:1	0.114	1.117	0.127	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.02	0.07	Right	Tilt	01858	1:1	0.067	1.117	0.075	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.02	-0.03	Left	Cheek	01858	1:1	0.135	1.117	0.151	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.02	-0.16	Left	Tilt	01858	1:1	0.064	1.117	0.071	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	24.92	0.14	Right	Cheek	01858	1:1	0.147	1.143	0.168	A1
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	24.92	0.01	Right	Tilt	01858	1:1	0.082	1.143	0.094	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	24.92	0.02	Left	Cheek	01858	1:1	0.145	1.143	0.166	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	24.92	-0.04	Left	Tilt	01858	1:1	0.078	1.143	0.089	
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	24.95	-0.01	Right	Cheek	01858	1:1	0.120	1.135	0.136	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	24.95	-0.18	Right	Tilt	01858	1:1	0.059	1.135	0.067	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	24.95	-0.14	Left	Cheek	01858	1:1	0.148	1.135	0.168	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	24.95	0.15	Left	Tilt	01858	1:1	0.065	1.135	0.074	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	24.88	0.01	Right	Cheek	01858	1:1	0.160	1.153	0.184	A2
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	24.88	0.14	Right	Tilt	01858	1:1	0.080	1.153	0.092	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	24.88	-0.05	Left	Cheek	01858	1:1	0.152	1.153	0.175	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	24.88	-0.19	Left	Tilt	01858	1:1	0.071	1.153	0.082	
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	24.78	0.19	Right	Cheek	01862	1:1	0.170	1.102	0.187	
1880.00	600	PCS CDMA	RC3 / SO55	25.2	24.78	0.15	Right	Tilt	01862	1:1	0.109	1.102	0.120	
1880.00	600	PCS CDMA	RC3 / SO55	25.2	24.78	0.01	Left	Cheek	01862	1:1	0.159	1.102	0.175	
1880.00	600	PCS CDMA	RC3 / SO55	25.2	24.78	-0.19	Left	Tilt	01862	1:1	0.100	1.102	0.110	
1880.00	600	PCS CDMA	EVDO Rev. A	25.2	25.10	0.19	Right	Cheek	01862	1:1	0.176	1.023	0.180	A3
1880.00	600	PCS CDMA	EVDO Rev. A	25.2	25.10	-0.01	Right	Tilt	01862	1:1	0.125	1.023	0.128	
1880.00	600	PCS CDMA	EVDO Rev. A	25.2	25.10	-0.18	Left	Cheek	01862	1:1	0.127	1.023	0.130	
1880.00	600	PCS CDMA	EVDO Rev. A	25.2	25.10	-0.15	Left	Tilt	01862	1:1	0.110	1.023	0.113	
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	0.03	Right	Cheek	01862	1	1:8.3	0.076	1.057	0.080	
836.60	190	GSM 850	GSM	33.7	33.46	0.11	Right	Tilt	01862	1	1:8.3	0.050	1.057	0.053	
836.60	190	GSM 850	GSM	33.7	33.46	0.20	Left	Cheek	01862	1	1:8.3	0.086	1.057	0.091	
836.60	190	GSM 850	GSM	33.7	33.46	0.12	Left	Tilt	01862	1	1:8.3	0.049	1.057	0.052	
836.60	190	GSM 850	GPRS	33.7	33.51	0.10	Right	Cheek	01862	1	1:8.3	0.074	1.045	0.077	
836.60	190	GSM 850	GPRS	33.7	33.51	0.12	Right	Tilt	01862	1	1:8.3	0.053	1.045	0.055	
836.60	190	GSM 850	GPRS	33.7	33.51	-0.20	Left	Cheek	01862	1	1:8.3	0.092	1.045	0.096	A4
836.60	190	GSM 850	GPRS	33.7	33.51	0.10	Left	Tilt	01862	1	1:8.3	0.039	1.045	0.041	
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	0.15	Right	Cheek	01862	1	1:8.3	0.081	1.021	0.083	
1880.00	661	GSM 1900	GSM	31.2	31.11	-0.05	Right	Tilt	01862	1	1:8.3	0.033	1.021	0.034	
1880.00	661	GSM 1900	GSM	31.2	31.11	-0.16	Left	Cheek	01862	1	1:8.3	0.100	1.021	0.102	
1880.00	661	GSM 1900	GSM	31.2	31.11	0.17	Left	Tilt	01862	1	1:8.3	0.039	1.021	0.040	
1880.00	661	GSM 1900	GPRS	31.2	31.09	0.20	Right	Cheek	01862	1	1:8.3	0.081	1.026	0.083	
1880.00	661	GSM 1900	GPRS	31.2	31.09	0.01	Right	Tilt	01862	1	1:8.3	0.030	1.026	0.031	
1880.00	661	GSM 1900	GPRS	31.2	31.09	-0.09	Left	Cheek	01862	1	1:8.3	0.100	1.026	0.103	A5
1880.00	661	GSM 1900	GPRS	31.2	31.09	0.00	Left	Tilt	01862	1	1:8.3	0.037	1.026	0.038	
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	25.23	-0.03	Right	Cheek	01862	1:1	0.132	1.064	0.140	
836.60	4183	UMTS 850	RMC	25.5	25.23	0.10	Right	Tilt	01862	1:1	0.083	1.064	0.088	
836.60	4183	UMTS 850	RMC	25.5	25.23	0.05	Left	Cheek	01862	1:1	0.156	1.064	0.166	A6
836.60	4183	UMTS 850	RMC	25.5	25.23	0.04	Left	Tilt	01862	1:1	0.078	1.064	0.083	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

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	24.99	0.06	Right	Cheek	01862	1:1	0.124	1.050	0.130	
1732.40	1412	UMTS 1750	RMC	25.2	24.99	0.08	Right	Tilt	01862	1:1	0.083	1.050	0.087	
1732.40	1412	UMTS 1750	RMC	25.2	24.99	0.03	Left	Cheek	01862	1:1	0.133	1.050	0.140	A7
1732.40	1412	UMTS 1750	RMC	25.2	24.99	0.06	Left	Tilt	01862	1:1	0.066	1.050	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 11-8
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	25.09	0.03	Right	Cheek	01862	1:1	0.169	1.026	0.173	A8
1880.00	9400	UMTS 1900	RMC	25.2	25.09	0.03	Right	Tilt	01862	1:1	0.123	1.026	0.126	
1880.00	9400	UMTS 1900	RMC	25.2	25.09	-0.08	Left	Cheek	01862	1:1	0.169	1.026	0.173	
1880.00	9400	UMTS 1900	RMC	25.2	25.09	-0.01	Left	Tilt	01862	1:1	0.126	1.026	0.129	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-9
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	25.18	-0.11	0	Right	Cheek	QPSK	1	0	01861	1:1	0.104	1.076	0.112	A9
680.50	133297	Mid	LTE Band 71	20	24.5	24.26	-0.03	1	Right	Cheek	QPSK	50	0	01861	1:1	0.077	1.057	0.081	
680.50	133297	Mid	LTE Band 71	20	25.5	25.18	0.17	0	Right	Tilt	QPSK	1	0	01861	1:1	0.052	1.076	0.056	
680.50	133297	Mid	LTE Band 71	20	24.5	24.26	0.12	1	Right	Tilt	QPSK	50	0	01861	1:1	0.033	1.057	0.035	
680.50	133297	Mid	LTE Band 71	20	25.5	25.18	-0.06	0	Left	Cheek	QPSK	1	0	01861	1:1	0.076	1.076	0.082	
680.50	133297	Mid	LTE Band 71	20	24.5	24.26	0.06	1	Left	Cheek	QPSK	50	0	01861	1:1	0.070	1.057	0.074	
680.50	133297	Mid	LTE Band 71	20	25.5	25.18	0.20	0	Left	Tilt	QPSK	1	0	01861	1:1	0.031	1.076	0.033	
680.50	133297	Mid	LTE Band 71	20	24.5	24.26	0.15	1	Left	Tilt	QPSK	50	0	01861	1:1	0.027	1.057	0.029	
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	25.33	0.03	0	Right	Cheek	QPSK	1	49	01861	1:1	0.137	1.040	0.142	A10
707.50	23095	Mid	LTE Band 12	10	24.5	24.26	0.12	1	Right	Cheek	QPSK	25	12	01861	1:1	0.103	1.057	0.109	
707.50	23095	Mid	LTE Band 12	10	25.5	25.33	0.09	0	Right	Tilt	QPSK	1	49	01861	1:1	0.076	1.040	0.079	
707.50	23095	Mid	LTE Band 12	10	24.5	24.26	0.05	1	Right	Tilt	QPSK	25	12	01861	1:1	0.059	1.057	0.062	
707.50	23095	Mid	LTE Band 12	10	25.5	25.33	-0.20	0	Left	Cheek	QPSK	1	49	01861	1:1	0.134	1.040	0.139	
707.50	23095	Mid	LTE Band 12	10	24.5	24.26	-0.10	1	Left	Cheek	QPSK	25	12	01861	1:1	0.110	1.057	0.116	
707.50	23095	Mid	LTE Band 12	10	25.5	25.33	0.07	0	Left	Tilt	QPSK	1	49	01861	1:1	0.060	1.040	0.062	
707.50	23095	Mid	LTE Band 12	10	24.5	24.26	0.09	1	Left	Tilt	QPSK	25	12	01861	1:1	0.052	1.057	0.055	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

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	25.19	0.13	0	Right	Cheek	QPSK	1	0	01861	1:1	0.124	1.074	0.133	A11
782.00	23230	Mid	LTE Band 13	10	24.5	24.20	0.09	1	Right	Cheek	QPSK	25	0	01861	1:1	0.095	1.072	0.102	
782.00	23230	Mid	LTE Band 13	10	25.5	25.19	-0.15	0	Right	Tilt	QPSK	1	0	01861	1:1	0.074	1.074	0.079	
782.00	23230	Mid	LTE Band 13	10	24.5	24.20	0.15	1	Right	Tilt	QPSK	25	0	01861	1:1	0.058	1.072	0.062	
782.00	23230	Mid	LTE Band 13	10	25.5	25.19	-0.01	0	Left	Cheek	QPSK	1	0	01861	1:1	0.122	1.074	0.131	
782.00	23230	Mid	LTE Band 13	10	24.5	24.20	0.18	1	Left	Cheek	QPSK	25	0	01861	1:1	0.102	1.072	0.109	
782.00	23230	Mid	LTE Band 13	10	25.5	25.19	-0.04	0	Left	Tilt	QPSK	1	0	01861	1:1	0.059	1.074	0.063	
782.00	23230	Mid	LTE Band 13	10	24.5	24.20	0.11	1	Left	Tilt	QPSK	25	0	01861	1:1	0.050	1.072	0.054	
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	25.17	0.15	0	Right	Cheek	QPSK	1	36	01860	1:1	0.122	1.079	0.132	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	0.03	1	Right	Cheek	QPSK	36	18	01860	1:1	0.096	1.033	0.099	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.17	0.18	0	Right	Tilt	QPSK	1	36	01860	1:1	0.064	1.079	0.069	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	-0.06	1	Right	Tilt	QPSK	36	18	01860	1:1	0.051	1.033	0.053	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.17	-0.10	0	Left	Cheek	QPSK	1	36	01860	1:1	0.150	1.079	0.162	A12
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	0.05	1	Left	Cheek	QPSK	36	18	01860	1:1	0.112	1.033	0.116	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.17	-0.14	0	Left	Tilt	QPSK	1	36	01860	1:1	0.066	1.079	0.071	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	0.11	1	Left	Tilt	QPSK	36	18	01860	1:1	0.051	1.033	0.053	
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)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.04	0.02	0	Right	Cheek	QPSK	1	99	01861	1:1	0.130	1.038	0.135	A13
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.14	0.07	1	Right	Cheek	QPSK	50	0	01861	1:1	0.119	1.014	0.121	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.04	0.02	0	Right	Tilt	QPSK	1	99	01861	1:1	0.103	1.038	0.107	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.14	0.06	1	Right	Tilt	QPSK	50	0	01861	1:1	0.076	1.014	0.077	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.04	-0.06	0	Left	Cheek	QPSK	1	99	01861	1:1	0.129	1.038	0.134	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.14	0.05	1	Left	Cheek	QPSK	50	0	01861	1:1	0.115	1.014	0.117	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.04	0.09	0	Left	Tilt	QPSK	1	99	01861	1:1	0.075	1.038	0.078	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.14	0.11	1	Left	Tilt	QPSK	50	0	01861	1:1	0.056	1.014	0.057	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-14
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)	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.10	0.20	0	Right	Cheek	QPSK	1	0	01860	1:1	0.208	1.023	0.213	A14
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.16	0.04	1	Right	Cheek	QPSK	50	25	01860	1:1	0.163	1.009	0.164	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.10	0.21	0	Right	Tilt	QPSK	1	0	01860	1:1	0.099	1.023	0.101	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.16	0.20	1	Right	Tilt	QPSK	50	25	01860	1:1	0.084	1.009	0.085	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.10	-0.12	0	Left	Cheek	QPSK	1	0	01860	1:1	0.153	1.023	0.157	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.16	0.01	1	Left	Cheek	QPSK	50	25	01860	1:1	0.114	1.009	0.115	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.10	-0.15	0	Left	Tilt	QPSK	1	0	01860	1:1	0.097	1.023	0.099	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.16	0.05	1	Left	Tilt	QPSK	50	25	01860	1:1	0.087	1.009	0.088	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11-15
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	2593.00	40620	Mid	LTE Band 41	20	25.2	25.08	-0.15	0	Right	Cheek	QPSK	1	0	01861	1:1.58	0.566	1.028	0.582	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.2	24.09	-0.15	1	Right	Cheek	QPSK	50	0	01861	1:1.58	0.488	1.026	0.501	
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	27.7	27.31	-0.06	0	Right	Cheek	QPSK	1	0	01861	1:2.31	0.623	1.094	0.682	
2 CC Uplink - Power Class 3	PCC	2593.00	40620	Mid	LTE Band 41	20	25.2	25.20	-0.09	0	Right	Cheek	QPSK	1	0	01861	1:1.58	0.750	1.000	**0.750**	A15
	SCC	2573.20	40422			20							QPSK	1	99	01861					
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.2	25.08	-0.08	0	Right	Tilt	QPSK	1	0	01861	1:1.58	0.144	1.028	0.148	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.2	24.09	0.01	1	Right	Tilt	QPSK	50	0	01861	1:1.58	0.097	1.026	0.100	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.2	25.08	0.05	0	Left	Cheek	QPSK	1	0	01861	1:1.58	0.267	1.028	0.274	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.2	24.09	0.07	1	Left	Cheek	QPSK	50	0	01861	1:1.58	0.207	1.026	0.212	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.2	25.08	-0.05	0	Left	Tilt	QPSK	1	0	01861	1:1.58	0.208	1.028	0.214	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.2	24.09	0.00	1	Left	Tilt	QPSK	50	0	01861	1:1.58	0.149	1.026	0.153	
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	16.9	16.65	-0.05	1.5	Right	Cheek	CP-OFDM-QPSK	1	1	01890	1:1	0.179	1.059	0.210	
2592.99	518598	Mid	NR Band n41	60	16.9	16.55	-0.02	1.5	Right	Cheek	CP-OFDM-QPSK	81	40	01890	1:1	0.180	1.084	0.211	A16
2592.99	518598	Mid	NR Band n41	60	16.9	16.65	0.05	1.5	Right	Tilt	CP-OFDM-QPSK	1	1	01890	1:1	0.049	1.059	0.057	
2592.99	518598	Mid	NR Band n41	60	16.9	16.55	0.03	1.5	Right	Tilt	CP-OFDM-QPSK	81	40	01890	1:1	0.047	1.084	0.055	
2592.99	518598	Mid	NR Band n41	60	16.9	16.65	0.04	1.5	Left	Cheek	CP-OFDM-QPSK	1	1	01890	1:1	0.078	1.059	0.092	
2592.99	518598	Mid	NR Band n41	60	16.9	16.55	0.04	1.5	Left	Cheek	CP-OFDM-QPSK	81	40	01890	1:1	0.081	1.084	0.095	
2592.99	518598	Mid	NR Band n41	60	16.9	16.65	0.02	1.5	Left	Tilt	CP-OFDM-QPSK	1	1	01890	1:1	0.072	1.059	0.084	
2592.99	518598	Mid	NR Band n41	60	16.9	16.55	-0.02	1.5	Left	Tilt	CP-OFDM-QPSK	81	40	01890	1:1	0.071	1.084	0.083	

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

LTE Transmission	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	UL/DL Frame Configuration	MPR [dB]	Modulation	RB Size	RB Offset	Scaling Factor	Test Duty Cycle
	MHz	Ch.												
FTM Mode	2593.00	40620	Mid	LTE Band 41	20	18.9	18.21	N/A	0.0	QPSK	1	0	1.172	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. Measured SAR value is scaled using worst case scaling factor of NR Band n41 and LTE B41 FTM mode.

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	-0.15	Right	Cheek	1	01872	1	99.3	0.532	0.369	1.047	1.007	0.389	
2437	6	802.11b	DSSS	22	18.0	17.80	0.07	Right	Tilt	1	01872	1	99.3	0.491	-	1.047	1.007	-	
2437	6	802.11b	DSSS	22	18.0	17.80	-0.15	Left	Cheek	1	01872	1	99.3	1.403	0.791	1.047	1.007	0.834	
2462	11	802.11b	DSSS	22	18.0	17.69	0.16	Left	Cheek	1	01872	1	99.3	0.791	0.500	1.074	1.007	0.541	
2412	1	802.11b	DSSS	22	18.0	17.62	0.09	Left	Tilt	1	01872	1	99.3	1.399	0.765	1.091	1.007	0.840	
2437	6	802.11b	DSSS	22	18.0	17.80	0.12	Left	Tilt	1	01872	1	99.3	1.264	0.918	1.047	1.007	**0.968**	A17
2462	11	802.11b	DSSS	22	18.0	17.69	0.15	Left	Tilt	1	01872	1	99.3	0.916	0.554	1.074	1.007	0.599	
2437	6	802.11b	DSSS	22	18.0	17.99	0.20	Right	Cheek	2	01872	1	99.4	0.373	0.217	1.002	1.006	0.219	
2437	6	802.11b	DSSS	22	18.0	17.99	0.13	Right	Tilt	2	01872	1	99.4	0.103	-	1.002	1.006	-	
2412	1	802.11b	DSSS	22	18.0	17.77	0.17	Left	Cheek	2	01872	1	99.4	1.130	0.634	1.054	1.006	0.672	
2437	6	802.11b	DSSS	22	18.0	17.99	0.15	Left	Cheek	2	01872	1	99.4	1.136	0.626	1.002	1.006	0.631	
2462	11	802.11b	DSSS	22	18.0	17.62	0.12	Left	Cheek	2	01872	1	99.4	0.870	0.487	1.091	1.006	0.535	
2437	6	802.11b	DSSS	22	18.0	17.99	0.16	Left	Tilt	2	01872	1	99.4	0.226	-	1.002	1.006	-	

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

Table 11-18
DTS MIMO Head SAR

MEASUREMENT RESULTS																						
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
2437	6	802.11n	OFDM	20	18.0	17.59	18.0	17.88	0.08	Right	Cheek	MIMO	01872	13	98.1	0.473	-	1.099	1.019	-	
2437	6	802.11n	OFDM	20	18.0	17.59	18.0	17.88	0.13	Right	Tilt	MIMO	01872	13	98.1	0.457	-	1.099	1.019	-	
2422	3	802.11n	OFDM	20	18.0	17.25	18.0	17.60	0.07	Left	Cheek	MIMO	01872	13	98.1	1.050	0.692	1.189	1.019	0.838	
2437	6	802.11n	OFDM	20	18.0	17.59	18.0	17.88	0.14	Left	Cheek	MIMO	01872	13	98.1	1.316	0.668	1.099	1.019	0.748	
2452	9	802.11n	OFDM	20	18.0	17.06	18.0	17.80	0.13	Left	Cheek	MIMO	01872	13	98.1	1.039	0.589	1.242	1.019	0.745	
2437	6	802.11n	OFDM	20	18.0	17.59	18.0	17.88	-0.15	Left	Tilt	MIMO	01872	13	98.1	0.962	0.551	1.099	1.019	0.617	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 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 11-19
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	0.12	Right	Cheek	1	01873	6	98.3	0.439	0.241	1.091	1.017	0.267	
5280	56	802.11a	OFDM	20	18.0	17.62	0.16	Right	Tilt	1	01873	6	98.3	0.523	-	1.091	1.017	-	
5260	52	802.11a	OFDM	20	17.0	16.70	0.02	Left	Cheek	1	01873	6	98.3	0.779	0.549	1.072	1.017	0.599	
5280	56	802.11a	OFDM	20	18.0	17.62	0.15	Left	Cheek	1	01873	6	98.3	1.394	0.676	1.091	1.017	**0.750**	A18
5320	64	802.11a	OFDM	20	17.0	16.62	0.18	Left	Cheek	1	01873	6	98.3	1.075	0.567	1.091	1.017	0.629	
5280	56	802.11a	OFDM	20	18.0	17.62	0.11	Left	Tilt	1	01873	6	98.3	1.270	0.663	1.091	1.017	0.736	
5280	56	802.11a	OFDM	20	18.0	17.72	0.00	Right	Cheek	2	01873	6	98.3	0.090	0.033	1.067	1.017	0.036	
5280	56	802.11a	OFDM	20	18.0	17.72	0.00	Right	Tilt	2	01873	6	98.3	0.078	-	1.067	1.017	-	
5280	56	802.11a	OFDM	20	18.0	17.72	0.19	Left	Cheek	2	01873	6	98.3	0.299	0.155	1.067	1.017	0.168	
5280	56	802.11a	OFDM	20	18.0	17.72	0.20	Left	Tilt	2	01873	6	98.3	0.139	-	1.067	1.017	-	
5720	144	802.11a	OFDM	20	17.0	16.86	0.18	Right	Cheek	1	01873	6	98.3	0.187	0.103	1.033	1.017	0.108	
5720	144	802.11a	OFDM	20	17.0	16.86	-0.11	Right	Tilt	1	01873	6	98.3	0.210	-	1.033	1.017	-	
5720	144	802.11a	OFDM	20	17.0	16.86	0.16	Left	Cheek	1	01873	6	98.3	0.436	-	1.033	1.017	-	
5720	144	802.11a	OFDM	20	17.0	16.86	-0.14	Left	Tilt	1	01873	6	98.3	0.454	0.268	1.033	1.017	0.282	
5500	100	802.11a	OFDM	20	17.0	16.80	0.00	Right	Cheek	2	01873	6	98.3	0.083	0.023	1.047	1.017	0.024	
5500	100	802.11a	OFDM	20	17.0	16.80	0.00	Right	Tilt	2	01873	6	98.3	0.051	-	1.047	1.017	-	
5500	100	802.11a	OFDM	20	17.0	16.80	-0.19	Left	Cheek	2	01873	6	98.3	0.490	0.151	1.047	1.017	0.161	
5500	100	802.11a	OFDM	20	17.0	16.80	0.15	Left	Tilt	2	01873	6	98.3	0.142	-	1.047	1.017	-	
5825	165	802.11a	OFDM	20	18.0	17.90	0.11	Right	Cheek	1	01873	6	98.3	0.257	0.143	1.023	1.017	0.149	
5825	165	802.11a	OFDM	20	18.0	17.90	0.15	Right	Tilt	1	01873	6	98.3	0.327	-	1.023	1.017	-	
5825	165	802.11a	OFDM	20	18.0	17.90	0.12	Left	Cheek	1	01873	6	98.3	0.488	-	1.023	1.017	-	
5825	165	802.11a	OFDM	20	18.0	17.90	0.12	Left	Tilt	1	01873	6	98.3	0.664	0.289	1.023	1.017	0.301	
5805	161	802.11a	OFDM	20	18.0	17.97	0.00	Right	Cheek	2	01873	6	98.3	0.131	0.041	1.007	1.017	0.042	
5805	161	802.11a	OFDM	20	18.0	17.97	0.00	Right	Tilt	2	01873	6	98.3	0.128	-	1.007	1.017	-	
5805	161	802.11a	OFDM	20	18.0	17.97	0.17	Left	Cheek	2	01873	6	98.3	0.689	0.335	1.007	1.017	0.343	
5805	161	802.11a	OFDM	20	18.0	17.97	0.07	Left	Tilt	2	01873	6	98.3	0.213	-	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									

Table 11-20
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	-0.01	Right	Cheek	01873	1	77.1	0.037	1.211	1.297	0.058	
2441.00	39	Bluetooth	FHSS	12.5	11.67	0.15	Right	Tilt	01873	1	77.1	0.035	1.211	1.297	0.055	
2441.00	39	Bluetooth	FHSS	12.5	11.67	0.16	Left	Cheek	01873	1	77.1	0.077	1.211	1.297	0.121	
2441.00	39	Bluetooth	FHSS	12.5	11.67	-0.21	Left	Tilt	01873	1	77.1	0.084	1.211	1.297	**0.132**	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 11-21
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	25.22	-0.05	10 mm	01858	N/A	1:1	back	0.929	1.067	0.991	A20
824.70	1013	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.27	0.05	10 mm	01858	N/A	1:1	back	0.924	1.054	0.974	
836.52	384	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.19	0.01	10 mm	01858	N/A	1:1	back	1.020	1.074	**1.095**	A22
848.31	777	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.22	0.01	10 mm	01858	N/A	1:1	back	0.968	1.067	1.033	
1851.25	25	PCS CDMA	TDSO / SO32	25.2	24.99	0.05	10 mm	01858	N/A	1:1	back	0.626	1.050	0.657	A24
1880.00	600	PCS CDMA	TDSO / SO32	25.2	24.95	0.02	10 mm	01858	N/A	1:1	back	0.623	1.059	0.660	
1908.75	1175	PCS CDMA	TDSO / SO32	25.2	24.96	-0.02	10 mm	01858	N/A	1:1	back	0.566	1.057	0.598	
824.20	128	GSM 850	GSM	33.7	33.50	-0.03	10 mm	01862	1	1:8.3	back	0.701	1.047	0.734	A26
836.60	190	GSM 850	GSM	33.7	33.46	-0.05	10 mm	01862	1	1:8.3	back	0.649	1.057	0.686	
848.80	251	GSM 850	GSM	33.7	33.49	0.01	10 mm	01862	1	1:8.3	back	0.675	1.050	0.709	
836.60	190	GSM 850	GPRS	33.7	33.51	0.07	10 mm	01862	1	1:8.3	back	0.605	1.045	0.632	
1880.00	661	GSM 1900	GSM	31.2	31.11	0.20	10 mm	01862	1	1:8.3	back	0.342	1.021	0.349	A28
1880.00	661	GSM 1900	GPRS	31.2	31.09	-0.11	10 mm	01862	1	1:8.3	back	0.301	1.026	0.309	
826.40	4132	UMTS 850	RMC	25.5	25.33	-0.02	10 mm	01862	N/A	1:1	back	0.929	1.040	0.966	
836.60	4183	UMTS 850	RMC	25.5	25.23	0.00	10 mm	01862	N/A	1:1	back	0.976	1.064	1.038	
846.60	4233	UMTS 850	RMC	25.5	25.33	-0.07	10 mm	01862	N/A	1:1	back	1.060	1.040	**1.102**	A30
846.60	4233	UMTS 850	RMC	25.5	25.33	0.02	10 mm	01862	N/A	1:1	back	0.987	1.040	1.026	
1732.40	1412	UMTS 1750	RMC	25.2	24.99	0.00	10 mm	01862	N/A	1:1	back	0.566	1.050	0.594	A31
1880.00	9400	UMTS 1900	RMC	25.2	25.09	-0.04	10 mm	01862	N/A	1:1	back	0.579	1.026	0.594	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						

Note: Blue entry represents variability measurement.

Table 11-22
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	25.18	0.01	0	01861	QPSK	1	0	10 mm	back	1:1	0.427	1.076	0.459	A35
680.50	133297	Mid	LTE Band 71	20	24.5	24.26	0.02	1	01861	QPSK	50	0	10 mm	back	1:1	0.347	1.057	0.367	
707.50	23095	Mid	LTE Band 12	10	25.5	25.33	-0.06	0	01861	QPSK	1	49	10 mm	back	1:1	0.534	1.040	0.555	A36
707.50	23095	Mid	LTE Band 12	10	24.5	24.26	0.01	1	01861	QPSK	25	12	10 mm	back	1:1	0.428	1.057	0.452	
782.00	23230	Mid	LTE Band 13	10	25.5	25.19	-0.02	0	01860	QPSK	1	0	10 mm	back	1:1	0.602	1.074	0.647	A37
782.00	23230	Mid	LTE Band 13	10	24.5	24.20	-0.05	1	01860	QPSK	25	0	10 mm	back	1:1	0.461	1.072	0.494	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.17	-0.01	0	01860	QPSK	1	36	10 mm	back	1:1	0.725	1.079	0.782	A38
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	-0.01	1	01860	QPSK	36	18	10 mm	back	1:1	0.566	1.033	0.585	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.04	-0.06	0	01861	QPSK	1	99	10 mm	back	1:1	0.510	1.038	0.529	A39
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.14	-0.07	1	01861	QPSK	50	0	10 mm	back	1:1	0.423	1.014	0.429	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.2	25.01	-0.03	0	01860	QPSK	1	50	10 mm	back	1:1	0.636	1.045	0.665	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.10	-0.10	0	01860	QPSK	1	0	10 mm	back	1:1	0.651	1.023	0.666	A41
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.05	-0.05	0	01860	QPSK	1	99	10 mm	back	1:1	0.562	1.035	0.582	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.16	-0.05	1	01860	QPSK	50	25	10 mm	back	1:1	0.505	1.009	0.510	
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
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	2593.00	40620	Mid	LTE Band 41	20	25.2	25.08	-0.03	0	01860	QPSK	1	0	10 mm	back	1:1.58	0.570	1.028	0.586	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.2	24.09	-0.04	1	01860	QPSK	50	0	10 mm	back	1:1.58	0.468	1.026	0.480	
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	27.7	27.31	-0.08	0	01860	QPSK	1	0	10 mm	back	1:2.31	0.587	1.094	0.642	
2 CC Uplink - Power Class 3	PCC	2593.00	40620	Mid	LTE Band 41	20	25.2	25.20	-0.02	0	01860	QPSK	1	0	10 mm	back	1:1.58	0.701	1.000	0.701	A43
	SCC	2573.20	40422	Mid		20					01860	QPSK	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 11-24
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	16.9	16.65	-0.02	1.5	01890	CP-OFDM-QPSK	1	1	10 mm	back	1:1	0.194	1.059	0.227	A45
2592.99	518598	Mid	NR Band n41	60	16.9	16.55	-0.03	1.5	01890	CP-OFDM-QPSK	81	40	10 mm	back	1:1	0.191	1.084	0.224	
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	Scaling Factor	Test Duty Cycle
	MHz	Ch.												
FTM Mode	2593.00	40620	Mid	LTE Band 41	20	18.9	18.21	N/A	0.0	QPSK	1	0	1.172	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 11-24. 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. Measured SAR value is scaled using worst case scaling factor of NR Band n41 and LTE B41 FTM mode.

Table 11-25
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	0.11	10 mm	1	01872	1	back	99.3	0.170	0.169	1.038	1.007	0.177	
2412	1	802.11b	DSSS	22	20.5	20.30	0.09	10 mm	2	01872	1	back	99.4	0.395	0.341	1.047	1.006	**0.359**	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-26
DTS MIMO Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
2452	9	802.11g	OFDM	20	19.5	19.26	19.5	19.48	0.10	10 mm	MIMO	01872	6	back	98.3	0.594	0.541	1.057	1.017	0.582	A47
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 22.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 19.5 dBm.

Table 11-27
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	-0.20	10 mm	1	01873	6	back	98.3	0.460	0.210	1.091	1.017	0.233	
5280	56	802.11a	OFDM	20	18.0	17.72	0.00	10 mm	2	01873	6	back	98.3	0.657	0.258	1.067	1.017	0.280	
5720	144	802.11a	OFDM	20	17.0	16.86	0.06	10 mm	1	01873	6	back	98.3	0.150	0.054	1.033	1.017	0.057	
5500	100	802.11a	OFDM	20	17.0	16.80	0.00	10 mm	2	01873	6	back	98.3	0.826	0.346	1.047	1.017	0.368	
5825	165	802.11a	OFDM	20	18.0	17.90	0.20	10 mm	1	01873	6	back	98.3	0.163	0.084	1.023	1.017	0.087	
5785	157	802.11a	OFDM	20	18.0	17.56	0.00	10 mm	2	01873	6	back	98.3	1.636	0.711	1.107	1.017	**0.800**	
5805	161	802.11a	OFDM	20	18.0	17.97	0.15	10 mm	2	01873	6	back	98.3	1.663	0.745	1.007	1.017	0.763	A48
5825	165	802.11a	OFDM	20	18.0	17.62	0.18	10 mm	2	01873	6	back	98.3	1.763	0.680	1.091	1.017	0.754	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-28
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	0.10	10 mm	MIMO	01873	13	back	98.1	0.639	0.250	1.138	1.019	0.290	
5600	120	802.11n	OFDM	20	17.0	16.66	17.0	16.63	0.14	10 mm	MIMO	01873	13	back	98.1	0.792	0.355	1.089	1.019	0.394	
5785	157	802.11n	OFDM	20	18.0	17.70	18.0	17.38	0.14	10 mm	MIMO	01873	13	back	98.1	1.579	0.640	1.153	1.019	0.752	
5805	161	802.11n	OFDM	20	18.0	17.73	18.0	17.77	0.11	10 mm	MIMO	01873	13	back	98.1	1.747	0.621	1.064	1.019	0.673	
5825	165	802.11n	OFDM	20	18.0	17.54	18.0	17.41	0.20	10 mm	MIMO	01873	13	back	98.1	1.565	0.608	1.146	1.019	0.710	
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 11-29
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 1) [dBm]	Conducted Power (Ant 1) [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	-0.15	10 mm	2	01873	13.5	back	97.3	0.239	0.085	1.119	1.028	0.098	
5590	118	802.11n	OFDM	40	15.0	14.77	0.01	10 mm	2	01873	13.5	back	97.3	0.607	0.219	1.054	1.028	0.237	
5795	159	802.11n	OFDM	40	15.0	14.83	0.13	10 mm	2	01873	13.5	back	97.3	1.020	0.374	1.040	1.028	0.400	
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 11-30
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	25.30	0.03	10 mm	01858	N/A	1:1	back	0.947	1.047	0.992	A21
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.30	0.00	10 mm	01858	N/A	1:1	front	0.635	1.047	0.665	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.30	0.06	10 mm	01858	N/A	1:1	bottom	0.239	1.047	0.250	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.30	-0.03	10 mm	01858	N/A	1:1	right	0.405	1.047	0.424	
824.70	1013	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.22	0.00	10 mm	01858	N/A	1:1	back	0.935	1.067	0.998	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.04	-0.04	10 mm	01858	N/A	1:1	back	1.040	1.112	**1.156**	A23
848.31	777	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.23	-0.12	10 mm	01858	N/A	1:1	back	1.010	1.064	1.075	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.04	-0.02	10 mm	01858	N/A	1:1	front	0.660	1.112	0.734	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.04	0.04	10 mm	01858	N/A	1:1	bottom	0.256	1.112	0.285	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.04	-0.03	10 mm	01858	N/A	1:1	right	0.435	1.112	0.484	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	25.06	-0.02	10 mm	01858	N/A	1:1	back	0.685	1.033	0.708	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	25.06	0.00	10 mm	01858	N/A	1:1	front	0.718	1.033	0.742	
1851.25	25	PCS CDMA	EVDO Rev. 0	25.2	25.04	0.01	10 mm	01858	N/A	1:1	bottom	1.060	1.038	1.100	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	25.06	-0.01	10 mm	01858	N/A	1:1	bottom	1.080	1.033	1.116	A25
1908.75	1175	PCS CDMA	EVDO Rev. 0	25.2	25.06	0.00	10 mm	01858	N/A	1:1	bottom	1.050	1.033	1.085	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	25.06	-0.11	10 mm	01858	N/A	1:1	left	0.198	1.033	0.205	
824.20	128	GSM 850	GPRS	33.7	33.62	0.03	10 mm	01862	1	1:8.3	back	0.586	1.019	0.597	
836.60	190	GSM 850	GPRS	33.7	33.51	0.07	10 mm	01862	1	1:8.3	back	0.605	1.045	0.632	A27
848.80	251	GSM 850	GPRS	33.7	33.52	-0.01	10 mm	01862	1	1:8.3	back	0.578	1.042	0.602	
836.60	190	GSM 850	GPRS	33.7	33.51	0.03	10 mm	01862	1	1:8.3	front	0.420	1.045	0.439	
836.60	190	GSM 850	GPRS	33.7	33.51	-0.11	10 mm	01862	1	1:8.3	bottom	0.155	1.045	0.162	
836.60	190	GSM 850	GPRS	33.7	33.51	-0.01	10 mm	01862	1	1:8.3	right	0.365	1.045	0.381	
1880.00	661	GSM 1900	GPRS	31.2	31.09	-0.11	10 mm	01862	1	1:8.3	back	0.301	1.026	0.309	
1880.00	661	GSM 1900	GPRS	31.2	31.09	-0.07	10 mm	01862	1	1:8.3	front	0.326	1.026	0.334	
1880.00	661	GSM 1900	GPRS	31.2	31.09	0.18	10 mm	01862	1	1:8.3	bottom	0.481	1.026	0.494	A29
1880.00	661	GSM 1900	GPRS	31.2	31.09	0.14	10 mm	01862	1	1:8.3	left	0.094	1.026	0.096	
826.40	4132	UMTS 850	RMC	25.5	25.33	-0.02	10 mm	01862	N/A	1:1	back	0.929	1.040	0.966	
836.60	4183	UMTS 850	RMC	25.5	25.23	0.00	10 mm	01862	N/A	1:1	back	0.976	1.064	1.038	
846.60	4233	UMTS 850	RMC	25.5	25.33	-0.07	10 mm	01862	N/A	1:1	back	1.060	1.040	1.102	A30
836.60	4183	UMTS 850	RMC	25.5	25.23	0.00	10 mm	01862	N/A	1:1	front	0.724	1.064	0.770	
836.60	4183	UMTS 850	RMC	25.5	25.23	0.00	10 mm	01862	N/A	1:1	bottom	0.282	1.064	0.300	
836.60	4183	UMTS 850	RMC	25.5	25.23	0.12	10 mm	01862	N/A	1:1	right	0.647	1.064	0.688	
846.60	4233	UMTS 850	RMC	25.5	25.33	0.02	10 mm	01862	N/A	1:1	back	0.987	1.040	1.026	
1732.40	1412	UMTS 1750	RMC	25.2	24.99	0.00	10 mm	01862	N/A	1:1	back	0.566	1.050	0.594	
1732.40	1412	UMTS 1750	RMC	25.2	24.99	-0.05	10 mm	01862	N/A	1:1	front	0.591	1.050	0.621	
1712.40	1312	UMTS 1750	RMC	25.2	24.94	-0.03	10 mm	01862	N/A	1:1	bottom	0.825	1.062	0.876	
1732.40	1412	UMTS 1750	RMC	25.2	24.99	-0.05	10 mm	01862	N/A	1:1	bottom	0.841	1.050	0.883	
1752.60	1513	UMTS 1750	RMC	25.2	24.97	-0.02	10 mm	01862	N/A	1:1	bottom	0.927	1.054	0.977	A32
1732.40	1412	UMTS 1750	RMC	25.2	24.99	-0.02	10 mm	01862	N/A	1:1	left	0.194	1.050	0.204	
1880.00	9400	UMTS 1900	RMC	25.2	25.09	-0.04	10 mm	01862	N/A	1:1	back	0.579	1.026	0.594	
1880.00	9400	UMTS 1900	RMC	25.2	25.09	-0.02	10 mm	01862	N/A	1:1	front	0.612	1.026	0.628	
1852.40	9262	UMTS 1900	RMC	25.2	25.20	0.01	10 mm	01862	N/A	1:1	bottom	1.080	1.000	1.080	
1880.00	9400	UMTS 1900	RMC	25.2	25.09	-0.06	10 mm	01862	N/A	1:1	bottom	1.090	1.026	1.118	
1907.60	9538	UMTS 1900	RMC	25.2	25.06	-0.04	10 mm	01862	N/A	1:1	bottom	1.110	1.033	1.147	A34
1880.00	9400	UMTS 1900	RMC	25.2	25.09	-0.04	10 mm	01862	N/A	1:1	left	0.200	1.026	0.205	
1907.60	9538	UMTS 1900	RMC	25.2	25.06	-0.03	10 mm	01862	N/A	1:1	bottom	0.969	1.033	1.001	
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 entries represents variability measurements.

