



SAR EVALUATION REPORT

Applicant Name:

Samsung Electronics Co., Ltd.
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Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea

Date of Testing:

04/05/19 - 05/13/19

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PCTEST Lab, Columbia, MD, USA

Document Serial No.:

1M1903290047-01-R1.A3L

FCC ID:

A3LSMA505U

APPLICANT:

SAMSUNG ELECTRONICS CO., LTD.

DUT Type:

Portable Handset

Application Type:

Certification

FCC Rule Part(s):

CFR §2.1093

Model:

SM-A505U

Additional Model(s):

SM-A505W

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 (890S)	817.90 - 823.10 MHz	0.27	0.31	0.37	N/A
PCE	CDMA/EVDO BC0 (S22H)	824.70 - 848.31 MHz	0.29	0.33	0.50	N/A
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.17	0.20	0.37	1.87
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.35	0.44	0.81	N/A
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	0.11	< 0.1	0.18	N/A
PCE	UMTS 850	826.40 - 846.60 MHz	0.31	0.34	0.52	N/A
PCE	UMTS 1750	1712.4 - 1752.6 MHz	0.26	0.58	0.57	2.30
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.20	0.24	0.44	1.73
PCE	LTE Band 71	665.5 - 695.5 MHz	0.15	0.24	0.26	0.45
PCE	LTE Band 12	699.7 - 715.3 MHz	0.22	0.35	0.41	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	0.27	0.43	0.48	N/A
PCE	LTE Band 26 (Cell)	814.7 - 848.3 MHz	0.32	0.38	0.57	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	0.24	0.53	0.77	2.99
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	0.18	0.21	0.28	1.00
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 7	2502.5 - 2567.5 MHz	1.31	< 0.1	0.31	N/A
PCE	LTE Band 38	2572.5 - 2617.5 MHz	0.68	0.41	0.61	2.53
PCE	LTE Band 41	2498.5 - 2687.5 MHz	0.55	0.51	0.58	2.79
DTS	2.4 GHz WLAN	2412 - 2472 MHz	0.15	< 0.1	0.22	N/A
Nil	U-NII-1	5180 - 5240 MHz	N/A	N/A	N/A	N/A
Nil	U-NII-2A	5260 - 5320 MHz	0.19	0.14	N/A	0.60
Nil	U-NII-2C	5500 - 5720 MHz	0.23	0.43	N/A	1.20
Nil	U-NII-3	5745 - 5825 MHz	0.24	0.30	0.77	N/A
DSS/DTS	Bluetooth	2402 - 2480 MHz	< 0.1	< 0.1	< 0.1	N/A
Simultaneous SAR per KDB 690783 D01v01r03:			1.59	1.01	1.59	3.98

Note: This revised Test Report (S/N: 1M1903290047-01-R1.A3L) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in ANSI/IEEE C95.1-1992 and has been tested in accordance with the measurement procedures specified in Section 1.8 of this report; for North American frequency bands only.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them. Test results reported herein relate only to the item(s) tested.


Randy Ortañez
President



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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
CDMA/EVDO BC10 (§90S)	Voice/Data	817.90 - 823.10 MHz
CDMA/EVDO BC0 (§22H)	Voice/Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 71	Voice/Data	665.5 - 695.5 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 17	Voice/Data	706.5 - 713.5 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 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 7	Voice/Data	2502.5 - 2567.5 MHz
LTE Band 38	Voice/Data	2572.5 - 2617.5 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2472 MHz
U-NII-1	Voice/Data	5180 - 5240 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
ANT+	Data	2402 - 2480 MHz
MST	Data	555 Hz - 8.33 kHz

1.2 Power Reduction for SAR

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

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

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1.3 Nominal and Maximum Output Power Specifications

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

1.3.1 Maximum 2G/3G/4G Output Power

Mode / Band		Voice (dBm)	Burst Average GMSK (dBm)				Burst Average 8-PSK (dBm)			
		1 TX Slot	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots
GSM/GPRS/EDGE 850	Maximum	34.2	34.2	32.2	31.0	29.8	26.5	24.5	23.5	22.0
	Nominal	33.2	33.2	31.2	30.0	28.8	25.5	23.5	22.5	21.0
GSM/GPRS/EDGE 1900	Maximum	31.0	31.0	28.5	27.0	25.5	25.5	24.0	23.0	21.5
	Nominal	30.0	30.0	27.5	26.0	24.5	24.5	23.0	22.0	20.5

Mode / Band		Modulated Average (dBm)			
		3GPP WCDMA	3GPP HSDPA	3GPP HSUPA	3GPP DC-HSDPA
UMTS Band 5 (850 MHz)	Maximum	25.0	24.5	22.6	24.5
	Nominal	24.0	23.5	21.6	23.5
UMTS Band 4 (1750 MHz)	Maximum	25.0	24.0	22.5	24.0
	Nominal	24.0	23.0	21.5	23.0
UMTS Band 2 (1900 MHz)	Maximum	25.0	24.5	23.5	24.5
	Nominal	24.0	23.5	22.5	23.5

Mode / Band		Modulated Average (dBm)
CDMA/EVDO BC10 (\$90S)	Maximum	25.0
	Nominal	24.0
CDMA/EVDO BC0 (\$22H)	Maximum	25.0
	Nominal	24.0
PCS CDMA/EVDO	Maximum	25.0
	Nominal	24.0
Mode / Band		Modulated Average (dBm)
LTE Band 71	Maximum	25.2
	Nominal	24.2
LTE Band 12	Maximum	25.2
	Nominal	24.2
LTE Band 17	Maximum	25.2
	Nominal	24.2
LTE Band 13	Maximum	25.2
	Nominal	24.2
LTE Band 26 (Cell)	Maximum	25.2
	Nominal	24.2
LTE Band 5 (Cell)	Maximum	25.2
	Nominal	24.2
LTE Band 66 (AWS)	Maximum	25.2
	Nominal	24.2
LTE Band 4 (AWS)	Maximum	25.2
	Nominal	24.2
LTE Band 25 (PCS)	Maximum	25.2
	Nominal	24.2
LTE Band 2 (PCS)	Maximum	25.2
	Nominal	24.2
LTE Band 7	Maximum	24.0
	Nominal	23.0
LTE Band 38	Maximum	24.0
	Nominal	23.0
LTE Band 41 (PC3)	Maximum	24.5
	Nominal	23.5
LTE Band 41 (PC2)	Maximum	27.0
	Nominal	26.0

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1.3.2

Reduced 3G/4G Output Power – Hotspot Mode, and/or Earjack Mode Active

Mode / Band		Modulated Average (dBm)			
		3GPP WCDMA	3GPP HSDPA	3GPP HSUPA	3GPP DC- HSDPA
UMTS Band 4 (1750 MHz)	Maximum	22.0	21.0	21.0	21.0
	Nominal	21.0	20.0	20.0	20.0
UMTS Band 2 (1900 MHz)	Maximum	23.0	22.5	22.0	22.5
	Nominal	22.0	21.5	21.0	21.5

Mode / Band		Modulated Average (dBm)
PCS CDMA/EVDO	Maximum	23.5
	Nominal	22.5

Mode / Band		Modulated Average (dBm)
LTE Band 71	Maximum	23.2
	Nominal	22.2
LTE Band 66 (AWS)	Maximum	22.2
	Nominal	21.2
LTE Band 4 (AWS)	Maximum	22.2
	Nominal	21.2
LTE Band 25 (PCS)	Maximum	23.2
	Nominal	22.2
LTE Band 2 (PCS)	Maximum	23.0
	Nominal	22.0
LTE Band 7	Maximum	21.0
	Nominal	20.0
LTE Band 38	Maximum	23.0
	Nominal	22.0
LTE Band 41 (PC3)	Maximum	21.5
	Nominal	20.5
LTE Band 41 (PC2)	Maximum	21.5
	Nominal	20.5

1.3.1

Reduced 3G/4G Output Power –Grip Sensor Active

Mode / Band		Modulated Average (dBm)			
		3GPP WCDMA	3GPP HSDPA	3GPP HSUPA	3GPP DC- HSDPA
UMTS Band 4 (1750 MHz)	Maximum	22.0	21.0	21.0	21.0
	Nominal	21.0	20.0	20.0	20.0
UMTS Band 2 (1900 MHz)	Maximum	23.0	22.5	22.0	22.5
	Nominal	22.0	21.5	21.0	21.5

Mode / Band		Modulated Average (dBm)
PCS CDMA/EVDO	Maximum	23.5
	Nominal	22.5

Mode / Band		Modulated Average (dBm)
LTE Band 71	Maximum	23.2
	Nominal	22.2
LTE Band 66 (AWS)	Maximum	22.2
	Nominal	21.2
LTE Band 4 (AWS)	Maximum	22.2
	Nominal	21.2
LTE Band 25 (PCS)	Maximum	23.2
	Nominal	22.2
LTE Band 2 (PCS)	Maximum	23.0
	Nominal	22.0

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1.3.2

Reduced 3G/4G Output Power – RCV Mode Active

Mode / Band		Modulated Average (dBm)
PCS CDMA/EVDO	Maximum	23.5
	Nominal	22.5
Mode / Band		Modulated Average (dBm)
LTE Band 7	Maximum	21.0
	Nominal	20.0
LTE Band 38	Maximum	23.0
	Nominal	22.0
LTE Band 41 (PC3)	Maximum	21.5
	Nominal	20.5
LTE Band 41 (PC2)	Maximum	21.5
	Nominal	20.5

1.3.3

Maximum Bluetooth and WLAN Output Power

Mode / Band		Modulated Average (dBm)		
	Channel	1-11	12	13
IEEE 802.11b (2.4 GHz)	Maximum	21.0		
	Nominal	20.0		
IEEE 802.11g (2.4 GHz)	Maximum	19.0	17.0	6.0
	Nominal	18.0	16.0	5.0
IEEE 802.11n (2.4 GHz)	Maximum	19.0	17.0	6.0
	Nominal	18.0	16.0	5.0

Mode / Band		Modulated Average (dBm)				
		20 MHz Bandwidth	40 MHz Bandwidth			80 MHz Bandwidth
	Channel	36-165	38	46-54	62-102	110-159
IEEE 802.11a (5 GHz)	Maximum	18.0				
	Nominal	17.0				
IEEE 802.11n (5 GHz)	Maximum	18.0	15.0	17.0	15.0	17.0
	Nominal	17.0	14.0	16.0	14.0	16.0
IEEE 802.11ac (5 GHz)	Maximum	18.0	15.0	17.0	15.0	17.0
	Nominal	17.0	14.0	16.0	14.0	16.0

Mode/Band		Modulated Average (dBm)
Bluetooth	Maximum	10.5
	Nominal	9.5
Bluetooth EDR	Maximum	8.0
	Nominal	7.0
Bluetooth LE	Maximum	7.0
	Nominal	6.0

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1.3.4

Reduced WLAN Output Power

Mode / Band		Modulated Average (dBm)		
	Channel	1-11	12	13
IEEE 802.11b (2.4 GHz)	Maximum	18.0		
	Nominal	17.0		
IEEE 802.11g (2.4 GHz)	Maximum	18.0	17.0	6.0
	Nominal	17.0	16.0	5.0
IEEE 802.11n (2.4 GHz)	Maximum	18.0	17.0	6.0
	Nominal	17.0	16.0	5.0

Mode / Band		Modulated Average (dBm)				
		20 MHz Bandwidth	40 MHz Bandwidth			80 MHz Bandwidth
	Channel	36-165	38	46-54	62-102	110-159
IEEE 802.11a (5 GHz)	Maximum	16.0				
	Nominal	15.0				
IEEE 802.11n (5 GHz)	Maximum	16.0	15.0	16.0	15.0	16.0
	Nominal	15.0	14.0	15.0	14.0	15.0
IEEE 802.11ac (5 GHz)	Maximum	16.0	15.0	16.0	15.0	16.0
	Nominal	15.0	14.0	15.0	14.0	15.0

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	Yes
EVDO BC0 (§22H)	Yes	Yes	No	Yes	Yes	Yes
PCS EVDO	Yes	Yes	No	Yes	Yes	Yes
GPRS 850	Yes	Yes	No	Yes	Yes	Yes
GPRS 1900	Yes	Yes	No	Yes	Yes	Yes
UMTS 850	Yes	Yes	No	Yes	Yes	Yes
UMTS 1750	Yes	Yes	No	Yes	Yes	Yes
UMTS 1900	Yes	Yes	No	Yes	Yes	Yes
LTE Band 71	Yes	Yes	No	Yes	Yes	Yes
LTE Band 12	Yes	Yes	No	Yes	Yes	Yes
LTE Band 13	Yes	Yes	No	Yes	Yes	Yes
LTE Band 26 (Cell)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 66 (AWS)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 25 (PCS)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 7	Yes	Yes	Yes	No	No	Yes
LTE Band 38	Yes	Yes	Yes	No	No	Yes
LTE Band 41	Yes	Yes	Yes	No	No	Yes
2.4 GHz WLAN	Yes	Yes	Yes	No	Yes	No
5 GHz WLAN	Yes	Yes	Yes	No	Yes	No
Bluetooth	Yes	Yes	Yes	No	Yes	No

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

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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 Bluetooth + 5 GHz Wi-Fi	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
5	GSM voice + 2.4 GHz Wi-Fi	Yes	Yes	N/A	Yes	
6	GSM voice + 5 GHz Wi-Fi	Yes	Yes	N/A	Yes	
7	GSM voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
8	GSM voice + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
9	UMTS + 2.4 GHz Wi-Fi	Yes	Yes	Yes	Yes	
10	UMTS + 5 GHz Wi-Fi	Yes	Yes	Yes	Yes	
11	UMTS + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
12	UMTS + + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
13	LTE + 2.4 GHz Wi-Fi	Yes	Yes	Yes	Yes	
14	LTE + 5 GHz Wi-Fi	Yes	Yes	Yes	Yes	
15	LTE + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
16	LTE + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
17	CDMA/EVDO data + 2.4 GHz Wi-Fi	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
18	CDMA/EVDO data + 5 GHz Wi-Fi	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
19	CDMA/EVDO data + 2.4 GHz Bluetooth	Yes^*	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^ Bluetooth Tethering is considered
20	CDMA/EVDO data + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	Yes^*	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^ Bluetooth Tethering is considered
21	GPRS/EDGE + 2.4 GHz Wi-Fi	N/A	N/A	Yes	Yes	
22	GPRS/EDGE + 5 GHz Wi-Fi	N/A	N/A	Yes	Yes	
23	GPRS/EDGE + 2.4 GHz Bluetooth	N/A	N/A	Yes^	Yes	^ Bluetooth Tethering is considered
24	GPRS/EDGE + 2.4 GHz Bluetooth + 5 GHz Wi-Fi	N/A	N/A	Yes^	Yes	^ Bluetooth Tethering is considered

- 2.4 GHz WLAN and 2.4 GHz Bluetooth share the same antenna path and cannot transmit simultaneously.
- All licensed modes share the same antenna path and cannot transmit simultaneously.
- When the user utilizes multiple services in UMTS 3G mode it uses multi-Radio Access Bearer or multi-RAB. The power control is based on a physical control channel (Dedicated Physical Control Channel [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.
- Per the manufacturer, WIFI Direct is not expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Therefore, there are no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table.
- 5 GHz Wireless Router is only supported for the U-NII-3 by S/W, therefore U-NII-1, U-NII2A, and U-NII2C were not evaluated for wireless router conditions.
- This device supports VOLTE.
- This device supports VoWIFI.
- This device supports Bluetooth Tethering.

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1.7 Miscellaneous SAR Test Considerations

(A) WIFI/BT

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

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

This device supports channel 1-13 for 2.4 GHz WLAN. However, because channel 12/13 targets are not higher than that of channels 1-11, channels 1, 6 and 11 were considered for SAR testing per FCC KDB 248227 D01V02r02.

This device supports IEEE 802.11ac with the following features:

- a) Up to 80 MHz Bandwidth only for 5 GHz
- b) Up to 20 MHz Bandwidth only for 2.4 GHz
- c) 1 Tx antenna output
- e) 256 QAM is supported
- f) TDWR and Band gap channels are supported for 5 GHz

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

(B) Licensed Transmitter(s)

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

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

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

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

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

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

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

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

This device supports both Power Class 2 (PC2) and Power Class 3 (PC3) for LTE Band 41. Per May 2017 TCB Workshop Notes, SAR tests were performed with Power Class 3 (given the specific UL/DL limitations for Power Class 2). Additionally, SAR testing for the power class condition was evaluated for the highest configuration in Power Class 3 for each test configuration to confirm the results were scalable linearly (See Section 14.1).

This device supports LTE Carrier Aggregation (CA) for LTE B41 with two component carriers in the uplink. SAR Measurements and conducted powers were evaluated per 2017 Fall TCB Workshop Notes.

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.

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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 - 713.3 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 7 (2502.5 - 2567.5 MHz)				
	LTE Band 38 (2572.5 - 2617.5 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
	LTE Band 71: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Bandwidths	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 7: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 38: 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 7: 5 MHz	2502.5 (20775)		2535 (21100)		2567.5 (21425)
LTE Band 7: 10 MHz	2505 (20800)		2535 (21100)		2565 (21400)
LTE Band 7: 15 MHz	2507.5 (20825)		2535 (21100)		2562.5 (21375)
LTE Band 7: 20 MHz	2510 (20850)		2535 (21100)		2560 (21350)
LTE Band 38: 5 MHz	2572.5 (37775)		2595 (38000)		2617.5 (38225)
LTE Band 38: 10 MHz	2575 (37800)		2595 (38000)		2615 (38200)
LTE Band 38: 15 MHz	2577.5 (37825)		2595 (38000)		2612.5 (38175)
LTE Band 38: 20 MHz	2580 (37850)		2595 (38000)		2610 (38150)
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 11 (QPSK, 16QAM, 64QAM, 256QAM), UL UE Cat 5 (QPSK, 16QAM, 64QAM)				
Modulations Supported in UL	QPSK, 16QAM, 64QAM				
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3-6.2.5? (manufacturer attestation to be provided)	YES				
A-MPR (Additional MPR) disabled for SAR Testing?	YES				
LTE Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations				
LTE Additional Information	This device does not support full CA features on 3GPP Release 15. It supports carrier aggregation features as shown in Appendix H. 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, eCIC, WiFi Offloading, eMBS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

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3 INTRODUCTION

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

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

3.1 SAR Definition

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

Equation 3-1
SAR Mathematical Equation

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

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

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

where:

- σ = conductivity of the tissue-simulating material (S/m)
- ρ = mass density of the tissue-simulating material (kg/m³)
- E = Total RMS electric field strength (V/m)

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

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4.1 Measurement Procedure

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

1. The SAR distribution at the exposed side of the head or body was measured at a distance no greater than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the device-head and body interface and the horizontal grid resolution was determined per FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013.
2. The point SAR measurement was taken at the maximum SAR region determined from Step 1 to enable the monitoring of SAR fluctuations/drifts during the 1g/10g cube evaluation. SAR at this fixed point was measured and used as a reference value.
3. Based on the area scan data, the peak of the region with maximum SAR was determined by spline interpolation. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB Publication 865664 D01v01r04 (See Table 4-1) and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (see references or the DASY manual online for more details):
 - a. SAR values at the inner surface of the phantom are extrapolated from the measured values along the line away from the surface with spacing no greater than that in Table 4-1. The extrapolation was based on a least-squares algorithm. A polynomial of the fourth order was calculated through the points in the z-axis (normal to the phantom shell).
 - b. After the maximum interpolated values were calculated between the points in the cube, the SAR was averaged over the spatial volume (1g or 10g) using a 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y, and z directions). The volume was then integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were obtained through interpolation, in order to calculate the averaged SAR.
 - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan was complete to calculate the SAR drift. If the drift deviated by more than 5%, the SAR test and drift measurements were repeated.

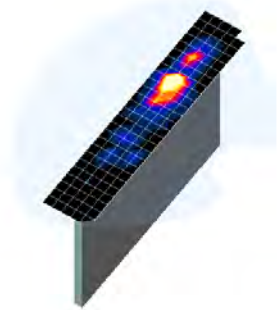


Figure 4-1
Sample SAR Area
Scan

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

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

*Also compliant to IEEE 1528-2013 Table 6

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5 DEFINITION OF REFERENCE POINTS

5.1 EAR REFERENCE POINT

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

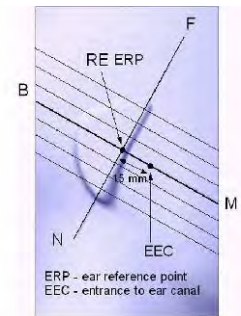


Figure 5-1
Close-Up Side view
of ERP

5.2 HANDSET REFERENCE POINTS

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



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

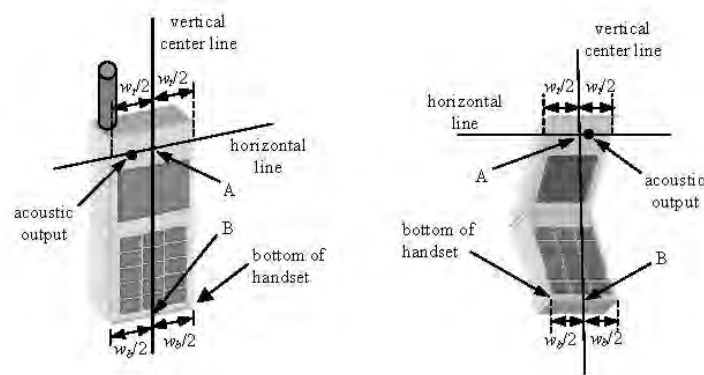


Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

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6 TEST CONFIGURATION POSITIONS

6.1 Device Holder

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

6.2 Positioning for Cheek

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



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

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

6.3 Positioning for Ear / 15° Tilt

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

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

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

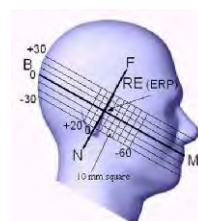


Figure 6-3 Side view w/ relevant markings

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

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

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

6.5 Body-Worn Accessory Configurations

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6-4). Per FCC KDB Publication 648474 D04v01r03, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01v06 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

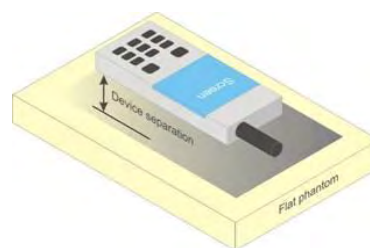


Figure 6-4 Sample Body-Worn Diagram

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not 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

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

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented.

Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

6.6 Extremity Exposure Configurations

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

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

6.7 Wireless Router Configurations

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

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

6.8 Phablet Configurations

For smart phones with a display diagonal dimension > 150 mm or an overall diagonal dimension > 160 mm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that 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 $\leq 25 \text{ mm}$ from that

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surface or edge, in direct contact with the phantom, for 10g SAR. The UMPC mini-tablet 1g SAR at 5 mm is not required. When hotspot mode applies, 10g SAR is required only for the surfaces and edges with hotspot mode 1g SAR > 1.2 W/kg.

6.9 Proximity Sensor Considerations

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

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

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

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7 RF EXPOSURE LIMITS

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

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

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

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

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8 FCC MEASUREMENT PROCEDURES

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

8.1 Measured and Reported SAR

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

8.2 3G SAR Test Reduction Procedure

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

8.3 Procedures Used to Establish RF Signal for SAR

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

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

8.4 SAR Measurement Conditions for CDMA2000

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

8.4.1 Output Power Verification

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

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

Table 8-1
Parameters for Max. Power for RC1

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

Table 8-2
Parameters for Max. Power for RC3

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

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

8.4.2 Head SAR Measurements

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

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

8.4.3 Body-worn SAR Measurements

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

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

8.4.4 Body-worn SAR Measurements for EVDO Devices

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

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

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

8.4.5 Body SAR Measurements for EVDO Hotspot

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

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

8.4.6 CDMA2000 1x Advanced

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

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

8.5 SAR Measurement Conditions for UMTS

8.5.1 Output Power Verification

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

8.5.2 Head SAR Measurements

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

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8.5.3 Body SAR Measurements

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

8.5.4 SAR Measurements with Rel 5 HSDPA

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

8.5.5 SAR Measurements with Rel 6 HSUPA

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

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

8.5.6 SAR Measurement Conditions for DC-HSDPA

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

8.6 SAR Measurement Conditions for LTE

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

8.6.1 Spectrum Plots for RB Configurations

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

8.6.2 MPR

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

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8.6.3 A-MPR

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

8.6.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

- a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
 - i. The required channel and offset combination with the highest maximum output power is required for SAR.
 - ii. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
 - iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.
- b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.
- c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.
- d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to $\frac{1}{2}$ dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is < 1.45 W/kg.

8.6.5 TDD

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

8.6.6 Downlink Only Carrier Aggregation

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

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8.7 SAR Testing with 802.11 Transmitters

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

8.7.1 General Device Setup

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

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

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

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

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

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

8.7.4 Initial Test Position Procedure

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

8.7.5 2.4 GHz SAR Test Requirements

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

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

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

8.7.6 OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. Per FCC Guidance, 802.11ax was considered a higher order 802.11 mode when compared to a/b/g/n/ac to apply KDB Publication 248227 Guidance. When the maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

8.7.7 Initial Test Configuration Procedure

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

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

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..

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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	24.58	24.57	24.50	24.55	24.54	24.31	24.40
Cellular	1013	22H	824.7	24.55	24.51	24.58	24.61	24.62	24.37	24.40
	384	22H	836.52	24.46	24.47	24.55	24.46	24.45	24.25	24.27
	777	22H	848.31	23.97	24.06	24.12	23.95	23.93	23.61	23.51
PCS	25	24E	1851.25	24.45	24.37	24.17	24.45	24.44	24.15	24.23
	600	24E	1880	24.19	24.23	24.28	24.24	24.26	24.01	24.07
	1175	24E	1908.75	24.00	23.97	24.02	24.02	24.04	23.83	23.96

Table 9-2
Reduced Conducted Powers – Hotspot Mode/Grip Sensor/Earjack Mode and/or RCV Mode Active

Band	Channel	Rule Part	Frequency	SO55 [dBm]	SO55 [dBm]	SO75 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	RC11	FCH+SCH	FCH	(RTAP)	(RETAP)
PCS	25	24E	1851.25	22.17	22.16	22.25	22.16	22.17	22.10	22.12
	600	24E	1880	22.03	21.91	21.81	22.03	22.05	21.95	22.00
	1175	24E	1908.75	21.92	21.87	21.79	21.91	21.91	21.89	21.99

Note:

- 1) 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.
- 2) CDMA 1x Advanced technology was not required for SAR since the maximum allowed output powers for 1X Advanced was not more than 0.25 dB higher than the maximum powers for 1X.



Figure 9-1
Power Measurement Setup

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9.2 GSM Conducted Powers

Table 9-3
Maximum Conducted Power

Maximum Burst-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	32.75	32.98	30.61	29.28	28.09	26.25	24.35	23.13	22.00
	190	32.87	32.94	30.56	29.30	28.15	26.28	24.13	23.05	21.81
	251	32.82	32.85	30.69	29.34	28.28	26.35	24.38	23.17	21.91
GSM 1900	512	30.73	30.56	28.35	26.65	24.87	25.50	23.83	22.60	21.25
	661	30.31	30.31	27.73	25.95	23.86	24.88	23.38	21.95	20.72
	810	30.48	30.03	27.73	26.05	24.32	25.22	23.70	22.14	20.95

Calculated Maximum Frame-Averaged Output Power										
		Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
Band	Channel	GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	23.72	23.95	24.59	25.02	25.08	17.22	18.33	18.87	18.99
	190	23.84	23.91	24.54	25.04	25.14	17.25	18.11	18.79	18.80
	251	23.79	23.82	24.67	25.08	25.27	17.32	18.36	18.91	18.90
GSM 1900	512	21.70	21.53	22.33	22.39	21.86	16.47	17.81	18.34	18.24
	661	21.28	21.28	21.71	21.69	20.85	15.85	17.36	17.69	17.71
	810	21.45	21.00	21.71	21.79	21.31	16.19	17.68	17.88	17.94

GSM 850	Frame	24.17	24.17	25.18	25.74	25.79	16.47	17.48	18.24	17.99
GSM 1900	Avg. Targets:	20.97	20.97	21.48	21.74	21.49	15.47	16.98	17.74	17.49

Note:

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

GSM Class: B

GPRS Multislot class: 12 (Max 4 Tx uplink slots)

EDGE Multislot class: 12 (Max 4 Tx uplink slots)

DTM Multislot Class: N/A



Figure 9-2
Power Measurement Setup

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9.3 UMTS Conducted Powers

Table 9-4
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	24.53	24.49	24.47	24.08	23.85	24.05	23.94	23.61	24.08	-
99		12.2 kbps AMR	23.97	22.82	24.44	24.04	23.91	23.86	24.19	23.68	24.07	-
6	HSDPA	Subtest 1	23.51	23.53	23.58	23.33	23.34	23.03	23.78	23.22	23.42	0
6		Subtest 2	22.59	22.55	22.63	22.31	22.32	22.01	22.71	22.54	22.60	0
6		Subtest 3	21.59	21.60	21.67	21.28	21.30	21.00	21.72	21.50	21.67	0.5
6		Subtest 4	21.59	21.59	21.65	21.28	21.26	21.00	21.77	21.53	21.65	0.5
6	HSUPA	Subtest 1	20.94	20.89	20.96	20.50	20.51	20.50	21.70	21.50	21.52	0
6		Subtest 2	18.92	18.93	19.02	18.50	18.52	18.54	19.81	19.59	19.67	2
6		Subtest 3	19.99	19.97	20.05	20.06	20.10	19.80	20.75	20.57	20.65	1
6		Subtest 4	18.96	18.93	19.03	18.50	18.50	18.50	19.78	19.59	19.70	2
6		Subtest 5	21.90	21.89	21.95	21.88	21.92	21.61	22.65	22.71	22.27	0
8	DC-HSDPA	Subtest 1	23.64	23.66	23.74	23.32	23.35	23.04	23.76	23.28	23.40	0
8		Subtest 2	22.50	22.91	23.00	22.70	22.60	22.10	23.00	22.75	22.37	0
8		Subtest 3	22.00	22.29	22.25	21.32	21.55	21.43	22.25	21.44	21.79	0.5
8		Subtest 4	22.00	22.00	22.05	21.28	21.29	21.06	22.05	21.38	21.52	0.5

Table 9-5
Reduced Conducted Powers- Hotspot Mode/ Grip Sensor and/or Earjack Mode Active

3GPP Release Version	Mode	3GPP 34.121 Subtest	AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	20.88	20.78	20.92	22.15	21.74	22.01	-
99		12.2 kbps AMR	20.93	20.72	20.58	22.10	21.71	21.98	-
6	HSDPA	Subtest 1	20.92	20.89	20.63	22.15	21.70	21.77	0
6		Subtest 2	20.94	20.93	20.65	22.24	21.78	21.86	0
6		Subtest 3	20.98	20.95	20.75	21.75	21.24	21.39	0.5
6		Subtest 4	20.87	20.88	20.70	21.75	21.23	21.33	0.5
6	HSUPA	Subtest 1	20.06	20.08	19.81	21.22	20.73	20.84	0
6		Subtest 2	18.44	18.41	18.15	19.75	19.31	19.40	2
6		Subtest 3	20.00	19.00	19.48	20.70	20.28	20.32	1
6		Subtest 4	18.49	18.44	18.18	19.76	19.31	19.40	2
6		Subtest 5	20.89	20.88	20.61	21.88	21.65	21.76	0
8	DC-HSDPA	Subtest 1	20.81	20.89	20.64	22.18	21.70	21.80	0
8		Subtest 2	20.95	20.80	20.76	22.30	21.80	21.91	0
8		Subtest 3	20.99	21.00	20.50	21.90	21.51	21.33	0.5
8		Subtest 4	20.99	21.00	20.75	21.77	21.25	21.45	0.5

DC-HSDPA considerations

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

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



Figure 9-3
Power Measurement Setup

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9.4 LTE Conducted Powers

9.4.1 LTE Band 71

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

LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133297 (680.5 MHz) Conducted Power [dBm]		
QPSK	1	0	25.01	0	0
	1	50	24.63		0
	1	99	24.61		0
	50	0	23.79	0-1	1
	50	25	23.70		1
	50	50	23.44		1
	100	0	23.73		1
16QAM	1	0	23.48	0-1	1
	1	50	23.52		1
	1	99	23.20		1
	50	0	22.82	0-2	2
	50	25	22.69		2
	50	50	22.31		2
	100	0	22.60		2
64QAM	1	0	22.72	0-2	2
	1	50	22.55		2
	1	99	22.42		2
	50	0	21.60	0-3	3
	50	25	21.91		3
	50	50	21.54		3
	100	0	21.59		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 Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 71 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133297 (680.5 MHz) Conducted Power [dBm]		
QPSK	1	0	25.20	0	0
	1	36	25.19		0
	1	74	25.11		0
	36	0	24.04	0-1	1
	36	18	24.00		1
	36	37	23.95		1
	75	0	23.93		1
16QAM	1	0	23.80	0-1	1
	1	36	23.83		1
	1	74	23.77		1
	36	0	22.95	0-2	2
	36	18	22.93		2
	36	37	22.89		2
	75	0	22.91		2
64QAM	1	0	22.74	0-2	2
	1	36	22.69		2
	1	74	22.67		2
	36	0	22.04	0-3	3
	36	18	21.94		3
	36	37	21.92		3
	75	0	21.91		3

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

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

LTE Band 71 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133172 (668.0 MHz)	133297 (680.5 MHz)	133422 (693.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.89	25.03	24.92	0	0
	1	25	24.85	24.82	24.90		0
	1	49	24.75	24.80	24.79		0
	25	0	23.77	23.82	23.80	0-1	1
	25	12	23.71	23.80	23.76		1
	25	25	23.68	23.77	23.69		1
16QAM	50	0	23.69	23.79	23.77		1
	1	0	23.55	23.68	23.61	0-1	1
	1	25	23.48	23.58	23.61		1
	1	49	23.42	23.48	23.49		1
	25	0	22.78	22.80	22.80	0-2	2
	25	12	22.72	22.79	22.79		2
	25	25	22.70	22.77	22.71		2
64QAM	50	0	22.75	22.72	22.78		2
	1	0	22.70	22.87	22.88	0-2	2
	1	25	22.73	22.80	22.79		2
	1	49	22.67	22.75	22.65		2
	25	0	21.72	21.88	21.75	0-3	3
	25	12	21.70	21.77	21.72		3
	25	25	21.69	21.69	21.70		3
	50	0	21.63	21.71	21.70		3

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

LTE Band 71 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133147 (665.5 MHz)	133297 (680.5 MHz)	133447 (695.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.74	24.88	24.78	0	0
	1	12	24.82	24.82	24.74		0
	1	24	24.74	24.77	24.68		0
	12	0	23.67	23.71	23.69	0-1	1
	12	6	23.73	23.74	23.69		1
	12	13	23.66	23.74	23.65		1
	25	0	23.72	23.71	23.70	1	
16QAM	1	0	23.60	23.71	23.59	0-1	1
	1	12	23.60	23.64	23.53		1
	1	24	23.62	23.58	23.48		1
	12	0	22.72	22.77	22.70	0-2	2
	12	6	22.68	22.76	22.69		2
	12	13	22.69	22.71	22.63		2
	25	0	22.69	22.77	22.69	2	
64QAM	1	0	22.73	22.80	22.70	0-2	2
	1	12	22.70	22.89	22.61		2
	1	24	22.71	22.68	22.68		2
	12	0	21.74	21.74	21.71	0-3	3
	12	6	21.66	21.65	21.66		3
	12	13	21.64	21.71	21.64		3
	25	0	21.63	21.75	21.68	3	

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Table 9-10
LTE Band 71 Reduced Conducted Powers - 20 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 71 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133297 (680.5 MHz) Conducted Power [dBm]		
QPSK	1	0	22.23	0	0
	1	50	22.55		0
	1	99	22.30		0
	50	0	22.50	0-1	0
	50	25	22.43		0
	50	50	22.42		0
	100	0	22.45		0
16QAM	1	0	22.20	0-1	0
	1	50	22.19		0
	1	99	21.93		0
	50	0	22.63	0-2	0
	50	25	22.49		0
	50	50	22.47		0
	100	0	22.36		0
64QAM	1	0	22.37	0-2	0
	1	50	22.35		0
	1	99	22.27		0
	50	0	21.42	0-3	1
	50	25	21.48		1
	50	50	21.13		1
	100	0	21.42		1

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 9-11
LTE Band 71 Reduced Conducted Powers - 15 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 71 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133297 (680.5 MHz) Conducted Power [dBm]		
QPSK	1	0	22.52	0	0
	1	36	22.58		0
	1	74	22.44		0
	36	0	22.49	0-1	0
	36	18	22.46		0
	36	37	22.36		0
	75	0	22.48		0
16QAM	1	0	22.50	0-1	0
	1	36	22.53		0
	1	74	22.37		0
	36	0	22.54	0-2	0
	36	18	22.46		0
	36	37	22.41		0
	75	0	22.49		0
64QAM	1	0	22.57	0-2	0
	1	36	22.35		0
	1	74	22.25		0
	36	0	21.48	0-3	1
	36	18	21.46		1
	36	37	21.31		1
	75	0	21.44		1

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

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Table 9-12
LTE Band 71 Reduced Conducted Powers - 10 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 71 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133172 (668.0 MHz)	133297 (680.5 MHz)	133422 (693.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.69	22.74	22.50	0	0
	1	25	22.62	22.62	22.42		0
	1	49	22.52	22.56	22.37		0
	25	0	22.44	22.56	22.31	0-1	0
	25	12	22.47	22.57	22.32		0
	25	25	22.50	22.37	22.25		0
	50	0	22.48	22.48	22.34		0
16QAM	1	0	22.26	22.39	22.20	0-1	0
	1	25	22.27	22.31	22.01		0
	1	49	22.24	22.26	21.96		0
	25	0	22.47	22.49	22.33	0-2	0
	25	12	22.41	22.53	22.29		0
	25	25	22.38	22.34	22.24		0
	50	0	22.52	22.51	22.29		0
64QAM	1	0	22.58	22.53	22.35	0-2	0
	1	25	22.54	22.52	22.34		0
	1	49	22.45	22.43	22.25		0
	25	0	21.41	21.38	21.24	0-3	1
	25	12	21.46	21.36	21.19		1
	25	25	21.34	21.26	21.13		1
	50	0	21.37	21.44	21.19		1

Table 9-13
LTE Band 71 Reduced Conducted Powers - 5 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 71 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			133147 (665.5 MHz)	133297 (680.5 MHz)	133447 (695.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.55	22.65	22.39	0	0
	1	12	22.51	22.56	22.40		0
	1	24	22.49	22.48	22.37		0
	12	0	22.39	22.55	22.19	0-1	0
	12	6	22.35	22.43	22.15		0
	12	13	22.38	22.41	22.07		0
	25	0	22.41	22.45	22.24		0
16QAM	1	0	22.17	22.24	22.09	0-1	0
	1	12	22.29	22.31	21.99		0
	1	24	22.20	22.52	21.95		0
	12	0	22.39	22.40	22.18	0-2	0
	12	6	22.32	22.43	22.13		0
	12	13	22.37	22.30	22.09		0
	25	0	22.36	22.43	22.16		0
64QAM	1	0	22.46	22.39	22.08	0-2	0
	1	12	22.14	22.35	22.35		0
	1	24	22.28	22.42	21.90		0
	12	0	21.44	21.44	21.21	0-3	1
	12	6	21.34	21.41	21.13		1
	12	13	21.41	21.37	21.18		1
	25	0	21.37	21.38	21.16		1

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LTE Band 12

Table 9-14
LTE Band 12 Conducted Powers - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23095 (707.5 MHz) Conducted Power [dBm]		
QPSK	1	0	24.24	0	0
	1	25	24.55		0
	1	49	24.08		0
	25	0	23.37	0-1	1
	25	12	23.35		1
	25	25	23.04		1
	50	0	23.34		1
16QAM	1	0	23.07	0-1	1
	1	25	22.94		1
	1	49	22.98		1
	25	0	22.30	0-2	2
	25	12	22.33		2
	25	25	22.41		2
	50	0	22.44		2
64QAM	1	0	22.53	0-2	2
	1	25	22.22		2
	1	49	22.41		2
	25	0	21.62	0-3	3
	25	12	21.41		3
	25	25	21.37		3
	50	0	21.44		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 9-15
LTE Band 12 Conducted Powers - 5 MHz Bandwidth

LTE Band 12 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23035 (701.5 MHz)	23095 (707.5 MHz)	23155 (713.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.84	24.71	24.66	0	0
	1	12	24.77	24.65	24.63		0
	1	24	24.79	24.68	24.60		0
	12	0	23.85	23.70	23.62	0-1	1
	12	6	23.81	23.70	23.62		1
	12	13	23.81	23.71	23.63		1
	25	0	23.83	23.68	23.64		1
16QAM	1	0	23.62	23.58	23.29	0-1	1
	1	12	23.56	23.54	23.26		1
	1	24	23.55	23.55	23.30		1
	12	0	22.79	22.69	22.61	0-2	2
	12	6	22.82	22.66	22.61		2
	12	13	22.79	22.67	22.64		2
	25	0	22.79	22.69	22.61		2
64QAM	1	0	22.96	22.71	22.58	0-2	2
	1	12	22.88	22.66	22.26		2
	1	24	22.92	22.68	22.29		2
	12	0	21.76	21.71	21.64	0-3	3
	12	6	21.73	21.67	21.65		3
	12	13	21.70	21.69	21.66		3
	25	0	21.76	21.69	21.69		3

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Table 9-16
LTE Band 12 Conducted Powers - 3 MHz Bandwidth

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23025 (700.5 MHz)	23095 (707.5 MHz)	23165 (714.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.84	24.77	24.70	0	0
	1	7	24.94	24.68	24.58		0
	1	14	24.83	24.71	24.67		0
	8	0	23.88	23.75	23.66	0-1	1
	8	4	23.89	23.75	23.65		1
	8	7	23.87	23.75	23.63		1
	15	0	23.84	23.73	23.62		1
16QAM	1	0	23.66	23.72	23.47	0-1	1
	1	7	23.64	23.68	23.42		1
	1	14	23.65	23.70	23.46		1
	8	0	22.82	22.72	22.43	0-2	2
	8	4	22.81	22.69	22.44		2
	8	7	22.79	22.70	22.44		2
	15	0	22.78	22.76	22.71		2
64QAM	1	0	22.61	22.24	22.40	0-2	2
	1	7	22.50	22.22	22.39		2
	1	14	22.50	22.24	22.42		2
	8	0	21.88	21.76	21.66	0-3	3
	8	4	21.86	21.74	21.66		3
	8	7	21.89	21.74	21.67		3
	15	0	21.97	21.66	21.65		3

Table 9-17
LTE Band 12 Conducted Powers -1.4 MHz Bandwidth

LTE Band 12 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23017 (699.7 MHz)	23095 (707.5 MHz)	23173 (715.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.93	24.82	24.68	0	0
	1	2	24.93	24.79	24.71		0
	1	5	24.94	24.68	24.50		0
	3	0	24.88	24.70	24.53		0
	3	2	24.84	24.71	24.52		0
	3	3	24.83	24.69	24.51		0
	6	0	23.86	23.67	23.56	0-1	1
16QAM	1	0	23.94	23.52	23.48	0-1	1
	1	2	23.95	23.52	23.55		1
	1	5	24.00	23.49	23.51		1
	3	0	23.94	23.67	23.67		1
	3	2	23.92	23.70	23.58		1
	3	3	23.93	23.63	23.48		1
	6	0	22.94	22.72	22.61	0-2	2
64QAM	1	0	23.05	22.78	22.80	0-2	2
	1	2	23.04	22.79	22.68		2
	1	5	23.02	22.97	22.70		2
	3	0	22.91	22.63	22.62		2
	3	2	22.88	22.60	22.59		2
	3	3	22.88	22.64	22.56		2
	6	0	21.72	21.68	21.61	0-3	3

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LTE Band 13

Table 9-18
LTE Band 13 Conducted Powers - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23230 (782.0 MHz) Conducted Power [dBm]		
QPSK	1	0	24.24	0	0
	1	25	24.47		0
	1	49	24.34		0
	25	0	23.24	0-1	1
	25	12	23.35		1
	25	25	23.25		1
16QAM	50	0	23.21	0-1	1
	1	0	22.84		1
	1	25	22.53		1
	1	49	22.70	0-2	1
	25	0	22.29		2
	25	12	22.30		2
64QAM	25	25	22.23	0-2	2
	50	0	22.23		2
	1	0	22.35	0-2	2
	1	25	22.23		2
	1	49	22.17		2
	25	0	21.29	0-3	3
	25	12	21.34		3
	25	25	21.16		3
	50	0	21.14		3

Table 9-19
LTE Band 13 Conducted Powers - 5 MHz Bandwidth

LTE Band 13 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			23230 (782.0 MHz) Conducted Power [dBm]		
QPSK	1	0	24.55	0	0
	1	12	24.51		0
	1	24	24.42		0
	12	0	23.46	0-1	1
	12	6	23.44		1
	12	13	23.41		1
16QAM	25	0	23.44	0-1	1
	1	0	23.22		1
	1	12	23.24		1
	1	24	23.05	0-2	1
	12	0	22.51		2
	12	6	22.42		2
64QAM	12	13	22.46	0-2	2
	25	0	22.48		2
	1	0	22.52	0-2	2
	1	12	22.58		2
	1	24	22.47		2
	12	0	21.41	0-3	3
	12	6	21.40		3
	12	13	21.37		3
	25	0	21.48		3

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

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LTE Band 26 (Cell)

Table 9-20
LTE Band 26 (Cell) Conducted Powers - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26865 (831.5 MHz) Conducted Power [dBm]		
QPSK	1	0	24.57	0	0
	1	36	24.48		0
	1	74	24.22		0
	36	0	23.37	0-1	1
	36	18	23.34		1
	36	37	23.23		1
	75	0	23.33		1
16QAM	1	0	23.17	0-1	1
	1	36	22.91		1
	1	74	22.68		1
	36	0	22.39	0-2	2
	36	18	22.33		2
	36	37	22.16		2
	75	0	22.32		2
64QAM	1	0	22.36	0-2	2
	1	36	22.45		2
	1	74	22.03		2
	36	0	21.42	0-3	3
	36	18	21.34		3
	36	37	21.25		3
	75	0	21.36		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 9-21
LTE Band 26 (Cell) Conducted Powers - 10 MHz Bandwidth

LTE Band 26 (Cell) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26740 (819.0 MHz)	26865 (831.5 MHz)	26990 (844.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.61	24.60	24.41	0	0
	1	25	24.55	24.51	24.34		0
	1	49	24.54	24.46	24.32		0
	25	0	23.30	23.43	23.28	0-1	1
	25	12	23.38	23.40	23.16		1
	25	25	23.36	23.33	23.12		1
	50	0	23.37	23.32	23.26		1
16QAM	1	0	23.18	23.33	23.04	0-1	1
	1	25	23.07	23.16	22.91		1
	1	49	23.08	23.11	22.84		1
	25	0	22.38	22.39	22.24	0-2	2
	25	12	22.38	22.37	22.14		2
	25	25	22.34	22.33	22.07		2
	50	0	22.34	22.40	22.22		2
64QAM	1	0	22.55	22.55	22.38	0-2	2
	1	25	22.54	22.51	22.28		2
	1	49	22.51	22.44	22.19		2
	25	0	21.45	21.44	21.33	0-3	3
	25	12	21.40	21.36	21.19		3
	25	25	21.39	21.26	21.12		3
	50	0	21.41	21.44	21.22		3

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Table 9-22
LTE Band 26 (Cell) Conducted Powers - 5 MHz Bandwidth

LTE Band 26 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26715 (816.5 MHz)	26865 (831.5 MHz)	27015 (846.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.56	24.58	24.32	0	0
	1	12	24.53	24.41	24.18		0
	1	24	24.52	24.35	24.09		0
	12	0	23.39	23.36	23.18	0-1	1
	12	6	23.33	23.35	23.10		1
	12	13	23.33	23.34	23.09		1
	25	0	23.35	23.38	23.14		1
16QAM	1	0	23.38	23.34	23.08	0-1	1
	1	12	23.27	23.27	23.06		1
	1	24	23.26	23.21	22.95		1
	12	0	22.36	22.36	22.21	0-2	2
	12	6	22.32	22.37	22.09		2
	12	13	22.27	22.33	22.10		2
	25	0	22.29	22.36	22.14		2
64QAM	1	0	22.15	22.33	22.10	0-2	2
	1	12	22.24	22.29	22.35		2
	1	24	22.18	22.22	22.15		2
	12	0	21.45	21.42	21.24	0-3	3
	12	6	21.42	21.37	21.20		3
	12	13	21.41	21.40	21.20		3
	25	0	21.28	21.40	21.19		3

Table 9-23
LTE Band 26 (Cell) Conducted Powers - 3 MHz Bandwidth

LTE Band 26 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26705 (815.5 MHz)	26865 (831.5 MHz)	27025 (847.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.30	24.36	24.25	0	0
	1	7	24.33	24.38	24.10		0
	1	14	24.27	24.28	24.12		0
	8	0	23.28	23.29	23.12	0-1	1
	8	4	23.37	23.35	23.07		1
	8	7	23.30	23.33	23.07		1
	15	0	23.33	23.32	23.14		1
16QAM	1	0	23.29	23.35	23.11	0-1	1
	1	7	23.30	23.27	22.89		1
	1	14	23.30	23.16	22.88		1
	8	0	22.38	22.37	22.27	0-2	2
	8	4	22.32	22.32	22.11		2
	8	7	22.38	22.34	22.12		2
	15	0	22.38	22.33	22.18		2
64QAM	1	0	22.34	22.30	22.12	0-2	2
	1	7	22.25	22.33	22.08		2
	1	14	22.30	22.26	21.98		2
	8	0	21.27	21.39	21.16	0-3	3
	8	4	21.32	21.36	21.12		3
	8	7	21.32	21.36	21.09		3
	15	0	21.39	21.40	21.15		3

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Table 9-24
LTE Band 26 (Cell) Conducted Powers -1.4 MHz Bandwidth

LTE Band 26 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26697 (814.7 MHz)	26865 (831.5 MHz)	27033 (848.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.40	24.45	24.25	0	0
	1	2	24.38	24.37	24.21		0
	1	5	24.43	24.39	24.23		0
	3	0	24.36	24.42	24.13		0
	3	2	24.34	24.33	24.08		0
	3	3	24.34	24.35	24.14		0
	6	0	23.22	23.13	23.06	0-1	1
16QAM	1	0	23.31	23.32	22.92	0-1	1
	1	2	23.14	23.17	22.98		1
	1	5	23.12	23.07	23.11		1
	3	0	23.29	23.23	22.89		1
	3	2	23.29	23.26	22.88		1
	3	3	23.26	23.35	23.33		1
	6	0	22.32	22.32	22.18	0-2	2
64QAM	1	0	22.11	22.20	22.10	0-2	2
	1	2	21.89	22.20	21.85		2
	1	5	22.42	22.18	21.85		2
	3	0	22.28	22.15	22.02		2
	3	2	22.26	22.34	21.99		2
	3	3	22.15	22.17	21.97		2
	6	0	21.48	21.41	21.22	0-3	3

9.4.5 LTE Band 66 (AWS)

Table 9-25
LTE Band 66 (AWS) Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.11	23.95	24.18	0	0
	1	50	24.26	24.16	24.28		0
	1	99	24.31	23.92	24.08		0
	50	0	23.31	22.86	23.02	0-1	1
	50	25	23.21	22.96	23.11		1
	50	50	23.06	22.85	22.97		1
	100	0	23.15	22.78	23.08		1
16QAM	1	0	22.95	22.69	22.80	0-1	1
	1	50	23.08	23.32	22.81		1
	1	99	23.01	22.69	22.55		1
	50	0	22.04	21.78	21.91	0-2	2
	50	25	22.39	21.88	22.00		2
	50	50	22.12	21.80	22.02		2
	100	0	22.03	21.73	22.01		2
64QAM	1	0	21.88	21.52	21.76	0-2	2
	1	50	22.12	22.08	21.85		2
	1	99	21.99	21.63	21.90		2
	50	0	21.23	20.74	21.19	0-3	3
	50	25	21.04	20.79	20.96		3
	50	50	20.96	20.70	20.92		3
	100	0	21.08	20.66	20.85		3

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Table 9-26
LTE Band 66 (AWS) Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132047 (1717.5 MHz)	132322 (1745.0 MHz)	132597 (1772.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.96	23.74	24.02	0	0
	1	36	24.03	23.80	24.08		0
	1	74	23.98	23.71	23.93		0
	36	0	22.94	22.67	22.95	0-1	1
	36	18	22.96	22.74	22.95		1
	36	37	22.93	22.65	22.93		1
	75	0	22.93	22.67	22.94		1
16QAM	1	0	22.93	22.41	22.91	0-1	1
	1	36	23.10	22.58	22.96		1
	1	74	23.04	22.61	22.91		1
	36	0	21.89	21.64	21.92	0-2	2
	36	18	21.94	21.63	21.94		2
	36	37	21.94	21.59	21.93		2
	75	0	21.91	21.58	21.90		2
64QAM	1	0	21.96	21.96	22.11	0-2	2
	1	36	21.74	22.06	22.16		2
	1	74	21.69	21.98	22.08		2
	36	0	20.89	20.56	20.92	0-3	3
	36	18	20.91	20.59	20.94		3
	36	37	20.91	20.54	20.90		3
	75	0	20.89	20.61	20.80		3

Table 9-27
LTE Band 66 (AWS) Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132022 (1715.0 MHz)	132322 (1745.0 MHz)	132622 (1775.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.09	23.78	24.05	0	0
	1	25	24.02	23.79	24.04		0
	1	49	24.02	23.64	24.06		0
	25	0	22.91	22.65	22.95	0-1	1
	25	12	22.90	22.65	22.94		1
	25	25	22.91	22.66	22.93		1
	50	0	22.90	22.65	22.93		1
16QAM	1	0	22.87	22.57	22.67	0-1	1
	1	25	22.87	22.58	22.70		1
	1	49	22.85	22.56	22.69		1
	25	0	21.95	21.61	21.94	0-2	2
	25	12	21.93	21.62	21.94		2
	25	25	21.91	21.61	21.93		2
	50	0	21.89	21.55	21.96		2
64QAM	1	0	22.20	21.52	22.11	0-2	2
	1	25	22.16	21.53	22.09		2
	1	49	22.20	21.50	22.09		2
	25	0	20.87	20.65	20.92	0-3	3
	25	12	20.89	20.65	20.93		3
	25	25	20.88	20.65	20.95		3
	50	0	20.83	20.59	20.87		3

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Table 9-28
LTE Band 66 (AWS) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131997 (1712.5 MHz)	132322 (1745.0 MHz)	132647 (1777.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.07	23.62	23.87	0	0
	1	12	24.05	23.74	23.92		0
	1	24	24.06	23.66	23.90		0
	12	0	22.88	22.67	22.99	0-1	1
	12	6	22.89	22.66	23.00		1
	12	13	22.89	22.67	23.01		1
	25	0	22.91	22.63	22.96		1
16QAM	1	0	22.98	22.28	22.89	0-1	1
	1	12	22.99	22.32	22.95		1
	1	24	22.98	22.32	22.91		1
	12	0	21.97	21.56	22.01	0-2	2
	12	6	21.96	21.54	22.02		2
	12	13	21.97	21.55	22.02		2
	25	0	21.85	21.59	21.97		2
64QAM	1	0	21.95	21.85	22.03	0-2	2
	1	12	21.99	21.87	22.06		2
	1	24	21.96	21.83	22.07		2
	12	0	20.86	20.55	20.89	0-3	3
	12	6	20.87	20.57	20.91		3
	12	13	20.84	20.57	20.88		3
	25	0	20.87	20.55	20.86		3

Table 9-29
LTE Band 66 (AWS) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131987 (1711.5 MHz)	132322 (1745.0 MHz)	132657 (1778.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.95	23.72	24.03	0	0
	1	7	24.11	23.76	24.06		0
	1	14	23.92	23.74	24.06		0
	8	0	22.94	22.65	23.04	0-1	1
	8	4	22.95	22.67	23.03		1
	8	7	22.96	22.64	23.04		1
	15	0	22.90	22.63	23.00		1
16QAM	1	0	22.85	22.46	22.63	0-1	1
	1	7	22.85	22.64	22.66		1
	1	14	22.80	22.43	22.63		1
	8	0	21.88	21.57	22.06	0-2	2
	8	4	21.88	21.54	22.05		2
	8	7	21.85	21.62	22.03		2
	15	0	21.84	21.57	21.95		2
64QAM	1	0	21.67	21.33	22.05	0-2	2
	1	7	21.72	21.36	22.17		2
	1	14	21.68	21.33	22.00		2
	8	0	20.83	20.63	21.02	0-3	3
	8	4	20.87	20.62	20.97		3
	8	7	20.83	20.64	20.97		3
	15	0	20.81	20.57	20.92		3

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Table 9-30
LTE Band 66 (AWS) Maximum Conducted Powers -1.4 MHz Bandwidth

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131979 (1710.7 MHz)	132322 (1745.0 MHz)	132665 (1779.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.96	23.66	24.14	0	0
	1	2	23.81	23.51	24.14		0
	1	5	23.85	23.67	24.17		0
	3	0	23.88	23.66	24.01		0
	3	2	23.93	23.69	24.03		0
	3	3	23.92	23.66	24.04		0
	6	0	22.91	22.60	22.94	0-1	1
16QAM	1	0	23.10	22.61	22.83	0-1	1
	1	2	23.07	22.60	22.84		1
	1	5	23.11	22.63	22.89		1
	3	0	23.00	22.66	23.02		1
	3	2	23.02	22.72	23.07		1
	3	3	23.01	22.68	23.07		1
	6	0	21.87	21.57	21.98	0-2	2
64QAM	1	0	21.87	21.65	21.94	0-2	2
	1	2	21.93	21.65	22.01		2
	1	5	21.85	21.75	21.88		2
	3	0	21.91	21.53	21.98		2
	3	2	21.96	21.55	21.95		2
	3	3	21.95	21.55	21.96		2
	6	0	20.79	20.56	20.86	0-3	3

Table 9-31
LTE Band 66 (AWS) Reduced Conducted Powers - 20 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132072 (1720.0 MHz)	132322 (1745.0 MHz)	132572 (1770.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.98	20.68	20.90	0	0
	1	50	20.99	20.67	20.81		0
	1	99	21.02	20.65	20.77		0
	50	0	20.97	20.64	20.86	0-1	0
	50	25	20.94	20.65	20.85		0
	50	50	20.90	20.64	20.84		0
	100	0	20.93	20.65	20.76		0
16QAM	1	0	20.83	20.56	20.49	0-1	0
	1	50	20.96	20.71	20.39		0
	1	99	20.91	20.66	20.50		0
	50	0	20.94	20.66	20.77	0-2	0
	50	25	20.95	20.64	20.79		0
	50	50	20.93	20.62	20.78		0
	100	0	20.79	20.69	20.88		0
64QAM	1	0	20.77	20.64	20.66	0-2	0
	1	50	20.84	20.45	20.56		0
	1	99	20.75	20.52	20.62		0
	50	0	20.78	20.58	20.73	0-3	0
	50	25	20.86	20.53	20.65		0
	50	50	20.81	20.52	20.64		0
	100	0	20.82	20.57	20.73		0

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Table 9-32
LTE Band 66 (AWS) Reduced Conducted Powers - 15 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132047 (1717.5 MHz)	132322 (1745.0 MHz)	132597 (1772.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.82	20.68	21.01	0	0
	1	36	20.84	20.65	21.03		0
	1	74	20.87	20.59	20.98		0
	36	0	20.76	20.63	20.98	0-1	0
	36	18	20.75	20.63	20.95		0
	36	37	20.73	20.61	20.91		0
	75	0	20.81	20.57	20.87		0
16QAM	1	0	20.16	20.23	20.68	0-1	0
	1	36	20.35	20.32	20.38		0
	1	74	20.28	20.40	20.34		0
	36	0	20.83	20.70	20.96	0-2	0
	36	18	20.77	20.65	20.87		0
	36	37	20.74	20.64	20.71		0
	75	0	20.73	20.50	20.93		0
64QAM	1	0	21.09	20.79	20.72	0-2	0
	1	36	21.01	20.81	20.46		0
	1	74	20.98	21.19	20.82		0
	36	0	20.81	20.54	20.86	0-3	0
	36	18	20.77	20.58	20.84		0
	36	37	20.72	20.55	20.79		0
	75	0	20.76	20.67	20.96		0

Table 9-33
LTE Band 66 (AWS) Reduced Conducted Powers - 10 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			132022 (1715.0 MHz)	132322 (1745.0 MHz)	132622 (1775.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.90	20.59	20.90	0	0
	1	25	20.79	20.59	20.85		0
	1	49	20.76	20.61	20.86		0
	25	0	20.74	20.57	20.79	0-1	0
	25	12	20.76	20.55	20.81		0
	25	25	20.85	20.56	20.79		0
	50	0	20.64	20.54	20.93		0
16QAM	1	0	21.00	20.28	20.37	0-1	0
	1	25	20.68	20.44	20.47		0
	1	49	20.73	20.20	20.47		0
	25	0	20.77	20.67	20.97	0-2	0
	25	12	20.76	20.66	20.96		0
	25	25	20.72	20.73	20.95		0
	50	0	20.76	20.58	20.95		0
64QAM	1	0	21.03	20.73	20.60	0-2	0
	1	25	21.38	20.68	20.88		0
	1	49	20.82	20.54	20.62		0
	25	0	20.79	20.65	20.85	0-3	0
	25	12	20.73	20.65	20.91		0
	25	25	20.76	20.63	20.86		0
	50	0	20.80	20.59	20.86		0

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Table 9-34
LTE Band 66 (AWS) Reduced Conducted Powers - 5 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131997 (1712.5 MHz)	132322 (1745.0 MHz)	132647 (1777.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.84	20.57	20.87	0	0
	1	12	20.83	20.59	20.92		0
	1	24	20.73	20.53	20.99		0
	12	0	20.76	20.58	20.97	0-1	0
	12	6	20.75	20.55	20.96		0
	12	13	20.76	20.56	20.94		0
	25	0	20.75	20.58	20.96		0
16QAM	1	0	20.34	20.20	20.43	0-1	0
	1	12	20.31	20.20	20.25		0
	1	24	20.21	20.25	20.47		0
	12	0	20.78	20.48	20.80	0-2	0
	12	6	20.75	20.55	20.87		0
	12	13	20.76	20.54	20.82		0
	25	0	20.89	20.68	20.99		0
64QAM	1	0	20.96	20.62	20.85	0-2	0
	1	12	20.91	20.55	20.80		0
	1	24	20.98	20.66	20.83		0
	12	0	20.75	20.62	20.86	0-3	0
	12	6	20.74	20.60	20.97		0
	12	13	20.84	20.65	20.88		0
	25	0	20.80	20.63	20.90		0

Table 9-35
LTE Band 66 (AWS) Reduced Conducted Powers - 3 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131987 (1711.5 MHz)	132322 (1745.0 MHz)	132657 (1778.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.80	20.68	21.08	0	0
	1	7	20.79	20.72	21.08		0
	1	14	20.79	20.72	21.06		0
	8	0	20.78	20.55	21.00	0-1	0
	8	4	20.79	20.56	20.99		0
	8	7	20.79	20.58	20.99		0
	15	0	20.76	20.54	20.97		0
16QAM	1	0	20.39	20.34	20.53	0-1	0
	1	7	20.58	20.39	20.51		0
	1	14	20.68	20.28	20.55		0
	8	0	20.82	20.32	20.99	0-2	0
	8	4	20.89	20.73	20.95		0
	8	7	20.84	20.73	20.96		0
	15	0	20.77	20.68	20.93		0
64QAM	1	0	20.43	20.58	21.05	0-2	0
	1	7	20.77	20.58	21.00		0
	1	14	20.60	20.63	20.92		0
	8	0	20.77	20.58	20.95	0-3	0
	8	4	20.81	20.59	20.89		0
	8	7	20.84	20.66	20.91		0
	15	0	20.89	20.65	21.03		0

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Table 9-36
LTE Band 66 (AWS) Reduced Conducted Powers - 1.4 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			131979 (1710.7 MHz)	132322 (1745.0 MHz)	132665 (1779.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.80	20.58	20.83	0	0
	1	2	20.71	20.55	20.89		0
	1	5	20.65	20.55	20.85		0
	3	0	20.76	20.53	20.98		0
	3	2	20.76	20.53	21.00		0
	3	3	20.76	20.53	20.98		0
	6	0	20.85	20.58	20.97	0-1	0
16QAM	1	0	20.36	20.44	20.64	0-1	0
	1	2	20.52	20.38	20.37		0
	1	5	20.47	20.52	20.75		0
	3	0	20.86	20.71	20.86		0
	3	2	20.97	20.70	20.94		0
	3	3	20.81	20.67	20.91		0
	6	0	20.70	20.64	20.91	0-2	0
64QAM	1	0	20.89	20.39	20.90	0-2	0
	1	2	20.84	20.59	21.04		0
	1	5	20.82	20.38	21.07		0
	3	0	20.83	20.72	20.78		0
	3	2	20.78	20.53	20.87		0
	3	3	20.83	20.61	20.73		0
	6	0	20.69	20.66	20.97	0-3	0