Table 11-31
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	25.18	0.01	0	01861	QPSK	1	0	10 mm	back	1:1	0.427	1.076	0.459	A35
680.50	133297	Mid	LTE Band 71	20	24.5	24.26	0.02	1	01861	QPSK	50	0	10 mm	back	1:1	0.347	1.057	0.367	
680.50	133297	Mid	LTE Band 71	20	25.5	25.18	0.07	0	01861	QPSK	1	0	10 mm	front	1:1	0.340	1.076	0.366	
680.50	133297	Mid	LTE Band 71	20	24.5	24.26	0.03	1	01861	QPSK	50	0	10 mm	front	1:1	0.281	1.057	0.297	
680.50	133297	Mid	LTE Band 71	20	25.5	25.18	0.12	0	01861	QPSK	1	0	10 mm	bottom	1:1	0.095	1.076	0.102	
680.50	133297	Mid	LTE Band 71	20	24.5	24.26	0.07	1	01861	QPSK	50	0	10 mm	bottom	1:1	0.076	1.057	0.080	
680.50	133297	Mid	LTE Band 71	20	25.5	25.18	-0.16	0	01861	QPSK	1	0	10 mm	right	1:1	0.164	1.076	0.176	
680.50	133297	Mid	LTE Band 71	20	24.5	24.26	0.04	1	01861	QPSK	50	0	10 mm	right	1:1	0.122	1.057	0.129	
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 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	25.33	-0.06	0	01861	QPSK	1	49	10 mm	back	1:1	0.534	1.040	0.555	A36
707.50	23095	Mid	LTE Band 12	10	24.5	24.26	0.01	1	01861	QPSK	25	12	10 mm	back	1:1	0.428	1.057	0.452	
707.50	23095	Mid	LTE Band 12	10	25.5	25.33	-0.06	0	01861	QPSK	1	49	10 mm	front	1:1	0.493	1.040	0.513	
707.50	23095	Mid	LTE Band 12	10	24.5	24.26	-0.02	1	01861	QPSK	25	12	10 mm	front	1:1	0.379	1.057	0.401	
707.50	23095	Mid	LTE Band 12	10	25.5	25.33	-0.07	0	01861	QPSK	1	49	10 mm	bottom	1:1	0.156	1.040	0.162	
707.50	23095	Mid	LTE Band 12	10	24.5	24.26	-0.19	1	01861	QPSK	25	12	10 mm	bottom	1:1	0.118	1.057	0.125	
707.50	23095	Mid	LTE Band 12	10	25.5	25.33	-0.02	0	01861	QPSK	1	49	10 mm	right	1:1	0.183	1.040	0.190	
707.50	23095	Mid	LTE Band 12	10	24.5	24.26	-0.03	1	01861	QPSK	25	12	10 mm	right	1:1	0.128	1.057	0.135	
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 11-33
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	25.19	-0.02	0	01860	QPSK	1	0	10 mm	back	1:1	0.602	1.074	0.647	A37
782.00	23230	Mid	LTE Band 13	10	24.5	24.20	-0.05	1	01860	QPSK	25	0	10 mm	back	1:1	0.461	1.072	0.494	
782.00	23230	Mid	LTE Band 13	10	25.5	25.19	0.10	0	01860	QPSK	1	0	10 mm	front	1:1	0.529	1.074	0.568	
782.00	23230	Mid	LTE Band 13	10	24.5	24.20	0.03	1	01860	QPSK	25	0	10 mm	front	1:1	0.405	1.072	0.434	
782.00	23230	Mid	LTE Band 13	10	25.5	25.19	0.02	0	01860	QPSK	1	0	10 mm	bottom	1:1	0.224	1.074	0.241	
782.00	23230	Mid	LTE Band 13	10	24.5	24.20	-0.08	1	01860	QPSK	25	0	10 mm	bottom	1:1	0.172	1.072	0.184	
782.00	23230	Mid	LTE Band 13	10	25.5	25.19	0.01	0	01860	QPSK	1	0	10 mm	right	1:1	0.355	1.074	0.381	
782.00	23230	Mid	LTE Band 13	10	24.5	24.20	0.00	1	01860	QPSK	25	0	10 mm	right	1:1	0.280	1.072	0.300	
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 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	25.17	-0.01	0	01860	QPSK	1	36	10 mm	back	1:1	0.725	1.079	0.782	A38
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	-0.01	1	01860	QPSK	36	18	10 mm	back	1:1	0.566	1.033	0.585	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.17	0.10	0	01860	QPSK	1	36	10 mm	front	1:1	0.524	1.079	0.565	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	0.02	1	01860	QPSK	36	18	10 mm	front	1:1	0.412	1.033	0.426	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.17	0.13	0	01860	QPSK	1	36	10 mm	bottom	1:1	0.199	1.079	0.215	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	0.01	1	01860	QPSK	36	18	10 mm	bottom	1:1	0.156	1.033	0.161	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.17	-0.06	0	01860	QPSK	1	36	10 mm	right	1:1	0.390	1.079	0.421	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.36	0.03	1	01860	QPSK	36	18	10 mm	right	1:1	0.305	1.033	0.315	
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 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)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.04	-0.06	0	01861	QPSK	1	99	10 mm	back	1:1	0.510	1.038	0.529	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.14	-0.07	1	01861	QPSK	50	0	10 mm	back	1:1	0.423	1.014	0.429	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.04	-0.16	0	01861	QPSK	1	99	10 mm	front	1:1	0.552	1.038	0.573	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.14	-0.12	1	01861	QPSK	50	0	10 mm	front	1:1	0.453	1.014	0.459	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.04	0.02	0	01861	QPSK	1	99	10 mm	bottom	1:1	0.848	1.038	0.880	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	25.2	24.97	-0.03	0	01861	QPSK	1	99	10 mm	bottom	1:1	1.010	1.054	1.065	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.95	-0.04	0	01861	QPSK	1	50	10 mm	bottom	1:1	1.030	1.059	1.091	A40
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.14	-0.01	1	01861	QPSK	50	0	10 mm	bottom	1:1	0.725	1.014	0.735	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.2	24.10	-0.03	1	01861	QPSK	100	0	10 mm	bottom	1:1	0.789	1.023	0.807	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.04	0.00	0	01861	QPSK	1	99	10 mm	left	1:1	0.186	1.038	0.193	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.14	-0.02	1	01861	QPSK	50	0	10 mm	left	1:1	0.155	1.014	0.157	
1770.00	132572	High	LTE Band 66 (AWS)	20	25.2	24.95	-0.08	0	01861	QPSK	1	50	10 mm	bottom	1:1	1.010	1.059	1.070	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population													Body 1.6 W/kg (mW/g) averaged over 1 gram						

Note: Blue entry represents variability measurement.

Table 11-36
LTE Band 25 (PCS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.10	-0.10	0	01860	QPSK	1	0	10 mm	back	1:1	0.651	1.023	0.666	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.16	-0.05	1	01860	QPSK	50	25	10 mm	back	1:1	0.505	1.009	0.510	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.10	-0.10	0	01860	QPSK	1	0	10 mm	front	1:1	0.663	1.023	0.678	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.16	-0.09	1	01860	QPSK	50	25	10 mm	front	1:1	0.522	1.009	0.527	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.2	25.01	-0.03	0	01860	QPSK	1	50	10 mm	bottom	1:1	1.010	1.045	1.055	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.10	-0.05	0	01860	QPSK	1	0	10 mm	bottom	1:1	1.050	1.023	1.074	A42
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.05	-0.04	0	01860	QPSK	1	99	10 mm	bottom	1:1	0.998	1.035	1.033	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.2	24.14	-0.04	1	01860	QPSK	50	25	10 mm	bottom	1:1	0.862	1.014	0.874	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.16	-0.03	1	01860	QPSK	50	25	10 mm	bottom	1:1	0.834	1.009	0.842	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	23.92	-0.04	1	01860	QPSK	50	25	10 mm	bottom	1:1	0.838	1.067	0.894	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.2	24.13	-0.05	1	01860	QPSK	100	0	10 mm	bottom	1:1	0.851	1.016	0.865	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.10	-0.06	0	01860	QPSK	1	0	10 mm	left	1:1	0.202	1.023	0.207	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.16	-0.08	1	01860	QPSK	50	25	10 mm	left	1:1	0.168	1.009	0.170	

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

Table 11-37
LTE Band 41 Hotspot SAR

MEASUREMENT RESULTS																						
1 CC Uplink | 2 CC Uplink, Power Class	Component Carrier	FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
		MHz	Ch.															(W/kg)		(W/kg)	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.2	25.08	-0.03	0	01860	QPSK	1	0	10 mm	back	1:1.58	0.570	1.028	0.586	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.2	24.09	-0.04	1	01860	QPSK	50	0	10 mm	back	1:1.58	0.468	1.026	0.480	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.2	25.08	0.00	0	01860	QPSK	1	0	10 mm	front	1:1.58	0.457	1.028	0.470	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.2	24.09	-0.02	1	01860	QPSK	50	0	10 mm	front	1:1.58	0.382	1.026	0.392	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.2	25.08	-0.10	0	01860	QPSK	1	0	10 mm	bottom	1:1.58	0.096	1.028	0.099	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.2	24.09	0.04	1	01860	QPSK	50	0	10 mm	bottom	1:1.58	0.064	1.026	0.066	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	25.2	24.84	-0.01	0	01860	QPSK	1	99	10 mm	right	1:1.58	0.819	1.086	0.889	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	25.2	24.96	-0.04	0	01860	QPSK	1	50	10 mm	right	1:1.58	0.790	1.057	0.835	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	25.2	25.08	-0.05	0	01860	QPSK	1	0	10 mm	right	1:1.58	0.753	1.028	0.774	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	25.2	24.75	0.11	0	01860	QPSK	1	99	10 mm	right	1:1.58	0.666	1.109	0.739	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	25.2	24.78	0.16	0	01860	QPSK	1	99	10 mm	right	1:1.58	0.770	1.102	0.849	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	24.2	23.86	-0.05	1	01860	QPSK	50	25	10 mm	right	1:1.58	0.685	1.081	0.740	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 41	20	24.2	24.09	-0.06	1	01860	QPSK	50	0	10 mm	right	1:1.58	0.636	1.026	0.653	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 41	20	24.2	23.92	-0.03	1	01860	QPSK	50	50	10 mm	right	1:1.58	0.599	1.067	0.639	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 41	20	24.2	23.78	-0.07	1	01860	QPSK	50	25	10 mm	right	1:1.58	0.571	1.102	0.629	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 41	20	24.2	24.04	-0.02	1	01860	QPSK	50	25	10 mm	right	1:1.58	0.688	1.038	0.714	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	24.2	23.96	-0.05	1	01860	QPSK	100	0	10 mm	right	1:1.58	0.502	1.057	0.531	
1 CC Uplink - Power Class 2	N/A	2506.00	39750	Low	LTE Band 41	20	27.7	27.28	-0.04	0	01860	QPSK	1	99	10 mm	right	1:2.31	0.919	1.102	1.013	A44
2 CC Uplink - Power Class 3	PCC	2506.00	39750	Low	LTE Band 41	20	25.2	25.04	-0.04	0	01860	QPSK	1	99	10 mm	right	1:1.58	0.852	1.038	0.884	
	SCC	2525.80	39948	Low		20						QPSK	1	0							
1 CC Uplink - Power Class 2	N/A	2506.00	39750	Low	LTE Band 41	20	27.7	27.28	0.12	0	01860	QPSK	1	99	10 mm	right	1:2.31	0.886	1.102	0.976	

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

Note: Blue entry represents variability measurement.

Table 11-38
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	16.9	16.65	-0.02	1.5	01890	CP-OFDM-QPSK	1	1	10 mm	back	1:1	0.194	1.059	0.227	
2592.99	518598	Mid	NR Band n41	60	16.9	16.55	-0.03	1.5	01890	CP-OFDM-QPSK	81	40	10 mm	back	1:1	0.191	1.084	0.224	
2592.99	518598	Mid	NR Band n41	60	16.9	16.65	0.07	1.5	01890	CP-OFDM-QPSK	1	1	10 mm	front	1:1	0.138	1.059	0.162	
2592.99	518598	Mid	NR Band n41	60	16.9	16.55	0.07	1.5	01890	CP-OFDM-QPSK	81	40	10 mm	front	1:1	0.138	1.084	0.162	
2592.99	518598	Mid	NR Band n41	60	16.9	16.65	0.02	1.5	01890	CP-OFDM-QPSK	1	1	10 mm	bottom	1:1	0.035	1.059	0.041	
2592.99	518598	Mid	NR Band n41	60	16.9	16.55	-0.01	1.5	01890	CP-OFDM-QPSK	81	40	10 mm	bottom	1:1	0.035	1.084	0.041	
2592.99	518598	Mid	NR Band n41	60	16.9	16.65	0.06	1.5	01890	CP-OFDM-QPSK	1	1	10 mm	right	1:1	0.205	1.059	0.240	A46
2592.99	518598	Mid	NR Band n41	60	16.9	16.55	-0.02	1.5	01890	CP-OFDM-QPSK	81	40	10 mm	right	1:1	0.200	1.084	0.234	
2592.99	518598	Mid	NR Band n41	60	16.9	16.65	0.06	1.5	01890	CP-OFDM-QPSK	1	1	10 mm	left	1:1	0.102	1.059	0.120	
2592.99	518598	Mid	NR Band n41	60	16.9	16.55	0.01	1.5	01890	CP-OFDM-QPSK	81	40	10 mm	left	1:1	0.098	1.084	0.115	

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	Scaling Factor	Test Duty Cycle
	MHz	Ch.												
FTM Mode	2593.00	40620	Mid	LTE Band 41	20	18.9	18.21	N/A	0.0	QPSK	1	0	1.172	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 11-38. Additional SAR investigations determined LTE Band 41 transmission had no effect on the transmission from the NR Band n41 antenna due to spatial separation of transmitting antennas, thus LTE Band 41 anchor configuration was not changed between SAR tests. Measured SAR value is scaled using worst case scaling factor of NR Band n41 and LTE B41 FTM mode.

Table 11-39
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 W/kg	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
2462	11	802.11b	DSSS	22	20.5	20.34	0.11	10 mm	1	01872	1	back	99.3	0.170	0.169	1.038	1.007	0.177	
2462	11	802.11b	DSSS	22	20.5	20.34	0.12	10 mm	1	01872	1	front	99.3	0.089	-	1.038	1.007	-	
2462	11	802.11b	DSSS	22	20.5	20.34	0.20	10 mm	1	01872	1	top	99.3	0.130	-	1.038	1.007	-	
2462	11	802.11b	DSSS	22	20.5	20.34	0.12	10 mm	1	01872	1	right	99.3	0.095	-	1.038	1.007	-	
2412	1	802.11b	DSSS	22	20.5	20.30	0.09	10 mm	2	01872	1	back	99.4	0.395	0.341	1.047	1.006	**0.359**	
2412	1	802.11b	DSSS	22	20.5	20.30	0.11	10 mm	2	01872	1	front	99.4	0.178	-	1.047	1.006	-	
2412	1	802.11b	DSSS	22	20.5	20.30	-0.12	10 mm	2	01872	1	top	99.4	0.042	-	1.047	1.006	-	
2412	1	802.11b	DSSS	22	20.5	20.30	0.16	10 mm	2	01872	1	right	99.4	0.298	-	1.047	1.006	-	
5200	40	802.11a	OFDM	20	18.0	17.70	0.03	10 mm	1	01873	6	back	98.3	0.530	-	1.072	1.017	-	
5200	40	802.11a	OFDM	20	18.0	17.70	0.00	10 mm	1	01873	6	front	98.3	0.225	-	1.072	1.017	-	
5200	40	802.11a	OFDM	20	18.0	17.70	-0.13	10 mm	1	01873	6	top	98.3	0.278	-	1.072	1.017	-	
5200	40	802.11a	OFDM	20	18.0	17.70	-0.18	10 mm	1	01873	6	right	98.3	0.559	0.242	1.072	1.017	0.264	
5200	40	802.11a	OFDM	20	18.0	17.51	0.00	10 mm	2	01873	6	back	98.3	0.235	0.124	1.119	1.017	0.141	
5200	40	802.11a	OFDM	20	18.0	17.51	0.00	10 mm	2	01873	6	front	98.3	0.014	-	1.119	1.017	-	
5200	40	802.11a	OFDM	20	18.0	17.51	0.00	10 mm	2	01873	6	top	98.3	0.020	-	1.119	1.017	-	
5200	40	802.11a	OFDM	20	18.0	17.51	-0.12	10 mm	2	01873	6	right	98.3	0.097	-	1.119	1.017	-	
5825	165	802.11a	OFDM	20	18.0	17.90	0.20	10 mm	1	01873	6	back	98.3	0.163	0.084	1.023	1.017	0.087	
5825	165	802.11a	OFDM	20	18.0	17.90	0.00	10 mm	1	01873	6	front	98.3	0.081	-	1.023	1.017	-	
5825	165	802.11a	OFDM	20	18.0	17.90	-0.12	10 mm	1	01873	6	top	98.3	0.092	-	1.023	1.017	-	
5825	165	802.11a	OFDM	20	18.0	17.90	-0.20	10 mm	1	01873	6	right	98.3	0.061	-	1.023	1.017	-	
5785	157	802.11a	OFDM	20	18.0	17.56	0.00	10 mm	2	01873	6	back	98.3	1.636	0.711	1.107	1.017	**0.800**	
5805	161	802.11a	OFDM	20	18.0	17.97	0.15	10 mm	2	01873	6	back	98.3	1.663	0.745	1.007	1.017	0.763	A48
5825	165	802.11a	OFDM	20	18.0	17.62	0.18	10 mm	2	01873	6	back	98.3	1.763	0.680	1.091	1.017	0.754	
5805	161	802.11a	OFDM	20	18.0	17.97	0.00	10 mm	2	01873	6	front	98.3	0.097	-	1.007	1.017	-	
5805	161	802.11a	OFDM	20	18.0	17.97	0.00	10 mm	2	01873	6	top	98.3	0.069	-	1.007	1.017	-	
5805	161	802.11a	OFDM	20	18.0	17.97	-0.16	10 mm	2	01873	6	right	98.3	0.801	0.322	1.007	1.017	0.330	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Body** **1.6 W/kg (mW/g)** averaged over 1 gram											

Table 11-40
DTS MIMO Hotspot SAR

MEASUREMENT RESULTS																						
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
2452	9	802.11g	OFDM	20	19.5	19.26	19.5	19.48	0.10	10 mm	MIMO	01873	6	back	98.3	0.594	0.541	1.057	1.017	0.582	A47
2452	9	802.11g	OFDM	20	19.5	19.26	19.5	19.48	0.17	10 mm	MIMO	01873	6	front	98.3	0.182	-	1.057	1.017	-	
2452	9	802.11g	OFDM	20	19.5	19.26	19.5	19.48	0.21	10 mm	MIMO	01873	6	top	98.3	0.180	-	1.057	1.017	-	
2452	9	802.11g	OFDM	20	19.5	19.26	19.5	19.48	0.20	10 mm	MIMO	01873	6	right	98.3	0.437	0.335	1.057	1.017	0.360	
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 22.5 dBm maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 19.5 dBm.

Table 11-41
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	0.18	10 mm	MIMO	01873	13	back	98.1	0.364	0.160	1.122	1.019	0.183	
5200	40	802.11n	OFDM	20	18.0	17.50	18.0	17.53	0.00	10 mm	MIMO	01873	13	front	98.1	0.146	-	1.122	1.019	-	
5200	40	802.11n	OFDM	20	18.0	17.50	18.0	17.53	-0.13	10 mm	MIMO	01873	13	top	98.1	0.202	-	1.122	1.019	-	
5200	40	802.11n	OFDM	20	18.0	17.50	18.0	17.53	0.11	10 mm	MIMO	01873	13	right	98.1	0.347	-	1.122	1.019	-	
5785	157	802.11n	OFDM	20	18.0	17.70	18.0	17.38	0.14	10 mm	MIMO	01873	13	back	98.1	1.579	0.640	1.153	1.019	0.752	
5805	161	802.11n	OFDM	20	18.0	17.73	18.0	17.77	0.11	10 mm	MIMO	01873	13	back	98.1	1.747	0.621	1.064	1.019	0.673	
5825	165	802.11n	OFDM	20	18.0	17.54	18.0	17.41	0.20	10 mm	MIMO	01873	13	back	98.1	1.565	0.608	1.146	1.019	0.710	
5805	161	802.11n	OFDM	20	18.0	17.73	18.0	17.77	0.13	10 mm	MIMO	01873	13	front	98.1	0.111	-	1.064	1.019	-	
5805	161	802.11n	OFDM	20	18.0	17.73	18.0	17.77	0.16	10 mm	MIMO	01873	13	top	98.1	0.076	-	1.064	1.019	-	
5805	161	802.11n	OFDM	20	18.0	17.73	18.0	17.77	-0.17	10 mm	MIMO	01873	13	right	98.1	0.603	0.250	1.064	1.019	0.271	
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 11-42
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 1) [dBm]	Conducted Power (Ant 1) [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	0.07	10 mm	2	01873	13.5	back	97.3	0.134	0.043	1.117	1.028	0.049	
5190	38	802.11n	OFDM	40	15.0	14.52	0.00	10 mm	2	01873	13.5	front	97.3	0.008	-	1.117	1.028	-	
5190	38	802.11n	OFDM	40	15.0	14.52	0.12	10 mm	2	01873	13.5	top	97.3	0.008	-	1.117	1.028	-	
5190	38	802.11n	OFDM	40	15.0	14.52	0.00	10 mm	2	01873	13.5	right	97.3	0.033	-	1.117	1.028	-	
5795	159	802.11n	OFDM	40	15.0	14.83	0.13	10 mm	2	01873	13.5	back	97.3	1.020	0.374	1.040	1.028	0.400	
5795	159	802.11n	OFDM	40	15.0	14.83	0.15	10 mm	2	01873	13.5	front	97.3	0.051	-	1.040	1.028	-	
5795	159	802.11n	OFDM	40	15.0	14.83	0.00	10 mm	2	01873	13.5	top	97.3	0.026	-	1.040	1.028	-	
5795	159	802.11n	OFDM	40	15.0	14.83	-0.09	10 mm	2	01873	13.5	right	97.3	0.402	-	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 11-43
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	25.06	0.05	2 mm	01858	1:1	back	1.710	1.033	1.766	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	25.06	0.04	1 mm	01858	1:1	front	1.830	1.033	1.890	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	25.06	-0.07	3 mm	01858	1:1	bottom	1.400	1.033	1.446	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.2	25.06	-0.09	0 mm	01858	1:1	left	0.743	1.033	0.768	
1851.25	25	PCS CDMA	EVDO Rev. 0	23.7	23.51	-0.02	0 mm	01858	1:1	back	2.240	1.045	2.341	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.7	23.60	-0.02	0 mm	01858	1:1	back	2.260	1.023	2.312	
1908.75	1175	PCS CDMA	EVDO Rev. 0	23.7	23.67	-0.01	0 mm	01858	1:1	back	2.280	1.007	2.296	
1851.25	25	PCS CDMA	EVDO Rev. 0	23.7	23.51	-0.09	0 mm	01858	1:1	front	2.310	1.045	2.414	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.7	23.60	-0.09	0 mm	01858	1:1	front	2.330	1.023	2.384	
1908.75	1175	PCS CDMA	EVDO Rev. 0	23.7	23.67	-0.12	0 mm	01858	1:1	front	2.250	1.007	2.266	
1851.25	25	PCS CDMA	EVDO Rev. 0	23.7	23.51	-0.09	0 mm	01858	1:1	bottom	2.550	1.045	2.665	A49
1880.00	600	PCS CDMA	EVDO Rev. 0	23.7	23.60	-0.21	0 mm	01858	1:1	bottom	2.500	1.023	2.558	
1908.75	1175	PCS CDMA	EVDO Rev. 0	23.7	23.67	-0.07	0 mm	01858	1:1	bottom	2.520	1.007	2.538	
1732.40	1412	UMTS 1750	RMC	25.2	24.99	-0.01	2 mm	01862	1:1	back	1.310	1.050	1.376	
1732.40	1412	UMTS 1750	RMC	25.2	24.99	-0.19	1 mm	01862	1:1	front	1.810	1.050	1.901	
1732.40	1412	UMTS 1750	RMC	25.2	24.99	-0.05	3 mm	01862	1:1	bottom	1.420	1.050	1.491	
1732.40	1412	UMTS 1750	RMC	25.2	24.99	-0.08	0 mm	01862	1:1	left	0.655	1.050	0.688	
1732.40	1412	UMTS 1750	RMC	23.7	23.51	0.01	0 mm	01862	1:1	back	1.450	1.045	1.515	
1712.40	1312	UMTS 1750	RMC	23.7	23.36	-0.19	0 mm	01862	1:1	front	1.910	1.081	2.065	
1732.40	1412	UMTS 1750	RMC	23.7	23.51	-0.17	0 mm	01862	1:1	front	2.030	1.045	2.121	
1752.60	1513	UMTS 1750	RMC	23.7	23.51	-0.14	0 mm	01862	1:1	front	2.130	1.045	2.226	
1712.40	1312	UMTS 1750	RMC	23.7	23.36	-0.16	0 mm	01862	1:1	bottom	2.140	1.081	2.313	
1732.40	1412	UMTS 1750	RMC	23.7	23.51	-0.20	0 mm	01862	1:1	bottom	2.210	1.045	2.309	
1752.60	1513	UMTS 1750	RMC	23.7	23.51	-0.18	0 mm	01862	1:1	bottom	2.320	1.045	2.424	A50
1880.00	9400	UMTS 1900	RMC	25.2	25.09	0.20	2 mm	01862	1:1	back	1.430	1.026	1.467	
1880.00	9400	UMTS 1900	RMC	25.2	25.09	0.12	1 mm	01862	1:1	front	1.900	1.026	1.949	
1880.00	9400	UMTS 1900	RMC	25.2	25.09	-0.03	3 mm	01862	1:1	bottom	1.510	1.026	1.549	
1880.00	9400	UMTS 1900	RMC	25.2	25.09	-0.19	0 mm	01862	1:1	left	0.892	1.026	0.915	
1852.40	9262	UMTS 1900	RMC	23.7	23.59	0.12	0 mm	01862	1:1	back	1.920	1.026	1.970	
1880.00	9400	UMTS 1900	RMC	23.7	23.63	0.18	0 mm	01862	1:1	back	2.030	1.016	2.062	
1907.60	9538	UMTS 1900	RMC	23.7	23.49	0.17	0 mm	01862	1:1	back	2.000	1.050	2.100	
1880.00	9400	UMTS 1900	RMC	23.7	23.63	0.02	0 mm	01862	1:1	front	1.760	1.016	1.788	
1852.40	9262	UMTS 1900	RMC	23.7	23.59	0.03	0 mm	01862	1:1	bottom	2.530	1.026	2.596	
1880.00	9400	UMTS 1900	RMC	23.7	23.63	0.02	0 mm	01862	1:1	bottom	2.540	1.016	2.581	A51
1907.60	9538	UMTS 1900	RMC	23.7	23.49	0.00	0 mm	01862	1:1	bottom	2.530	1.050	2.657	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams						

Table 11-44
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)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.04	0.02	0	01861	QPSK	1	99	2 mm	back	1:1	1.120	1.038	1.163	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.14	0.00	1	01861	QPSK	50	0	2 mm	back	1:1	0.906	1.014	0.919	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.04	-0.20	0	01861	QPSK	1	99	1 mm	front	1:1	1.650	1.038	1.713	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.14	-0.21	1	01861	QPSK	50	0	1 mm	front	1:1	1.350	1.014	1.369	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.04	-0.05	0	01861	QPSK	1	99	3 mm	bottom	1:1	1.450	1.038	1.505	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.14	-0.04	1	01861	QPSK	50	0	3 mm	bottom	1:1	1.230	1.014	1.247	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	25.04	-0.07	0	01861	QPSK	1	99	0 mm	left	1:1	0.629	1.038	0.653	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	24.14	-0.11	1	01861	QPSK	50	0	0 mm	left	1:1	0.485	1.014	0.492	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.7	23.53	-0.03	0	01861	QPSK	1	50	0 mm	back	1:1	1.500	1.040	1.560	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.7	23.58	-0.09	0	01861	QPSK	50	50	0 mm	back	1:1	1.600	1.028	1.645	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.7	23.49	-0.20	0	01861	QPSK	1	99	0 mm	front	1:1	1.850	1.050	1.943	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.7	23.53	-0.12	0	01861	QPSK	1	50	0 mm	front	1:1	2.040	1.040	2.122	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.7	23.51	-0.14	0	01861	QPSK	1	50	0 mm	front	1:1	2.140	1.045	2.236	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.7	23.37	-0.18	0	01861	QPSK	50	50	0 mm	front	1:1	2.000	1.079	2.158	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.7	23.58	-0.11	0	01861	QPSK	50	50	0 mm	front	1:1	2.190	1.028	2.251	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.7	23.50	-0.17	0	01861	QPSK	50	0	0 mm	front	1:1	2.350	1.047	2.460	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.7	23.42	-0.16	0	01861	QPSK	100	0	0 mm	front	1:1	2.330	1.067	2.486	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.7	23.49	-0.05	0	01861	QPSK	1	99	0 mm	bottom	1:1	2.160	1.050	2.268	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.7	23.53	-0.07	0	01861	QPSK	1	50	0 mm	bottom	1:1	2.310	1.040	2.402	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.7	23.51	-0.09	0	01861	QPSK	1	50	0 mm	bottom	1:1	2.450	1.045	2.560	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.7	23.37	-0.09	0	01861	QPSK	50	50	0 mm	bottom	1:1	2.280	1.079	2.460	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.7	23.58	-0.08	0	01861	QPSK	50	50	0 mm	bottom	1:1	2.500	1.028	2.570	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.7	23.50	-0.06	0	01861	QPSK	50	0	0 mm	bottom	1:1	2.680	1.047	2.806	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.7	23.42	-0.04	0	01861	QPSK	100	0	0 mm	bottom	1:1	2.690	1.067	**2.870**	A52
1770.00	132572	High	LTE Band 66 (AWS)	20	23.7	23.42	-0.06	0	01861	QPSK	100	0	0 mm	bottom	1:1	2.690	1.067	**2.870**	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.10	-0.01	0	01861	QPSK	1	0	2 mm	back	1:1	1.810	1.023	1.852	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.16	-0.01	1	01861	QPSK	50	25	2 mm	back	1:1	1.470	1.009	1.483	
1860.00	26140	Low	LTE Band 25 (PCS)	20	25.2	25.01	0.03	0	01861	QPSK	1	50	1 mm	front	1:1	2.130	1.045	2.226	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.10	0.01	0	01861	QPSK	1	0	1 mm	front	1:1	2.160	1.023	2.210	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	25.05	-0.01	0	01861	QPSK	1	99	1 mm	front	1:1	2.040	1.035	2.111	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.16	0.00	1	01861	QPSK	50	25	1 mm	front	1:1	1.750	1.009	1.766	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.2	24.13	0.00	1	01861	QPSK	100	0	1 mm	front	1:1	1.760	1.016	1.788	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.10	-0.07	0	01861	QPSK	1	0	3 mm	bottom	1:1	1.460	1.023	1.494	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.16	-0.08	1	01861	QPSK	50	25	3 mm	bottom	1:1	1.170	1.009	1.181	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	25.2	25.10	-0.07	0	01861	QPSK	1	0	0 mm	left	1:1	0.825	1.023	0.844	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.2	24.16	-0.10	1	01861	QPSK	50	25	0 mm	left	1:1	0.659	1.009	0.665	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.7	23.63	-0.05	0	01861	QPSK	1	0	0 mm	back	1:1	2.160	1.016	2.195	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.50	0.01	0	01861	QPSK	1	0	0 mm	back	1:1	2.220	1.047	2.324	
1905.00	26590	High	LTE Band 25 (PCS)	20	23.7	23.66	0.00	0	01861	QPSK	1	99	0 mm	back	1:1	2.080	1.009	2.099	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.7	23.48	-0.01	0	01861	QPSK	50	50	0 mm	back	1:1	2.100	1.052	2.209	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.40	0.07	0	01861	QPSK	50	0	0 mm	back	1:1	2.120	1.072	2.273	
1905.00	26590	High	LTE Band 25 (PCS)	20	23.7	23.58	0.00	0	01861	QPSK	50	0	0 mm	back	1:1	2.090	1.028	2.149	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.7	23.55	-0.03	0	01861	QPSK	100	0	0 mm	back	1:1	2.110	1.035	2.184	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.7	23.63	-0.17	0	01861	QPSK	1	0	0 mm	front	1:1	2.490	1.016	2.530	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.50	-0.14	0	01861	QPSK	1	0	0 mm	front	1:1	2.420	1.047	2.534	
1905.00	26590	High	LTE Band 25 (PCS)	20	23.7	23.66	-0.08	0	01861	QPSK	1	99	0 mm	front	1:1	2.240	1.009	2.260	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.7	23.48	-0.13	0	01861	QPSK	50	50	0 mm	front	1:1	2.390	1.052	2.514	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.40	-0.13	0	01861	QPSK	50	0	0 mm	front	1:1	2.350	1.072	2.519	
1905.00	26590	High	LTE Band 25 (PCS)	20	23.7	23.58	-0.13	0	01861	QPSK	50	0	0 mm	front	1:1	2.280	1.028	2.344	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.7	23.55	-0.13	0	01861	QPSK	100	0	0 mm	front	1:1	2.380	1.035	2.463	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.7	23.63	-0.19	0	01861	QPSK	1	0	0 mm	bottom	1:1	2.650	1.016	2.692	A53
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.50	-0.16	0	01861	QPSK	1	0	0 mm	bottom	1:1	2.590	1.047	2.712	
1905.00	26590	High	LTE Band 25 (PCS)	20	23.7	23.66	-0.10	0	01861	QPSK	1	99	0 mm	bottom	1:1	2.510	1.009	2.533	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.7	23.48	-0.19	0	01861	QPSK	50	50	0 mm	bottom	1:1	2.550	1.052	2.683	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.7	23.40	-0.17	0	01861	QPSK	50	0	0 mm	bottom	1:1	2.490	1.072	2.669	
1905.00	26590	High	LTE Band 25 (PCS)	20	23.7	23.58	-0.20	0	01861	QPSK	50	0	0 mm	bottom	1:1	2.500	1.028	2.570	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.7	23.55	-0.16	0	01861	QPSK	100	0	0 mm	bottom	1:1	2.550	1.035	2.639	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.7	23.63	-0.17	0	01861	QPSK	1	0	0 mm	bottom	1:1	2.620	1.016	2.662	
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 11-45
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	0.00	0 mm	1	01872	6	back	98.3	4.048	-	1.091	1.017	-	
5280	56	802.11a	OFDM	20	18.0	17.62	0.00	0 mm	1	01872	6	front	98.3	4.739	0.484	1.091	1.017	0.537	
5280	56	802.11a	OFDM	20	18.0	17.62	0.17	0 mm	1	01872	6	top	98.3	3.921	-	1.091	1.017	-	
5280	56	802.11a	OFDM	20	18.0	17.62	0.00	0 mm	1	01872	6	right	98.3	10.011	0.776	1.091	1.017	0.861	
5280	56	802.11a	OFDM	20	18.0	17.72	0.00	0 mm	2	01872	6	back	98.3	27.974	1.200	1.067	1.017	**1.302**	
5280	56	802.11a	OFDM	20	18.0	17.72	0.00	0 mm	2	01872	6	front	98.3	0.951	0.112	1.067	1.017	0.122	
5280	56	802.11a	OFDM	20	18.0	17.72	0.00	0 mm	2	01872	6	top	98.3	0.395	-	1.067	1.017	-	
5280	56	802.11a	OFDM	20	18.0	17.72	-0.19	0 mm	2	01872	6	right	98.3	1.847	0.214	1.067	1.017	0.232	
5720	144	802.11a	OFDM	20	17.0	16.86	-0.12	0 mm	1	01872	6	back	98.3	3.688	0.305	1.033	1.017	0.320	
5720	144	802.11a	OFDM	20	17.0	16.86	0.00	0 mm	1	01872	6	front	98.3	2.094	0.151	1.033	1.017	0.159	
5720	144	802.11a	OFDM	20	17.0	16.86	0.09	0 mm	1	01872	6	top	98.3	1.839	-	1.033	1.017	-	
5720	144	802.11a	OFDM	20	17.0	16.86	0.00	0 mm	1	01872	6	right	98.3	2.100	-	1.033	1.017	-	
5500	100	802.11a	OFDM	20	17.0	16.80	0.00	0 mm	2	01872	6	back	98.3	27.180	1.210	1.047	1.017	1.288	A54
5500	100	802.11a	OFDM	20	17.0	16.80	0.15	0 mm	2	01872	6	front	98.3	1.253	0.149	1.047	1.017	0.159	
5500	100	802.11a	OFDM	20	17.0	16.80	0.00	0 mm	2	01872	6	top	98.3	0.371	-	1.047	1.017	-	
5500	100	802.11a	OFDM	20	17.0	16.80	-0.18	0 mm	2	01872	6	right	98.3	3.498	0.316	1.047	1.017	0.336	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**														**Phablet** **4.0 W/kg (mW/g)** averaged over 10 grams					

11.5 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=1.5.