9.4.6 LTE Band 25 (PCS)

Table 9-37
LTE Band 25 (PCS) Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.63	24.57	24.65	0	0
	1	50	24.76	24.52	24.77		0
	1	99	24.12	24.05	24.73		0
	50	0	23.65	23.19	23.87	0-1	1
	50	25	23.51	23.33	23.65		1
	50	50	23.30	23.29	23.62		1
	100	0	23.38	23.31	23.80		1
16QAM	1	0	23.31	23.33	23.57	0-1	1
	1	50	23.44	23.31	23.69		1
	1	99	23.20	23.08	23.32		1
	50	0	22.46	22.33	22.63	0-2	2
	50	25	22.52	22.30	22.59		2
	50	50	22.41	22.18	22.49		2
	100	0	22.42	22.25	22.50		2
64QAM	1	0	22.44	22.06	22.41	0-2	2
	1	50	22.42	22.33	22.54		2
	1	99	22.00	22.12	22.32		2
	50	0	21.28	21.27	21.56	0-3	3
	50	25	21.41	21.28	21.55		3
	50	50	21.47	21.17	21.54		3
	100	0	21.53	21.35	21.47		3

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Table 9-38
LTE Band 25 (PCS) Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26115 (1857.5 MHz)	26365 (1882.5 MHz)	26615 (1907.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.63	24.47	24.40	0	0
	1	36	24.74	24.44	24.44		0
	1	74	24.55	24.31	24.28		0
	36	0	23.34	23.18	23.29	0-1	1
	36	18	23.49	23.29	23.15		1
	36	37	23.43	23.09	23.11		1
	75	0	23.45	23.22	23.16		1
16QAM	1	0	23.21	23.21	23.07	0-1	1
	1	36	23.51	23.22	23.06		1
	1	74	23.30	23.12	22.98		1
	36	0	22.47	22.27	22.24	0-2	2
	36	18	22.48	22.21	22.18		2
	36	37	22.43	22.14	22.09		2
	75	0	22.48	22.14	22.17		2
64QAM	1	0	22.53	22.31	22.32	0-2	2
	1	36	22.68	22.42	22.29		2
	1	74	22.45	22.19	22.03		2
	36	0	21.47	21.27	21.06	0-3	3
	36	18	21.51	21.22	21.13		3
	36	37	21.42	21.13	21.10		3
	75	0	21.47	21.18	21.23		3

Table 9-39
LTE Band 25 (PCS) Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26090 (1855.0 MHz)	26365 (1882.5 MHz)	26640 (1910.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.51	24.53	24.39	0	0
	1	25	24.50	24.51	24.40		0
	1	49	24.47	24.47	24.39		0
	25	0	23.41	23.31	23.27	0-1	1
	25	12	23.41	23.29	23.28		1
	25	25	23.40	23.27	23.27		1
	50	0	23.40	23.30	23.27		1
16QAM	1	0	23.17	23.30	23.06	0-1	1
	1	25	23.16	23.37	23.08		1
	1	49	23.14	23.34	23.09		1
	25	0	22.39	22.27	22.27	0-2	2
	25	12	22.39	22.24	22.28		2
	25	25	22.37	22.23	22.30		2
	50	0	22.40	22.33	22.27		2
64QAM	1	0	22.36	22.36	22.32	0-2	2
	1	25	22.37	22.28	22.32		2
	1	49	22.38	22.27	22.33		2
	25	0	21.41	21.28	21.30	0-3	3
	25	12	21.40	21.27	21.32		3
	25	25	21.41	21.25	21.33		3
	50	0	21.37	21.29	21.27		3

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Table 9-40
LTE Band 25 (PCS) Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26065 (1852.5 MHz)	26365 (1882.5 MHz)	26665 (1912.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.42	24.26	24.35	0	0
	1	12	24.51	24.30	24.39		0
	1	24	24.49	24.33	24.37		0
	12	0	23.40	23.13	23.22	0-1	1
	12	6	23.39	23.12	23.22		1
	12	13	23.39	23.11	23.23		1
25	0	23.41	23.11	23.23		1	
16QAM	1	0	23.23	22.93	23.11	0-1	1
	1	12	23.30	22.98	23.13		1
	1	24	23.28	22.91	23.10		1
	12	0	22.39	22.07	22.22	0-2	2
	12	6	22.38	22.06	22.20		2
	12	13	22.38	22.07	22.23		2
25	0	22.41	22.09	22.25		2	
64QAM	1	0	22.42	22.10	22.24	0-2	2
	1	12	22.48	22.13	22.29		2
	1	24	22.44	22.11	22.29		2
	12	0	21.42	21.13	21.27	0-3	3
	12	6	21.42	21.10	21.25		3
	12	13	21.41	21.06	21.24		3
25	0	21.45	21.11	21.32		3	

Table 9-41
LTE Band 25 (PCS) Maximum Conducted Powers - 3 MHz Bandwidth

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26055 (1851.5 MHz)	26365 (1882.5 MHz)	26675 (1913.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.34	24.22	24.27	0	0
	1	7	24.35	24.20	24.30		0
	1	14	24.32	24.13	24.27		0
	8	0	23.28	23.06	23.22	0-1	1
	8	4	23.29	23.06	23.23		1
	8	7	23.29	23.07	23.24		1
16QAM	15	0	23.29	23.07	23.22	0-1	1
	1	0	23.17	22.93	23.08		1
	1	7	23.17	22.89	23.11		1
	1	14	23.18	22.85	23.09	0-2	1
	8	0	22.29	22.04	22.21		2
	8	4	22.27	22.05	22.24		2
64QAM	8	7	22.26	22.06	22.23	0-2	2
	15	0	22.31	22.07	22.24		2
	1	0	22.28	22.05	22.20		0-2
	1	7	22.32	22.07	22.24	2	
	1	14	22.29	22.04	22.23	2	
	8	0	21.26	21.05	21.20	0-3	3
8	4	21.25	21.07	21.25	3		
8	7	21.29	21.07	21.25	3		
	15	0	21.32	21.09	21.28		3

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Table 9-42
LTE Band 25 (PCS) Maximum Conducted Powers -1.4 MHz Bandwidth

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26047 (1850.7 MHz)	26365 (1882.5 MHz)	26683 (1914.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	24.33	24.19	24.18	0	0
	1	2	24.30	24.21	24.18		0
	1	5	24.30	24.20	24.18		0
	3	0	24.32	24.15	24.19		0
	3	2	24.33	24.15	24.20		0
	3	3	24.32	24.14	24.19		0
	6	0	23.29	23.13	23.17	0-1	1
16QAM	1	0	23.35	23.17	23.20	0-1	1
	1	2	23.36	23.16	23.23		1
	1	5	23.35	23.14	23.19		1
	3	0	23.41	23.25	23.31		1
	3	2	23.44	23.25	23.32		1
	3	3	23.42	23.26	23.30		1
	6	0	22.34	22.14	22.22	0-2	2
64QAM	1	0	22.45	22.27	22.29	0-2	2
	1	2	22.44	22.29	22.34		2
	1	5	22.46	22.27	22.32		2
	3	0	22.39	22.20	22.27		2
	3	2	22.38	22.14	22.29		2
	3	3	22.36	22.14	22.28		2
	6	0	21.37	21.19	21.27	0-3	3

Table 9-43
LTE Band 25 (PCS) Reduced Conducted Powers - 20 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26140 (1860.0 MHz)	26365 (1882.5 MHz)	26590 (1905.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.61	22.31	22.43	0	0
	1	50	22.74	22.33	22.27		0
	1	99	22.49	22.18	22.05		0
	50	0	22.53	22.30	22.39	0-1	0
	50	25	22.43	22.09	22.30		0
	50	50	22.47	22.04	22.17		0
16QAM	100	0	22.41	22.08	22.22	0-1	0
	1	0	22.07	21.86	22.01		0
	1	50	22.52	22.04	22.13		0
	1	99	22.03	21.83	21.95	0-2	0
	50	0	22.47	22.12	22.35		0
	50	25	22.48	22.10	22.44		0
64QAM	50	50	22.44	22.05	22.29	0-2	0
	100	0	22.45	22.07	22.25		0
	1	0	22.57	22.08	22.16		0-2
	1	50	22.57	22.39	22.43	0	
	1	99	22.39	22.01	22.26	0	
	50	0	21.49	21.12	21.36	0-3	1
50	25	21.49	21.10	21.35	1		
50	50	21.45	21.01	21.19	1		
	100	0	21.50	21.19	21.38		1

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Table 9-44
LTE Band 25 (PCS) Reduced Conducted Powers - 15 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26115 (1857.5 MHz)	26365 (1882.5 MHz)	26615 (1907.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.45	22.04	22.17	0	0
	1	36	22.51	22.22	22.34		0
	1	74	22.40	22.08	22.31		0
	36	0	22.49	22.01	22.27	0-1	0
	36	18	22.51	22.02	22.30		0
	36	37	22.45	21.98	22.27		0
16QAM	75	0	22.47	22.00	22.25	0-1	0
	1	0	22.33	22.01	22.12		0
	1	36	22.67	22.05	22.21		0
	1	74	22.52	21.94	22.10	0-2	0
	36	0	22.52	22.06	22.28		0
	36	18	22.55	22.05	22.32		0
64QAM	36	37	22.52	22.01	22.30	0-2	0
	75	0	22.51	21.99	22.34		0
	1	0	22.60	22.17	22.75		0-2
	1	36	22.67	22.26	22.79	0	
	1	74	22.59	22.15	22.70	0	
	36	0	21.63	21.05	21.34	0-3	1
36	18	21.64	21.05	21.35	1		
36	37	21.60	21.03	21.36	1		
	75	0	21.56	21.10	21.28		1

Table 9-45
LTE Band 25 (PCS) Reduced Conducted Powers - 10 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26090 (1855.0 MHz)	26365 (1882.5 MHz)	26640 (1910.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.56	21.99	22.30	0	0
	1	25	22.58	21.96	22.30		0
	1	49	22.56	21.88	22.33		0
	25	0	22.52	22.01	22.18	0-1	0
	25	12	22.54	22.01	22.19		0
	25	25	22.56	21.99	22.18		0
16QAM	50	0	22.55	21.99	22.16	0-1	0
	1	0	22.16	22.07	22.12		0
	1	25	22.17	22.06	22.08		0
	1	49	22.13	22.01	22.07	0-2	0
	25	0	22.59	22.07	22.20		0
	25	12	22.59	22.03	22.20		0
64QAM	25	25	22.57	22.04	22.19	0-2	0
	50	0	22.63	21.97	22.20		0
	1	0	22.49	22.20	22.13		0-2
	1	25	22.35	22.19	22.13	0	
	1	49	22.41	22.20	22.11	0	
	25	0	21.69	21.13	21.35	0-3	1
25	12	21.70	21.12	21.35	1		
25	25	21.68	21.10	21.34	1		
	50	0	21.60	21.04	21.30		1

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Table 9-46
LTE Band 25 (PCS) Reduced Conducted Powers - 5 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26065	26365	26665		
			(1852.5 MHz)	(1882.5 MHz)	(1912.5 MHz)		
Conducted Power [dBm]							
QPSK	1	0	22.67	21.95	21.97	0	0
	1	12	22.70	21.90	22.02		0
	1	24	22.69	21.82	22.00		0
	12	0	22.57	21.99	22.20	0-1	0
	12	6	22.56	21.97	22.18		0
	12	13	22.54	21.96	22.19		0
	25	0	22.55	21.97	22.17		0
16QAM	1	0	22.57	21.80	22.05	0-1	0
	1	12	22.61	21.75	22.08		0
	1	24	22.59	21.85	22.04		0
	12	0	22.57	22.00	22.29	0-2	0
	12	6	22.57	21.96	22.27		0
	12	13	22.59	22.01	22.26		0
	25	0	22.55	22.00	22.24		0
64QAM	1	0	22.50	22.45	22.16	0-2	0
	1	12	22.59	22.39	22.17		0
	1	24	22.52	22.36	22.15		0
	12	0	21.63	20.96	21.25	0-3	1
	12	6	21.64	20.96	21.23		1
	12	13	21.62	20.98	21.23		1
	25	0	21.69	21.02	21.21		1

Table 9-47
LTE Band 25 (PCS) Reduced Conducted Powers - 3 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26055 (1851.5 MHz)	26365 (1882.5 MHz)	26675 (1913.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.49	22.04	22.13	0	0
	1	7	22.50	22.02	22.15		0
	1	14	22.66	22.00	22.11		0
	8	0	22.58	22.00	22.20	0-1	0
	8	4	22.59	21.98	22.20		0
	8	7	22.57	21.99	22.21		0
15	0	22.53	21.93	22.15	0		
16QAM	1	0	22.38	21.64	21.93	0-1	0
	1	7	22.76	21.62	21.98		0
	1	14	22.58	21.58	21.90		0
	8	0	22.62	21.99	22.28	0-2	0
	8	4	22.63	21.99	22.31		0
	8	7	22.63	21.97	22.27		0
15	0	22.50	21.94	22.26	0		
64QAM	1	0	22.47	22.01	22.22	0-2	0
	1	7	22.55	22.04	22.33		0
	1	14	22.49	21.99	22.29		0
	8	0	21.65	21.09	21.35	0-3	1
	8	4	21.65	21.10	21.37		1
	8	7	21.63	21.11	21.35		1
15	0	21.59	21.06	21.26	1		

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Table 9-48
LTE Band 25 (PCS) Reduced Conducted Powers -1.4 MHz Bandwidth - Hotspot Mode/Grip Sensor and/or Earjack Mode Active

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			26047 (1850.7 MHz)	26365 (1882.5 MHz)	26683 (1914.3 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.65	21.74	22.17	0	0
	1	2	22.63	21.70	22.15		0
	1	5	22.57	21.72	22.19		0
	3	0	22.49	21.94	22.25		0
	3	2	22.53	22.01	22.22		0
	3	3	22.52	21.98	22.21		0
	6	0	22.52	21.97	22.14	0-1	0
16QAM	1	0	22.36	21.95	22.11	0-1	0
	1	2	22.34	22.01	22.07		0
	1	5	22.37	22.01	22.14		0
	3	0	22.59	22.12	22.28		0
	3	2	22.64	22.08	22.33		0
	3	3	22.66	22.08	22.30		0
	6	0	22.56	22.01	22.20	0-2	0
64QAM	1	0	22.29	22.13	22.37	0-2	0
	1	2	22.36	22.17	22.31		0
	1	5	22.23	22.06	22.38		0
	3	0	22.40	22.10	22.26		0
	3	2	22.40	22.07	22.30		0
	3	3	22.40	22.06	22.28		0
	6	0	21.52	20.87	21.20	0-3	1

9.4.7 LTE Band 7

Table 9-49
LTE Band 7 Maximum Conducted Powers - 20 MHz Bandwidth

LTE Band 7							
20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20850	21100	21350		
			(2510.0 MHz)	(2535.0 MHz)	(2560.0 MHz)		
Conducted Power [dBm]							
QPSK	1	0	23.27	23.72	23.57	0	0
	1	50	23.24	23.62	23.96		0
	1	99	23.23	23.64	23.56		0
	50	0	22.08	22.60	22.40	0-1	1
	50	25	22.02	22.65	22.66		1
	50	50	22.01	22.55	22.42		1
	100	0	22.01	22.53	22.47		1
16QAM	1	0	21.79	22.32	22.24	0-1	1
	1	50	21.85	22.66	22.14		1
	1	99	21.77	22.25	22.21		1
	50	0	21.04	21.47	21.45	0-2	2
	50	25	21.03	21.49	21.50		2
	50	50	21.02	21.39	21.41		2
	100	0	21.01	21.42	21.46		2
64QAM	1	0	21.10	21.39	21.48	0-2	2
	1	50	21.23	21.33	21.43		2
	1	99	21.12	21.43	21.35		2
	50	0	19.98	20.52	20.35	0-3	3
	50	25	20.00	20.43	20.33		3
	50	50	19.96	20.37	20.25		3
	100	0	19.99	20.40	20.34		3

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Table 9-50
LTE Band 7 Maximum Conducted Powers - 15 MHz Bandwidth

LTE Band 7 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20825 (2507.5 MHz)	21100 (2535.0 MHz)	21375 (2562.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.29	23.72	23.56	0	0
	1	36	23.28	23.65	23.62		0
	1	74	23.28	23.62	23.68		0
	36	0	22.27	22.56	22.57	0-1	1
	36	18	22.27	22.58	22.59		1
	36	37	22.29	22.57	22.61		1
	75	0	22.26	22.54	22.57		1
16QAM	1	0	22.26	22.56	22.18	0-1	1
	1	36	22.27	22.58	22.37		1
	1	74	22.22	22.57	22.36		1
	36	0	21.26	21.57	21.36	0-2	2
	36	18	21.28	21.59	21.35		2
	36	37	21.29	21.58	21.45		2
	75	0	21.27	21.59	21.39		2
64QAM	1	0	21.21	21.54	21.35	0-2	2
	1	36	21.27	21.64	21.35		2
	1	74	21.32	21.55	21.43		2
	36	0	20.20	20.57	20.31	0-3	3
	36	18	20.21	20.59	20.36		3
	36	37	20.21	20.58	20.38		3
	75	0	20.23	20.56	20.35		3

Table 9-51
LTE Band 7 Maximum Conducted Powers - 10 MHz Bandwidth

LTE Band 7 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20800 (2505.0 MHz)	21100 (2535.0 MHz)	21400 (2565.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.09	23.32	23.53	0	0
	1	25	23.11	23.36	23.60		0
	1	49	23.08	23.36	23.60		0
	25	0	22.12	22.33	22.57	0-1	1
	25	12	22.11	22.32	22.57		1
	25	25	22.10	22.32	22.57		1
	50	0	22.11	22.32	22.57		1
16QAM	1	0	21.99	22.34	22.12	0-1	1
	1	25	21.93	22.29	22.17		1
	1	49	22.00	22.25	22.23		1
	25	0	21.12	21.33	21.32	0-2	2
	25	12	21.09	21.32	21.33		2
	25	25	21.08	21.34	21.35		2
	50	0	21.17	21.42	21.40		2
64QAM	1	0	21.15	21.33	21.25	0-2	2
	1	25	21.09	21.29	21.33		2
	1	49	21.08	21.37	21.38		2
	25	0	20.07	20.27	20.26	0-3	3
	25	12	20.07	20.30	20.27		3
	25	25	20.06	20.30	20.31		3
	50	0	20.04	20.31	20.32		3

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Table 9-52
LTE Band 7 Maximum Conducted Powers - 5 MHz Bandwidth

LTE Band 7 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20775 (2502.5 MHz)	21100 (2535.0 MHz)	21425 (2567.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	23.06	23.55	23.58	0	0
	1	12	23.11	23.56	23.53		0
	1	24	23.06	23.58	23.53		0
	12	0	22.07	22.35	22.45	0-1	1
	12	6	22.10	22.36	22.47		1
	12	13	22.07	22.37	22.51		1
	25	0	22.08	22.36	22.51		1
16QAM	1	0	21.98	22.33	22.16	0-1	1
	1	12	22.08	22.38	22.15		1
	1	24	22.02	22.32	22.17		1
	12	0	21.04	21.30	21.22	0-2	2
	12	6	21.06	21.31	21.21		2
	12	13	21.03	21.31	21.22		2
	25	0	21.09	21.37	21.27		2
64QAM	1	0	21.10	21.38	21.18	0-2	2
	1	12	21.11	21.39	21.24		2
	1	24	21.08	21.39	21.29		2
	12	0	20.06	20.34	20.23	0-3	3
	12	6	20.07	20.32	20.23		3
	12	13	20.07	20.37	20.21		3
	25	0	20.04	20.33	20.21		3

Table 9-53
LTE Band 7 Reduced Conducted Powers - 20 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Mode Active

LTE Band 7 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20850 (2510.0 MHz)	21100 (2535.0 MHz)	21350 (2560.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.27	20.54	20.32	0	0
	1	50	20.20	20.56	20.36		0
	1	99	20.23	20.47	20.42		0
	50	0	20.20	20.37	20.22	0-1	0
	50	25	20.21	20.35	20.24		0
	50	50	20.25	20.35	20.27		0
	100	0	20.22	20.28	20.23		0
16QAM	1	0	19.93	20.10	20.00	0-1	0
	1	50	19.89	20.03	19.92		0
	1	99	19.80	20.14	19.72		0
	50	0	20.09	20.31	20.23	0-2	0
	50	25	20.08	20.31	20.25		0
	50	50	20.08	20.35	20.25		0
	100	0	20.03	20.33	20.21		0
64QAM	1	0	20.00	20.16	20.27	0-2	0
	1	50	20.12	20.10	20.33		0
	1	99	20.08	20.35	20.35		0
	50	0	20.06	20.33	20.24	0-3	0
	50	25	20.05	20.32	20.24		0
	50	50	20.06	20.31	20.28		0
	100	0	20.11	20.36	20.28		0

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Table 9-54
LTE Band 7 Reduced Conducted Powers - 15 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Mode Active

LTE Band 7 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20825 (2507.5 MHz)	21100 (2535.0 MHz)	21375 (2562.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.30	20.57	20.46	0	0
	1	36	20.34	20.62	20.52		0
	1	74	20.30	20.59	20.54		0
	36	0	20.20	20.46	20.38	0-1	0
	36	18	20.22	20.48	20.43		0
	36	37	20.22	20.48	20.45		0
	75	0	20.21	20.46	20.41		0
16QAM	1	0	20.30	20.20	19.93	0-1	0
	1	36	20.18	20.20	20.07		0
	1	74	20.14	20.39	20.22		0
	36	0	20.19	20.46	20.39	0-2	0
	36	18	20.22	20.49	20.43		0
	36	37	20.24	20.50	20.45		0
	75	0	20.19	20.47	20.43		0
64QAM	1	0	20.38	20.58	20.56	0-2	0
	1	36	20.38	20.57	20.55		0
	1	74	20.17	20.25	20.55		0
	36	0	20.21	20.49	20.38	0-3	0
	36	18	20.20	20.49	20.42		0
	36	37	20.19	20.50	20.46		0
	75	0	20.21	20.50	20.43		0

Table 9-55
LTE Band 7 Reduced Conducted Powers - 10 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Mode Active

LTE Band 7 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20800 (2505.0 MHz)	21100 (2535.0 MHz)	21400 (2565.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.25	20.50	20.47	0	0
	1	25	20.27	20.54	20.51		0
	1	49	20.25	20.53	20.51		0
	25	0	20.16	20.45	20.41	0-1	0
	25	12	20.20	20.47	20.43		0
	25	25	20.18	20.46	20.47		0
50	0	20.15	20.44	20.43	0		
16QAM	1	0	19.98	20.16	20.13	0-1	0
	1	25	19.99	20.17	20.03		0
	1	49	19.86	19.88	20.17		0
	25	0	20.21	20.49	20.44	0-2	0
	25	12	20.21	20.47	20.46		0
	25	25	20.20	20.50	20.46		0
50	0	20.20	20.49	20.44	0		
64QAM	1	0	19.98	20.64	20.43	0-2	0
	1	25	19.94	20.59	20.54		0
	1	49	20.38	20.63	20.19		0
	25	0	20.22	20.50	20.45	0-3	0
	25	12	20.23	20.52	20.44		0
	25	25	20.20	20.49	20.46		0
50	0	20.19	20.47	20.42	0		

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Table 9-56
LTE Band 7 Reduced Conducted Powers - 5 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Mode Active

LTE Band 7 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			20775 (2502.5 MHz)	21100 (2535.0 MHz)	21425 (2567.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	20.21	20.51	20.40	0	0
	1	12	20.27	20.49	20.42		0
	1	24	20.21	20.49	20.46		0
	12	0	20.17	20.40	20.33	0-1	0
	12	6	20.16	20.40	20.33		0
	12	13	20.16	20.41	20.35		0
16QAM	25	0	20.16	20.43	20.34	0-1	0
	1	0	19.99	20.09	20.09		0
	1	12	19.91	20.11	20.06		0
	1	24	19.97	20.01	19.95	0-2	0
	12	0	20.15	20.04	20.31		0
	12	6	20.15	20.41	20.32		0
64QAM	12	13	20.11	20.37	20.32	0-2	0
	25	0	20.14	20.43	20.34		0
	1	0	20.16	20.45	20.22		0-2
	1	12	20.22	20.42	20.58	0	
	1	24	20.13	20.47	20.26	0	
	64QAM	12	0	20.17	20.37	20.36	0-3
12		6	20.15	20.39	20.35	0	
12		13	20.17	20.33	20.37	0	
25		0	20.16	20.47	20.38	0	

9.4.8 LTE Band 38

Note: This device supports LTE Band 38 and LTE Band 41 with overlapping transmission frequency ranges and with the same transmission path and signal characteristics. In maximum output power conditions, LTE Band 41 has a higher output power than LTE Band 38. Per FCC guidance, SAR was assessed for the band with the larger transmission range and higher output power during maximum power conditions.

Table 9-57
LTE Band 38 Reduced Conducted Powers - 20 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Active

LTE Band 38 20 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			38000 (2595.0 MHz)		
			Conducted Power [dBm]		
QPSK	1	0	22.21	0	0
	1	50	22.18		0
	1	99	22.19		0
	50	0	22.16	0-1	0
	50	25	22.12		0
	50	50	22.13		0
16QAM	100	0	22.14	0-1	0
	1	0	22.09		0
	1	50	22.07		0
	1	99	22.06	0-2	0
	50	0	21.15		1
	50	25	21.16		1
64QAM	50	50	21.13	0-2	1
	100	0	21.16		1
	1	0	21.29	0-2	1
	1	50	21.27		1
	1	99	21.28		1
	50	0	20.11	0-3	2
64QAM	50	25	20.08		2
	50	50	20.07		2
	100	0	20.10		2

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Table 9-58

LTE Band 38 Reduced Conducted Powers - 15 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Active

LTE Band 38 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			37825 (2577.5 MHz)	38000 (2595.0 MHz)	38175 (2612.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.20	22.25	22.08	0	0
	1	36	22.19	22.15	22.14		0
	1	74	22.17	22.11	22.15		0
	36	0	22.18	22.23	22.14	0-1	0
	36	18	22.17	22.24	22.12		0
	36	37	22.16	22.22	22.13		0
	75	0	22.17	22.21	22.13		0
16QAM	1	0	22.07	21.87	21.82	0-1	0
	1	36	22.06	21.81	21.85		0
	1	74	22.04	21.85	21.86		0
	36	0	21.14	21.26	21.16	0-2	1
	36	18	21.12	21.27	21.14		1
	36	37	21.13	21.26	21.15		1
	75	0	21.14	21.26	21.18		1
64QAM	1	0	20.74	21.12	21.10	0-2	1
	1	36	20.71	21.08	21.12		1
	1	74	20.70	21.10	21.11		1
	36	0	20.15	20.24	20.07	0-3	2
	36	18	20.14	20.23	20.08		2
	36	37	20.12	20.27	20.09		2
	75	0	20.14	20.20	20.12		2

Table 9-59

LTE Band 38 Reduced Conducted Powers - 10 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Active

LTE Band 38 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			37800 (2575.0 MHz)	38000 (2595.0 MHz)	38200 (2615.0 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.17	22.26	22.11	0	0
	1	25	22.20	22.28	22.25		0
	1	49	22.19	22.26	22.14		0
	25	0	22.13	22.18	22.10	0-1	0
	25	12	22.14	22.19	22.09		0
	25	25	22.13	22.17	22.11		0
	50	0	22.12	22.15	22.08		0
16QAM	1	0	22.18	22.06	22.22	0-1	0
	1	25	22.20	22.07	22.17		0
	1	49	22.18	22.03	22.14		0
	25	0	21.14	21.24	21.12	0-2	1
	25	12	21.13	21.23	21.13		1
	25	25	21.13	21.22	21.12		1
	50	0	21.12	21.16	21.11		1
64QAM	1	0	21.02	21.03	20.97	0-2	1
	1	25	21.05	21.05	20.98		1
	1	49	21.04	20.97	20.86		1
	25	0	20.11	20.14	20.06	0-3	2
	25	12	20.10	20.17	20.05		2
	25	25	20.12	20.16	20.08		2
	50	0	20.11	20.16	20.05		2

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Table 9-60

LTE Band 38 Reduced Conducted Powers - 5 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Active

LTE Band 38 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel	Mid Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			37775 (2572.5 MHz)	38000 (2595.0 MHz)	38225 (2617.5 MHz)		
			Conducted Power [dBm]				
QPSK	1	0	22.13	22.22	22.14	0	0
	1	12	22.12	22.21	22.15		0
	1	24	22.15	22.26	22.18		0
	12	0	22.11	22.20	22.09	0-1	0
	12	6	22.12	22.22	22.10		0
	12	13	22.13	22.21	22.11		0
	25	0	22.12	22.19	22.09		0
16QAM	1	0	22.21	22.31	22.34	0-1	0
	1	12	22.22	22.30	22.33		0
	1	24	22.20	22.32	22.37		0
	12	0	21.14	21.21	21.10	0-2	1
	12	6	21.13	21.20	21.09		1
	12	13	21.14	21.23	21.11		1
	25	0	21.11	21.16	21.11		1
64QAM	1	0	20.93	21.18	21.18	0-2	1
	1	12	20.94	21.05	21.23		1
	1	24	20.92	21.03	21.21		1
	12	0	20.05	20.16	20.07	0-3	2
	12	6	20.08	20.15	20.08		2
	12	13	20.10	20.16	20.10		2
	25	0	20.10	20.22	20.04		2

9.4.9

LTE Band 41

Table 9-61

LTE Band 41 Maximum 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	22.65	22.50	23.16	22.70	22.51	0	0
	1	50	22.72	22.37	22.61	22.58	22.52		0
	1	99	22.95	22.34	22.65	22.45	22.55		0
	50	0	21.71	21.44	21.66	21.58	21.59	0-1	1
	50	25	21.76	21.42	21.66	21.56	21.57		1
	50	50	21.76	21.46	21.78	21.61	21.58		1
	100	0	21.77	21.45	21.68	21.54	21.59		1
16QAM	1	0	22.07	21.78	21.97	21.36	21.90	0-1	1
	1	50	22.01	21.81	21.96	21.36	21.91		1
	1	99	22.00	21.78	22.01	21.43	21.88		1
	50	0	21.02	20.76	20.95	20.84	20.89	0-2	2
	50	25	21.00	20.78	20.97	20.84	20.87		2
	50	50	20.99	20.81	20.98	20.85	20.84		2
	100	0	21.03	20.69	20.96	20.82	20.81		2
64QAM	1	0	21.19	20.62	20.85	20.73	20.66	0-2	2
	1	50	21.14	20.62	20.88	20.76	20.63		2
	1	99	21.14	20.64	20.92	20.78	20.65		2
	50	0	20.10	19.69	19.91	19.82	19.74	0-3	3
	50	25	20.06	19.68	19.96	19.86	19.74		3
	50	50	20.05	19.68	19.98	19.86	19.78		3
	100	0	20.10	19.71	19.93	19.82	19.79		3

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Table 9-62
LTE Band 41 Maximum 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	22.42	22.60	22.89	22.75	22.72	0	0
	1	36	22.41	22.64	22.92	22.78	22.75		0
	1	74	22.34	22.60	22.90	22.76	22.75		0
	36	0	21.85	21.90	21.90	21.97	22.01	0-1	1
	36	18	21.80	21.88	21.93	22.00	22.02		1
	36	37	21.78	21.89	21.94	21.97	22.01		1
	75	0	21.81	21.88	21.91	21.96	22.02		1
16QAM	1	0	21.27	21.91	22.17	21.84	21.93	0-1	1
	1	36	21.24	22.01	22.13	21.82	21.98		1
	1	74	21.25	22.02	22.16	21.83	22.00		1
	36	0	20.80	20.87	20.99	20.92	20.90	0-2	2
	36	18	20.77	21.00	20.96	20.93	20.92		2
	36	37	20.77	21.00	20.96	20.96	20.93		2
	75	0	20.78	21.02	20.96	21.02	20.94		2
64QAM	1	0	20.43	20.81	21.15	20.59	20.84	0-2	2
	1	36	20.35	20.79	21.13	20.57	20.84		2
	1	74	20.29	20.83	21.17	20.55	20.84		2
	36	0	19.81	19.88	20.02	19.99	20.01	0-3	3
	36	18	19.79	19.93	20.02	19.98	19.97		3
	36	37	19.82	19.87	19.97	20.00	19.98		3
	75	0	19.83	19.86	19.99	19.97	19.99		3

Table 9-63
LTE Band 41 Maximum 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	22.49	22.78	22.82	22.85	22.94	0	0
	1	25	22.50	22.76	22.81	22.85	22.94		0
	1	49	22.47	22.73	22.94	22.84	22.89		0
	25	0	21.50	21.81	21.94	21.89	21.91	0-1	1
	25	12	21.49	21.78	21.95	21.86	21.55		1
	25	25	21.49	21.78	21.93	21.87	21.92		1
	50	0	21.49	21.79	21.82	21.86	21.94		1
16QAM	1	0	21.22	21.74	21.89	21.78	21.77	0-1	1
	1	25	21.60	21.74	21.84	21.76	21.78		1
	1	49	21.52	21.73	21.80	21.81	21.73		1
	25	0	20.43	20.90	21.01	20.87	20.89	0-2	2
	25	12	20.21	20.86	21.01	20.82	20.85		2
	25	25	20.42	20.86	21.00	20.81	20.86		2
	50	0	20.52	20.93	20.99	20.91	20.97		2
64QAM	1	0	20.59	21.08	21.17	20.93	20.92	0-2	2
	1	25	20.64	21.09	21.13	20.89	20.91		2
	1	49	20.60	21.08	21.13	20.73	21.05		2
	25	0	19.49	19.90	20.01	19.93	20.01	0-3	3
	25	12	19.48	19.89	20.02	19.91	19.98		3
	25	25	19.48	19.89	19.99	19.93	19.99		3
	50	0	19.57	19.97	19.98	20.01	20.00		3

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Table 9-64
LTE Band 41 Maximum 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	22.48	22.82	22.82	22.85	22.88	0	0
	1	12	22.49	22.77	22.84	22.86	22.90		0
	1	24	22.48	22.82	22.82	22.81	22.87		0
	12	0	21.52	21.89	21.96	21.84	21.94	0-1	1
	12	6	21.52	21.64	21.95	21.85	21.94		1
	12	13	21.51	21.88	21.94	21.85	21.93		1
	25	0	21.50	21.88	21.94	21.86	21.94		1
16QAM	1	0	21.35	21.84	22.02	21.70	21.76	0-1	1
	1	12	21.38	21.87	22.02	21.75	21.75		1
	1	24	21.33	21.86	22.01	21.71	21.69		1
	12	0	20.38	20.85	21.01	20.83	20.78	0-2	2
	12	6	20.38	20.83	21.00	20.80	20.70		2
	12	13	20.36	20.83	21.00	20.67	20.81		2
	25	0	20.50	20.88	20.95	20.87	20.87		2
64QAM	1	0	20.58	21.04	21.18	21.09	21.02	0-2	2
	1	12	20.51	21.00	21.06	20.94	20.95		2
	1	24	20.48	20.98	21.05	21.03	20.96		2
	12	0	19.52	19.92	19.93	19.97	20.00	0-3	3
	12	6	19.50	19.92	19.90	19.96	19.99		3
	12	13	19.50	19.90	19.88	19.96	19.99		3
	25	0	19.51	19.89	19.89	19.93	19.94		3

Table 9-65
LTE Band 41 Maximum 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	26.60	26.28	26.33	26.10	26.45	0	0
	1	50	26.54	26.22	25.92	26.12	26.43		0
	1	99	26.48	26.42	25.96	26.20	26.40		0
	50	0	26.56	26.23	26.09	26.31	26.31	0-1	0
	50	25	26.57	26.25	26.10	26.32	26.30		0
	50	50	26.54	26.27	26.14	26.35	26.28		0
	100	0	26.55	26.22	26.13	26.33	26.27		0
16QAM	1	0	26.59	26.00	25.50	25.85	25.99	0-1	0
	1	50	26.53	26.01	25.56	25.87	26.06		0
	1	99	26.52	25.96	25.60	25.96	26.20		0
	50	0	25.46	25.23	25.13	25.32	25.32	0-2	1
	50	25	25.47	25.19	25.14	25.35	25.31		1
	50	50	25.54	25.24	25.17	25.40	25.28		1
	100	0	25.49	25.24	25.10	25.30	25.27		1
64QAM	1	0	25.28	25.06	24.76	24.66	24.94	0-2	1
	1	50	25.21	25.05	24.83	24.74	24.91		1
	1	99	25.44	25.03	24.92	24.77	24.97		1
	50	0	24.55	24.33	24.11	24.35	24.33	0-3	2
	50	25	24.56	24.32	24.15	24.36	24.27		2
	50	50	24.58	24.34	24.17	24.40	24.30		2
	100	0	24.62	24.29	24.22	24.37	24.28		2

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Table 9-66
LTE Band 41 Maximum 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	26.51	26.15	26.02	26.23	26.11	0	0
	1	36	26.50	26.17	26.07	26.27	26.14		0
	1	74	26.46	26.15	26.10	26.29	26.15		0
	36	0	25.65	25.37	25.40	25.61	25.51	0-1	0
	36	18	25.66	25.40	25.42	25.64	25.52		0
	36	37	25.67	25.41	25.42	25.65	25.52		0
	75	0	25.66	25.40	25.40	25.62	25.51		0
16QAM	1	0	25.79	25.41	25.23	25.93	25.66	0-1	0
	1	36	25.87	25.46	25.29	26.04	25.51		0
	1	74	25.92	25.41	25.33	26.00	25.62		0
	36	0	24.77	24.47	24.43	24.65	24.54	0-2	1
	36	18	24.74	24.48	24.43	24.68	24.53		1
	36	37	24.75	24.47	24.46	24.68	24.56		1
	75	0	24.76	24.46	24.42	24.64	24.52		1
64QAM	1	0	24.81	24.29	24.44	24.52	24.38	0-2	1
	1	36	24.81	24.33	24.61	24.59	24.43		1
	1	74	24.81	24.38	24.65	24.57	24.40		1
	36	0	23.73	23.37	23.43	23.63	23.51	0-3	2
	36	18	23.69	23.38	23.47	23.64	23.50		2
	36	37	23.70	23.41	23.48	23.62	23.51		2
	75	0	23.73	23.46	23.43	23.64	23.54		2

Table 9-67
LTE Band 41 Maximum 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	26.43	26.15	26.00	26.22	26.18	0	0
	1	25	26.44	26.25	26.05	26.26	26.19		0
	1	49	26.41	26.22	26.01	26.26	26.18		0
	25	0	25.79	25.50	25.36	25.63	25.51	0-1	0
	25	12	25.79	25.50	25.38	25.64	25.53		0
	25	25	25.79	25.50	25.38	25.64	25.52		0
	50	0	25.77	25.50	25.35	25.64	25.51		0
16QAM	1	0	25.52	25.51	25.40	25.38	25.35	0-1	0
	1	25	25.51	25.53	25.28	25.40	25.34		0
	1	49	25.61	25.55	25.29	25.42	25.36		0
	25	0	24.88	24.60	24.37	24.65	24.53	0-2	1
	25	12	24.87	24.60	24.39	24.67	24.52		1
	25	25	24.86	24.61	24.41	24.66	24.52		1
	50	0	24.93	24.59	24.47	24.73	24.57		1
64QAM	1	0	24.91	24.67	24.09	24.87	24.57	0-2	1
	1	25	24.88	24.69	24.11	24.85	24.60		1
	1	49	24.88	24.65	24.15	24.84	24.58		1
	25	0	23.89	23.55	23.48	23.71	23.51	0-3	2
	25	12	23.86	23.54	23.47	23.64	23.52		2
	25	25	23.88	23.54	23.47	23.64	23.53		2
	50	0	23.89	23.56	23.36	23.71	23.54		2

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Table 9-68
LTE Band 41 Maximum 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	26.48	26.16	26.05	26.33	26.08	0	0
	1	12	26.55	26.21	26.13	26.30	26.11		0
	1	24	26.52	26.15	26.10	26.24	26.09		0
	12	0	25.98	25.70	25.60	25.84	25.74	0-1	0
	12	6	25.98	25.71	25.61	25.84	25.73		0
	12	13	25.97	25.73	25.60	25.84	25.73		0
	25	0	25.97	25.73	25.59	25.83	25.72		0
16QAM	1	0	25.78	25.51	25.78	25.60	25.59	0-1	0
	1	12	25.89	25.49	25.66	25.63	25.60		0
	1	24	25.86	25.50	25.64	25.60	25.59		0
	12	0	25.12	24.74	24.56	24.84	24.76	0-2	1
	12	6	25.10	24.79	24.49	24.83	24.73		1
	12	13	25.10	24.80	24.49	24.83	24.67		1
	25	0	25.06	24.72	24.60	24.85	24.74		1
64QAM	1	0	25.32	24.73	24.57	24.56	24.62	0-2	1
	1	12	25.33	24.75	24.60	24.59	24.64		1
	1	24	25.30	24.84	24.59	24.60	24.66		1
	12	0	24.05	23.72	23.54	23.70	23.66	0-3	2
	12	6	24.01	23.68	23.63	23.70	23.73		2
	12	13	24.02	23.66	23.64	23.71	23.73		2
	25	0	24.09	23.77	23.60	23.85	23.69		2

Table 9-69
LTE Band 41 PC3 Reduced Conducted Powers - 20 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Active

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	19.88	19.55	19.55	19.55	19.53	0	0
	1	50	19.80	19.53	19.57	19.59	19.52		0
	1	99	19.89	19.56	19.65	19.63	19.54		0
	50	0	19.73	19.52	19.66	19.51	19.55	0-1	0
	50	25	19.74	19.53	19.67	19.56	19.58		0
	50	50	19.90	19.51	19.72	19.55	19.54		0
	100	0	19.72	19.50	19.63	19.57	19.53		0
16QAM	1	0	19.96	19.59	19.53	19.30	19.57	0-1	0
	1	50	19.95	19.36	19.50	19.34	19.56		0
	1	99	19.95	19.37	19.55	19.37	19.54		0
	50	0	19.72	19.51	19.69	19.47	19.60	0-2	0
	50	25	19.71	19.44	19.70	19.46	19.56		0
	50	50	19.73	19.48	19.68	19.46	19.56		0
	100	0	19.75	19.41	19.66	19.56	19.51		0
64QAM	1	0	19.80	19.35	19.44	19.32	19.35	0-2	0
	1	50	19.76	19.39	19.43	19.36	19.33		0
	1	99	19.74	19.40	19.52	19.43	19.36		0
	50	0	19.73	19.35	19.57	19.53	19.45	0-3	0
	50	25	19.72	19.32	19.63	19.55	19.44		0
	50	50	19.73	19.37	19.66	19.56	19.43		0
	100	0	19.71	19.39	19.63	19.52	19.46		0

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Table 9-70

LTE Band 41 PC3 Reduced Conducted Powers - 15 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Active

LTE Band 41									
15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	19.49	20.01	19.94	19.65	19.93	0	0
	1	36	19.55	20.02	19.93	19.82	19.96		0
	1	74	19.45	19.99	19.64	19.72	19.91		0
	36	0	19.49	20.02	19.81	19.54	19.89	0-1	0
	36	18	19.53	20.01	19.97	19.81	19.97		0
	36	37	19.46	20.00	19.79	19.72	19.89		0
	75	0	19.54	19.98	19.90	19.72	19.88		0
16QAM	1	0	19.42	20.03	19.86	19.62	19.63	0-1	0
	1	36	19.41	19.79	19.81	19.46	19.63		0
	1	74	19.57	19.82	19.66	19.64	19.62		0
	36	0	19.43	20.02	19.87	19.45	19.88	0-2	0
	36	18	19.57	20.04	19.88	19.73	19.85		0
	36	37	19.42	20.03	19.89	19.64	19.90		0
	75	0	19.43	20.05	19.91	19.70	19.82		0
64QAM	1	0	19.59	19.99	19.99	19.88	19.94	0-2	0
	1	36	19.58	19.94	20.01	19.77	19.98		0
	1	74	19.52	19.88	19.97	19.87	19.79		0
	36	0	19.55	20.06	19.92	19.82	19.93	0-3	0
	36	18	19.49	20.02	19.91	19.77	19.90		0
	36	37	19.44	20.04	19.89	19.80	19.92		0
	75	0	19.48	19.99	19.90	19.67	19.95		0

Table 9-71

LTE Band 41 PC3 Reduced Conducted Powers - 10 MHz Bandwidth – Hotspot/Earjack Mode and/or RCV Active

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	19.51	20.02	19.99	19.74	19.99	0	0
	1	25	19.65	20.03	19.94	19.81	20.00		0
	1	49	19.43	20.06	19.86	19.59	19.92		0
	25	0	19.48	20.01	20.03	19.65	19.91	0-1	0
	25	12	19.51	20.02	19.88	19.74	19.95		0
	25	25	19.48	20.07	19.90	19.68	19.91		0
	50	0	19.40	20.05	19.86	19.63	19.94		0
16QAM	1	0	19.37	19.74	19.81	19.58	19.78	0-1	0
	1	25	19.62	19.86	19.78	19.46	19.65		0
	1	49	19.55	19.88	19.65	19.44	19.63		0
	25	0	19.53	19.98	19.97	19.61	19.96	0-2	0
	25	12	19.57	20.02	19.93	19.76	19.90		0
	25	25	19.49	20.04	19.96	19.76	19.93		0
	50	0	19.48	20.03	19.92	19.75	19.93		0
64QAM	1	0	19.60	19.79	20.02	19.44	20.04	0-2	0
	1	25	19.40	19.89	20.05	19.75	20.05		0
	1	49	19.53	19.70	19.93	19.90	20.02		0
	25	0	19.43	19.97	19.89	19.89	20.06	0-3	0
	25	12	19.52	20.05	19.87	19.77	19.63		0
	25	25	19.41	20.01	19.90	19.68	19.82		0
	50	0	19.45	20.04	19.95	19.70	19.94		0

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Table 9-72

LTE Band 41 PC3 Reduced Conducted Powers - 5 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Active

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	19.55	20.02	19.98	19.77	19.89	0	0
	1	12	19.58	20.04	20.00	19.70	19.95		0
	1	24	19.53	20.06	19.93	19.66	19.93		0
	12	0	19.57	20.03	19.93	19.66	19.95	0-1	0
	12	6	19.56	20.01	19.98	19.68	19.92		0
	12	13	19.45	20.07	19.98	19.67	19.90		0
	25	0	19.44	20.04	19.91	19.66	19.89		0
16QAM	1	0	19.50	20.03	19.92	19.40	19.67	0-1	0
	1	12	19.56	20.02	19.64	19.45	19.74		0
	1	24	19.52	19.88	19.61	19.60	19.64		0
	12	0	19.46	19.98	19.65	19.56	19.85	0-2	0
	12	6	19.47	20.06	19.89	19.58	19.87		0
	12	13	19.45	20.05	19.88	19.63	19.88		0
	25	0	19.48	20.01	19.73	19.72	19.85		0
64QAM	1	0	19.65	19.99	19.95	19.51	19.88	0-2	0
	1	12	19.58	19.86	20.05	19.97	19.99		0
	1	24	19.65	20.00	19.83	19.49	19.85		0
	12	0	19.50	20.01	19.97	19.48	19.93	0-3	0
	12	6	19.46	20.04	19.95	19.53	19.86		0
	12	13	19.53	20.05	19.96	19.63	19.95		0
	25	0	19.48	20.04	19.93	19.65	19.89		0

Table 9-73

LTE Band 41 PC2 Reduced Conducted Powers - 20 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Active

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	20.31	20.14	19.88	20.13	20.40	0	0
	1	50	20.30	20.19	19.95	20.14	20.46		0
	1	99	20.15	20.13	19.89	20.22	20.44		0
	50	0	20.06	20.29	20.11	20.33	20.38	0-1	0
	50	25	20.11	20.27	20.10	20.37	20.35		0
	50	50	20.08	20.29	20.16	20.41	20.37		0
	100	0	20.16	20.28	20.16	20.37	20.35		0
16QAM	1	0	19.80	20.34	19.85	19.85	20.24	0-1	0
	1	50	19.83	20.15	19.66	20.05	20.02		0
	1	99	19.86	20.21	19.65	19.90	20.00		0
	50	0	20.16	20.24	20.19	20.35	20.39	0-2	0
	50	25	20.21	20.22	20.21	20.37	20.36		0
	50	50	20.27	20.24	20.16	20.38	20.40		0
	100	0	20.27	20.26	20.11	20.47	20.33		0
64QAM	1	0	19.89	19.90	19.62	19.95	19.84	0-2	0
	1	50	19.92	20.02	19.75	19.99	20.07		0
	1	99	20.00	20.07	19.90	20.07	19.75		0
	50	0	20.32	20.26	20.11	20.42	20.34	0-3	0
	50	25	20.21	20.29	20.14	20.40	20.33		0
	50	50	20.22	20.31	20.17	20.41	20.32		0
	100	0	20.21	20.27	20.14	20.35	20.36		0

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Table 9-74

LTE Band 41 PC2 Reduced Conducted Powers - 15 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Active

LTE Band 41									
15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	20.57	20.64	20.29	20.16	20.32	0	0
	1	36	20.54	20.60	20.32	20.17	20.47		0
	1	74	20.50	20.70	20.44	20.18	20.43		0
	36	0	20.48	20.56	20.33	20.09	20.52	0-1	0
	36	18	20.44	20.55	20.46	20.03	20.32		0
	36	37	20.40	20.51	20.32	19.99	20.32		0
	75	0	20.42	20.55	20.33	20.09	20.31		0
16QAM	1	0	19.98	20.11	19.91	20.00	20.42	0-1	0
	1	36	19.93	20.20	20.14	19.69	20.46		0
	1	74	19.90	19.96	20.05	19.84	20.40		0
	36	0	20.43	20.42	20.23	19.96	20.30	0-2	0
	36	18	20.40	20.50	20.27	20.08	20.31		0
	36	37	20.40	20.55	20.24	19.97	20.25		0
	75	0	20.38	20.62	20.33	19.99	20.30		0
64QAM	1	0	20.54	20.14	20.38	19.85	20.43	0-2	0
	1	36	20.80	20.05	20.36	19.77	20.46		0
	1	74	20.23	20.16	20.25	19.79	20.46		0
	36	0	20.41	20.06	20.31	20.09	20.31	0-3	0
	36	18	20.42	20.50	20.31	20.01	20.33		0
	36	37	20.43	20.51	20.30	19.99	20.21		0
	75	0	20.39	20.54	20.31	20.05	20.32		0

Table 9-75

LTE Band 41 PC2 Reduced Conducted Powers - 10 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Active

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	19.89	20.60	20.43	20.50	20.34	0	0
	1	25	20.16	20.64	20.41	20.59	20.55		0
	1	49	19.94	20.56	20.32	20.61	20.47		0
	25	0	19.96	20.55	20.32	20.56	20.27	0-1	0
	25	12	19.83	20.52	20.28	20.61	20.33		0
	25	25	19.91	20.55	20.30	20.54	20.25		0
	50	0	19.83	20.51	20.27	20.51	20.22		0
16QAM	1	0	19.55	19.89	20.22	20.33	19.88	0-1	0
	1	25	19.62	20.15	20.15	20.17	19.87		0
	1	49	19.39	19.98	20.26	20.52	19.97		0
	25	0	19.82	20.59	20.32	20.59	20.22	0-2	0
	25	12	19.98	20.56	20.31	20.53	20.23		0
	25	25	19.86	20.62	20.19	20.47	20.28		0
	50	0	19.81	20.50	20.29	20.54	20.23		0
64QAM	1	0	20.03	20.29	20.21	20.13	20.17	0-2	0
	1	25	19.70	20.09	20.22	20.15	20.20		0
	1	49	19.70	20.13	20.24	20.07	20.19		0
	25	0	19.85	20.37	20.31	20.52	20.18	0-3	0
	25	12	19.93	20.44	20.36	20.47	20.30		0
	25	25	19.95	20.52	20.29	20.47	20.21		0
	50	0	19.91	20.53	20.36	20.51	20.23		0

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Table 9-76
LTE Band 41 PC2 Reduced Conducted Powers - 5 MHz Bandwidth - Hotspot/Earjack Mode and/or RCV Active

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	20.11	20.63	20.37	20.55	20.33	0	0
	1	12	19.99	20.55	20.41	20.41	20.45		0
	1	24	19.85	20.68	20.43	20.22	20.14		0
	12	0	19.89	20.57	20.26	20.36	20.22	0-1	0
	12	6	19.85	20.56	20.38	20.41	20.20		0
	12	13	19.95	20.54	20.34	20.47	20.21		0
	25	0	19.87	19.89	20.25	20.54	20.17		0
16QAM	1	0	19.87	19.97	19.99	20.45	19.78	0-1	0
	1	12	19.83	19.75	19.98	20.04	19.92		0
	1	24	19.87	20.05	19.95	20.46	20.04		0
	12	0	19.95	20.32	20.31	20.36	20.09	0-2	0
	12	6	19.89	20.41	20.33	20.42	20.29		0
	12	13	19.98	20.14	20.35	19.98	20.25		0
	25	0	19.92	20.22	20.25	20.19	20.17		0
64QAM	1	0	19.78	20.24	20.59	20.22	20.22	0-2	0
	1	12	19.79	19.89	20.57	20.11	20.18		0
	1	24	19.78	19.99	20.58	20.16	20.05		0
	12	0	20.02	20.16	20.13	20.21	20.27	0-3	0
	12	6	19.98	20.35	20.12	20.27	20.39		0
	12	13	20.00	20.44	20.17	20.23	20.25		0
	25	0	19.89	20.47	20.16	20.27	20.33		0

9.4.10 LTE Uplink Carrier Aggregation Conducted Powers

Table 9-77
LTE Uplink Carrier Aggregation Maximum Conducted Powers

Combination	PCC							SCC						Power		
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA_41C	LTE B41	20	40620	2593.0	QPSK	1	0	LTE B41	20	40422	2573.2	QPSK	1	99	22.50	23.16

Table 9-78
LTE Uplink Carrier Aggregation Reduced Conducted Powers - Hotspot Mode/Earjack Mode and/or RCV Mode Active

Combination	PCC							SCC							Power	
	PCC Band	PCC Bandwidth [MHz]	PCC (UL/DL) Channel	PCC (UL/DL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL/DL) Channel	SCC (UL/DL) Frequency [MHz]	Modulation	SCC UL# RB	SCC UL RB Offset	LTE Tx.Power with UL CA Enabled (dBm)	LTE Single Carrier Tx Power (dBm)
CA 41C	LTE B41	20	39750	2506.0	QPSK	50	50	LTE B41	20	39948	2525.8	QPSK	50	0	19.70	19.90

Notes:

1. This device supports uplink carrier aggregation for LTE CA_41C with a maximum of two component carriers. For intraband contiguous carrier aggregation scenarios, 3GPP 36.101 Table 6.2.2A-1 specifies that the aggregate maximum allowed output power is equivalent to the single carrier scenario. 3GPP 36.101 6.2.3A allows for several dB of MPR to be applied when non-contiguous RB allocation is implemented. The conducted powers and MPR settings in this device are permanently implemented per the above 3GPP requirements.
2. Per FCC Guidance, the output power with uplink CA active was measured for the configuration with the highest reported SAR with single carrier for each exposure condition. The power was measured with wideband signal integration over both component carriers.
3. Uplink carrier aggregation is only possible when the device is operating with Power Class 3 for LTE Band 41.

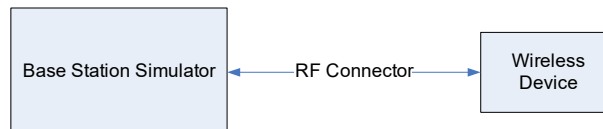


Figure 9-4
Power Measurement Setup

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9.5 WLAN Conducted Powers

Table 9-79
2.4 GHz WLAN Maximum Average RF Power

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	20.82	18.91	18.87
2437	6	20.61	18.55	18.52
2462	11	20.42	18.78	18.46

Table 9-80
5 GHz WLAN Maximum Average RF Power

5GHz (20MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
		Average	Average	Average
5180	36	17.77	17.13	17.23
5200	40	17.41	17.21	17.37
5220	44	17.58	17.68	17.70
5240	48	17.65	17.77	17.74
5260	52	17.83	17.59	17.91
5280	56	17.79	17.81	17.72
5300	60	17.94	17.74	17.77
5320	64	17.97	17.85	17.93
5500	100	17.99	17.98	17.99
5600	120	17.98	17.90	17.96
5620	124	17.87	17.92	17.97
5720	144	17.30	17.04	17.04
5745	149	17.79	17.72	17.70
5785	157	17.86	17.62	17.92
5825	165	17.65	17.51	17.83

Table 9-81
2.4 GHz WLAN Reduced Average RF Power

2.4GHz Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11b	802.11g	802.11n
		Average	Average	Average
2412	1	17.70	17.71	17.70
2437	6	17.73	17.99	17.35
2462	11	17.54	17.97	17.88

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Table 9-82
5 GHz WLAN Reduced Average RF Power

5GHz (40MHz) Conducted Power [dBm]			
Freq [MHz]	Channel	IEEE Transmission Mode	
		802.11n	802.11ac
		Average	Average
5190	38	14.82	14.60
5230	46	15.61	15.94
5270	54	15.74	15.80
5310	62	14.87	14.85
5510	102	14.75	14.75
5550	110	15.76	15.61
5590	118	15.71	15.52
5630	126	15.63	15.73
5710	142	15.80	15.62
5755	151	15.85	15.82
5795	159	15.68	15.65

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

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

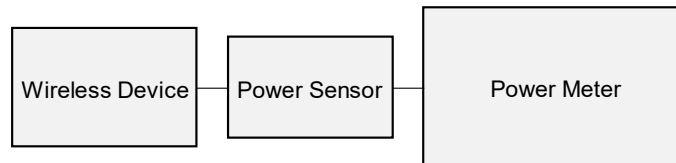


Figure 9-5
Power Measurement Setup

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9.6 Bluetooth Conducted Powers

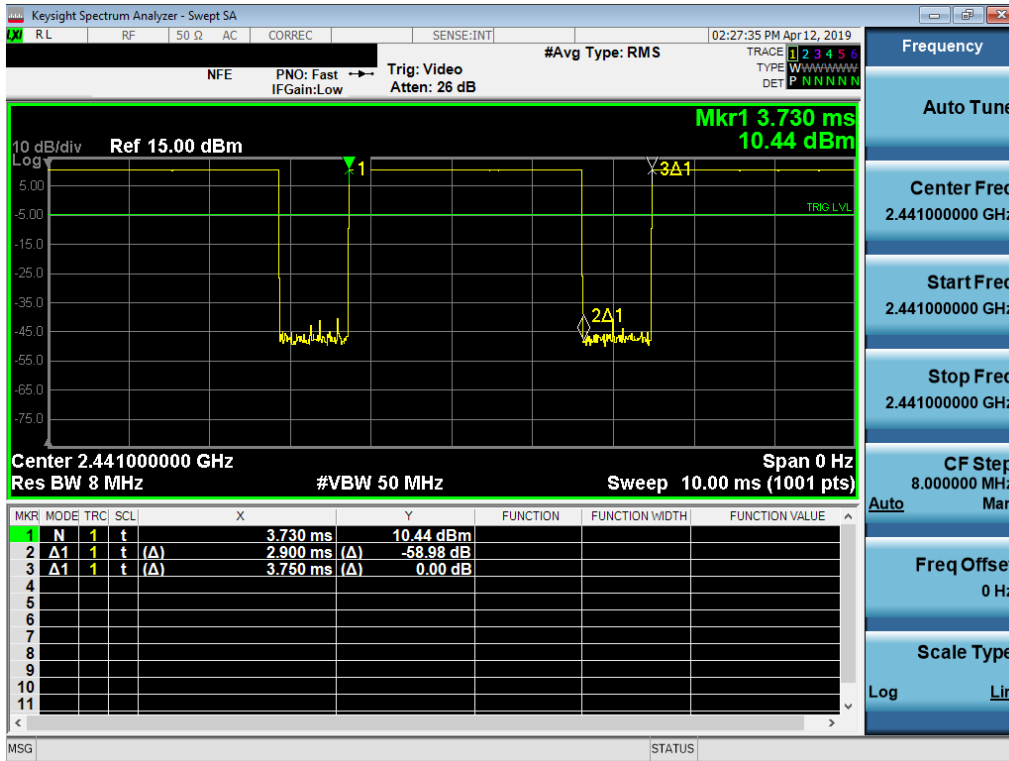
Table 9-83
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	9.53	8.965
2441	1.0	39	10.38	10.905
2480	1.0	78	8.95	7.847
2402	2.0	0	6.82	4.807
2441	2.0	39	7.64	5.813
2480	2.0	78	6.15	4.121
2402	3.0	0	6.90	4.899
2441	3.0	39	7.71	5.907
2480	3.0	78	6.23	4.195

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

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Figure 9-6
Bluetooth Transmission Plot



Equation 9-1
Bluetooth Duty Cycle Calculation

$$\text{Duty Cycle} = \frac{\text{Pulse Width}}{\text{Period}} * 100\% = \frac{2.90\text{ms}}{3.75\text{ms}} * 100\% = 77.3\%$$

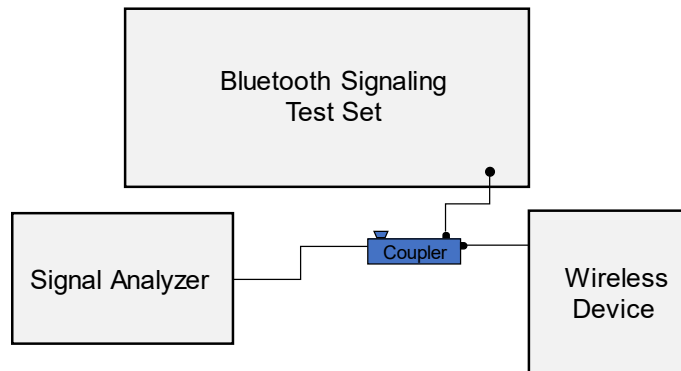


Figure 9-7
Power Measurement Setup

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10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
Measured Head Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
4/24/2019	750H	21.1	700	0.877	42.054	0.889	42.201	-1.35%	-0.35%
			710	0.880	42.017	0.890	42.149	-1.12%	-0.31%
			740	0.891	41.936	0.893	41.994	-0.22%	-0.14%
			755	0.896	41.904	0.894	41.916	0.22%	-0.03%
			770	0.901	41.873	0.895	41.838	0.67%	0.08%
5/1/2019	750H	22.3	785	0.907	41.816	0.896	41.760	1.23%	0.13%
			680	0.896	43.151	0.888	42.305	0.90%	2.00%
			695	0.901	43.105	0.889	42.227	1.35%	2.08%
			740	0.917	42.962	0.893	41.994	2.69%	2.31%
			755	0.922	42.918	0.894	41.916	3.13%	2.39%
4/15/2019	835H	20.6	820	0.915	41.988	0.899	41.578	1.78%	0.99%
			835	0.920	41.957	0.900	41.500	2.22%	1.10%
			850	0.925	41.929	0.916	41.500	0.98%	1.03%
4/17/2019	835H	21.8	820	0.925	41.421	0.899	41.578	2.89%	-0.38%
			835	0.930	41.382	0.900	41.500	3.33%	-0.28%
			850	0.935	41.346	0.916	41.500	2.07%	-0.37%
4/10/2019	1750H	22.7	1710	1.325	38.729	1.348	40.142	-1.71%	-3.52%
			1750	1.350	38.660	1.371	40.079	-1.53%	-3.54%
			1790	1.373	38.604	1.394	40.016	-1.51%	-3.53%
4/28/2019	1750H	21.5	1710	1.343	40.035	1.348	40.142	-0.37%	-0.27%
			1750	1.367	39.973	1.371	40.079	-0.29%	-0.26%
			1790	1.392	39.914	1.394	40.016	-0.14%	-0.25%
4/10/2019	1900H	22.1	1850	1.391	41.205	1.400	40.000	-0.64%	3.01%
			1880	1.423	41.106	1.400	40.000	1.64%	2.77%
			1910	1.457	41.010	1.400	40.000	4.07%	2.52%
4/19/2019	1900H	23.0	1850	1.429	39.158	1.400	40.000	2.07%	-2.11%
			1880	1.447	39.120	1.400	40.000	3.36%	-2.20%
			1910	1.465	39.080	1.400	40.000	4.64%	-2.30%
4/23/2019	2450H	22.5	2400	1.770	37.398	1.756	39.289	0.80%	-4.81%
			2450	1.805	37.334	1.800	39.200	0.28%	-4.76%
			2500	1.840	37.258	1.855	39.136	-0.81%	-4.80%
4/29/2019	2450H-2600H	22.8	2450	1.792	38.836	1.800	39.200	-0.44%	-0.93%
			2500	1.830	38.768	1.855	39.136	-1.35%	-0.94%
			2550	1.867	38.672	1.909	39.073	-2.20%	-1.03%
			2600	1.905	38.595	1.964	39.009	-3.00%	-1.06%
5/6/2019	2450H	21.2	2400	1.780	37.935	1.756	39.289	1.37%	-3.45%
			2450	1.819	37.837	1.800	39.200	1.06%	-3.48%
			2500	1.858	37.767	1.855	39.136	0.16%	-3.50%
			2550	1.896	37.660	1.909	39.073	-0.68%	-3.62%
5/8/2019	2450H-2600H	22.3	2450	1.797	37.892	1.800	39.200	-0.17%	-3.34%
			2500	1.833	37.843	1.855	39.136	-1.19%	-3.30%
			2550	1.871	37.757	1.909	39.073	-1.99%	-3.37%
			2600	1.912	37.696	1.964	39.009	-2.65%	-3.37%
5/13/2019	2600H	19.5	2500	1.920	38.842	1.855	39.136	3.50%	-0.75%
			2550	1.962	38.727	1.909	39.073	2.78%	-0.89%
			2600	2.009	38.631	1.964	39.009	2.29%	-0.97%
05/03/2019	5200H-5800H	21.6	5240	4.603	35.400	4.696	35.940	-1.98%	-1.50%
			5260	4.626	35.360	4.717	35.917	-1.93%	-1.55%
			5280	4.649	35.322	4.737	35.894	-1.86%	-1.59%
			5600	5.004	34.758	5.065	35.529	-1.20%	-2.17%
			5700	5.122	34.590	5.168	35.414	-0.89%	-2.33%
			5745	5.179	34.492	5.214	35.363	-0.67%	-2.46%
			5765	5.202	34.452	5.234	35.340	-0.61%	-2.51%

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Table 10-2
Measured Body Tissue Properties

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
4/18/2019	750B	22.2	680	0.924	55.512	0.958	55.804	-3.55%	-0.52%
			695	0.929	55.482	0.959	55.745	-3.13%	-0.47%
			700	0.931	55.469	0.959	55.726	-2.92%	-0.46%
			710	0.934	55.449	0.960	55.687	-2.71%	-0.43%
			740	0.946	55.364	0.963	55.570	-1.77%	-0.37%
			755	0.952	55.314	0.964	55.512	-1.24%	-0.36%
			770	0.958	55.274	0.965	55.453	-0.73%	-0.32%
			785	0.964	55.239	0.966	55.395	-0.21%	-0.28%
4/22/2019	750B	21.0	680	0.918	55.246	0.958	55.804	-4.18%	-1.00%
			695	0.924	55.211	0.959	55.745	-3.65%	-0.96%
			740	0.941	55.109	0.963	55.570	-2.28%	-0.83%
			755	0.946	55.075	0.964	55.512	-1.87%	-0.79%
4/16/2019	835B	22.6	820	0.982	54.505	0.969	55.258	1.34%	-1.36%
			835	0.988	54.474	0.970	55.200	1.86%	-1.32%
			850	0.994	54.443	0.988	55.154	0.61%	-1.29%
4/22/2019	835B	21.9	820	0.977	55.433	0.969	55.258	0.83%	0.32%
			835	0.992	55.293	0.970	55.200	2.27%	0.17%
			850	1.007	55.155	0.988	55.154	1.92%	0.00%
4/25/2019	835B	23.0	820	0.970	52.718	0.969	55.258	0.10%	-4.60%
			835	0.985	52.569	0.970	55.200	1.55%	-4.77%
			850	1.000	52.420	0.988	55.154	1.21%	-4.96%
4/11/2019	1750B	21.5	1710	1.451	51.678	1.463	53.537	-0.82%	-3.47%
			1750	1.495	51.531	1.488	53.432	0.47%	-3.56%
			1790	1.536	51.374	1.514	53.326	1.45%	-3.66%
4/15/2019	1750B	21.5	1710	1.473	51.557	1.463	53.537	0.68%	-3.70%
			1750	1.519	51.409	1.488	53.432	2.08%	-3.79%
			1790	1.563	51.242	1.514	53.326	3.24%	-3.91%
4/24/2019	1750B	22.7	1710	1.476	52.158	1.463	53.537	0.89%	-2.58%
			1750	1.505	52.108	1.488	53.432	1.14%	-2.48%
			1790	1.535	52.039	1.514	53.326	1.39%	-2.41%
4/8/2019	1900B	22.8	1850	1.499	51.316	1.520	53.300	-1.38%	-3.72%
			1880	1.531	51.215	1.520	53.300	0.72%	-3.91%
			1910	1.564	51.143	1.520	53.300	2.89%	-4.05%
4/17/2019	1900B	23.7	1850	1.516	52.789	1.520	53.300	-0.26%	-0.96%
			1880	1.549	52.679	1.520	53.300	1.91%	-1.17%
			1910	1.584	52.587	1.520	53.300	4.21%	-1.34%
4/23/2019	1900B	22.6	1850	1.504	52.383	1.520	53.300	-1.05%	-1.72%
			1880	1.538	52.295	1.520	53.300	1.18%	-1.89%
			1910	1.570	52.209	1.520	53.300	3.29%	-2.05%
4/25/2019	1900B	23.6	1850	1.520	52.630	1.520	53.300	0.00%	-1.26%
			1880	1.553	52.550	1.520	53.300	2.17%	-1.41%
			1910	1.585	52.474	1.520	53.300	4.28%	-1.55%
4/29/2019	1900B	22.9	1850	1.526	53.221	1.520	53.300	0.39%	-0.15%
			1880	1.560	53.108	1.520	53.300	2.63%	-0.36%
			1910	1.593	53.005	1.520	53.300	4.80%	-0.55%

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Table 10-3
Measured Body Tissue Properties Continued

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (°C)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ϵ	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ϵ	% dev σ	% dev ϵ
4/8/2019	2450B	22.4	2400	1.982	52.154	1.902	52.767	4.21%	-1.16%
			2450	2.040	52.022	1.950	52.700	4.62%	-1.29%
			2500	2.098	51.888	2.021	52.636	3.81%	-1.42%
4/29/2019	2450B-2600B	23.8	2400	1.981	51.268	1.902	52.767	4.15%	-2.84%
			2450	2.042	51.126	1.950	52.700	4.72%	-2.99%
			2500	2.102	50.972	2.021	52.636	4.01%	-3.16%
			2550	2.164	50.821	2.092	52.573	3.44%	-3.33%
5/8/2019	2450B-2600B	22.6	2600	2.225	50.654	2.163	52.509	2.87%	-3.53%
			2450	2.046	51.565	1.950	52.700	4.92%	-2.15%
			2500	2.107	51.421	2.021	52.636	4.26%	-2.31%
			2550	2.170	51.264	2.092	52.573	3.73%	-2.49%
			2600	2.232	51.100	2.163	52.509	3.19%	-2.68%
5/13/2019	2600B	22.2	2650	2.294	50.933	2.234	52.445	2.69%	-2.88%
			2700	2.356	50.769	2.305	52.382	2.21%	-3.08%
			2500	2.093	51.785	2.021	52.636	3.56%	-1.62%
			2550	2.154	51.641	2.092	52.573	2.96%	-1.77%
04/05/2019	5200B-5800B	21.3	2600	2.212	51.502	2.163	52.509	2.27%	-1.92%
			5240	5.430	47.278	5.346	48.960	1.57%	-3.44%
			5260	5.460	47.244	5.369	48.933	1.69%	-3.45%
			5320	5.540	47.129	5.439	48.851	1.86%	-3.53%
			5500	5.795	46.779	5.650	48.607	2.57%	-3.76%
			5600	5.948	46.593	5.766	48.471	3.16%	-3.87%
			5745	6.167	46.292	5.936	48.275	3.89%	-4.11%
			5765	6.205	46.252	5.959	48.248	4.13%	-4.14%
			5785	6.235	46.218	5.982	48.220	4.23%	-4.15%
			5825	6.290	46.158	6.029	48.166	4.33%	-4.17%

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB Publication 865664 D01v01r04 and IEEE 1528-2013 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

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10.2 Test System Verification

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

Table 10-4
System Verification Results – 1g Head

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} (%)
H	750	HEAD	04/24/2019	24.6	21.1	0.200	1003	7409	1.750	8.280	8.750	5.68%
H	750	HEAD	05/01/2019	23.2	22.3	0.200	1161	7409	1.710	8.030	8.550	6.48%
D	835	HEAD	04/15/2019	22.4	20.6	0.200	4d132	3914	1.950	9.590	9.750	1.67%
D	835	HEAD	04/17/2019	22.1	21.8	0.200	4d132	3914	1.980	9.590	9.900	3.23%
L	1750	HEAD	04/10/2019	23.0	22.7	0.100	1150	7308	3.590	36.500	35.900	-1.64%
H	1750	HEAD	04/28/2019	20.2	21.5	0.100	1148	7409	3.670	36.400	36.700	0.82%
D	1900	HEAD	04/10/2019	23.7	22.1	0.100	5d080	7357	4.290	39.800	42.900	7.79%
H	1900	HEAD	04/19/2019	24.4	23.2	0.100	5d080	7409	4.180	39.800	41.800	5.03%
E	2450	HEAD	04/23/2019	24.6	22.5	0.100	981	3589	4.980	52.300	49.800	-4.78%
E	2450	HEAD	04/29/2019	24.4	22.8	0.100	981	3589	5.280	52.300	52.800	0.96%
E	2450	HEAD	05/06/2019	22.9	21.2	0.100	981	3589	5.380	52.300	53.800	2.87%
E	2450	HEAD	05/08/2019	23.3	22.3	0.100	981	3589	5.120	52.300	51.200	-2.10%
E	2600	HEAD	04/29/2019	24.4	22.8	0.100	1064	3589	5.770	57.000	57.700	1.23%
E	2600	HEAD	05/08/2019	23.3	22.3	0.100	1064	3589	6.100	57.000	61.000	7.02%
E	2600	HEAD	05/13/2019	21.2	19.5	0.100	1064	3589	6.090	57.000	60.900	6.84%
H	5250	HEAD	05/03/2019	21.4	21.6	0.050	1237	7409	3.830	81.300	76.600	-5.78%
H	5600	HEAD	05/03/2019	21.4	21.6	0.050	1237	7409	4.110	85.700	82.200	-4.08%
H	5750	HEAD	05/03/2019	21.4	21.6	0.050	1237	7409	3.820	80.600	76.400	-5.21%

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Table 10-5
System Verification Results – 1g Body

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} (%)
L	750	BODY	04/18/2019	23.4	21.2	0.200	1161	7308	1.640	8.430	8.200	-2.73%
L	750	BODY	04/22/2019	21.9	20.5	0.200	1161	7308	1.630	8.430	8.150	-3.32%
J	835	BODY	04/16/2019	24.2	22.6	0.200	4d132	7488	1.880	9.670	9.400	-2.79%
I	835	BODY	04/22/2019	23.7	21.7	0.200	4d132	7406	1.980	9.670	9.900	2.38%
I	835	BODY	04/25/2019	24.2	23.0	0.200	4d132	7406	2.050	9.670	10.250	6.00%
J	1750	BODY	04/11/2019	22.5	21.5	0.100	1008	7488	3.600	37.400	36.000	-3.74%
J	1750	BODY	04/24/2019	23.3	22.7	0.100	1148	7488	3.700	37.000	37.000	0.00%
G	1900	BODY	04/08/2019	22.5	21.9	0.100	5d080	7410	4.190	39.200	41.900	6.89%
G	1900	BODY	04/17/2019	21.1	22.1	0.100	5d149	7410	4.220	39.400	42.200	7.11%
G	1900	BODY	04/25/2019	23.4	22.7	0.100	5d149	7410	4.250	39.400	42.500	7.87%
G	1900	BODY	04/29/2019	21.6	21.2	0.100	5d149	7410	4.300	39.400	43.000	9.14%
K	2450	BODY	04/08/2019	23.0	22.4	0.100	797	7417	5.060	51.100	50.600	-0.98%
K	2450	BODY	04/29/2019	22.2	21.9	0.100	797	7417	4.880	51.100	48.800	-4.50%
K	2450	BODY	05/08/2019	23.7	21.9	0.100	797	7417	5.110	51.100	51.100	0.00%
K	2600	BODY	04/29/2019	22.2	21.9	0.100	1071	7417	5.290	54.200	52.900	-2.40%
K	2600	BODY	05/08/2019	23.7	21.9	0.100	1071	7417	5.240	54.200	52.400	-3.32%
K	2600	BODY	05/13/2019	21.9	20.9	0.100	1071	7417	5.240	54.200	52.400	-3.32%
L	5250	BODY	04/05/2019	23.4	21.5	0.050	1191	7308	3.840	77.000	76.800	-0.26%
L	5600	BODY	04/05/2019	23.4	21.5	0.050	1191	7308	4.030	79.200	80.600	1.77%
L	5750	BODY	04/05/2019	23.4	21.5	0.050	1191	7308	3.660	76.100	73.200	-3.81%

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Table 10-6
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} (%)
L	750	BODY	04/22/2019	21.9	20.5	0.200	1161	7308	1.090	5.550	5.450	-1.80%
J	1750	BODY	04/15/2019	22.5	21.5	0.100	1008	7488	2.070	19.900	20.700	4.02%
J	1750	BODY	04/24/2019	23.3	22.7	0.100	1148	7488	1.980	19.800	19.800	0.00%
G	1900	BODY	04/23/2019	22.6	21.9	0.100	5d149	7410	2.060	20.700	20.600	-0.48%
G	1900	BODY	04/29/2019	21.6	21.2	0.100	5d149	7410	2.210	20.700	22.100	6.76%
K	2450	BODY	05/08/2019	23.7	21.9	0.100	797	7417	2.330	24.200	23.300	-3.72%
K	2600	BODY	05/08/2019	23.7	21.9	0.100	1071	7417	2.330	24.500	23.300	-4.90%
L	5250	BODY	04/05/2019	23.4	21.5	0.050	1191	7308	1.070	21.600	21.400	-0.93%
L	5600	BODY	04/05/2019	23.4	21.5	0.050	1191	7308	1.110	22.200	22.200	0.00%
L	5750	BODY	04/05/2019	23.4	21.5	0.050	1191	7308	1.020	21.200	20.400	-3.77%

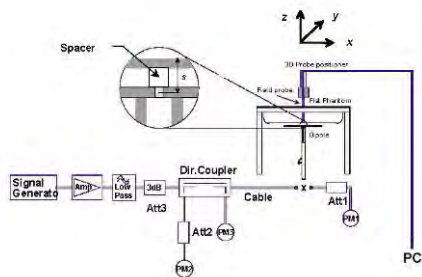


Figure 10-1
System Verification Setup Diagram



Figure 10-2
System Verification Setup Photo

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11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
CDMA BC10 (§90S) Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	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	25.0	24.57	0.06	Right	Cheek	38024	1:1	0.242	1.104	0.267	A1
820.10	564	CDMA BC10 (\$90S)	RC3 / SO55	25.0	24.57	0.05	Right	Tilt	38024	1:1	0.124	1.104	0.137	
820.10	564	CDMA BC10 (\$90S)	RC3 / SO55	25.0	24.57	0.12	Left	Cheek	38024	1:1	0.224	1.104	0.247	
820.10	564	CDMA BC10 (\$90S)	RC3 / SO55	25.0	24.57	0.07	Left	Tilt	38024	1:1	0.140	1.104	0.155	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. A	25.0	24.40	0.00	Right	Cheek	38024	1:1	0.230	1.148	0.264	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. A	25.0	24.40	0.13	Right	Tilt	38024	1:1	0.107	1.148	0.123	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. A	25.0	24.40	0.07	Left	Cheek	38024	1:1	0.235	1.148	0.270	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. A	25.0	24.40	0.08	Left	Tilt	38024	1:1	0.132	1.148	0.152	
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	25.0	24.47	0.04	Right	Cheek	38024	1:1	0.252	1.130	0.285	A2
836.52	384	CDMA BC0 (\$22H)	RC3 / SO55	25.0	24.47	0.10	Right	Tilt	38024	1:1	0.130	1.130	0.147	
836.52	384	CDMA BC0 (\$22H)	RC3 / SO55	25.0	24.47	0.07	Left	Cheek	38024	1:1	0.217	1.130	0.245	
836.52	384	CDMA BC0 (\$22H)	RC3 / SO55	25.0	24.47	0.00	Left	Tilt	38024	1:1	0.148	1.130	0.167	
824.70	1013	CDMA BC0 (\$22H)	EVDO Rev. A	25.0	24.40	0.10	Right	Cheek	38024	1:1	0.209	1.148	0.240	
824.70	1013	CDMA BC0 (\$22H)	EVDO Rev. A	25.0	24.40	0.12	Right	Tilt	38024	1:1	0.104	1.148	0.119	
824.70	1013	CDMA BC0 (\$22H)	EVDO Rev. A	25.0	24.40	0.04	Left	Cheek	38024	1:1	0.195	1.148	0.224	
824.70	1013	CDMA BC0 (\$22H)	EVDO Rev. A	25.0	24.40	0.08	Left	Tilt	38024	1:1	0.119	1.148	0.137	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

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Table 11-3
PCS CDMA Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.23	0.09	Right	Cheek	41150	1:1	0.111	1.194	0.133	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.23	0.19	Right	Tilt	41150	1:1	0.091	1.194	0.109	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.23	0.02	Left	Cheek	41150	1:1	0.124	1.194	0.148	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.23	0.18	Left	Tilt	41150	1:1	0.087	1.194	0.104	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.07	0.14	Right	Cheek	41150	1:1	0.105	1.239	0.130	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.07	0.05	Right	Tilt	41150	1:1	0.095	1.239	0.118	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.07	0.15	Left	Cheek	41150	1:1	0.133	1.239	0.165	A3
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.07	0.11	Left	Tilt	41150	1:1	0.090	1.239	0.112	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Note: SAR was tested with maximum output power instead of RCV Mode Active, which is a more conservative measurement.

Table 11-4
GSM 850 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	34.2	32.87	0.02	Right	Cheek	38354	1:8.3	0.258	1.358	0.350	A4
836.60	190	GSM 850	GSM	34.2	32.87	-0.04	Right	Tilt	38354	1:8.3	0.131	1.358	0.178	
836.60	190	GSM 850	GSM	34.2	32.87	0.07	Left	Cheek	38354	1:8.3	0.218	1.358	0.296	
836.60	190	GSM 850	GSM	34.2	32.87	0.10	Left	Tilt	38354	1:8.3	0.124	1.358	0.168	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-5
GSM 1900 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GSM	31.0	30.31	0.04	Right	Cheek	41150	1:8.3	0.049	1.172	0.057	
1880.00	661	GSM 1900	GSM	31.0	30.31	0.06	Right	Tilt	41150	1:8.3	0.033	1.172	0.039	
1880.00	661	GSM 1900	GSM	31.0	30.31	0.03	Left	Cheek	41150	1:8.3	0.095	1.172	0.111	A5
1880.00	661	GSM 1900	GSM	31.0	30.31	-0.03	Left	Tilt	41150	1:8.3	0.047	1.172	0.055	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

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Table 11-6
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	25.0	24.49	0.08	Right	Cheek	38354	1:1	0.274	1.125	0.308	A6
836.60	4183	UMTS 850	RMC	25.0	24.49	0.03	Right	Tilt	38354	1:1	0.140	1.125	0.158	
836.60	4183	UMTS 850	RMC	25.0	24.49	0.09	Left	Cheek	38354	1:1	0.239	1.125	0.269	
836.60	4183	UMTS 850	RMC	25.0	24.49	0.04	Left	Tilt	38354	1:1	0.131	1.125	0.147	
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	25.0	23.85	0.05	Right	Cheek	04512	1:1	0.096	1.303	0.125	
1732.40	1412	UMTS 1750	RMC	25.0	23.85	0.11	Right	Tilt	04512	1:1	0.060	1.303	0.078	
1732.40	1412	UMTS 1750	RMC	25.0	23.85	0.09	Left	Cheek	04512	1:1	0.198	1.303	0.258	A7
1732.40	1412	UMTS 1750	RMC	25.0	23.85	0.05	Left	Tilt	04512	1:1	0.137	1.303	0.179	
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	25.0	23.61	0.15	Right	Cheek	41150	1:1	0.104	1.377	0.143	
1880.00	9400	UMTS 1900	RMC	25.0	23.61	0.03	Right	Tilt	41150	1:1	0.083	1.377	0.114	
1880.00	9400	UMTS 1900	RMC	25.0	23.61	0.15	Left	Cheek	41150	1:1	0.143	1.377	0.197	A8
1880.00	9400	UMTS 1900	RMC	25.0	23.61	0.11	Left	Tilt	41150	1:1	0.085	1.377	0.117	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

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Table 11-9
LTE Band 71 Head SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	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	25.2	25.01	0.07	0	Right	Cheek	QPSK	1	0	41200	1:1	0.140	1.045	0.146	A9
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	0.10	1	Right	Cheek	QPSK	50	0	41200	1:1	0.109	1.099	0.120	
680.50	133297	Mid	LTE Band 71	20	25.2	25.01	-0.02	0	Right	Tilt	QPSK	1	0	41200	1:1	0.074	1.045	0.077	
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	0.02	1	Right	Tilt	QPSK	50	0	41200	1:1	0.056	1.099	0.062	
680.50	133297	Mid	LTE Band 71	20	25.2	25.01	0.06	0	Left	Cheek	QPSK	1	0	41200	1:1	0.077	1.045	0.080	
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	0.14	1	Left	Cheek	QPSK	50	0	41200	1:1	0.067	1.099	0.074	
680.50	133297	Mid	LTE Band 71	20	25.2	25.01	-0.07	0	Left	Tilt	QPSK	1	0	41200	1:1	0.047	1.045	0.049	
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	-0.16	1	Left	Tilt	QPSK	50	0	41200	1:1	0.041	1.099	0.045	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-10
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	25.2	24.55	-0.15	0	Right	Cheek	QPSK	1	25	41192	1:1	0.191	1.161	0.222	A10
707.50	23095	Mid	LTE Band 12	10	24.2	23.37	0.03	1	Right	Cheek	QPSK	25	0	41192	1:1	0.159	1.211	0.193	
707.50	23095	Mid	LTE Band 12	10	25.2	24.55	0.08	0	Right	Tilt	QPSK	1	25	41192	1:1	0.096	1.161	0.111	
707.50	23095	Mid	LTE Band 12	10	24.2	23.37	0.07	1	Right	Tilt	QPSK	25	0	41192	1:1	0.080	1.211	0.097	
707.50	23095	Mid	LTE Band 12	10	25.2	24.55	0.03	0	Left	Cheek	QPSK	1	25	41192	1:1	0.163	1.161	0.189	
707.50	23095	Mid	LTE Band 12	10	24.2	23.37	0.08	1	Left	Cheek	QPSK	25	0	41192	1:1	0.132	1.211	0.160	
707.50	23095	Mid	LTE Band 12	10	25.2	24.55	0.03	0	Left	Tilt	QPSK	1	25	41192	1:1	0.095	1.161	0.110	
707.50	23095	Mid	LTE Band 12	10	24.2	23.37	0.03	1	Left	Tilt	QPSK	25	0	41192	1:1	0.075	1.211	0.091	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram									

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	25.2	24.47	-0.09	0	Right	Cheek	QPSK	1	25	41192	1:1	0.225	1.183	0.266	A11
782.00	23230	Mid	LTE Band 13	10	24.2	23.35	0.06	1	Right	Cheek	QPSK	25	12	41192	1:1	0.174	1.216	0.212	
782.00	23230	Mid	LTE Band 13	10	25.2	24.47	-0.03	0	Right	Tilt	QPSK	1	25	41192	1:1	0.126	1.183	0.149	
782.00	23230	Mid	LTE Band 13	10	24.2	23.35	-0.03	1	Right	Tilt	QPSK	25	12	41192	1:1	0.103	1.216	0.125	
782.00	23230	Mid	LTE Band 13	10	25.2	24.47	-0.10	0	Left	Cheek	QPSK	1	25	41192	1:1	0.197	1.183	0.233	
782.00	23230	Mid	LTE Band 13	10	24.2	23.35	-0.03	1	Left	Cheek	QPSK	25	12	41192	1:1	0.141	1.216	0.171	
782.00	23230	Mid	LTE Band 13	10	25.2	24.47	-0.19	0	Left	Tilt	QPSK	1	25	41192	1:1	0.114	1.183	0.135	
782.00	23230	Mid	LTE Band 13	10	24.2	23.35	0.00	1	Left	Tilt	QPSK	25	12	41192	1:1	0.086	1.216	0.105	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

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Table 11-12
LTE Band 26 (Cell) Head SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	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	25.2	24.57	0.05	0	Right	Cheek	QPSK	1	0	42406	1:1	0.249	1.156	0.288	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	23.37	0.06	1	Right	Cheek	QPSK	36	0	42406	1:1	0.208	1.211	0.252	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.57	-0.10	0	Right	Tilt	QPSK	1	0	42406	1:1	0.135	1.156	0.156	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	23.37	0.03	1	Right	Tilt	QPSK	36	0	42406	1:1	0.113	1.211	0.137	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.57	0.13	0	Left	Cheek	QPSK	1	0	42406	1:1	0.277	1.156	0.320	A12
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	23.37	0.05	1	Left	Cheek	QPSK	36	0	42406	1:1	0.203	1.211	0.246	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.57	0.08	0	Left	Tilt	QPSK	1	0	42406	1:1	0.159	1.156	0.184	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	23.37	0.08	1	Left	Tilt	QPSK	36	0	42406	1:1	0.117	1.211	0.142	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

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 #
																(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	24.31	0.11	0	Right	Cheek	QPSK	1	99	38024	1:1	0.195	1.227	0.239	A13
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	23.31	0.09	1	Right	Cheek	QPSK	50	0	38024	1:1	0.178	1.227	0.218	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	24.31	-0.02	0	Right	Tilt	QPSK	1	99	38024	1:1	0.105	1.227	0.129	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	23.31	0.10	1	Right	Tilt	QPSK	50	0	38024	1:1	0.101	1.227	0.124	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	24.31	-0.08	0	Left	Cheek	QPSK	1	99	38024	1:1	0.177	1.227	0.217	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	23.31	0.07	1	Left	Cheek	QPSK	50	0	38024	1:1	0.158	1.227	0.194	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	24.31	0.07	0	Left	Tilt	QPSK	1	99	38024	1:1	0.119	1.227	0.146	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	23.31	-0.06	1	Left	Tilt	QPSK	50	0	38024	1:1	0.113	1.227	0.139	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram									

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

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	24.77	0.05	0	Right	Cheek	QPSK	1	50	36390	1:1	0.104	1.104	0.115	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	23.87	0.06	1	Right	Cheek	QPSK	50	0	36390	1:1	0.077	1.079	0.083	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	24.77	0.11	0	Right	Tilt	QPSK	1	50	36390	1:1	0.080	1.104	0.088	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	23.87	0.04	1	Right	Tilt	QPSK	50	0	36390	1:1	0.062	1.079	0.067	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	24.77	-0.07	0	Left	Cheek	QPSK	1	50	36390	1:1	0.165	1.104	0.182	A14
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	23.87	0.00	1	Left	Cheek	QPSK	50	0	36390	1:1	0.121	1.079	0.131	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	24.77	0.14	0	Left	Tilt	QPSK	1	50	36390	1:1	0.086	1.104	0.095	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	23.87	0.12	1	Left	Tilt	QPSK	50	0	36390	1:1	0.065	1.079	0.070	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram									

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Table 11-15
LTE Band 7 Head SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
2510.00	20850	Low	LTE Band 7	20	24.0	23.27	-0.02	0	Right	Cheek	QPSK	1	0	38024	1:1	0.999	1.183	1.182	A15
2535.00	21100	Mid	LTE Band 7	20	24.0	23.72	0.11	0	Right	Cheek	QPSK	1	0	38024	1:1	1.070	1.067	1.142	
2560.00	21350	High	LTE Band 7	20	24.0	23.96	-0.05	0	Right	Cheek	QPSK	1	50	38024	1:1	1.300	1.009	1.312	
2510.00	20850	Low	LTE Band 7	20	23.0	22.08	-0.05	1	Right	Cheek	QPSK	50	0	38024	1:1	0.757	1.236	0.936	
2535.00	21100	Mid	LTE Band 7	20	23.0	22.65	-0.03	1	Right	Cheek	QPSK	50	25	38024	1:1	0.837	1.084	0.907	
2560.00	21350	High	LTE Band 7	20	23.0	22.66	0.00	1	Right	Cheek	QPSK	50	25	38024	1:1	0.986	1.081	1.066	
2535.00	21100	Mid	LTE Band 7	20	23.0	22.53	0.05	1	Right	Cheek	QPSK	100	0	38024	1:1	0.839	1.114	0.935	
2560.00	21350	High	LTE Band 7	20	24.0	23.96	0.04	0	Right	Tilt	QPSK	1	50	38024	1:1	0.615	1.009	0.621	
2560.00	21350	High	LTE Band 7	20	23.0	22.66	0.07	1	Right	Tilt	QPSK	50	25	38024	1:1	0.466	1.081	0.504	
2560.00	21350	High	LTE Band 7	20	24.0	23.96	-0.13	0	Left	Cheek	QPSK	1	50	38024	1:1	0.460	1.009	0.464	
2560.00	21350	High	LTE Band 7	20	23.0	22.66	0.07	1	Left	Cheek	QPSK	50	25	38024	1:1	0.343	1.081	0.371	
2560.00	21350	High	LTE Band 7	20	24.0	23.96	0.01	0	Left	Tilt	QPSK	1	50	38024	1:1	0.358	1.009	0.361	
2560.00	21350	High	LTE Band 7	20	23.0	22.66	0.06	1	Left	Tilt	QPSK	50	25	38024	1:1	0.268	1.081	0.290	
2510.00	20850	Low	LTE Band 7	20	24.0	23.27	-0.03	0	Right	Cheek	QPSK	1	0	38024	1:1	1.040	1.183	1.230	
2560.00	21350	High	LTE Band 7	20	24.0	23.96	0.00	0	Right	Cheek	QPSK	1	50	38024	1:1	1.250	1.009	1.261	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram									

Note: Blue entries represent variability measurements

Note: SAR was tested with maximum output power instead of RCV Mode Active, which is a more conservative measurement.

Table 11-16
LTE Band 38 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)		
2595.00	38000	Mid	LTE Band 38	20	23.0	22.21	-0.08	0	Right	Cheek	QPSK	1	0	41200	1:1.58	0.565	1.199	0.677	A16
2595.00	38000	Mid	LTE Band 38	20	23.0	22.16	-0.11	0	Right	Cheek	QPSK	50	0	41200	1:1.58	0.560	1.213	0.679	
2595.00	38000	Mid	LTE Band 38	20	23.0	22.21	-0.08	0	Right	Tilt	QPSK	1	0	41200	1:1.58	0.265	1.199	0.318	
2595.00	38000	Mid	LTE Band 38	20	23.0	22.16	0.15	0	Right	Tilt	QPSK	50	0	41200	1:1.58	0.266	1.213	0.323	
2595.00	38000	Mid	LTE Band 38	20	23.0	22.21	0.06	0	Left	Cheek	QPSK	1	0	41200	1:1.58	0.164	1.199	0.197	
2595.00	38000	Mid	LTE Band 38	20	23.0	22.16	0.05	0	Left	Cheek	QPSK	50	0	41200	1:1.58	0.163	1.213	0.198	
2595.00	38000	Mid	LTE Band 38	20	23.0	22.21	0.15	0	Left	Tilt	QPSK	1	0	41200	1:1.58	0.149	1.199	0.179	
2595.00	38000	Mid	LTE Band 38	20	23.0	22.16	0.16	0	Left	Tilt	QPSK	50	0	41200	1:1.58	0.151	1.213	0.183	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Head 1.6 W/kg (mW/g) averaged over 1 gram									

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Table 11-17
LTE Band 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	2506.00	39750	Low	LTE Band 41	20	21.5	19.89	0.09	0	Right	Cheek	QPSK	1	99	36937	1:1.58	0.301	1.449	0.436	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	19.90	-0.04	0	Right	Cheek	QPSK	50	50	36937	1:1.58	0.367	1.445	0.530	A17
1 CC Uplink - Power Class 2	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	20.08	0.07	0	Right	Cheek	QPSK	50	50	36937	1:2.31	0.238	1.387	0.330	
2 CC Uplink - Power Class 3	PCC	2506.00	39750	Low	LTE Band 41	20	21.5	19.70	0.15	0	Right	Cheek	QPSK	50	50	36937	1:1.58	0.361	1.514	0.547	
	SCC	2525.80	39948											50	0						
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	19.89	0.19	0	Right	Tilt	QPSK	1	99	36937	1:1.58	0.171	1.449	0.248	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	19.90	0.08	0	Right	Tilt	QPSK	50	50	36937	1:1.58	0.193	1.445	0.279	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	19.89	0.18	0	Left	Cheek	QPSK	1	99	36937	1:1.58	0.105	1.449	0.152	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	19.90	0.03	0	Left	Cheek	QPSK	50	50	36937	1:1.58	0.116	1.445	0.168	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	19.89	0.06	0	Left	Tilt	QPSK	1	99	36937	1:1.58	0.070	1.449	0.101	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	19.90	0.03	0	Left	Tilt	QPSK	50	50	36937	1:1.58	0.082	1.445	0.118	
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 Head SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	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	17.73	0.02	Right	Cheek	36937	1	99.7	0.137	-	1.064	1.003	-	
2437	6	802.11b	DSSS	22	18.0	17.73	-0.17	Right	Tilt	36937	1	99.7	0.138	-	1.064	1.003	-	
2437	6	802.11b	DSSS	22	18.0	17.73	0.03	Left	Cheek	36937	1	99.7	0.247	-	1.064	1.003	-	
2437	6	802.11b	DSSS	22	18.0	17.73	-0.05	Left	Tilt	36937	1	99.7	0.269	0.140	1.064	1.003	0.149	A18
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram									

Table 11-19
NII Head SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	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)	
5270	54	802.11n	OFDM	40	16.0	15.74	0.03	Right	Cheek	36390	13.5	95.8	0.081	-	1.062	1.044	-	
5270	54	802.11n	OFDM	40	16.0	15.74	0.07	Right	Tilt	36390	13.5	95.8	0.099	-	1.062	1.044	-	
5270	54	802.11n	OFDM	40	16.0	15.74	0.08	Left	Cheek	36390	13.5	95.8	0.300	-	1.062	1.044	-	
5270	54	802.11n	OFDM	40	16.0	15.74	-0.04	Left	Tilt	36390	13.5	95.8	0.352	0.175	1.062	1.044	0.194	
5710	142	802.11n	OFDM	40	16.0	15.80	0.06	Right	Cheek	36390	13.5	95.8	0.245	-	1.047	1.044	-	
5710	142	802.11n	OFDM	40	16.0	15.80	0.05	Right	Tilt	36390	13.5	95.8	0.260	-	1.047	1.044	-	
5710	142	802.11n	OFDM	40	16.0	15.80	-0.13	Left	Cheek	36390	13.5	95.8	0.535	0.210	1.047	1.044	0.230	
5710	142	802.11n	OFDM	40	16.0	15.80	0.03	Left	Tilt	36390	13.5	95.8	0.470	-	1.047	1.044	-	
5755	151	802.11n	OFDM	40	16.0	15.85	-0.09	Right	Cheek	36390	13.5	95.8	0.258	-	1.035	1.044	-	
5755	151	802.11n	OFDM	40	16.0	15.85	0.06	Right	Tilt	36390	13.5	95.8	0.327	-	1.035	1.044	-	
5755	151	802.11n	OFDM	40	16.0	15.85	0.08	Left	Cheek	36390	13.5	95.8	0.452	-	1.035	1.044	-	
5755	151	802.11n	OFDM	40	16.0	15.85	0.07	Left	Tilt	36390	13.5	95.8	0.513	0.225	1.035	1.044	0.243	A19
ANSI / IEEE C95.1 1992 - SAFETY LIMIT																		
Spatial Peak									Head									
Uncontrolled Exposure/General Population									1.6 W/kg (mW/g)									
									averaged over 1 gram									

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**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	10.5	10.38	0.06	Right	Cheek	41135	1	77.3	0.012	1.029	1.294	0.016	
2441.00	39	Bluetooth	FHSS	10.5	10.38	-0.07	Right	Tilt	41135	1	77.3	0.012	1.029	1.294	0.016	
2441.00	39	Bluetooth	FHSS	10.5	10.38	0.04	Left	Cheek	41135	1	77.3	0.029	1.029	1.294	0.039	A20
2441.00	39	Bluetooth	FHSS	10.5	10.38	0.08	Left	Tilt	41135	1	77.3	0.029	1.029	1.294	0.039	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram									

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	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	25.0	24.54	0.01	15 mm	38024	1:1	back	0.279	1.112	0.310	A21
824.70	1013	CDMA BC0 (\$22H)	TDSO / SO32	25.0	24.62	-0.04	15 mm	38024	1:1	back	0.302	1.091	0.329	A23
1880.00	600	PCS CDMA	TDSO / SO32	25.0	24.26	-0.02	15 mm	36390	1:1	back	0.171	1.186	0.203	A25
836.60	190	GSM 850	GSM	34.2	32.87	-0.04	15 mm	41135	1:8.3	back	0.322	1.358	0.437	A27
1880.00	661	GSM 1900	GSM	31.0	30.31	-0.16	15 mm	41150	1:8.3	back	0.070	1.172	0.082	A29
836.60	4183	UMTS 850	RMC	25.0	24.49	-0.04	15 mm	41135	1:1	back	0.305	1.125	0.343	A31
1732.40	1412	UMTS 1750	RMC	25.0	23.85	-0.07	15 mm	41135	1:1	back	0.443	1.303	0.577	A33
1880.00	9400	UMTS 1900	RMC	25.0	23.61	0.03	15 mm	41150	1:1	back	0.174	1.377	0.240	A35
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram							

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Table 11-22
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 #
																(W/kg)		(W/kg)	
MHz	Ch.																		
680.50	133297	Mid	LTE Band 71	20	25.2	25.01	-0.04	0	41135	QPSK	1	0	15 mm	back	1:1	0.231	1.045	0.241	A37
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	0.01	1	41135	QPSK	50	0	15 mm	back	1:1	0.206	1.099	0.226	
707.50	23095	Mid	LTE Band 12	10	25.2	24.55	0.09	0	41135	QPSK	1	25	15 mm	back	1:1	0.301	1.161	0.349	A39
707.50	23095	Mid	LTE Band 12	10	24.2	23.37	0.00	1	41135	QPSK	25	0	15 mm	back	1:1	0.234	1.211	0.283	
782.00	23230	Mid	LTE Band 13	10	25.2	24.47	-0.04	0	41135	QPSK	1	25	15 mm	back	1:1	0.364	1.183	0.431	A41
782.00	23230	Mid	LTE Band 13	10	24.2	23.35	-0.02	1	41135	QPSK	25	12	15 mm	back	1:1	0.281	1.216	0.342	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.57	0.00	0	42497	QPSK	1	0	15 mm	back	1:1	0.331	1.156	0.383	A43
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	23.37	0.01	1	42497	QPSK	36	0	15 mm	back	1:1	0.254	1.211	0.308	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	24.31	-0.18	0	41135	QPSK	1	99	15 mm	back	1:1	0.434	1.227	0.533	A45
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	23.31	-0.10	1	41135	QPSK	50	0	15 mm	back	1:1	0.377	1.227	0.463	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	24.77	0.04	0	04603	QPSK	1	50	15 mm	back	1:1	0.189	1.104	0.209	A47
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	23.87	0.01	1	04603	QPSK	50	0	15 mm	back	1:1	0.153	1.079	0.165	
2560.00	21350	High	LTE Band 7	20	24.0	23.96	-0.01	0	42497	QPSK	1	50	15 mm	back	1:1	0.048	1.009	0.048	A49
2560.00	21350	High	LTE Band 7	20	23.0	22.66	0.04	1	42497	QPSK	50	25	15 mm	back	1:1	0.036	1.081	0.039	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT																			
Spatial Peak									Body										
Uncontrolled Exposure/General Population									1.6 W/kg (mW/g)										
									averaged over 1 gram										

Table 11-23
LTE Band 38/41 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 38/41	20	24.5	23.16	0.07	0	36937	QPSK	1	0	15 mm	back	1:1.58	0.304	1.361	0.414	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 38/41	20	23.5	21.78	0.06	1	36937	QPSK	50	50	15 mm	back	1:1.58	0.247	1.486	0.367	
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	27.0	26.33	-0.13	0	36937	QPSK	1	0	15 mm	back	1:2.31	0.434	1.167	0.506	A52
2 CC Uplink - Power Class 3	PCC	2593.00	40620	Mid	LTE Band 41	20	24.5	22.50	-0.10	0	36937	QPSK	1	0	15 mm	back	1:1.58	0.263	1.585	0.417	
	SCC	2573.20	40422										1	99							
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 11-24
DTS Body-Worn SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	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)	
2412	1	802.11b	DSSS	22	21.0	20.82	0.01	15 mm	36937	1	back	99.7	0.135	0.088	1.042	1.003	0.092	A54
ANSI / IEEE C95.1 1992 - SAFETY LIMIT									Body									
Spatial Peak									1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population									averaged over 1 gram									

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**Table 11-25
NII Body-Worn SAR**

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	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)	
5320	64	802.11a	OFDM	20	18.0	17.97	0.04	15 mm	04512	6	back	98.1	0.300	0.133	1.007	1.019	0.136	
5500	100	802.11a	OFDM	20	18.0	17.99	-0.01	15 mm	04512	6	back	98.1	0.901	0.416	1.002	1.019	0.425	A56
5785	157	802.11a	OFDM	20	18.0	17.86	0.08	15 mm	04512	6	back	98.1	0.675	0.289	1.033	1.019	0.304	
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
DSS Body-Worn SAR**

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441	39	Bluetooth	FHSS	10.5	10.38	0.07	15 mm	42497	1	back	77.3	0.005	1.029	1.294	0.007	A58
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram								

11.3 Standalone Hotspot SAR Data

**Table 11-27
CDMA Hotspot 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 (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	25.0	24.31	-0.04	10 mm	38024	1:1	back	0.318	1.172	0.373	A22
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	25.0	24.31	0.04	10 mm	38024	1:1	front	0.215	1.172	0.252	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	25.0	24.31	0.02	10 mm	38024	1:1	bottom	0.101	1.172	0.118	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	25.0	24.31	0.00	10 mm	38024	1:1	right	0.241	1.172	0.282	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	25.0	24.31	0.09	10 mm	38024	1:1	left	0.161	1.172	0.189	
824.70	1013	CDMA BC0 (\$22H)	EVDO Rev. 0	25.0	24.37	-0.08	10 mm	38024	1:1	back	0.430	1.156	0.497	A24
824.70	1013	CDMA BC0 (\$22H)	EVDO Rev. 0	25.0	24.37	0.00	10 mm	38024	1:1	front	0.205	1.156	0.237	
824.70	1013	CDMA BC0 (\$22H)	EVDO Rev. 0	25.0	24.37	0.04	10 mm	38024	1:1	bottom	0.192	1.156	0.222	
824.70	1013	CDMA BC0 (\$22H)	EVDO Rev. 0	25.0	24.37	-0.04	10 mm	38024	1:1	right	0.288	1.156	0.333	
824.70	1013	CDMA BC0 (\$22H)	EVDO Rev. 0	25.0	24.37	0.00	10 mm	38024	1:1	left	0.127	1.156	0.147	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.5	21.95	-0.04	10 mm	41200	1:1	back	0.217	1.429	0.310	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.5	21.95	0.12	10 mm	41200	1:1	front	0.125	1.429	0.179	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.5	21.95	-0.08	10 mm	41200	1:1	bottom	0.262	1.429	0.374	A26
1880.00	600	PCS CDMA	EVDO Rev. 0	23.5	21.95	0.09	10 mm	41200	1:1	right	0.050	1.429	0.071	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.5	21.95	-0.03	10 mm	41200	1:1	left	0.149	1.429	0.213	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram						

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Table 11-28
GPRS/UMTS 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)	
824.20	128	GSM 850	GPRS	29.8	28.09	-0.04	10 mm	41135	4	1:2.076	back	0.426	1.483	0.632	
836.60	190	GSM 850	GPRS	29.8	28.15	-0.16	10 mm	41135	4	1:2.076	back	0.519	1.462	0.759	
848.80	251	GSM 850	GPRS	29.8	28.28	-0.09	10 mm	41135	4	1:2.076	back	0.567	1.419	0.805	A28
836.60	190	GSM 850	GPRS	29.8	28.15	0.04	10 mm	41135	4	1:2.076	front	0.266	1.462	0.389	
836.60	190	GSM 850	GPRS	29.8	28.15	0.05	10 mm	41135	4	1:2.076	bottom	0.179	1.462	0.262	
836.60	190	GSM 850	GPRS	29.8	28.15	0.08	10 mm	41135	4	1:2.076	right	0.356	1.462	0.520	
836.60	190	GSM 850	GPRS	29.8	28.15	-0.04	10 mm	41135	4	1:2.076	left	0.187	1.462	0.273	
1850.20	512	GSM 1900	GPRS	27.0	26.65	0.01	10 mm	41150	3	1:2.76	back	0.170	1.084	0.184	A30
1850.20	512	GSM 1900	GPRS	27.0	26.65	-0.07	10 mm	41150	3	1:2.76	front	0.118	1.084	0.128	
1850.20	512	GSM 1900	GPRS	27.0	26.65	-0.08	10 mm	41150	3	1:2.76	bottom	0.163	1.084	0.177	
1850.20	512	GSM 1900	GPRS	27.0	26.65	0.02	10 mm	41150	3	1:2.76	right	0.050	1.084	0.054	
1850.20	512	GSM 1900	GPRS	27.0	26.65	-0.19	10 mm	41150	3	1:2.76	left	0.125	1.084	0.136	
836.60	4183	UMTS 850	RMC	25.0	24.49	-0.01	10 mm	41135	N/A	1:1	back	0.458	1.125	0.515	A32
836.60	4183	UMTS 850	RMC	25.0	24.49	0.01	10 mm	41135	N/A	1:1	front	0.235	1.125	0.264	
836.60	4183	UMTS 850	RMC	25.0	24.49	0.05	10 mm	41135	N/A	1:1	bottom	0.201	1.125	0.226	
836.60	4183	UMTS 850	RMC	25.0	24.49	-0.03	10 mm	41135	N/A	1:1	right	0.315	1.125	0.354	
836.60	4183	UMTS 850	RMC	25.0	24.49	0.00	10 mm	41135	N/A	1:1	left	0.149	1.125	0.168	
1732.40	1412	UMTS 1750	RMC	22.0	20.78	-0.18	10 mm	41135	N/A	1:1	back	0.432	1.324	0.572	A34
1732.40	1412	UMTS 1750	RMC	22.0	20.78	-0.01	10 mm	41135	N/A	1:1	front	0.319	1.324	0.422	
1732.40	1412	UMTS 1750	RMC	22.0	20.78	-0.03	10 mm	41135	N/A	1:1	bottom	0.304	1.324	0.402	
1732.40	1412	UMTS 1750	RMC	22.0	20.78	-0.15	10 mm	41135	N/A	1:1	right	0.086	1.324	0.114	
1732.40	1412	UMTS 1750	RMC	22.0	20.78	0.03	10 mm	41135	N/A	1:1	left	0.157	1.324	0.208	
1880.00	9400	UMTS 1900	RMC	23.0	21.74	-0.01	10 mm	41150	N/A	1:1	back	0.332	1.337	0.444	A36
1880.00	9400	UMTS 1900	RMC	23.0	21.74	0.07	10 mm	41150	N/A	1:1	front	0.221	1.337	0.295	
1880.00	9400	UMTS 1900	RMC	23.0	21.74	0.01	10 mm	41150	N/A	1:1	bottom	0.302	1.337	0.404	
1880.00	9400	UMTS 1900	RMC	23.0	21.74	-0.12	10 mm	41150	N/A	1:1	right	0.085	1.337	0.114	
1880.00	9400	UMTS 1900	RMC	23.0	21.74	0.00	10 mm	41150	N/A	1:1	left	0.194	1.337	0.259	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram								

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Table 11-29
LTE Band 71 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
680.50	133297	Mid	LTE Band 71	20	25.2	25.01	-0.05	0	41200	QPSK	1	0	10 mm	back	1:1	0.250	1.045	0.261	A38
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	-0.04	1	41200	QPSK	50	0	10 mm	back	1:1	0.192	1.099	0.211	
680.50	133297	Mid	LTE Band 71	20	25.2	25.01	0.01	0	41200	QPSK	1	0	10 mm	front	1:1	0.147	1.045	0.154	
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	-0.01	1	41200	QPSK	50	0	10 mm	front	1:1	0.114	1.099	0.125	
680.50	133297	Mid	LTE Band 71	20	25.2	25.01	0.12	0	41200	QPSK	1	0	10 mm	bottom	1:1	0.071	1.045	0.074	
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	0.04	1	41200	QPSK	50	0	10 mm	bottom	1:1	0.050	1.099	0.055	
680.50	133297	Mid	LTE Band 71	20	25.2	25.01	0.04	0	41200	QPSK	1	0	10 mm	right	1:1	0.228	1.045	0.238	
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	0.03	1	41200	QPSK	50	0	10 mm	right	1:1	0.165	1.099	0.181	
680.50	133297	Mid	LTE Band 71	20	25.2	25.01	-0.07	0	41200	QPSK	1	0	10 mm	left	1:1	0.168	1.045	0.176	
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	-0.09	1	41200	QPSK	50	0	10 mm	left	1:1	0.117	1.099	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											

Note: SAR was tested with maximum output power instead of Hotspot Mode Active, which is a more conservative measurement.

Table 11-30
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
707.50	23095	Mid	LTE Band 12	10	25.2	24.55	0.04	0	41135	QPSK	1	25	10 mm	back	1:1	0.353	1.161	0.410	A40
707.50	23095	Mid	LTE Band 12	10	24.2	23.37	-0.01	1	41135	QPSK	25	0	10 mm	back	1:1	0.280	1.211	0.339	
707.50	23095	Mid	LTE Band 12	10	25.2	24.55	-0.01	0	41135	QPSK	1	25	10 mm	front	1:1	0.199	1.161	0.231	
707.50	23095	Mid	LTE Band 12	10	24.2	23.37	0.04	1	41135	QPSK	25	0	10 mm	front	1:1	0.157	1.211	0.190	
707.50	23095	Mid	LTE Band 12	10	25.2	24.55	-0.09	0	41135	QPSK	1	25	10 mm	bottom	1:1	0.082	1.161	0.095	
707.50	23095	Mid	LTE Band 12	10	24.2	23.37	0.05	1	41135	QPSK	25	0	10 mm	bottom	1:1	0.061	1.211	0.074	
707.50	23095	Mid	LTE Band 12	10	25.2	24.55	0.09	0	41135	QPSK	1	25	10 mm	right	1:1	0.294	1.161	0.341	
707.50	23095	Mid	LTE Band 12	10	24.2	23.37	-0.06	1	41135	QPSK	25	0	10 mm	right	1:1	0.236	1.211	0.286	
707.50	23095	Mid	LTE Band 12	10	25.2	24.55	-0.04	0	41135	QPSK	1	25	10 mm	left	1:1	0.185	1.161	0.215	
707.50	23095	Mid	LTE Band 12	10	24.2	23.37	-0.02	1	41135	QPSK	25	0	10 mm	left	1:1	0.140	1.211	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											

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Table 11-31
LTE Band 13 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
782.00	23230	Mid	LTE Band 13	10	25.2	24.47	-0.02	0	41135	QPSK	1	25	10 mm	back	1:1	0.406	1.183	0.480	A42
782.00	23230	Mid	LTE Band 13	10	24.2	23.35	-0.02	1	41135	QPSK	25	12	10 mm	back	1:1	0.315	1.216	0.383	
782.00	23230	Mid	LTE Band 13	10	25.2	24.47	-0.05	0	41135	QPSK	1	25	10 mm	front	1:1	0.243	1.183	0.287	
782.00	23230	Mid	LTE Band 13	10	24.2	23.35	0.01	1	41135	QPSK	25	12	10 mm	front	1:1	0.186	1.216	0.226	
782.00	23230	Mid	LTE Band 13	10	25.2	24.47	-0.02	0	41135	QPSK	1	25	10 mm	bottom	1:1	0.108	1.183	0.128	
782.00	23230	Mid	LTE Band 13	10	24.2	23.35	-0.08	1	41135	QPSK	25	12	10 mm	bottom	1:1	0.085	1.216	0.103	
782.00	23230	Mid	LTE Band 13	10	25.2	24.47	0.11	0	41135	QPSK	1	25	10 mm	right	1:1	0.332	1.183	0.393	
782.00	23230	Mid	LTE Band 13	10	24.2	23.35	-0.05	1	41135	QPSK	25	12	10 mm	right	1:1	0.255	1.216	0.310	
782.00	23230	Mid	LTE Band 13	10	25.2	24.47	-0.13	0	41135	QPSK	1	25	10 mm	left	1:1	0.217	1.183	0.257	
782.00	23230	Mid	LTE Band 13	10	24.2	23.35	-0.10	1	41135	QPSK	25	12	10 mm	left	1:1	0.166	1.216	0.202	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-32
LTE Band 26 (Cell) Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.57	0.01	0	42497	QPSK	1	0	10 mm	back	1:1	0.495	1.156	0.572	A44
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	23.37	-0.05	1	42497	QPSK	36	0	10 mm	back	1:1	0.401	1.211	0.486	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.57	-0.01	0	42497	QPSK	1	0	10 mm	front	1:1	0.263	1.156	0.304	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	23.37	0.06	1	42497	QPSK	36	0	10 mm	front	1:1	0.198	1.211	0.240	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.57	-0.01	0	42497	QPSK	1	0	10 mm	bottom	1:1	0.189	1.156	0.218	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	23.37	-0.01	1	42497	QPSK	36	0	10 mm	bottom	1:1	0.157	1.211	0.190	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.57	-0.04	0	42497	QPSK	1	0	10 mm	right	1:1	0.320	1.156	0.370	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	23.37	-0.03	1	42497	QPSK	36	0	10 mm	right	1:1	0.251	1.211	0.304	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.2	24.57	0.02	0	42497	QPSK	1	0	10 mm	left	1:1	0.167	1.156	0.193	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.2	23.37	0.00	1	42497	QPSK	36	0	10 mm	left	1:1	0.124	1.211	0.150	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

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

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	21.02	0.01	0	41135	QPSK	1	99	10 mm	back	1:1	0.500	1.312	0.656	A46
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	20.97	0.04	0	41135	QPSK	50	0	10 mm	back	1:1	0.580	1.327	0.770	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	22.2	20.65	-0.01	0	41135	QPSK	50	25	10 mm	back	1:1	0.491	1.429	0.702	
1770.00	132572	High	LTE Band 66 (AWS)	20	22.2	20.86	0.03	0	41135	QPSK	50	0	10 mm	back	1:1	0.459	1.361	0.625	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	21.02	-0.04	0	41135	QPSK	1	99	10 mm	front	1:1	0.384	1.312	0.504	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	20.97	0.07	0	41135	QPSK	50	0	10 mm	front	1:1	0.433	1.327	0.575	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	21.02	0.06	0	41135	QPSK	1	99	10 mm	bottom	1:1	0.302	1.312	0.396	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	20.97	-0.13	0	41135	QPSK	50	0	10 mm	bottom	1:1	0.340	1.327	0.451	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	21.02	-0.02	0	41135	QPSK	1	99	10 mm	right	1:1	0.089	1.312	0.117	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	20.97	-0.03	0	41135	QPSK	50	0	10 mm	right	1:1	0.094	1.327	0.125	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	21.02	-0.01	0	41135	QPSK	1	99	10 mm	left	1:1	0.197	1.312	0.258	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	20.97	0.08	0	41135	QPSK	50	0	10 mm	left	1:1	0.231	1.327	0.307	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

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

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.2	22.74	0.01	0	04603	QPSK	1	50	10 mm	back	1:1	0.237	1.112	0.264	A48
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.2	22.53	0.03	0	04603	QPSK	50	0	10 mm	back	1:1	0.239	1.167	0.279	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.2	22.74	0.04	0	04603	QPSK	1	50	10 mm	front	1:1	0.152	1.112	0.169	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.2	22.53	0.04	0	04603	QPSK	50	0	10 mm	front	1:1	0.164	1.167	0.191	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.2	22.74	0.01	0	04603	QPSK	1	50	10 mm	bottom	1:1	0.225	1.112	0.250	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.2	22.53	-0.01	0	04603	QPSK	50	0	10 mm	bottom	1:1	0.228	1.167	0.266	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.2	22.74	0.10	0	04603	QPSK	1	50	10 mm	right	1:1	0.075	1.112	0.083	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.2	22.53	0.12	0	04603	QPSK	50	0	10 mm	right	1:1	0.075	1.167	0.088	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.2	22.74	0.13	0	04603	QPSK	1	50	10 mm	left	1:1	0.176	1.112	0.196	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.2	22.53	-0.01	0	04603	QPSK	50	0	10 mm	left	1:1	0.185	1.167	0.216	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

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Table 11-35
LTE Band 7 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #	
MHz	Ch.														(W/kg)		(W/kg)		
2535.00	21100	Mid	LTE Band 7	20	21.0	20.56	0.09	0	36937	QPSK	1	50	10 mm	back	1:1	0.073	1.107	0.081	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.37	-0.05	0	36937	QPSK	50	0	10 mm	back	1:1	0.066	1.156	0.076	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.56	-0.05	0	36937	QPSK	1	50	10 mm	front	1:1	0.123	1.107	0.136	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.37	0.03	0	36937	QPSK	50	0	10 mm	front	1:1	0.119	1.156	0.138	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.56	0.04	0	36937	QPSK	1	50	10 mm	top	1:1	0.012	1.107	0.013	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.37	0.06	0	36937	QPSK	50	0	10 mm	top	1:1	0.012	1.156	0.014	
2535.00	21100	Mid	LTE Band 7	20	21.0	20.56	-0.08	0	36937	QPSK	1	50	10 mm	left	1:1	0.277	1.107	0.307	A50
2535.00	21100	Mid	LTE Band 7	20	21.0	20.37	0.03	0	36937	QPSK	50	0	10 mm	left	1:1	0.271	1.156	0.313	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram											

Table 11-36
LTE Band 38 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)		
2595.00	38000	Mid	LTE Band 38	20	23.0	22.21	-0.07	0	36937	QPSK	1	0	10 mm	back	1:1.58	0.488	1.199	0.585	A51
2595.00	38000	Mid	LTE Band 38	20	23.0	22.16	-0.05	0	36937	QPSK	50	0	10 mm	back	1:1.58	0.505	1.213	0.613	
2595.00	38000	Mid	LTE Band 38	20	23.0	22.21	0.13	0	36937	QPSK	1	0	10 mm	front	1:1.58	0.109	1.199	0.131	
2595.00	38000	Mid	LTE Band 38	20	23.0	22.16	0.16	0	36937	QPSK	50	0	10 mm	front	1:1.58	0.114	1.213	0.138	
2595.00	38000	Mid	LTE Band 38	20	23.0	22.21	0.12	0	36937	QPSK	1	0	10 mm	top	1:1.58	0.065	1.199	0.078	
2595.00	38000	Mid	LTE Band 38	20	23.0	22.16	0.11	0	36937	QPSK	50	0	10 mm	top	1:1.58	0.068	1.213	0.082	
2595.00	38000	Mid	LTE Band 38	20	23.0	22.21	-0.04	0	36937	QPSK	1	0	10 mm	left	1:1.58	0.287	1.199	0.344	
2595.00	38000	Mid	LTE Band 38	20	23.0	22.16	0.00	0	36937	QPSK	50	0	10 mm	left	1:1.58	0.287	1.213	0.348	
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 11-37
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	2506.00	39750	Low	LTE Band 41	20	21.5	19.89	-0.11	0	36937	QPSK	1	99	10 mm	back	1:1.58	0.399	1.449	0.578	A53
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	19.90	0.01	0	36937	QPSK	50	50	10 mm	back	1:1.58	0.400	1.445	0.578	
1 CC Uplink - Power Class 2	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	20.08	-0.03	0	36937	QPSK	50	50	10 mm	back	1:2.31	0.271	1.387	0.376	
2 CC Uplink - Power Class 3	PCC	2506.00	39750	Low	LTE Band 41	20	21.5	19.70	-0.12	0	36937	QPSK	50	50	10 mm	back	1:1.58	0.381	1.514	0.577	
	SCC	2525.80	39948										50	0							
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	19.89	0.07	0	36937	QPSK	1	99	10 mm	front	1:1.58	0.072	1.449	0.104	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	19.90	0.11	0	36937	QPSK	50	50	10 mm	front	1:1.58	0.072	1.445	0.104	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	19.89	0.03	0	36937	QPSK	1	99	10 mm	top	1:1.58	0.038	1.449	0.055	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	19.90	0.07	0	36937	QPSK	50	50	10 mm	top	1:1.58	0.039	1.445	0.056	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	19.89	0.04	0	36937	QPSK	1	99	10 mm	left	1:1.58	0.194	1.449	0.281	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 41	20	21.5	19.90	0.04	0	36937	QPSK	50	50	10 mm	left	1:1.58	0.203	1.445	0.293	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT																					
Spatial Peak										Body											
Uncontrolled Exposure/General Population										1.6 W/kg (mW/g) averaged over 1 gram											

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**Table 11-38
WLAN Hotspot SAR**

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	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)	
2412	1	802.11b	DSSS	22	21.0	20.82	0.04	10 mm	36937	1	back	99.7	0.307	0.214	1.042	1.003	0.224	A55
2412	1	802.11b	DSSS	22	21.0	20.82	0.12	10 mm	36937	1	front	99.7	0.089	-	1.042	1.003	-	
2412	1	802.11b	DSSS	22	21.0	20.82	0.09	10 mm	36937	1	top	99.7	0.164	-	1.042	1.003	-	
2412	1	802.11b	DSSS	22	21.0	20.82	-0.03	10 mm	36937	1	right	99.7	0.064	-	1.042	1.003	-	
5745	149	802.11a	OFDM	20	18.0	17.79	-0.17	10 mm	04512	6	back	98.1	1.646	0.720	1.050	1.019	0.770	A57
5785	157	802.11a	OFDM	20	18.0	17.86	0.04	10 mm	04512	6	back	98.1	1.277	0.592	1.033	1.019	0.623	
5825	165	802.11a	OFDM	20	18.0	17.65	-0.09	10 mm	04512	6	back	98.1	1.190	0.508	1.084	1.019	0.561	
5785	157	802.11a	OFDM	20	18.0	17.86	0.04	10 mm	04512	6	front	98.1	0.087	-	1.033	1.019	-	
5785	157	802.11a	OFDM	20	18.0	17.86	0.00	10 mm	04512	6	top	98.1	0.549	0.224	1.033	1.019	0.236	
5785	157	802.11a	OFDM	20	18.0	17.86	0.08	10 mm	04512	6	right	98.1	0.145	-	1.033	1.019	-	
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 11-39
DSS Hotspot SAR**

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	SAR (1g)	Scaling Factor (Cond Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)			(W/kg)	
2441	39	Bluetooth	FHSS	10.5	10.38	0.06	10 mm	42497	1	back	77.3	0.014	1.029	1.294	0.019	A59
2441	39	Bluetooth	FHSS	10.5	10.38	0.03	10 mm	42497	1	front	77.3	0.003	1.029	1.294	0.004	
2441	39	Bluetooth	FHSS	10.5	10.38	0.08	10 mm	42497	1	top	77.3	0.006	1.029	1.294	0.008	
2441	39	Bluetooth	FHSS	10.5	10.38	0.03	10 mm	42497	1	right	77.3	0.005	1.029	1.294	0.007	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT							Body									
Spatial Peak							1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population							averaged over 1 gram									

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11.4 Standalone Phablet SAR Data

Table 11-40
CDMA/UMTS Phablet 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 (10g)	Scaling Factor	Reported SAR (10g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.01	-0.01	9 mm	38024	N/A	1:1	back	0.199	1.256	0.250	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.01	0.09	0 mm	38024	N/A	1:1	front	0.730	1.256	0.917	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.01	-0.11	2 mm	38024	N/A	1:1	bottom	0.640	1.256	0.804	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.01	0.07	0 mm	38024	N/A	1:1	right	0.074	1.256	0.093	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.01	-0.16	0 mm	38024	N/A	1:1	left	0.694	1.256	0.872	
1851.25	25	PCS CDMA	EVDO Rev. 0	23.5	22.10	-0.03	0 mm	41200	N/A	1:1	back	1.310	1.380	1.808	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.5	21.95	-0.03	0 mm	41200	N/A	1:1	back	1.310	1.429	1.872	A60
1908.75	1175	PCS CDMA	EVDO Rev. 0	23.5	21.89	-0.02	0 mm	41200	N/A	1:1	back	1.210	1.449	1.753	
1880.00	600	PCS CDMA	EVDO Rev. 0	23.5	21.95	-0.09	0 mm	41200	N/A	1:1	bottom	0.852	1.429	1.218	
1732.40	1412	UMTS 1750	RMC	25.0	23.85	-0.01	9 mm	41192	N/A	1:1	back	0.288	1.303	0.375	
1732.40	1412	UMTS 1750	RMC	25.0	23.85	0.03	0 mm	41192	N/A	1:1	front	1.420	1.303	1.850	
1732.40	1412	UMTS 1750	RMC	25.0	23.85	-0.02	2 mm	41192	N/A	1:1	bottom	0.482	1.303	0.628	
1732.40	1412	UMTS 1750	RMC	25.0	23.85	-0.03	0 mm	41192	N/A	1:1	right	0.236	1.303	0.308	
1732.40	1412	UMTS 1750	RMC	25.0	23.85	-0.02	0 mm	41192	N/A	1:1	left	0.879	1.303	1.145	
1712.40	1312	UMTS 1750	RMC	22.0	20.88	-0.03	0 mm	41135	N/A	1:1	back	1.760	1.294	2.277	A61
1732.40	1412	UMTS 1750	RMC	22.0	20.78	-0.12	0 mm	41135	N/A	1:1	back	1.740	1.324	2.304	
1752.60	1513	UMTS 1750	RMC	22.0	20.92	-0.02	0 mm	41135	N/A	1:1	back	1.560	1.282	2.000	
1732.40	1412	UMTS 1750	RMC	22.0	20.78	-0.15	0 mm	41135	N/A	1:1	bottom	0.892	1.324	1.181	
1880.00	9400	UMTS 1900	RMC	25.0	23.61	0.00	9 mm	41150	N/A	1:1	back	0.234	1.377	0.322	
1880.00	9400	UMTS 1900	RMC	25.0	23.61	0.07	0 mm	41150	N/A	1:1	front	0.768	1.377	1.058	
1880.00	9400	UMTS 1900	RMC	25.0	23.61	-0.06	2 mm	41150	N/A	1:1	bottom	0.824	1.377	1.135	
1880.00	9400	UMTS 1900	RMC	25.0	23.61	0.05	0 mm	41150	N/A	1:1	right	0.090	1.377	0.124	
1880.00	9400	UMTS 1900	RMC	25.0	23.61	-0.03	0 mm	41150	N/A	1:1	left	0.848	1.377	1.168	
1852.40	9262	UMTS 1900	RMC	23.0	22.15	-0.10	0 mm	41150	N/A	1:1	back	1.100	1.216	1.338	
1880.00	9400	UMTS 1900	RMC	23.0	21.74	-0.08	0 mm	41150	N/A	1:1	back	1.290	1.337	1.725	A62
1907.60	9538	UMTS 1900	RMC	23.0	22.01	-0.08	0 mm	41150	N/A	1:1	back	1.090	1.256	1.369	
1880.00	9400	UMTS 1900	RMC	23.0	21.74	-0.04	0 mm	41150	N/A	1:1	bottom	0.880	1.337	1.177	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Phablet 4.0 W/kg (mW/g) averaged over 10 grams								

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Table 11-41
LTE Band 71 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)		
680.50	133297	Mid	LTE Band 71	20	25.2	25.01	-0.06	0	41200	QPSK	1	0	0 mm	back	1:1	0.431	1.045	0.450	A63
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	-0.04	1	41200	QPSK	50	0	0 mm	back	1:1	0.367	1.099	0.403	
680.50	133297	Mid	LTE Band 71	20	25.2	25.01	0.03	0	41200	QPSK	1	0	0 mm	front	1:1	0.169	1.045	0.177	
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	0.02	1	41200	QPSK	50	0	0 mm	front	1:1	0.130	1.099	0.143	
680.50	133297	Mid	LTE Band 71	20	25.2	25.01	-0.07	0	41200	QPSK	1	0	0 mm	bottom	1:1	0.206	1.045	0.215	
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	-0.07	1	41200	QPSK	50	0	0 mm	bottom	1:1	0.164	1.099	0.180	
680.50	133297	Mid	LTE Band 71	20	25.2	25.01	0.09	0	41200	QPSK	1	0	0 mm	right	1:1	0.299	1.045	0.312	
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	0.05	1	41200	QPSK	50	0	0 mm	right	1:1	0.231	1.099	0.254	
680.50	133297	Mid	LTE Band 71	20	25.2	25.01	-0.07	0	41200	QPSK	1	0	0 mm	left	1:1	0.157	1.045	0.164	
680.50	133297	Mid	LTE Band 71	20	24.2	23.79	0.01	1	41200	QPSK	50	0	0 mm	left	1:1	0.115	1.099	0.126	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Phablet 4.0 W/kg (mW/g) averaged over 10 grams											
Spatial Peak Uncontrolled Exposure/General Population																			

Note: SAR was tested with maximum output power instead of Grip Sensor Active, which is a more conservative measurement.