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
Head SAR	CDMA/EVDO BC10 (§90S)	0.168	0.968	0.672	1.136	0.840
	CDMA/EVDO BC0 (§22H)	0.184	0.968	0.672	1.152	0.856
	PCS CDMA/EVDO	0.187	0.968	0.672	1.155	0.859
	GSM/GPRS 850	0.096	0.968	0.672	1.064	0.768
	GSM/GPRS 1900	0.103	0.968	0.672	1.071	0.775
	UMTS 850	0.166	0.968	0.672	1.134	0.838
	UMTS 1750	0.140	0.968	0.672	1.108	0.812
	UMTS 1900	0.173	0.968	0.672	1.141	0.845
	LTE Band 71	0.112	0.968	0.672	1.080	0.784
	LTE Band 12	0.142	0.968	0.672	1.110	0.814
	LTE Band 13	0.133	0.968	0.672	1.101	0.805
	LTE Band 26 (Cell)	0.162	0.968	0.672	1.130	0.834
	LTE Band 66 (AWS)	0.135	0.968	0.672	1.103	0.807
	LTE Band 25 (PCS)	0.213	0.968	0.672	1.181	0.885
	LTE Band 41	0.750	0.968	0.672	See Table Below	**1.422**

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	Right Cheek	0.750	0.389	1.139
	Right Tilt	0.148	0.968*	1.116
	Left Cheek	0.274	0.834	1.108
	Left Tilt	0.214	0.968	**1.182**

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
Head SAR	Right Cheek	0.211	0.389	0.219	0.600	0.430
	Right Tilt	0.057	0.968*	0.672*	1.025	0.729
	Left Cheek	0.095	0.834	0.672	0.929	0.767
	Left Tilt	0.084	0.968	0.672*	**1.052**	0.756

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	CDMA/EVDO BC10 (§90S)	0.168	0.838	1.006
	CDMA/EVDO BC0 (§22H)	0.184	0.838	1.022
	PCS CDMA/EVDO	0.187	0.838	1.025
	GSM/GPRS 850	0.096	0.838	0.934
	GSM/GPRS 1900	0.103	0.838	0.941
	UMTS 850	0.166	0.838	1.004
	UMTS 1750	0.140	0.838	0.978
	UMTS 1900	0.173	0.838	1.011
	LTE Band 71	0.112	0.838	0.950
	LTE Band 12	0.142	0.838	0.980
	LTE Band 13	0.133	0.838	0.971
	LTE Band 26 (Cell)	0.162	0.838	1.000
	LTE Band 66 (AWS)	0.135	0.838	0.973
	LTE Band 25 (PCS)	0.213	0.838	1.051
	LTE Band 41	0.750	0.838	**1.588**

Simult Tx	Configuration	EN-DC (DC_41A-n41A) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	Right Cheek	0.211	0.838*	**1.049**
	Right Tilt	0.057	0.838*	0.895
	Left Cheek	0.095	0.838	0.933
	Left Tilt	0.084	0.617	0.701

Table 12-4
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)	0.168	0.750	0.343	0.918	0.511	1.261
	CDMA/EVDO BC0 (§22H)	0.184	0.750	0.343	0.934	0.527	1.277
	PCS CDMA/EVDO	0.187	0.750	0.343	0.937	0.530	1.280
	GSM/GPRS 850	0.096	0.750	0.343	0.846	0.439	1.189
	GSM/GPRS 1900	0.103	0.750	0.343	0.853	0.446	1.196
	UMTS 850	0.166	0.750	0.343	0.916	0.509	1.259
	UMTS 1750	0.140	0.750	0.343	0.890	0.483	1.233
	UMTS 1900	0.173	0.750	0.343	0.923	0.516	1.266
	LTE Band 71	0.112	0.750	0.343	0.862	0.455	1.205
	LTE Band 12	0.142	0.750	0.343	0.892	0.485	1.235
	LTE Band 13	0.133	0.750	0.343	0.883	0.476	1.226
	LTE Band 26 (Cell)	0.162	0.750	0.343	0.912	0.505	1.255
	LTE Band 66 (AWS)	0.135	0.750	0.343	0.885	0.478	1.228
	LTE Band 25 (PCS)	0.213	0.750	0.343	0.963	0.556	1.306
	LTE Band 41	0.750	0.750	0.343	**1.500**	1.093	See Table Below

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	Right Cheek	0.750	0.267	0.042	1.017	0.792	1.059
	Right Tilt	0.148	0.750*	0.343*	0.898	0.491	1.241
	Left Cheek	0.274	0.750	0.343	1.024	0.617	**1.367**
	Left Tilt	0.214	0.736	0.343*	0.950	0.557	1.293

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	0.211	0.267	0.042	0.478	0.253	0.520
	Right Tilt	0.057	0.750*	0.343*	0.807	0.400	1.150
	Left Cheek	0.095	0.750	0.343	0.845	0.438	**1.188**
	Left Tilt	0.084	0.736	0.343*	0.820	0.427	1.163

Table 12-5
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+3
Head SAR	CDMA/EVDO BC10 (§90S)	0.168	0.968	0.343	1.479
	CDMA/EVDO BC0 (§22H)	0.184	0.968	0.343	1.495
	PCS CDMA/EVDO	0.187	0.968	0.343	1.498
	GSM/GPRS 850	0.096	0.968	0.343	1.407
	GSM/GPRS 1900	0.103	0.968	0.343	1.414
	UMTS 850	0.166	0.968	0.343	1.477
	UMTS 1750	0.140	0.968	0.343	1.451
	UMTS 1900	0.173	0.968	0.343	1.484
	LTE Band 71	0.112	0.968	0.343	1.423
	LTE Band 12	0.142	0.968	0.343	1.453
	LTE Band 13	0.133	0.968	0.343	1.444
	LTE Band 26 (Cell)	0.162	0.968	0.343	1.473
	LTE Band 66 (AWS)	0.135	0.968	0.343	1.446
	LTE Band 25 (PCS)	0.213	0.968	0.343	**1.524**
	LTE Band 41	0.750	0.968	0.343	See Table Below

Simult Tx	Configuration	LTE Band 41 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+3
Head SAR	Right Cheek	0.750	0.389	0.042	1.181
	Right Tilt	0.148	0.968*	0.343*	1.459
	Left Cheek	0.274	0.834	0.343	1.451
	Left Tilt	0.214	0.968	0.343*	**1.525**

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+3
Head SAR	Right Cheek	0.211	0.389	0.042	0.642
	Right Tilt	0.057	0.968*	0.343*	1.368
	Left Cheek	0.095	0.834	0.343	1.272
	Left Tilt	0.084	0.968	0.343*	**1.395**

Table 12-6
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)	0.168	0.132	0.300
	CDMA/EVDO BC0 (§22H)	0.184	0.132	0.316
	PCS CDMA/EVDO	0.187	0.132	0.319
	GSM/GPRS 850	0.096	0.132	0.228
	GSM/GPRS 1900	0.103	0.132	0.235
	UMTS 850	0.166	0.132	0.298
	UMTS 1750	0.140	0.132	0.272
	UMTS 1900	0.173	0.132	0.305
	LTE Band 71	0.112	0.132	0.244
	LTE Band 12	0.142	0.132	0.274
	LTE Band 13	0.133	0.132	0.265
	LTE Band 26 (Cell)	0.162	0.132	0.294
	LTE Band 66 (AWS)	0.135	0.132	0.267
	LTE Band 25 (PCS)	0.213	0.132	0.345
	LTE Band 41	0.750	0.132	**0.882**

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	0.211	0.058	**0.269**
	Right Tilt	0.057	0.055	0.112
	Left Cheek	0.095	0.121	0.216
	Left Tilt	0.084	0.132	0.216

12.4 Body-Worn Simultaneous Transmission Analysis

Table 12-7
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
Body-Worn	CDMA BC10 (§90S)	0.991	0.177	0.359	1.168	1.350
	CDMA BC0 (§22H)	1.095	0.177	0.359	1.272	1.454
	PCS CDMA	0.660	0.177	0.359	0.837	1.019
	GSM/GPRS 850	0.734	0.177	0.359	0.911	1.093
	GSM/GPRS 1900	0.349	0.177	0.359	0.526	0.708
	UMTS 850	1.102	0.177	0.359	1.279	**1.461**
	UMTS 1750	0.594	0.177	0.359	0.771	0.953
	UMTS 1900	0.594	0.177	0.359	0.771	0.953
	LTE Band 71	0.459	0.177	0.359	0.636	0.818
	LTE Band 12	0.555	0.177	0.359	0.732	0.914
	LTE Band 13	0.647	0.177	0.359	0.824	1.006
	LTE Band 26 (Cell)	0.782	0.177	0.359	0.959	1.141
	LTE Band 66 (AWS)	0.529	0.177	0.359	0.706	0.888
	LTE Band 25 (PCS)	0.666	0.177	0.359	0.843	1.025
	LTE Band 41	0.701	0.177	0.359	0.878	1.060

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
Back Side	0.227	0.177	0.359	0.404	**0.586**

Table 12-8
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body-Worn	CDMA BC10 (§90S)	0.991	0.582	**1.573**	N/A
	CDMA BC0 (§22H)	1.095	0.582	See Note 1	0.02
	PCS CDMA	0.660	0.582	1.242	N/A
	GSM/GPRS 850	0.734	0.582	1.316	N/A
	GSM/GPRS 1900	0.349	0.582	0.931	N/A
	UMTS 850	1.102	0.582	See Note 1	0.02
	UMTS 1750	0.594	0.582	1.176	N/A
	UMTS 1900	0.594	0.582	1.176	N/A
	LTE Band 71	0.459	0.582	1.041	N/A
	LTE Band 12	0.555	0.582	1.137	N/A
	LTE Band 13	0.647	0.582	1.229	N/A
	LTE Band 26 (Cell)	0.782	0.582	1.364	N/A
	LTE Band 66 (AWS)	0.529	0.582	1.111	N/A
	LTE Band 25 (PCS)	0.666	0.582	1.248	N/A
	LTE Band 41	0.701	0.582	1.283	N/A

Configuration	EN-DC (DC_41A-n41A) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
	1	2	1+2
Back Side	0.227	0.582	0.809

Table 12-9
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+2	1+3
Body-Worn	CDMA BC10 (§90S)	0.991	0.233	0.800	1.224	See Note 1	N/A	0.02
	CDMA BC0 (§22H)	1.095	0.233	0.800	1.328	See Note 1	N/A	0.03
	PCS CDMA	0.660	0.233	0.800	0.893	1.460	N/A	N/A
	GSM/GPRS 850	0.734	0.233	0.800	0.967	1.534	N/A	N/A
	GSM/GPRS 1900	0.349	0.233	0.800	0.582	1.149	N/A	N/A
	UMTS 850	1.102	0.233	0.800	1.335	See Note 1	N/A	0.03
	UMTS 1750	0.594	0.233	0.800	0.827	1.394	N/A	N/A
	UMTS 1900	0.594	0.233	0.800	0.827	1.394	N/A	N/A
	LTE Band 71	0.459	0.233	0.800	0.692	1.259	N/A	N/A
	LTE Band 12	0.555	0.233	0.800	0.788	1.355	N/A	N/A
	LTE Band 13	0.647	0.233	0.800	0.880	1.447	N/A	N/A
	LTE Band 26 (Cell)	0.782	0.233	0.800	1.015	**1.582**	N/A	N/A
	LTE Band 66 (AWS)	0.529	0.233	0.800	0.762	1.329	N/A	N/A
	LTE Band 25 (PCS)	0.666	0.233	0.800	0.899	1.466	N/A	N/A
	LTE Band 41	0.701	0.233	0.800	0.934	1.501	N/A	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	0.227	0.233	0.800	0.460	**1.027**

Table 12-10
Simultaneous Transmission Scenario with 5 GHz WLAN MIMO (Body-Worn at 1.0 cm)

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)	0.991	0.752	See Note 1	0.02
	CDMA BC0 (§22H)	1.095	0.752	See Note 1	0.02
	PCS CDMA	0.660	0.752	1.412	N/A
	GSM/GPRS 850	0.734	0.752	1.486	N/A
	GSM/GPRS 1900	0.349	0.752	1.101	N/A
	UMTS 850	1.102	0.752	See Note 1	0.02
	UMTS 1750	0.594	0.752	1.346	N/A
	UMTS 1900	0.594	0.752	1.346	N/A
	LTE Band 71	0.459	0.752	1.211	N/A
	LTE Band 12	0.555	0.752	1.307	N/A
	LTE Band 13	0.647	0.752	1.399	N/A
	LTE Band 26 (Cell)	0.782	0.752	**1.534**	N/A
	LTE Band 66 (AWS)	0.529	0.752	1.281	N/A
	LTE Band 25 (PCS)	0.666	0.752	1.418	N/A
	LTE Band 41	0.701	0.752	1.453	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	0.227	0.752	0.979

Table 12-11
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 15 dBm SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Body-Worn	CDMA BC10 (§90S)	0.991	0.177	0.400	**1.568**	N/A	N/A	N/A
	CDMA BC0 (§22H)	1.095	0.177	0.400	See Note 1	0.01	0.02	0.03
	PCS CDMA	0.660	0.177	0.400	1.237	N/A	N/A	N/A
	GSM/GPRS 850	0.734	0.177	0.400	1.311	N/A	N/A	N/A
	GSM/GPRS 1900	0.349	0.177	0.400	0.926	N/A	N/A	N/A
	UMTS 850	1.102	0.177	0.400	See Note 1	0.01	0.02	0.03
	UMTS 1750	0.594	0.177	0.400	1.171	N/A	N/A	N/A
	UMTS 1900	0.594	0.177	0.400	1.171	N/A	N/A	N/A
	LTE Band 71	0.459	0.177	0.400	1.036	N/A	N/A	N/A
	LTE Band 12	0.555	0.177	0.400	1.132	N/A	N/A	N/A
	LTE Band 13	0.647	0.177	0.400	1.224	N/A	N/A	N/A
	LTE Band 26 (Cell)	0.782	0.177	0.400	1.359	N/A	N/A	N/A
	LTE Band 66 (AWS)	0.529	0.177	0.400	1.106	N/A	N/A	N/A
	LTE Band 25 (PCS)	0.666	0.177	0.400	1.243	N/A	N/A	N/A
	LTE Band 41	0.701	0.177	0.400	1.278	N/A	N/A	N/A

Configuration	EN-DC (DC_41A-n41A) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 15 dBm SAR (W/kg)	Σ SAR (W/kg)
	1	2	3	1+2+3
Back Side	0.227	0.177	0.400	0.804

Table 12-12
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)	0.991	0.378	1.369
	CDMA BC0 (§22H)	1.095	0.378	1.473
	PCS CDMA	0.660	0.378	1.038
	GSM/GPRS 850	0.734	0.378	1.112
	GSM/GPRS 1900	0.349	0.378	0.727
	UMTS 850	1.102	0.378	**1.480**
	UMTS 1750	0.594	0.378	0.972
	UMTS 1900	0.594	0.378	0.972
	LTE Band 71	0.459	0.378	0.837
	LTE Band 12	0.555	0.378	0.933
	LTE Band 13	0.647	0.378	1.025
	LTE Band 26 (Cell)	0.782	0.378	1.160
	LTE Band 66 (AWS)	0.529	0.378	0.907
	LTE Band 25 (PCS)	0.666	0.378	1.044
	LTE Band 41	0.701	0.378	1.079

Configuration	EN-DC (DC_41A-n41A) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
	1	2	1+2
Back Side	0.227	0.378	0.605

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 12-13
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Hotspot SAR	EVDO BC10 (§90S)	0.992	0.177	0.359	1.169	1.351
	EVDO BC0 (§22H)	1.156	0.177	0.359	1.333	**1.515**
	PCS EVDO	1.116	0.177	0.359	1.293	1.475
	GPRS 850	0.632	0.177	0.359	0.809	0.991
	GPRS 1900	0.494	0.177	0.359	0.671	0.853
	UMTS 850	1.102	0.177	0.359	1.279	1.461
	UMTS 1750	0.977	0.177	0.359	1.154	1.336
	UMTS 1900	1.147	0.177	0.359	1.324	1.506
	LTE Band 71	0.459	0.177	0.359	0.636	0.818
	LTE Band 12	0.555	0.177	0.359	0.732	0.914
	LTE Band 13	0.647	0.177	0.359	0.824	1.006
	LTE Band 26 (Cell)	0.782	0.177	0.359	0.959	1.141
	LTE Band 66 (AWS)	1.091	0.177	0.359	1.268	1.450
	LTE Band 25 (PCS)	1.074	0.177	0.359	1.251	1.433
	LTE Band 41	1.013	0.177	0.359	1.190	1.372

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
Hotspot SAR	Back	0.227	0.177	0.359	0.404	0.586
	Front	0.162	0.177*	0.359*	0.339	0.521
	Top	-	0.177*	0.359*	0.177	0.359
	Bottom	0.041	-	-	0.041	0.041
	Right	0.240	0.177*	0.359*	0.417	**0.599**
	Left	0.120	-	-	0.120	0.120

Table 12-14
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.992	0.582	**1.574**
	EVDO BC0 (§22H)	1.156	0.582	See Table Below
	PCS EVDO	1.116	0.582	See Table Below
	GPRS 850	0.632	0.582	1.214
	GPRS 1900	0.494	0.582	1.076
	UMTS 850	1.102	0.582	See Table Below
	UMTS 1750	0.977	0.582	1.559
	UMTS 1900	1.147	0.582	See Table Below
	LTE Band 71	0.459	0.582	1.041
	LTE Band 12	0.555	0.582	1.137
	LTE Band 13	0.647	0.582	1.229
	LTE Band 26 (Cell)	0.782	0.582	1.364
	LTE Band 66 (AWS)	1.091	0.582	See Table Below
	LTE Band 25 (PCS)	1.074	0.582	See Table Below
	LTE Band 41	1.013	0.582	See Table Below

Simult Tx	Configuration	EVDO BC0 (§22H) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Hotspot SAR	Back	1.156	0.582	See Note 1	0.02
	Front	0.734	0.582*	1.316	N/A
	Top	-	0.582*	0.582	N/A
	Bottom	0.285	-	0.285	N/A
	Right	0.484	0.360	0.844	N/A
	Left	-	-	0.000	N/A

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.708	0.582	1.290
	Front	0.742	0.582*	**1.324**
	Top	-	0.582*	0.582
	Bottom	1.116	-	1.116
	Right	-	0.360	0.360
	Left	0.205	-	0.205

Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Hotspot SAR	Back	1.102	0.582	See Note 1	0.02
	Front	0.770	0.582*	1.352	N/A
	Top	-	0.582*	0.582	N/A
	Bottom	0.300	-	0.300	N/A
	Right	0.688	0.360	1.048	N/A
	Left	-	-	0.000	N/A

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.594	0.582	1.176
	Front	0.628	0.582*	**1.210**
	Top	-	0.582*	0.582
	Bottom	1.147	-	1.147
	Right	-	0.360	0.360
	Left	0.205	-	0.205

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.529	0.582	1.111
	Front	0.573	0.582*	**1.155**
	Top	-	0.582*	0.582
	Bottom	1.091	-	1.091
	Right	-	0.360	0.360
	Left	0.193	-	0.193

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.666	0.582	1.248
	Front	0.678	0.582*	**1.260**
	Top	-	0.582*	0.582
	Bottom	1.074	-	1.074
	Right	-	0.360	0.360
	Left	0.207	-	0.207

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.586	0.582	1.168
	Front	0.470	0.582*	1.052
	Top	-	0.582*	0.582
	Bottom	0.099	-	0.099
	Right	1.013	0.360	**1.373**
	Left	-	-	0.000

Simult Tx	Configuration	EN-DC (DC_41A-n41A) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.227	0.582	**0.809**
	Front	0.162	0.582*	0.744
	Top	-	0.582*	0.582
	Bottom	0.041	-	0.041
	Right	0.240	0.360	0.600
	Left	0.120	-	0.120

Table 12-15
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)	0.992	0.264	0.800	1.256	See Table Below
	EVDO BC0 (§22H)	1.156	0.264	0.800	1.420	See Table Below
	PCS EVDO	1.116	0.264	0.800	1.380	See Table Below
	GPRS 850	0.632	0.264	0.800	0.896	1.432
	GPRS 1900	0.494	0.264	0.800	0.758	1.294
	UMTS 850	1.102	0.264	0.800	1.366	See Table Below
	UMTS 1750	0.977	0.264	0.800	1.241	See Table Below
	UMTS 1900	1.147	0.264	0.800	1.411	See Table Below
	LTE Band 71	0.459	0.264	0.800	0.723	1.259
	LTE Band 12	0.555	0.264	0.800	0.819	1.355
	LTE Band 13	0.647	0.264	0.800	0.911	1.447
	LTE Band 26 (Cell)	0.782	0.264	0.800	1.046	**1.582**
	LTE Band 66 (AWS)	1.091	0.264	0.800	1.355	See Table Below
	LTE Band 25 (PCS)	1.074	0.264	0.800	1.338	See Table Below
	LTE Band 41	1.013	0.264	0.800	1.277	See Table Below

Simult Tx	Configuration	EVDO BC10 (§90S) 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+2	1+3
Hotspot SAR	Back	0.992	0.087	0.800	1.079	See Note 1	N/A	0.02
	Front	0.665	0.264*	0.800*	0.929	**1.465**	N/A	N/A
	Top	-	0.264*	0.800*	0.264	0.800	N/A	N/A
	Bottom	0.250	-	-	0.250	0.250	N/A	N/A
	Right	0.424	0.264	0.330	0.688	0.754	N/A	N/A
	Left	-	-	-	0.000	0.000	N/A	N/A

Simult Tx	Configuration	EVDO BC0 (§22H) 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+2	1+3
Hotspot SAR	Back	1.156	0.087	0.800	1.243	See Note 1	N/A	0.03
	Front	0.734	0.264*	0.800*	0.998	**1.534**	N/A	N/A
	Top	-	0.264*	0.800*	0.264	0.800	N/A	N/A
	Bottom	0.285	-	-	0.285	0.285	N/A	N/A
	Right	0.484	0.264	0.330	0.748	0.814	N/A	N/A
	Left	-	-	-	0.000	0.000	N/A	N/A

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)	
		1	2	3	1+2	1+3
Hotspot SAR	Back	0.708	0.087	0.800	0.795	1.508
	Front	0.742	0.264*	0.800*	1.006	**1.542**
	Top	-	0.264*	0.800*	0.264	0.800
	Bottom	1.116	-	-	1.116	1.116
	Right	-	0.264	0.330	0.264	0.330
	Left	0.205	-	-	0.205	0.205

Simult Tx	Configuration	UMTS 850 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+2	1+3
Hotspot SAR	Back	1.102	0.087	0.800	1.189	See Note 1	N/A	0.03
	Front	0.770	0.264*	0.800*	1.034	**1.570**	N/A	N/A
	Top	-	0.264*	0.800*	0.264	0.800	N/A	N/A
	Bottom	0.300	-	-	0.300	0.300	N/A	N/A
	Right	0.688	0.264	0.330	0.952	1.018	N/A	N/A
	Left	-	-	-	0.000	0.000	N/A	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
Hotspot SAR	Back	0.594	0.087	0.800	0.681	1.394
	Front	0.621	0.264*	0.800*	0.885	**1.421**
	Top	-	0.264*	0.800*	0.264	0.800
	Bottom	0.977	-	-	0.977	0.977
	Right	-	0.264	0.330	0.264	0.330
	Left	0.204	-	-	0.204	0.204

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Hotspot SAR	Back	0.594	0.087	0.800	0.681	1.394
	Front	0.628	0.264*	0.800*	0.892	**1.428**
	Top	-	0.264*	0.800*	0.264	0.800
	Bottom	1.147	-	-	1.147	1.147
	Right	-	0.264	0.330	0.264	0.330
	Left	0.205	-	-	0.205	0.205

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
Hotspot SAR	Back	0.529	0.087	0.800	0.616	1.329
	Front	0.573	0.264*	0.800*	0.837	**1.373**
	Top	-	0.264*	0.800*	0.264	0.800
	Bottom	1.091	-	-	1.091	1.091
	Right	-	0.264	0.330	0.264	0.330
	Left	0.193	-	-	0.193	0.193

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Hotspot SAR	Back	0.666	0.087	0.800	0.753	1.466
	Front	0.678	0.264*	0.800*	0.942	**1.478**
	Top	-	0.264*	0.800*	0.264	0.800
	Bottom	1.074	-	-	1.074	1.074
	Right	-	0.264	0.330	0.264	0.330
	Left	0.207	-	-	0.207	0.207

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	
		1	2	3	1+2	1+3
Hotspot SAR	Back	0.586	0.087	0.800	0.673	**1.386**
	Front	0.470	0.264*	0.800*	0.734	1.270
	Top	-	0.264*	0.800*	0.264	0.800
	Bottom	0.099	-	-	0.099	0.099
	Right	1.013	0.264	0.330	1.277	1.343
	Left	-	-	-	0.000	0.000

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	0.227	0.087	0.800	0.314	**1.027**
	Front	0.162	0.264*	0.800*	0.426	0.962
	Top	-	0.264*	0.800*	0.264	0.800
	Bottom	0.041	-	-	0.041	0.041
	Right	0.240	0.264	0.330	0.504	0.570
	Left	0.120	-	-	0.120	0.120

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.992	0.752	See Table Below
	EVDO BC0 (§22H)	1.156	0.752	See Table Below
	PCS EVDO	1.116	0.752	See Table Below
	GPRS 850	0.632	0.752	1.384
	GPRS 1900	0.494	0.752	1.246
	UMTS 850	1.102	0.752	See Table Below
	UMTS 1750	0.977	0.752	See Table Below
	UMTS 1900	1.147	0.752	See Table Below
	LTE Band 71	0.459	0.752	1.211
	LTE Band 12	0.555	0.752	1.307
	LTE Band 13	0.647	0.752	1.399
	LTE Band 26 (Cell)	0.782	0.752	**1.534**
	LTE Band 66 (AWS)	1.091	0.752	See Table Below
	LTE Band 25 (PCS)	1.074	0.752	See Table Below
	LTE Band 41	1.013	0.752	See Table Below

Simult Tx	Configuration	EVDO BC10 (§90S) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Hotspot SAR	Back	0.992	0.752	See Note 1	0.02
	Front	0.665	0.752*	**1.417**	N/A
	Top	-	0.752*	0.752	N/A
	Bottom	0.250	-	0.250	N/A
	Right	0.424	0.271	0.695	N/A
	Left	-	-	0.000	N/A

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
Hotspot SAR	Back	1.156	0.752	See Note 1	0.03
	Front	0.734	0.752*	**1.486**	N/A
	Top	-	0.752*	0.752	N/A
	Bottom	0.285	-	0.285	N/A
	Right	0.484	0.271	0.755	N/A
	Left	-	-	0.000	N/A

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.708	0.752	1.460
	Front	0.742	0.752*	**1.494**
	Top	-	0.752*	0.752
	Bottom	1.116	-	1.116
	Right	-	0.271	0.271
	Left	0.205	-	0.205

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
Hotspot SAR	Back	1.102	0.752	See Note 1	0.02
	Front	0.770	0.752*	**1.522**	N/A
	Top	-	0.752*	0.752	N/A
	Bottom	0.300	-	0.300	N/A
	Right	0.688	0.271	0.959	N/A
	Left	-	-	0.000	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
Hotspot SAR	Back	0.594	0.752	1.346
	Front	0.621	0.752*	**1.373**
	Top	-	0.752*	0.752
	Bottom	0.977	-	0.977
	Right	-	0.271	0.271
	Left	0.204	-	0.204

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.594	0.752	1.346
	Front	0.628	0.752*	**1.380**
	Top	-	0.752*	0.752
	Bottom	1.147	-	1.147
	Right	-	0.271	0.271
	Left	0.205	-	0.205

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
Hotspot SAR	Back	0.529	0.752	1.281
	Front	0.573	0.752*	**1.325**
	Top	-	0.752*	0.752
	Bottom	1.091	-	1.091
	Right	-	0.271	0.271
	Left	0.193	-	0.193

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
Hotspot SAR	Back	0.666	0.752	1.418
	Front	0.678	0.752*	**1.430**
	Top	-	0.752*	0.752
	Bottom	1.074	-	1.074
	Right	-	0.271	0.271
	Left	0.207	-	0.207

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.586	0.752	**1.338**
	Front	0.470	0.752*	1.222
	Top	-	0.752*	0.752
	Bottom	0.099	-	0.099
	Right	1.013	0.271	1.284
	Left	-	-	0.000

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	0.227	0.752	**0.979**
	Front	0.162	0.752*	0.914
	Top	-	0.752*	0.752
	Bottom	0.041	-	0.041
	Right	0.240	0.271	0.511
	Left	0.120	-	0.120

Table 12-17
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 15 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.992	0.177	0.400	1.569
	EVDO BC0 (§22H)	1.156	0.177	0.400	See Table Below
	PCS EVDO	1.116	0.177	0.400	See Table Below
	GPRS 850	0.632	0.177	0.400	1.209
	GPRS 1900	0.494	0.177	0.400	1.071
	UMTS 850	1.102	0.177	0.400	See Table Below
	UMTS 1750	0.977	0.177	0.400	1.554
	UMTS 1900	1.147	0.177	0.400	See Table Below
	LTE Band 71	0.459	0.177	0.400	1.036
	LTE Band 12	0.555	0.177	0.400	1.132
	LTE Band 13	0.647	0.177	0.400	1.224
	LTE Band 26 (Cell)	0.782	0.177	0.400	1.359
	LTE Band 66 (AWS)	1.091	0.177	0.400	See Table Below
	LTE Band 25 (PCS)	1.074	0.177	0.400	See Table Below
	LTE Band 41	1.013	0.177	0.400	**1.590**

Simult Tx	Configuration	EVDO BC0 (§22H) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 15 dBm SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Hotspot SAR	Back	1.156	0.177	0.400	See Note 1	0.01	0.02	0.03
	Front	0.734	0.177*	0.400*	1.311	N/A	N/A	N/A
	Top	-	0.177*	0.400*	0.577	N/A	N/A	N/A
	Bottom	0.285	-	-	0.285	N/A	N/A	N/A
	Right	0.484	0.177*	0.400*	1.061	N/A	N/A	N/A
	Left	-	-	-	0.000	N/A	N/A	N/A

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 15 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.708	0.177	0.400	1.285
	Front	0.742	0.177*	0.400*	**1.319**
	Top	-	0.177*	0.400*	0.577
	Bottom	1.116	-	-	1.116
	Right	-	0.177*	0.400*	0.577
	Left	0.205	-	-	0.205

Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 15 dBm SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Hotspot SAR	Back	1.102	0.177	0.400	See Note 1	0.01	0.02	0.03
	Front	0.770	0.177*	0.400*	1.347	N/A	N/A	N/A
	Top	-	0.177*	0.400*	0.577	N/A	N/A	N/A
	Bottom	0.300	-	-	0.300	N/A	N/A	N/A
	Right	0.688	0.177*	0.400*	1.265	N/A	N/A	N/A
	Left	-	-	-	0.000	N/A	N/A	N/A

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 15 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.594	0.177	0.400	1.171
	Front	0.628	0.177*	0.400*	**1.205**
	Top	-	0.177*	0.400*	0.577
	Bottom	1.147	-	-	1.147
	Right	-	0.177*	0.400*	0.577
	Left	0.205	-	-	0.205

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 at 15 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.529	0.177	0.400	1.106
	Front	0.573	0.177*	0.400*	**1.150**
	Top	-	0.177*	0.400*	0.577
	Bottom	1.091	-	-	1.091
	Right	-	0.177*	0.400*	0.577
	Left	0.193	-	-	0.193

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 15 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.666	0.177	0.400	1.243
	Front	0.678	0.177*	0.400*	**1.255**
	Top	-	0.177*	0.400*	0.577
	Bottom	1.074	-	-	1.074
	Right	-	0.177*	0.400*	0.577
	Left	0.207	-	-	0.207

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 15 dBm SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.227	0.177	0.400	0.804
	Front	0.162	0.177*	0.400*	0.739
	Top	-	0.177*	0.400*	0.577
	Bottom	0.041	-	-	0.041
	Right	0.240	0.177*	0.400*	**0.817**
	Left	0.120	-	-	0.120

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	1.015	0.378	1.393
	EVDO BC0 (§22H)	1.156	0.378	**1.534**
	PCS EVDO	1.116	0.378	1.494
	GPRS 850	0.632	0.378	1.010
	GPRS 1900	0.494	0.378	0.872
	UMTS 850	1.102	0.378	1.480
	UMTS 1750	0.977	0.378	1.355
	UMTS 1900	1.147	0.378	1.525
	LTE Band 71	0.459	0.378	0.837
	LTE Band 12	0.555	0.378	0.933
	LTE Band 13	0.647	0.378	1.025
	LTE Band 26 (Cell)	0.782	0.378	1.160
	LTE Band 66 (AWS)	1.091	0.378	1.469
	LTE Band 25 (PCS)	1.074	0.378	1.452
	LTE Band 41	1.013	0.378	1.391

Simult Tx	EN-DC (DC_41A-n41A) SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
	1	2	1+2
Hotspot SAR	0.240	0.378	**0.618**

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.

12.6 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 12-19
Simultaneous Transmission Scenario with 5 GHz WLAN (Phablet)

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)		
		1	2	3	1+2	1+3	1+2+3
Phablet SAR	Back	2.341	0.320	1.302	2.661	3.643	**3.963**
	Front	2.414	0.537	0.159	2.951	2.573	3.110
	Top	-	0.861*	1.302*	0.861	1.302	2.163
	Bottom	2.665	-	-	2.665	2.665	2.665
	Right	-	0.861	0.336	0.861	0.336	1.197
	Left	0.768	-	-	0.768	0.768	0.768

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	1+2+3
Phablet SAR	Back	1.515	0.320	1.302	1.835	2.817	**3.137**
	Front	2.226	0.537	0.159	2.763	2.385	2.922
	Top	-	0.861*	1.302*	0.861	1.302	2.163
	Bottom	2.424	-	-	2.424	2.424	2.424
	Right	-	0.861	0.336	0.861	0.336	1.197
	Left	0.688	-	-	0.688	0.688	0.688

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Phablet SAR	Back	2.100	0.320	1.302	2.420	3.402	**3.722**
	Front	1.949	0.537	0.159	2.486	2.108	2.645
	Top	-	0.861*	1.302*	0.861	1.302	2.163
	Bottom	2.657	-	-	2.657	2.657	2.657
	Right	-	0.861	0.336	0.861	0.336	1.197
	Left	0.915	-	-	0.915	0.915	0.915

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	1+2+3
Phablet SAR	Back	1.645	0.320	1.302	1.965	2.947	**3.267**
	Front	2.486	0.537	0.159	3.023	2.645	3.182
	Top	-	0.861*	1.302*	0.861	1.302	2.163
	Bottom	2.870	-	-	2.870	2.870	2.870
	Right	-	0.861	0.336	0.861	0.336	1.197
	Left	0.653	-	-	0.653	0.653	0.653

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Phablet SAR	Back	2.324	0.320	1.302	2.644	3.626	**3.946**
	Front	2.534	0.537	0.159	3.071	2.693	3.230
	Top	-	0.861*	1.302*	0.861	1.302	2.163
	Bottom	2.712	-	-	2.712	2.712	2.712
	Right	-	0.861	0.336	0.861	0.336	1.197
	Left	0.844	-	-	0.844	0.844	0.844

Table 12-20
Simultaneous Transmission Scenario with Bluetooth (Phablet)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Phablet SAR	PCS EVDO	2.665	0.302	2.967
	UMTS 1750	2.424	0.302	2.726
	UMTS 1900	2.657	0.302	2.959
	LTE Band 66 (AWS)	2.870	0.302	**3.172**
	LTE Band 25 (PCS)	2.712	0.302	3.014

Notes:
1. 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.