Table 11-42
LTE Band 66 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	24.31	-0.16	0	41135	QPSK	1	99	9 mm	back	1:1	0.484	1.227	0.594	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	23.31	-0.03	1	41135	QPSK	50	0	9 mm	back	1:1	0.431	1.227	0.529	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	24.31	0.13	0	41135	QPSK	1	99	0 mm	front	1:1	1.290	1.227	1.583	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	23.31	0.02	1	41135	QPSK	50	0	0 mm	front	1:1	1.050	1.227	1.288	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	24.31	-0.05	0	41135	QPSK	1	99	2 mm	bottom	1:1	0.905	1.227	1.110	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	23.31	-0.17	1	41135	QPSK	50	0	2 mm	bottom	1:1	0.774	1.227	0.950	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	24.31	0.16	0	41135	QPSK	1	99	0 mm	right	1:1	0.149	1.227	0.183	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	23.31	0.01	1	41135	QPSK	50	0	0 mm	right	1:1	0.150	1.227	0.184	
1720.00	132072	Low	LTE Band 66 (AWS)	20	25.2	24.31	-0.06	0	41135	QPSK	1	99	0 mm	left	1:1	0.530	1.227	0.650	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.2	23.31	-0.09	1	41135	QPSK	50	0	0 mm	left	1:1	0.564	1.227	0.692	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	21.02	-0.01	0	41135	QPSK	1	99	0 mm	back	1:1	2.110	1.312	2.768	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	22.2	20.68	-0.04	0	41135	QPSK	1	0	0 mm	back	1:1	1.950	1.419	2.767	
1770.00	132572	High	LTE Band 66 (AWS)	20	22.2	20.90	-0.01	0	41135	QPSK	1	0	0 mm	back	1:1	1.830	1.349	2.469	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	20.97	-0.06	0	41135	QPSK	50	0	0 mm	back	1:1	2.240	1.327	2.972	A64
1745.00	132322	Mid	LTE Band 66 (AWS)	20	22.2	20.65	-0.02	0	41135	QPSK	50	25	0 mm	back	1:1	2.090	1.429	2.987	
1770.00	132572	High	LTE Band 66 (AWS)	20	22.2	20.86	-0.03	0	41135	QPSK	50	0	0 mm	back	1:1	1.960	1.361	2.668	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	20.93	-0.05	0	41135	QPSK	100	0	0 mm	back	1:1	2.190	1.340	2.935	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	21.02	0.07	0	41135	QPSK	1	99	0 mm	bottom	1:1	0.969	1.312	1.271	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	20.97	0.03	0	41135	QPSK	50	0	0 mm	bottom	1:1	0.988	1.327	1.311	
1720.00	132072	Low	LTE Band 66 (AWS)	20	22.2	20.97	0.01	0	41135	QPSK	50	0	0 mm	back	1:1	2.020	1.327	2.681	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams											

Note: Blue entry represents variability measurement.

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Table 11-43
LTE Band 25 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)		
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	24.77	0.07	0	04603	QPSK	1	50	9 mm	back	1:1	0.151	1.104	0.167	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	23.87	0.05	1	04603	QPSK	50	0	9 mm	back	1:1	0.126	1.079	0.136	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	24.77	0.10	0	04603	QPSK	1	50	0 mm	front	1:1	0.639	1.104	0.705	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	23.87	0.13	1	04603	QPSK	50	0	0 mm	front	1:1	0.532	1.079	0.574	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	24.77	-0.07	0	04603	QPSK	1	50	2 mm	bottom	1:1	0.243	1.104	0.268	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	23.87	-0.10	1	04603	QPSK	50	0	2 mm	bottom	1:1	0.206	1.079	0.222	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	24.77	0.11	0	04603	QPSK	1	50	0 mm	right	1:1	0.088	1.104	0.097	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	23.87	-0.02	1	04603	QPSK	50	0	0 mm	right	1:1	0.072	1.079	0.078	
1905.00	26590	High	LTE Band 25 (PCS)	20	25.2	24.77	-0.04	0	04603	QPSK	1	50	0 mm	left	1:1	0.605	1.104	0.668	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.2	23.87	-0.08	1	04603	QPSK	50	0	0 mm	left	1:1	0.507	1.079	0.547	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.2	22.74	0.01	0	04603	QPSK	1	50	0 mm	back	1:1	0.766	1.112	0.852	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.2	22.53	0.00	0	04603	QPSK	50	0	0 mm	back	1:1	0.776	1.167	0.906	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.2	22.74	-0.04	0	04603	QPSK	1	50	0 mm	bottom	1:1	0.855	1.112	0.951	A65
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.2	22.53	-0.07	0	04603	QPSK	50	0	0 mm	bottom	1:1	0.853	1.167	0.995	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Phablet											
Spatial Peak								4.0 W/kg (mW/g)											
Uncontrolled Exposure/General Population								averaged over 10 grams											

Table 11-44
LTE Band 38/41 Phablet 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 (10g)	Scaling Factor	Reported SAR (10g)	Plot #	
		MHz	Ch.														(W/kg)		(W/kg)		
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 38/41	20	24.5	22.95	0.07	0	36937	QPSK	1	99	0 mm	back	1:1.58	1.770	1.429	2.529	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 38/41	20	24.5	22.50	-0.08	0	36937	QPSK	1	0	0 mm	back	1:1.58	1.560	1.585	2.473	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 38/41	20	24.5	23.16	-0.07	0	36937	QPSK	1	0	0 mm	back	1:1.58	1.860	1.361	2.531	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 38/41	20	24.5	22.70	-0.09	0	36937	QPSK	1	0	0 mm	back	1:1.58	1.660	1.514	2.513	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 38/41	20	24.5	22.55	-0.06	0	36937	QPSK	1	99	0 mm	back	1:1.58	1.460	1.567	2.288	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 38/41	20	23.5	21.76	-0.08	1	36937	QPSK	50	25	0 mm	back	1:1.58	1.590	1.493	2.374	
1 CC Uplink - Power Class 3	N/A	2549.50	40185	Low-Mid	LTE Band 38/41	20	23.5	21.46	-0.09	1	36937	QPSK	50	50	0 mm	back	1:1.58	1.210	1.600	1.936	
1 CC Uplink - Power Class 3	N/A	2593.00	40620	Mid	LTE Band 38/41	20	23.5	21.78	-0.08	1	36937	QPSK	50	50	0 mm	back	1:1.58	1.460	1.486	2.170	
1 CC Uplink - Power Class 3	N/A	2636.50	41055	Mid-High	LTE Band 38/41	20	23.5	21.61	-0.03	1	36937	QPSK	50	50	0 mm	back	1:1.58	1.170	1.545	1.808	
1 CC Uplink - Power Class 3	N/A	2680.00	41490	High	LTE Band 38/41	20	23.5	21.59	-0.18	1	36937	QPSK	50	0	0 mm	back	1:1.58	1.010	1.552	1.568	
1 CC Uplink - Power Class 3	N/A	2506.00	39750	Low	LTE Band 38/41	20	23.5	21.77	-0.06	1	36937	QPSK	100	0	0 mm	back	1:1.58	1.600	1.489	2.382	
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	27.0	26.33	-0.10	0	36937	QPSK	1	0	0 mm	back	1:2.31	2.390	1.167	2.789	A66
2 CC Uplink - Power Class 3	PCC	2593.00	40620	Mid	LTE Band 41	20	24.5	22.50	-0.13	0	36937	QPSK	1	0	0 mm	back	1:1.58	1.680	1.585	2.663	
	SCC	2573.20	40422										1	99							
1 CC Uplink - Power Class 2	N/A	2593.00	40620	Mid	LTE Band 41	20	27.0	26.33	0.00	0	36937	QPSK	1	0	0 mm	back	1:2.31	2.380	1.167	2.777	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT											Phablet										
Spatial Peak											4.0 W/kg (mW/g)										
Uncontrolled Exposure/General Population											averaged over 10 grams										

Note: Blue entry represents variability measurement.

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Table 11-45
WLAN Phablet SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g)	Plot #
MHz	Ch.												W/kg	(W/kg)			(W/kg)	
5320	64	802.11a	OFDM	20	18.0	17.97	0.03	0 mm	04512	6	back	98.1	4.559	0.587	1.007	1.019	0.602	
5320	64	802.11a	OFDM	20	18.0	17.97	0.09	0 mm	04512	6	front	98.1	0.471	-	1.007	1.019	-	
5320	64	802.11a	OFDM	20	18.0	17.97	0.01	0 mm	04512	6	top	98.1	2.526	-	1.007	1.019	-	
5320	64	802.11a	OFDM	20	18.0	17.97	-0.09	0 mm	04512	6	right	98.1	0.055	-	1.007	1.019	-	
5500	100	802.11a	OFDM	20	18.0	17.99	0.10	0 mm	04512	6	back	98.1	8.729	1.170	1.002	1.019	1.195	A67
5500	100	802.11a	OFDM	20	18.0	17.99	0.04	0 mm	04512	6	front	98.1	0.990	-	1.002	1.019	-	
5500	100	802.11a	OFDM	20	18.0	17.99	0.16	0 mm	04512	6	top	98.1	3.478	0.439	1.002	1.019	0.448	
5500	100	802.11a	OFDM	20	18.0	17.99	0.07	0 mm	04512	6	right	98.1	0.121	-	1.002	1.019	-	
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:

- The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, and FCC KDB Publication 447498 D01v06.
- Batteries are fully charged at the beginning of the SAR measurements.
- Liquid tissue depth was at least 15.0 cm for all frequencies.
- The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
- SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB Publication 447498 D01v06.
- Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
- Per FCC KDB 865664 D01v01r04, variability SAR tests were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 13 for variability analysis.
- During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v02r01, the actual Portable Hotspot operation (with actual simultaneous transmission of a transmitter with WIFI) was not activated (See Section 13 for more details).
- 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.
- 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.
- Unless otherwise noted, when 10g SAR measurement is considered, a factor of 2.5 is applied to the thresholds below.
- Additional SAR tests for phablet SAR were evaluated per KDB 616217 Section 6 (See Section 6.9 for more information).

GSM Test Notes:

- Body-Worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
- 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

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GPRS/EDGE slot configurations. The configuration with the highest target frame averaged output power was evaluated for hotspot SAR. When the maximum frame-averaged powers are equivalent across two or more slots (within 0.25 dB), the configuration with the most number of time slots was tested.

3. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel was used.

CDMA Notes:

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

UMTS Notes:

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

LTE Notes:

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

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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.

WLAN Notes:

1. For held-to-ear, and hotspot, and phablet operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g evaluations, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n/ax) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 8.7.5 for more information.
3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 8.7.6 for more information.
4. 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.
5. 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.
6. When 10-g SAR measurement is considered, a factor of 2.5 is applied to the thresholds above.

Bluetooth Notes

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

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12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

12.1 Introduction

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

12.2 Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore, simultaneous transmission analysis is required. Per FCC KDB Publication 447498 D01v06 4.3.2 and IEEE 1528-2013 Section 6.3.4.1.2, simultaneous transmission SAR test exclusion may be applied when the sum of the 1g SAR for all the simultaneous transmitting antennas in a specific 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.

(*) 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 condition was used for simultaneous transmission analysis.

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

12.3 Head SAR Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	CDMA/EVDO BC10 (§90S)	0.270	0.149	0.419
	CDMA/EVDO BC0 (§22H)	0.285	0.149	0.434
	PCS CDMA/EVDO	0.165	0.149	0.314
	GSM 850	0.350	0.149	0.499
	GSM 1900	0.111	0.149	0.260
	UMTS 850	0.308	0.149	0.457
	UMTS 1750	0.258	0.149	0.407
	UMTS 1900	0.197	0.149	0.346
	LTE Band 71	0.146	0.149	0.295
	LTE Band 12	0.222	0.149	0.371
	LTE Band 13	0.266	0.149	0.415
	LTE Band 26 (Cell)	0.320	0.149	0.469
	LTE Band 66 (AWS)	0.239	0.149	0.388
	LTE Band 25 (PCS)	0.182	0.149	0.331
	LTE Band 7	1.312	0.149	1.461
	LTE Band 38	0.679	0.149	0.828
	LTE Band 41	0.547	0.149	0.696

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	CDMA/EVDO BC10 (§90S)	0.270	0.243	0.513
	CDMA/EVDO BC0 (§22H)	0.285	0.243	0.528
	PCS CDMA/EVDO	0.165	0.243	0.408
	GSM 850	0.350	0.243	0.593
	GSM 1900	0.111	0.243	0.354
	UMTS 850	0.308	0.243	0.551
	UMTS 1750	0.258	0.243	0.501
	UMTS 1900	0.197	0.243	0.440
	LTE Band 71	0.146	0.243	0.389
	LTE Band 12	0.222	0.243	0.465
	LTE Band 13	0.266	0.243	0.509
	LTE Band 26 (Cell)	0.320	0.243	0.563
	LTE Band 66 (AWS)	0.239	0.243	0.482
	LTE Band 25 (PCS)	0.182	0.243	0.425
	LTE Band 7	1.312	0.243	1.555
	LTE Band 38	0.679	0.243	0.922
	LTE Band 41	0.547	0.243	0.790

Table 12-3
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)	0.270	0.039	0.309
	CDMA/EVDO BC0 (§22H)	0.285	0.039	0.324
	PCS CDMA/EVDO	0.165	0.039	0.204
	GSM 850	0.350	0.039	0.389
	GSM 1900	0.111	0.039	0.150
	UMTS 850	0.308	0.039	0.347
	UMTS 1750	0.258	0.039	0.297
	UMTS 1900	0.197	0.039	0.236
	LTE Band 71	0.146	0.039	0.185
	LTE Band 12	0.222	0.039	0.261
	LTE Band 13	0.266	0.039	0.305
	LTE Band 26 (Cell)	0.320	0.039	0.359
	LTE Band 66 (AWS)	0.239	0.039	0.278
	LTE Band 25 (PCS)	0.182	0.039	0.221
	LTE Band 7	1.312	0.039	1.351
	LTE Band 38	0.679	0.039	0.718
	LTE Band 41	0.547	0.039	0.586

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Table 12-4
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	CDMA/EVDO BC10 (§90S)	0.270	0.039	0.243	0.552
	CDMA/EVDO BC0 (§22H)	0.285	0.039	0.243	0.567
	PCS CDMA/EVDO	0.165	0.039	0.243	0.447
	GSM 850	0.350	0.039	0.243	0.632
	GSM 1900	0.111	0.039	0.243	0.393
	UMTS 850	0.308	0.039	0.243	0.590
	UMTS 1750	0.258	0.039	0.243	0.540
	UMTS 1900	0.197	0.039	0.243	0.479
	LTE Band 71	0.146	0.039	0.243	0.428
	LTE Band 12	0.222	0.039	0.243	0.504
	LTE Band 13	0.266	0.039	0.243	0.548
	LTE Band 26 (Cell)	0.320	0.039	0.243	0.602
	LTE Band 66 (AWS)	0.239	0.039	0.243	0.521
	LTE Band 25 (PCS)	0.182	0.039	0.243	0.464
	LTE Band 7	1.312	0.039	0.243	1.594
	LTE Band 38	0.679	0.039	0.243	0.961
	LTE Band 41	0.547	0.039	0.243	0.829

12.4 Body-Worn Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	CDMA BC10 (§90S)	0.310	0.092	0.402
	CDMA BC0 (§22H)	0.329	0.092	0.421
	PCS CDMA	0.203	0.092	0.295
	GSM 850	0.437	0.092	0.529
	GSM 1900	0.082	0.092	0.174
	UMTS 850	0.343	0.092	0.435
	UMTS 1750	0.577	0.092	0.669
	UMTS 1900	0.240	0.092	0.332
	LTE Band 71	0.241	0.092	0.333
	LTE Band 12	0.349	0.092	0.441
	LTE Band 13	0.431	0.092	0.523
	LTE Band 26 (Cell)	0.383	0.092	0.475
	LTE Band 66 (AWS)	0.533	0.092	0.625
	LTE Band 25 (PCS)	0.209	0.092	0.301
	LTE Band 7	0.048	0.092	0.140
	LTE Band 38/41	0.506	0.092	0.598

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Table 12-6
Simultaneous Transmission Scenario with 5 GHz WLAN (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	CDMA BC10 (§90S)	0.310	0.425	0.735
	CDMA BC0 (§22H)	0.329	0.425	0.754
	PCS CDMA	0.203	0.425	0.628
	GSM 850	0.437	0.425	0.862
	GSM 1900	0.082	0.425	0.507
	UMTS 850	0.343	0.425	0.768
	UMTS 1750	0.577	0.425	1.002
	UMTS 1900	0.240	0.425	0.665
	LTE Band 71	0.241	0.425	0.666
	LTE Band 12	0.349	0.425	0.774
	LTE Band 13	0.431	0.425	0.856
	LTE Band 26 (Cell)	0.383	0.425	0.808
	LTE Band 66 (AWS)	0.533	0.425	0.958
	LTE Band 25 (PCS)	0.209	0.425	0.634
	LTE Band 7	0.048	0.425	0.473
	LTE Band 38/41	0.506	0.425	0.931

Table 12-7
Simultaneous Transmission Scenario with Bluetooth (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	CDMA BC10 (§90S)	0.310	0.007	0.317
	CDMA BC0 (§22H)	0.329	0.007	0.336
	PCS CDMA	0.203	0.007	0.210
	GSM 850	0.437	0.007	0.444
	GSM 1900	0.082	0.007	0.089
	UMTS 850	0.343	0.007	0.350
	UMTS 1750	0.577	0.007	0.584
	UMTS 1900	0.240	0.007	0.247
	LTE Band 71	0.241	0.007	0.248
	LTE Band 12	0.349	0.007	0.356
	LTE Band 13	0.431	0.007	0.438
	LTE Band 26 (Cell)	0.383	0.007	0.390
	LTE Band 66 (AWS)	0.533	0.007	0.540
	LTE Band 25 (PCS)	0.209	0.007	0.216
	LTE Band 7	0.048	0.007	0.055
	LTE Band 38/41	0.506	0.007	0.513

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Table 12-8
Simultaneous Transmission Scenario with Bluetooth and 5 GHz WLAN (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	CDMA BC10 (§90S)	0.310	0.007	0.425	0.742
	CDMA BC0 (§22H)	0.329	0.007	0.425	0.761
	PCS CDMA	0.203	0.007	0.425	0.635
	GSM 850	0.437	0.007	0.425	0.869
	GSM 1900	0.082	0.007	0.425	0.514
	UMTS 850	0.343	0.007	0.425	0.775
	UMTS 1750	0.577	0.007	0.425	1.009
	UMTS 1900	0.240	0.007	0.425	0.672
	LTE Band 71	0.241	0.007	0.425	0.673
	LTE Band 12	0.349	0.007	0.425	0.781
	LTE Band 13	0.431	0.007	0.425	0.863
	LTE Band 26 (Cell)	0.383	0.007	0.425	0.815
	LTE Band 66 (AWS)	0.533	0.007	0.425	0.965
	LTE Band 25 (PCS)	0.209	0.007	0.425	0.641
	LTE Band 7	0.048	0.007	0.425	0.480
	LTE Band 38/41	0.506	0.007	0.425	0.938

12.5 Hotspot SAR Simultaneous Transmission Analysis

Table 12-9
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 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.373	0.224	0.597
	EVDO BC0 (§22H)	0.497	0.224	0.721
	PCS EVDO	0.374	0.224	0.598
	GPRS 850	0.805	0.224	1.029
	GPRS 1900	0.184	0.224	0.408
	UMTS 850	0.515	0.224	0.739
	UMTS 1750	0.572	0.224	0.796
	UMTS 1900	0.444	0.224	0.668
	LTE Band 71	0.261	0.224	0.485
	LTE Band 12	0.410	0.224	0.634
	LTE Band 13	0.480	0.224	0.704
	LTE Band 26 (Cell)	0.572	0.224	0.796
	LTE Band 66 (AWS)	0.770	0.224	0.994
	LTE Band 25 (PCS)	0.279	0.224	0.503
	LTE Band 7	0.313	0.224	0.537
	LTE Band 38	0.613	0.224	0.837
	LTE Band 41	0.578	0.224	0.802

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.373	0.770	1.143
	EVDO BC0 (§22H)	0.497	0.770	1.267
	PCS EVDO	0.374	0.770	1.144
	GPRS 850	0.805	0.770	1.575
	GPRS 1900	0.184	0.770	0.954
	UMTS 850	0.515	0.770	1.285
	UMTS 1750	0.572	0.770	1.342
	UMTS 1900	0.444	0.770	1.214
	LTE Band 71	0.261	0.770	1.031
	LTE Band 12	0.410	0.770	1.180
	LTE Band 13	0.480	0.770	1.250
	LTE Band 26 (Cell)	0.572	0.770	1.342
	LTE Band 66 (AWS)	0.770	0.770	1.540
	LTE Band 25 (PCS)	0.279	0.770	1.049
	LTE Band 7	0.313	0.770	1.083
	LTE Band 38	0.613	0.770	1.383
	LTE Band 41	0.578	0.770	1.348

Table 12-11
Simultaneous Transmission Scenario with Bluetooth (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.373	0.019	0.392
	EVDO BC0 (§22H)	0.497	0.019	0.516
	PCS EVDO	0.374	0.019	0.393
	GPRS 850	0.805	0.019	0.824
	GPRS 1900	0.184	0.019	0.203
	UMTS 850	0.515	0.019	0.534
	UMTS 1750	0.572	0.019	0.591
	UMTS 1900	0.444	0.019	0.463
	LTE Band 71	0.261	0.019	0.280
	LTE Band 12	0.410	0.019	0.429
	LTE Band 13	0.480	0.019	0.499
	LTE Band 26 (Cell)	0.572	0.019	0.591
	LTE Band 66 (AWS)	0.770	0.019	0.789
	LTE Band 25 (PCS)	0.279	0.019	0.298
	LTE Band 7	0.313	0.019	0.332
	LTE Band 38	0.613	0.019	0.632
	LTE Band 41	0.578	0.019	0.597

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (\$90S)	0.373	0.019	0.770	1.162
	EVDO BC0 (\$22H)	0.497	0.019	0.770	1.286
	PCS EVDO	0.374	0.019	0.770	1.163
	GPRS 850	0.805	0.019	0.770	1.594
	GPRS 1900	0.184	0.019	0.770	0.973
	UMTS 850	0.515	0.019	0.770	1.304
	UMTS 1750	0.572	0.019	0.770	1.361
	UMTS 1900	0.444	0.019	0.770	1.233
	LTE Band 71	0.261	0.019	0.770	1.050
	LTE Band 12	0.410	0.019	0.770	1.199
	LTE Band 13	0.480	0.019	0.770	1.269
	LTE Band 26 (Cell)	0.572	0.019	0.770	1.361
	LTE Band 66 (AWS)	0.770	0.019	0.770	1.559
	LTE Band 25 (PCS)	0.279	0.019	0.770	1.068
	LTE Band 7	0.313	0.019	0.770	1.102
	LTE Band 38	0.613	0.019	0.770	1.402
	LTE Band 41	0.578	0.019	0.770	1.367

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12.6 Phablet Simultaneous Transmission Analysis

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

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

Table 12-13
Simultaneous Transmission Scenario with 5 GHz WLAN (Phablet)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	
		1	2	1+2	
Phablet SAR	PCS EVDO	1.872	1.195	3.067	
	UMTS 1750	2.304	1.195	3.499	
	UMTS 1900	1.725	1.195	2.920	
	LTE Band 71	0.450	1.195	1.645	
	LTE Band 66 (AWS)	2.987	1.195	See Table Below	
	LTE Band 25 (PCS)	0.995	1.195	2.190	
	LTE Band 38/41	2.789	1.195	3.984	
Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Phablet SAR	Back	2.987	1.195	See Note 1	0.06
	Front	1.583	1.195*	2.778	N/A
	Top	-	0.448	0.448	N/A
	Bottom	1.311	-	1.311	N/A
	Right	0.184	1.195*	1.379	N/A
	Left	0.692	-	0.692	N/A

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

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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.

$$\text{Distance}_{T_{X1} - T_{X2}} = R_i = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} \text{ (Phablet)}$$

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

12.7.1 Phablet Back Side SPLSR Evaluation and Analysis

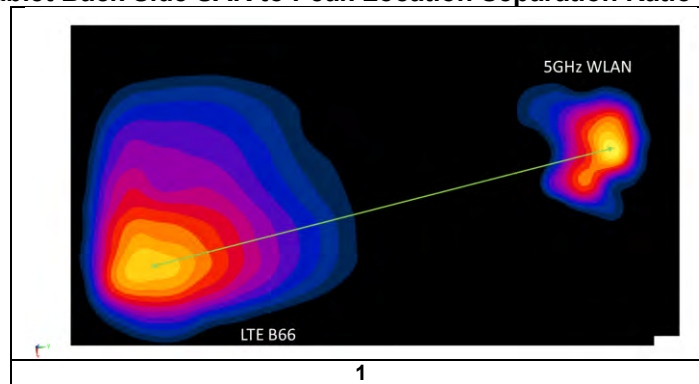
Table 12-14
Peak SAR Locations for Phablet Back Side

Mode/Band	x (mm)	y (mm)
5 GHz WLAN	-41.00	74.00
LTE Band 66 (AWS)	0.50	-67.50

Table 12-15
Phablet Back Side SAR to Peak Location Separation Ratio Calculations

Antenna Pair		Standalone SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D _{a-b}	(a+b) ^{1.5} /D _{a-b}	
5 GHz WLAN	LTE Band 66 (AWS)	1.195	2.987	4.182	147.46	0.06	1

Table 12-16
Phablet Back Side SAR to Peak Location Separation Ratio Plots



12.8 Simultaneous Transmission Conclusion

The above analysis for all the worst-case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit per FCC KDB Publication 447498 D01v06 and IEEE 1528-2013 Section 6.3.4.1.2.

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13 SAR MEASUREMENT VARIABILITY

13.1 Measurement Variability

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

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

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

Table 13-1
Head SAR Measurement Variability Results

HEAD VARIABILITY RESULTS													
Band	FREQUENCY		Mode/Band	Service	Side	Test Position	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
2450	2510.00	20850	LTE Band 7, 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	Right	Cheek	0.999	1.040	1.04	N/A	N/A	N/A	N/A
2600	2560.00	21350	LTE Band 7, 20 MHz Bandwidth	QPSK, 1 RB, 50 RB Offset	Right	Cheek	1.300	1.250	1.04	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 13-2
Phablet SAR Measurement Variability Results

PHABLET VARIABILITY RESULTS													
Band	FREQUENCY		Mode	Service	Side	Spacing	Measured SAR (10g)	1st Repeated SAR (10g)	Ratio	2nd Repeated SAR (10g)	Ratio	3rd Repeated SAR (10g)	Ratio
	MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1750	1720.00	132072	LTE Band 66 (AWS), 20 MHz Bandwidth	QPSK, 50 RB, 0 RB Offset	back	0 mm	2.240	2.020	1.11	N/A	N/A	N/A	N/A
2600	2593.00	40620	LTE Band 41 Power Class 2, 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	back	0 mm	2.390	2.380	1.00	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						Phablet 4.0 W/kg (mW/g) averaged over 10 grams							

13.2 Measurement Uncertainty

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

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14 ADDITIONAL TESTING PER FCC GUIDANCE

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

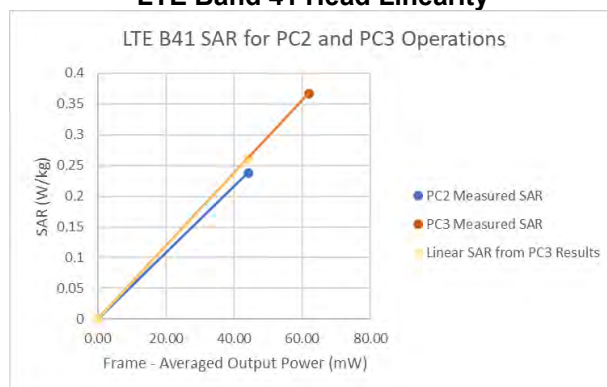
This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per May 2017 TCB Workshop Notes based on the device behavior, all SAR tests were performed using Power Class 3. SAR with 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. Power Class 2 operations are not available when ULCA is active. 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)	21.5	21.5
Measured Output Power (dBm)	19.90	20.08
Measured SAR (W/kg)	0.367	0.238
Measured Power (mW)	97.72	101.86
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	61.86	44.11
% deviation from expected linearity		-9.04%

Table 14-2
LTE Band 41 Head Linearity



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Table 14-3
LTE Band 41 Body-Worn Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24.5	27.0
Measured Output Power (dBm)	23.16	26.33
Measured SAR (W/kg)	0.304	0.434
Measured Power (mW)	207.01	429.54
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	131.04	185.99
% deviation from expected linearity		0.58%

Table 14-4
LTE Band 41 Body-Worn Linearity

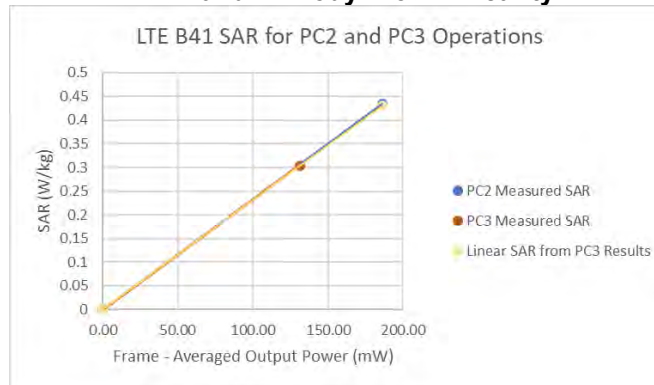
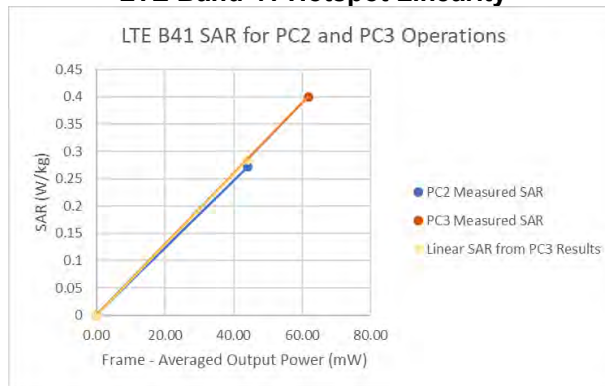


Table 14-5
LTE Band 41 Hotspot Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	21.5	21.5
Measured Output Power (dBm)	19.90	20.08
Measured SAR (W/kg)	0.400	0.271
Measured Power (mW)	97.72	101.86
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	61.86	44.11
% deviation from expected linearity		-4.98%

Table 14-6
LTE Band 41 Hotspot Linearity

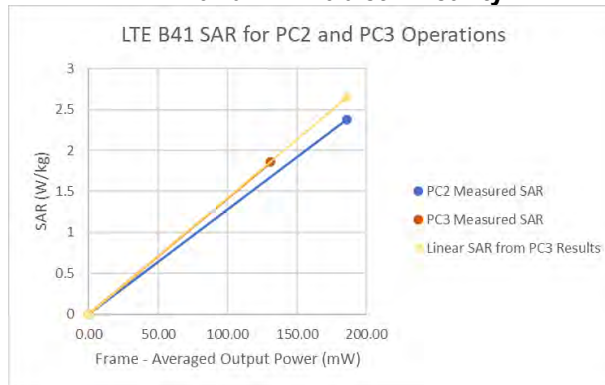


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Table 14-7
LTE Band 41 Phablet Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	24.5	27.0
Measured Output Power (dBm)	23.16	26.33
Measured SAR (W/kg)	1.86	2.38
Measured Power (mW)	207.01	429.54
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	131.04	185.99
% deviation from expected linearity		-9.85%

Table 14-8
LTE Band 41 Phablet Linearity



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15 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A	N/A	N/A	3051A00187
Agilent	E4438C	ESG Vector Signal Generator	3/8/2019	Biennial	3/8/2021	MY42082385
Agilent	N9020A	MXA Signal Analyzer	4/20/2019	Annual	4/20/2020	US46470561
Agilent	N5182A	MXG Vector Signal Generator	11/28/2018	Annual	11/28/2019	MY47420603
Agilent	N5182A-506	MXG Vector Signal Generator	6/19/2018	Annual	6/19/2019	MY48180366
Agilent	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	E5515C	Wireless Communications Test Set	5/22/2018	Biennial	5/22/2020	GB43193563
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB44450273
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433972
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433974
Anritsu	ML2496A	Power Meter	6/19/2018	Annual	6/19/2019	1306009
Anritsu	ML2496A	Power Meter	5/21/2018	Annual	5/21/2019	1351001
Anritsu	MA2411B	Pulse Power Sensor	11/20/2018	Annual	11/20/2019	1339008
Anritsu	MA2411B	Pulse Power Sensor	3/6/2019	Annual	3/6/2020	1339018
Anritsu	MT8820C	Radio Communication Analyzer	3/29/2019	Annual	3/29/2020	6201300731
Anritsu	MT8821C	Radio Communication Analyzer	11/6/2018	Annual	11/6/2019	6200901190
Anritsu	MA24106A	USB Power Sensor	6/5/2018	Annual	6/5/2019	1244515
Anritsu	MA24106A	USB Power Sensor	1/31/2019	Annual	1/31/2020	1244524
Anritsu	MT8862A	Wireless Connectivity Test Set	7/3/2018	Annual	7/3/2019	6261782395
COMTECH	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M155A00-009
COMTECH	AR85729-5/5759B	Solid State Amplifier	CBT	N/A	CBT	M3W1A00-1002
Control Company	4040	Therm./ Clock/ Humidity Monitor	10/9/2018	Biennial	10/9/2020	181647802
Control Company	4040	Therm./ Clock/ Humidity Monitor	10/9/2018	Biennial	10/9/2020	181647811
Control Company	4352	Ultra Long Stem Thermometer	11/29/2018	Biennial	11/29/2020	181766816
Control Company	4352	Ultra Long Stem Thermometer	11/29/2018	Biennial	11/29/2020	181766817
Intelligent Weigh	PD-3000	Electronic Balance	CBT	N/A	CBT	11081534
Keysight	7720	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	MY34011181
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5+	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
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
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	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	NC-100	Torque Wrench	11/1/2017	Biennial	11/1/2019	N/A
Pasternack	PE5011-1	Torque Wrench	7/19/2017	Biennial	7/19/2019	N/A
Rohde & Schwarz	CMW500	Radio Communication Tester	11/14/2018	Annual	11/14/2019	100976
Rohde & Schwarz	CMW500	Radio Communication Tester	6/9/2018	Annual	6/9/2019	108843
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	10/30/2018	Annual	10/30/2019	164948
SPEAG	D1750V2	1750 MHz SAR Dipole	5/9/2017	Biennial	5/9/2019	1148
SPEAG	D1750V2	1750 MHz SAR Dipole	10/22/2018	Annual	10/22/2019	1150
SPEAG	D1765V2	1765 MHz SAR Dipole	5/23/2018	Annual	5/23/2019	1008
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Annual	10/23/2019	5d080
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	6/7/2017	Biennial	6/7/2019	1064
SPEAG	D2600V2	2600 MHz SAR Dipole	9/13/2016	Triennial	9/13/2019	1071
SPEAG	D5GHV2	5 GHz SAR Dipole	9/21/2016	Triennial	9/21/2019	1191
SPEAG	D5GHV2	5 GHz SAR Dipole	8/10/2018	Annual	8/10/2019	1237
SPEAG	D750V3	750 MHz SAR Dipole	1/15/2018	Biennial	1/15/2020	1003
SPEAG	D750V3	750 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	1161
SPEAG	D835V2	835 MHz SAR Dipole	1/22/2019	Annual	1/22/2020	4d132
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/13/2019	Annual	2/13/2020	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/22/2018	Annual	5/22/2019	859
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/14/2019	Annual	2/14/2020	1272
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/11/2018	Annual	7/11/2019	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/18/2018	Annual	6/18/2019	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/18/2019	Annual	4/18/2020	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/22/2018	Annual	8/22/2019	1450
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/15/2019	Annual	1/15/2020	1530
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/3/2018	Annual	10/3/2019	1558
SPEAG	DAK-3.5	Dielectric Assessment Kit	9/11/2018	Annual	9/11/2019	1091
SPEAG	EX3DV4	SAR Probe	1/25/2019	Annual	1/25/2020	3589
SPEAG	EX3DV4	SAR Probe	2/19/2019	Annual	2/19/2020	3914
SPEAG	EX3DV4	SAR Probe	8/23/2018	Annual	8/23/2019	7308
SPEAG	EX3DV4	SAR Probe	4/18/2018	Annual	4/18/2019	7357
SPEAG	EX3DV4	SAR Probe	5/22/2018	Annual	5/22/2019	7406
SPEAG	EX3DV4	SAR Probe	6/25/2018	Annual	6/25/2019	7409
SPEAG	EX3DV4	SAR Probe	7/20/2018	Annual	7/20/2019	7410
SPEAG	EX3DV4	SAR Probe	2/19/2019	Annual	2/19/2020	7417
SPEAG	EX3DV4	SAR Probe	1/24/2019	Annual	1/24/2020	7488

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

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

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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 Uncertainty	0.6	R	1.73	0.23	0.26	0.1	0.1	∞
Liquid Conductivity - deviation from target values	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Permittivity - deviation from target values	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Combined Standard Uncertainty (k=1)	RSS					11.5	11.3	60
Expanded Uncertainty (95% CONFIDENCE LEVEL)	k=2					23.0	22.6	

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17 CONCLUSION

17.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Innovation, Science, and Economic Development Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables. [3]

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APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 38024

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

Medium: 835 Head; Medium parameters used (interpolated):

$f = 820.1 \text{ MHz}$; $\sigma = 0.915 \text{ S/m}$; $\epsilon_r = 41.988$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 04-15-2019; Ambient Temp: 22.4°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3914; ConvF(9.5, 9.5, 9.5) @ 820.1 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/14/2019

Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687

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

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

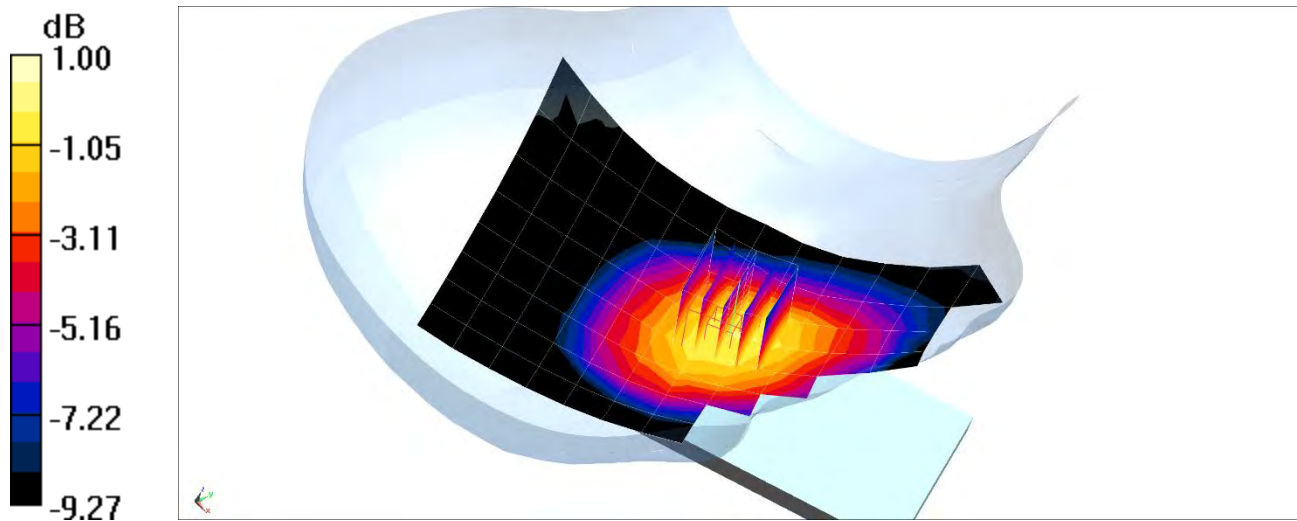
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.70 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.315 W/kg

SAR(1 g) = 0.242 W/kg



0 dB = 0.287 W/kg = -5.42 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 38024

Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1

Medium: 835 Head; Medium parameters used (interpolated):

$f = 836.52$ MHz; $\sigma = 0.921$ S/m; $\epsilon_r = 41.954$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Test Date: 04-15-2019; Ambient Temp: 22.4°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3914; ConvF(9.5, 9.5, 9.5) @ 836.52 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/14/2019

Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687

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

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

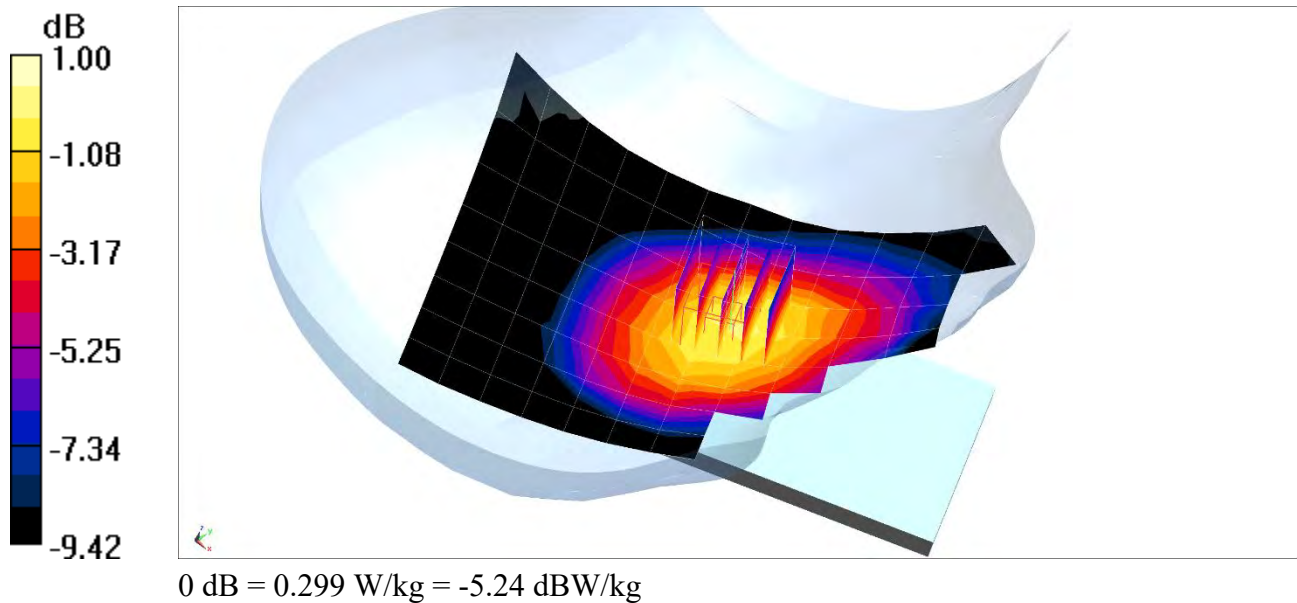
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 16.95 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.330 W/kg

SAR(1 g) = 0.252 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41150

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

Medium: 1900 Head; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.423 \text{ S/m}$; $\epsilon_r = 41.106$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 04-10-2019; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7357; ConvF(8.47, 8.47, 8.47) @ 1880 MHz; Calibrated: 4/18/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687

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

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

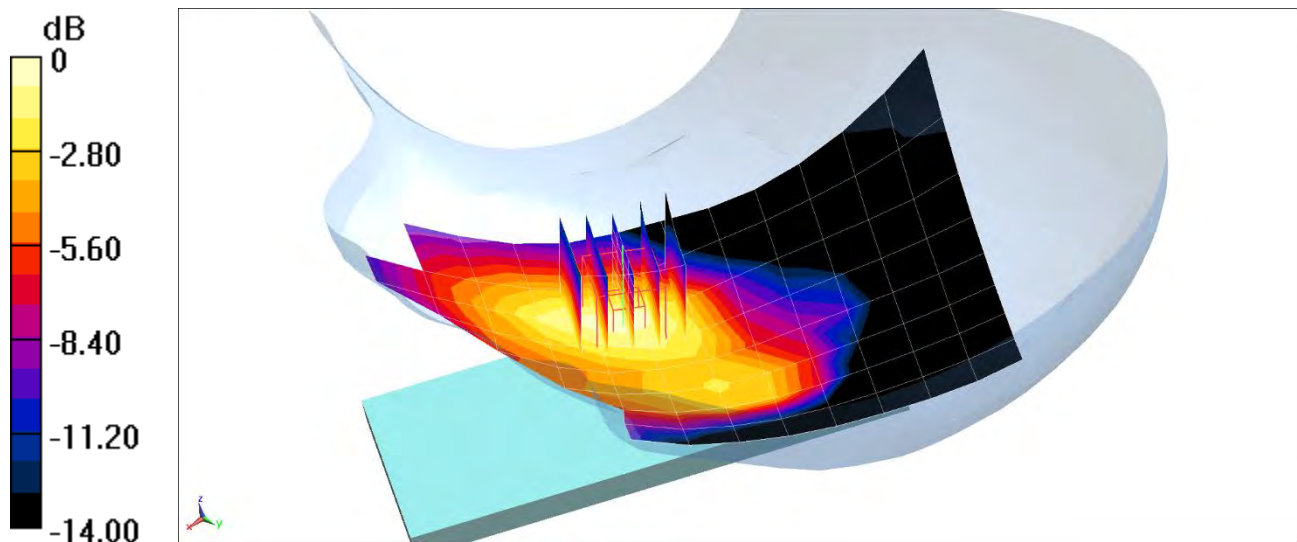
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.906 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.217 W/kg

SAR(1 g) = 0.133 W/kg



0 dB = 0.185 W/kg = -7.33 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 38354

Communication System: UID 0, GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: 835 Head; Medium parameters used (interpolated):

$f = 836.6 \text{ MHz}$; $\sigma = 0.921 \text{ S/m}$; $\epsilon_r = 41.954$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 04-15-2019; Ambient Temp: 22.4°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3914; ConvF(9.5, 9.5, 9.5) @ 836.6 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/14/2019

Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687

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

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

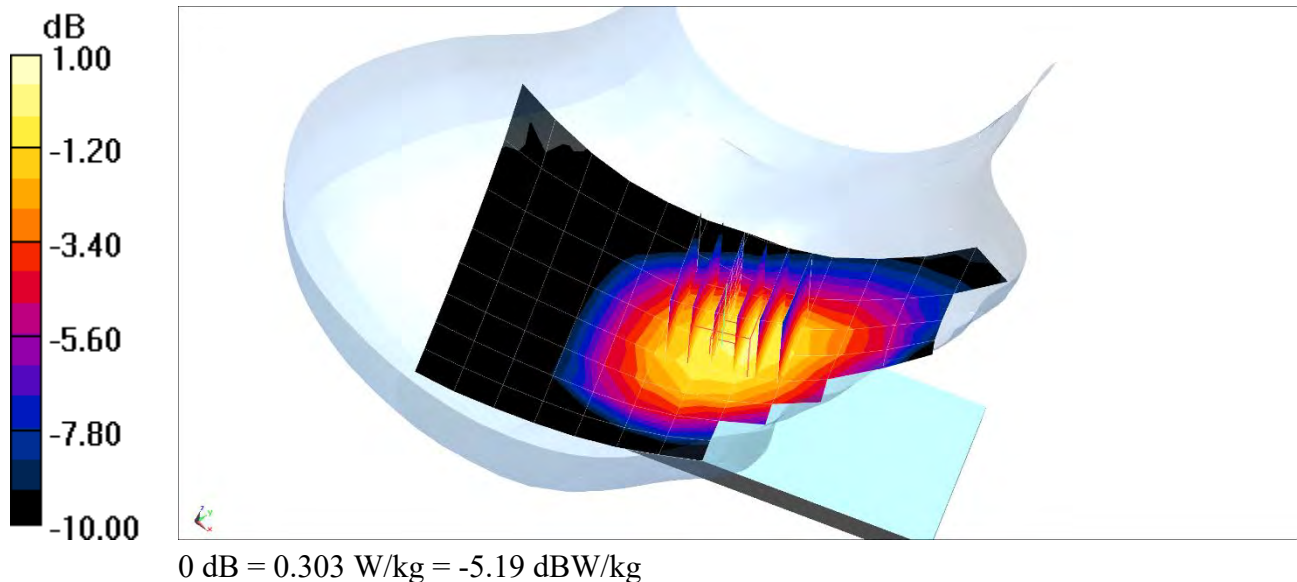
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 16.76 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.337 W/kg

SAR(1 g) = 0.258 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41150

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

Medium: 1900 Head; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.423 \text{ S/m}$; $\epsilon_r = 41.106$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 04-10-2019; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7357; ConvF(8.47, 8.47, 8.47) @ 1880 MHz; Calibrated: 4/18/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687

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

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

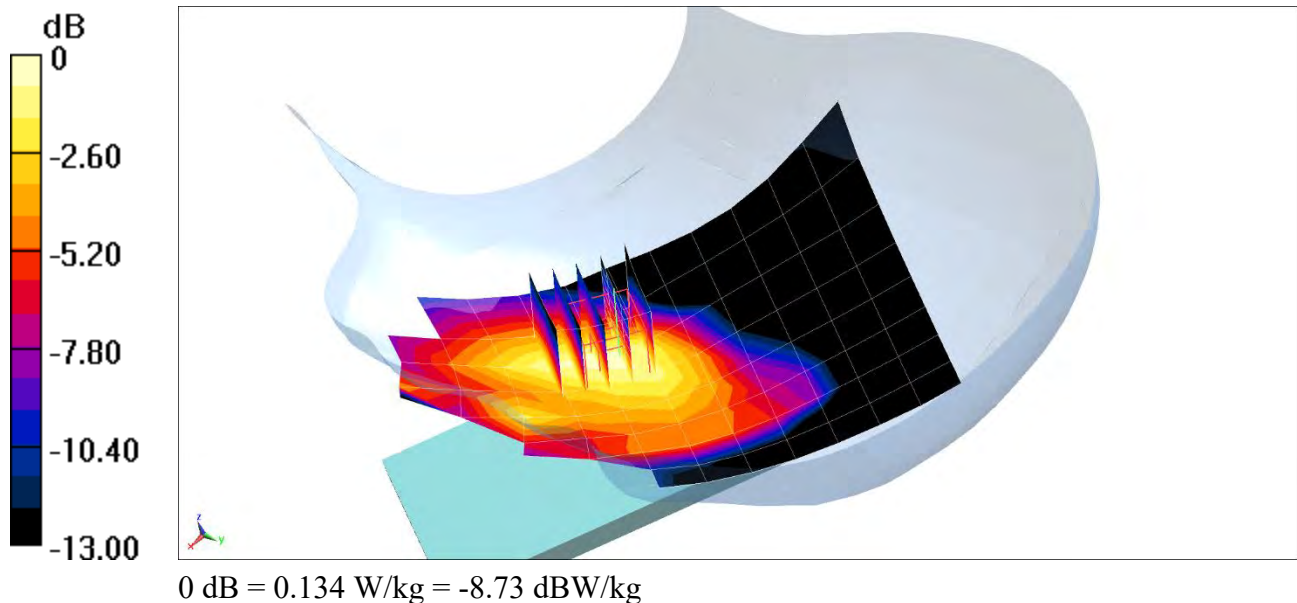
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.160 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.161 W/kg

SAR(1 g) = 0.095 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 38354

Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium: 835 Head; Medium parameters used (interpolated):

$f = 836.6 \text{ MHz}$; $\sigma = 0.921 \text{ S/m}$; $\epsilon_r = 41.954$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 04-15-2019; Ambient Temp: 22.4°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3914; ConvF(9.5, 9.5, 9.5) @ 836.6 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/14/2019

Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687

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

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

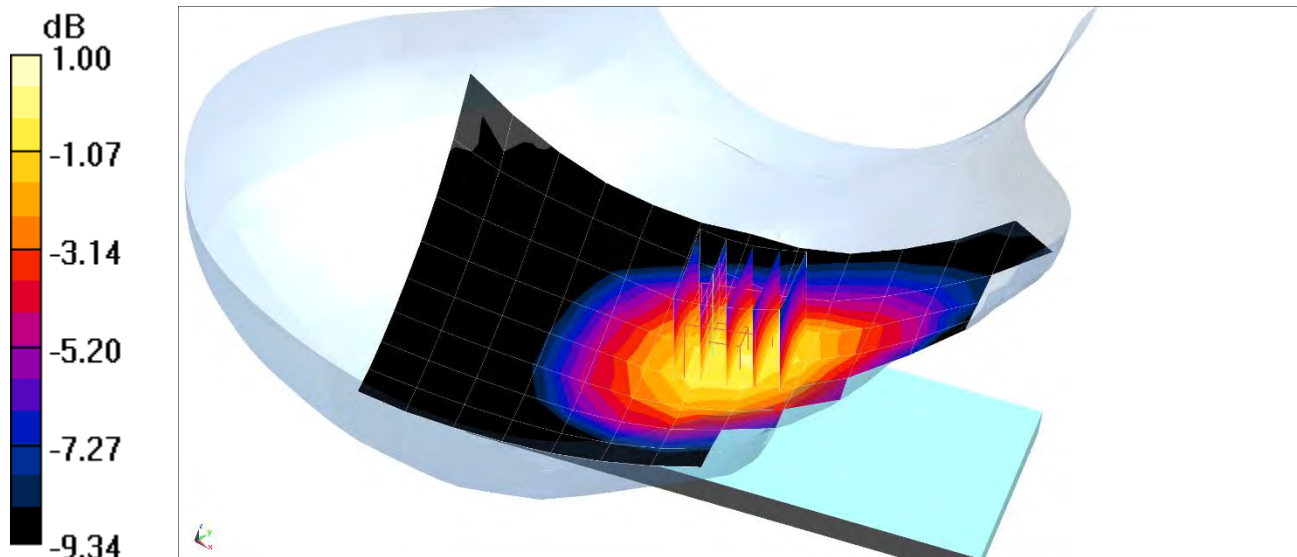
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.61 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 0.358 W/kg

SAR(1 g) = 0.274 W/kg



0 dB = 0.324 W/kg = -4.89 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 04512

Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: 1750 Head; Medium parameters used (interpolated):

$f = 1732.4 \text{ MHz}$; $\sigma = 1.339 \text{ S/m}$; $\epsilon_r = 38.69$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 04-10-2019; Ambient Temp: 23.0°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7308; ConvF(8.66, 8.66, 8.66) @ 1732.4 MHz; Calibrated: 8/23/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1558; Calibrated: 10/3/2018

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1966

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

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

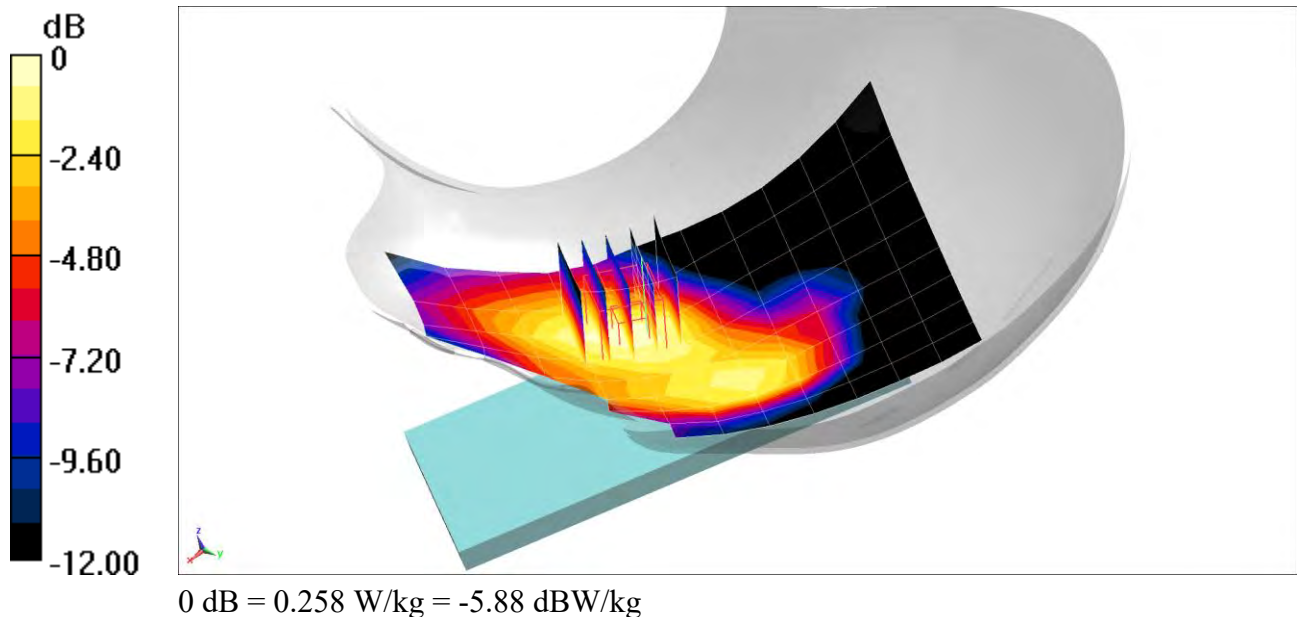
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 12.39 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.304 W/kg

SAR(1 g) = 0.198 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41150

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

Medium: 1900 Head; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.423 \text{ S/m}$; $\epsilon_r = 41.106$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 04-10-2019; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7357; ConvF(8.47, 8.47, 8.47) @ 1880 MHz; Calibrated: 4/18/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687

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

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

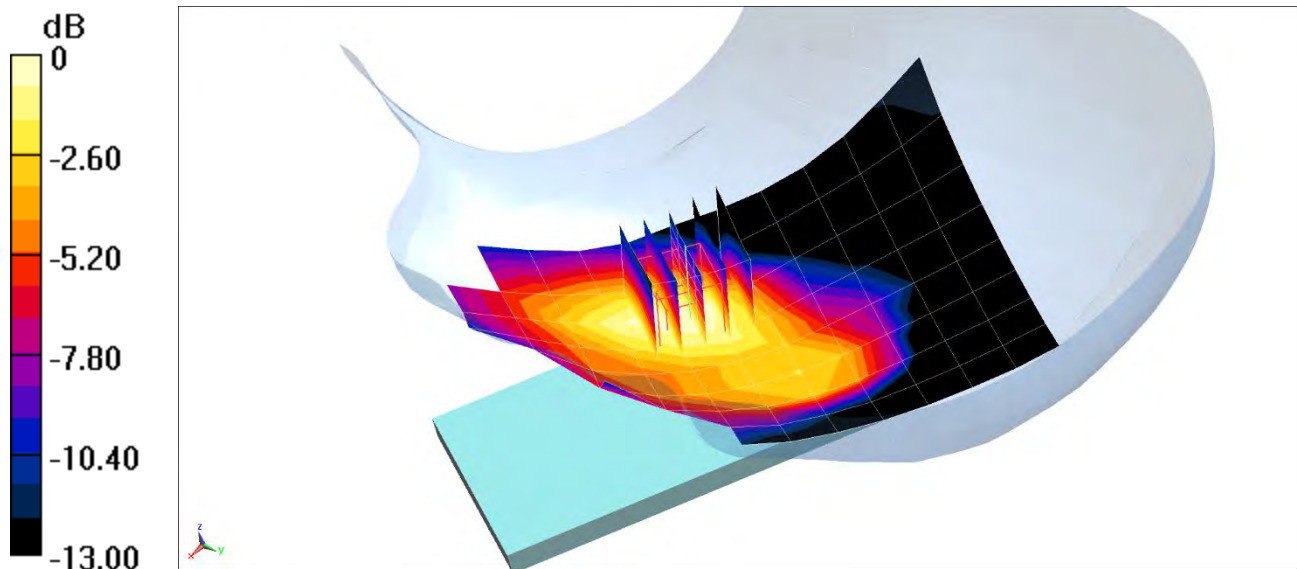
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.28 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.231 W/kg

SAR(1 g) = 0.143 W/kg



0 dB = 0.195 W/kg = -7.10 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41200

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

Medium: 750 Head; Medium parameters used (interpolated):

$f = 680.5 \text{ MHz}$; $\sigma = 0.896 \text{ S/m}$; $\epsilon_r = 43.149$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 05-01-2019; Ambient Temp: 23.2°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN7409; ConvF(9.91, 9.91, 9.91) @ 680.5 MHz; Calibrated: 6/25/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/18/2018

Phantom: SAM 30 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 71, Right Head, Cheek, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

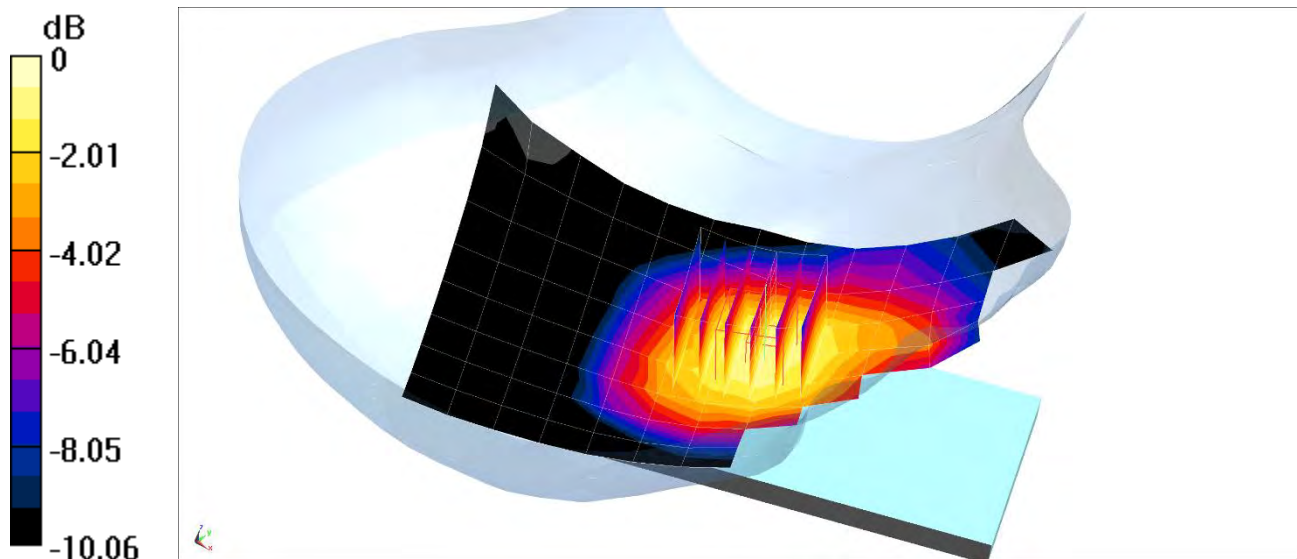
Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 12.24 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.180 W/kg

SAR(1 g) = 0.140 W/kg



0 dB = 0.166 W/kg = -7.80 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41192

Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium: 750 Head; Medium parameters used (interpolated):

$f = 707.5 \text{ MHz}$; $\sigma = 0.879 \text{ S/m}$; $\epsilon_r = 42.026$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 04-24-2019; Ambient Temp: 24.6°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7409; ConvF(9.91, 9.91, 9.91) @ 707.5 MHz; Calibrated: 6/25/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/18/2018

Phantom: SAM 30 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 12, Right Head, Cheek, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset**

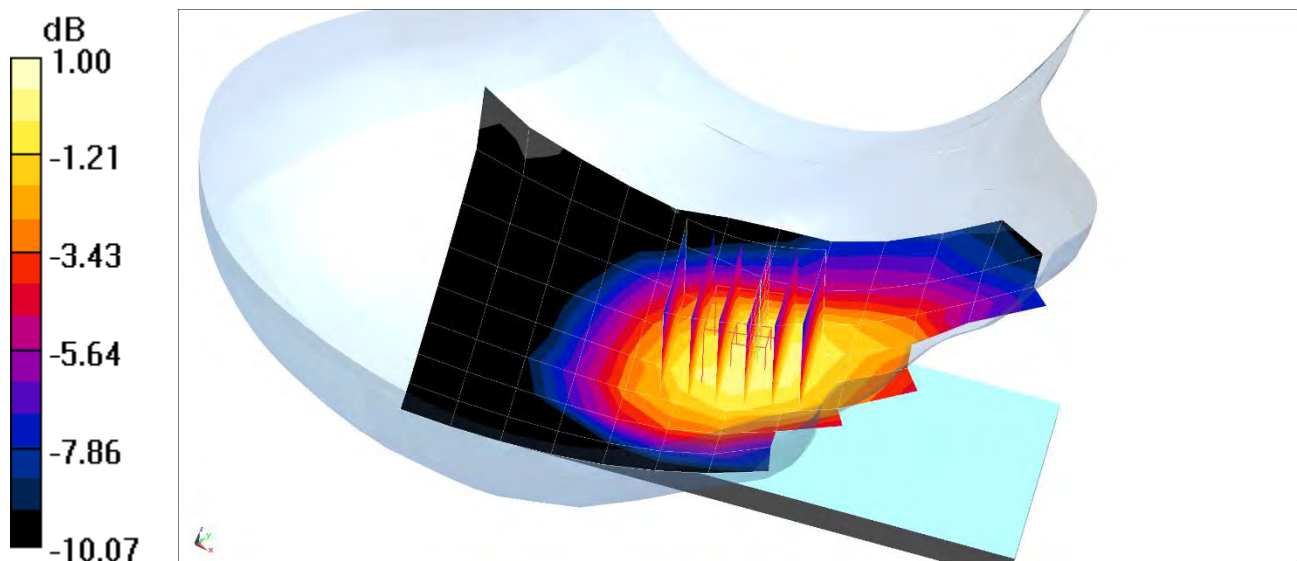
Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 15.97 V/m; Power Drift = -0.15 dB

Peak SAR (extrapolated) = 0.242 W/kg

SAR(1 g) = 0.191 W/kg



0 dB = 0.224 W/kg = -6.50 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41192

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

Medium: 750 Head; Medium parameters used (interpolated):

$f = 782 \text{ MHz}$; $\sigma = 0.906 \text{ S/m}$; $\epsilon_r = 41.827$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 04-24-2019; Ambient Temp: 24.6°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7409; ConvF(9.91, 9.91, 9.91) @ 782 MHz; Calibrated: 6/25/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/18/2018

Phantom: SAM 30 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 13, Right Head, Cheek, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset**

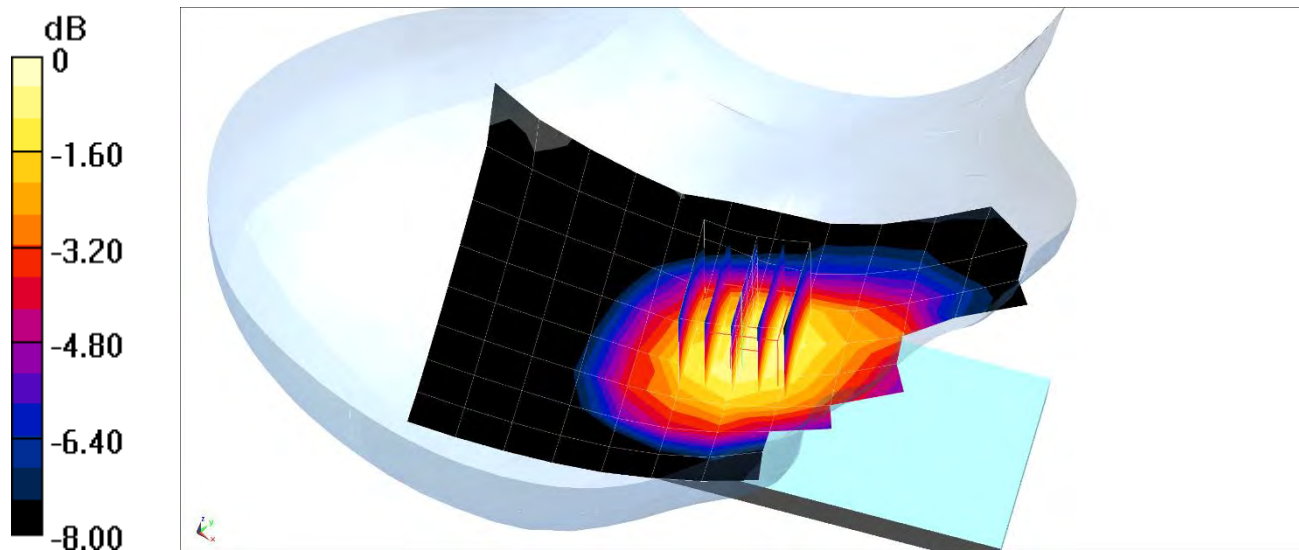
Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 16.57 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.285 W/kg

SAR(1 g) = 0.225 W/kg



0 dB = 0.265 W/kg = -5.77 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 42406

Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium: 835 Head; Medium parameters used (interpolated):

$f = 831.5 \text{ MHz}$; $\sigma = 0.929 \text{ S/m}$; $\epsilon_r = 41.391$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 04-17-2019; Ambient Temp: 22.1°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN3914; ConvF(9.5, 9.5, 9.5) @ 831.5 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/14/2019

Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687

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

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

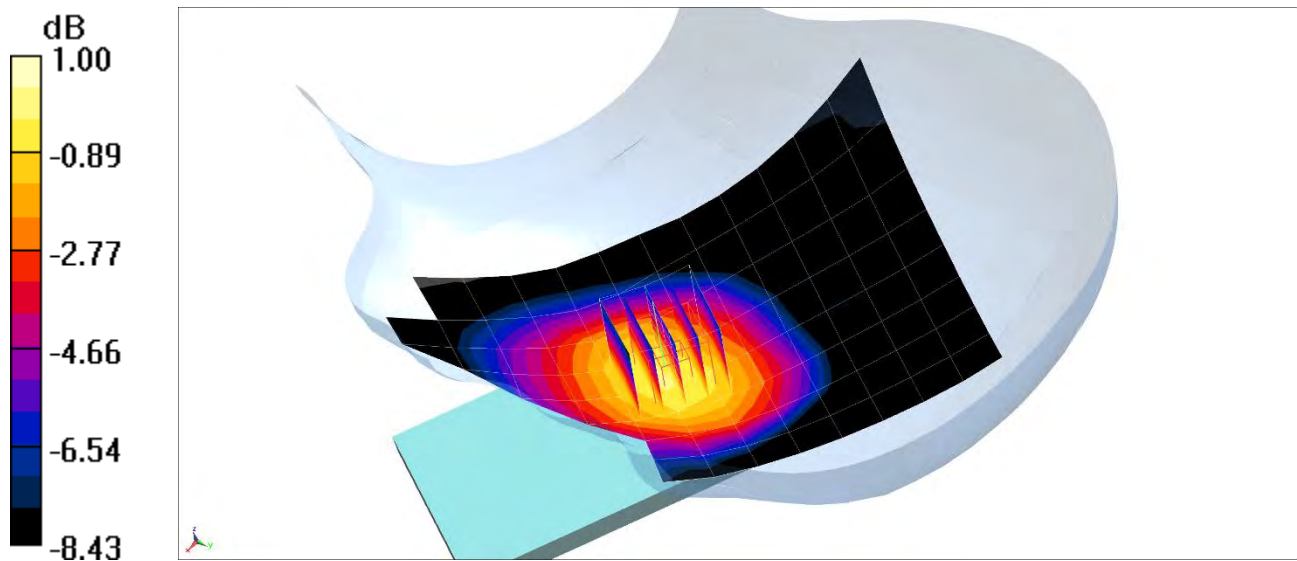
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 17.86 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.351 W/kg

SAR(1 g) = 0.277 W/kg



0 dB = 0.324 W/kg = -4.89 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 38024

Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1

Medium: 1750 Head; Medium parameters used (interpolated):

$f = 1720 \text{ MHz}$; $\sigma = 1.349 \text{ S/m}$; $\epsilon_r = 40.02$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 04-28-2019; Ambient Temp: 20.2°C; Tissue Temp: 21.5°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 30 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 66 (AWS), Right Head, Cheek, Low.ch,
20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset**

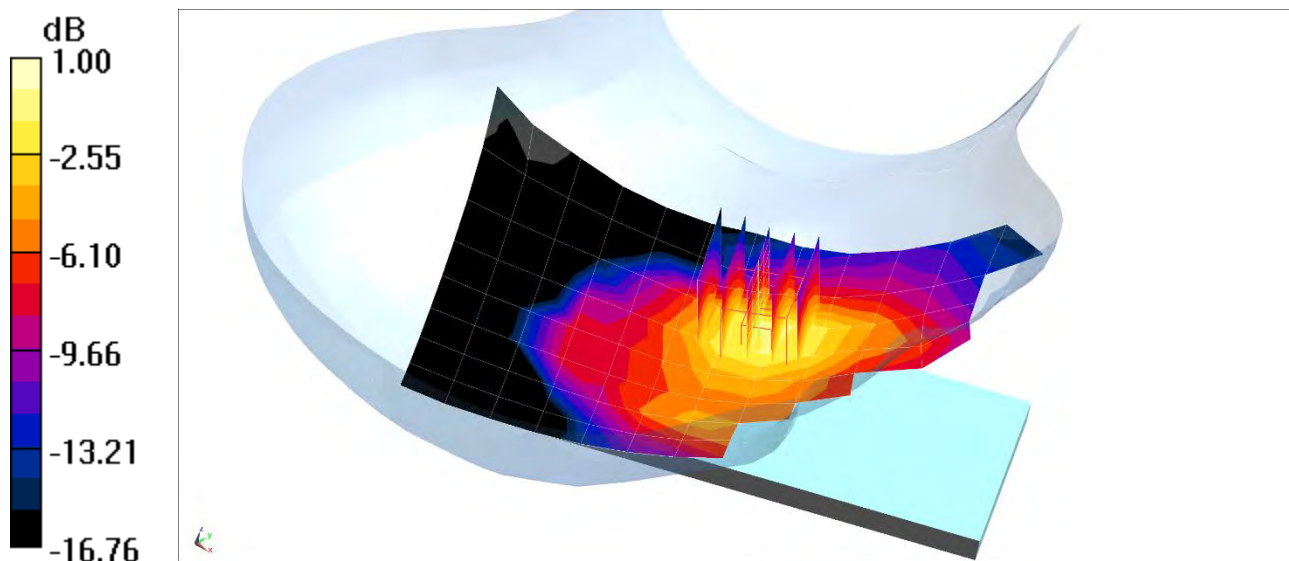
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 13.10 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.296 W/kg

SAR(1 g) = 0.195 W/kg



0 dB = 0.258 W/kg = -5.88 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 36390

Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1905 MHz; Duty Cycle: 1:1

Medium: 1900 Head; Medium parameters used (interpolated):

$f = 1905 \text{ MHz}$; $\sigma = 1.462 \text{ S/m}$; $\epsilon_r = 39.087$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 04-19-2019; Ambient Temp: 24.4°C; Tissue Temp: 23.2°C

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1905 MHz; Calibrated: 6/25/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/18/2018

Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759

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

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

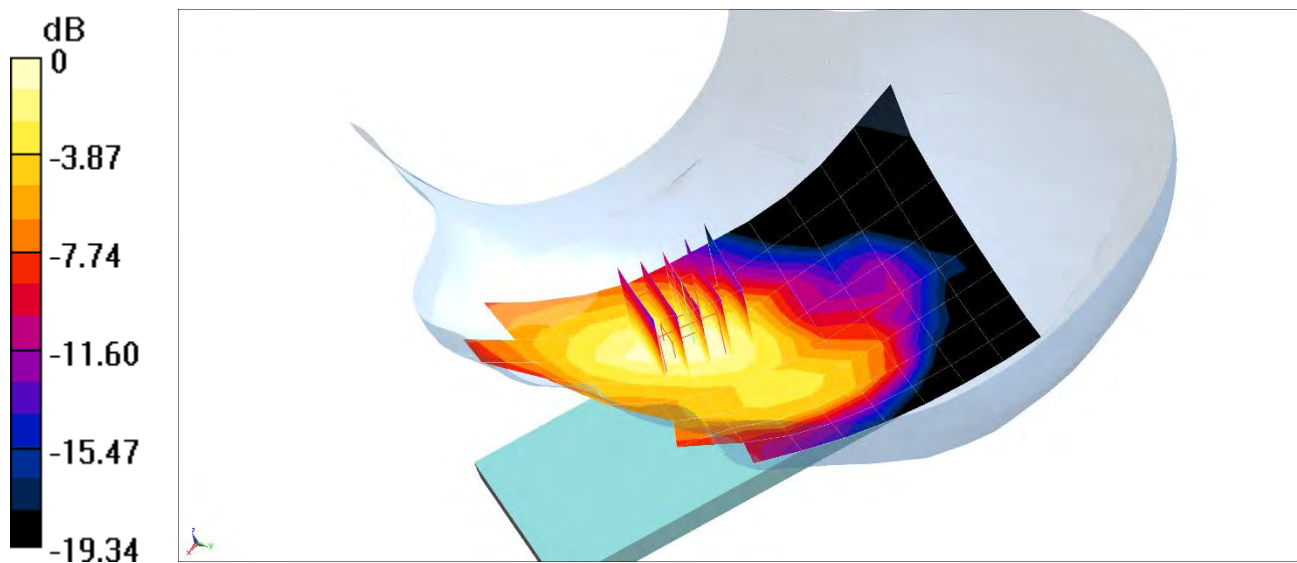
Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 11.64 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.264 W/kg

SAR(1 g) = 0.165 W/kg



0 dB = 0.223 W/kg = -6.52 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 38024

Communication System: UID 0, LTE Band 7; Frequency: 2560 MHz; Duty Cycle: 1:1

Medium: 2600 Head; Medium parameters used (interpolated):

$f = 2560 \text{ MHz}$; $\sigma = 1.875 \text{ S/m}$; $\epsilon_r = 38.657$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 04-29-2019; Ambient Temp: 24.4°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3589; ConvF(6.25, 6.25, 6.25) @ 2560 MHz; Calibrated: 1/25/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647

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

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

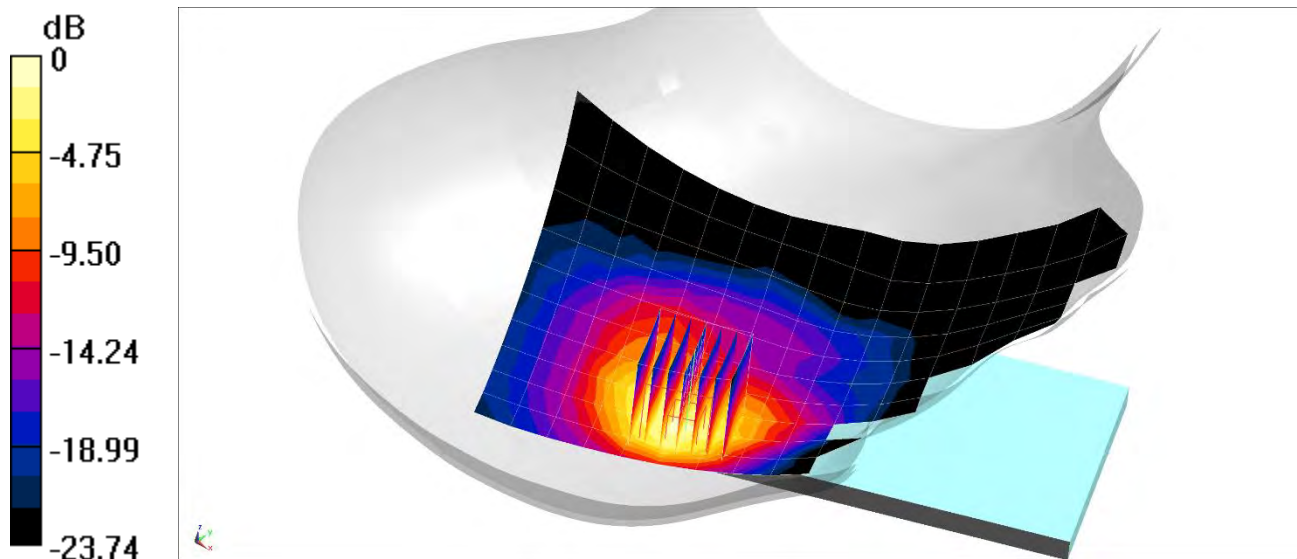
Area Scan (11x18x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 30.74 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 3.12 W/kg

SAR(1 g) = 1.3 W/kg



0 dB = 2.36 W/kg = 3.73 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41200

Communication System: UID 0, LTE Band 38; Frequency: 2595 MHz; Duty Cycle: 1:1.58

Medium: 2600 Head; Medium parameters used (interpolated):

$f = 2595 \text{ MHz}$; $\sigma = 2.004 \text{ S/m}$; $\epsilon_r = 38.641$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 05-13-2019; Ambient Temp: 21.2°C; Tissue Temp: 19.5°C

Probe: EX3DV4 - SN3589; ConvF(6.25, 6.25, 6.25) @ 2595 MHz; Calibrated: 1/25/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647

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

**Mode: LTE Band 38, Right Head, Cheek, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

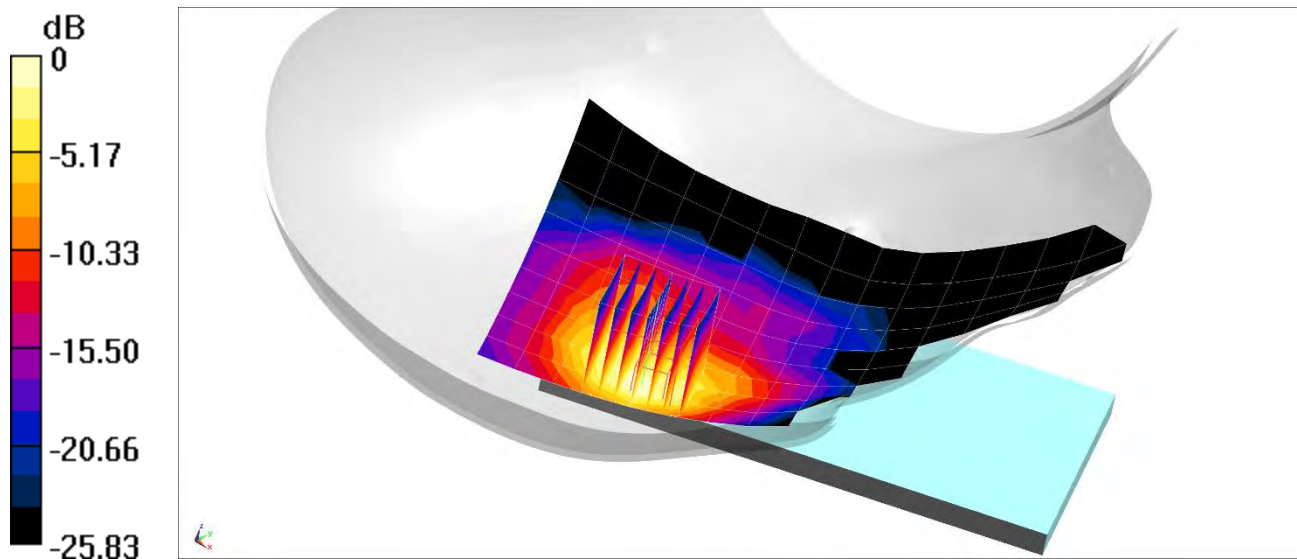
Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 19.41 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 1.38 W/kg

SAR(1 g) = 0.565 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 36937

Communication System: UID 0, LTE Band 41 (Class 3); Frequency: 2506 MHz; Duty Cycle: 1:1.58

Medium: 2450 Head; Medium parameters used (interpolated):

$f = 2506 \text{ MHz}$; $\sigma = 1.863 \text{ S/m}$; $\epsilon_r = 37.754$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 05-06-2019; Ambient Temp: 22.9°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN3589; ConvF(6.46, 6.46, 6.46) @ 2506 MHz; Calibrated: 1/25/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647

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

**Mode: LTE Band 41 Power Class 3, Right Head, Cheek, Low.ch,
20 MHz Bandwidth, QPSK, 50 RB, 50 RB Offset**

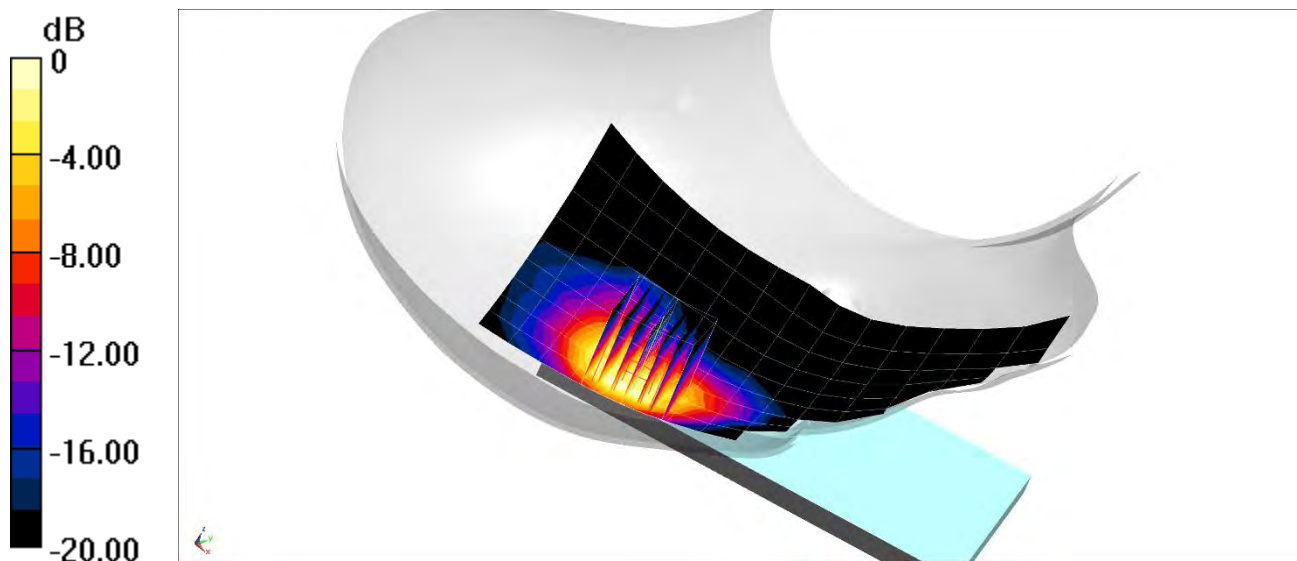
Area Scan (10x17x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.45 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.906 W/kg

SAR(1 g) = 0.367 W/kg



0 dB = 0.678 W/kg = -1.69 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 36937

Communication System: UID 0, IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1

Medium: 2450 Head; Medium parameters used (interpolated):

$f = 2437 \text{ MHz}$; $\sigma = 1.796 \text{ S/m}$; $\epsilon_r = 37.351$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 04-23-2019; Ambient Temp: 24.6°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3589; ConvF(6.46, 6.46, 6.46) @ 2437 MHz; Calibrated: 1/25/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647

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

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

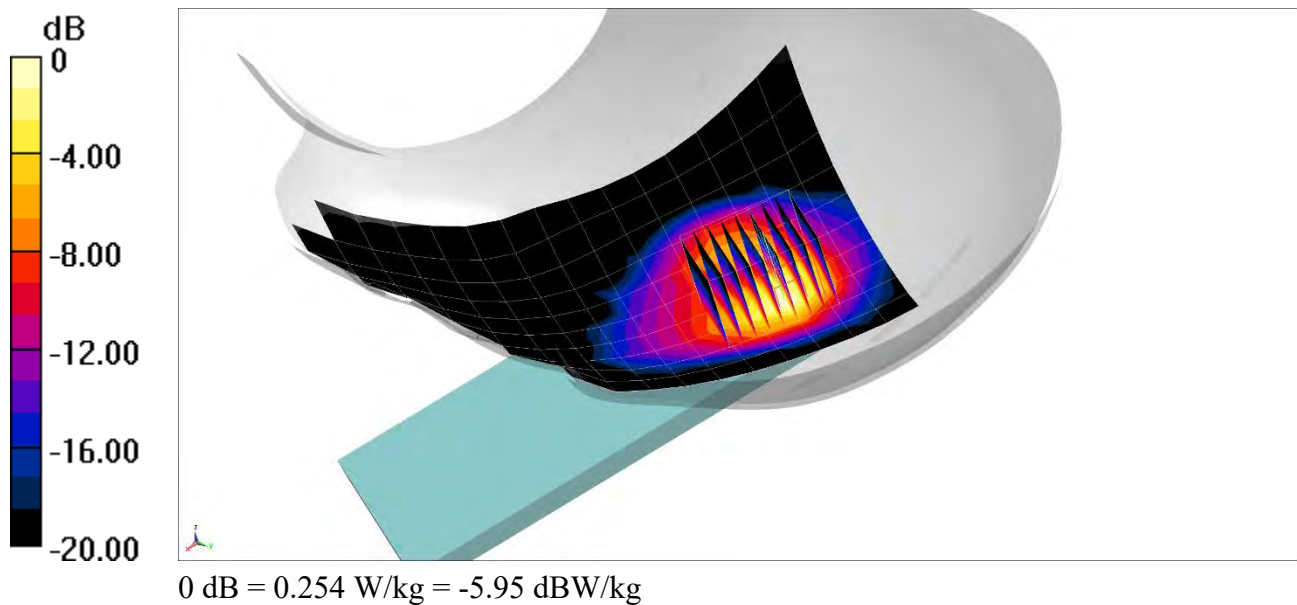
Area Scan (11x18x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x9x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.139 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.358 W/kg

SAR(1 g) = 0.140 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 36390

Communication System: UID 0, IEEE 802.11n 5.2-5.8 GHz Band; Frequency: 5755 MHz; Duty Cycle: 1:1

Medium: 5GHz Head; Medium parameters used (interpolated):

$f = 5755 \text{ MHz}$; $\sigma = 5.191 \text{ S/m}$; $\epsilon_r = 34.472$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 05-03-2019; Ambient Temp: 21.4°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7409; ConvF(4.82, 4.82, 4.82) @ 5755 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 802.11n, U-NII-3, 40 MHz Bandwidth, Left Head, Tilt, Ch 151, 13.5 Mbps

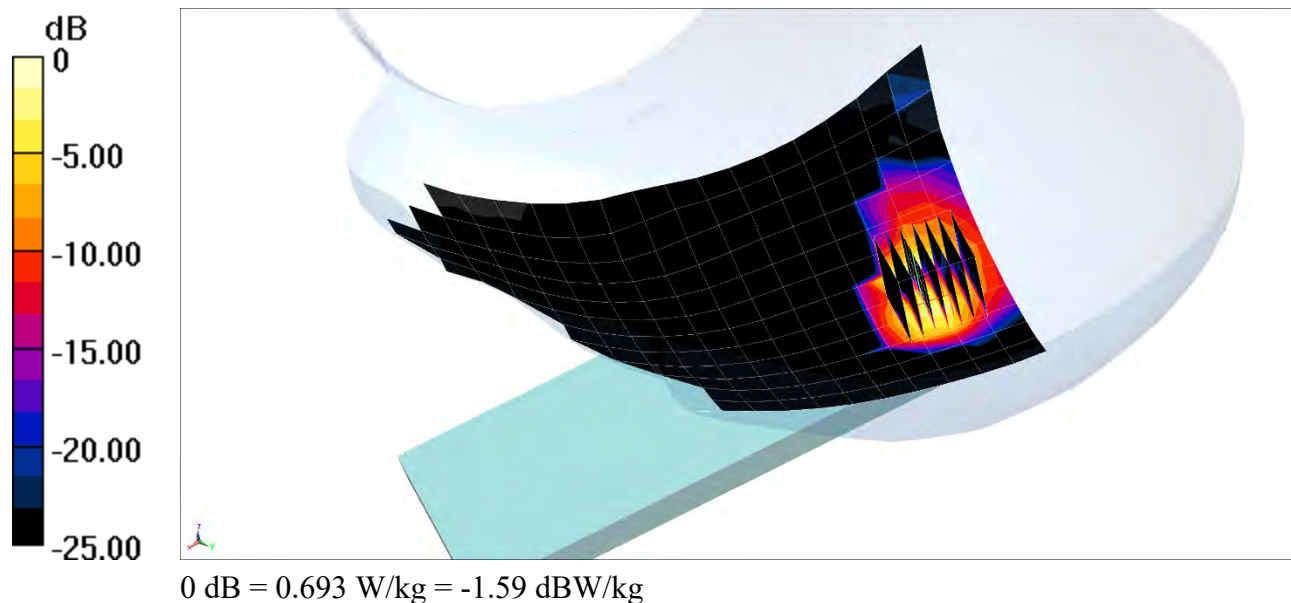
Area Scan (13x11x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Reference Value = 3.792 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.16 W/kg

SAR(1 g) = 0.225 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.294

Medium: 2450 Head; Medium parameters used (interpolated):

$f = 2441 \text{ MHz}$; $\sigma = 1.799 \text{ S/m}$; $\epsilon_r = 37.346$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date: 04-23-2019; Ambient Temp: 24.6°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3589; ConvF(6.46, 6.46, 6.46) @ 2441 MHz; Calibrated: 1/25/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647

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

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

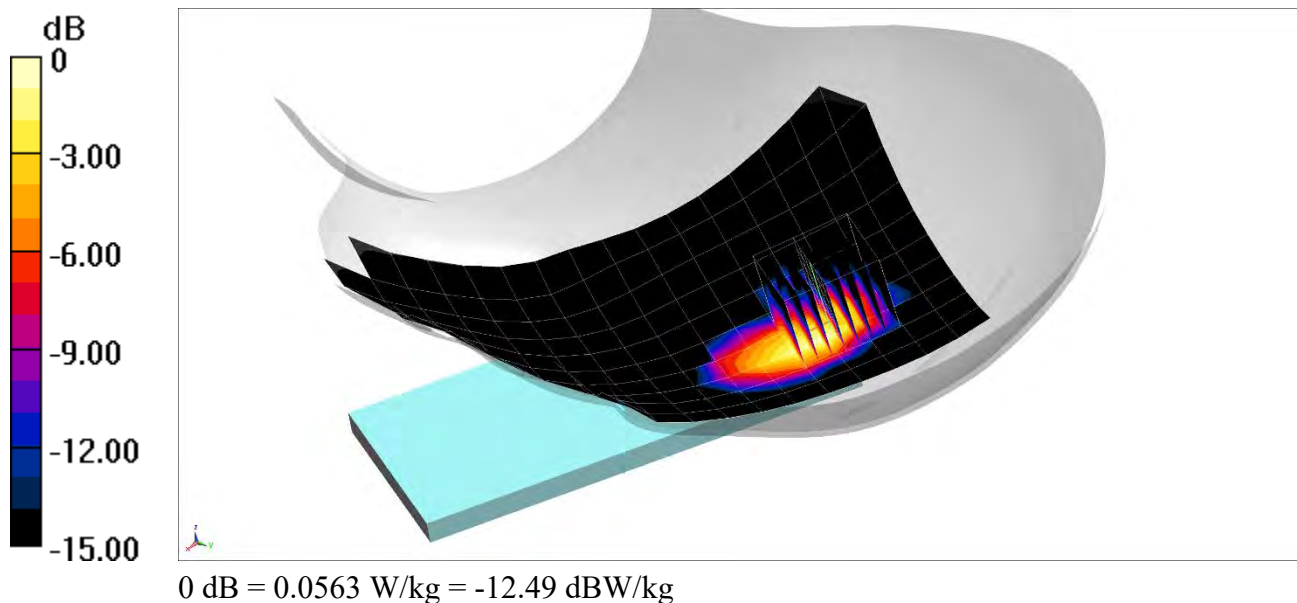
Area Scan (11x19x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

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

Reference Value = 3.877 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.0800 W/kg

SAR(1 g) = 0.029 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 38024

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

Medium: 835 Body; Medium parameters used (interpolated):

$f = 820.1 \text{ MHz}$; $\sigma = 0.97 \text{ S/m}$; $\epsilon_r = 52.717$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-25-2019; Ambient Temp: 24.2°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 820.1 MHz; Calibrated: 5/22/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/22/2018

Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167

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

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

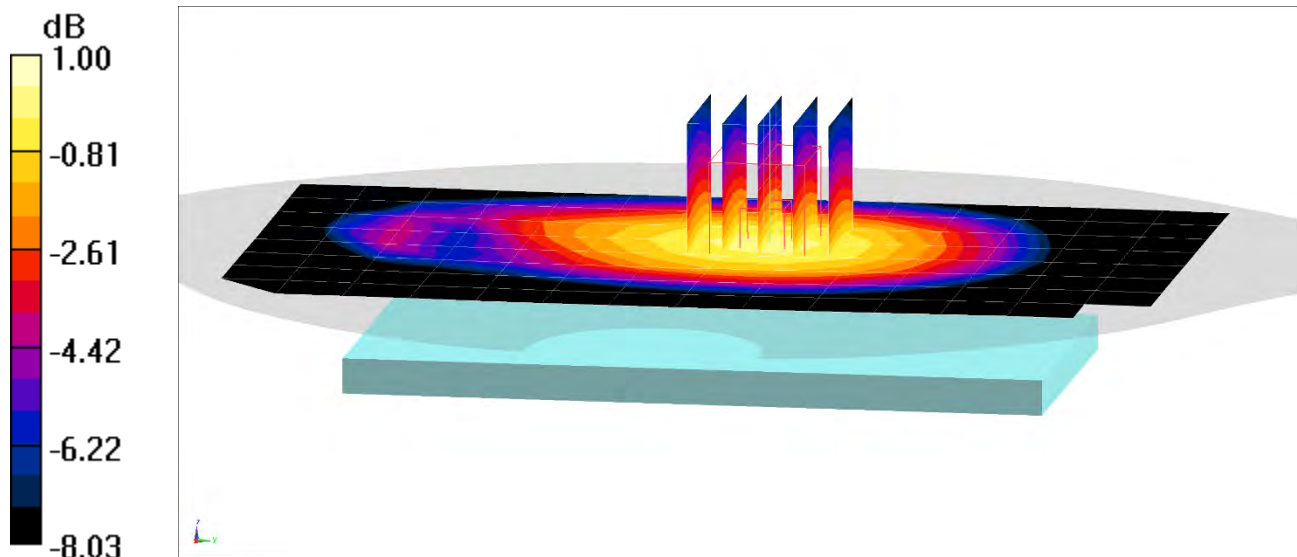
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.06 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.378 W/kg

SAR(1 g) = 0.279 W/kg



0 dB = 0.339 W/kg = -4.70 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 38024

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

Medium: 835 Body; Medium parameters used (interpolated):

$f = 820.1 \text{ MHz}$; $\sigma = 0.97 \text{ S/m}$; $\epsilon_r = 52.717$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-25-2019; Ambient Temp: 24.2°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 820.1 MHz; Calibrated: 5/22/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/22/2018

Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167

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

Mode: Cell. EVDO Rev. 0, BC10, Body SAR, Back side, Mid.ch

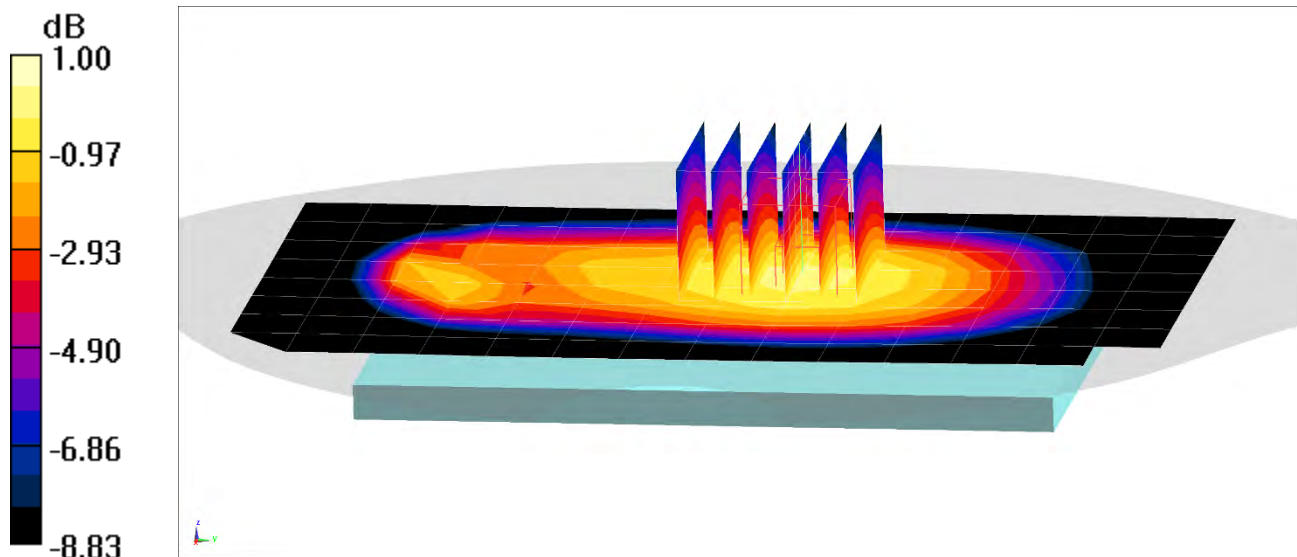
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 18.11 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.434 W/kg

SAR(1 g) = 0.318 W/kg



0 dB = 0.390 W/kg = -4.09 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 38024

Communication System: UID 0, CDMA; Frequency: 824.7 MHz; Duty Cycle: 1:1

Medium: 835 Body; Medium parameters used (interpolated):

$f = 824.7 \text{ MHz}$; $\sigma = 0.982 \text{ S/m}$; $\epsilon_r = 55.389$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-22-2019; Ambient Temp: 23.7°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 824.7 MHz; Calibrated: 5/22/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/22/2018

Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167

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

Mode: Cell. CDMA BC0, Body SAR, Back side, Low.ch

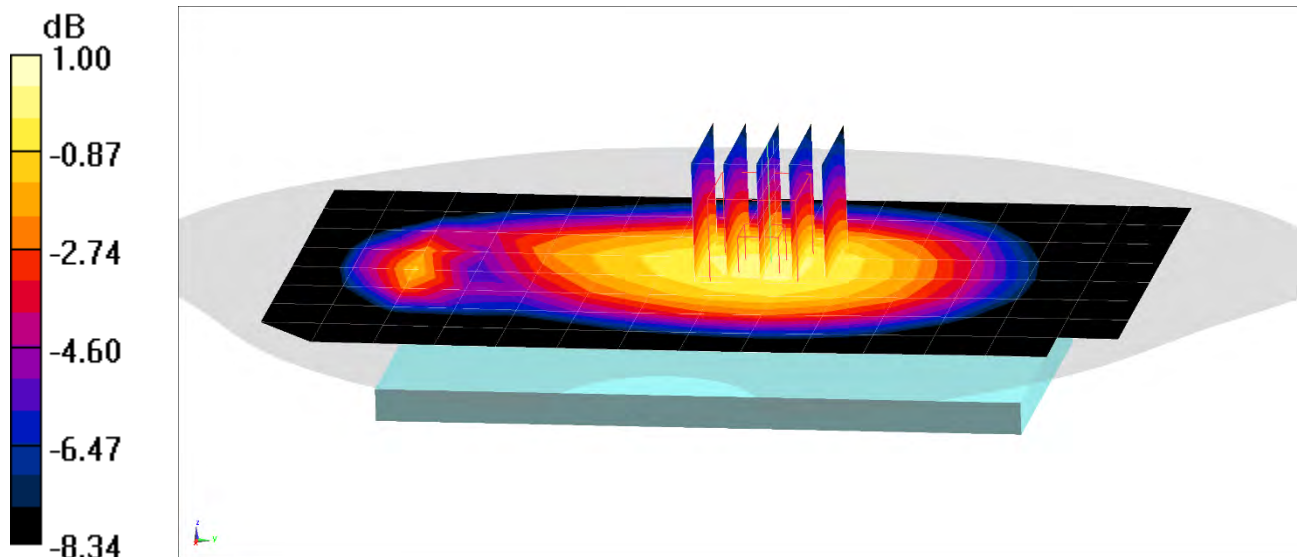
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 17.81 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.407 W/kg

SAR(1 g) = 0.302 W/kg



0 dB = 0.369 W/kg = -4.33 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 38024

Communication System: UID 0, CDMA; Frequency: 824.7 MHz; Duty Cycle: 1:1

Medium: 835 Body; Medium parameters used (interpolated):

$f = 824.7 \text{ MHz}$; $\sigma = 0.982 \text{ S/m}$; $\epsilon_r = 55.389$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-22-2019; Ambient Temp: 23.7°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 824.7 MHz; Calibrated: 5/22/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/22/2018

Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167

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

Mode: Cell. EVDO Rev. 0, BC0, Body SAR, Back side, Low.ch

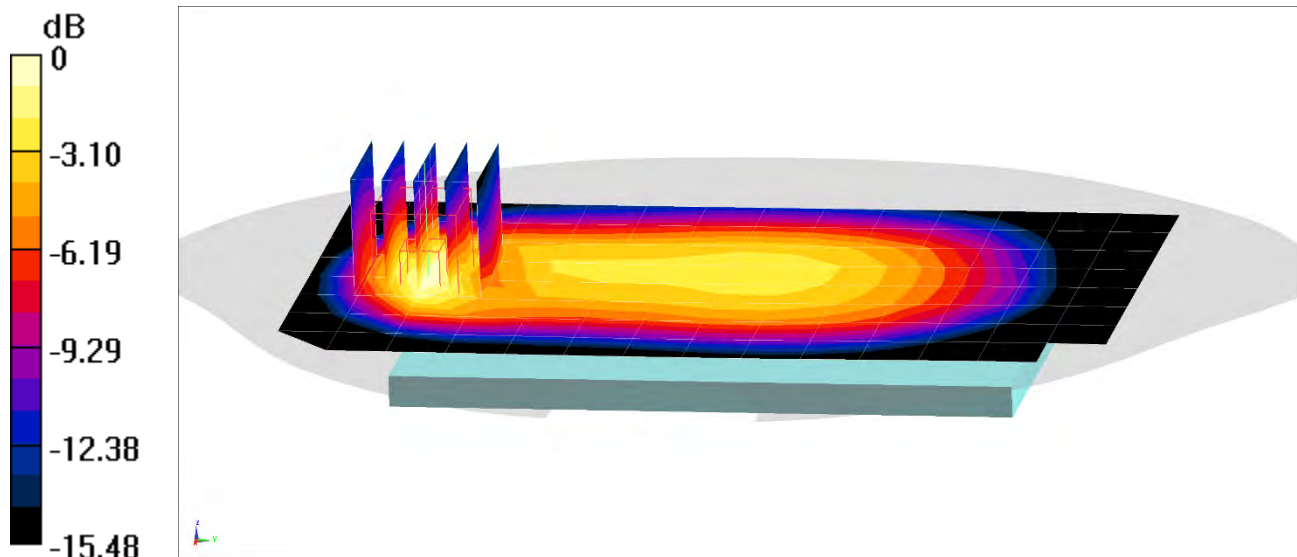
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 22.06 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.815 W/kg

SAR(1 g) = 0.430 W/kg



0 dB = 0.673 W/kg = -1.72 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 36390

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

Medium: 1900 Body; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.553 \text{ S/m}$; $\epsilon_r = 52.55$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-25-2019; Ambient Temp: 23.4°C; Tissue Temp: 22.7°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: Front; Type: QD 000 P40 CD; Serial: 1686

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

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

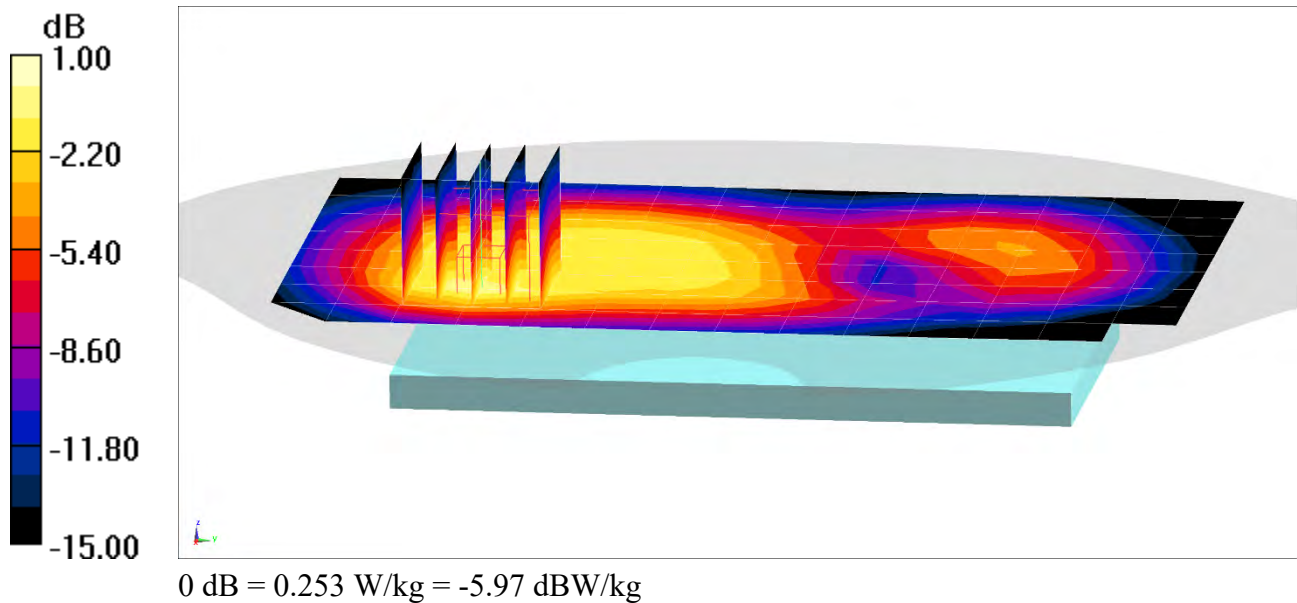
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.08 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.297 W/kg

SAR(1 g) = 0.171 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41200

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

Medium: 1900 Body; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.56 \text{ S/m}$; $\epsilon_r = 53.108$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp: 21.6 °C; Tissue Temp: 21.2°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 Front; Type: SAM; Serial: 1686

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

Mode: PCS EVDO Rev. 0, Body SAR, Bottom Edge, Mid.ch

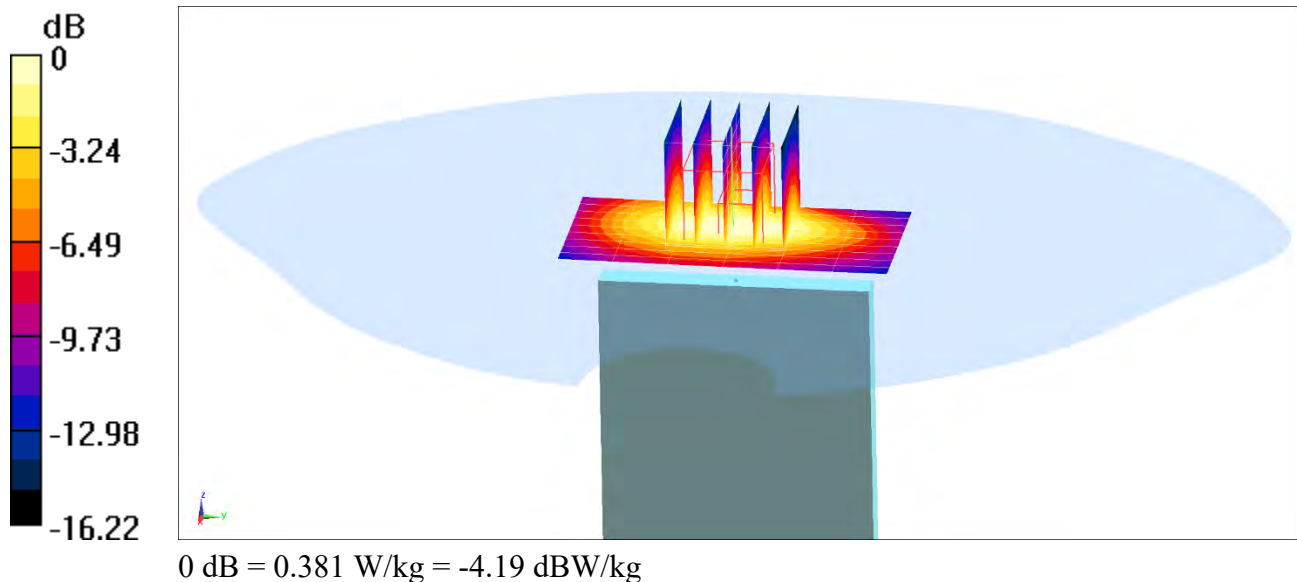
Area Scan (10x7x1): Measurement grid: $dx=5\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.63 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.443 W/kg

SAR(1 g) = 0.262 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

Communication System: UID 0, GSM; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium: 835 Body; Medium parameters used (interpolated):

$f = 836.6 \text{ MHz}$; $\sigma = 0.989 \text{ S/m}$; $\epsilon_r = 54.471$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-16-2019; Ambient Temp: 24.2°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN7488; ConvF(11.03, 11.03, 11.03) @ 836.6 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800

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

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

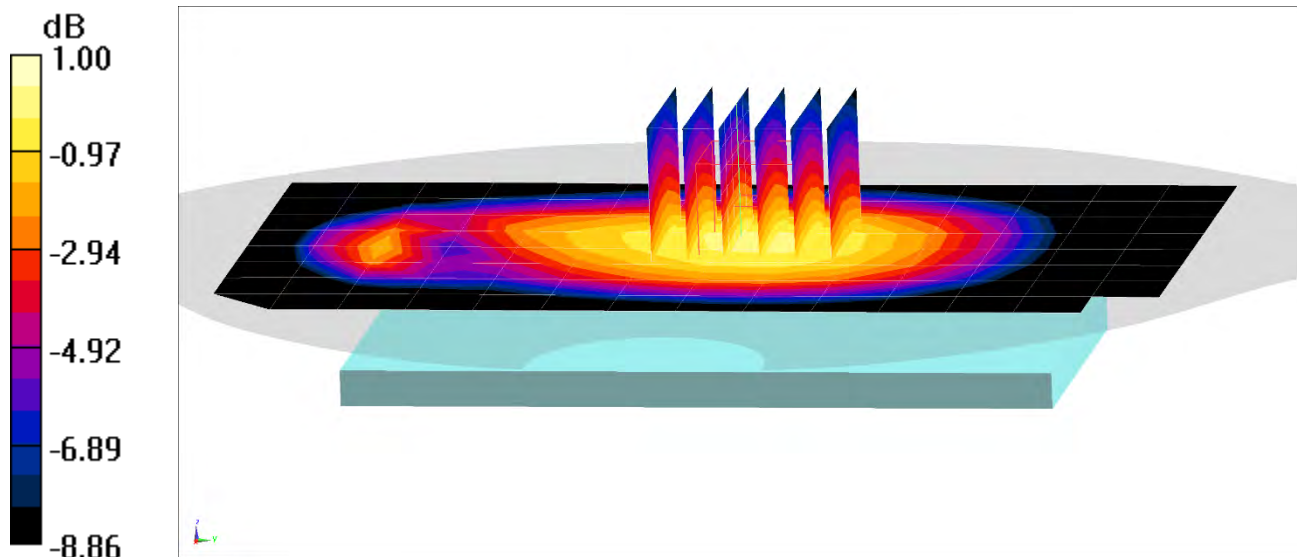
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 18.28 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.444 W/kg

SAR(1 g) = 0.322 W/kg



0 dB = 0.401 W/kg = -3.97 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

Communication System: UID 0, GSM GPRS; 4 Tx slots; Frequency: 848.8 MHz; Duty Cycle: 1:2.076

Medium: 835 Body; Medium parameters used (interpolated):

$f = 848.8 \text{ MHz}$; $\sigma = 0.994 \text{ S/m}$; $\epsilon_r = 54.445$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-16-2019; Ambient Temp: 24.2°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN7488; ConvF(11.03, 11.03, 11.03) @ 848.8 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800

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

Mode: GPRS 850, Body SAR, Back side, High.ch, 4 Tx Slots

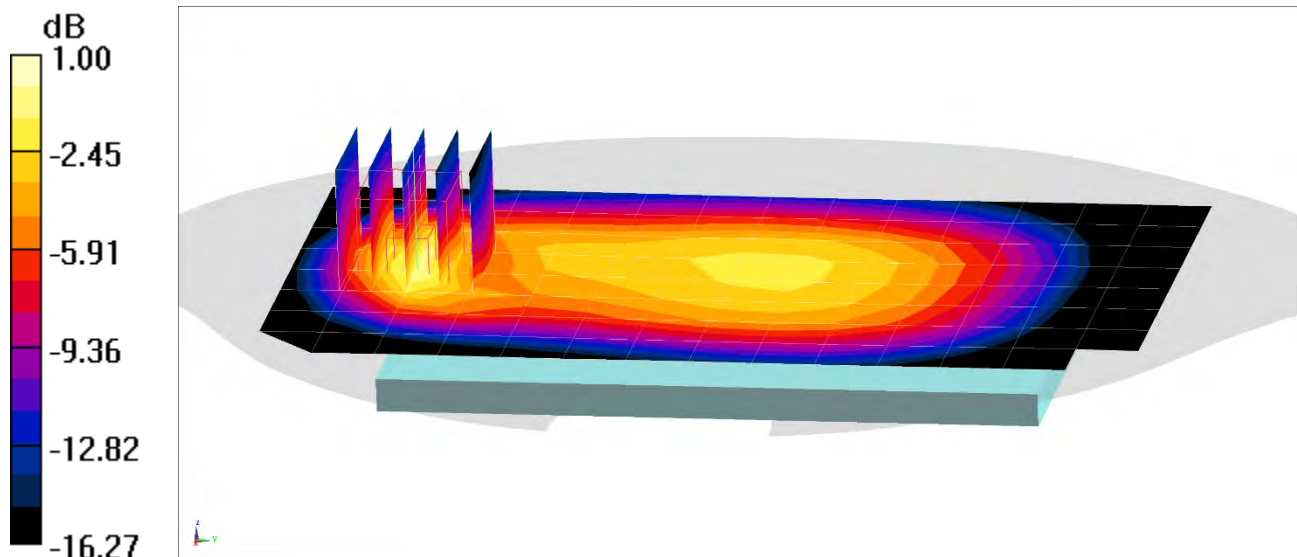
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 25.10 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.10 W/kg

SAR(1 g) = 0.567 W/kg



0 dB = 0.903 W/kg = -0.44 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41150

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

Medium: 1900 Body; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.531 \text{ S/m}$; $\epsilon_r = 51.215$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-08-2019; Ambient Temp: 22.5°C; Tissue Temp: 21.9°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: Front 30 degreee; Type: QD 000 P40 CD; Serial: 1686

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

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

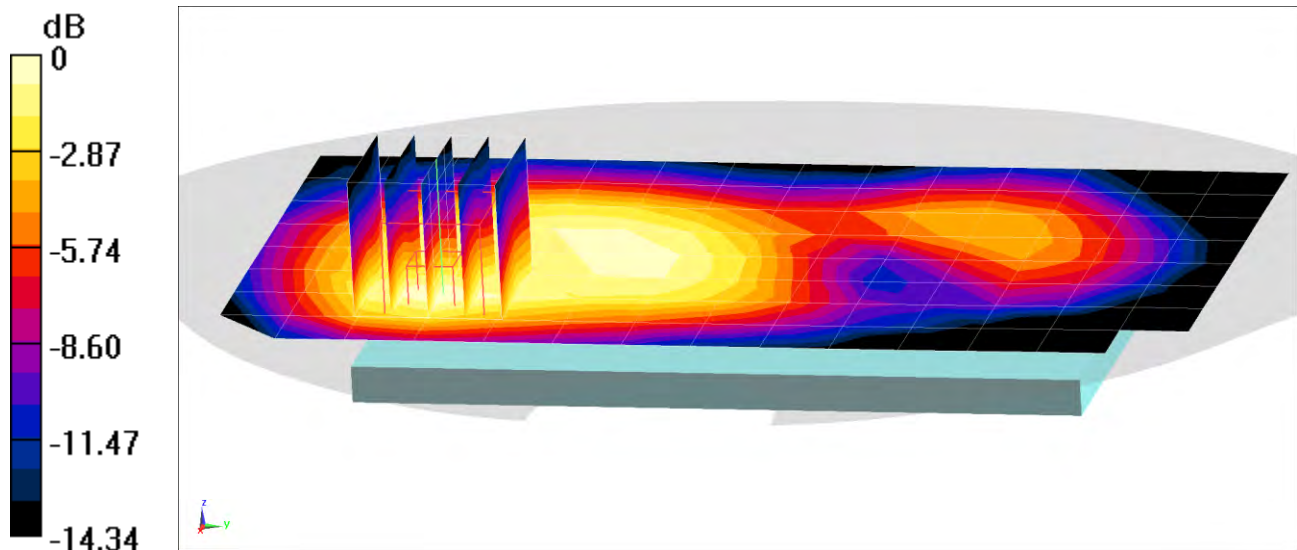
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 7.114 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.119 W/kg

SAR(1 g) = 0.070 W/kg



0 dB = 0.0995 W/kg = -10.02 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41150

Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 1850.2 MHz; Duty Cycle: 1:2.76

Medium: 1900 Body; Medium parameters used (interpolated):

$f = 1850.2 \text{ MHz}$; $\sigma = 1.499 \text{ S/m}$; $\epsilon_r = 51.315$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-08-2019; Ambient Temp: 22.5°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1850.2 MHz; Calibrated: 7/20/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Front 30 degreee; Type: QD 000 P40 CD; Serial: 1686

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

Mode: GPRS 1900, Body SAR, Back side, Low.ch, 3 Tx Slots

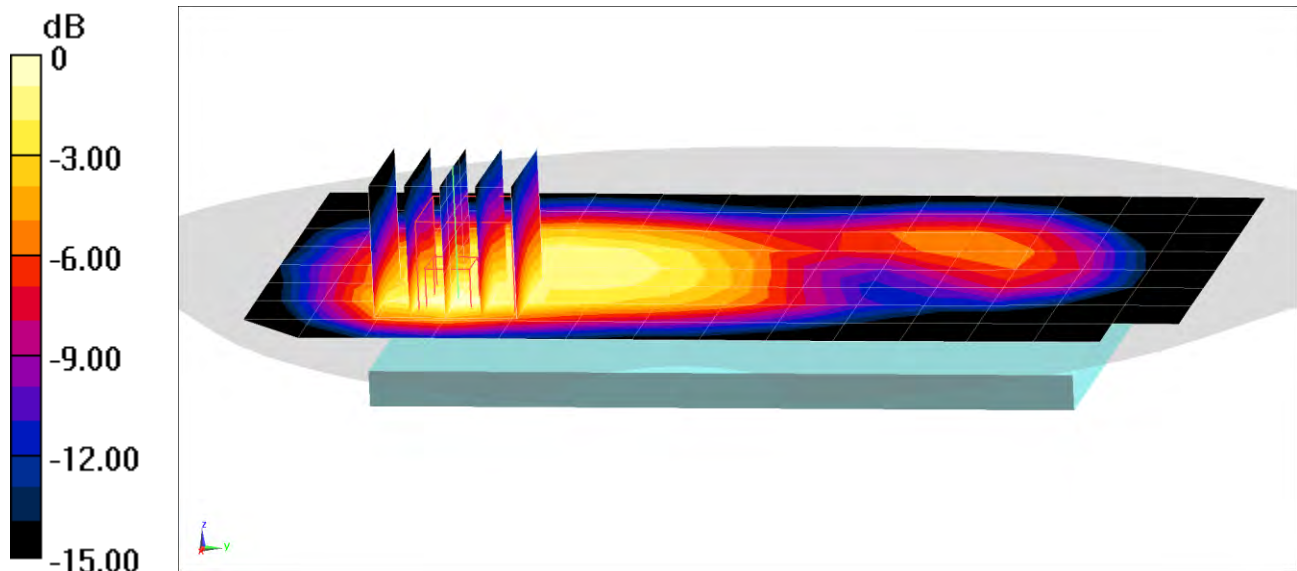
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.12 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.311 W/kg

SAR(1 g) = 0.170 W/kg



0 dB = 0.252 W/kg = -5.99 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium: 835 Body; Medium parameters used (interpolated):

$f = 836.6 \text{ MHz}$; $\sigma = 0.989 \text{ S/m}$; $\epsilon_r = 54.471$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-16-2019; Ambient Temp: 24.2°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN7488; ConvF(11.03, 11.03, 11.03) @ 836.6 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800

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

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

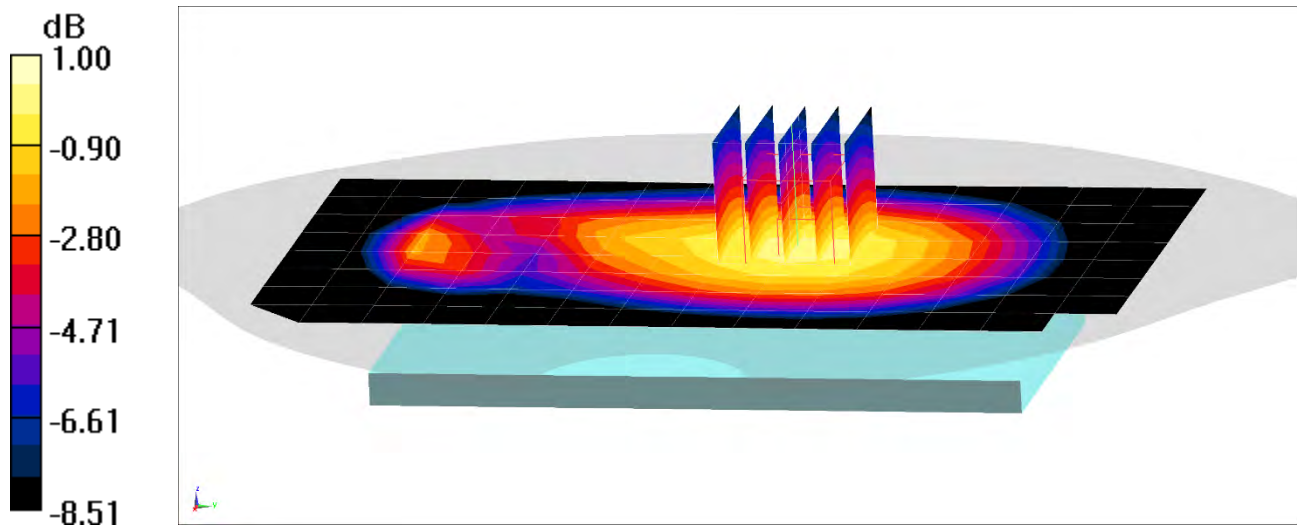
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.82 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.413 W/kg

SAR(1 g) = 0.305 W/kg



0 dB = 0.374 W/kg = -4.27 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1

Medium: 835 Body; Medium parameters used (interpolated):

$f = 836.6 \text{ MHz}$; $\sigma = 0.989 \text{ S/m}$; $\epsilon_r = 54.471$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-16-2019; Ambient Temp: 24.2°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN7488; ConvF(11.03, 11.03, 11.03) @ 836.6 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800