12.7 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.

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

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

12.7.1 Body-Worn Back Side SPLSR Evaluation and Analysis

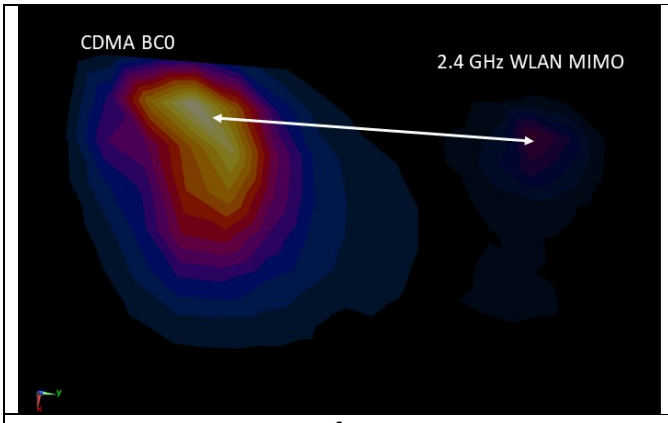
Table 12-21
Peak SAR Locations for Body-Worn Back Side

Mode/Band	x (mm)	y (mm)
5 GHz WLAN Ant 2	-58.00	46.00
5 GHz WLAN MIMO	-56.00	52.00
CDMA BC10	-59.00	-58.50
CDMA BC0	-51.00	-52.00
UMTS 850	-51.00	-50.50
2.4 GHz Ant 1	-57.40	67.20
5 GHz WLAN Ant 2 at 15 dBm	-55.00	51.00
2.4 GHz WLAN MIMO	-57.40	62.40

Table 12-22
Body-Worn 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}	$(a+b)^{1.5}/D_{a-b}$	
2.4 GHz WLAN MIMO	CDMA BC0	0.582	1.095	1.677	114.58	0.02	1
2.4 GHz WLAN MIMO	UMTS 850	0.582	1.102	1.684	113.08	0.02	2
5 GHz WLAN Ant 2	CDMA BC10	0.800	0.991	1.791	104.50	0.02	3
5 GHz WLAN Ant 2	CDMA BC0	0.800	1.095	1.895	98.25	0.03	4
5 GHz WLAN Ant 2	UMTS 850	0.800	1.102	1.902	96.75	0.03	5
5 GHz WLAN MIMO	CDMA BC10	0.752	0.991	1.743	110.54	0.02	6
5 GHz WLAN MIMO	CDMA BC0	0.752	1.095	1.847	104.12	0.02	7
5 GHz WLAN MIMO	UMTS 850	0.752	1.102	1.854	102.62	0.02	8
2.4 GHz Ant 1	CDMA BC0	0.177	1.095	1.272	119.37	0.01	9
5 GHz WLAN Ant 2 at 15 dBm	CDMA BC0	0.400	1.095	1.495	103.08	0.02	
2.4 GHz Ant 1	5 GHz WLAN Ant 2 at 15 dBm	0.177	0.400	0.577	16.38	0.03	
2.4 GHz Ant 1	UMTS 850	0.177	1.102	1.279	117.87	0.01	10
5 GHz WLAN Ant 2 at 15 dBm	UMTS 850	0.400	1.102	1.502	101.58	0.02	
2.4 GHz Ant 1	5 GHz WLAN Ant 2 at 15 dBm	0.177	0.400	0.577	16.38	0.03	

Table 12-23
Body-Worn Back Side SAR to Peak Location Separation Ratio Plots



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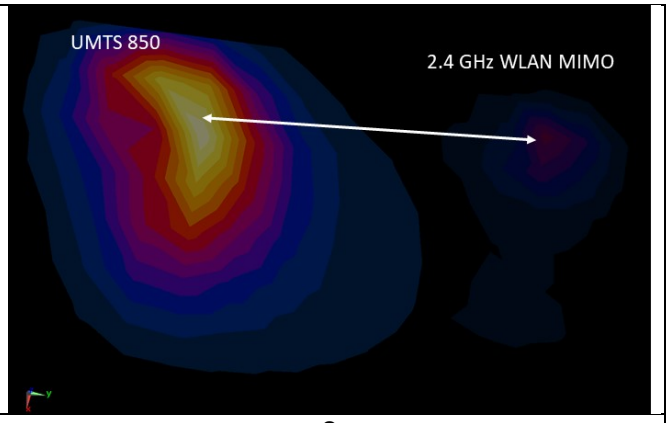

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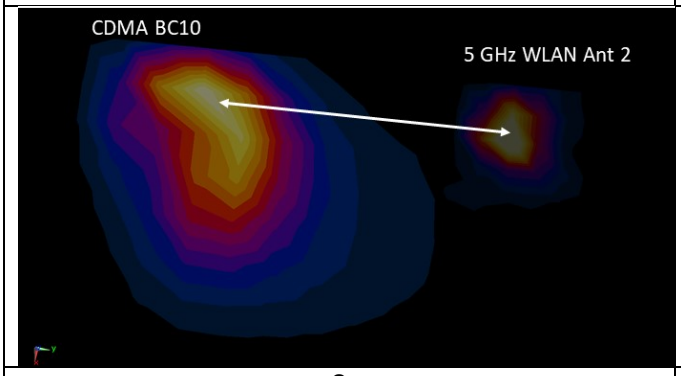

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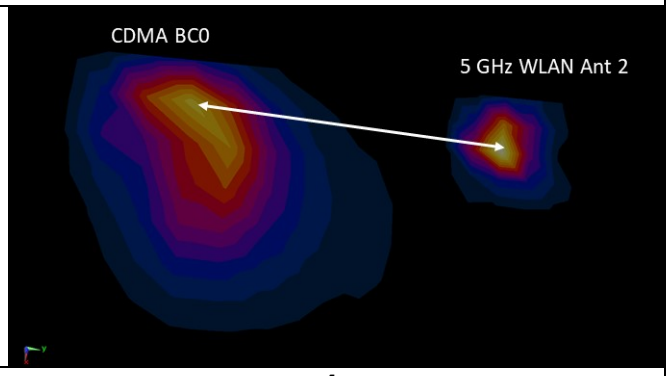

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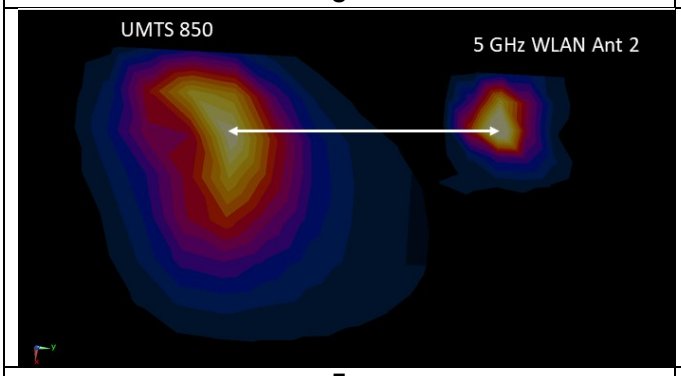

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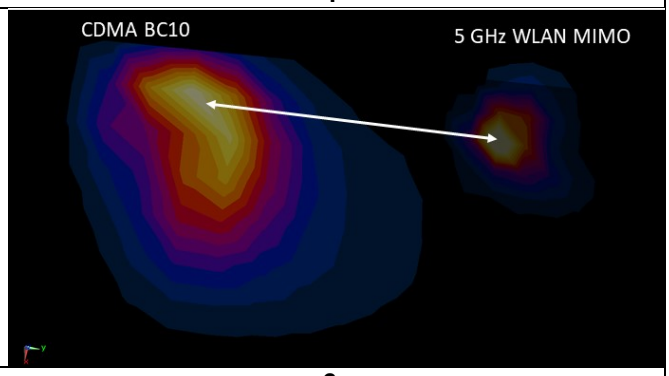

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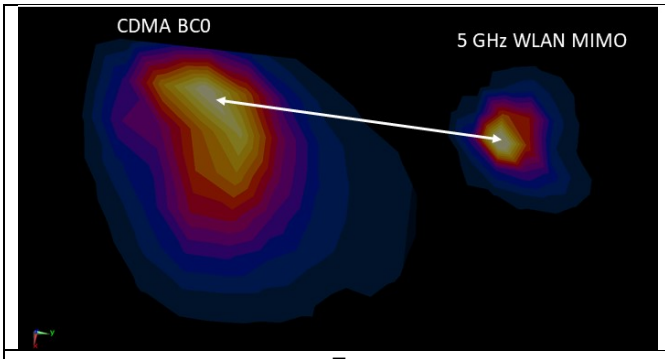

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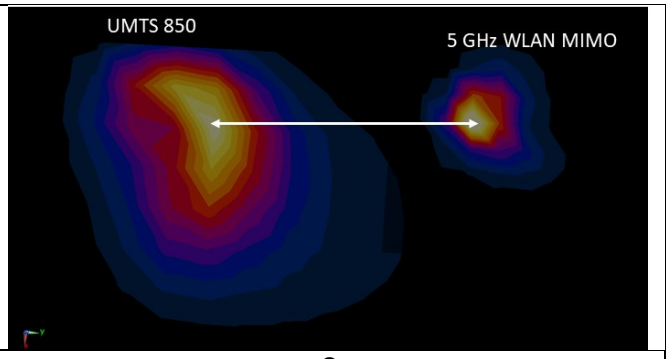

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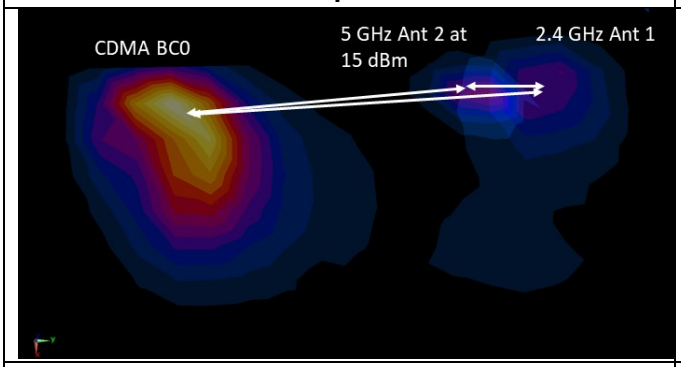

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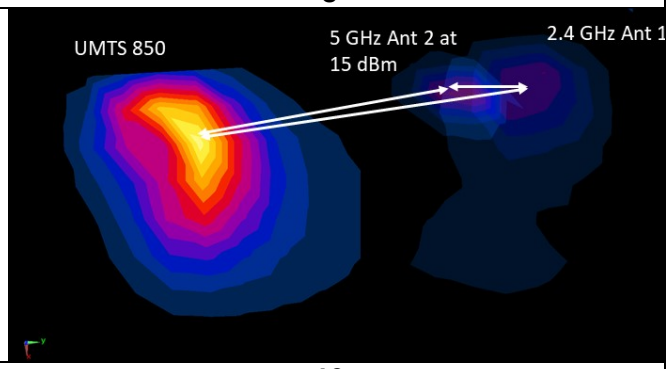

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12.7.2 Hotspot Back Side SPLSR Evaluation and Analysis

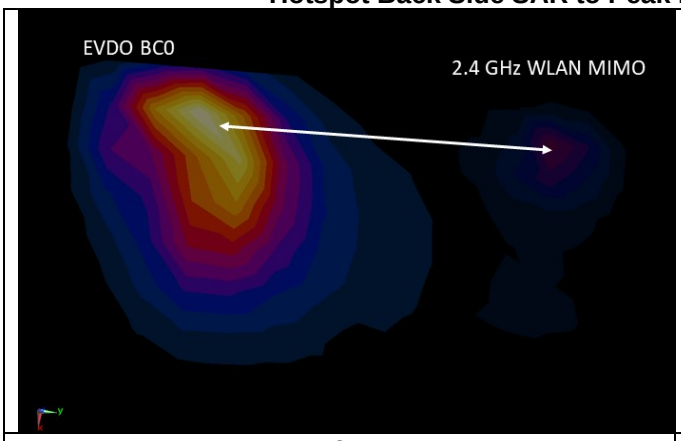
Table 12-24
Peak SAR Locations for Hotspot Back Side

Mode/Band	x (mm)	y (mm)
5 GHz WLAN Ant 2	-58.00	46.00
5 GHz WLAN MIMO	-56.00	52.00
EVDO BC10	-51.00	-52.00
EVDO BC0	-51.00	-52.00
UMTS 850	-51.00	-50.50
2.4 GHz Ant 1	-57.40	67.20
5 GHz WLAN Ant 2 at 15 dBm	-55.00	51.00
2.4 GHz WLAN MIMO	-57.40	62.40

Table 12-25
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}	$(a+b)^{1.5}/D_{a-b}$	
2.4 GHz WLAN MIMO	EVDO BC0	0.582	1.156	1.738	114.58	0.02	1
2.4 GHz WLAN MIMO	UMTS 850	0.582	1.102	1.684	113.08	0.02	2
5 GHz WLAN Ant 2	EVDO BC10	0.800	0.992	1.792	98.25	0.02	3
5 GHz WLAN Ant 2	EVDO BC0	0.800	1.156	1.956	98.25	0.03	4
5 GHz WLAN Ant 2	UMTS 850	0.800	1.102	1.902	96.75	0.03	5
5 GHz WLAN MIMO	EVDO BC10	0.752	0.992	1.744	104.12	0.02	6
5 GHz WLAN MIMO	EVDO BC0	0.752	1.156	1.908	104.12	0.03	7
5 GHz WLAN MIMO	UMTS 850	0.752	1.102	1.854	102.62	0.02	8
2.4 GHz Ant 1	EVDO BC0	0.177	1.156	1.333	119.37	0.01	9
5 GHz WLAN Ant 2 at 15 dBm	EVDO BC0	0.400	1.156	1.556	103.08	0.02	
2.4 GHz Ant 1	5 GHz WLAN Ant 2 at 15 dBm	0.177	0.400	0.577	16.38	0.03	
2.4 GHz Ant 1	UMTS 850	0.177	1.102	1.279	117.87	0.01	10
5 GHz WLAN Ant 2 at 15 dBm	UMTS 850	0.400	1.102	1.502	101.58	0.02	
2.4 GHz Ant 1	5 GHz WLAN Ant 2 at 15 dBm	0.177	0.400	0.577	16.38	0.03	

Table 12-26
Hotspot Back Side SAR to Peak Location Separation Ratio Plots



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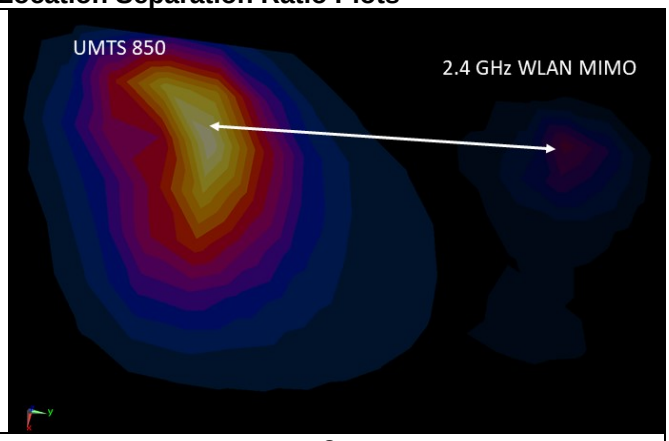

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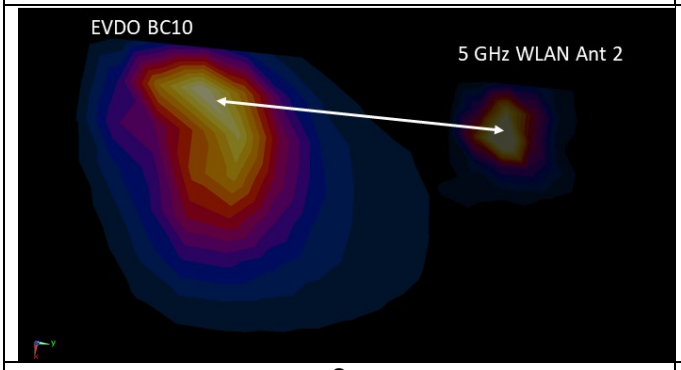

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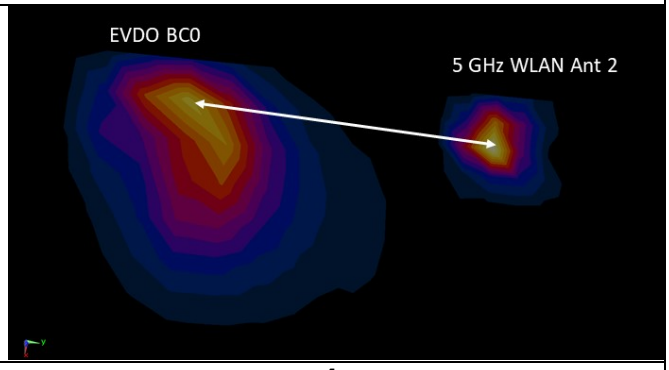

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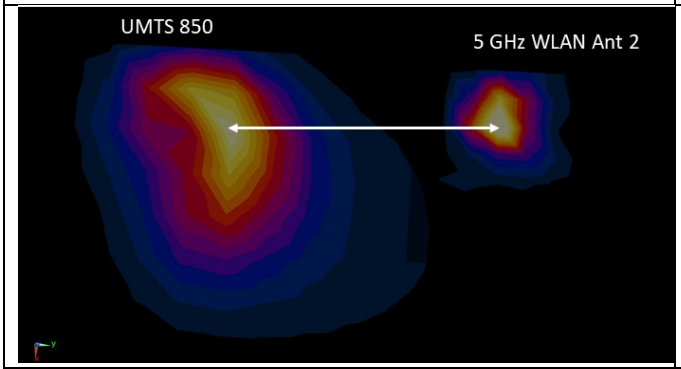

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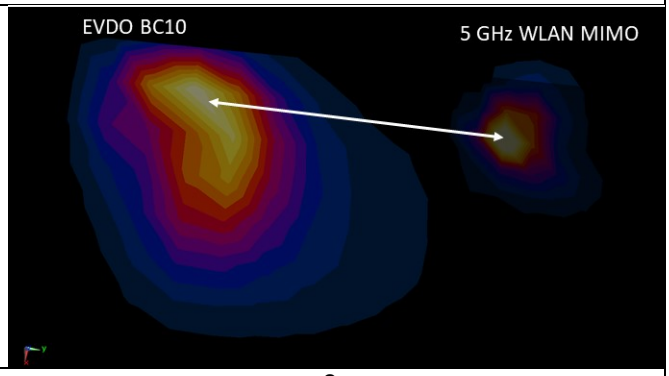

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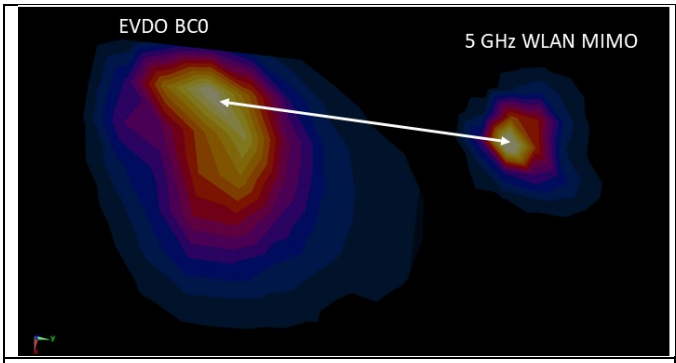

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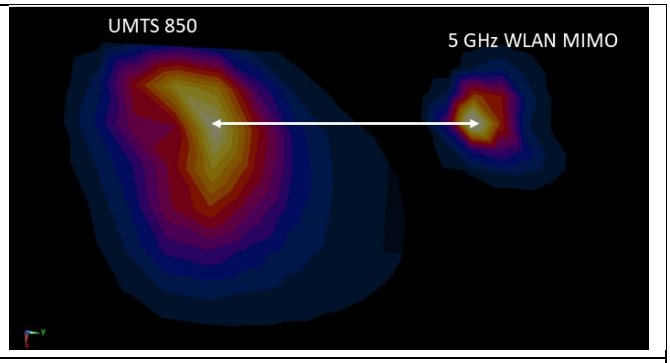

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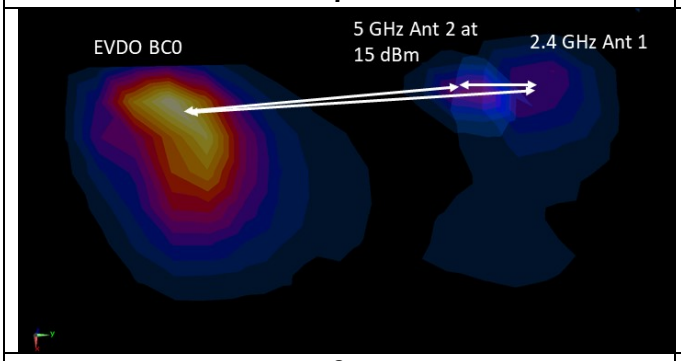

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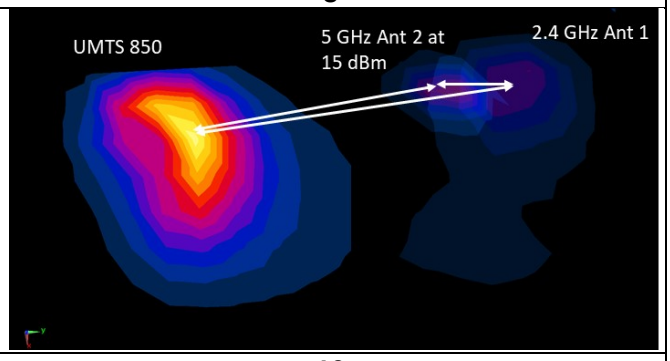

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12.8 Simultaneous Transmission Conclusion

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
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Spacing	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
835	846.60	4233	UMTS 850	RMC	back	10 mm	1.060	0.987	1.07	N/A	N/A	N/A	N/A
1900	1907.60	9538	UMTS 1900	RMC	bottom	10 mm	1.110	0.969	1.15	N/A	N/A	N/A	N/A
1750	1770.00	132572	LTE Band 66 (AWS), 20 MHz Bandwidth	QPSK, 1 RB, 50 RB Offset	bottom	10 mm	1.030	1.010	1.02	N/A	N/A	N/A	N/A
2450	2506.00	39750	LTE Band 41 PC2, 20 MHz Bandwidth	QPSK, 1 RB, 99 RB Offset	right	10 mm	0.919	0.886	1.04	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 13-2
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	1770.00	132572	LTE Band 66 (AWS), 20 MHz Bandwidth	QPSK, 100 RB, 0 RB Offset	bottom	0 mm	2.690	2.690	1.00	N/A	N/A	N/A	N/A
1900	1860.00	26140	LTE Band 25 (PCS), 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	bottom	0 mm	2.650	2.620	1.01	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)	25.08	27.31
Measured SAR (W/kg)	0.566	0.623
Measured Power (mW)	322.11	538.27
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	203.89	233.07
% deviation from expected linearity		-3.71%

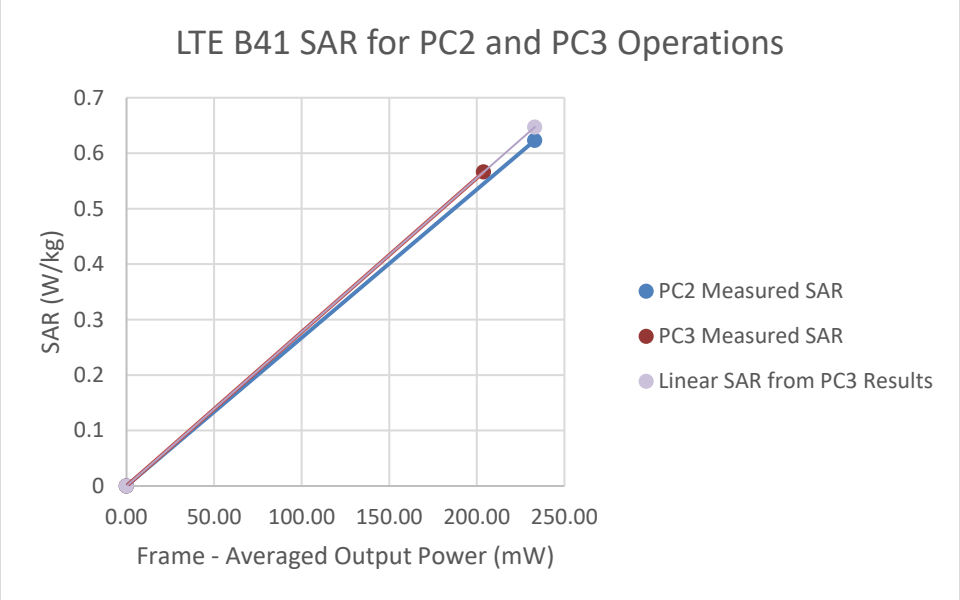

Figure 14-1
LTE Band 41 Head Linearity

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)	25.08	27.31
Measured SAR (W/kg)	0.57	0.587
Measured Power (mW)	322.11	538.27
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	203.89	233.07
% deviation from expected linearity		-9.91%

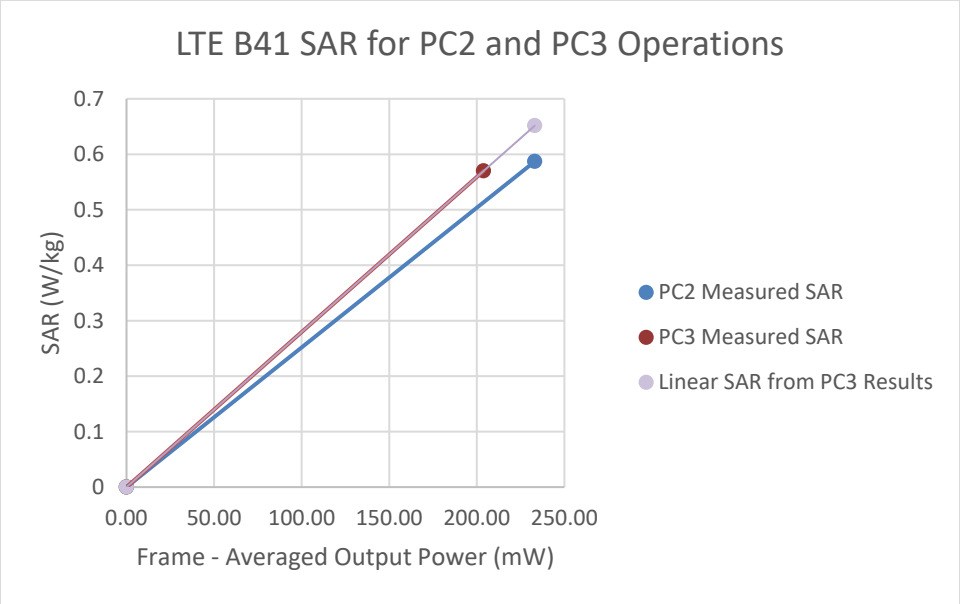

Figure 14-2
LTE Band 41 Body-Worn Linearity

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)	24.84	27.28
Measured SAR (W/kg)	0.819	0.886
Measured Power (mW)	304.79	534.56
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	192.93	231.47
% deviation from expected linearity		-9.83%

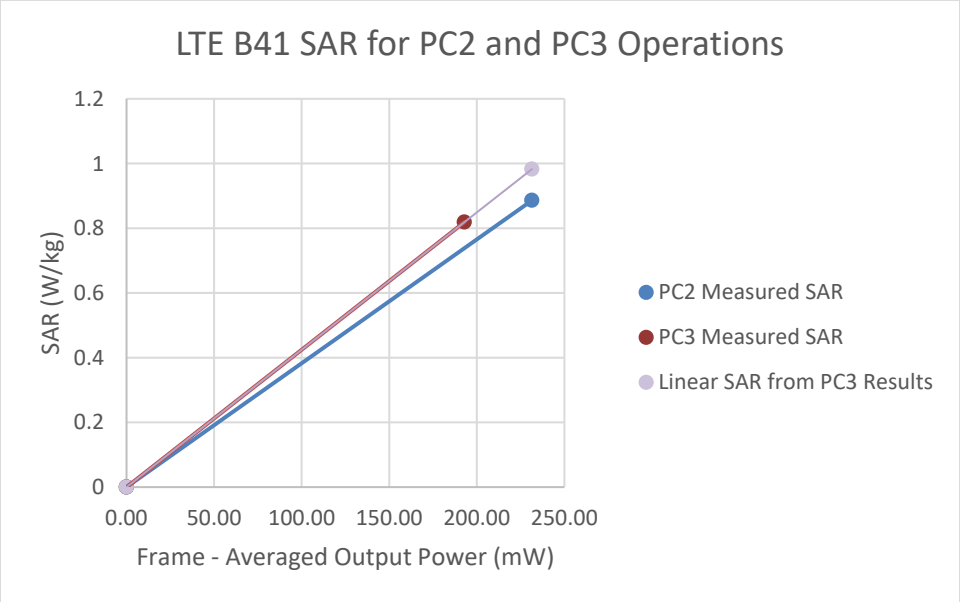

Figure 14-3
LTE Band 41 Hotspot Linearity

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	N/A	N/A	N/A	3051A00187
Agilent	8753E	(30kHz-6GHz) Network Analyzer	9/28/2018	Annual	9/28/2019	JP38020182
Agilent	8753ES	Network Analyzer	2/21/2018	Annual	2/21/2019	MY40001472
Agilent	8753ES	S-Parameter Network Analyzer	7/30/2018	Annual	7/30/2019	MY40000670
Agilent	8753ES	S-Parameter Vector Network Analyzer	8/30/2018	Annual	8/30/2019	MY40003841
Agilent	E4432B	ESG-D Series Signal Generator	4/19/2018	Annual	4/19/2019	US40053896
Agilent	E4438C	ESG Vector Signal Generator	3/21/2017	Biennial	3/21/2019	MY45090700
Agilent	E4440A	PSA Series Spectrum Analyzer	11/14/2018	Annual	11/14/2019	MY46186272
Agilent	E5515C	Wireless Communications Test Set	3/4/2016	Triennial	3/4/2019	GB45360985
Agilent	E5515C	8960 Series 10 Wireless Communications Test Set	12/18/2018	Annual	12/18/2019	GB42230325
Agilent	E5515C	Wireless Communications Test Set	2/28/2018	Biennial	2/28/2020	GB41450275
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB46170464
Agilent	N5182A	MXG Vector Signal Generator	4/18/2018	Annual	4/18/2019	MY47420800
Agilent	N9030A	PXA Signal Analyzer (44GHz)	5/25/2018	Annual	5/25/2019	MY52350166
Amplifier Research	150A100C	Amplifier	CBT	N/A	CBT	350132
Amplifier Research	150A100C	DC Amplifier	CBT	N/A	CBT	348812
Anritsu	MA24106A	USB Power Sensor	7/17/2018	Annual	7/17/2019	1827527
Anritsu	MA24106A	USB Power Sensor	3/12/2018	Annual	3/12/2019	1344555
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	MT8820C	Radio Communication Analyzer	6/27/2018	Annual	6/27/2019	6201240328
Anritsu	MT8862A	Wireless Connectivity Test Set	7/3/2018	Annual	7/3/2019	6261782395
COMTech	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M1SSA00-009
COMTECH	AR85729-5/5759B	Solid State Amplifier	CBT	N/A	CBT	M3W1A00-1002
Control Company	4040	Therm./ Clock/ Humidity Monitor	3/1/2017	Biennial	3/1/2019	170152009
Control Company	4352	Ultra Long Stem Thermometer	2/14/2017	Biennial	2/14/2019	170112507
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/4/2018	Annual	6/4/2019	MY53401181
Keysight Technologies	AT/N6705B	DC Power Supply	CBT	N/A	CBT	MY53001315
Keysight Technologies	U3401A	Digital Multimeter	5/17/2018	Annual	5/17/2019	MY57201470
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
Mini Circuits	PWR-SEN-4GHS	USB Power Sensor	3/30/2018	Annual	3/30/2019	11401010036
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mitutoyo	CD-6"CSX	Digital Caliper	4/18/2018	Biennial	4/18/2020	13264165
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Pasternack	NC-100	Torque Wrench	4/18/2018	Annual	4/18/2019	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE5011-1	Torque Wrench	7/19/2017	Biennial	7/19/2019	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	5/18/2018	Annual	5/18/2019	109892
Rohde & Schwarz	CMW500	Radio Communication Tester	4/5/2018	Annual	4/5/2019	128633
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	5/29/2018	Annual	5/29/2019	161662
Seekonk	NC-100	Torque Wrench 5/16", 8" lbs	7/11/2018	Annual	7/11/2019	N/A
Seekonk	NC-100	Torque Wrench	7/11/2018	Annual	7/11/2019	N/A
Seekonk	NC-100	Torque Wrench (8" lb)	5/10/2018	Biennial	5/10/2020	21053
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/15/2018	Annual	5/15/2019	1070
SPEAG	EX3DV4	SAR Probe	7/20/2018	Annual	7/20/2019	7410
SPEAG	EX3DV4	SAR Probe	6/25/2018	Annual	6/25/2019	7409
SPEAG	ES3DV3	SAR Probe	10/22/2018	Annual	10/22/2019	3287
SPEAG	EX3DV4	SAR Probe	1/25/2019	Annual	1/25/2020	3589
SPEAG	EX3DV4	SAR Probe	4/18/2018	Annual	4/18/2019	7357
SPEAG	ES3DV3	SAR Probe	3/27/2018	Annual	3/27/2019	3347
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	8/23/2018	Annual	8/23/2019	7308
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/11/2018	Annual	7/11/2019	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/18/2018	Annual	6/18/2019	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/18/2018	Annual	10/18/2019	1333
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/22/2018	Annual	8/22/2019	1450
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/11/2018	Annual	4/11/2019	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/15/2018	Annual	2/15/2019	665
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	D750V3	750 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	1161
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	4d133
SPEAG	D1765V2	1765 MHz SAR Dipole	5/23/2018	Annual	5/23/2019	1008
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	8/16/2018	Annual	8/16/2019	981
SPEAG	D2600V2	2600 MHz SAR Dipole	4/11/2018	Annual	4/11/2019	1004
SPEAG	D5GHzV2	5 GHz SAR Dipole	9/21/2016	Triennial	9/21/2019	1191
SPEAG	D750V3	750 MHz Dipole	3/7/2017	Biennial	3/7/2019	1054
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	4d047
SPEAG	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	D5GHzV2	5 GHz SAR Dipole	1/16/2018	Biennial	1/16/2020	1057

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: 01858

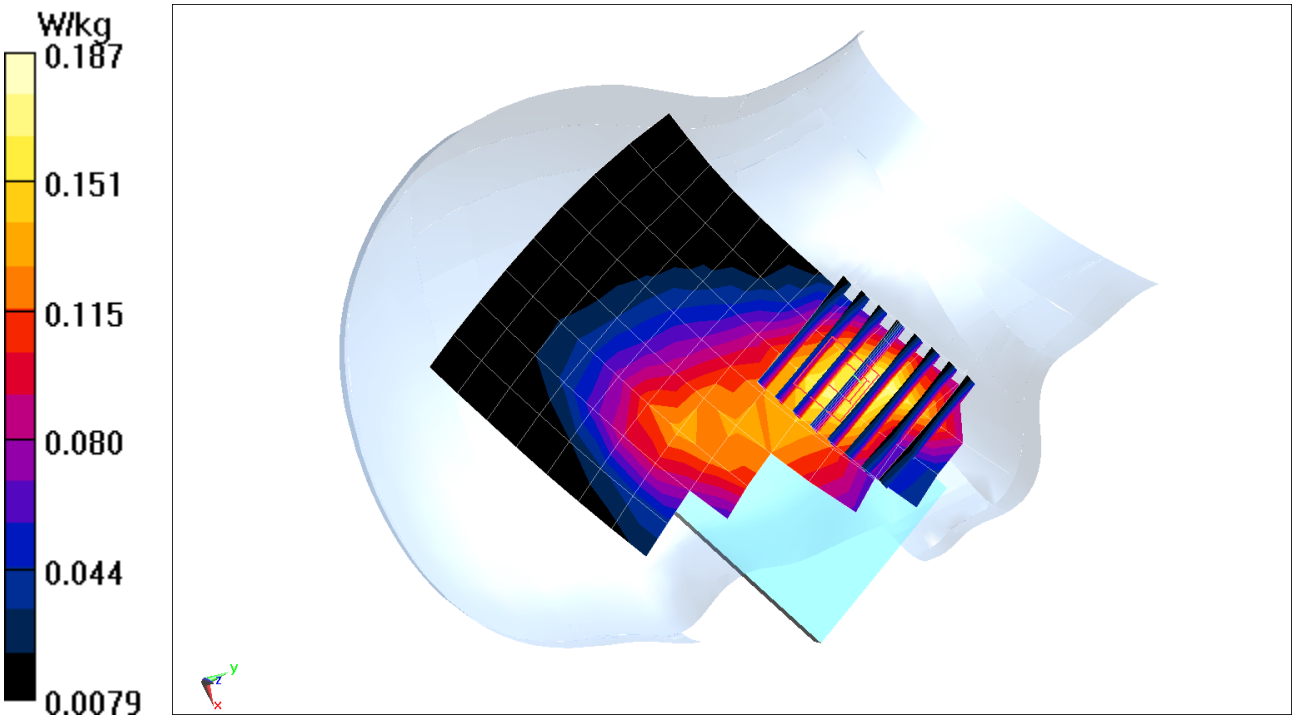
Communication System: UID 0, Cellular CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.938 S/m; ε_r = 40.599; ρ = 1000 kg/m^3
Phantom section: Right Section

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

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 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. BC10 EVDO Rev. A, Rule Part 90S, Right Head, Cheek, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.01 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.211 W/kg
SAR(1 g) = 0.147 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01858

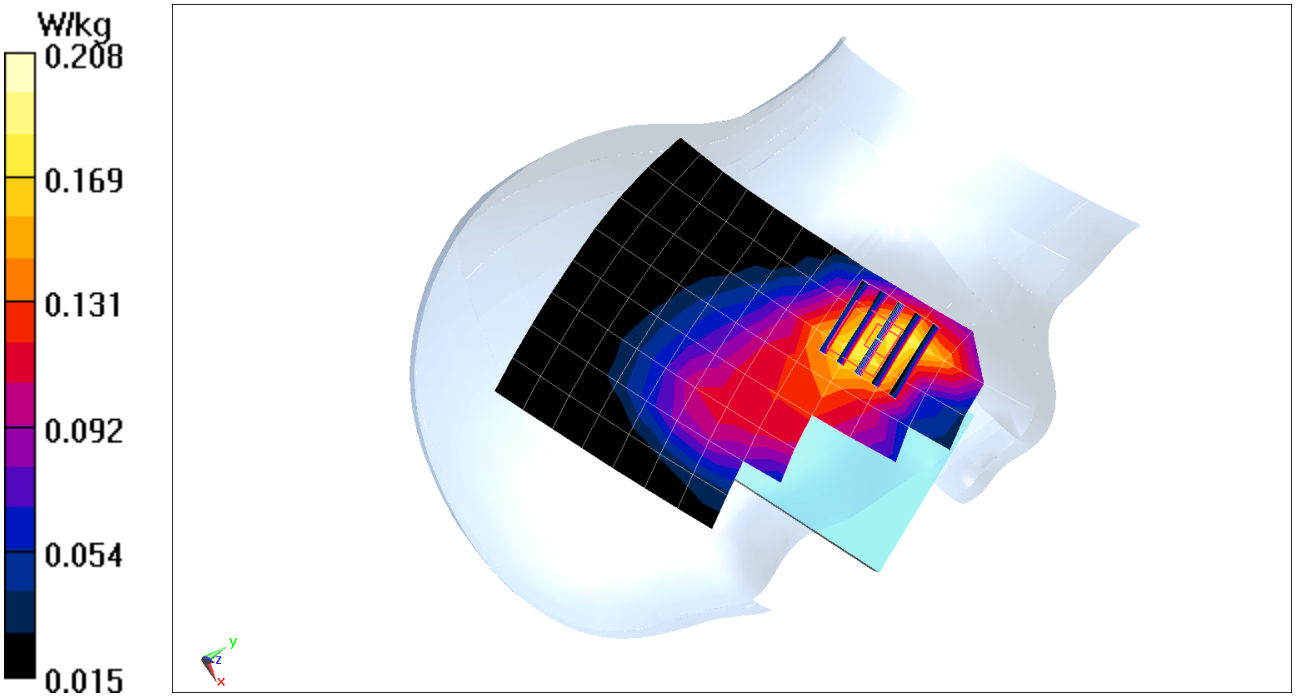
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.942 S/m; ε_r = 40.565; ρ = 1000 kg/m^3
Phantom section: Right Section

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

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 836.52 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. BC0 EVDO Rev. A, Rule Part 22H, Right Head, Cheek, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.41 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.232 W/kg
SAR(1 g) = 0.160 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

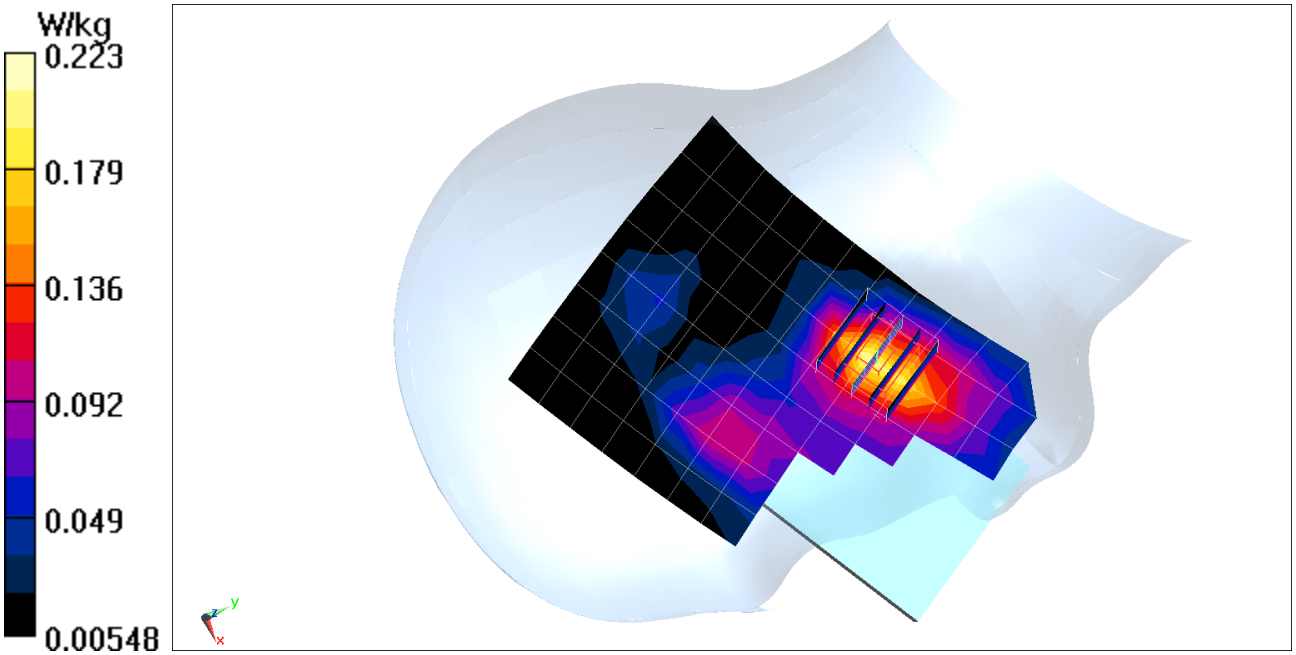
Communication System: UID 0, CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.417 S/m; ε_r = 38.578; ρ = 1000 kg/m^3
Phantom section: Right Section

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

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

Mode: PCS EVDO Rev A, 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 = 11.23 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.257 W/kg
SAR(1 g) = 0.176 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

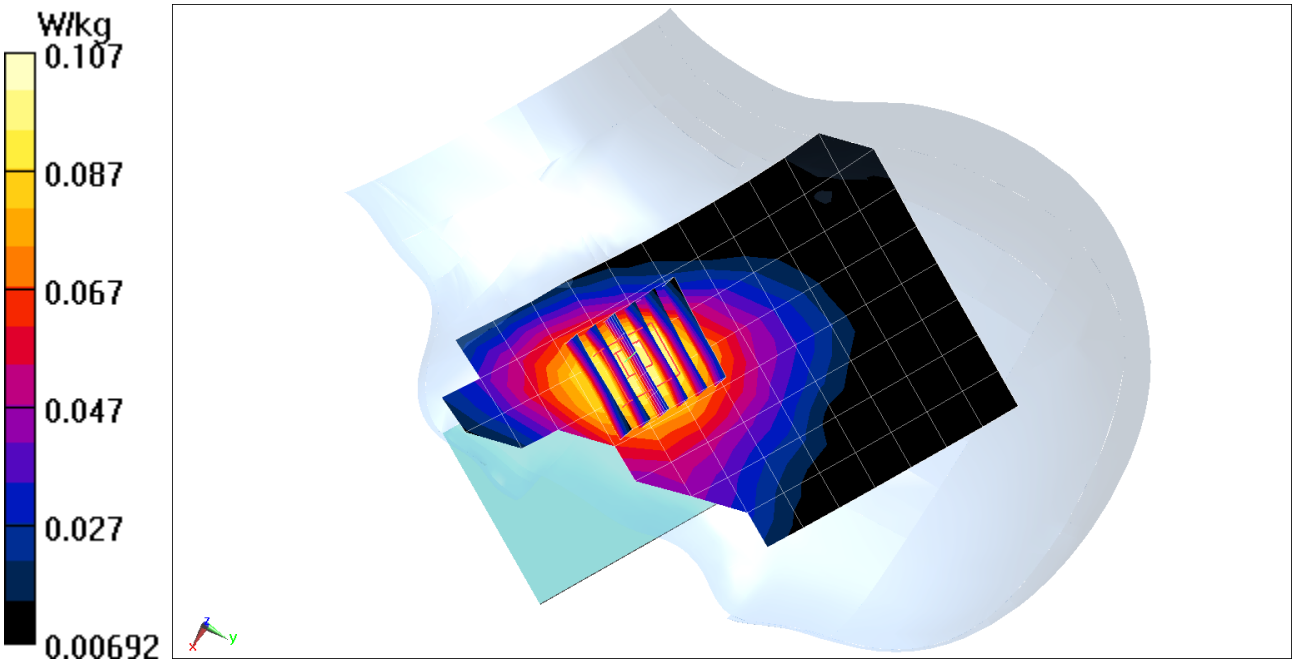
Communication System: UID 0, GSM GPRS; 1 Tx slot; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
$f = 836.6$ MHz; $\sigma = 0.942$ S/m; $\varepsilon_r = 40.565$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

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

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

Mode: GPRS 850, Left Head, Cheek, 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 = 10.06 V/m; Power Drift = -0.20 dB
Peak SAR (extrapolated) = 0.116 W/kg
SAR(1 g) = 0.092 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

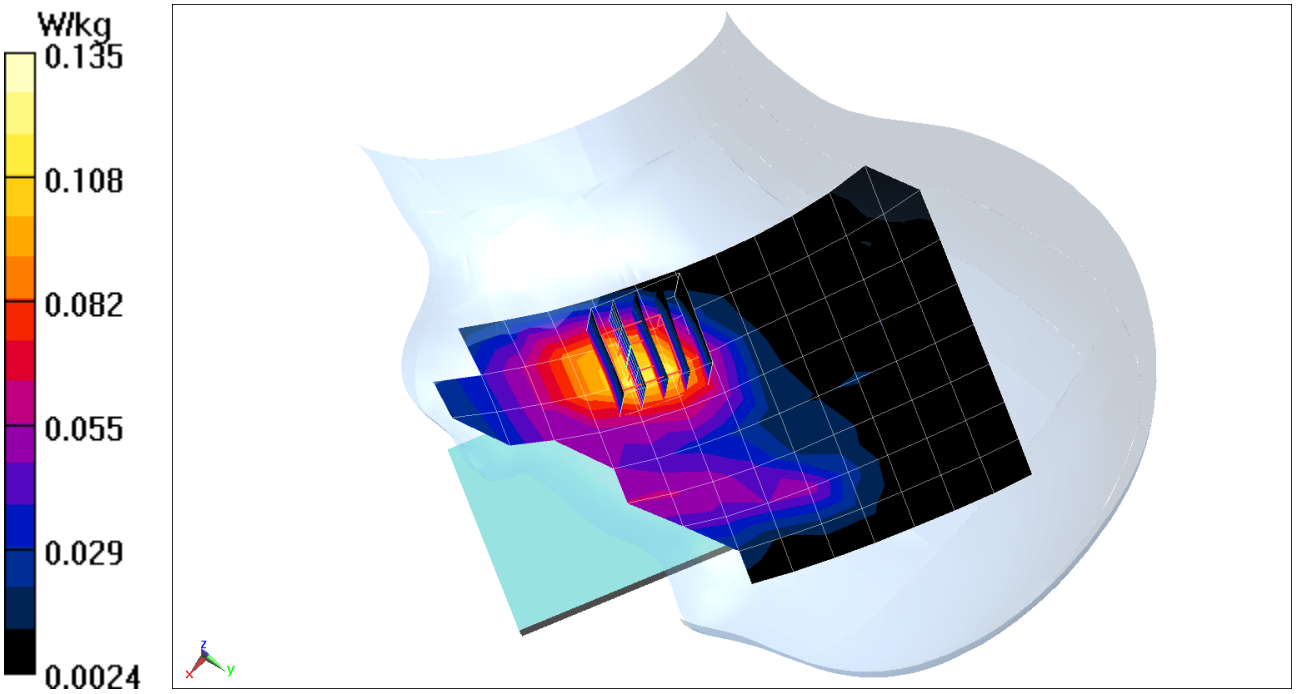
Communication System: UID 0, _GSM GPRS; 1 Tx slot; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.417 S/m; ε_r = 38.578; ρ = 1000 kg/m^3
Phantom section: Left Section

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

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

Mode: GPRS 1900, Left Head, Cheek, Mid.ch, 1 Tx slots

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.888 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.155 W/kg
SAR(1 g) = 0.100 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

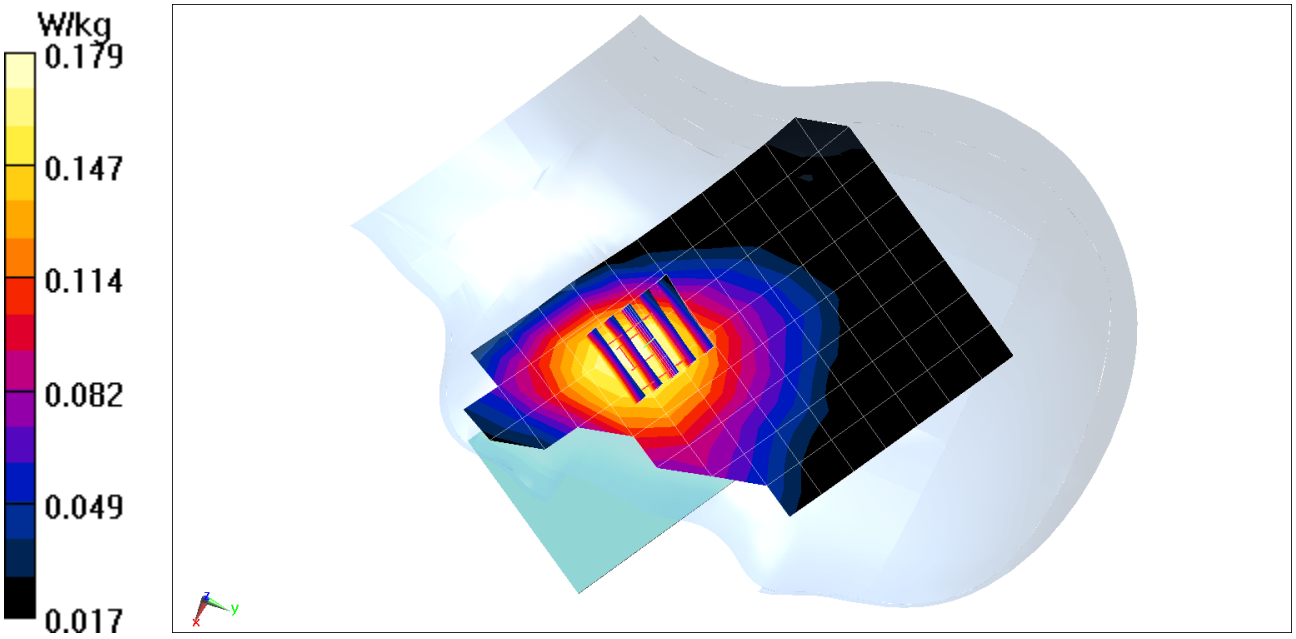
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.942 S/m; ε_r = 40.565; ρ = 1000 kg/m^3
Phantom section: Left Section

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

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

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.15 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.194 W/kg
SAR(1 g) = 0.156 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

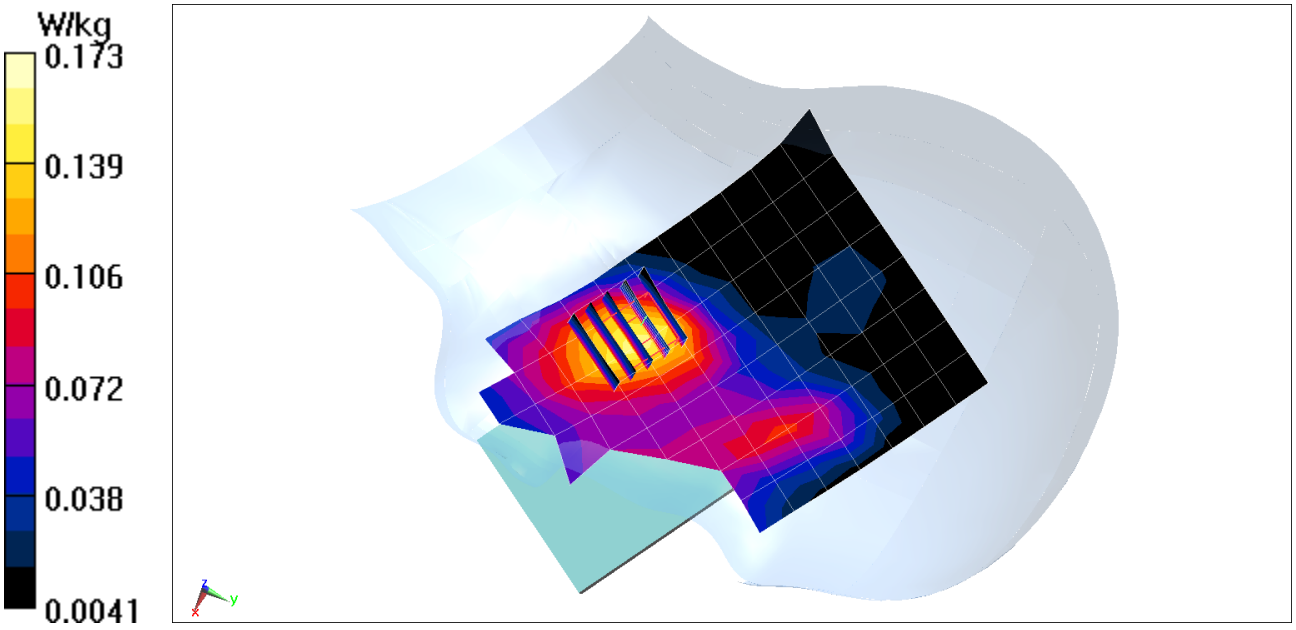
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1732.4 MHz; σ = 1.378 S/m; ε_r = 41.887; ρ = 1000 kg/m^3
Phantom section: Left Section

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

Probe: EX3DV4 - SN7409; ConvF(8.43, 8.43, 8.43) @ 1732.4 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 1750, Left Head, Cheek, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.977 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.199 W/kg
SAR(1 g) = 0.133 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

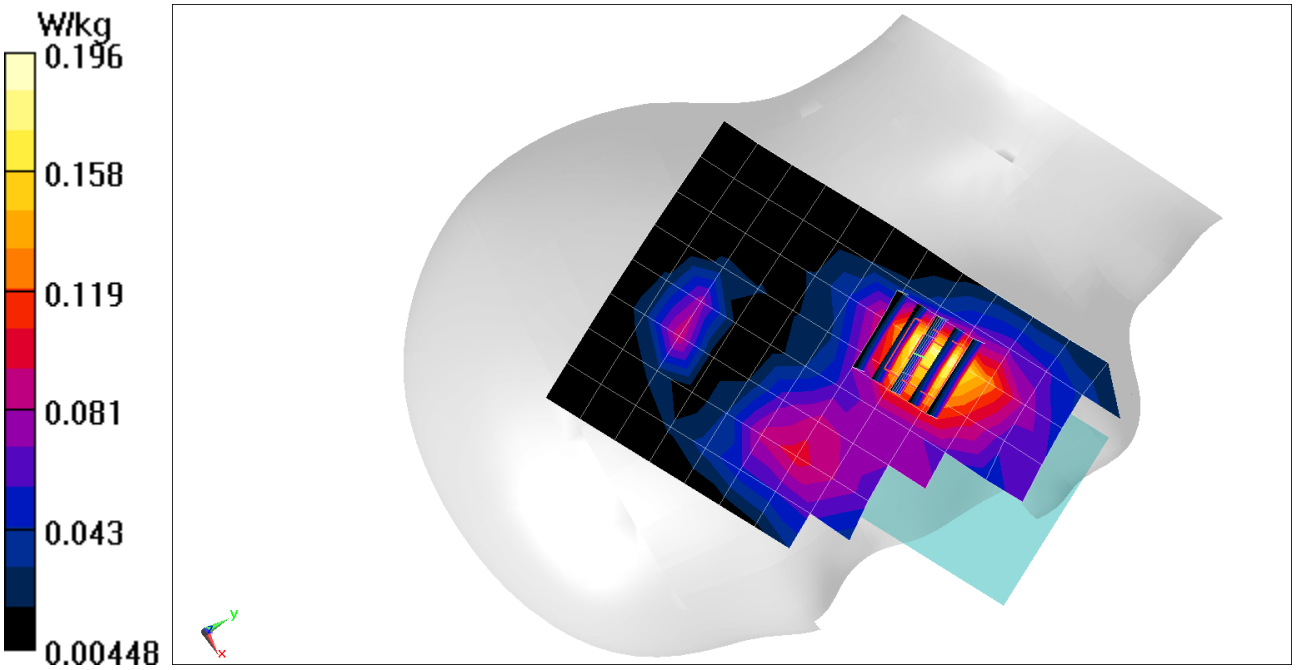
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 835 to1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.426 S/m; ε_r = 39.31; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-17-2019; Ambient Temp: 21.1°C; Tissue Temp: 20.6°C

Probe: ES3DV3 - SN3287; ConvF(5.24, 5.24, 5.24) @ 1880 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10 (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 = 11.42 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.261 W/kg
SAR(1 g) = 0.169 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01861

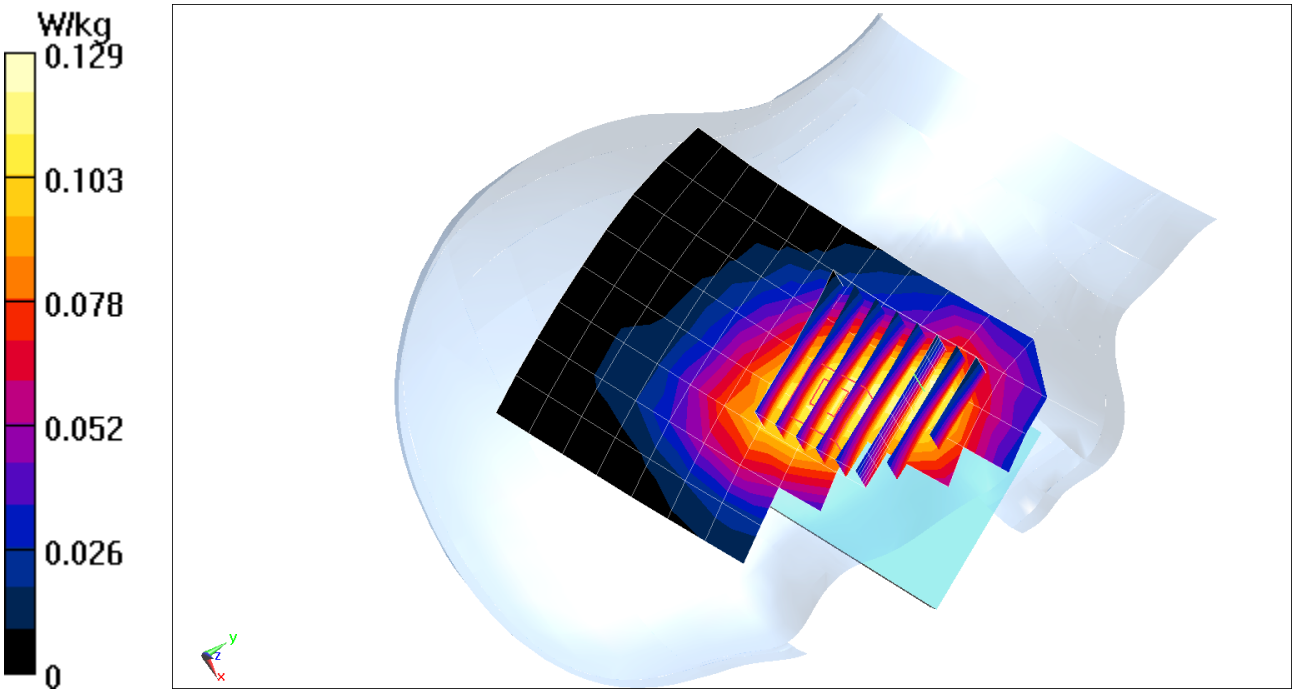
Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
$f = 680.5$ MHz; $\sigma = 0.854$ S/m; $\varepsilon_r = 42.479$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

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

Probe: EX3DV4 - SN7410; ConvF(10.13, 10.13, 10.13) @ 680.5 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 71, Right Head, Cheek, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.80 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.145 W/kg
SAR(1 g) = 0.104 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01861

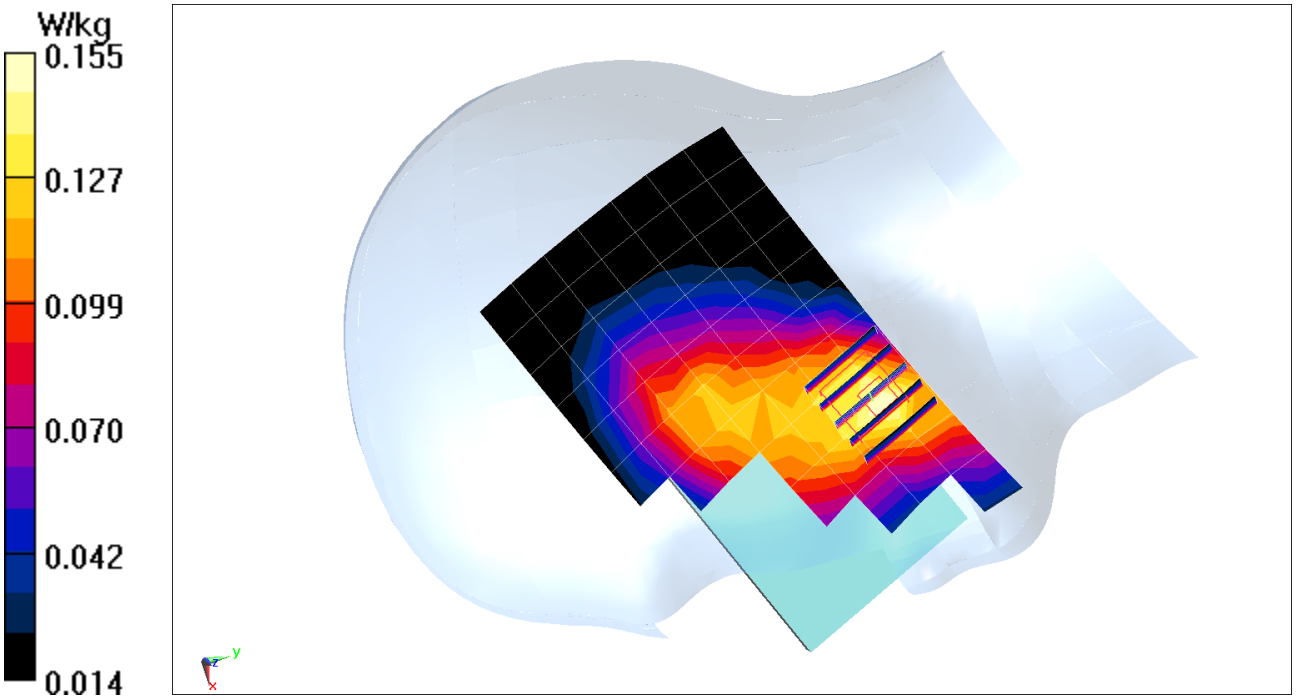
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.863 S/m; ε_r = 42.39; ρ = 1000 kg/m^3
Phantom section: Right Section

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

Probe: EX3DV4 - SN7410; ConvF(10.13, 10.13, 10.13) @ 707.5 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 12, Right Head, Cheek, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 49 RB Offset

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.24 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.182 W/kg
SAR(1 g) = 0.137 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01861

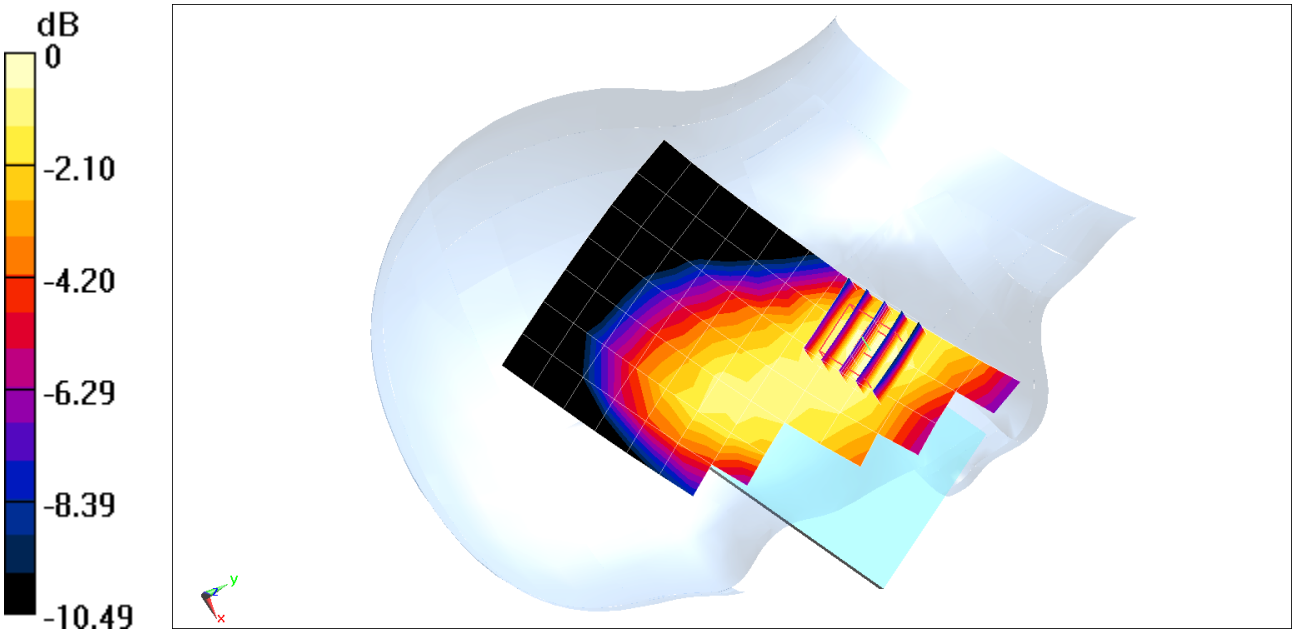
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 782 MHz; σ = 0.889 S/m; ε_r = 42.142; ρ = 1000 kg/m^3
Phantom section: Right Section

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

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

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

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.61 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.175 W/kg
SAR(1 g) = 0.124 W/kg



0 dB = 0.155 W/kg = -8.10 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01860

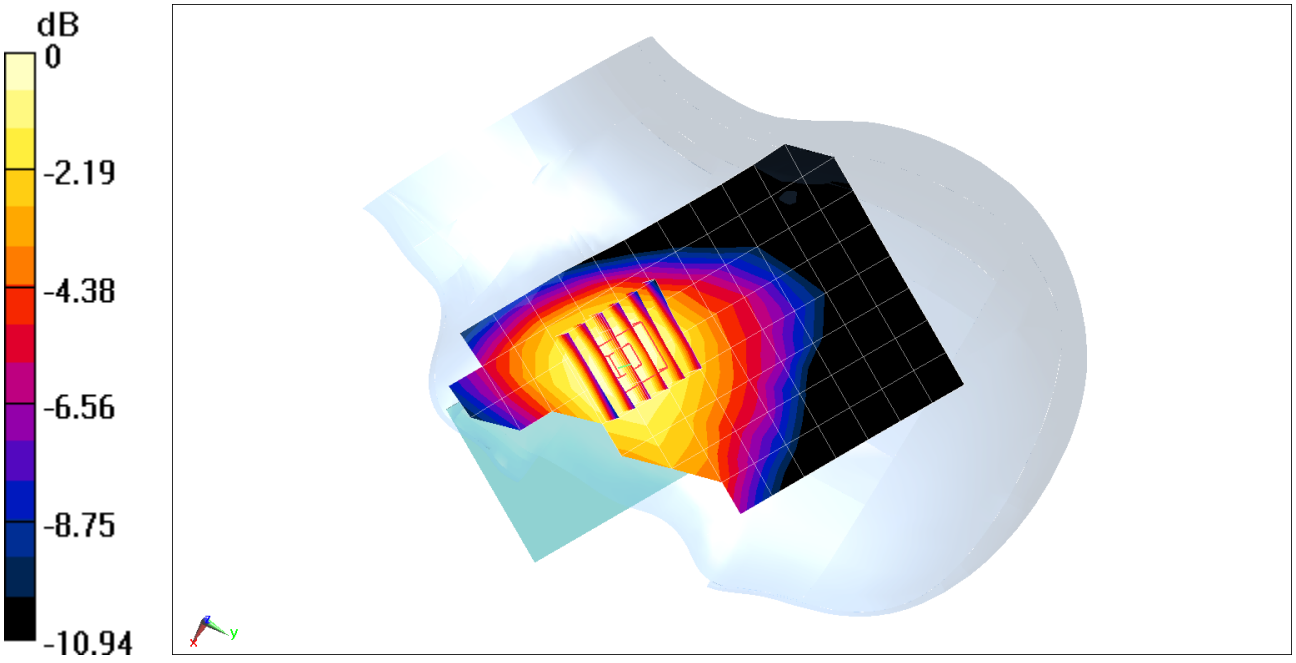
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.941 S/m; ε_r = 40.575; ρ = 1000 kg/m^3
Phantom section: Left Section

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

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 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 = 13.17 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.183 W/kg
SAR(1 g) = 0.150 W/kg



0 dB = 0.170 W/kg = -7.70 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01861

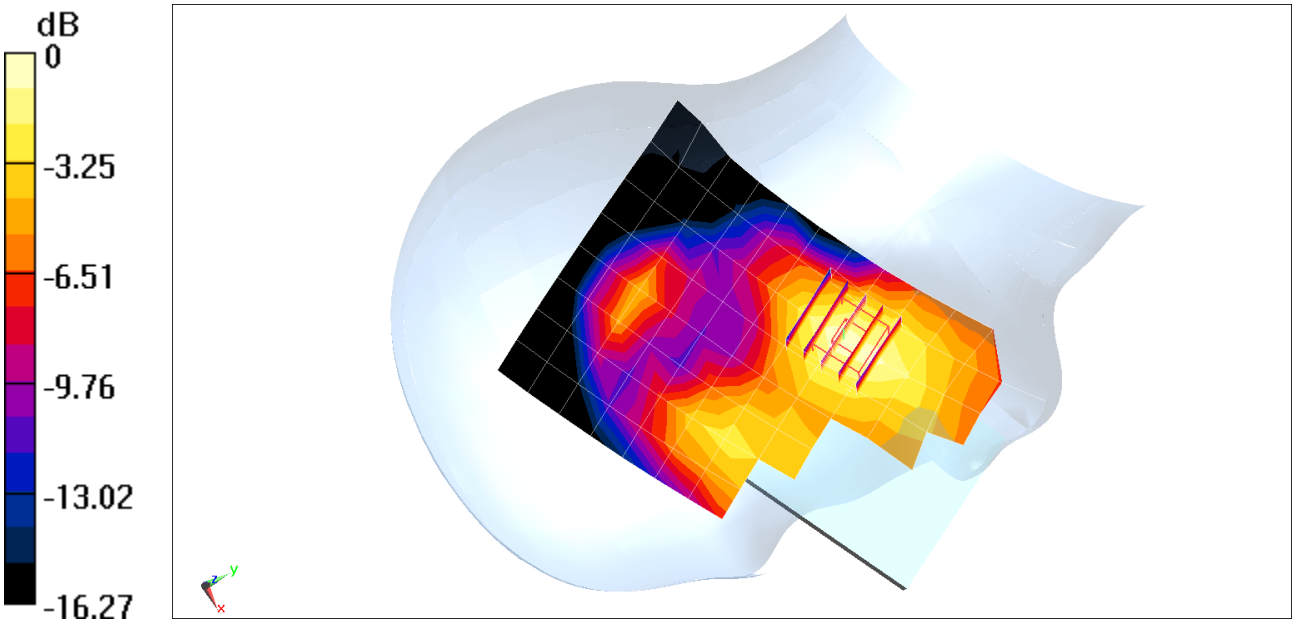
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1720 MHz; σ = 1.371 S/m; ε_r = 41.911; ρ = 1000 kg/m^3
Phantom section: Right Section