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

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

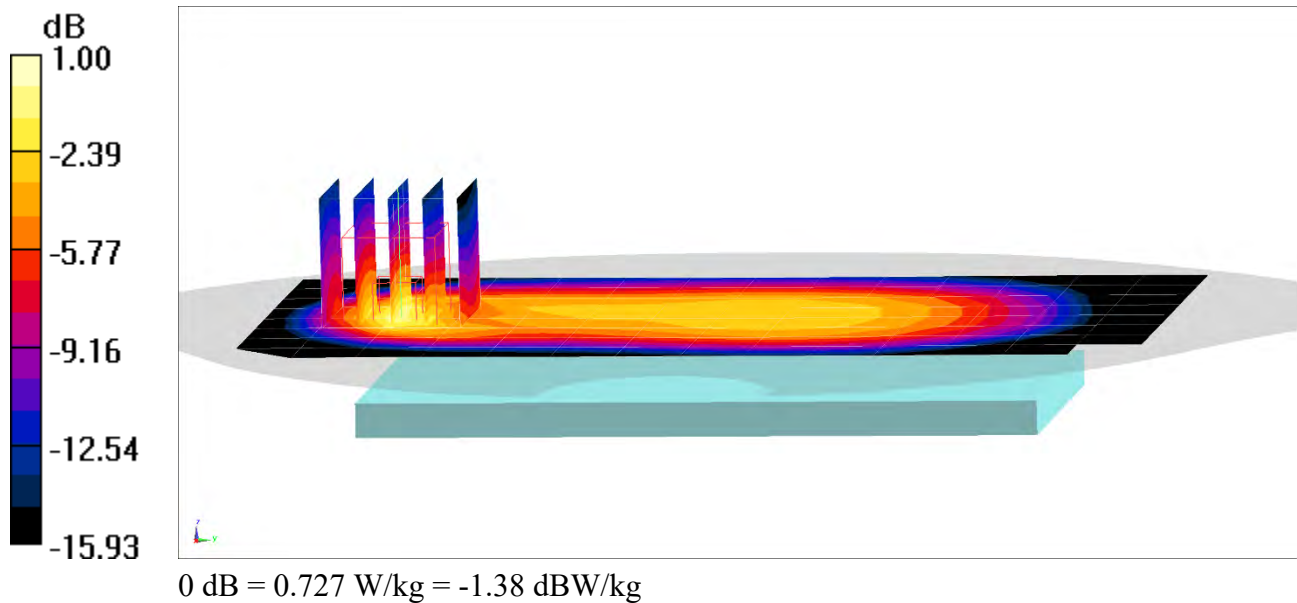
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 22.72 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.881 W/kg

SAR(1 g) = 0.458 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: 1750 Body; Medium parameters used (interpolated):

$f = 1732.4 \text{ MHz}$; $\sigma = 1.476 \text{ S/m}$; $\epsilon_r = 51.596$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-11-2019; Ambient Temp: 22.5°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1732.4 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

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

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

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

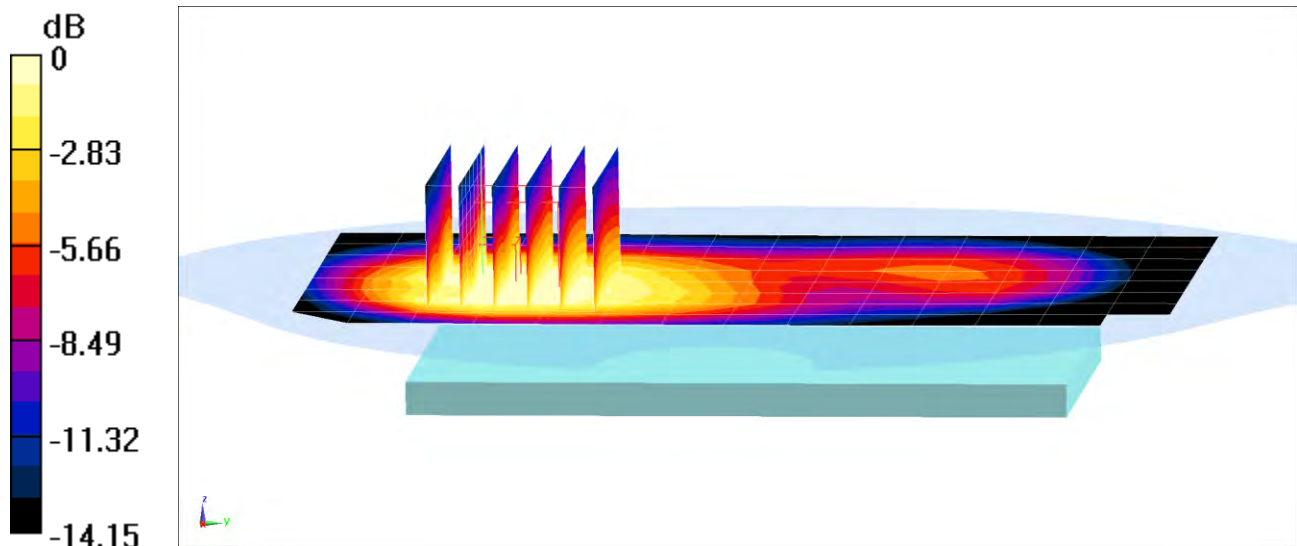
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 17.40 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.695 W/kg

SAR(1 g) = 0.443 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1

Medium: 1750 Body; Medium parameters used (interpolated):

$f = 1732.4 \text{ MHz}$; $\sigma = 1.476 \text{ S/m}$; $\epsilon_r = 51.596$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-11-2019; Ambient Temp: 22.5°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1732.4 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

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

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

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

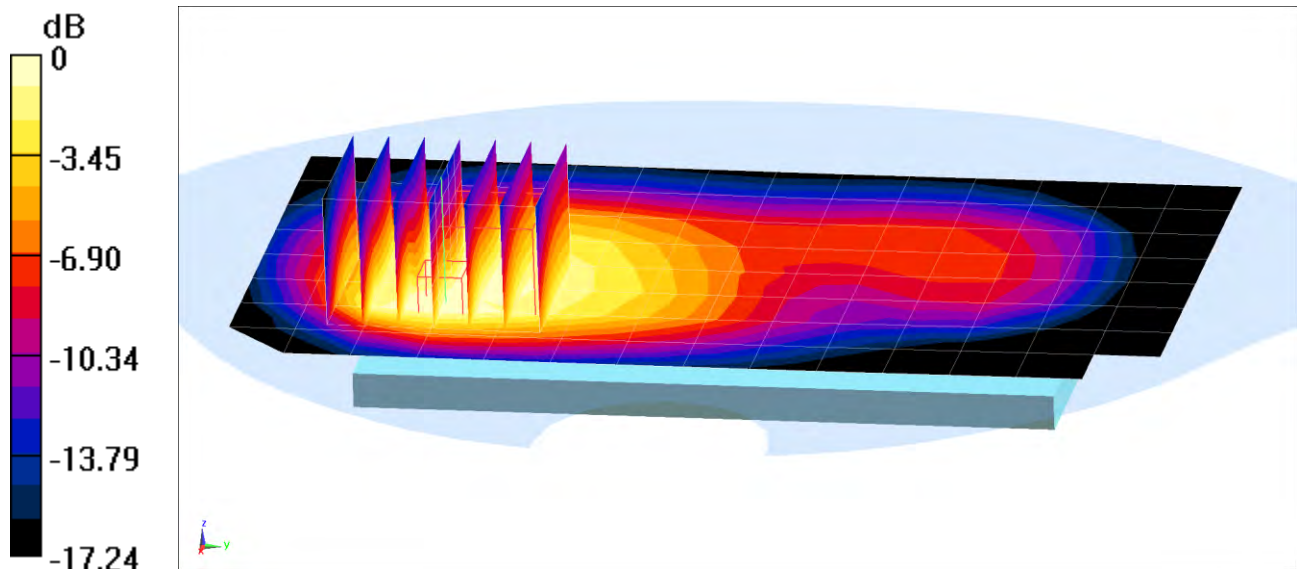
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (6x7x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.42 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 0.768 W/kg

SAR(1 g) = 0.432 W/kg



0 dB = 0.622 W/kg = -2.06 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41150

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

Medium: 1900 Body; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.531 \text{ S/m}$; $\epsilon_r = 51.215$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-08-2019; Ambient Temp: 22.5°C; Tissue Temp: 21.9°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: Front 30 degreee; Type: QD 000 P40 CD; Serial: 1686

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

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

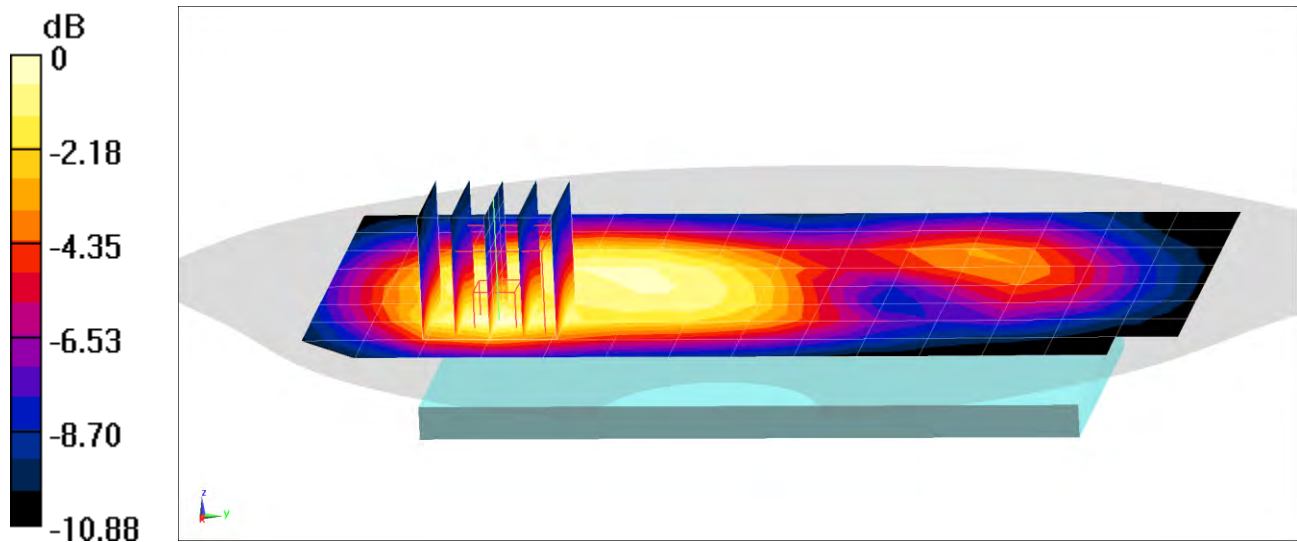
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.17 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.293 W/kg

SAR(1 g) = 0.174 W/kg



0 dB = 0.250 W/kg = -6.02 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41150

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

Medium: 1900 Body; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.531 \text{ S/m}$; $\epsilon_r = 51.215$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-08-2019; Ambient Temp: 22.5°C; Tissue Temp: 21.9°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: Front 30 degree; Type: QD 000 P40 CD; Serial: 1686

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

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

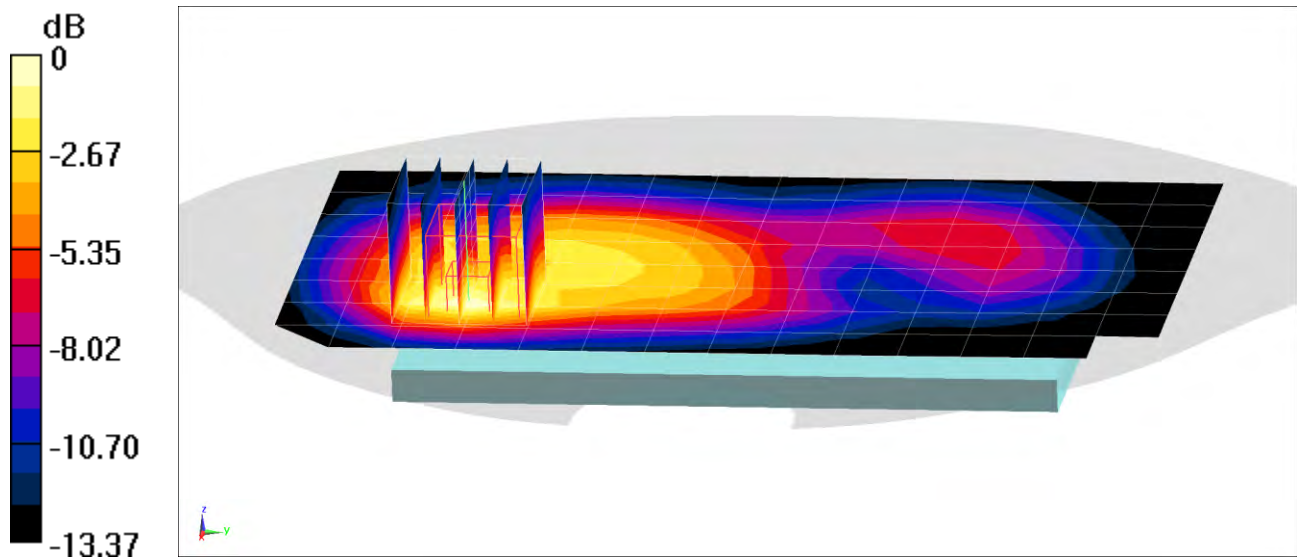
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.55 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.603 W/kg

SAR(1 g) = 0.332 W/kg



0 dB = 0.505 W/kg = -2.97 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

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

Medium: 750 Body; Medium parameters used (interpolated):

$f = 680.5 \text{ MHz}$; $\sigma = 0.924 \text{ S/m}$; $\epsilon_r = 55.511$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-18-2019; Ambient Temp: 23.4°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 680.5 MHz; Calibrated: 8/23/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1558; Calibrated: 10/3/2018

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630

Measurement SW: DASY52, Version 52.10 (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**

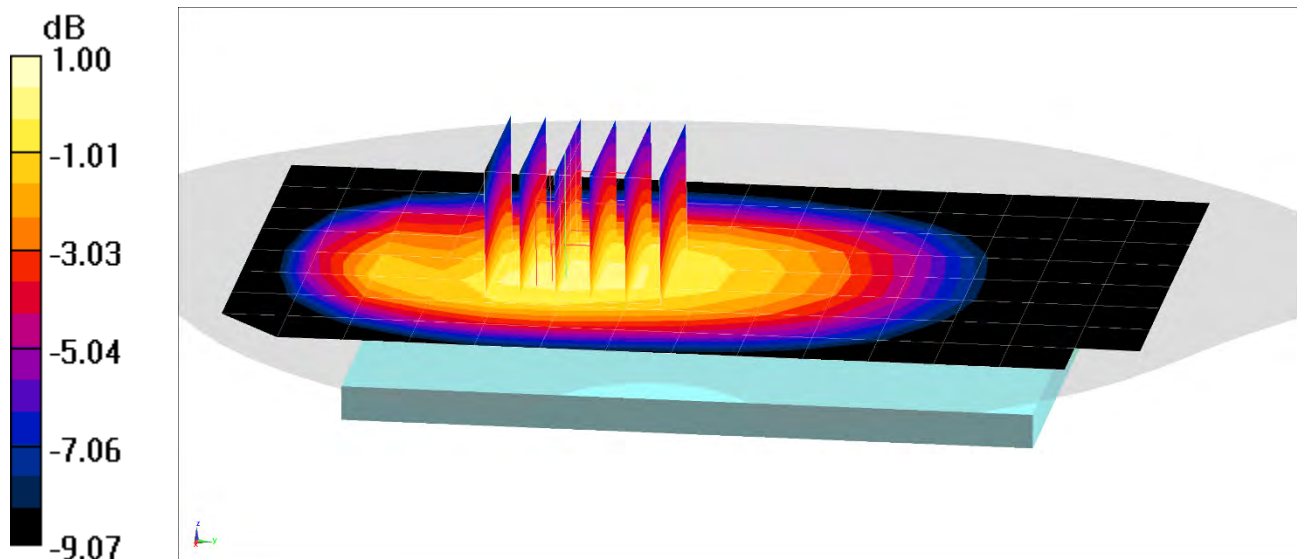
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 16.06 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.300 W/kg

SAR(1 g) = 0.231 W/kg



0 dB = 0.274 W/kg = -5.62 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41200

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

Medium: 750 Body; Medium parameters used (interpolated):

$f = 680.5 \text{ MHz}$; $\sigma = 0.918 \text{ S/m}$; $\epsilon_r = 55.245$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-22-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 680.5 MHz; Calibrated: 8/23/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1558; Calibrated: 10/3/2018

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630

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

**Mode: LTE Band 71, Body SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset**

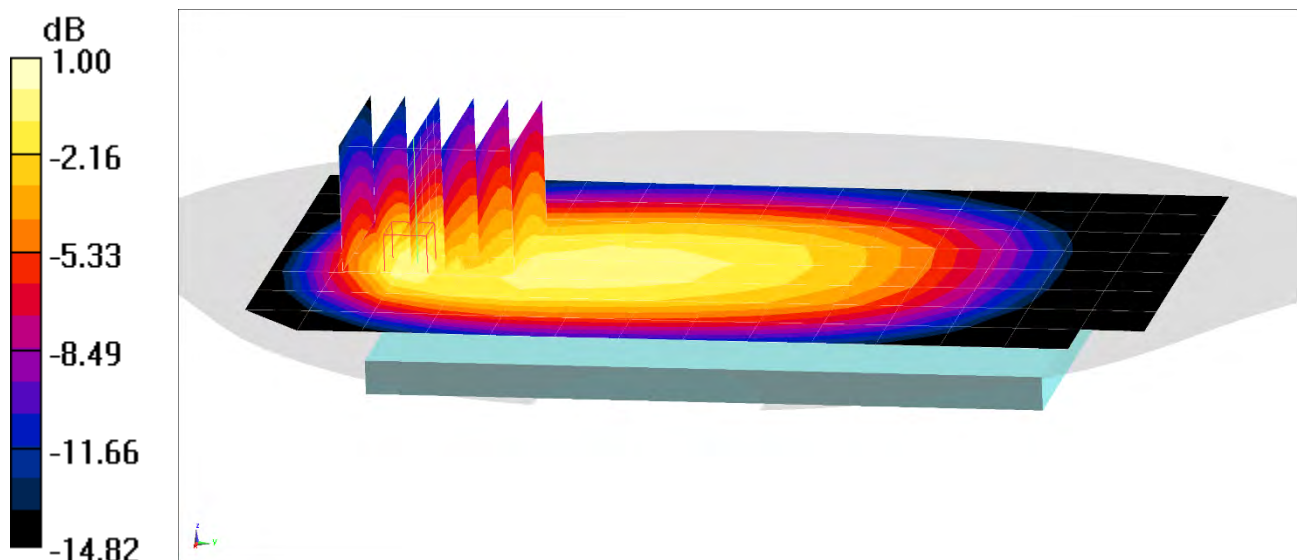
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 17.01 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.465 W/kg

SAR(1 g) = 0.250 W/kg



0 dB = 0.382 W/kg = -4.18 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium: 750 Body; Medium parameters used (interpolated):

$f = 707.5 \text{ MHz}$; $\sigma = 0.933 \text{ S/m}$; $\epsilon_r = 55.454$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-18-2019; Ambient Temp: 23.4°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 707.5 MHz; Calibrated: 8/23/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1558; Calibrated: 10/3/2018

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630

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

**Mode: LTE Band 12, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset**

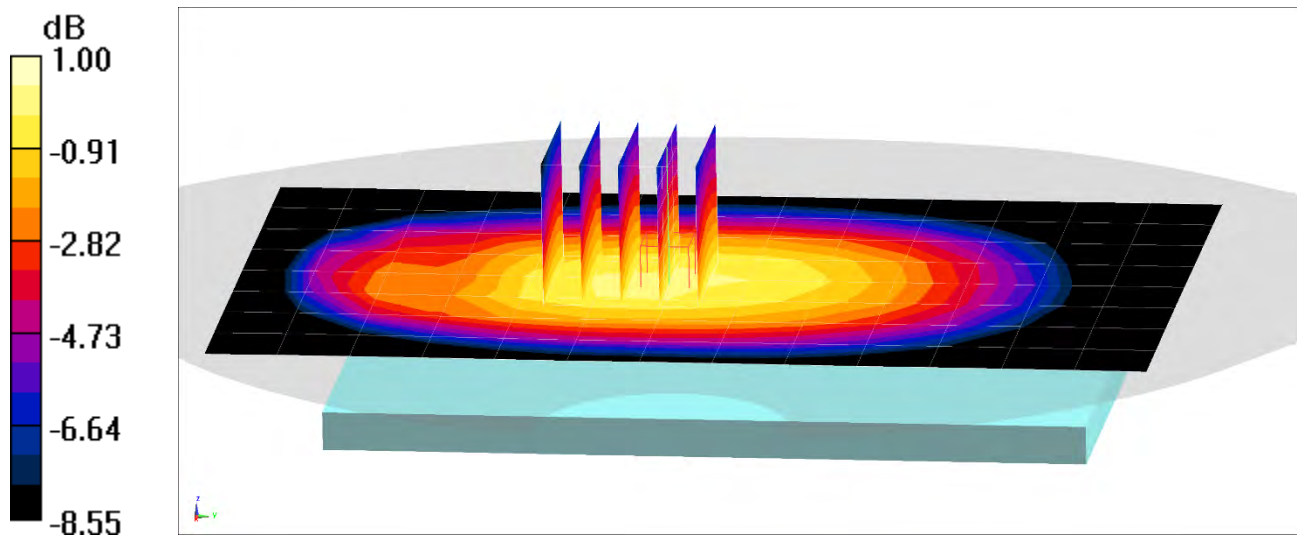
Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 18.03 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.381 W/kg

SAR(1 g) = 0.301 W/kg



0 dB = 0.353 W/kg = -4.52 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1

Medium: 750 Body; Medium parameters used (interpolated):

$f = 707.5 \text{ MHz}$; $\sigma = 0.933 \text{ S/m}$; $\epsilon_r = 55.454$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-18-2019; Ambient Temp: 23.4°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 707.5 MHz; Calibrated: 8/23/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1558; Calibrated: 10/3/2018

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630

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

**Mode: LTE Band 12, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset**

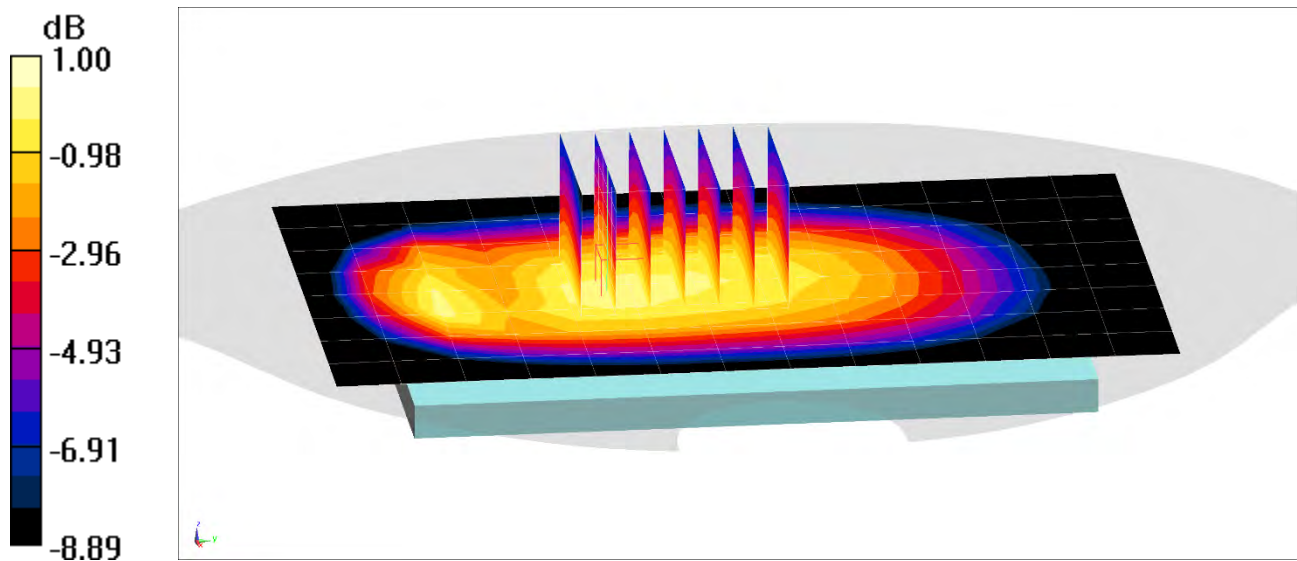
Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 17.94 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.448 W/kg

SAR(1 g) = 0.353 W/kg



0 dB = 0.415 W/kg = -3.82 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

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

Medium: 750 Body; Medium parameters used (interpolated):

$f = 782 \text{ MHz}$; $\sigma = 0.963 \text{ S/m}$; $\epsilon_r = 55.246$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-18-2019; Ambient Temp: 23.4°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 782 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: LTE Band 13, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset**

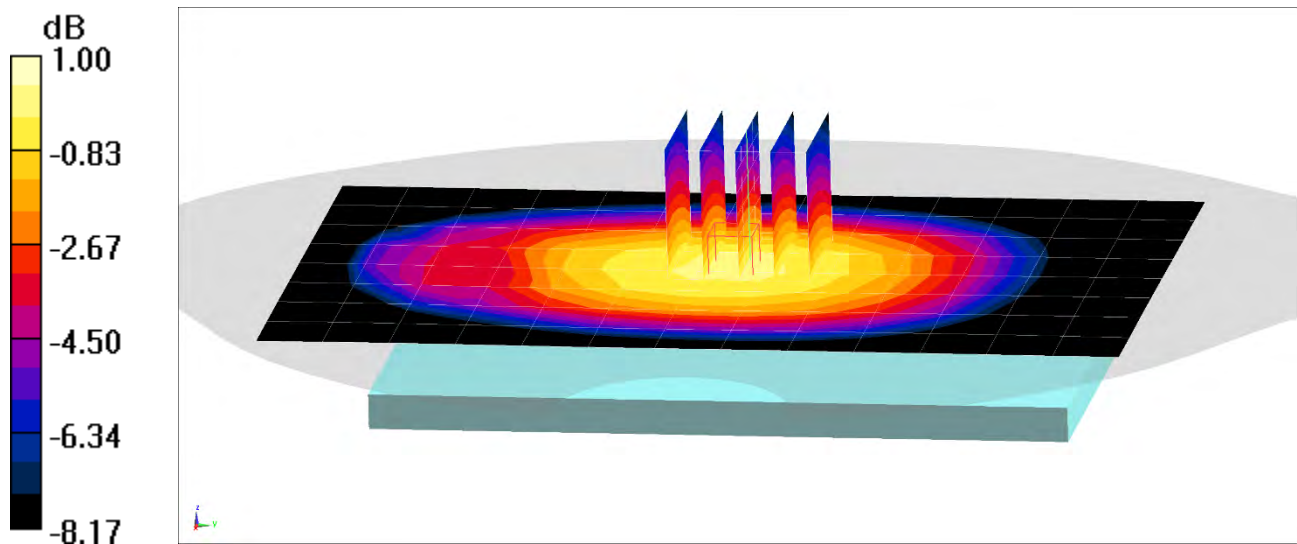
Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.75 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.467 W/kg

SAR(1 g) = 0.364 W/kg



0 dB = 0.432 W/kg = -3.65 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

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

Medium: 750 Body; Medium parameters used (interpolated):

$f = 782 \text{ MHz}$; $\sigma = 0.963 \text{ S/m}$; $\epsilon_r = 55.246$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-18-2019; Ambient Temp: 23.4°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 782 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: LTE Band 13, Body SAR, Back side, Mid.ch,
10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset**

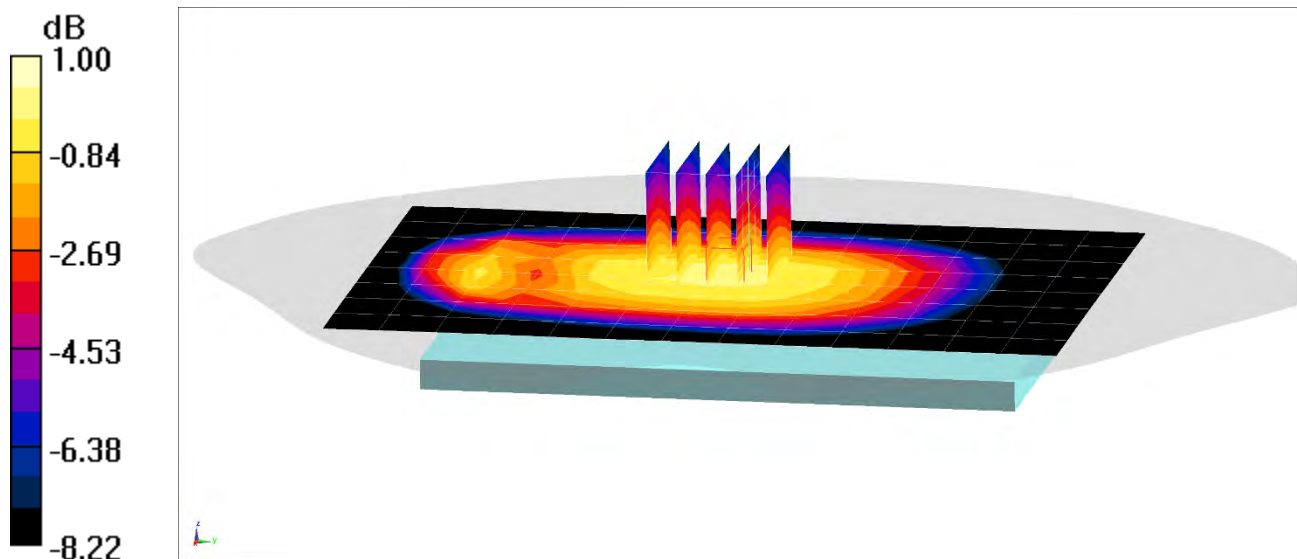
Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.75 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.516 W/kg

SAR(1 g) = 0.406 W/kg



0 dB = 0.477 W/kg = -3.21 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 42497

Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium: 835 Body; Medium parameters used (interpolated):

$f = 831.5 \text{ MHz}$; $\sigma = 0.982 \text{ S/m}$; $\epsilon_r = 52.604$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-25-2019; Ambient Temp: 24.2°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 831.5 MHz; Calibrated: 5/22/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/22/2018

Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167

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

**Mode: LTE Band 26 (Cell.), Body SAR, Back side, Mid.ch,
15 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

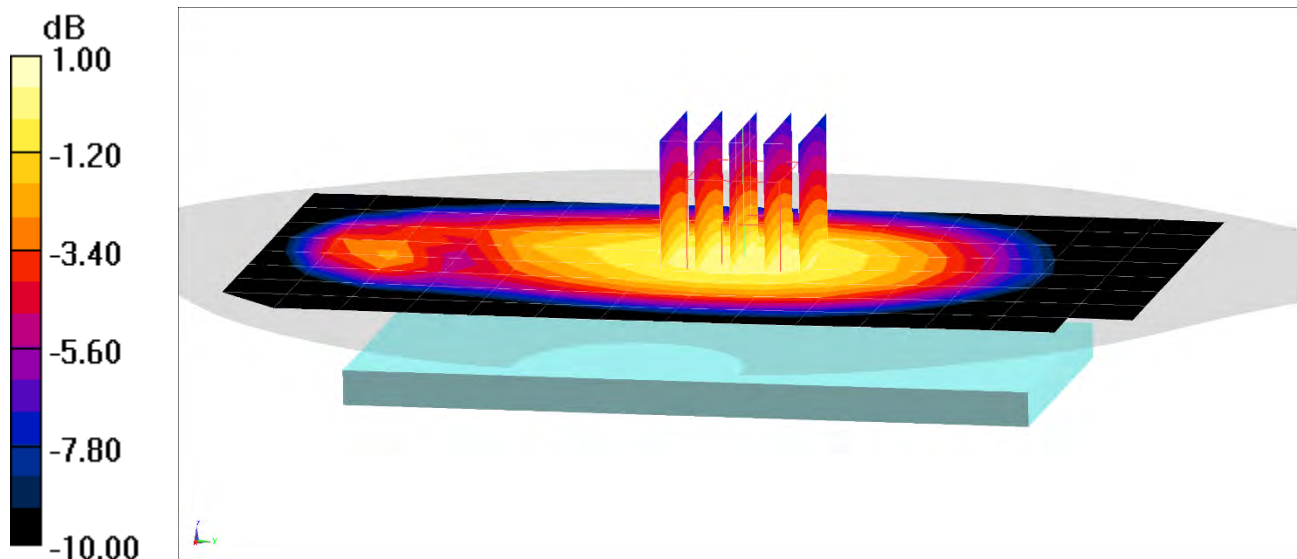
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.59 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.453 W/kg

SAR(1 g) = 0.331 W/kg



0 dB = 0.407 W/kg = -3.90 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 42497

Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1

Medium: 835 Body; Medium parameters used (interpolated):

$f = 831.5 \text{ MHz}$; $\sigma = 0.982 \text{ S/m}$; $\epsilon_r = 52.604$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-25-2019; Ambient Temp: 24.2°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 831.5 MHz; Calibrated: 5/22/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/22/2018

Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167

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

**Mode: LTE Band 26 (Cell.), Body SAR, Back side, Mid.ch,
15 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

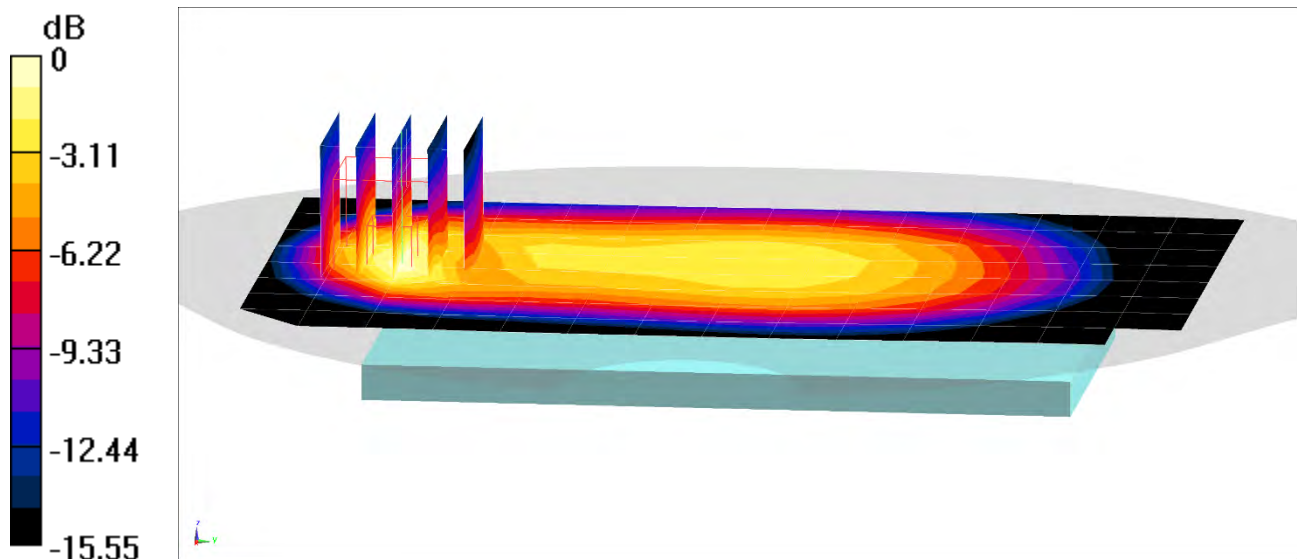
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 23.30 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.976 W/kg

SAR(1 g) = 0.495 W/kg



0 dB = 0.780 W/kg = -1.08 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1

Medium: 1750 Body; Medium parameters used (interpolated):

$f = 1720 \text{ MHz}$; $\sigma = 1.483 \text{ S/m}$; $\epsilon_r = 52.145$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-24-2019; Ambient Temp: 23.3°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1720 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800

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

**Mode: LTE Band 66 (AWS), Body SAR, Back side, Low.ch,
20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset**

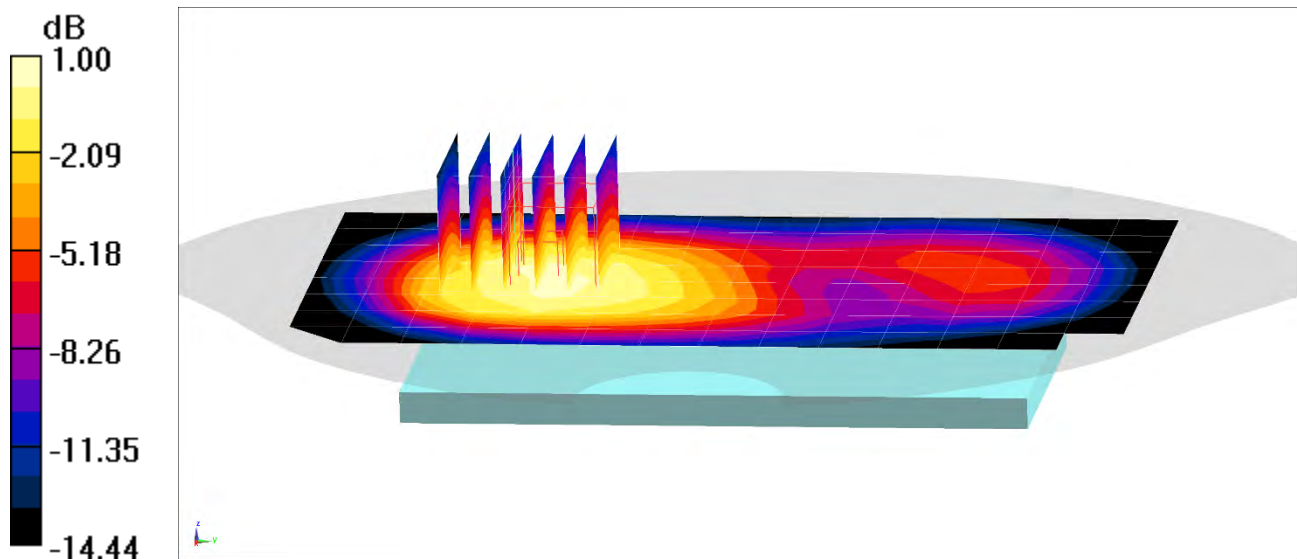
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 17.59 V/m; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 0.679 W/kg

SAR(1 g) = 0.434 W/kg



0 dB = 0.580 W/kg = -2.37 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1

Medium: 1750 Body; Medium parameters used (interpolated):

$f = 1720 \text{ MHz}$; $\sigma = 1.483 \text{ S/m}$; $\epsilon_r = 52.145$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-24-2019; Ambient Temp: 23.3°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1720 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800

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

**Mode: LTE Band 66 (AWS), Body SAR, Back side, Low.ch,
20 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset**

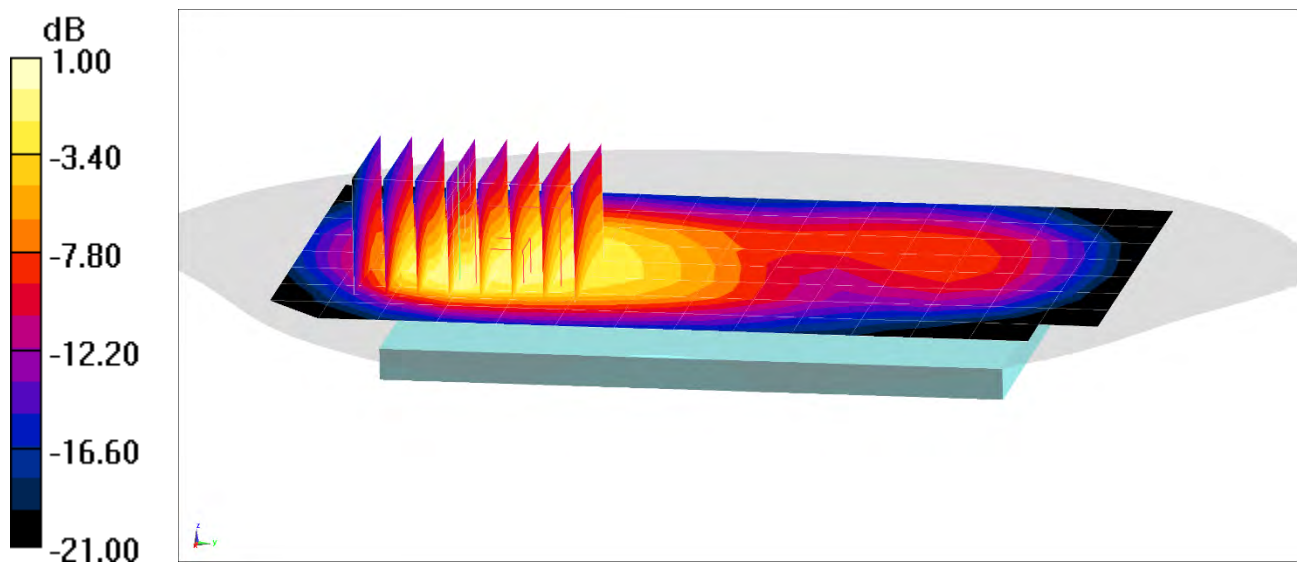
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (6x8x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 16.40 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.980 W/kg

SAR(1 g) = 0.580 W/kg



0 dB = 0.814 W/kg = -0.89 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 04603

Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1905 MHz; Duty Cycle: 1:1

Medium: 1900 Body; Medium parameters used (interpolated):

$f = 1905 \text{ MHz}$; $\sigma = 1.578 \text{ S/m}$; $\epsilon_r = 52.602$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-17-2019; Ambient Temp: 21.1°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1905 MHz; Calibrated: 7/20/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Front 30; Type: QD 000 P40 CD; Serial: 1686

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

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

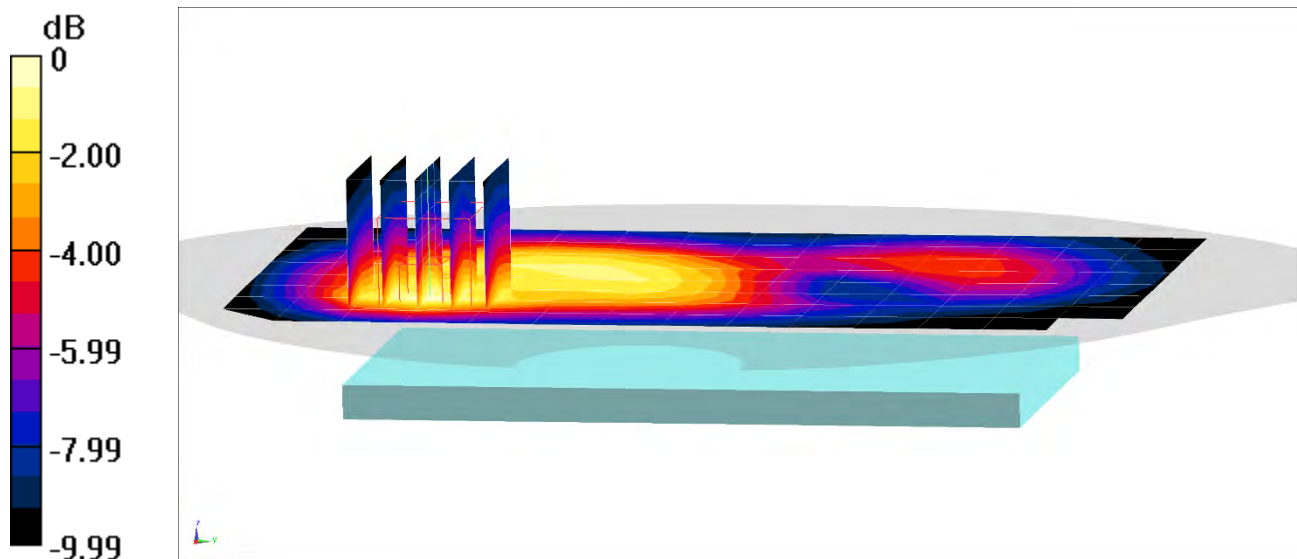
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 11.45 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.317 W/kg

SAR(1 g) = 0.189 W/kg



0 dB = 0.270 W/kg = -5.69 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 04603

Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1

Medium: 1900 Body; Medium parameters used (interpolated):

$f = 1860 \text{ MHz}$; $\sigma = 1.527 \text{ S/m}$; $\epsilon_r = 52.752$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-17-2019; Ambient Temp: 21.1°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1860 MHz; Calibrated: 7/20/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Front 30; Type: QD 000 P40 CD; Serial: 1686

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

**Mode: LTE Band 25 (PCS), Body SAR, Back side, Low.ch,
20 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset**

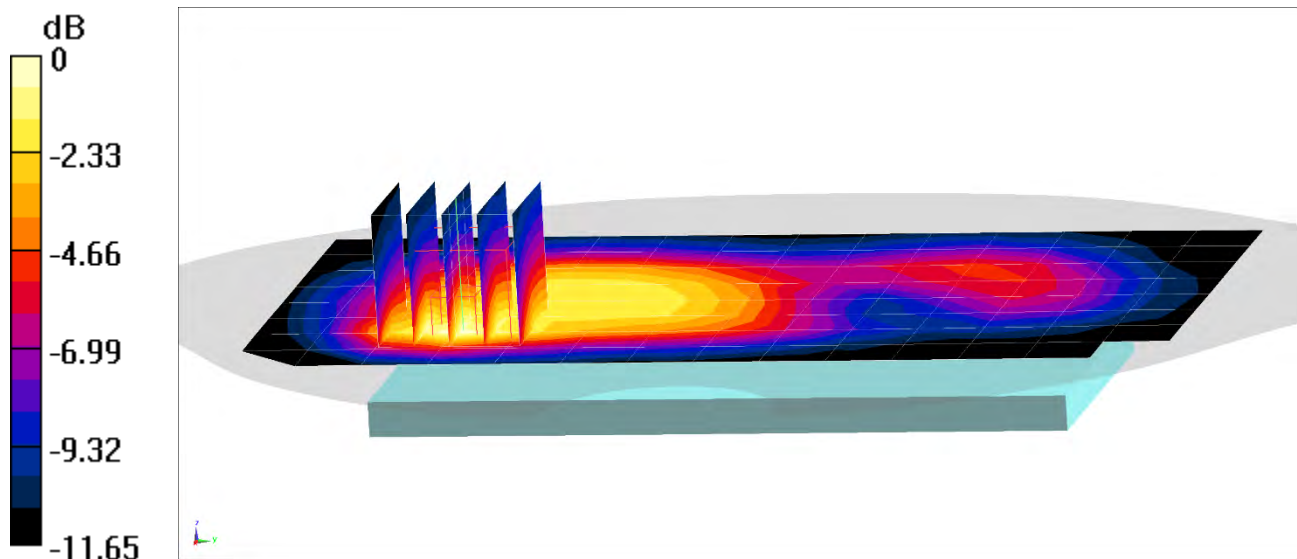
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 13.10 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.430 W/kg

SAR(1 g) = 0.239 W/kg



0 dB = 0.351 W/kg = -4.55 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 42497

Communication System: UID 0, LTE Band 7; Frequency: 2560 MHz; Duty Cycle: 1:1

Medium: 2600 Body; Medium parameters used (interpolated):

$f = 2560 \text{ MHz}$; $\sigma = 2.176 \text{ S/m}$; $\epsilon_r = 50.788$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-29-2019; Ambient Temp: 22.2°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2560 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797

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

**Mode: LTE Band 7, Body SAR, Back side, High.ch,
20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset**

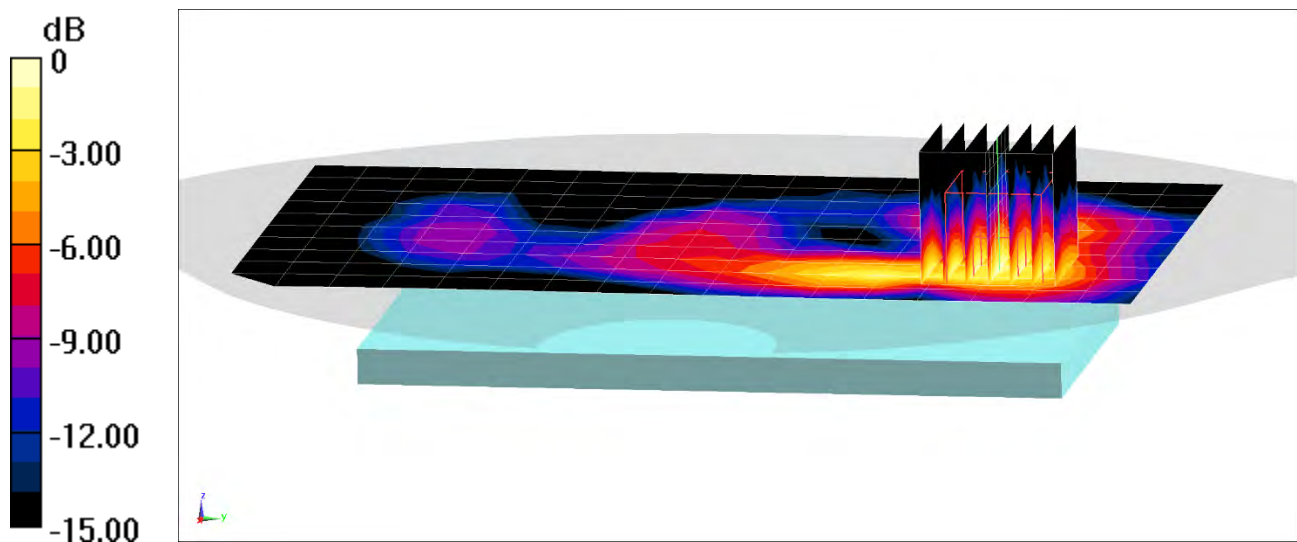
Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 4.998 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.0980 W/kg

SAR(1 g) = 0.048 W/kg



0 dB = 0.0787 W/kg = -11.04 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 36937

Communication System: UID 0, LTE Band 7; Frequency: 2535 MHz; Duty Cycle: 1:1

Medium: 2450 Body; Medium parameters used (interpolated):

$f = 2535 \text{ MHz}$; $\sigma = 2.136 \text{ S/m}$; $\epsilon_r = 51.684$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-13-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.9°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2535 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797

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

**Mode: LTE Band 7, Body SAR, Left Edge, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset**

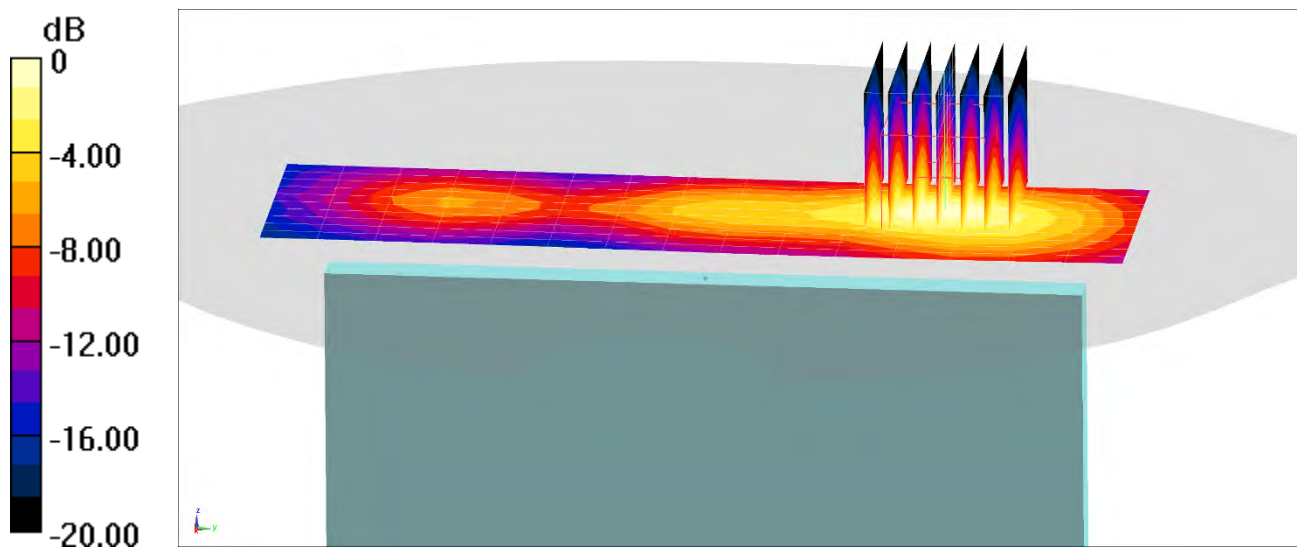
Area Scan (11x16x1): Measurement grid: $dx=5\text{mm}$, $dy=12\text{mm}$

Zoom Scan (8x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.22 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.581 W/kg

SAR(1 g) = 0.277 W/kg



0 dB = 0.461 W/kg = -3.36 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 36937

Communication System: UID 0, LTE Band 38; Frequency: 2595 MHz; Duty Cycle: 1:1.58

Medium: 2450 Body; Medium parameters used (interpolated):

$f = 2595 \text{ MHz}$; $\sigma = 2.206 \text{ S/m}$; $\epsilon_r = 51.516$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-13-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.9°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2595 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797

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

**Mode: LTE Band 38, Body SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset**

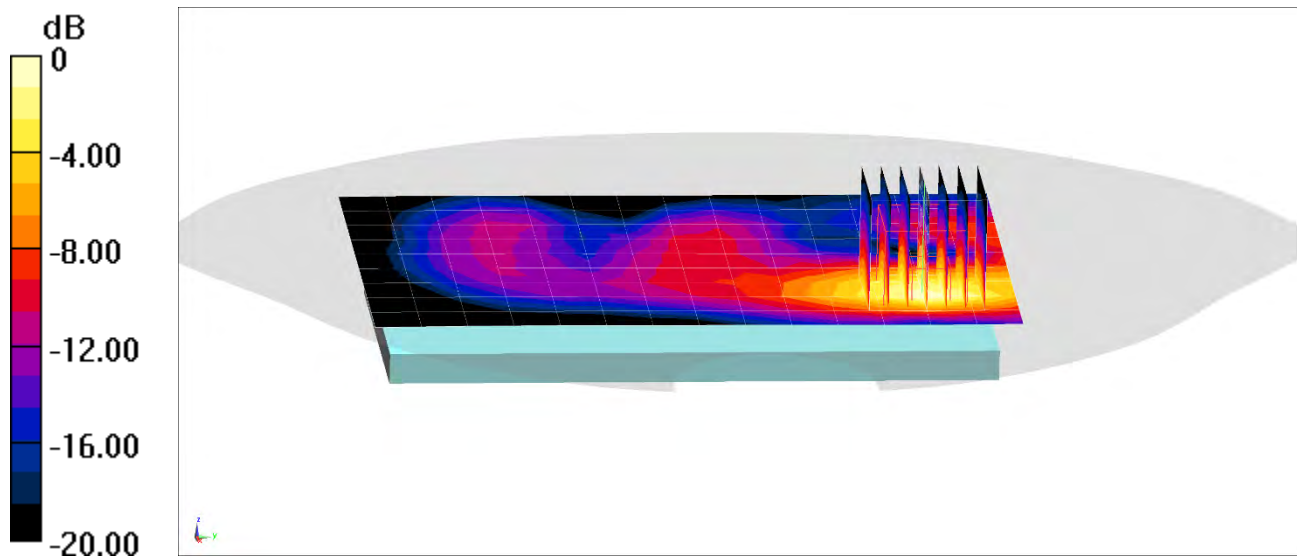
Area Scan (10x15x1): Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 16.09 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.14 W/kg

SAR(1 g) = 0.505 W/kg



0 dB = 0.834 W/kg = -0.79 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 36937

Communication System: UID 0, LTE Band 41 (Class 2); Frequency: 2593 MHz; Duty Cycle: 1:2.31

Medium: 2600 Body; Medium parameters used (interpolated):

$f = 2593 \text{ MHz}$; $\sigma = 2.223 \text{ S/m}$; $\epsilon_r = 51.123$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 05-08-2019; Ambient Temp: 23.7°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2593 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797

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

**Mode: LTE Band 41 Power Class 2, Body SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

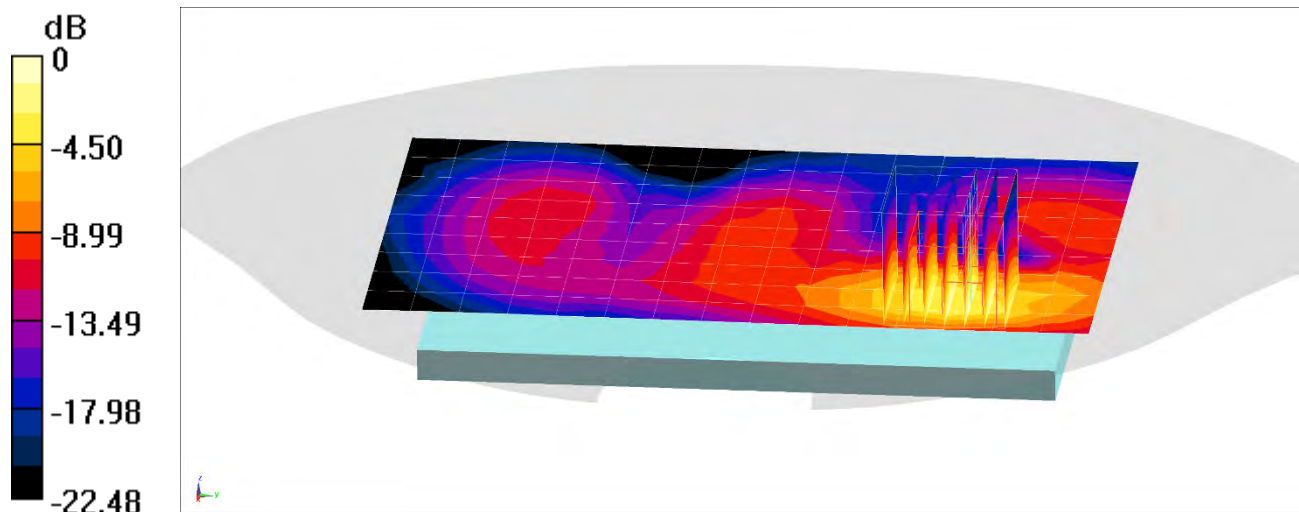
Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 14.68 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 0.897 W/kg

SAR(1 g) = 0.434 W/kg



0 dB = 0.689 W/kg = -1.62 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 36937

Communication System: UID 0, LTE Band 41 (Class 3); Frequency: 2506 MHz; Duty Cycle: 1:1.58

Medium: 2450 Body; Medium parameters used (interpolated):

$f = 2506 \text{ MHz}$; $\sigma = 2.115 \text{ S/m}$; $\epsilon_r = 51.402$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-08-2019; Ambient Temp: 23.7°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2506 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797

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

**Mode: LTE Band 41 Power Class 3, Body SAR, Back side, Low.ch,
20 MHz Bandwidth, QPSK, 50 RB, 50 RB Offset**

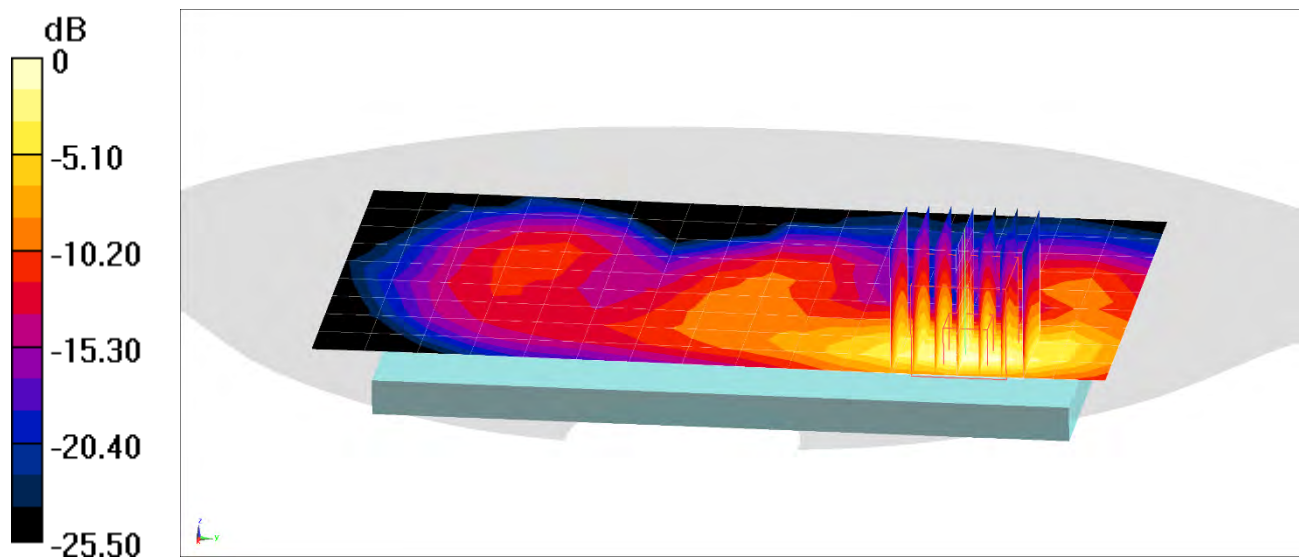
Area Scan (10x16x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.80 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.893 W/kg

SAR(1 g) = 0.400 W/kg



0 dB = 0.672 W/kg = -1.73 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 36937

Communication System: UID 0, IEEE 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: 2450 Body; Medium parameters used (interpolated):

$f = 2412 \text{ MHz}$; $\sigma = 1.996 \text{ S/m}$; $\epsilon_r = 52.122$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-08-2019; Ambient Temp: 23.0°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2412 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375

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

Mode: IEEE 802.11b, 22 MHz Bandwidth, Body SAR, Ch 1, 1 Mbps, Back Side

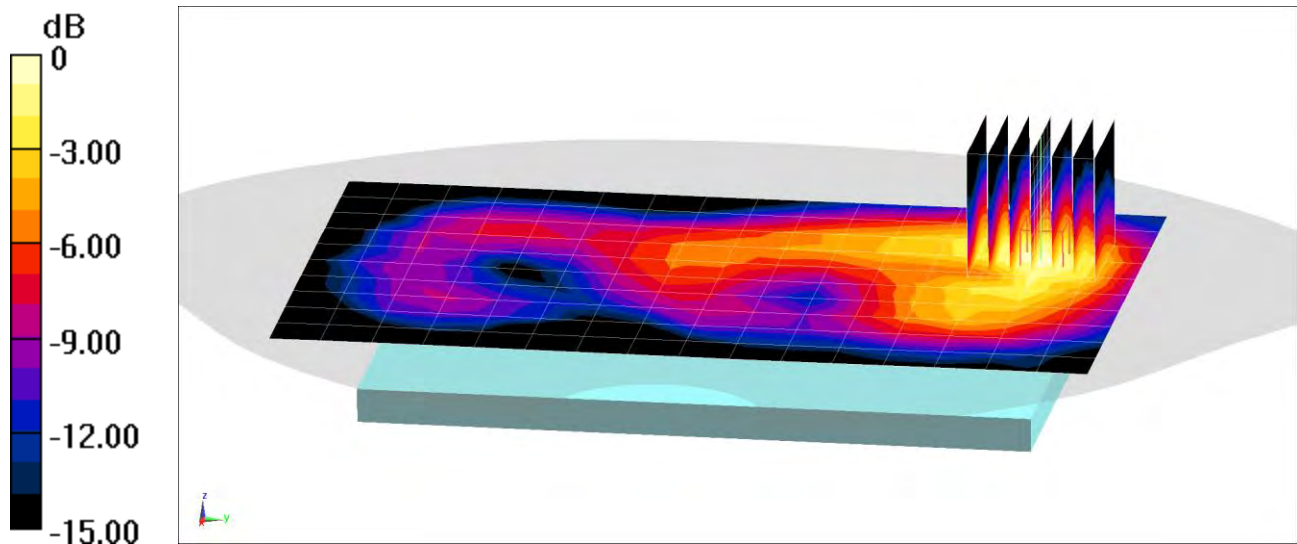
Area Scan (11x17x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.045 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.178 W/kg

SAR(1 g) = 0.088 W/kg



0 dB = 0.141 W/kg = -8.51 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 36937

Communication System: UID 0, IEEE 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: 2450 Body; Medium parameters used (interpolated):

$f = 2412 \text{ MHz}$; $\sigma = 1.996 \text{ S/m}$; $\epsilon_r = 52.122$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-08-2019; Ambient Temp: 23.0°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2412 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375

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

Mode: IEEE 802.11b, 22 MHz Bandwidth, Body SAR, Ch 1, 1 Mbps, Back Side

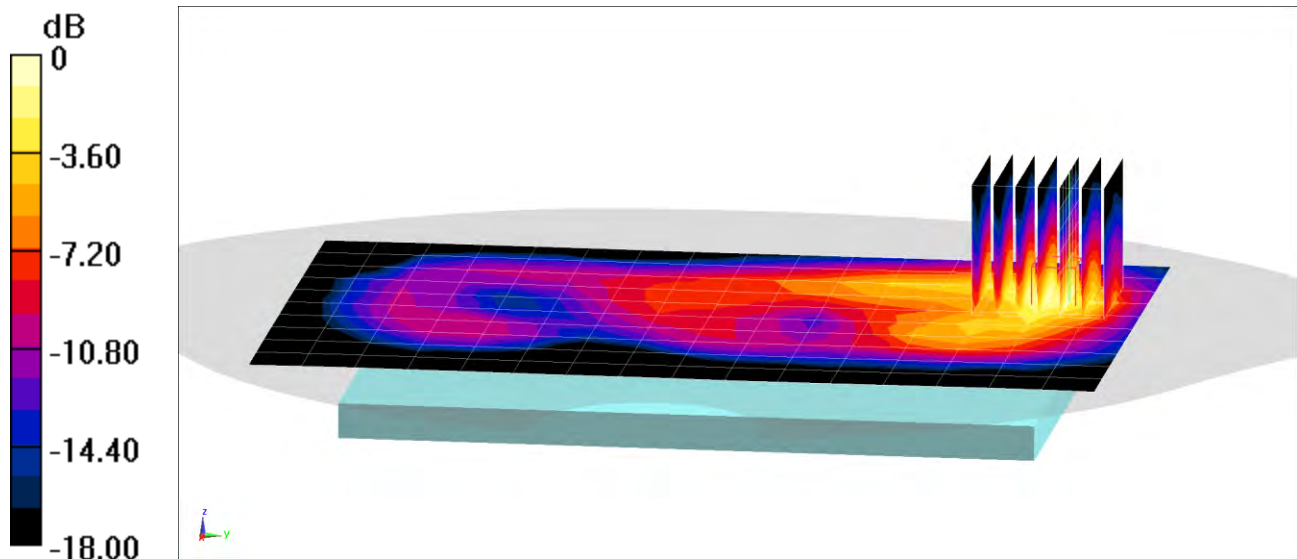
Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm