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

Probe: EX3DV4 - SN7409; ConvF(8.43, 8.43, 8.43) @ 1720 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.53 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.195 W/kg
SAR(1 g) = 0.130 W/kg



0 dB = 0.170 W/kg = -7.70 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01860

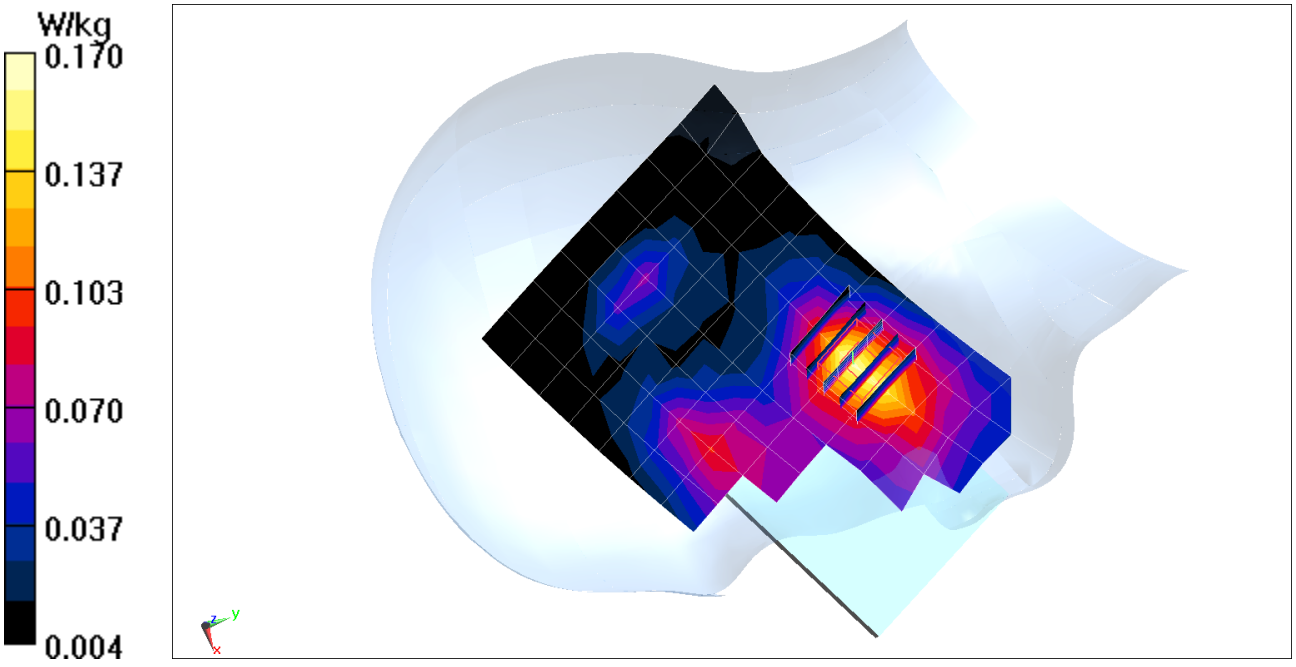
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1882.5 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1882.5 MHz; σ = 1.419 S/m; ε_r = 38.574; ρ = 1000 kg/m^3
Phantom section: Right Section

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

Probe: EX3DV4 - SN7410; ConvF(8.16, 8.16, 8.16) @ 1882.5 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.91 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 0.316 W/kg
SAR(1 g) = 0.208 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01861

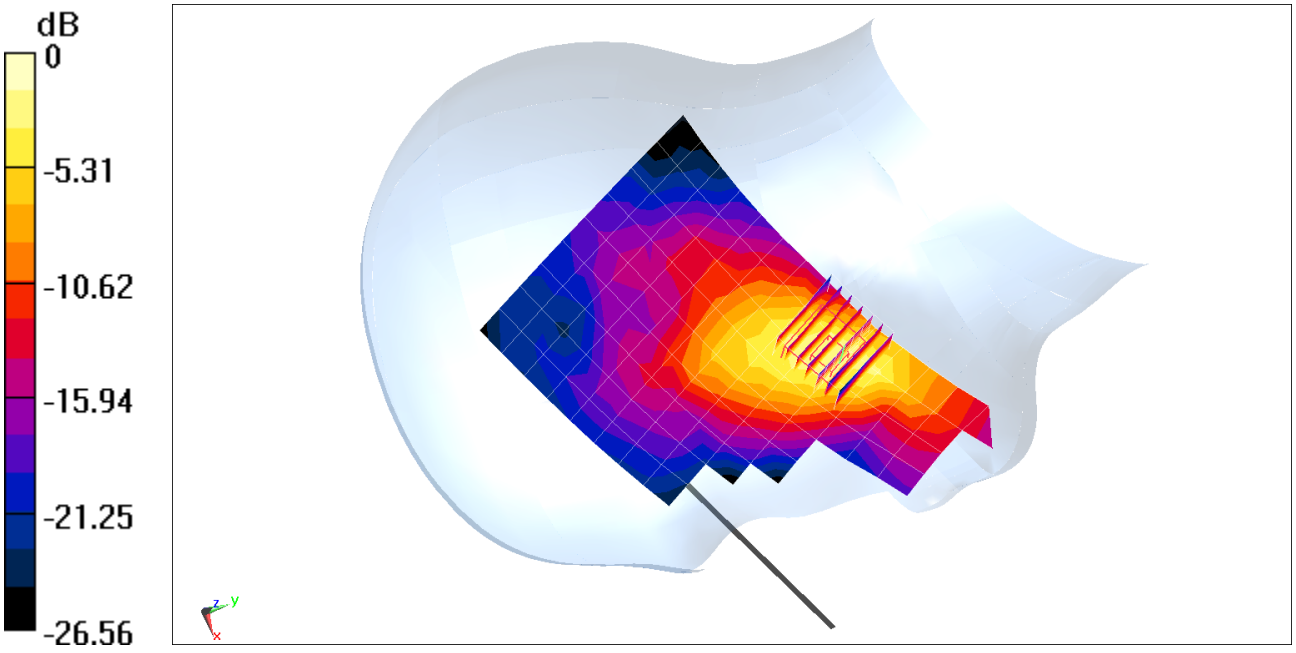
Communication System: UID 0, LTE Band 41 (Class 3); Frequency: 2593 MHz; Duty Cycle: 1:1.58
Medium: 2600 Head Medium parameters used (interpolated):
f = 2593 MHz; σ = 1.931 S/m; ε_r = 37.897; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 1-24-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN7409; ConvF(6.98, 6.98, 6.98) @ 2593 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 41 ULCA, Right Head, Cheek, Mid.ch,
PCC: 20 MHz Bandwidth, Ch. 40620, QPSK, 1 RB, 0 RB Offset
SCC: 20 MHz Bandwidth, Ch. 40422, QPSK, 1 RB, 99 RB Offset

Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.21 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.750 W/kg



0 dB = 1.20 W/kg = 0.79 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01890

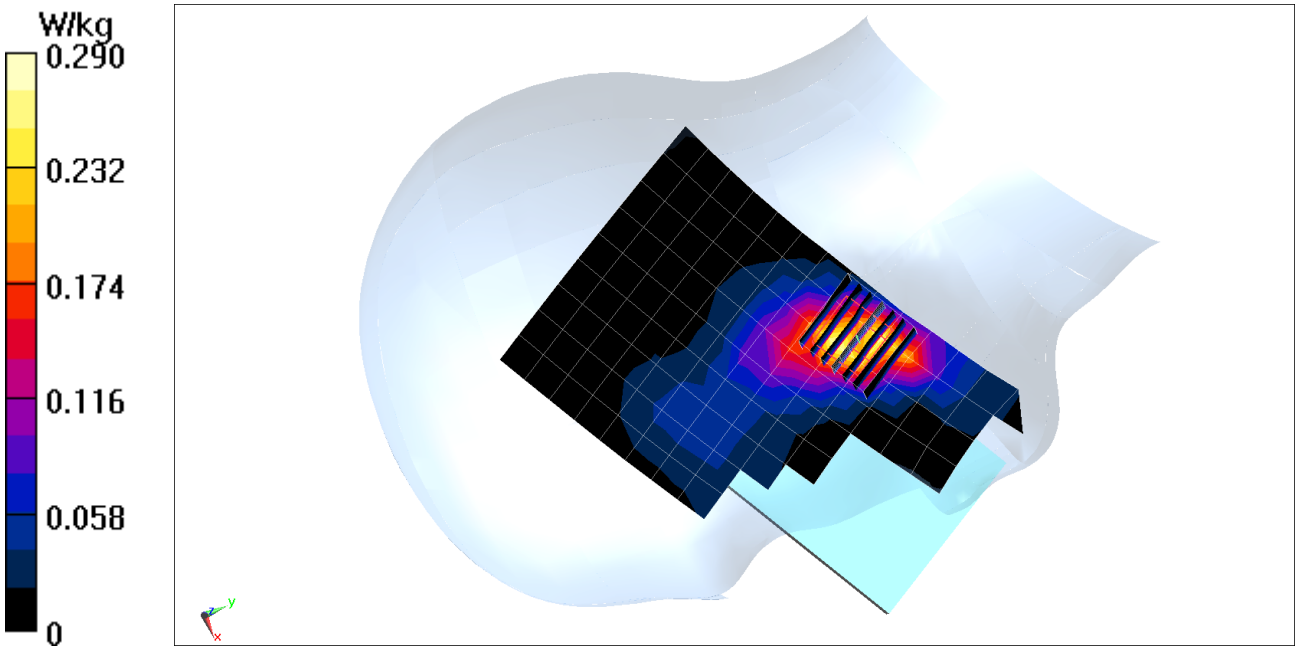
Communication System: UID 0, EN-DC DC_41A-n41A; Frequency: 2592.99 MHz; Duty Cycle: 1:1
Medium: 2600 Head Medium parameters used (interpolated):
$f = 2592.99$ MHz; $\sigma = 1.979$ S/m; $\varepsilon_r = 39.029$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 1-22-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7409; ConvF(6.98, 6.98, 6.98) @ 2592.99 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: EN-DC DC_41A-n41A SAR (with LTE Band 41 transmitting simultaneously), Right Head, Cheek, Mid.ch, 60 MHz Bandwidth, CP-OFDM QPSK, 81 RB, 40 RB Offset

Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.01 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.364 W/kg
SAR(1 g) = 0.180 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01872

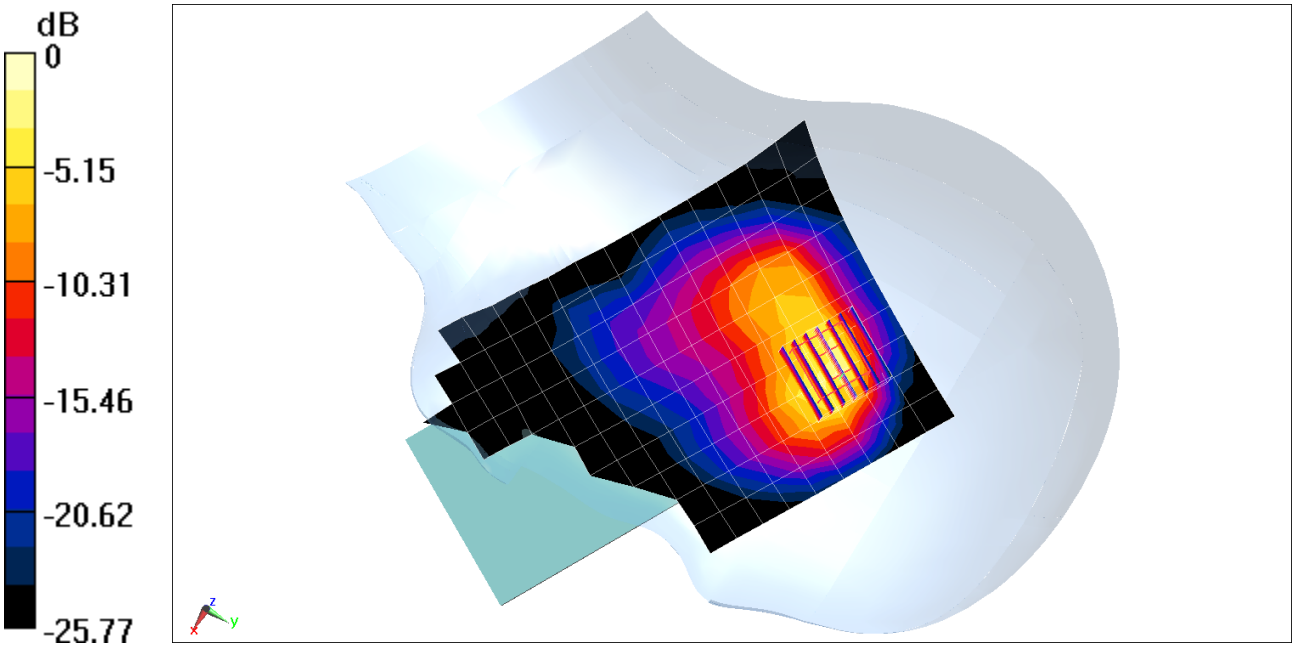
Communication System: UID 0, _IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.805 S/m; ε_r = 39.045; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-18-2019; Ambient Temp: 21.4°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7409; ConvF(7.23, 7.23, 7.23) @ 2437 MHz; Calibrated: 6/25/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 6/18/2018
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11b, Antenna 1, 22 MHz Bandwidth,
Left Head, Tilt, Ch 6, 1 Mbps

Area Scan (11x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.27 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 2.48 W/kg
SAR(1 g) = 0.918 W/kg



0 dB = 1.78 W/kg = 2.50 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01873

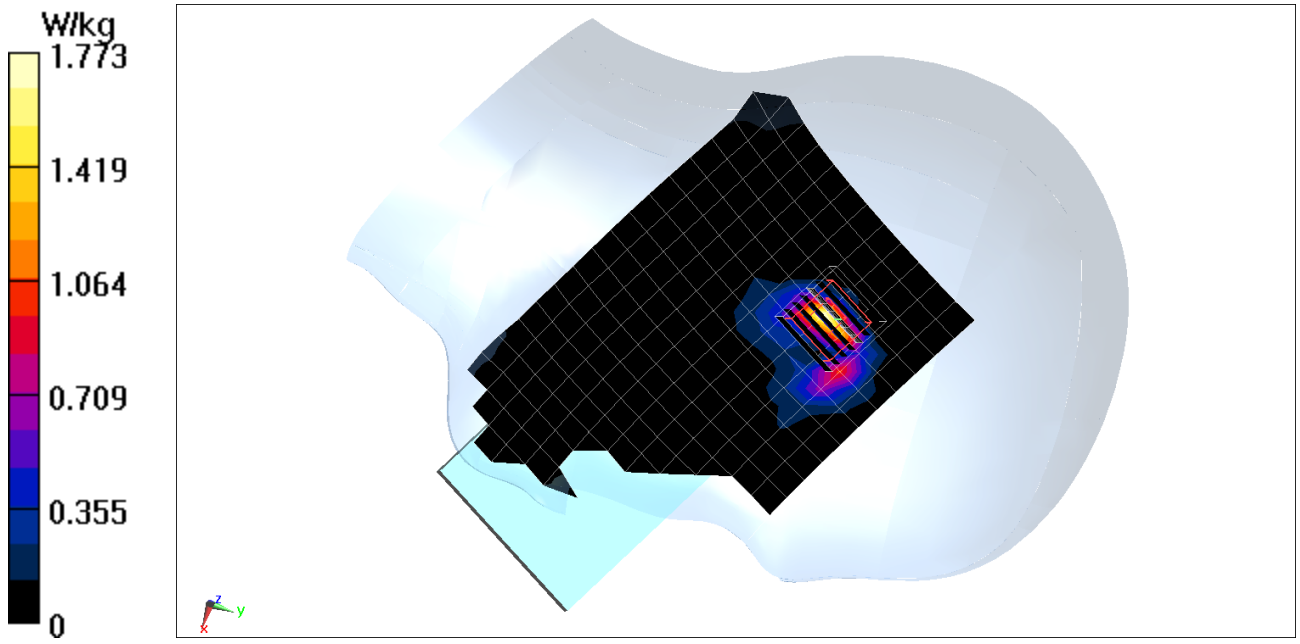
Communication System: UID 0, 802.11a; Frequency: 5280 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used:
f = 5280 MHz; σ = 4.729 S/m; ε_r = 35.992; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 01-28-2019; Ambient Temp: 19.8°C; Tissue Temp: 19.5°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 (13x22x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 1.914 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 3.05 W/kg
SAR(1 g) = 0.676 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01873

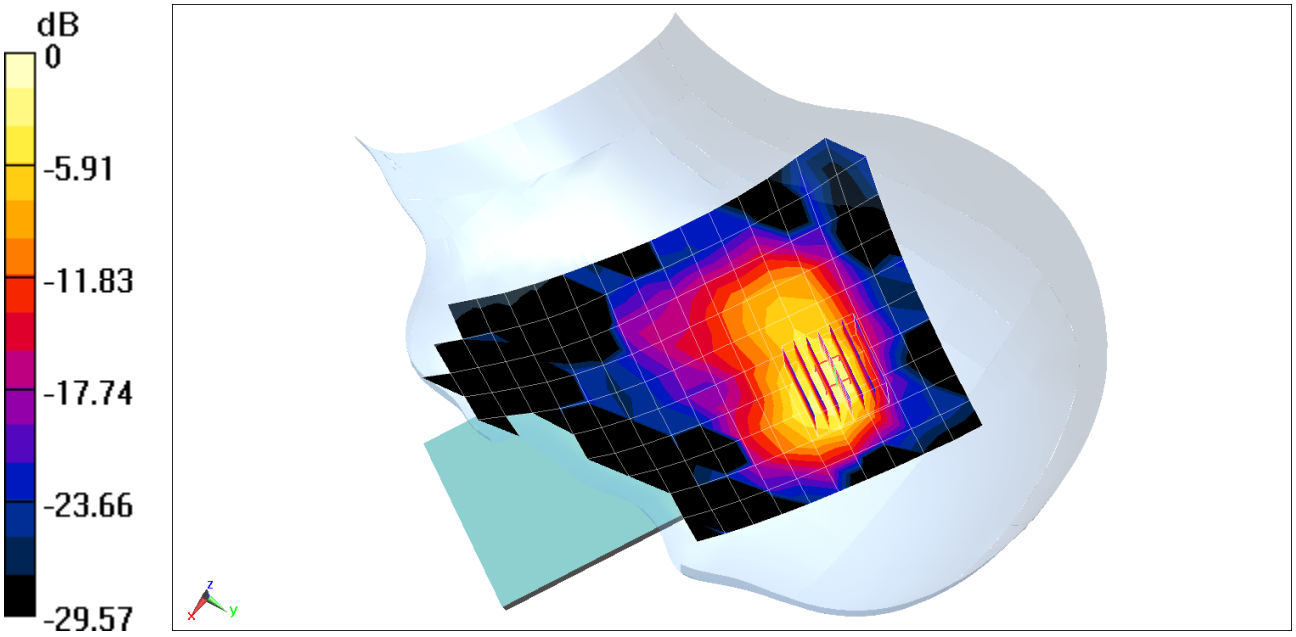
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.297
Medium: 2450 Head Medium parameters used (interpolated):
f = 2441 MHz; σ = 1.823 S/m; ε_r = 38.549; ρ = 1000 kg/m^3
Phantom section: Left Section

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

Probe: EX3DV4 - SN7410; ConvF(7.5, 7.5, 7.5) @ 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 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.487 V/m; Power Drift = -0.21 dB
Peak SAR (extrapolated) = 0.225 W/kg
SAR(1 g) = 0.084 W/kg



0 dB = 0.170 W/kg = -7.70 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01858

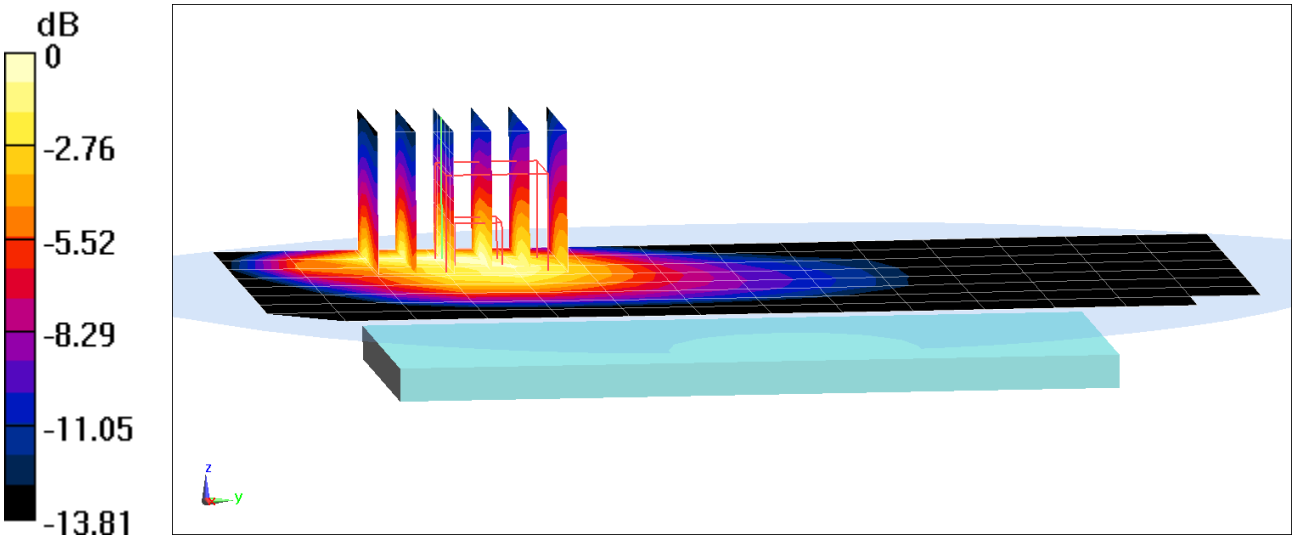
Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.957 S/m; ε_r = 53.542; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

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

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 820.1 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Cell. CDMA BC10, Rule Part 90S, 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 = 31.07 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.64 W/kg
SAR(1 g) = 0.929 W/kg



0 dB = 1.33 W/kg = 1.24 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01858

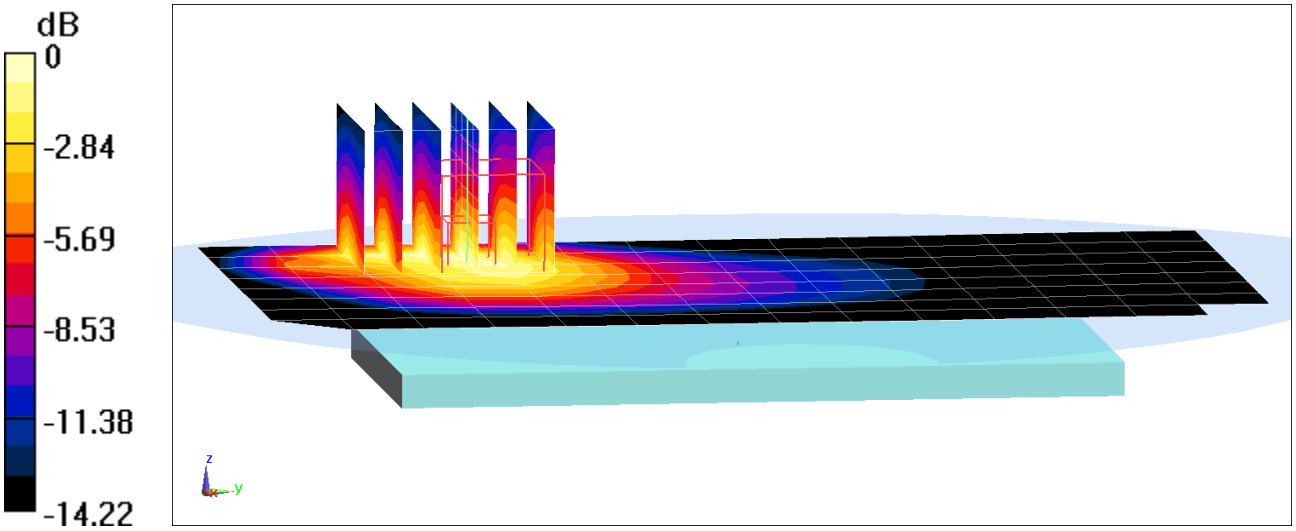
Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.957 S/m; ε_r = 53.542; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

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

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 820.1 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: Cell. EVDO BC10, Rule Part 90S, 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 = 31.18 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.67 W/kg
SAR(1 g) = 0.947 W/kg



0 dB = 1.39 W/kg = 1.43 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01858

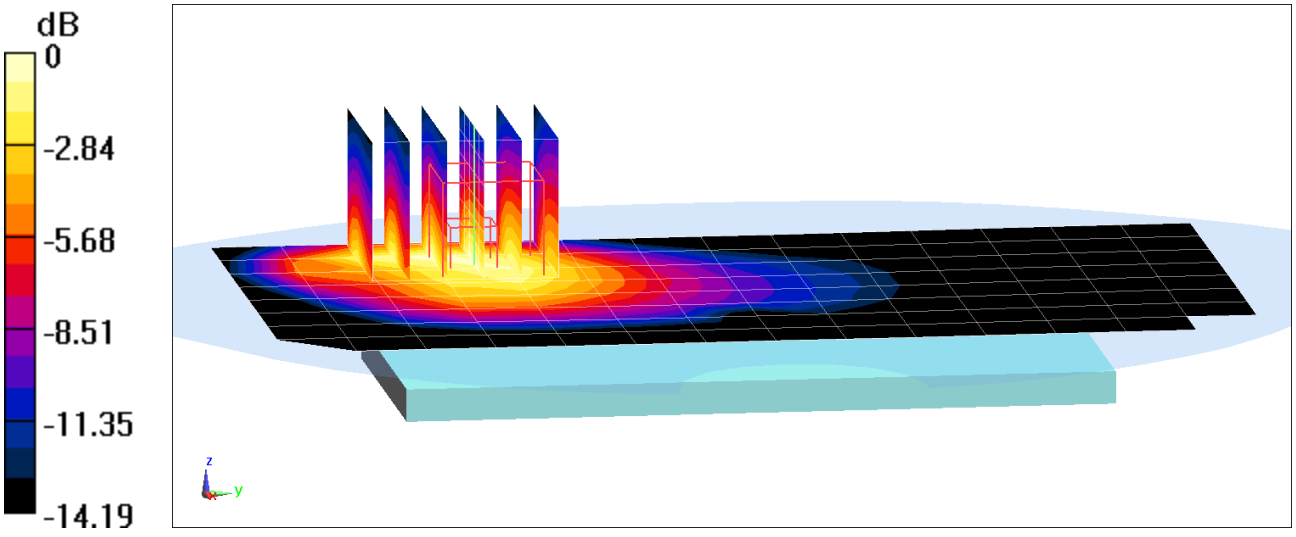
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.973 S/m; ε_r = 53.387; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

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

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

Mode: Cell. CDMA BC0, Rule Part 22H, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.34 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 1.80 W/kg
SAR(1 g) = 1.02 W/kg



0 dB = 1.48 W/kg = 1.70 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01858

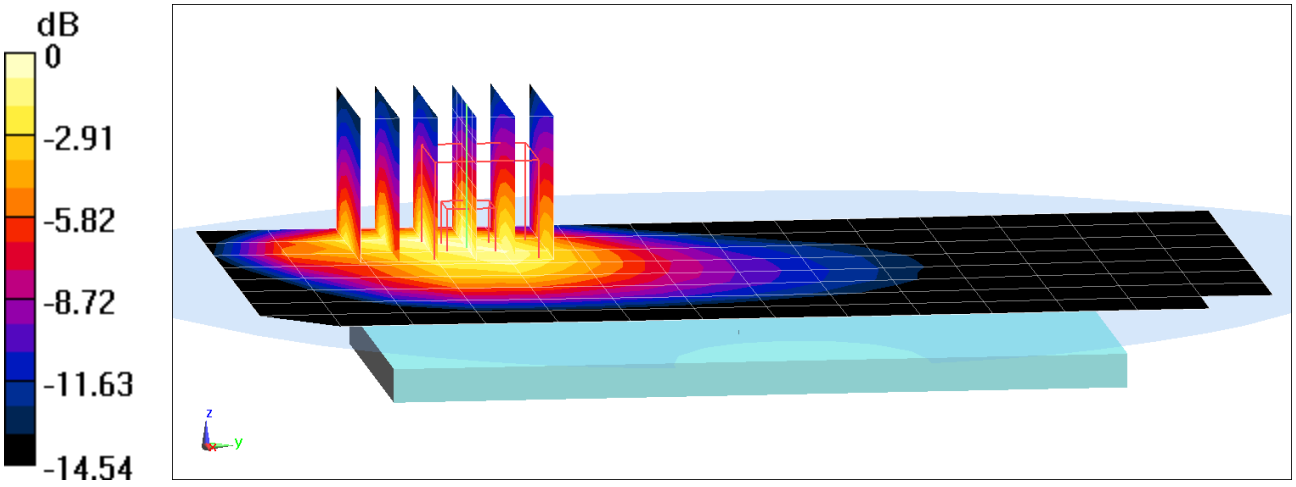
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.973 S/m; ε_r = 53.387; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

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

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

Mode: Cell. EVDO BC0, Rule Part 22H, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.50 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.83 W/kg
SAR(1 g) = 1.04 W/kg



0 dB = 1.53 W/kg = 1.85 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01858

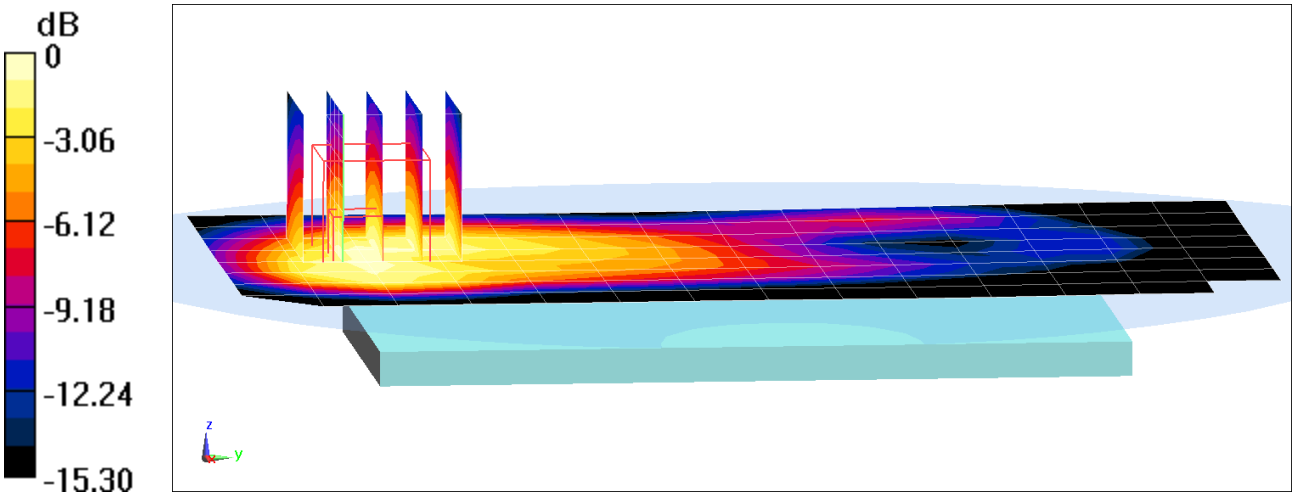
Communication System: UID 0, CDMA; Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1851.25 MHz; σ = 1.477 S/m; ε_r = 52.818; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-18-2019; Ambient Temp: 23.4°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1851.25 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: PCS CDMA, Body SAR, Back side, Low.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.02 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.626 W/kg



0 dB = 0.864 W/kg = -0.63 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01858

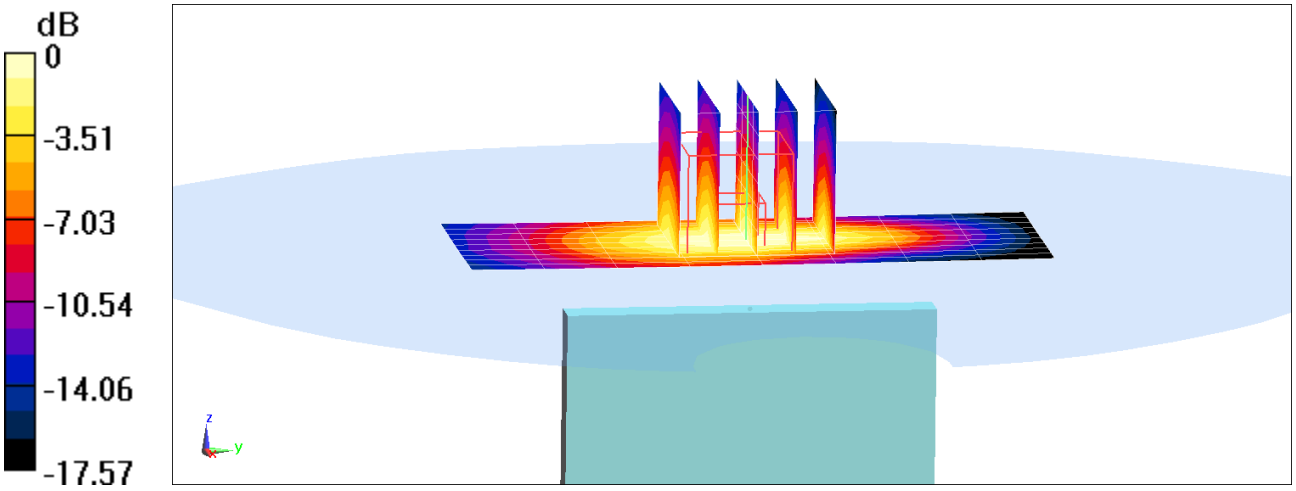
Communication System: UID 0, CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.508 S/m; ε_r = 52.736; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-18-2019; Ambient Temp: 23.4°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Left; Type: QD000P40CA; Serial: TP:82355
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: PCS EVDO, Body 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 = 28.29 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.82 W/kg
SAR(1 g) = 1.08 W/kg



0 dB = 1.57 W/kg = 1.96 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

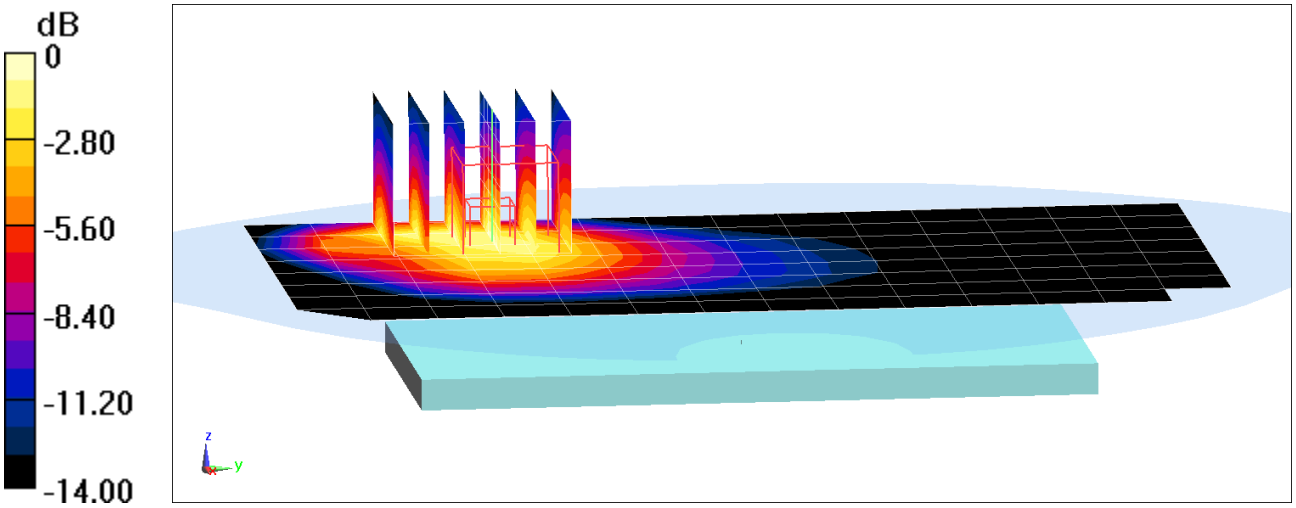
Communication System: UID 0, GSM; Frequency: 824.2 MHz; Duty Cycle: 1:8.3
Medium: 835 Body Medium parameters used (interpolated):
f = 824.2 MHz; σ = 0.975 S/m; ε_r = 54.288; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-21-2019; Ambient Temp: 21.0°C; Tissue Temp: 20.3°C

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

Mode: GSM 850, Body SAR, Back side, Low.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 = 27.00 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.701 W/kg



0 dB = 1.01 W/kg = 0.04 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

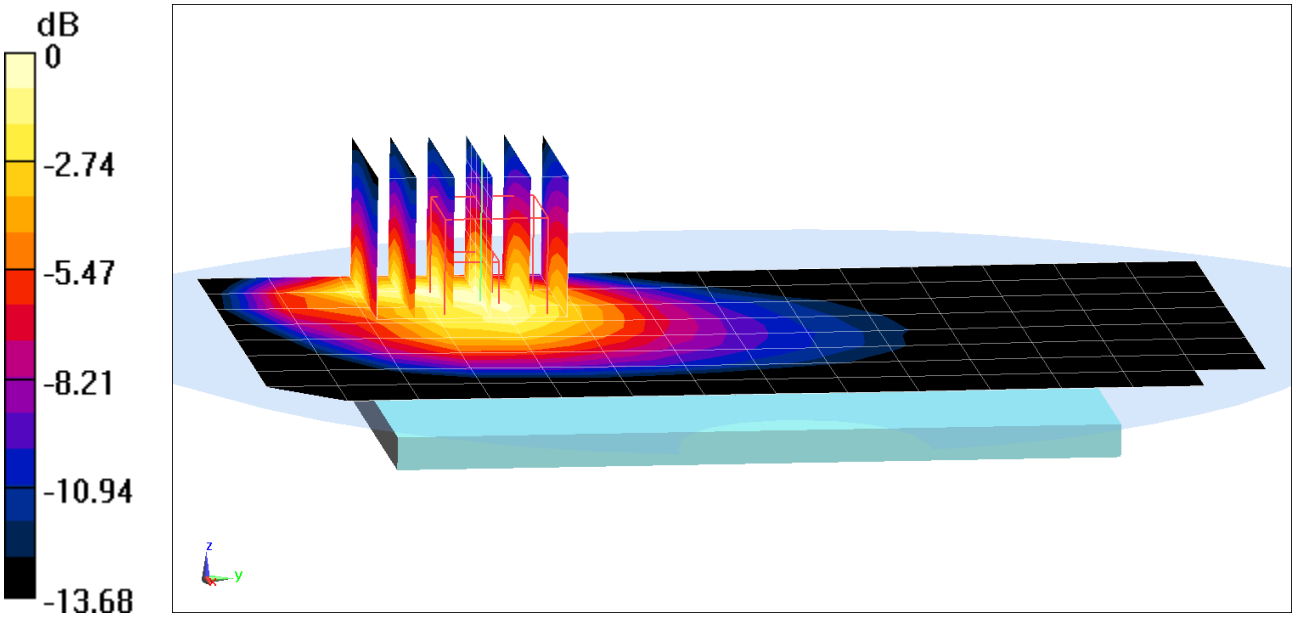
Communication System: UID 0, GSM GPRS; 1 Tx slot; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.987 S/m; ε_r = 54.182; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-21-2019; Ambient Temp: 21.0°C; Tissue Temp: 20.3°C

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

Mode: 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 = 24.82 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.605 W/kg



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

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

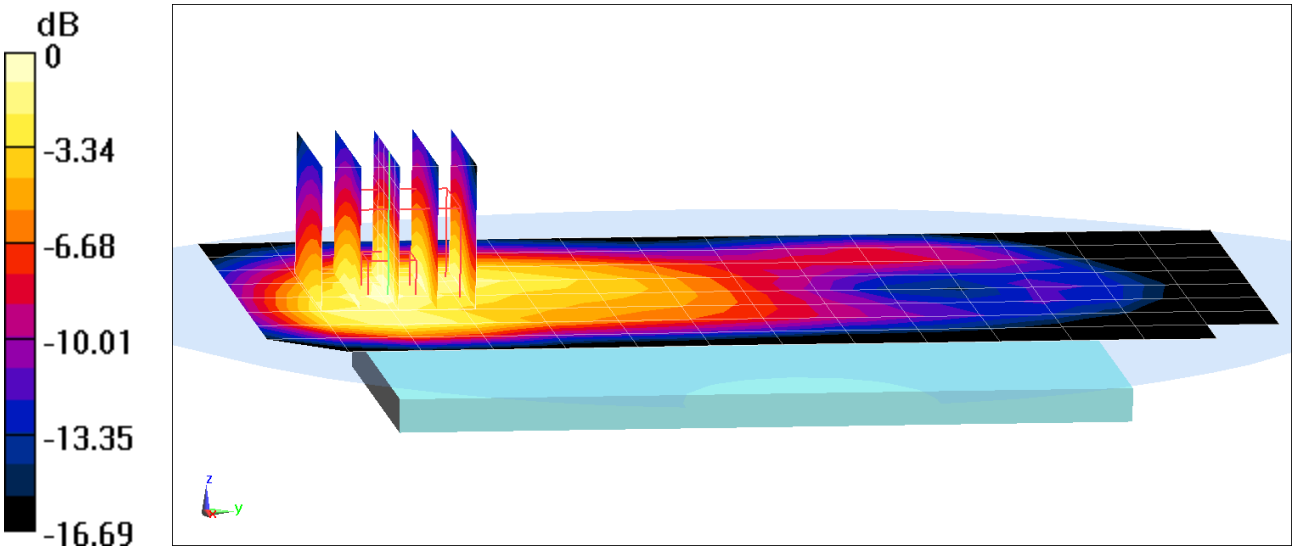
Communication System: UID 0, GSM; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.549 S/m; ε_r = 50.989; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-21-2019; Ambient Temp: 21.2°C; Tissue Temp: 20.0°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1880 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.78 V/m; Power Drift = 0.20 dB
Peak SAR (extrapolated) = 0.536 W/kg
SAR(1 g) = 0.342 W/kg



0 dB = 0.404 W/kg = -3.94 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

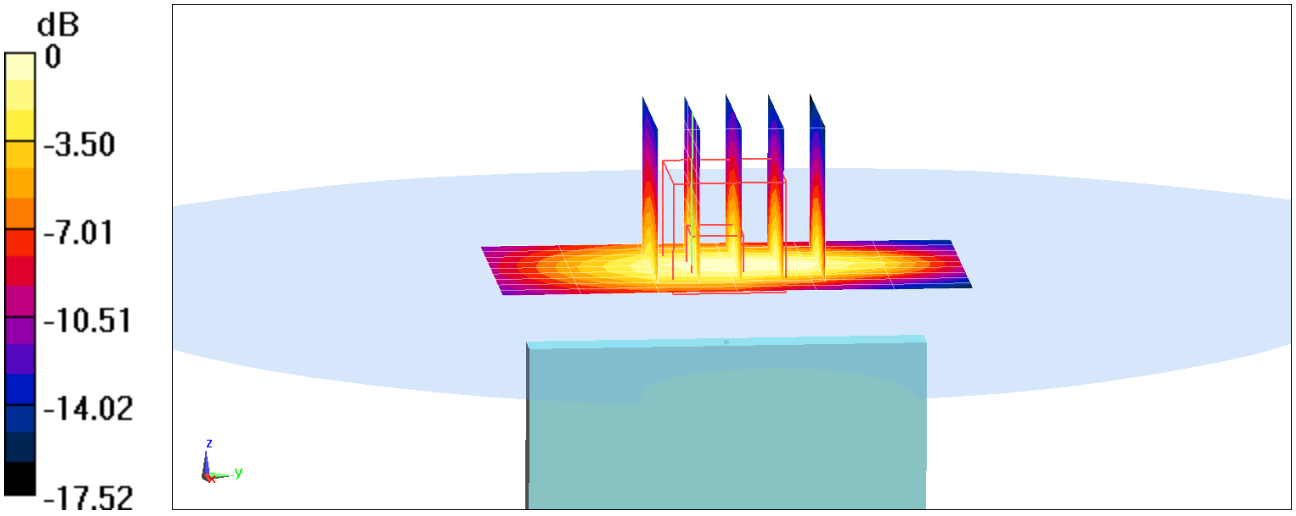
Communication System: UID 0, _GSM GPRS; 1 Tx slot; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.549 S/m; ε_r = 50.989; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-21-2019; Ambient Temp: 21.2°C; Tissue Temp: 20.0°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1880 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: 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 = 18.81 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.773 W/kg
SAR(1 g) = 0.481 W/kg



0 dB = 0.604 W/kg = -2.19 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

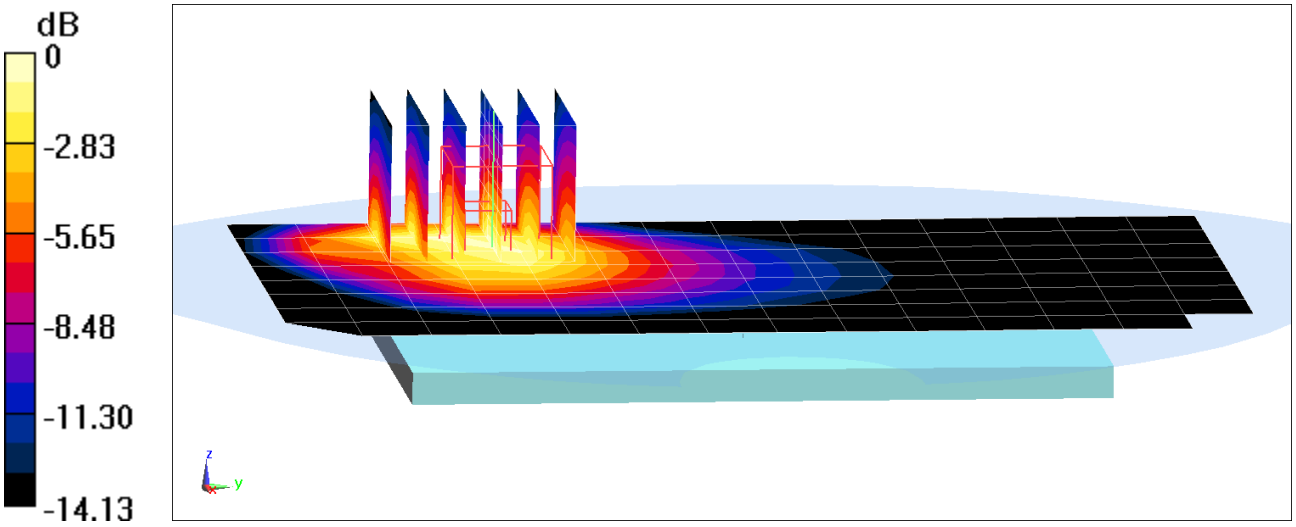
Communication System: UID 0, UMTS; Frequency: 846.6 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 846.6 MHz; σ = 0.997 S/m; ε_r = 54.09; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-21-2019; Ambient Temp: 21.0°C; Tissue Temp: 20.3°C

Probe: EX3DV4 - SN7357; ConvF(10.17, 10.17, 10.17) @ 846.6 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.85 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.83 W/kg
SAR(1 g) = 1.06 W/kg



0 dB = 1.53 W/kg = 1.85 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

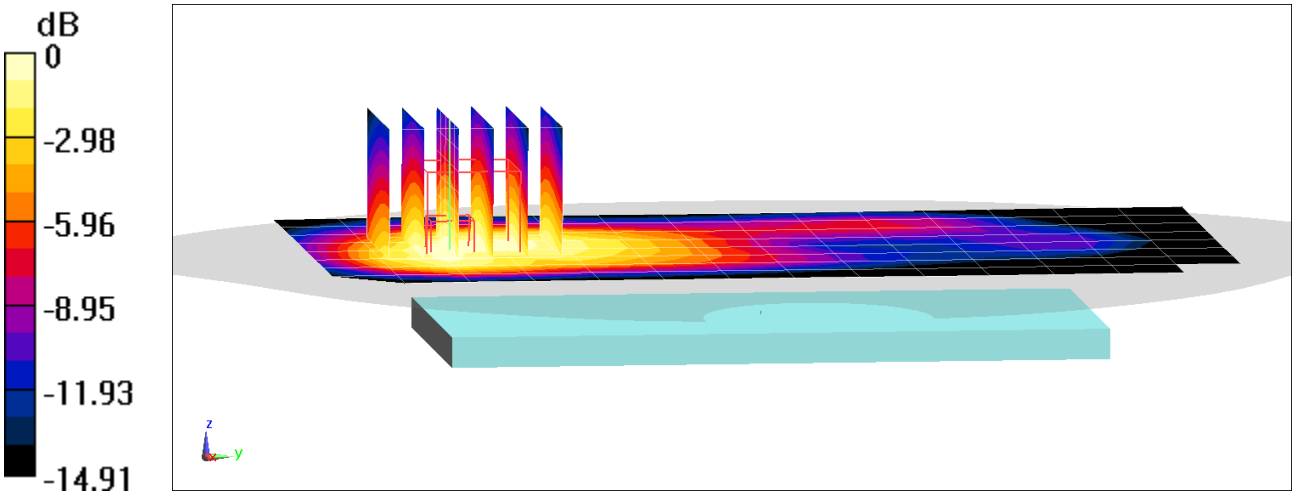
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1732.4 MHz; σ = 1.476 S/m; ε_r = 51.868; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-21-2019; Ambient Temp: 21.5°C; Tissue Temp: 20.9°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 (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.74 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.854 W/kg
SAR(1 g) = 0.566 W/kg



0 dB = 0.660 W/kg = -1.80 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

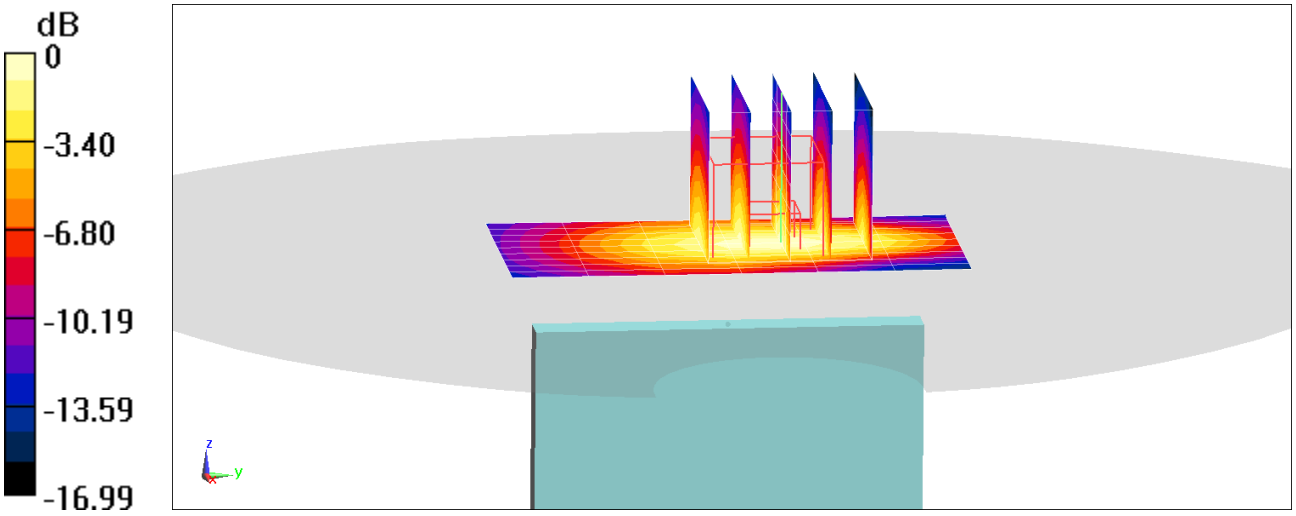
Communication System: UID 0, UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1752.6 MHz; σ = 1.49 S/m; ε_r = 51.837; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-21-2019; Ambient Temp: 21.5°C; Tissue Temp: 20.9°C

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

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

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.68 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.53 W/kg
SAR(1 g) = 0.927 W/kg



0 dB = 1.14 W/kg = 0.57 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

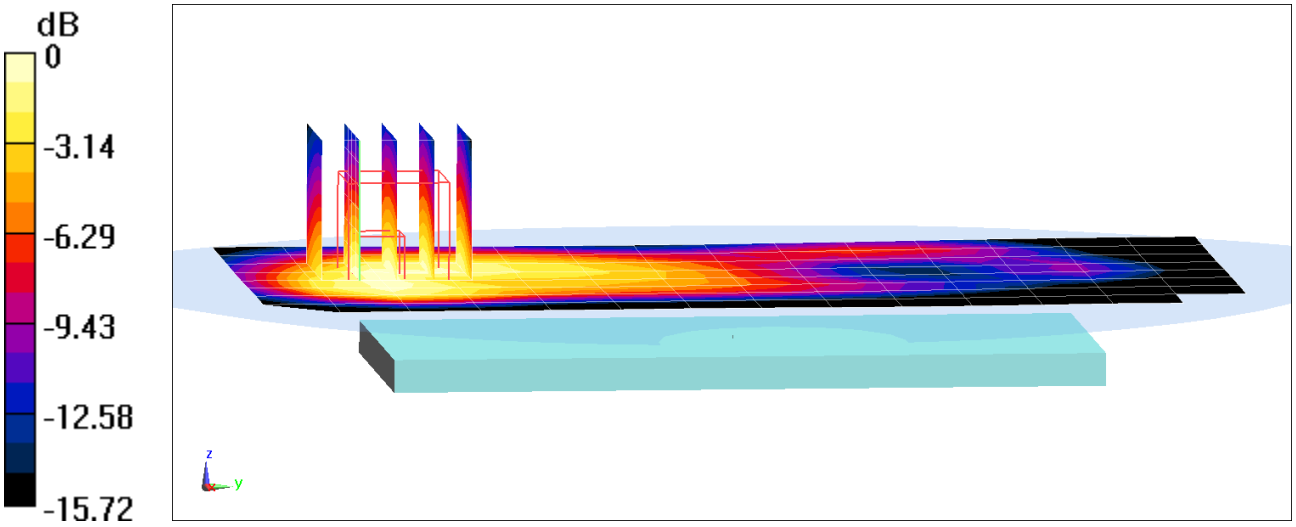
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.521 S/m; ε_r = 52.41; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-16-2019; Ambient Temp: 23.5°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Left; Type: QD000P40CA; Serial: TP:82355
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.33 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.926 W/kg
SAR(1 g) = 0.579 W/kg



0 dB = 0.798 W/kg = -0.98 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

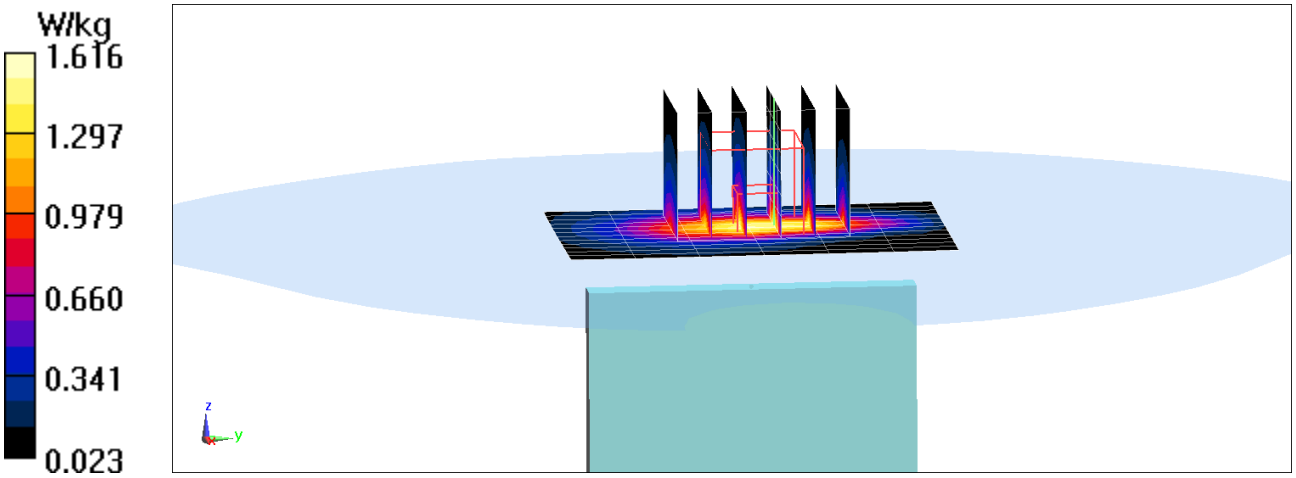
Communication System: UID 0, _UMTS; Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1907.6 MHz; σ = 1.552 S/m; ε_r = 52.32; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-16-2019; Ambient Temp: 23.5°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1907.6 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Left; Type: QD000P40CA; Serial: TP:82355
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (13x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.13 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.89 W/kg
SAR(1 g) = 1.11 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01861

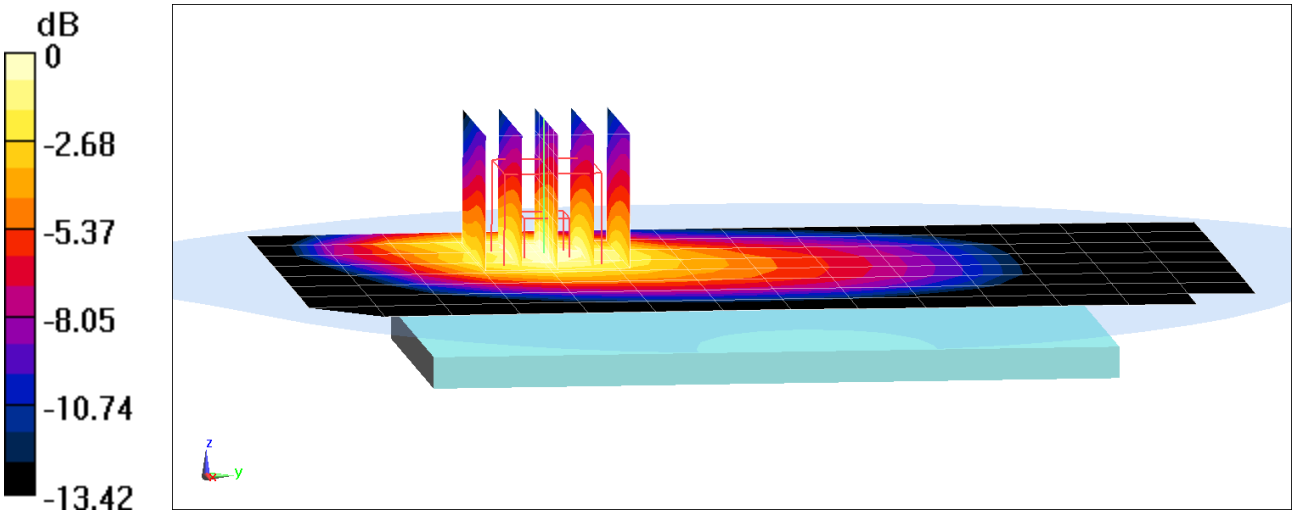
Communication System: UID 0, LTE Band 71; Frequency: 680.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 680.5 MHz; σ = 0.957 S/m; ε_r = 54.283; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-06-2019; Ambient Temp: 24.0°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN3589; ConvF(8.34, 8.34, 8.34) @ 680.5 MHz; Calibrated: 1/25/2019
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1450; Calibrated: 8/22/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.57 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.696 W/kg
SAR(1 g) = 0.427 W/kg



0 dB = 0.582 W/kg = -2.35 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01861

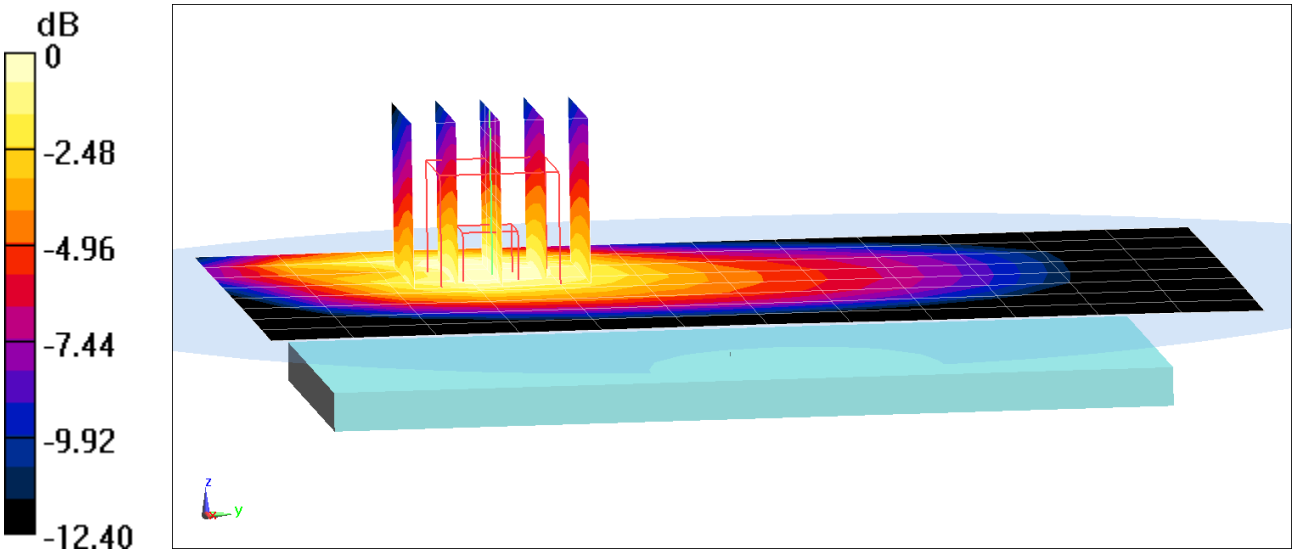
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.967 S/m; ε_r = 54.21; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-06-2019; Ambient Temp: 24.0°C; Tissue Temp: 22.0°C

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

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

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.17 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.796 W/kg
SAR(1 g) = 0.534 W/kg



0 dB = 0.695 W/kg = -1.58 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01860

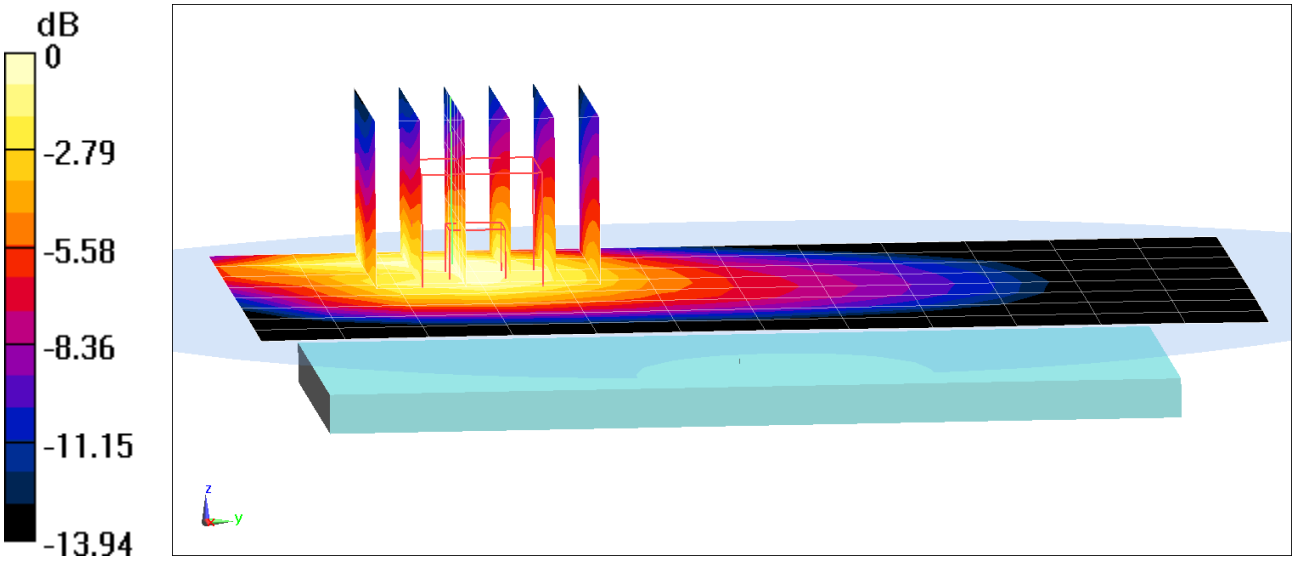
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 782 MHz; σ = 0.997 S/m; ε_r = 54.016; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-06-2019; Ambient Temp: 24.0°C; Tissue Temp: 22.0°C

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

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

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.32 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.602 W/kg



0 dB = 0.857 W/kg = -0.67 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01860

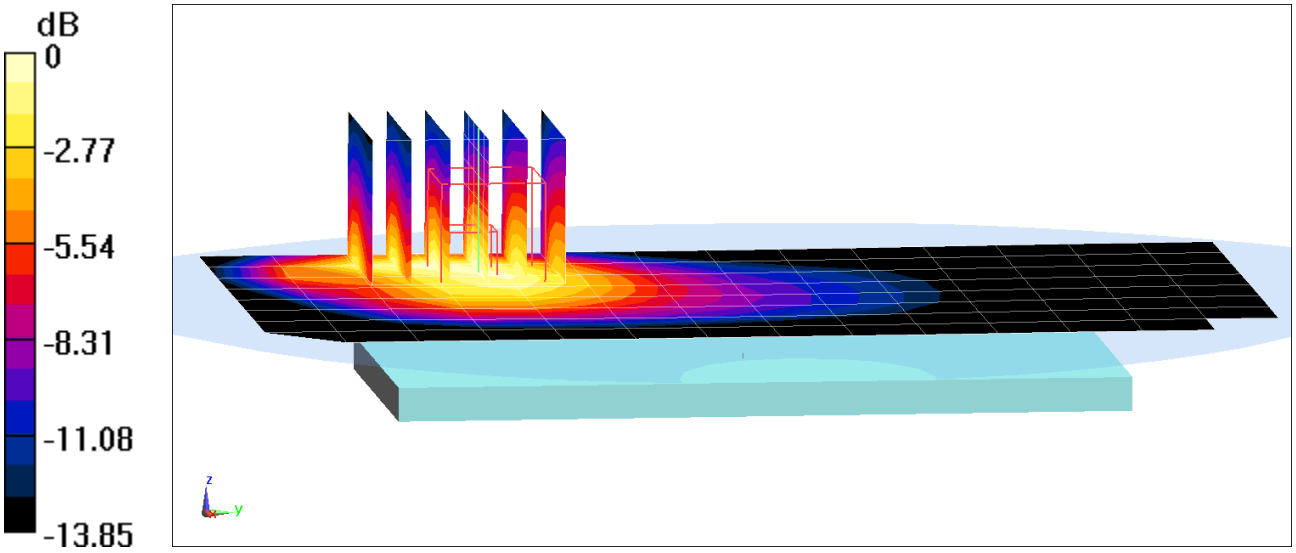
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.973 S/m; ε_r = 54.095; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-18-2019; Ambient Temp: 21.7°C; Tissue Temp: 20.5°C

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

Mode: LTE Band 26 (Cell.), Body SAR, Back side, Mid.ch,
15 MHz Bandwidth, QPSK, 1 RB, 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 = 27.65 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.725 W/kg



0 dB = 1.02 W/kg = 0.09 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01861

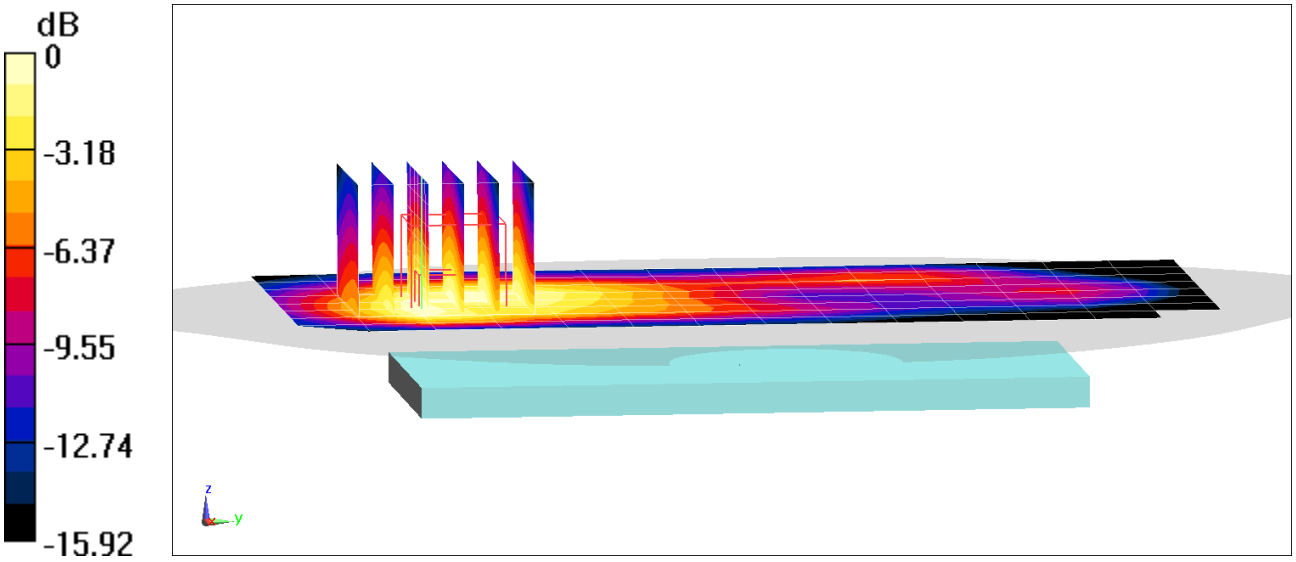
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1720 MHz; σ = 1.468 S/m; ε_r = 51.888; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-21-2019; Ambient Temp: 21.5°C; Tissue Temp: 20.9°C

Probe: ES3DV3 - SN3347; ConvF(5.17, 5.17, 5.17) @ 1720 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: LTE Band 66 (AWS), Body SAR, Back side, Low.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 = 19.85 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.785 W/kg
SAR(1 g) = 0.510 W/kg



0 dB = 0.605 W/kg = -2.18 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01861

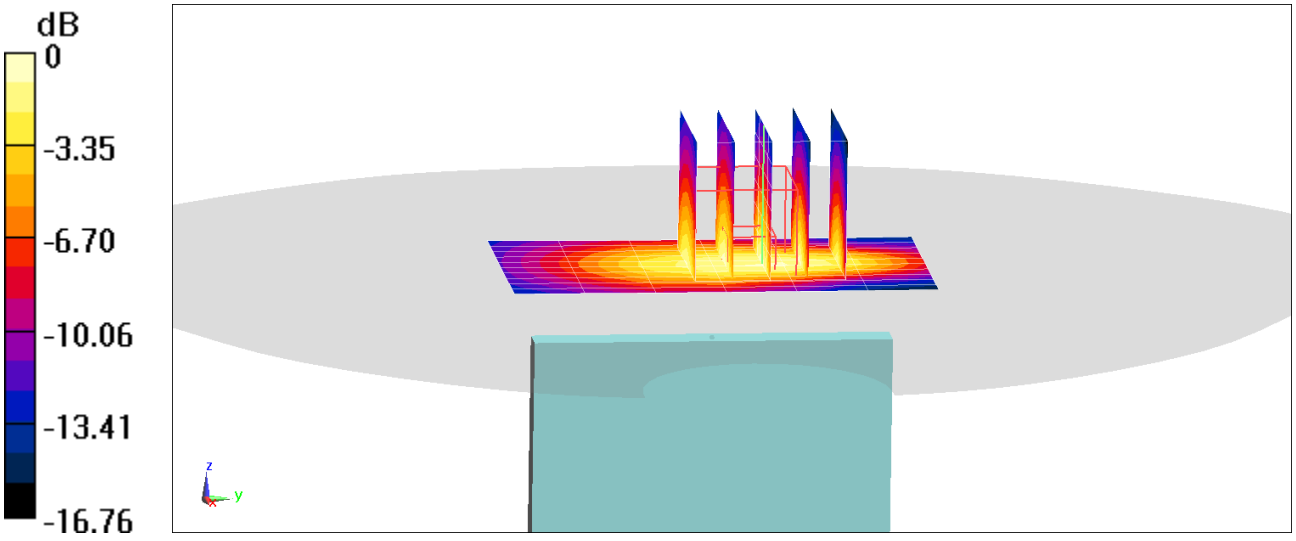
Communication System: UID 0, _LTE Band 66 (AWS); Frequency: 1770 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1770 MHz; σ = 1.5 S/m; ε_r = 51.816; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-21-2019; Ambient Temp: 21.5°C; Tissue Temp: 20.9°C

Probe: ES3DV3 - SN3347; ConvF(5.17, 5.17, 5.17) @ 1770 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: LTE Band 66 (AWS), Body SAR, Bottom Edge, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset

Area Scan (11x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.10 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.69 W/kg
SAR(1 g) = 1.03 W/kg



0 dB = 1.25 W/kg = 0.97 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01860

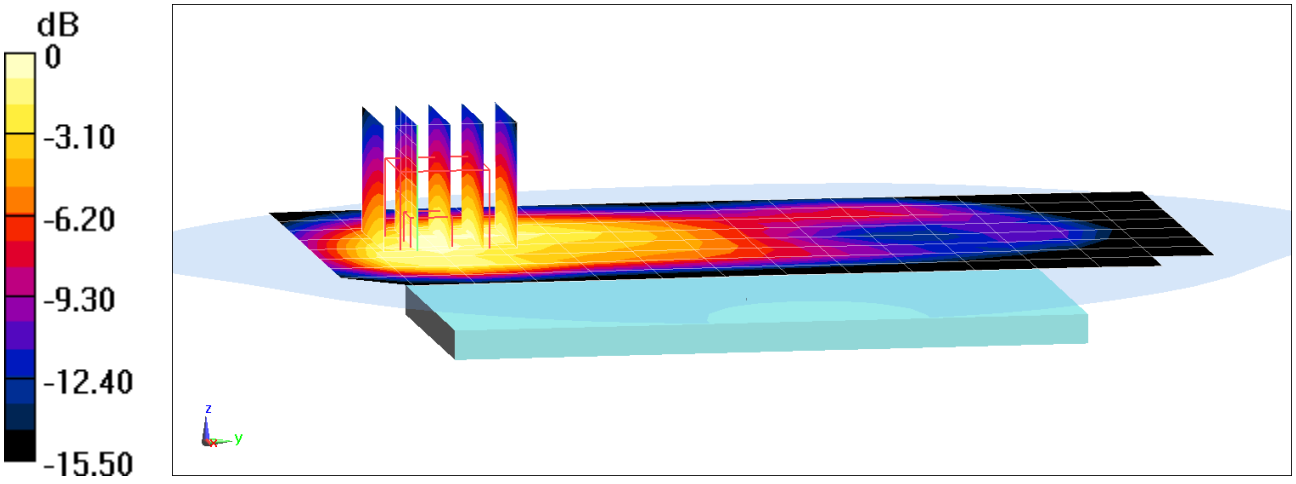
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1882.5 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
$f = 1882.5$ MHz; $\sigma = 1.551$ S/m; $\varepsilon_r = 50.985$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-21-2019; Ambient Temp: 21.2°C; Tissue Temp: 20.0°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1882.5 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: 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 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.66 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.651 W/kg