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

Reference Value = 10.53 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.477 W/kg

SAR(1 g) = 0.214 W/kg



0 dB = 0.359 W/kg = -4.45 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 04512

Communication System: UID 0, IEEE802.11a 5.2-5.8 GHz; Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: 5GHz Body; Medium parameters used:

$f = 5500 \text{ MHz}$; $\sigma = 5.795 \text{ S/m}$; $\epsilon_r = 46.779$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-05-2019; Ambient Temp: 23.4°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7308; ConvF(4, 4, 4) @ 5500 MHz; Calibrated: 8/23/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1558; Calibrated: 10/3/2018

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630

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

Mode: IEEE 802.11a, UNII-2C, 20 MHz Bandwidth, Body SAR, Ch 100, 6 Mbps, Back Side

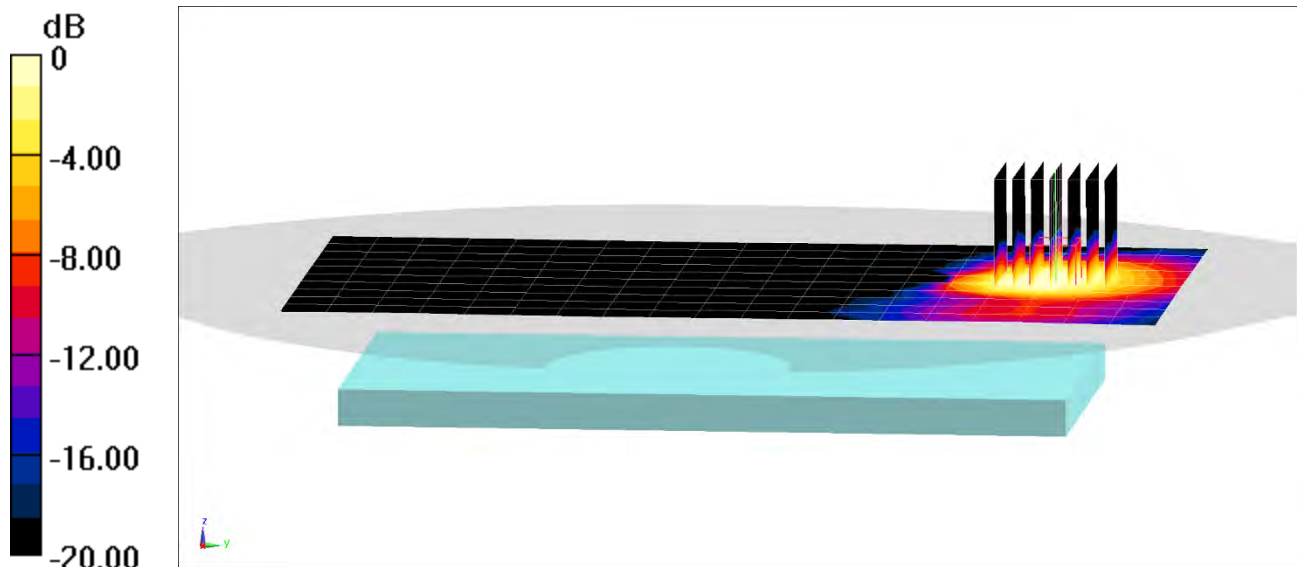
Area Scan (11x20x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Reference Value = 8.861 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.50 W/kg

SAR(1 g) = 0.416 W/kg



0 dB = 0.945 W/kg = -0.25 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 04512

Communication System: UID 0, IEEE802.11a 5.2-5.8 GHz; Frequency: 5745 MHz; Duty Cycle: 1:1

Medium: 5GHz Body; Medium parameters used:

$f = 5745 \text{ MHz}$; $\sigma = 6.167 \text{ S/m}$; $\epsilon_r = 46.292$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-05-2019; Ambient Temp: 23.4°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7308; ConvF(4.18, 4.18, 4.18) @ 5745 MHz; Calibrated: 8/23/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1558; Calibrated: 10/3/2018

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630

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

Mode: IEEE 802.11a, UNII-3, 20 MHz Bandwidth, Body SAR, Ch 149, 6 Mbps, Back Side

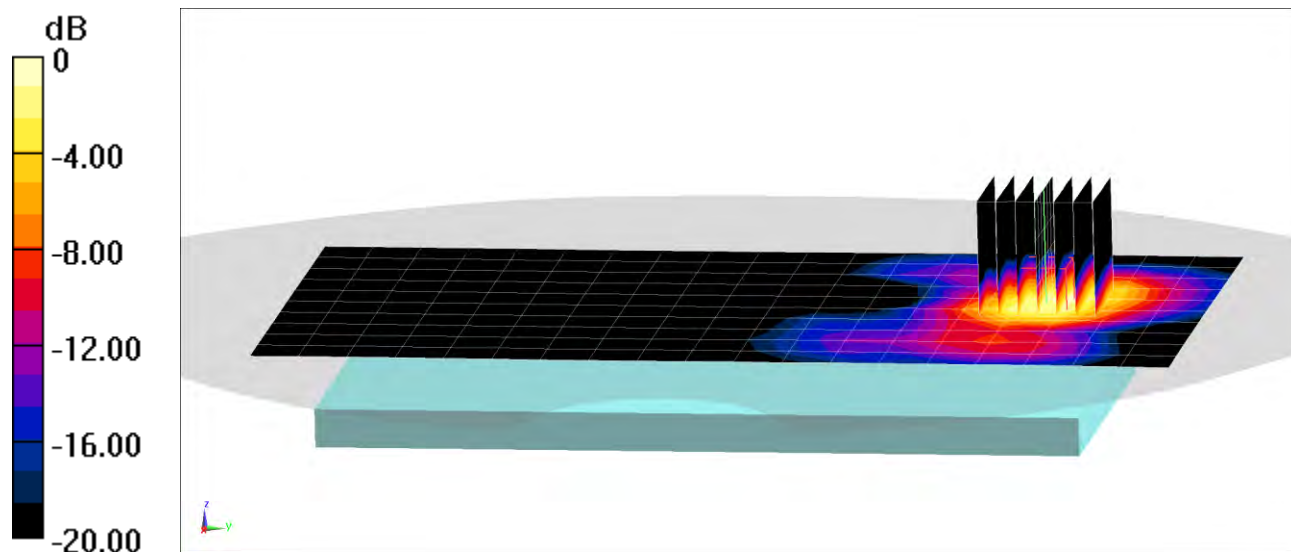
Area Scan (11x20x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Reference Value = 11.53 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 3.15 W/kg

SAR(1 g) = 0.720 W/kg



0 dB = 1.86 W/kg = 2.70 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 42497

Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.294

Medium: 2450 Body; Medium parameters used (interpolated):

$f = 2441 \text{ MHz}$; $\sigma = 2.031 \text{ S/m}$; $\epsilon_r = 51.152$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-29-2019; Ambient Temp: 22.2°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2441 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797

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

Mode: Bluetooth, Body SAR, Ch 39, 1 Mbps, Back Side

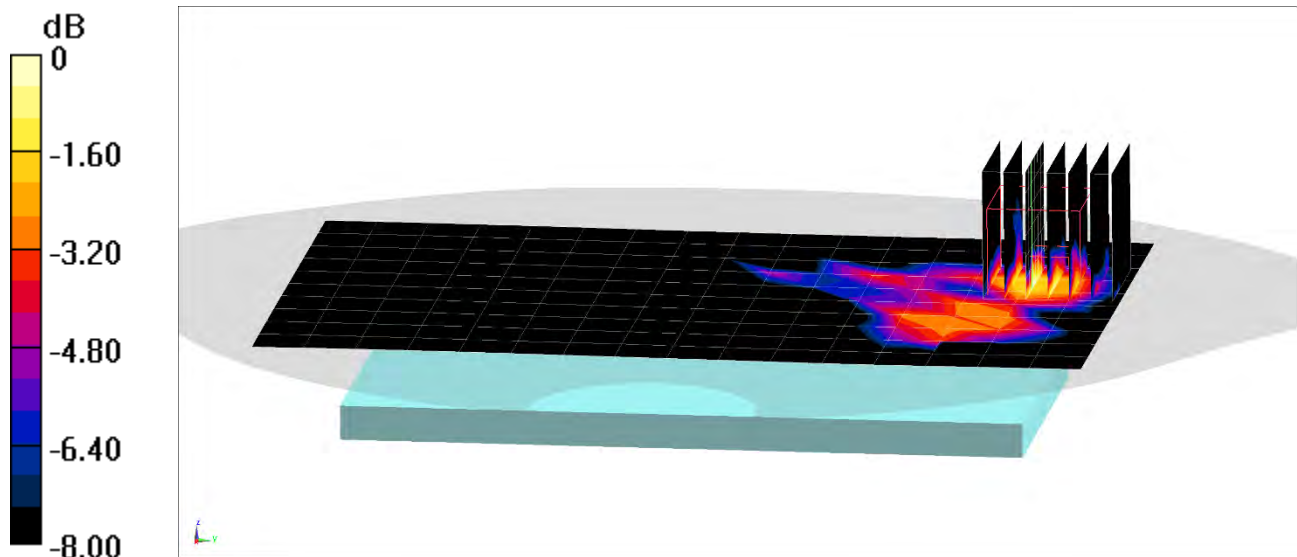
Area Scan (11x17x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 1.717 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.0120 W/kg

SAR(1 g) = 0.00538 W/kg



0 dB = 0.00957 W/kg = -20.19 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 42497

Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.294

Medium: 2450 Body; Medium parameters used (interpolated):

$f = 2441 \text{ MHz}$; $\sigma = 2.031 \text{ S/m}$; $\epsilon_r = 51.152$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp: 22.2°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2441 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797

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

Mode: Bluetooth, Body SAR, Ch 39, 1 Mbps, Back Side

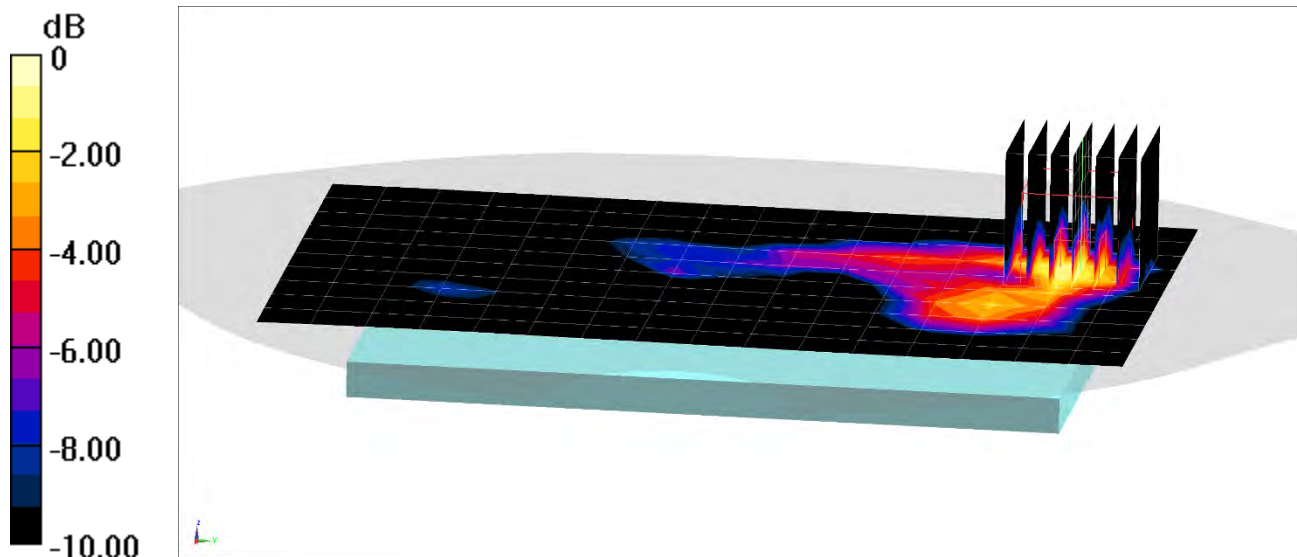
Area Scan (11x17x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.717 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.0320 W/kg

SAR(1 g) = 0.014 W/kg



0 dB = 0.0235 W/kg = -16.29 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41200

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

Medium: 1900 Body; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.56 \text{ S/m}$; $\epsilon_r = 53.108$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-29-2019; Ambient Temp: 21.6 °C; Tissue Temp: 21.2°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 Front; Type: SAM; Serial: 1686

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

Mode: PCS EVDO Rev. 0, Phablet SAR, Back side, Mid.ch

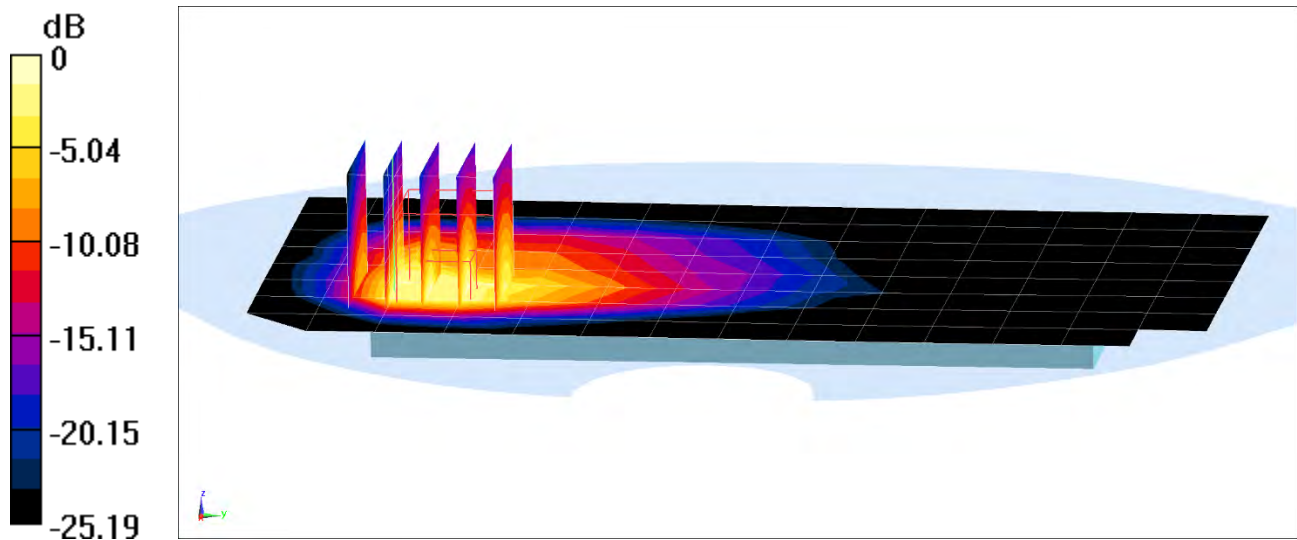
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 42.11 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 7.52 W/kg

SAR(10 g) = 1.31 W/kg



0 dB = 4.66 W/kg = 6.68 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

Communication System: UID 0, UMTS; Frequency: 1712.4 MHz; Duty Cycle: 1:1

Medium: 1750 Body; Medium parameters used (interpolated):

$f = 1712.4 \text{ MHz}$; $\sigma = 1.476 \text{ S/m}$; $\epsilon_r = 51.548$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-15-2019; Ambient Temp: 22.5°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1712.4 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

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

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

Mode: UMTS 1750, Phablet SAR, Back side, Low.ch

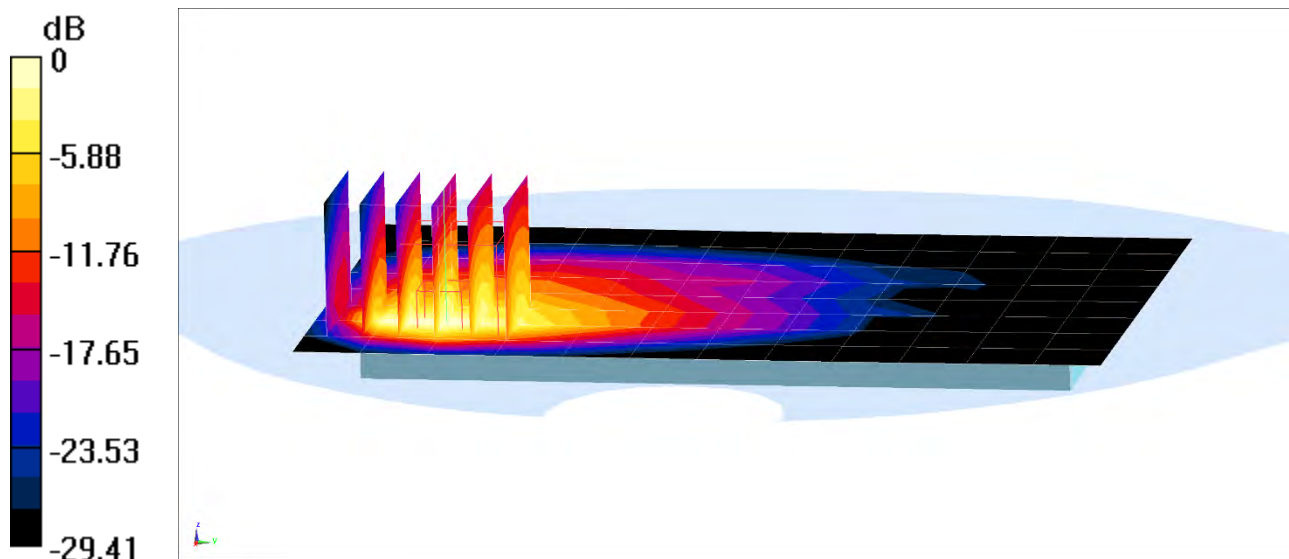
Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value = 47.28 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 9.87 W/kg

SAR(10 g) = 1.76 W/kg



0 dB = 6.39 W/kg = 8.06 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41150

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

Medium: 1900 Body; Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.538 \text{ S/m}$; $\epsilon_r = 52.295$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-23-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.9°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: Front; Type: QD 000 P40 CD; Serial: 1686

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

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

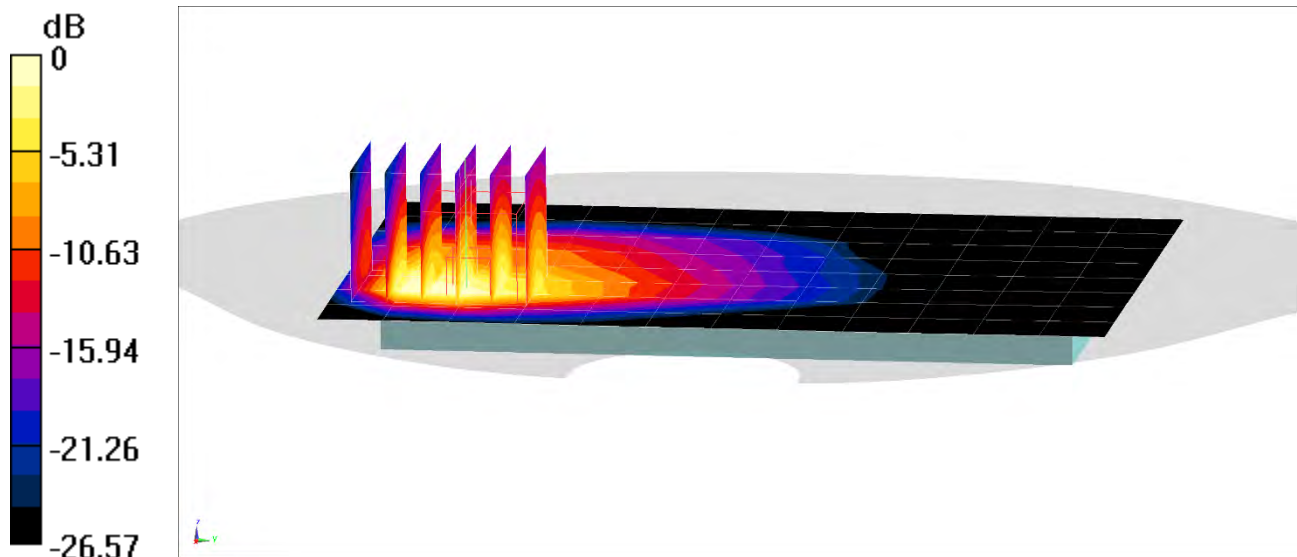
Area Scan (9x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 37.96 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 5.89 W/kg

SAR(10 g) = 1.29 W/kg



0 dB = 4.76 W/kg = 6.78 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41200

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

Medium: 750 Body; Medium parameters used (interpolated):

$f = 680.5 \text{ MHz}$; $\sigma = 0.918 \text{ S/m}$; $\epsilon_r = 55.245$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-22-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 680.5 MHz; Calibrated: 8/23/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1558; Calibrated: 10/3/2018

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630

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

**Mode: LTE Band 71, Phablet SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 50 RB Offset**

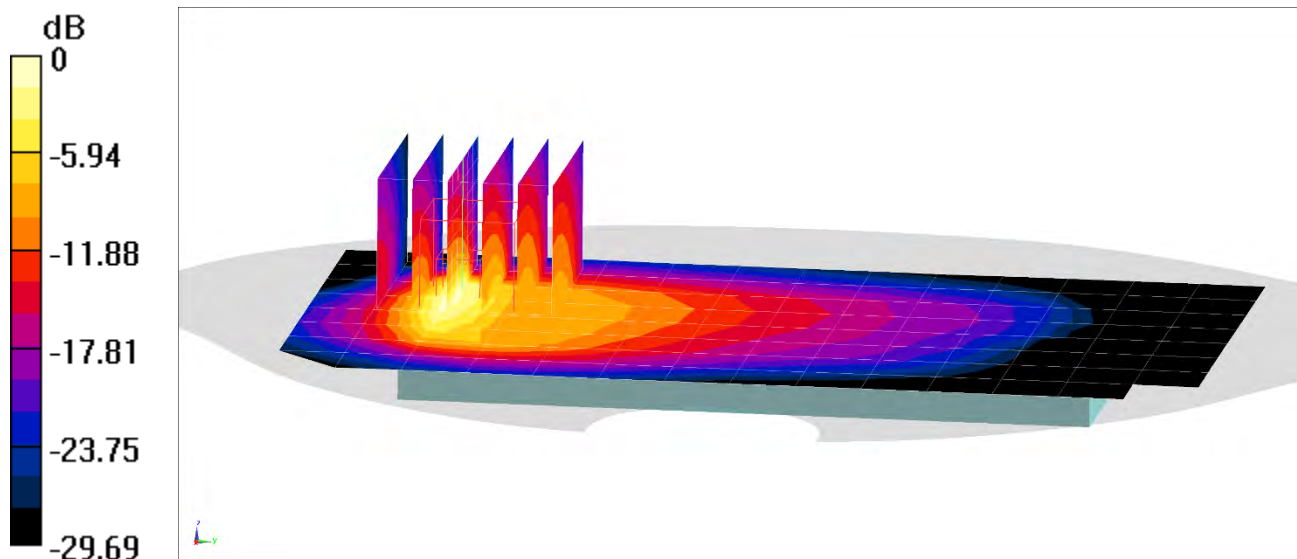
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

Zoom Scan (7x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 32.69 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 4.98 W/kg

SAR(10 g) = 0.431 W/kg



0 dB = 3.07 W/kg = 4.87 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 41135

Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1

Medium: 1750 Body; Medium parameters used (interpolated):

$f = 1720 \text{ MHz}$; $\sigma = 1.483 \text{ S/m}$; $\epsilon_r = 52.145$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-24-2019; Ambient Temp: 23.3°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1720 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800

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

**Mode: LTE Band 66 (AWS), Phablet SAR, Back side, Low.ch,
20 MHz Bandwidth, QPSK, 50 RB, 0 RB Offset**

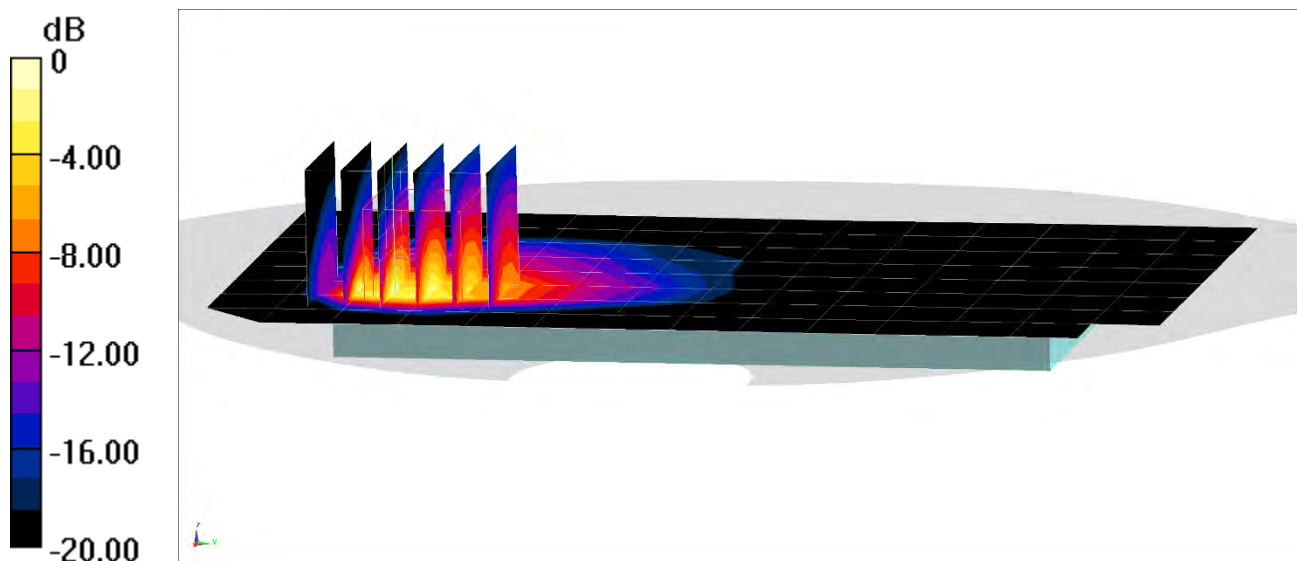
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 58.86 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 17.4 W/kg

SAR(10 g) = 2.24 W/kg



0 dB = 9.84 W/kg = 9.93 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 04603

Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1

Medium: 1900 Body; Medium parameters used (interpolated):

$f = 1860 \text{ MHz}$; $\sigma = 1.515 \text{ S/m}$; $\epsilon_r = 52.354$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-23-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1860 MHz; Calibrated: 7/20/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Front; Type: QD 000 P40 CD; Serial: 1686

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, 50 RB Offset**

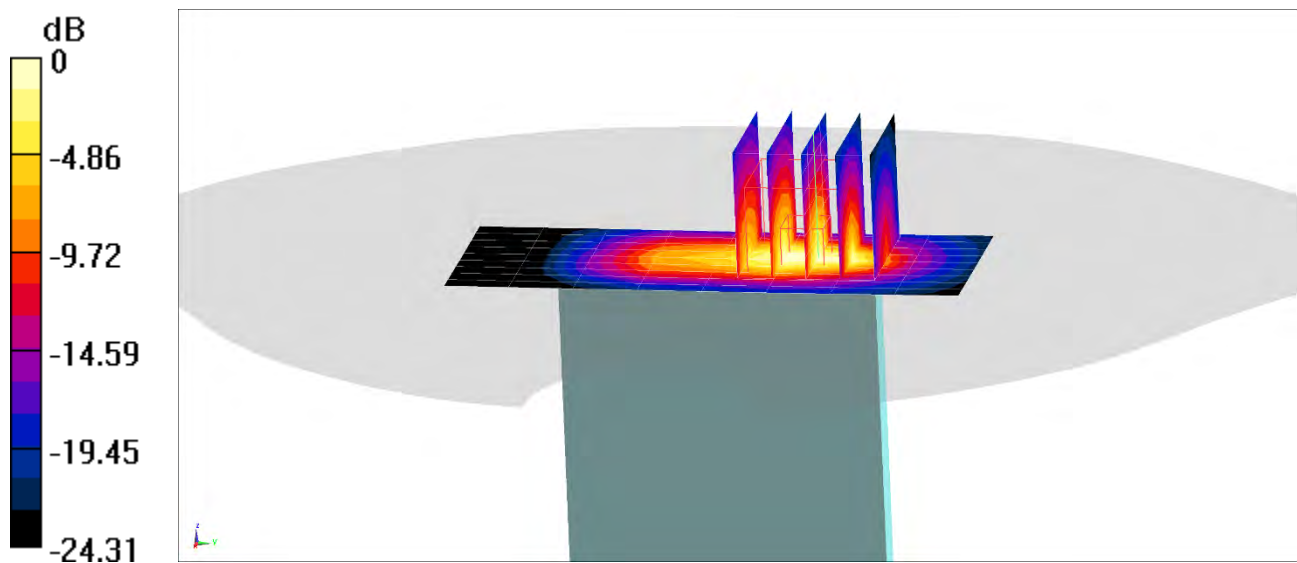
Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm

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

Reference Value = 40.69 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 4.92 W/kg

SAR(10 g) = 0.855 W/kg



0 dB = 3.83 W/kg = 5.83 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 36937

Communication System: UID 0, LTE Band 41 (Class 2); Frequency: 2593 MHz; Duty Cycle: 1:2.31

Medium: 2450 Body; Medium parameters used (interpolated):

$f = 2593 \text{ MHz}$; $\sigma = 2.223 \text{ S/m}$; $\epsilon_r = 51.123$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 05-08-2019; Ambient Temp: 23.7°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2593 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797

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

**Mode: LTE Band 41 Power Class 2, Phablet SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset**

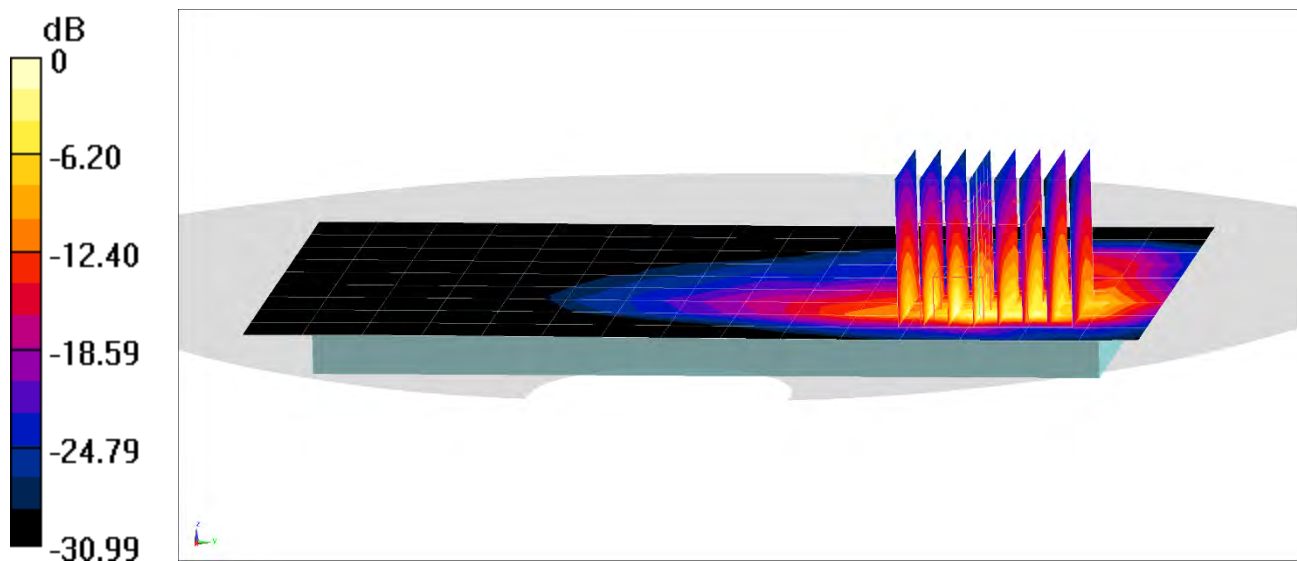
Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm

Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 43.12 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 25.7 W/kg

SAR(10 g) = 2.39 W/kg



0 dB = 16.6 W/kg = 12.20 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMA505U; Type: Portable Handset; Serial: 04512

Communication System: UID 0, IEEE 802.11a 5.2-5.8 GHz; Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: 5GHz Body; Medium parameters used:

$f = 5500 \text{ MHz}$; $\sigma = 5.795 \text{ S/m}$; $\epsilon_r = 46.779$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 04-05-2019; Ambient Temp: 23.4°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7308; ConvF(4, 4, 4) @ 5500 MHz; Calibrated: 8/23/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1558; Calibrated: 10/3/2018

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1630

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

**Mode: IEEE 802.11a, U-NII-2C, 20 MHz Bandwidth, Phablet SAR,
Ch 100, 6 Mbps, Back Side**

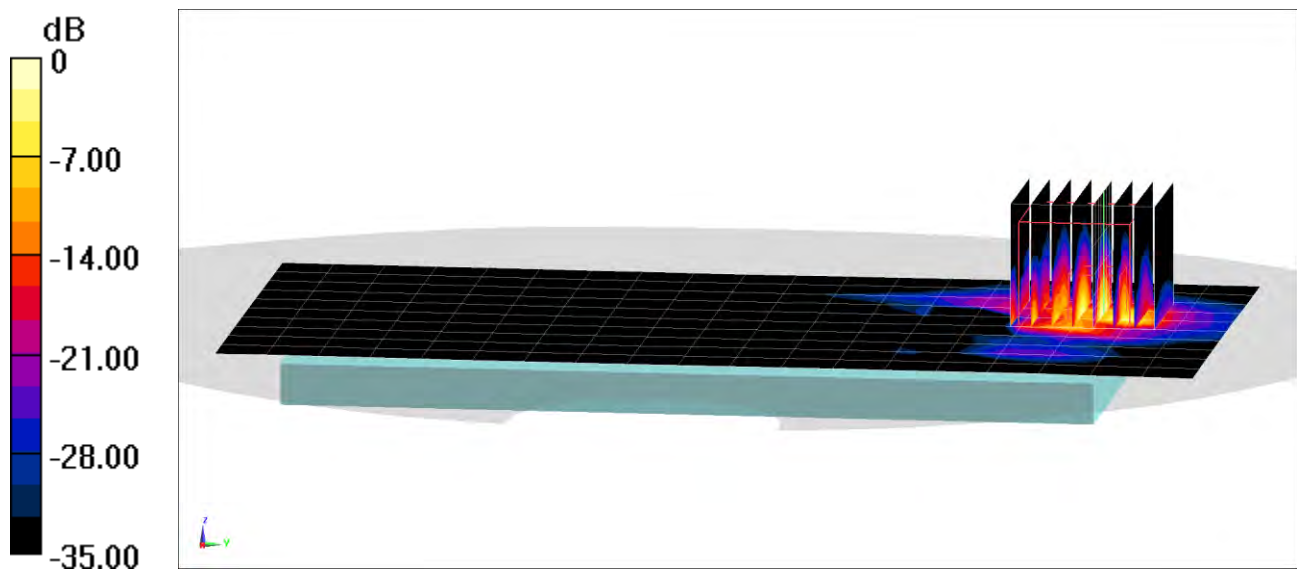
Area Scan (11x20x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Reference Value = 21.6 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 55.1 W/kg

SAR(10 g) = 1.17 W/kg



0 dB = 25.6 W/kg = 14.08 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: 750 Head; Medium parameters used (interpolated):

$f = 750 \text{ MHz}$; $\sigma = 0.894 \text{ S/m}$; $\epsilon_r = 41.915$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-24-2019; Ambient Temp: 24.6°C; Tissue Temp: 21.1°C

Probe: EX3DV4 - SN7409; ConvF(9.91, 9.91, 9.91) @ 750 MHz; Calibrated: 6/25/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/18/2018

Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759

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

750 MHz System Verification at 23.0 dBm (200 mW)

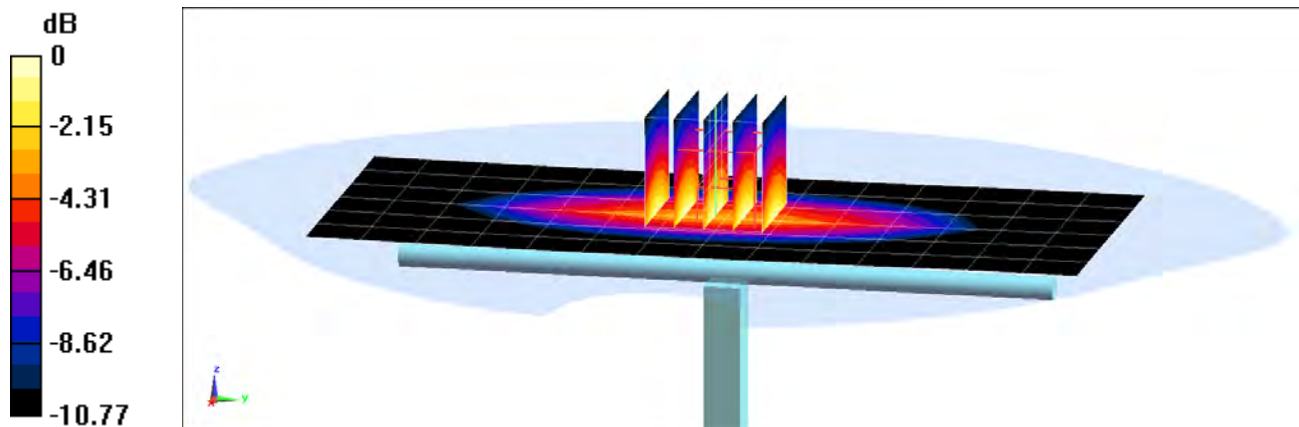
Area Scan (7x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 2.71 W/kg

SAR(1 g) = 1.75 W/kg

Deviation(1 g) = 5.68%



0 dB = 2.37 W/kg = 3.75 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1161

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: 750 Head; Medium parameters used (interpolated):

$f = 750 \text{ MHz}$; $\sigma = 0.92 \text{ S/m}$; $\epsilon_r = 42.933$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 05-01-2019; Ambient Temp: 23.2°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN7409; ConvF(9.91, 9.91, 9.91) @ 750 MHz; Calibrated: 6/25/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/18/2018

Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759

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

750 MHz System Verification at 23.0 dBm (200 mW)

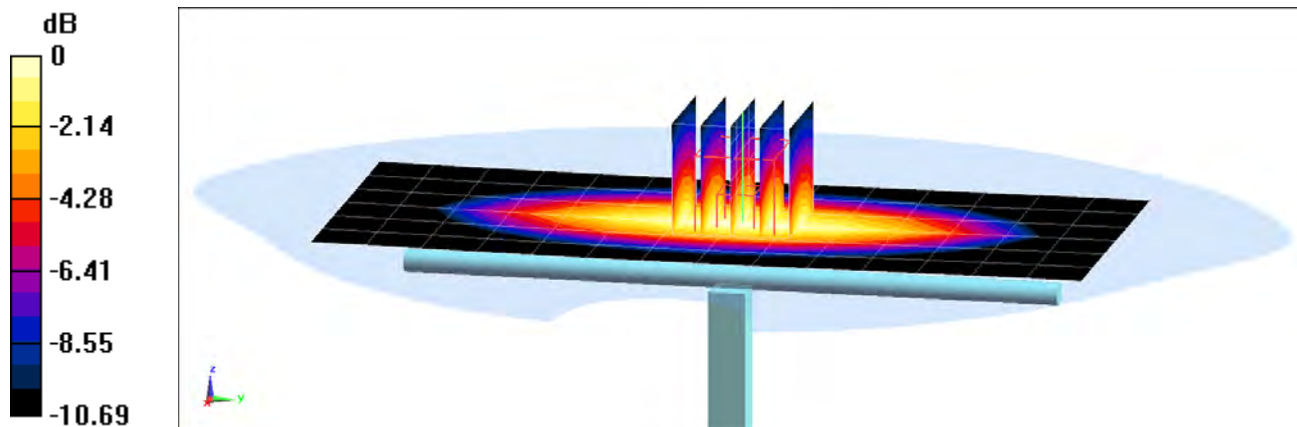
Area Scan (7x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 2.64 W/kg

SAR(1 g) = 1.71 W/kg

Deviation(1 g) = 6.48%



0 dB = 2.32 W/kg = 3.65 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d132

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.92 \text{ S/m}$; $\epsilon_r = 41.957$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-15-2019; Ambient Temp: 22.4°C; Tissue Temp: 20.6°C

Probe: EX3DV4 - SN3914; ConvF(9.5, 9.5, 9.5) @ 835 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/14/2019

Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687

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

835 MHz System Verification at 23.0 dBm (200 mW)

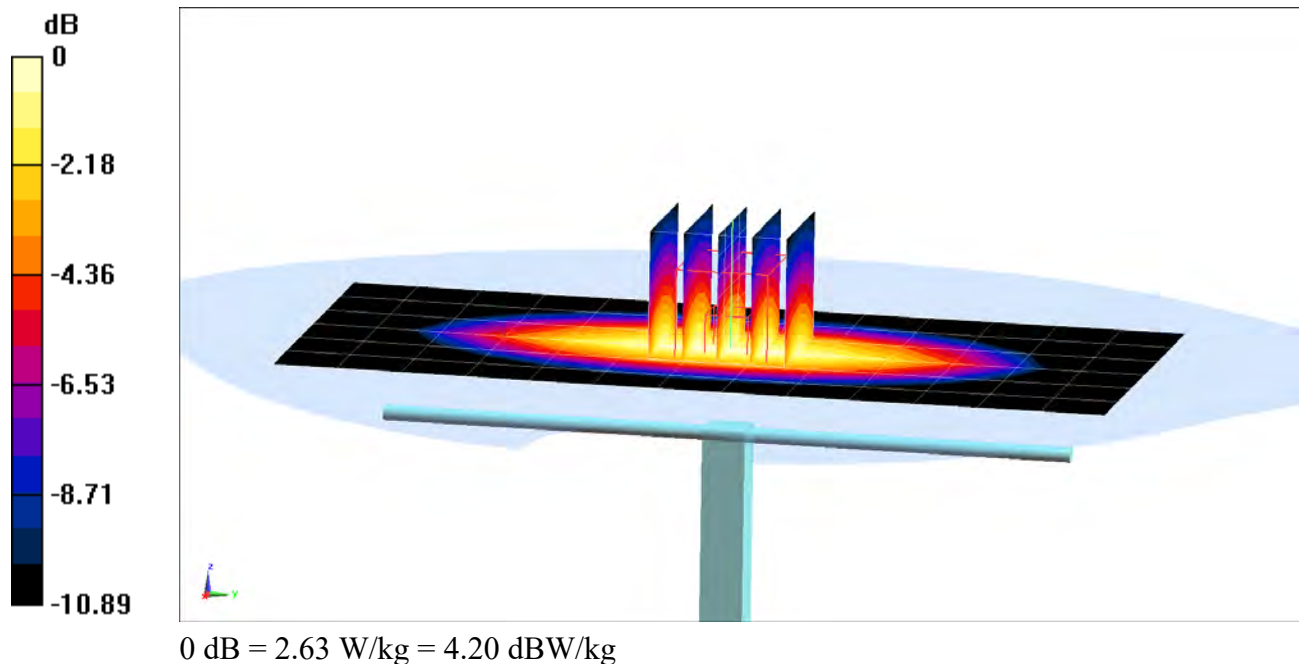
Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 2.97 W/kg

SAR(1 g) = 1.95 W/kg

Deviation(1 g) = 1.67%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d132

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.93 \text{ S/m}$; $\epsilon_r = 41.382$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-17-2019; Ambient Temp: 22.1°C; Tissue Temp: 21.8°C

Probe: EX3DV4 - SN3914; ConvF(9.5, 9.5, 9.5) @ 835 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 2/14/2019

Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687

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

835 MHz System Verification at 23.0 dBm (200 mW)

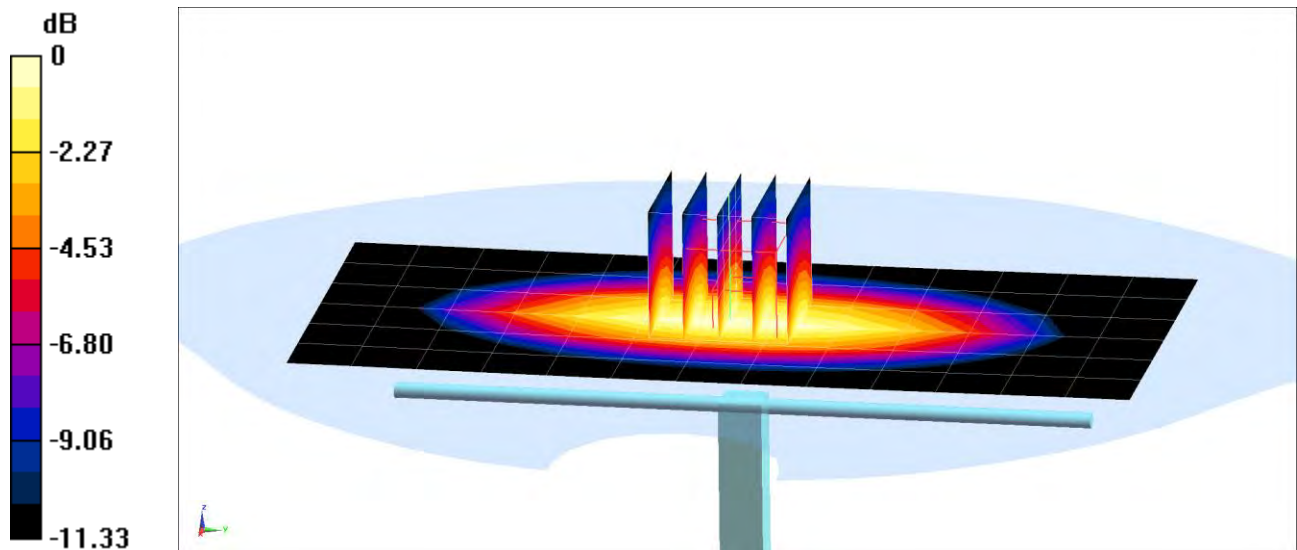
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 3.11 W/kg

SAR(1 g) = 1.98 W/kg

Deviation(1 g) = 3.23%



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

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Head Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.35 \text{ S/m}$; $\epsilon_r = 38.66$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-10-2019; Ambient Temp: 23.0°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7308; ConvF(8.66, 8.66, 8.66) @ 1750 MHz; Calibrated: 8/23/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1558; Calibrated: 10/3/2018

Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1966

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

1750 MHz System Verification at 20.0 dBm (100 mW)

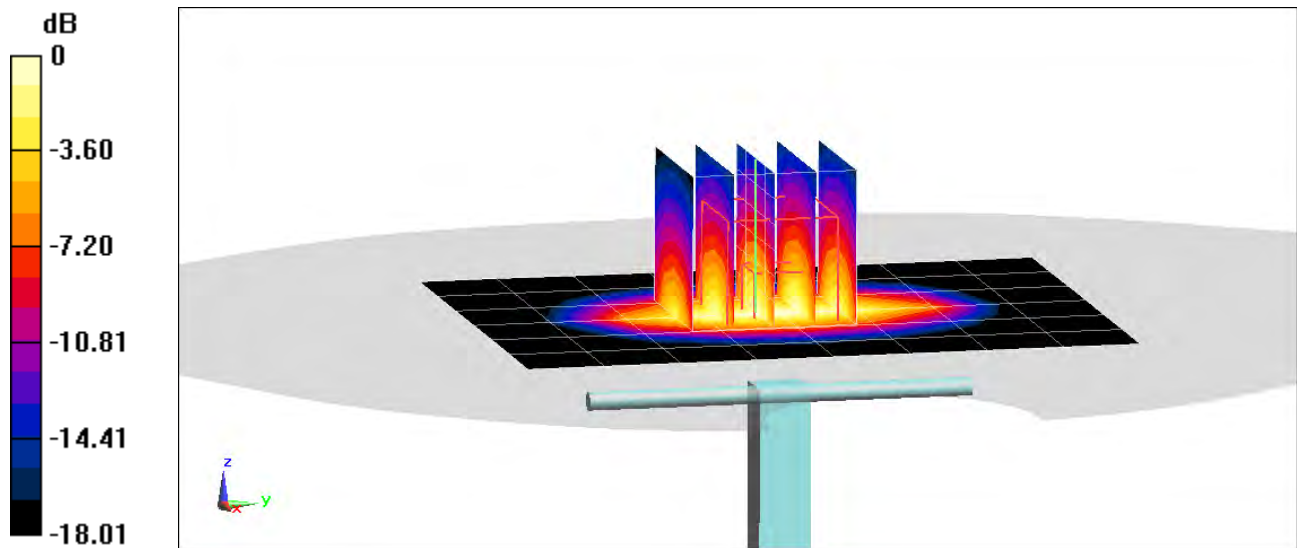
Area Scan (7x9x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 6.98 W/kg

SAR(1 g) = 3.59 W/kg

Deviation(1 g) = -1.64%



0 dB = 5.63 W/kg = 7.51 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1148

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Head; Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.367 \text{ S/m}$; $\epsilon_r = 39.973$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-28-2019; Ambient Temp: 20.2°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7409; ConvF(8.43, 8.43, 8.43) @ 1750 MHz; Calibrated: 6/25/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/18/2018

Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759

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

1750 MHz System Verification at 20.0 dBm (100 mW)

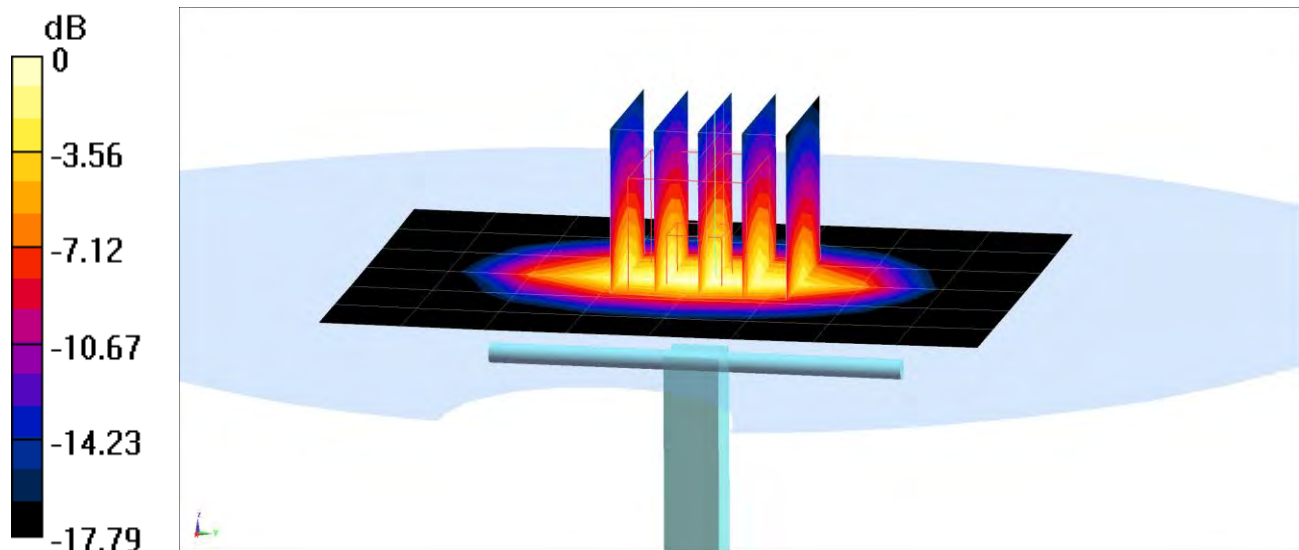
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 6.83 W/kg

SAR(1 g) = 3.67 W/kg

Deviation(1 g) = 0.82%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Head Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.446 \text{ S/m}$; $\epsilon_r = 41.042$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-10-2019; Ambient Temp: 23.7°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7357; ConvF(8.47, 8.47, 8.47) @ 1900 MHz; Calibrated: 4/18/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Left For Head SAM with CRP v5.0; Type: QD000P40CD; Serial: TP:1687

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

1900 MHz System Verification at 20.0 dBm (100 mW)

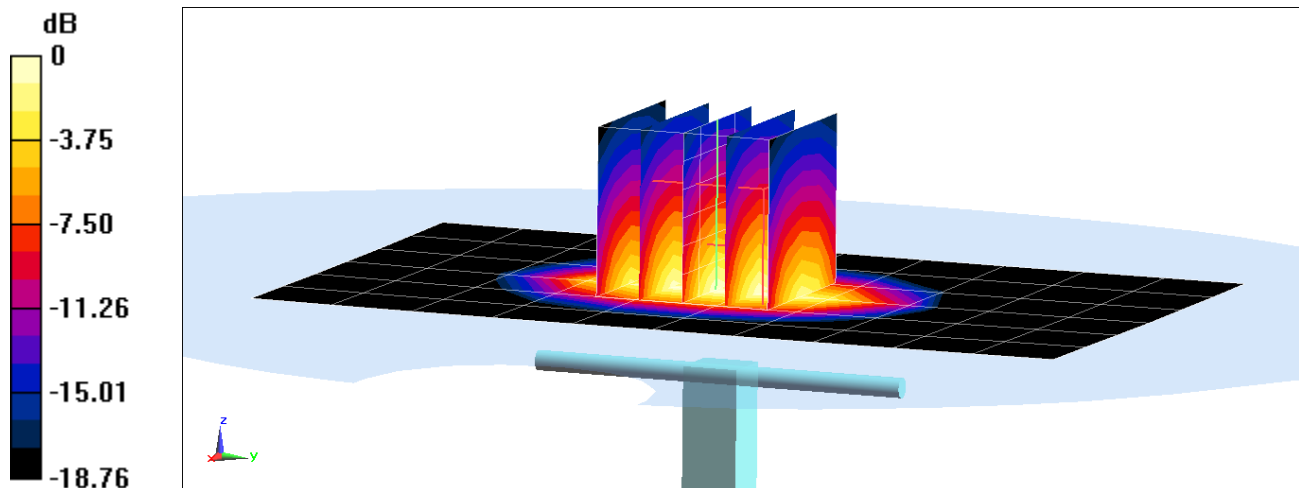
Area Scan (7x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 8.37 W/kg

SAR(1 g) = 4.29 W/kg

Deviation(1 g) = 7.79%



0 dB = 6.80 W/kg = 8.33 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Head Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.459 \text{ S/m}$; $\epsilon_r = 39.093$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-19-2019; Ambient Temp: 24.4°C; Tissue Temp: 23.2°C

Probe: EX3DV4 - SN7409; ConvF(8.05, 8.05, 8.05) @ 1900 MHz; Calibrated: 6/25/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/18/2018

Phantom: SAM 30 with CRP v5.0 right; Type: QD000P40CD; Serial: TP:1759

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

1900 MHz System Verification at 20.0 dBm (100 mW)

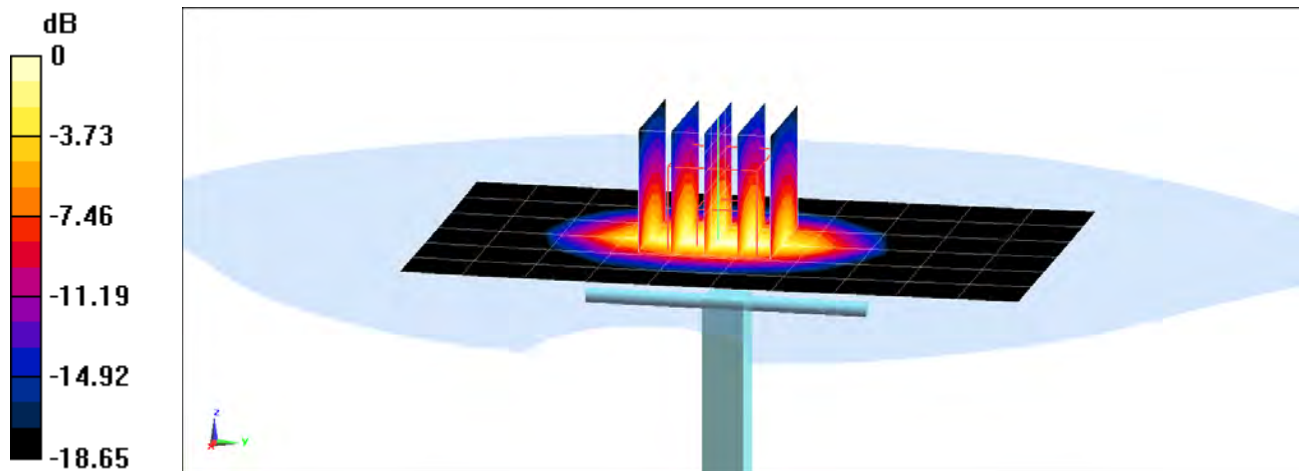
Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 8.00 W/kg

SAR(1 g) = 4.18 W/kg

Deviation(1 g) = 5.03%



0 dB = 6.64 W/kg = 8.22 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Head Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 1.805 \text{ S/m}$; $\epsilon_r = 37.334$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-23-2019; Ambient Temp: 24.6°C; Tissue Temp: 22.5°C

Probe: EX3DV4 - SN3589; ConvF(6.46, 6.46, 6.46) @ 2450 MHz; Calibrated: 1/25/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647

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

2450 MHz System Verification at 20.0 dBm (100 mW)

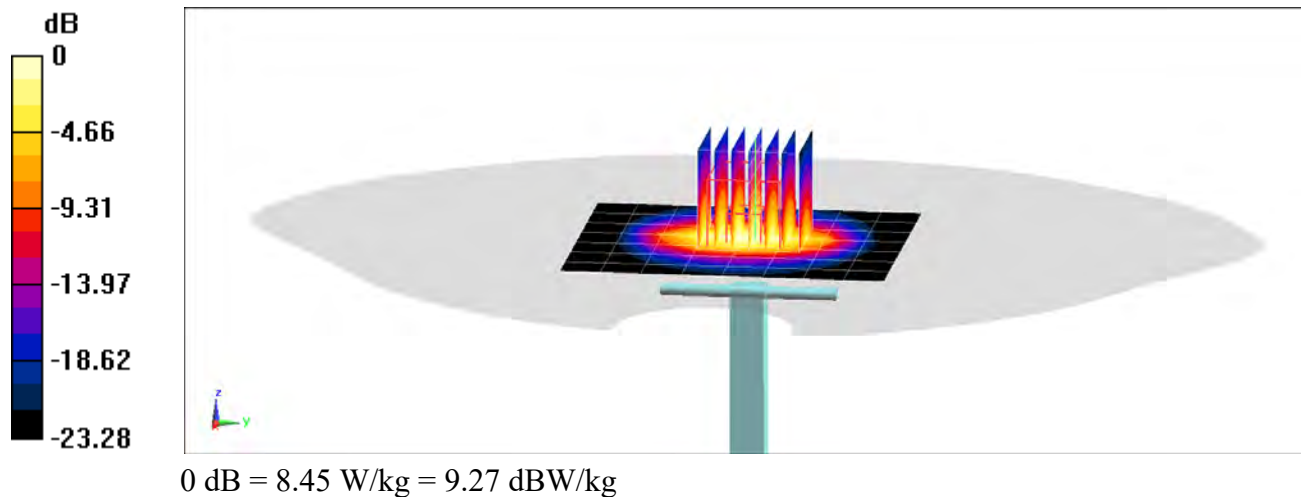
Area Scan (8x9x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 10.8 W/kg

SAR(1 g) = 4.98 W/kg

Deviation(1 g) = -4.78%



PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Head Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 1.792 \text{ S/m}$; $\epsilon_r = 38.836$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp: 24.4°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3589; ConvF(6.46, 6.46, 6.46) @ 2450 MHz; Calibrated: 1/25/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647

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

2450 MHz System Verification at 20.0 dBm (100 mW)

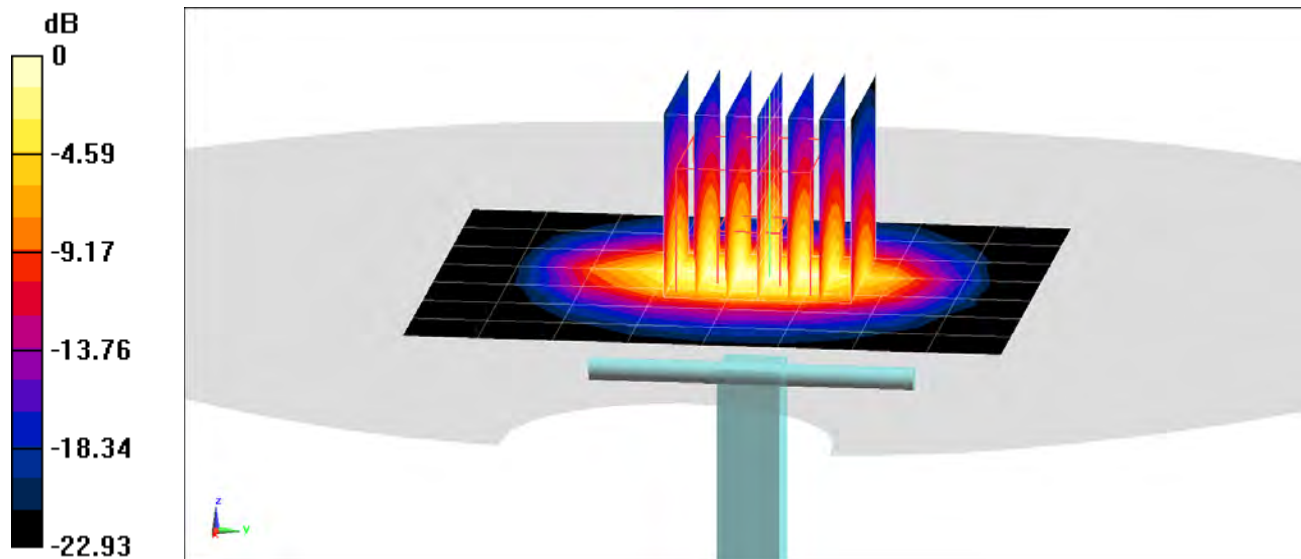
Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 11.4 W/kg

SAR(1 g) = 5.28 W/kg

Deviation(1 g) = 0.96%



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

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Head Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 1.819 \text{ S/m}$; $\epsilon_r = 37.837$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-06-2019; Ambient Temp: 22.9°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN3589; ConvF(6.46, 6.46, 6.46) @ 2450 MHz; Calibrated: 1/25/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647

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

2450 MHz System Verification at 20.0 dBm (100 mW)

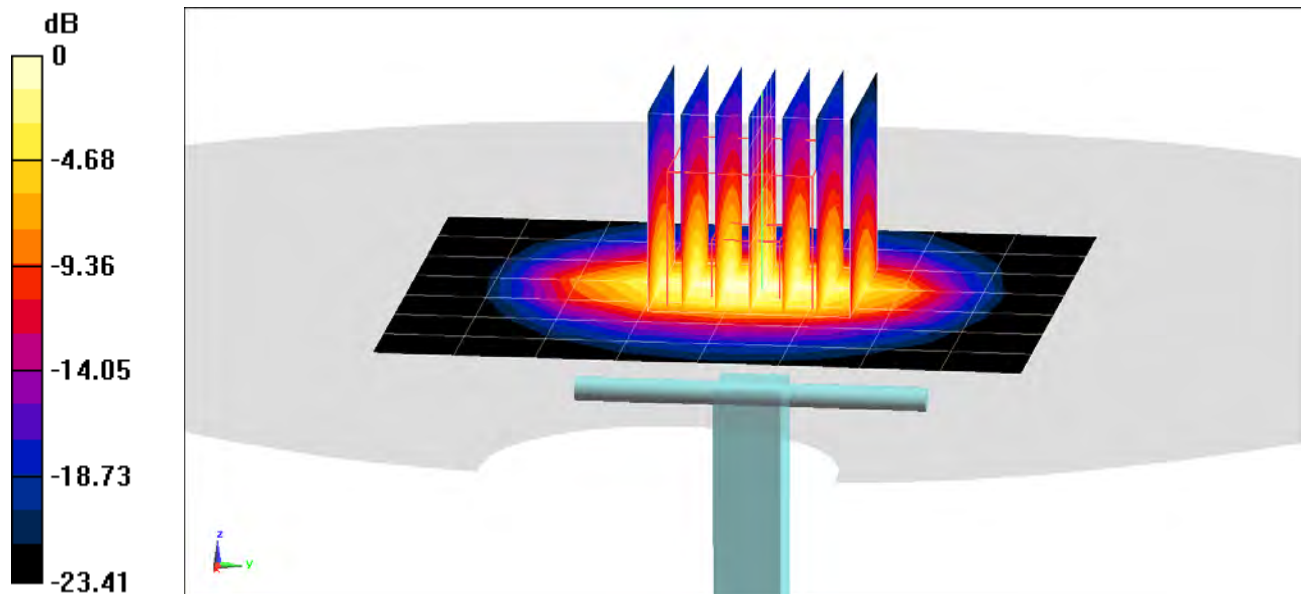
Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 11.6 W/kg