0 dB = 0.769 W/kg = -1.14 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01860

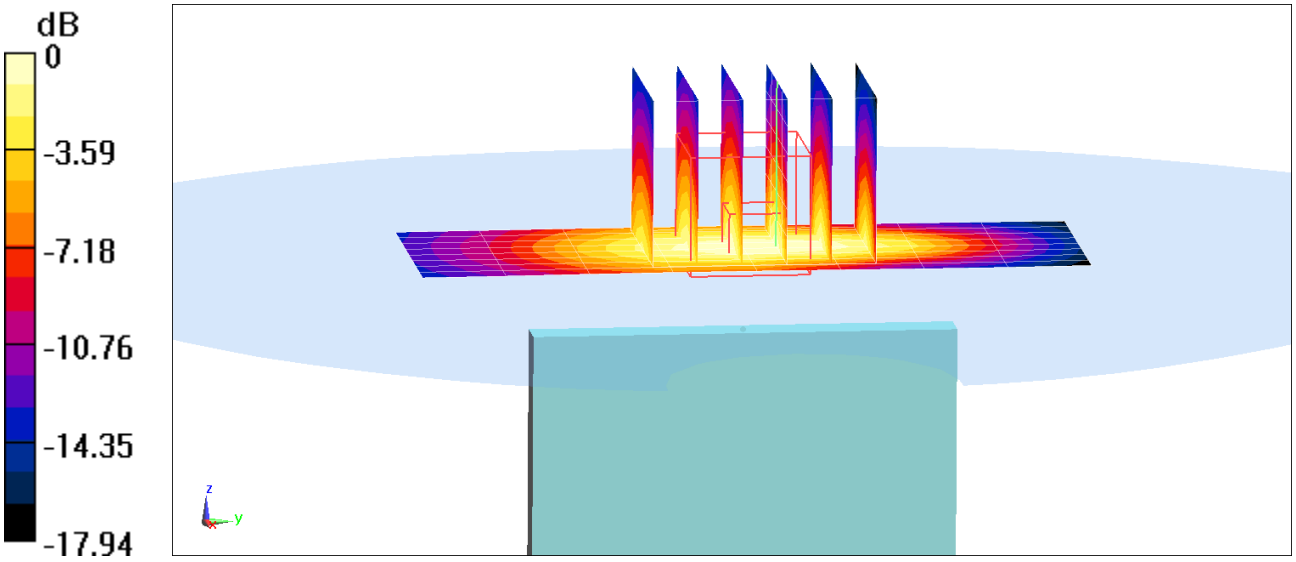
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1882.5 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1882.5 MHz; σ = 1.551 S/m; ε_r = 50.985; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-21-2019; Ambient Temp: 21.2°C; Tissue Temp: 20.0°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1882.5 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.06 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.74 W/kg
SAR(1 g) = 1.05 W/kg



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

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01860

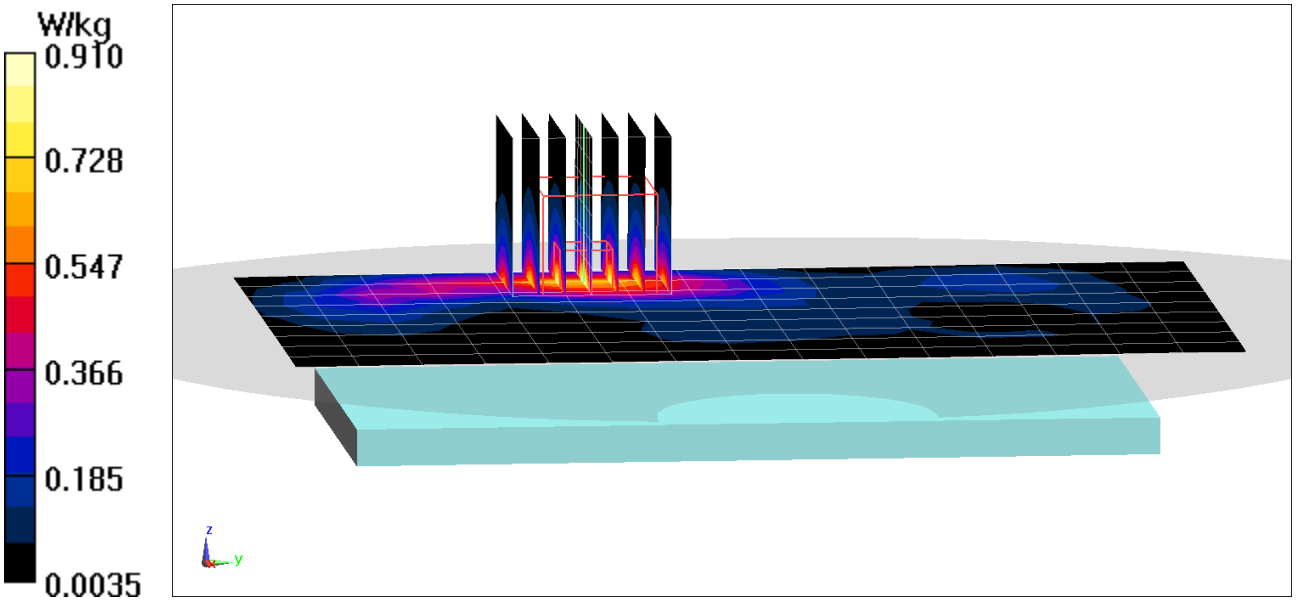
Communication System: UID 0, LTE Band 41 (Class 3); Frequency: 2593 MHz; Duty Cycle: 1:1.58
Medium: 2600 Body Medium parameters used (interpolated):
f = 2593 MHz; σ = 2.199 S/m; ε_r = 50.727; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-27-2019; Ambient Temp: 22.2°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3319; ConvF(4.33, 4.33, 4.33) @ 2593 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,
PCC: 20 MHz Bandwidth, Ch. 40620, QPSK, 1 RB, 0 RB Offset
SCC: 20 MHz Bandwidth, Ch. 40422, QPSK, 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 = 19.13 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.44 W/kg
SAR(1 g) = 0.701 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01860

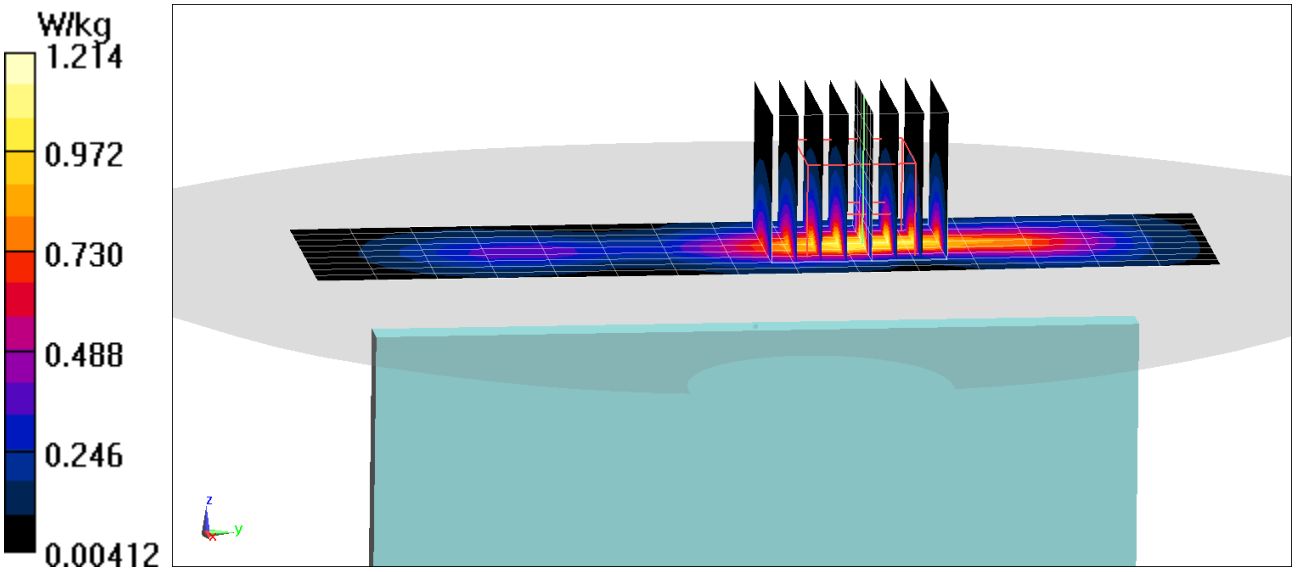
Communication System: UID 0, _LTE Band 41 (Class 2); Frequency: 2506 MHz; Duty Cycle: 1:2.31
Medium: 2450 Body Medium parameters used (interpolated):
f = 2506 MHz; σ = 2.094 S/m; ε_r = 50.98; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-27-2019; Ambient Temp: 22.2°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2506 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 41 PC2, Body SAR, Right Edge, Low.ch,
20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset

Area Scan (10x16x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.54 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.97 W/kg
SAR(1 g) = 0.919 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01890

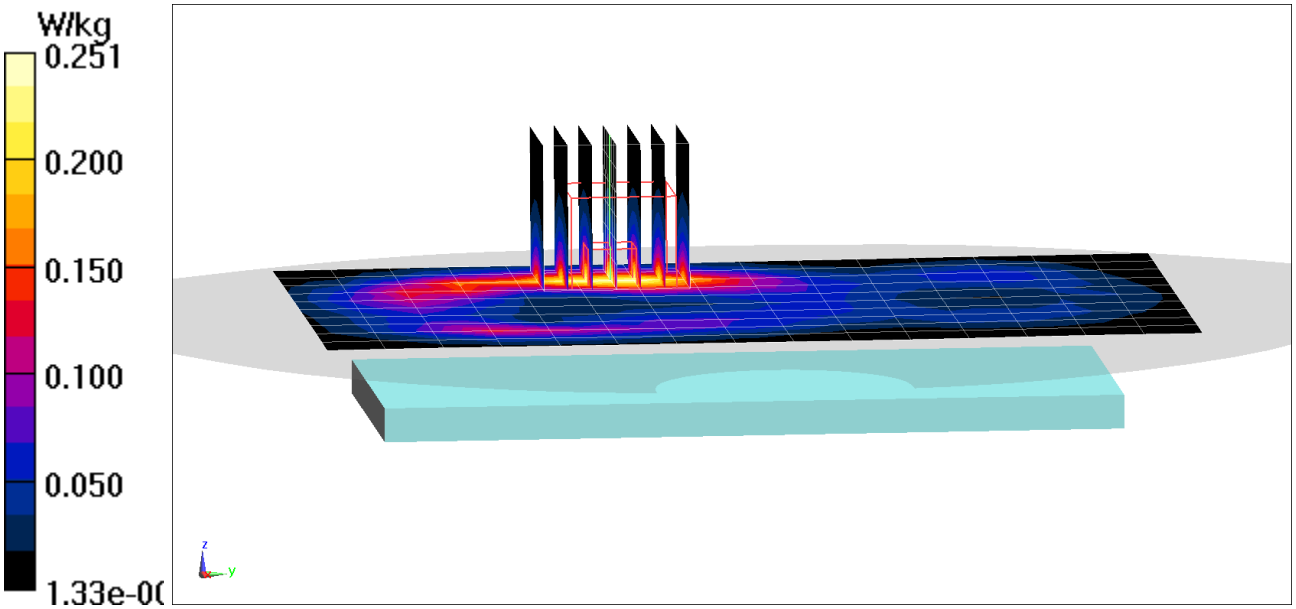
Communication System: UID 0, EN-DC DC_41A-n41A; Frequency: 2592.99 MHz; Duty Cycle: 1:1
Medium: 2600 Body Medium parameters used (interpolated):
f = 2592.99 MHz; σ = 2.186 S/m; ε_r = 50.205; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-17-2019; Ambient Temp: 23.4°C; Tissue Temp: 22.5°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 = 10.19 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.404 W/kg
SAR(1 g) = 0.194 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01890

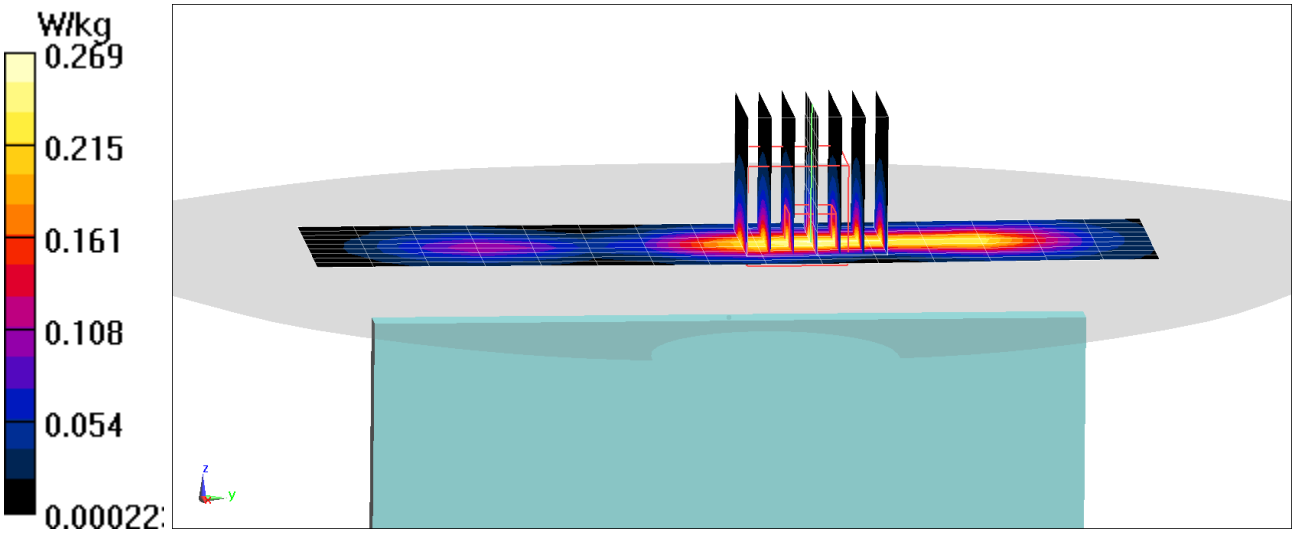
Communication System: UID 0 EN-DC DC_41A-n41A; Frequency: 2592.99 MHz; Duty Cycle: 1:1
Medium: 2600 Body Medium parameters used (interpolated):
f = 2592.99 MHz; σ = 2.186 S/m; ε_r = 50.205; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-17-2019; Ambient Temp: 23.4°C; Tissue Temp: 22.5°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 B41 transmitting simultaneously), Body SAR, Right Edge, Mid.ch, 60 MHz Bandwidth, CP-OFD-QPSK, 1 RB, 1 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 = 10.40 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.436 W/kg
SAR(1 g) = 0.205 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01872

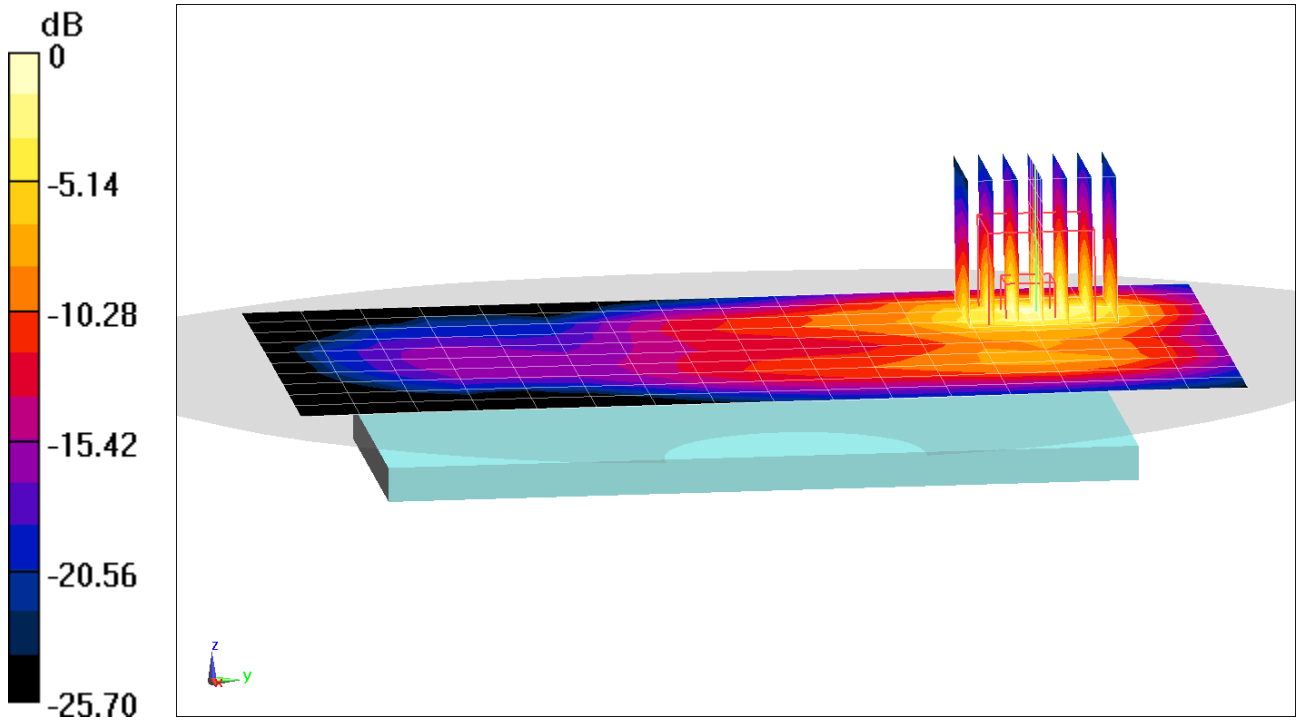
Communication System: UID 0, IEEE 802.11g; Frequency: 2452 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2452 MHz; σ = 2.036 S/m; ε_r = 52.011; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-13-2019; Ambient Temp: 21.9°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2452 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 802.11g MIMO, 20 MHz Bandwidth, Body SAR, Ch 9, 6 Mbps, Back Side

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.126 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.541 W/kg



0 dB = 0.729 W/kg = -1.37 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01873

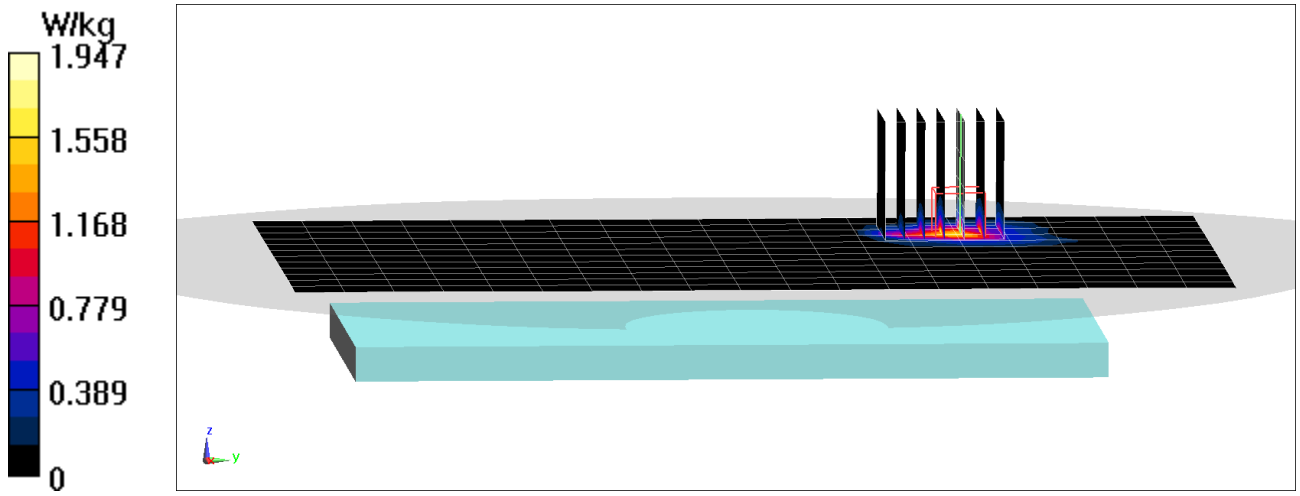
Communication System: UID 0, 802.11a; Frequency: 5805 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5805 MHz; σ = 6.248 S/m; ε_r = 46.263; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 02-06-2019; Ambient Temp: 21.3°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN7308; ConvF(4.18, 4.18, 4.18) @ 5805 MHz; Calibrated: 8/23/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1558; Calibrated: 10/3/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a Antenna 2, UNII-3, 20 MHz Bandwidth,
Body SAR, Ch 161, 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 = 0.3720 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 3.43 W/kg
SAR(1 g) = 0.745 W/kg



DUT: ZNFV450PM; Type: Portable Handset; Serial: 01858

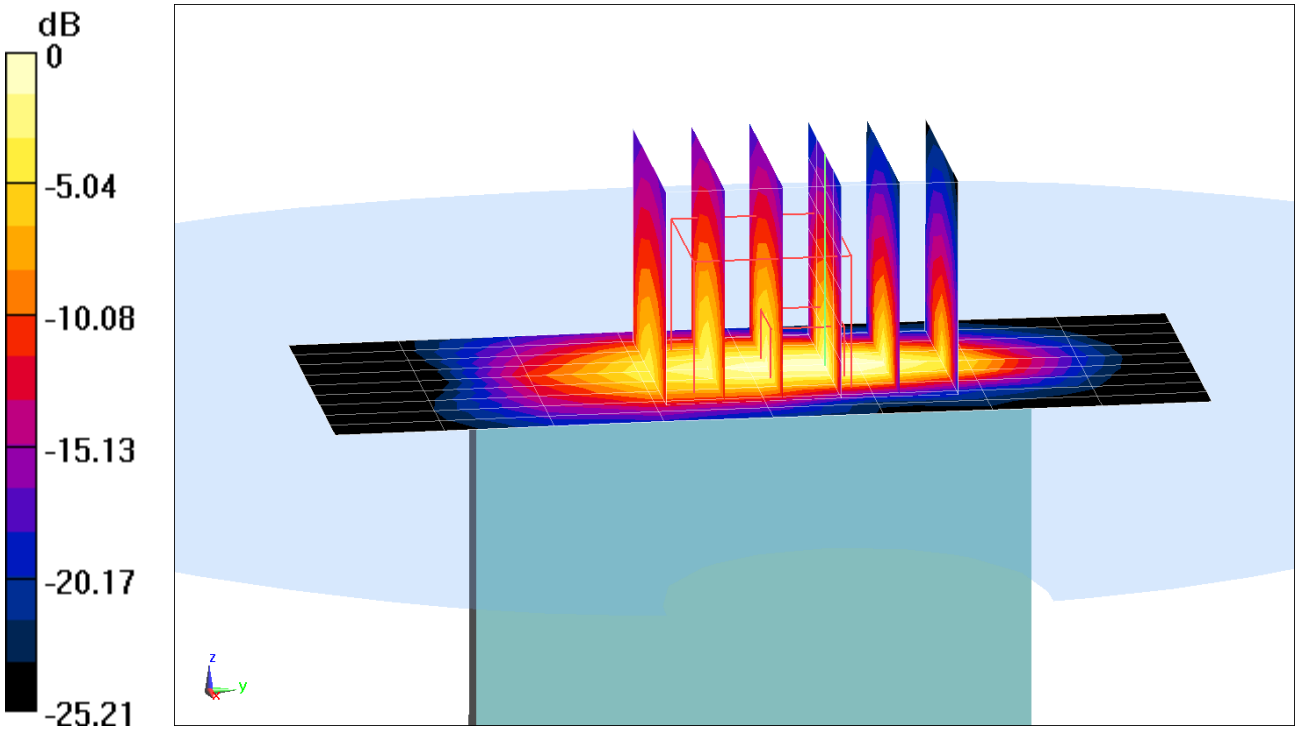
Communication System: UID 0, CDMA; Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
$f = 1851.25$ MHz; $\sigma = 1.529$ S/m; $\varepsilon_r = 51.04$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-21-2019; Ambient Temp: 21.2°C; Tissue Temp: 20.0°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1851.25 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

Mode: PCS EVDO, Phablet SAR, Bottom Edge, Low.ch

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 70.56 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 13.6 W/kg
SAR(10 g) = 2.55 W/kg



0 dB = 8.87 W/kg = 9.48 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

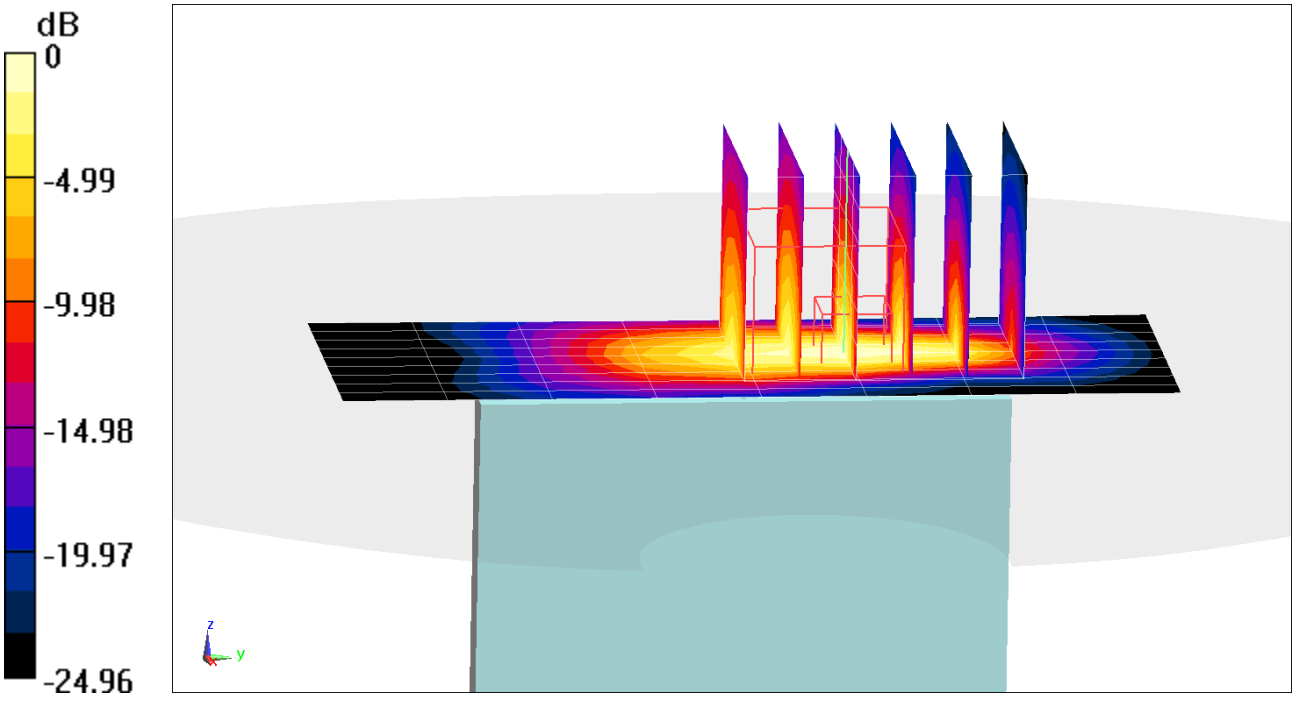
Communication System: UID 0, _UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1752.6 MHz; σ = 1.52 S/m; ε_r = 51.064; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-24-2019; Ambient Temp: 20.8°C; Tissue Temp: 20.2°C

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

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

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 64.68 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 13.2 W/kg
SAR(10 g) = 2.32 W/kg



0 dB = 7.74 W/kg = 8.89 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01862

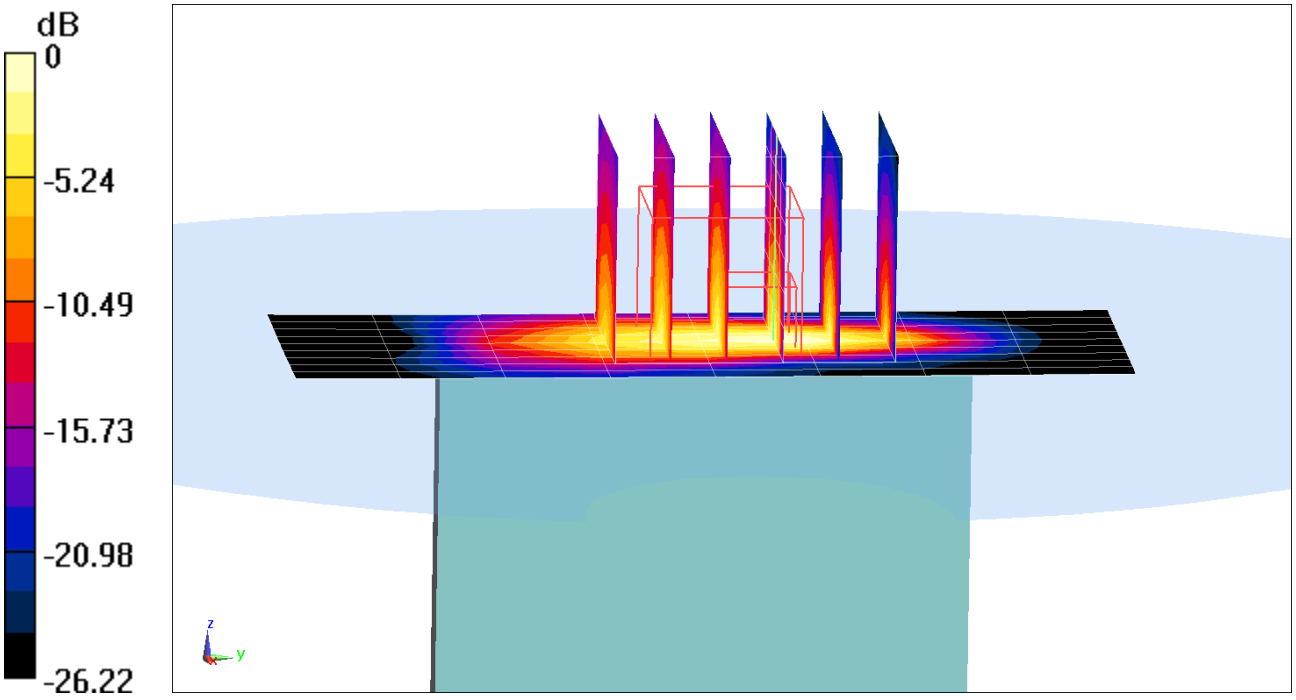
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.521 S/m; ε_r = 52.41; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-16-2019; Ambient Temp: 23.5°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1880 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Left; Type: QD000P40CA; Serial: TP:82355
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 69.39 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 15.4 W/kg
SAR(10 g) = 2.54 W/kg



0 dB = 12.7 W/kg = 11.04 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01861

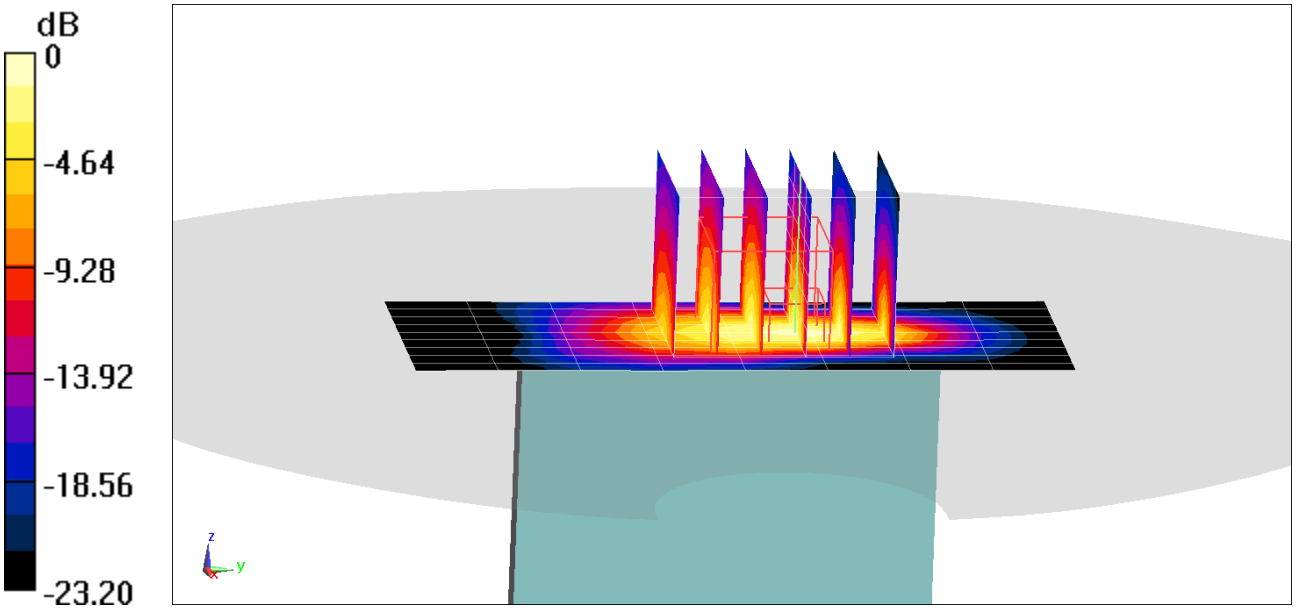
Communication System: UID 0, _LTE Band 66 (AWS); Frequency: 1770 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
$f = 1770$ MHz; $\sigma = 1.5$ S/m; $\varepsilon_r = 51.816$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-21-2019; Ambient Temp: 21.5°C; Tissue Temp: 20.9°C

Probe: ES3DV3 - SN3347; ConvF(5.17, 5.17, 5.17) @ 1770 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: LTE Band 66 (AWS), Phablet SAR, Bottom Edge, High.ch, 20 MHz Bandwidth, QPSK, 100 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 = 71.86 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 14.4 W/kg
SAR(10 g) = 2.69 W/kg



0 dB = 8.91 W/kg = 9.50 dBW/kg

DUT: ZNFV450PM; Type: Portable Handset; Serial: 01861

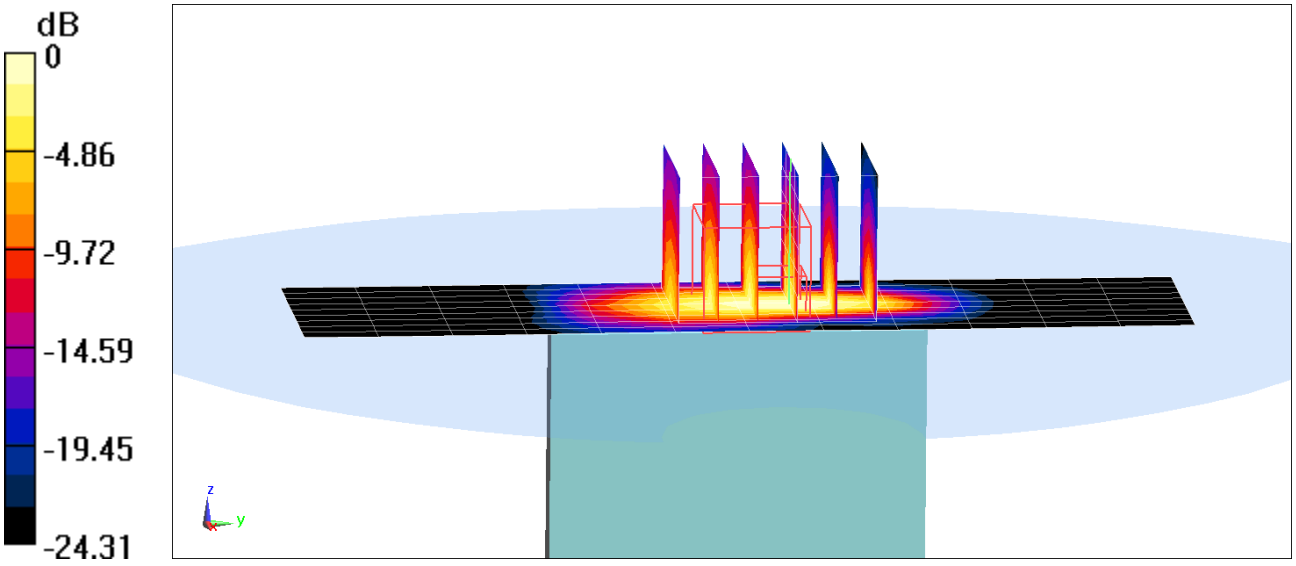
Communication System: UID 0, _LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
$f = 1860$ MHz; $\sigma = 1.535$ S/m; $\varepsilon_r = 51.024$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-21-2019; Ambient Temp: 21.2°C; Tissue Temp: 20.0°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1860 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: 1648
Measurement SW: DASY52, Version 52.10 (2);SEMCAD X Version 14.6.12 (7450)

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

Area Scan (10x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 70.29 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 13.5 W/kg
SAR(10 g) = 2.65 W/kg



0 dB = 8.69 W/kg = 9.39 dBW/kg