SAR(1 g) = 5.38 W/kg

Deviation(1 g) = 2.87%



0 dB = 9.17 W/kg = 9.62 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Head Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 1.797 \text{ S/m}$; $\epsilon_r = 37.892$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-08-2019; Ambient Temp: 23.3°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3589; ConvF(6.46, 6.46, 6.46) @ 2450 MHz; Calibrated: 1/25/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647

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

2450 MHz System Verification at 20.0 dBm (100 mW)

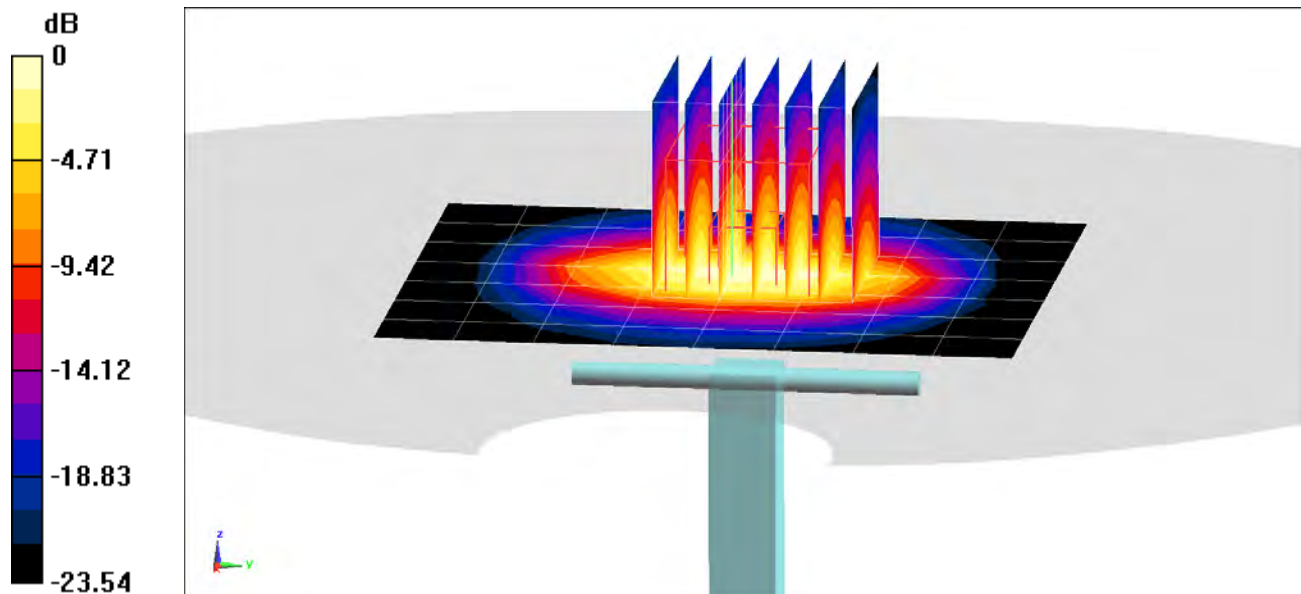
Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 11.2 W/kg

SAR(1 g) = 5.12 W/kg

Deviation(1 g) = -2.10%



0 dB = 8.71 W/kg = 9.40 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: 2600 Head Medium parameters used:

$f = 2600 \text{ MHz}$; $\sigma = 1.905 \text{ S/m}$; $\epsilon_r = 38.595$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp: 24.4°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN3589; ConvF(6.25, 6.25, 6.25) @ 2600 MHz; Calibrated: 1/25/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647

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

2600 MHz System Verification at 20.0 dBm (100 mW)

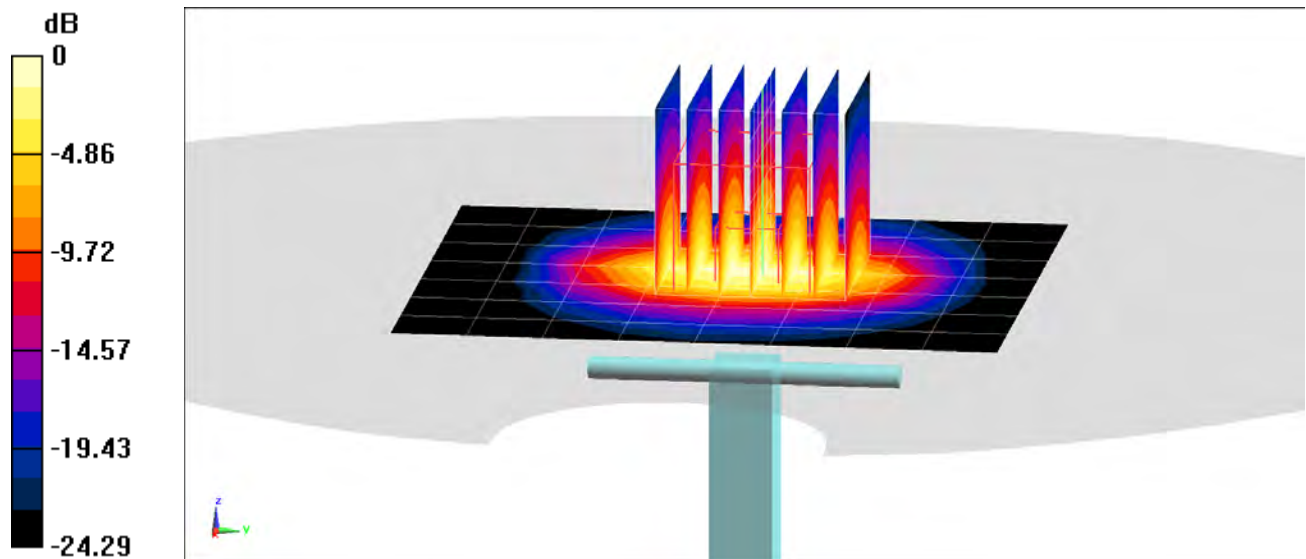
Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 12.7 W/kg

SAR(1 g) = 5.77 W/kg

Deviation(1 g) = 1.23%



0 dB = 9.91 W/kg = 9.96 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: 2600 Head Medium parameters used:

$f = 2600 \text{ MHz}$; $\sigma = 1.912 \text{ S/m}$; $\epsilon_r = 37.696$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-08-2019; Ambient Temp: 23.3°C; Tissue Temp: 22.3°C

Probe: EX3DV4 - SN3589; ConvF(6.25, 6.25, 6.25) @ 2600 MHz; Calibrated: 1/25/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647

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

2600 MHz System Verification at 20.0 dBm (100 mW)

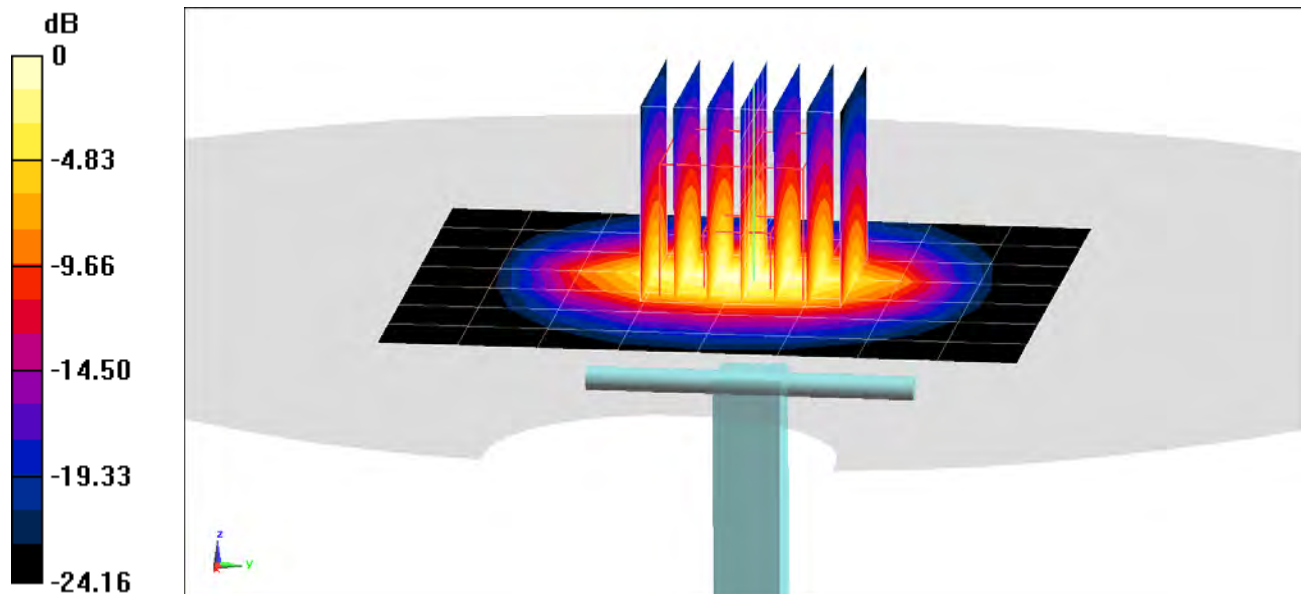
Area Scan (8x9x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 13.4 W/kg

SAR(1 g) = 6.1 W/kg

Deviation(1 g) = 7.02%



0 dB = 10.5 W/kg = 10.21 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: 2600 Head Medium parameters used:

$f = 2600 \text{ MHz}$; $\sigma = 2.009 \text{ S/m}$; $\epsilon_r = 38.631$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-13-2019; Ambient Temp: 21.2°C; Tissue Temp: 19.5°C

Probe: EX3DV4 - SN3589; ConvF(6.25, 6.25, 6.25) @ 2600 MHz; Calibrated: 1/25/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0 (30); Type: QD 000 P40 CD; Serial: 1647

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

2600 MHz System Verification at 20.0 dBm (100 mW)

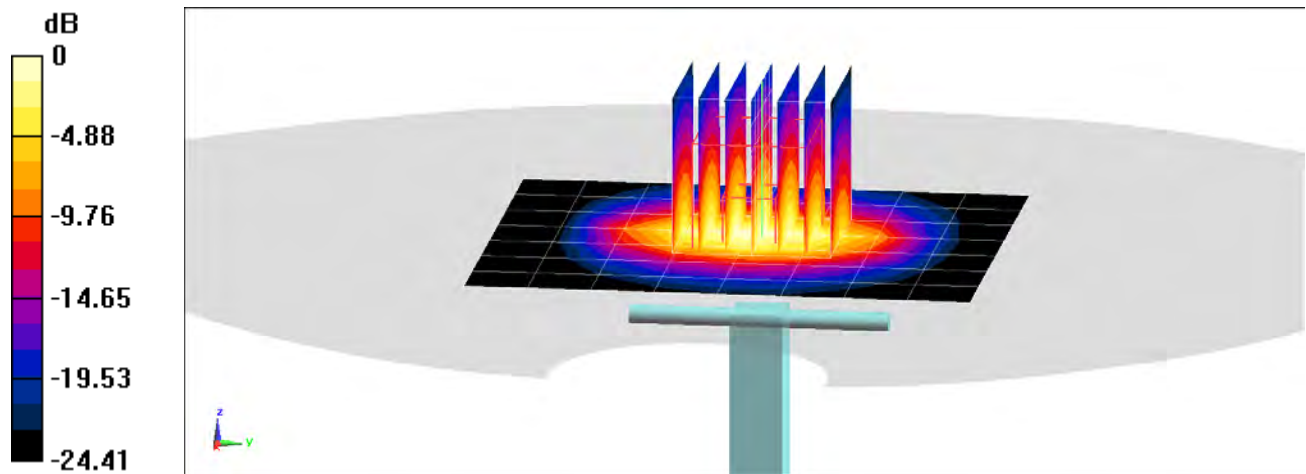
Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 13.4 W/kg

SAR(1 g) = 6.09 W/kg

Deviation(1 g) = 6.84%



0 dB = 10.6 W/kg = 10.25 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1

Medium: 5GHz Head; Medium parameters used (interpolated):

$f = 5250 \text{ MHz}$; $\sigma = 4.614 \text{ S/m}$; $\epsilon_r = 35.38$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-03-2019; Ambient Temp: 21.4°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7409; ConvF(5.2, 5.2, 5.2) @ 5250 MHz; Calibrated: 6/25/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/18/2018

Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759

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

5250 MHz System Verification at 17.0 dBm (50 mW)

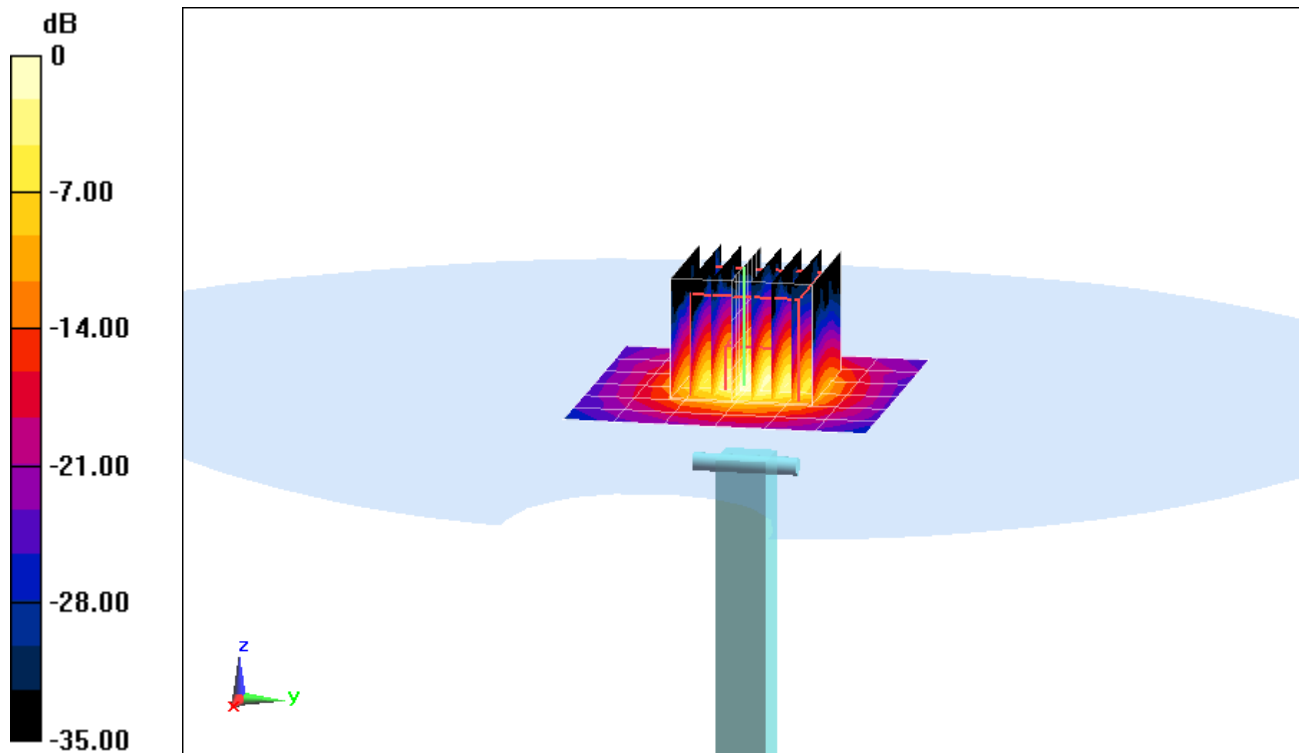
Area Scan (7x7x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Peak SAR (extrapolated) = 15.5 W/kg

SAR(1 g) = 3.83 W/kg

Deviation(1 g) = -5.78%



0 dB = 8.93 W/kg = 9.51 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: 5GHz Head; Medium parameters used:

$f = 5600 \text{ MHz}$; $\sigma = 5.004 \text{ S/m}$; $\epsilon_r = 34.758$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-03-2019; Ambient Temp: 21.4°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7409; ConvF(4.77, 4.77, 4.77) @ 5600 MHz; Calibrated: 6/25/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/18/2018

Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759

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

5600 MHz System Verification at 17.0 dBm (50 mW)

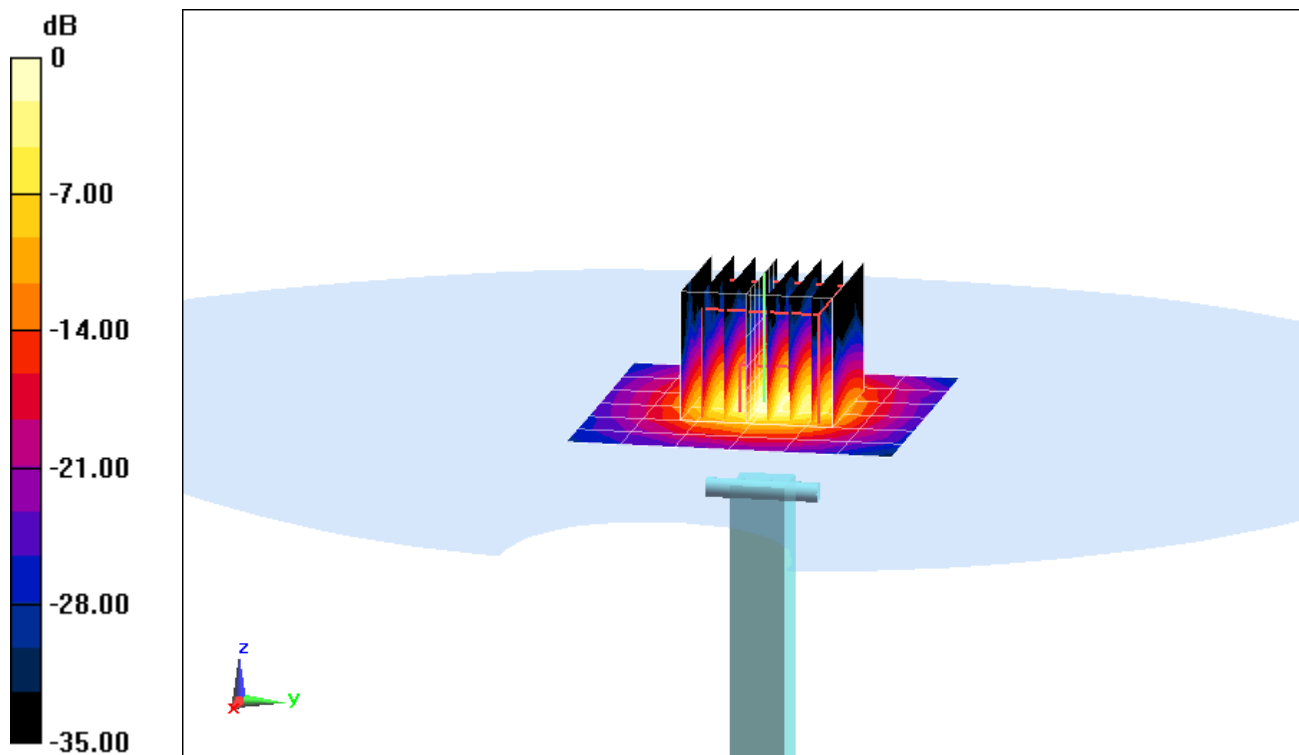
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 18.4 W/kg

SAR(1 g) = 4.11 W/kg

Deviation(1 g) = -4.08%



0 dB = 9.98 W/kg = 9.99 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1237

Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1

Medium: 5GHz Head; Medium parameters used (interpolated):

$f = 5750 \text{ MHz}$; $\sigma = 5.185 \text{ S/m}$; $\epsilon_r = 34.482$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-03-2019; Ambient Temp: 21.4°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7409; ConvF(4.82, 4.82, 4.82) @ 5750 MHz; Calibrated: 6/25/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 6/18/2018

Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759

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

5750 MHz System Verification at 17.0 dBm (50 mW)

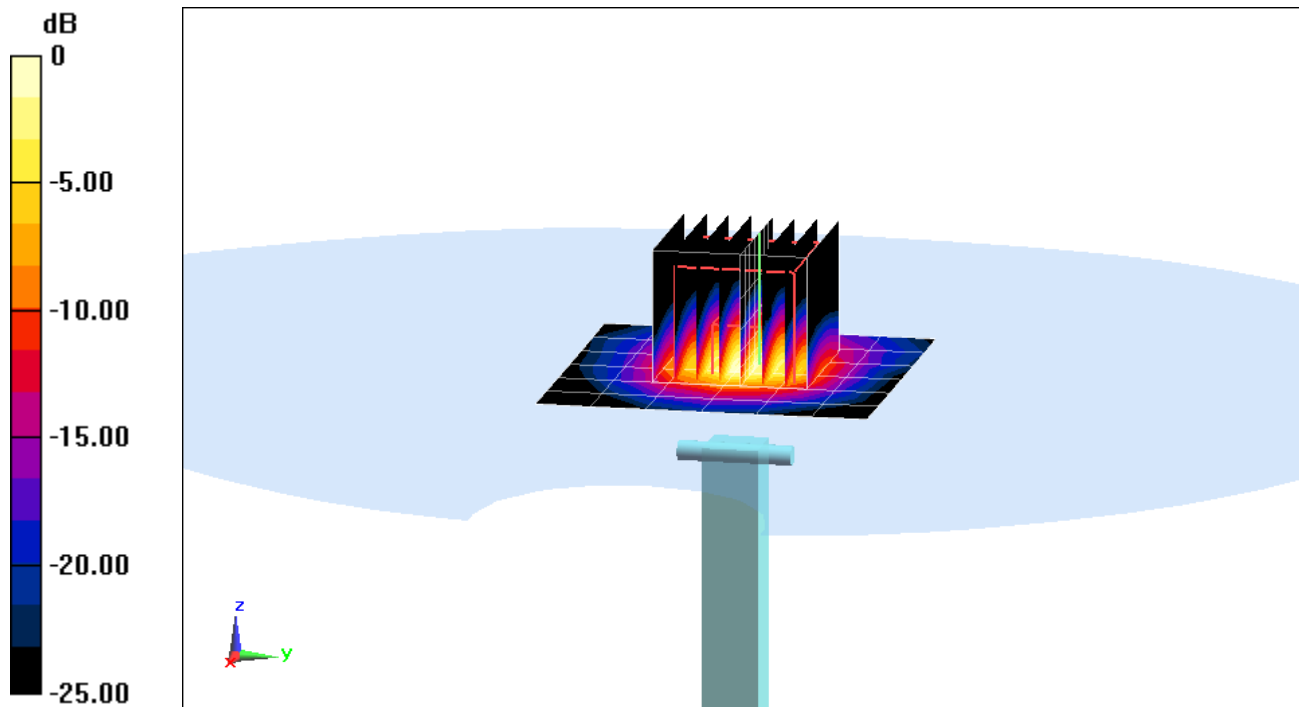
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 17.7 W/kg

SAR(1 g) = 3.82 W/kg

Deviation(1 g) = -5.21%



0 dB = 9.36 W/kg = 9.71 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1161

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: 750 Body Medium parameters used (interpolated):

$f = 750 \text{ MHz}$; $\sigma = 0.95 \text{ S/m}$; $\epsilon_r = 55.331$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-18-2019; Ambient Temp: 23.4°C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 750 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)

750 MHz System Verification at 23.0 dBm (200 mW)

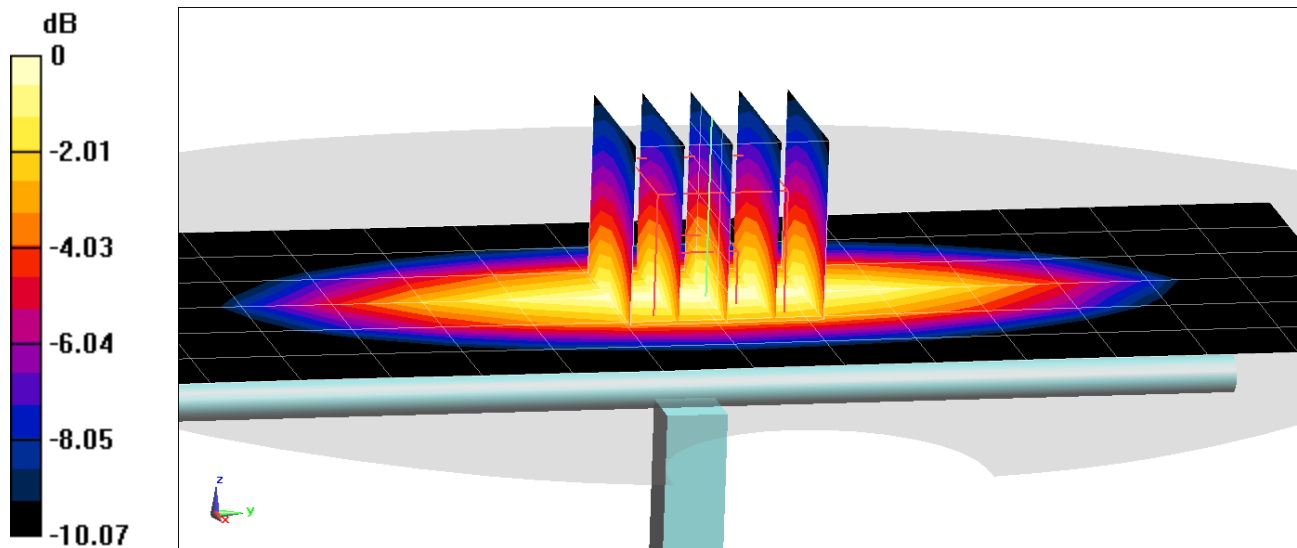
Area Scan (7x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 2.46 W/kg

SAR(1 g) = 1.64 W/kg

Deviation(1 g) = -2.73%



0 dB = 2.18 W/kg = 3.38 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1161

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium: 750MHz Body Medium parameters used (interpolated):

$f = 750 \text{ MHz}$; $\sigma = 0.944 \text{ S/m}$; $\epsilon_r = 55.086$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-22-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7308; ConvF(10.38, 10.38, 10.38) @ 750 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)

750 MHz System Verification at 23.0 dBm (200 mW)

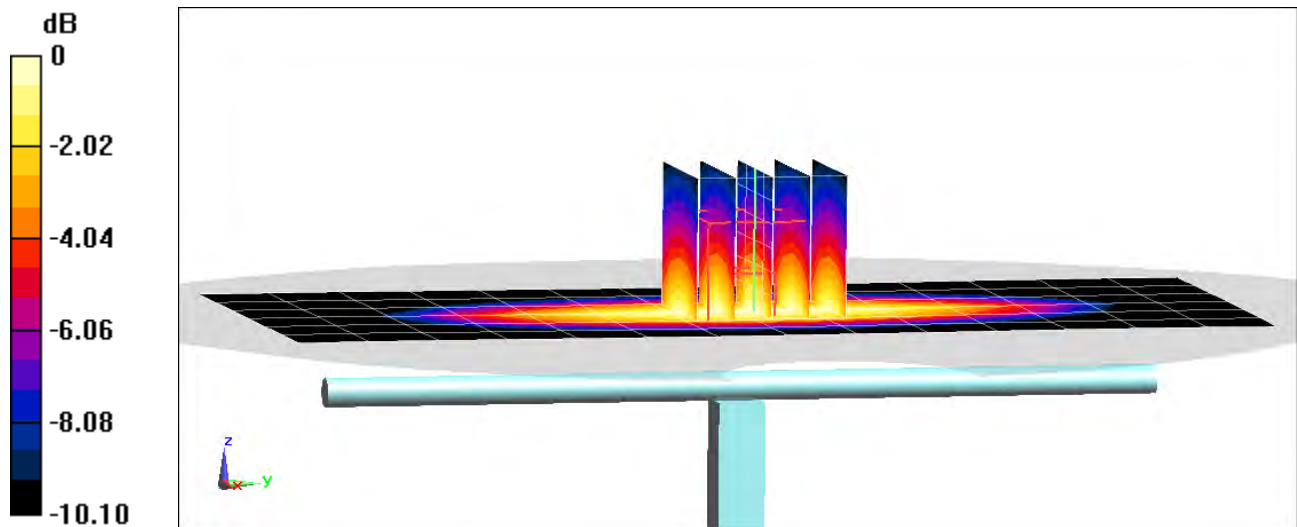
Area Scan (7x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 2.45 W/kg

SAR(1 g) = 1.63 W/kg; SAR(10 g) = 1.09 W/kg

Deviation(1 g) = -3.32%; Deviation(10 g) = -1.80%



0 dB = 2.17 W/kg = 3.36 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d132

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.988 \text{ S/m}$; $\epsilon_r = 54.474$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-16-2019; Ambient Temp: 24.2°C; Tissue Temp: 22.6°C

Probe: EX3DV4 - SN7488; ConvF(11.03, 11.03, 11.03) @ 835 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800

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

835 MHz System Verification at 23.0 dBm (200 mW)

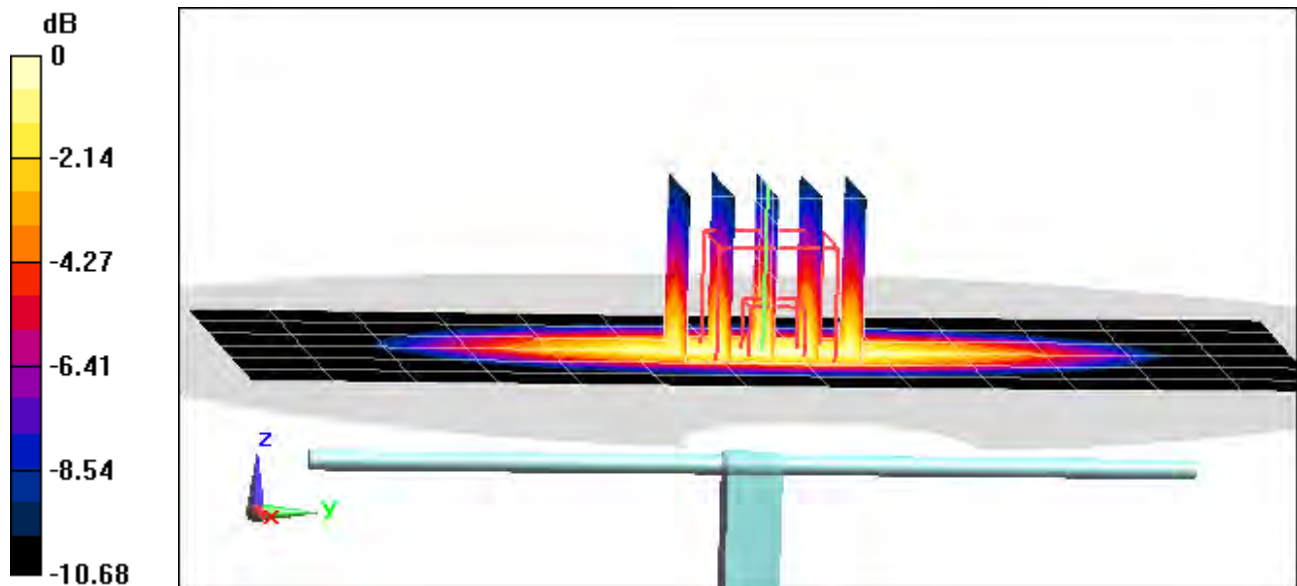
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 2.90 W/kg

SAR(1 g) = 1.88 W/kg

Deviation(1 g) = -2.79%



0 dB = 2.53 W/kg = 4.03 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d132

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Body; Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.992 \text{ S/m}$; $\epsilon_r = 55.293$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-22-2019; Ambient Temp: 23.7°C; Tissue Temp: 21.7°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 835 MHz; Calibrated: 5/22/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/22/2018

Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167

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

835 MHz System Verification at 23.0 dBm (200 mW)

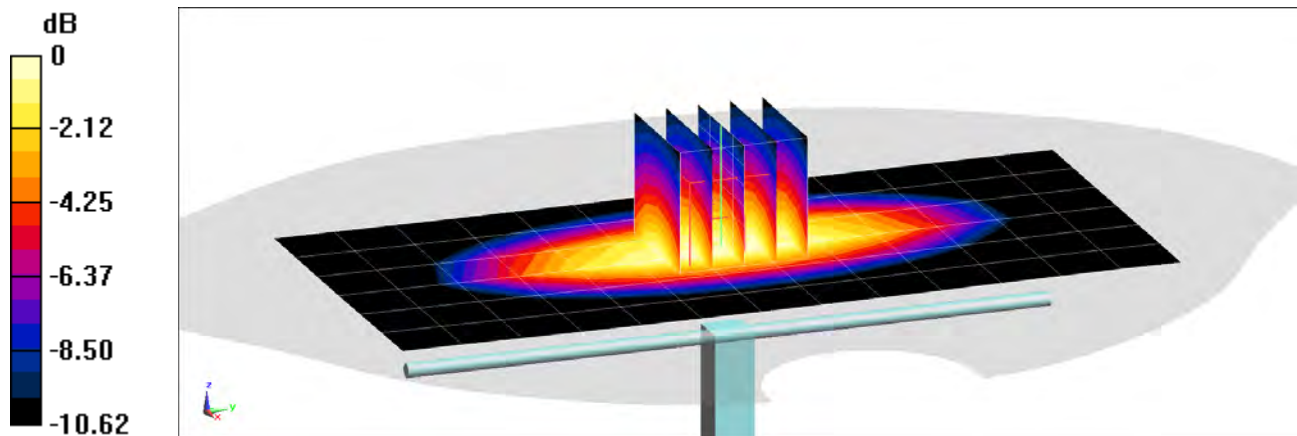
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 3.00 W/kg

SAR(1 g) = 1.98 W/kg

Deviation(1 g) = 2.38%



0 dB = 2.66 W/kg = 4.25 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d132

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Body; Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.985 \text{ S/m}$; $\epsilon_r = 52.569$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 04-25-2019; Ambient Temp: 24.2°C; Tissue Temp: 23.0°C

Probe: EX3DV4 - SN7406; ConvF(9.61, 9.61, 9.61) @ 835 MHz; Calibrated: 5/22/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn859; Calibrated: 5/22/2018

Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167

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

835 MHz System Verification at 23.0 dBm (200 mW)

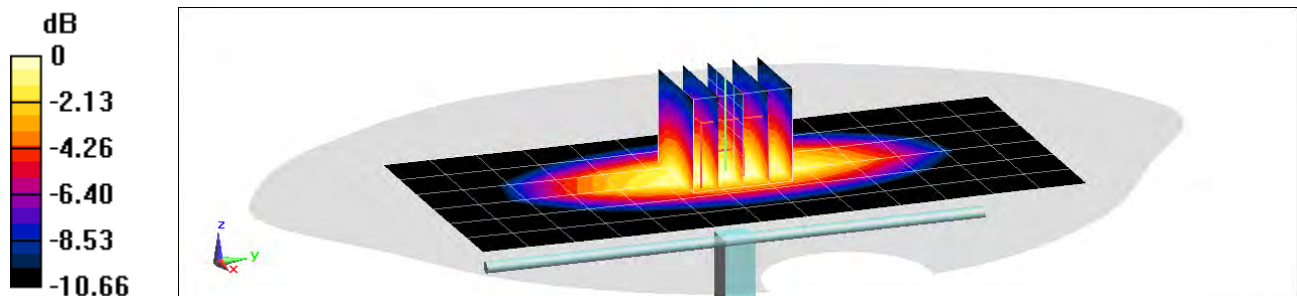
Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 3.12 W/kg

SAR(1 g) = 2.05 W/kg

Deviation(1 g) = 6.00%



0 dB = 2.75 W/kg = 4.39 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1765V2; Serial: 1008

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Body Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.495 \text{ S/m}$; $\epsilon_r = 51.531$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-11-2019; Ambient Temp: 22.5°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1750 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

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

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

1750 MHz System Verification at 20.0 dBm (100 mW)

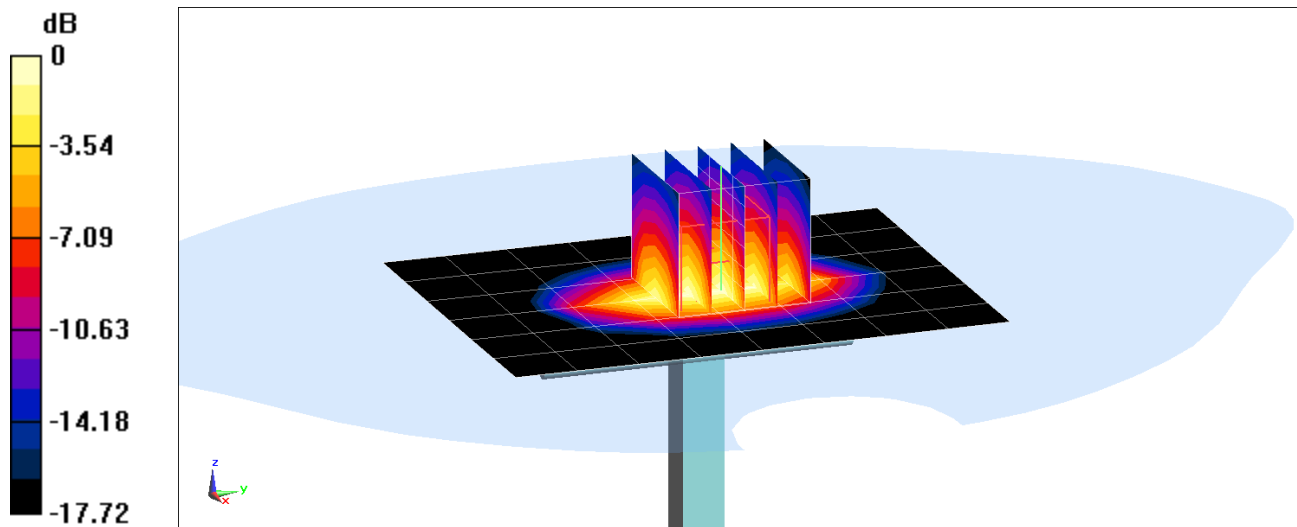
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 6.56 W/kg

SAR(1 g) = 3.6 W/kg

Deviation(1 g) = -3.74%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1765V2; Serial: 1008

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Body Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.519 \text{ S/m}$; $\epsilon_r = 51.409$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-15-2019; Ambient Temp: 22.5°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1750 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

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

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

1750 MHz System Verification at 20.0 dBm (100 mW)

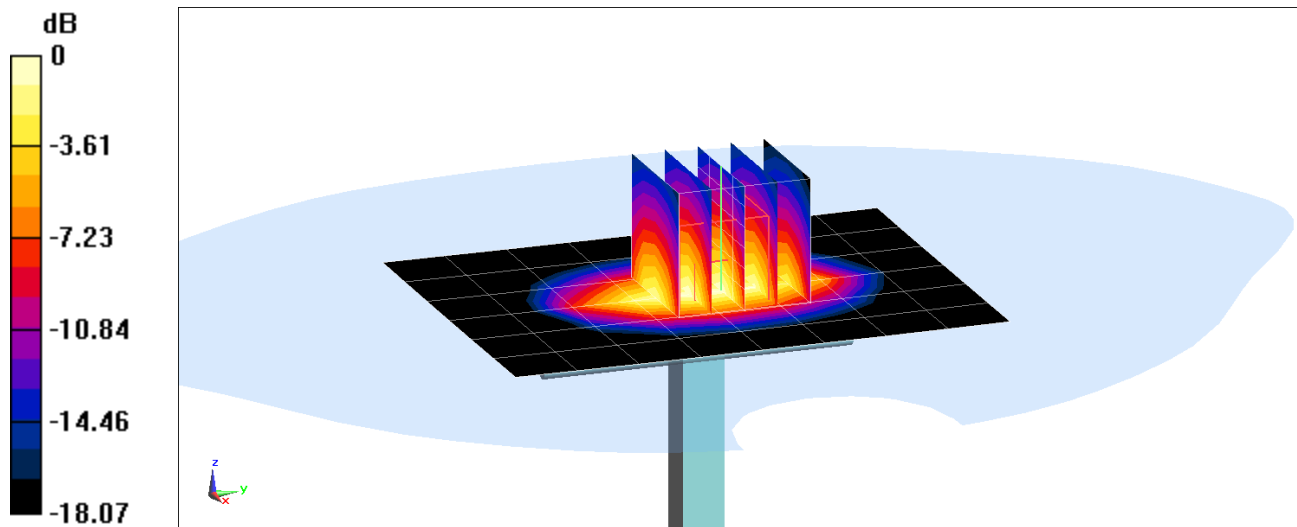
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 7.22 W/kg

SAR(10 g) = 2.07 W/kg

Deviation(10 g) = 4.02%



0 dB = 6.03 W/kg = 7.80 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1148

Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Medium: 1750 Body Medium parameters used:

$f = 1750 \text{ MHz}$; $\sigma = 1.505 \text{ S/m}$; $\epsilon_r = 52.108$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-24-2019; Ambient Temp: 23.3°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7488; ConvF(8.68, 8.68, 8.68) @ 1750 MHz; Calibrated: 1/24/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800

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

1750 MHz System Verification at 20.0 dBm (100 mW)

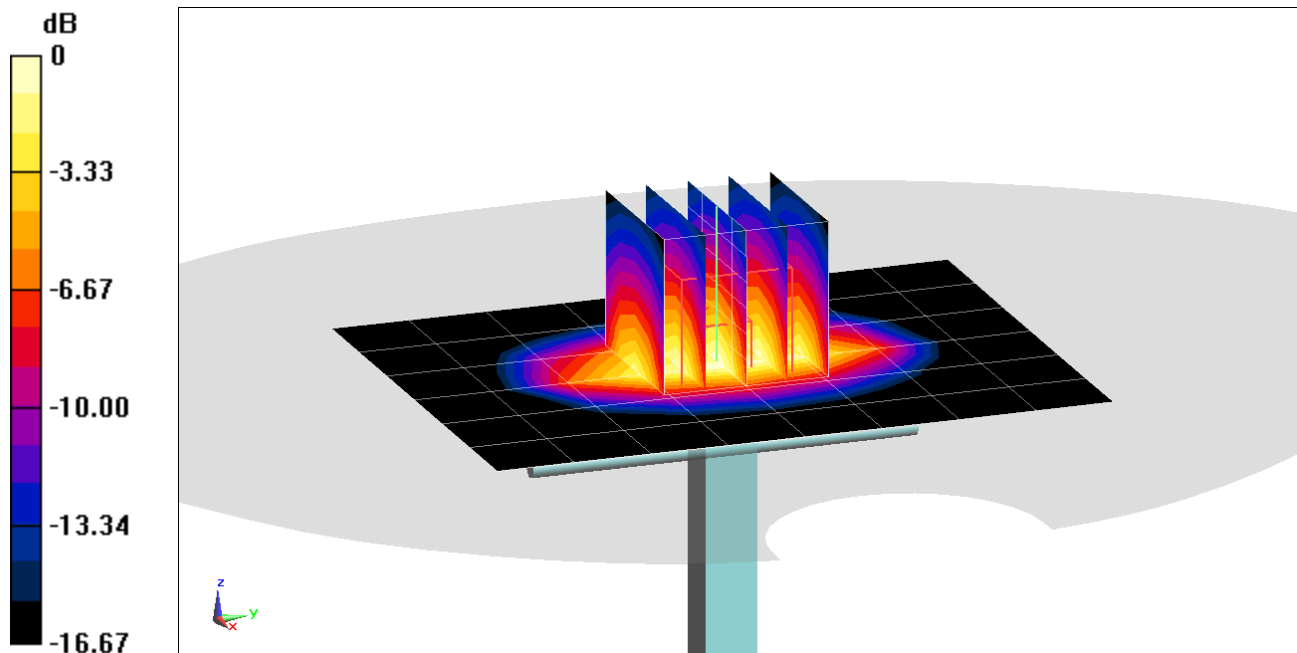
Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm

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

Peak SAR (extrapolated) = 6.63 W/kg

SAR(1 g) = 3.7 W/kg; SAR(10 g) = 1.98 W/kg

Deviation(1 g) = 0.00%; Deviation(10 g) = 0.00%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d080

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.553 \text{ S/m}$; $\epsilon_r = 51.167$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-08-2019; Ambient Temp: 22.5°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1900 MHz; Calibrated: 7/20/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Front; Type: QD 000 P40 CD; Serial: 1686

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

1900 MHz System Verification at 20.0 dBm (100 mW)

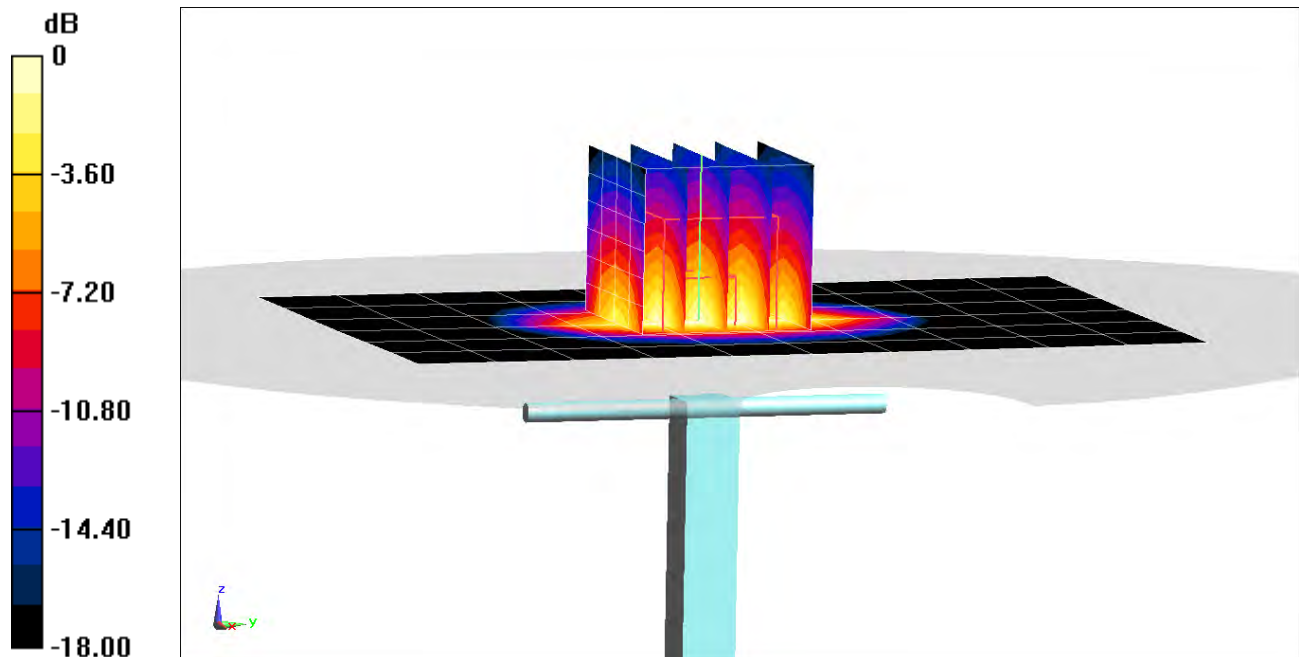
Area Scan (7x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 7.64 W/kg

SAR(1 g) = 4.19 W/kg

Deviation(1 g) = 6.89%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d149

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.572 \text{ S/m}$; $\epsilon_r = 52.618$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-17-2019; Ambient Temp: 21.1°C; Tissue Temp: 22.1°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1900 MHz; Calibrated: 7/20/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Front 30; Type: QD 000 P40 CD; Serial: 1686

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

1900 MHz System Verification at 20.0 dBm (100 mW)

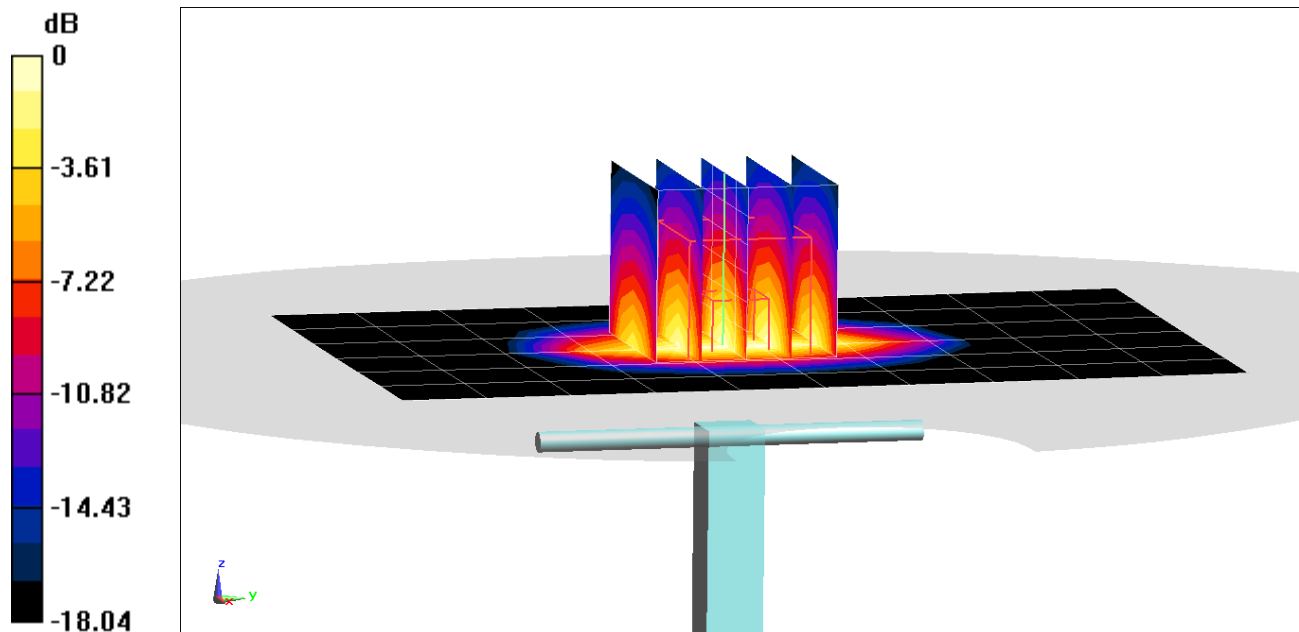
Area Scan (7x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 7.71 W/kg

SAR(1 g) = 4.22 W/kg

Deviation(1 g) = 7.11%



0 dB = 6.54 W/kg = 8.16 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d149

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.559 \text{ S/m}$; $\epsilon_r = 52.238$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-23-2019; Ambient Temp: 22.6°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1900 MHz; Calibrated: 7/20/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Front; Type: QD 000 P40 CD; Serial: 1686

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

1900 MHz System Verification at 20.0 dBm (100 mW)

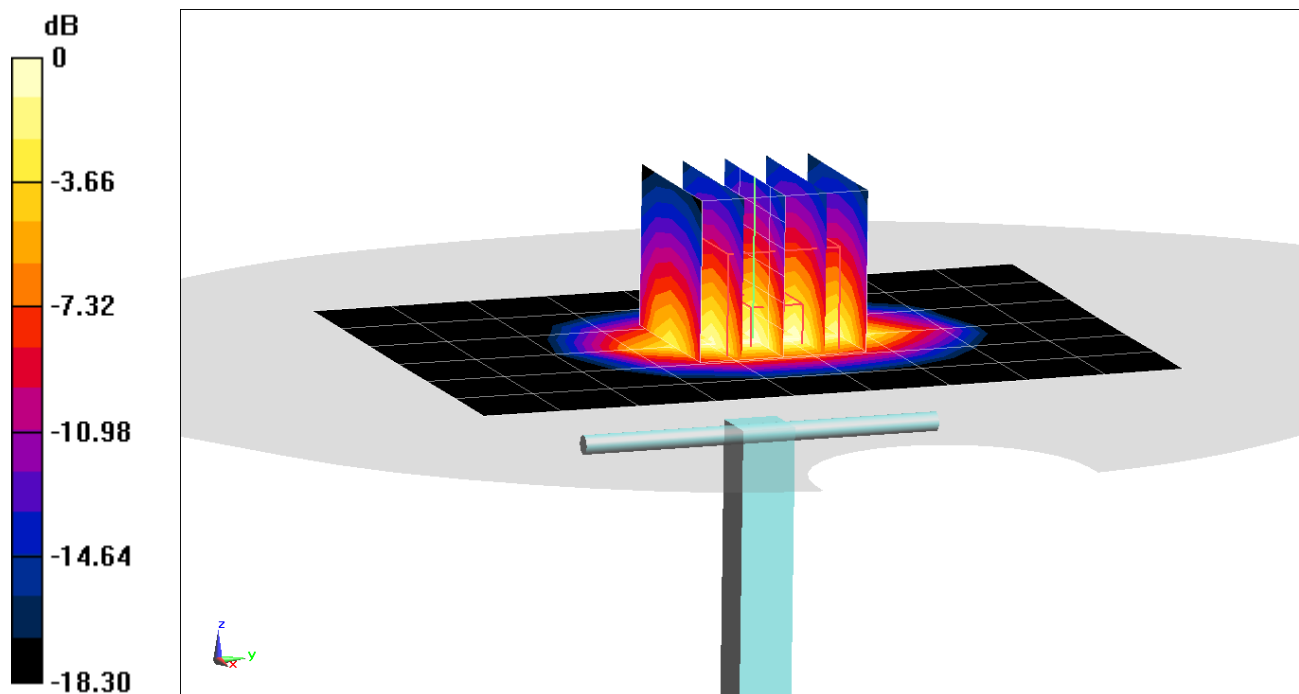
Area Scan (7x10x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 7.38 W/kg

SAR(10 g) = 2.06 W/kg

Deviation(10 g) = -0.48%



0 dB = 5.08 W/kg = 7.06 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d149

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.574 \text{ S/m}$; $\epsilon_r = 52.499$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-25-2019; Ambient Temp: 23.4°C; Tissue Temp: 22.7°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1900 MHz; Calibrated: 7/20/2018

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

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

Phantom: Front; Type: QD 000 P40 CD; Serial: 1686

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

1900 MHz System Verification at 20.0 dBm (100 mW)

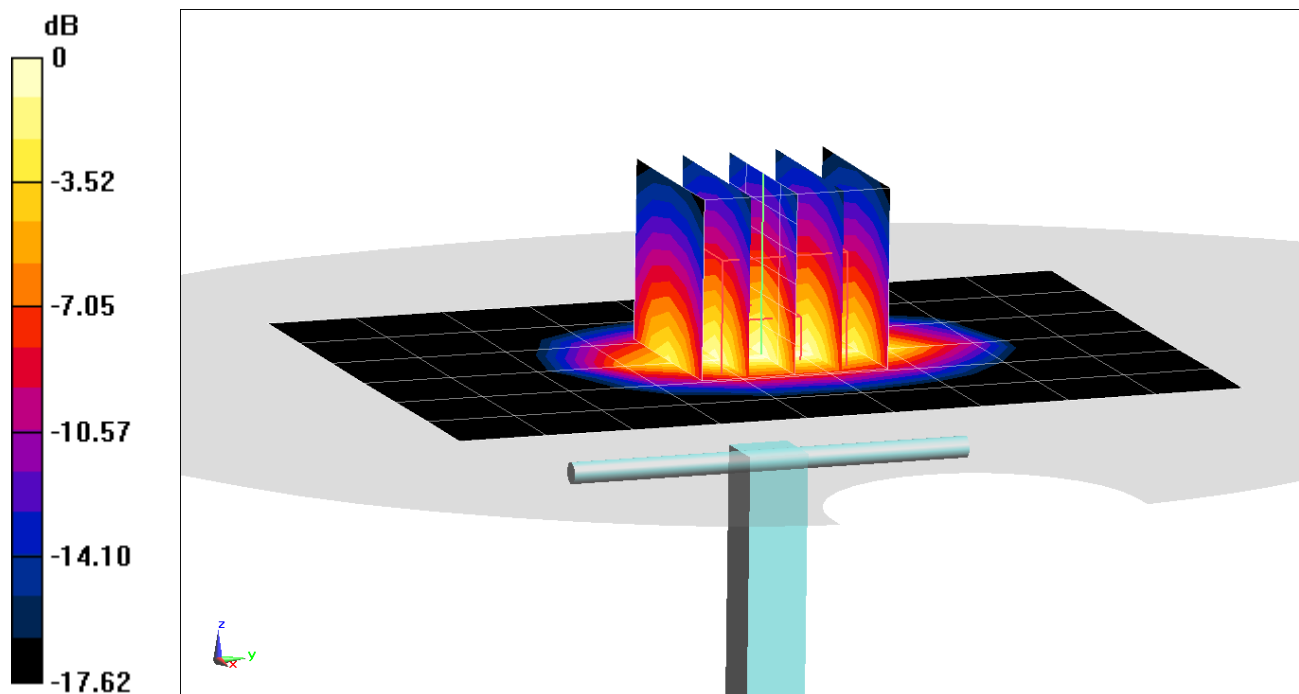
Area Scan (7x10x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 7.77 W/kg

SAR(1 g) = 4.25 W/kg

Deviation(1 g) = 7.87%



0 dB = 5.42 W/kg = 7.34 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d149

Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.582 \text{ S/m}$; $\epsilon_r = 53.039$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp: 21.6 °C; Tissue Temp: 21.2°C

Probe: EX3DV4 - SN7410; ConvF(7.78, 7.78, 7.78) @ 1900 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)

1900 MHz System Verification at 20.0 dBm (100 mW)

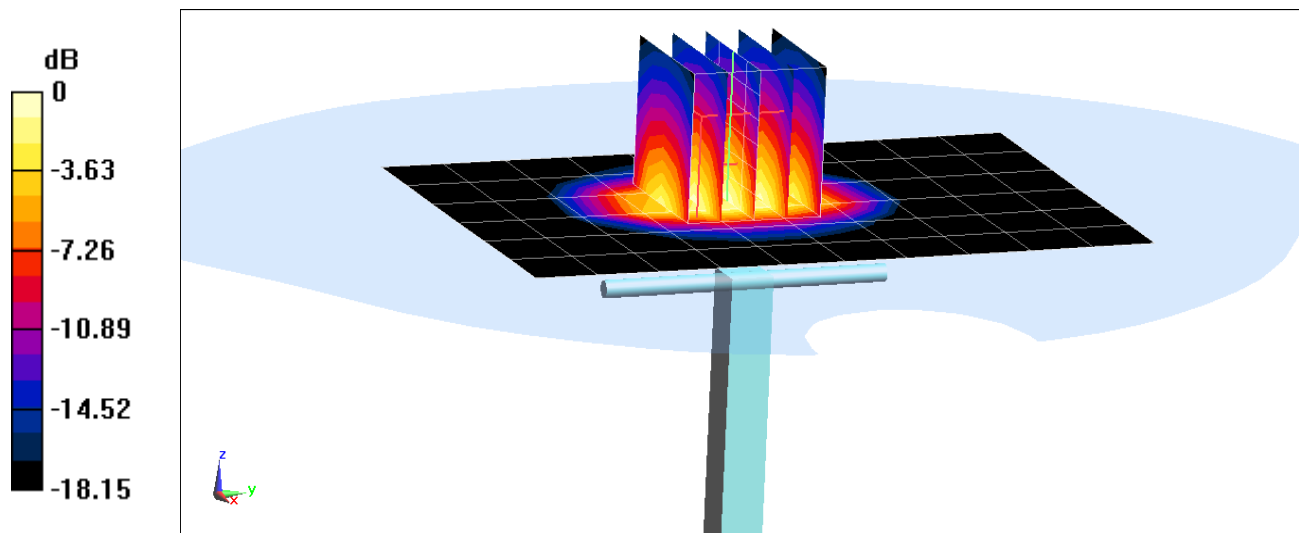
Area Scan (7x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 7.90 W/kg

SAR(1 g) = 4.3 W/kg; SAR(10 g) = 2.21 W/kg

Deviation(1 g) = 9.14%; Deviation(10 g) = 6.76%



0 dB = 6.70 W/kg = 8.26 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Body; Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 2.04 \text{ S/m}$; $\epsilon_r = 52.022$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-08-2019; Ambient Temp: 23.0°C; Tissue Temp: 22.4°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2450 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375

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

2450 MHz System Verification at 20.0 dBm (100 mW)

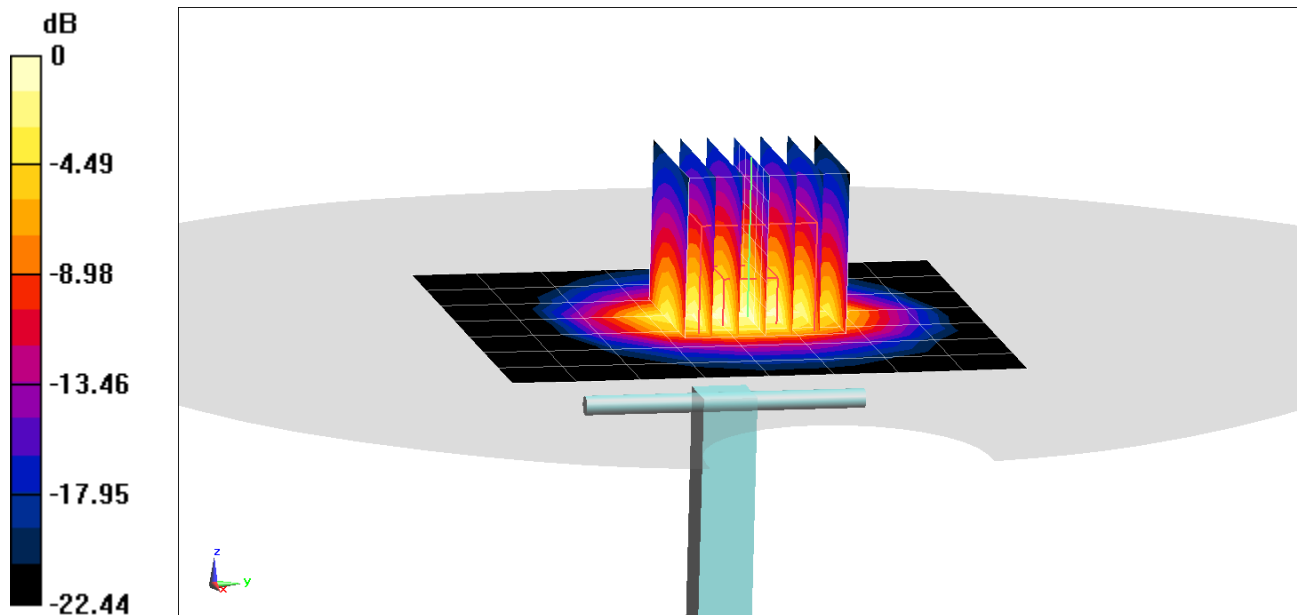
Area Scan (8x9x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 10.4 W/kg

SAR(1 g) = 5.06 W/kg

Deviation(1 g) = -0.98%



0 dB = 8.46 W/kg = 9.27 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Body; Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 2.042 \text{ S/m}$; $\epsilon_r = 51.126$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp: 22.2°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2450 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797

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

2450 MHz System Verification at 20.0 dBm (100 mW)

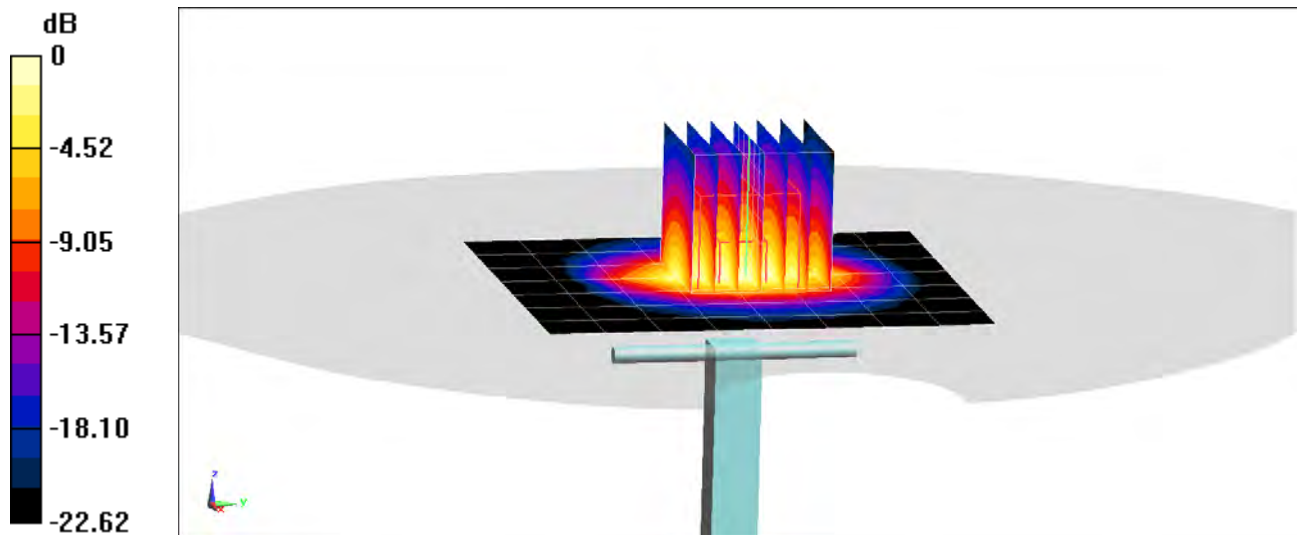
Area Scan (8x9x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 10.2 W/kg

SAR(1 g) = 4.88 W/kg

Deviation(1 g) = -4.50%



0 dB = 8.17 W/kg = 9.12 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Body; Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 2.046 \text{ S/m}$; $\epsilon_r = 51.565$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-08-2019; Ambient Temp: 23.7°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7417; ConvF(7.51, 7.51, 7.51) @ 2450 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797

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

2450 MHz System Verification at 20.0 dBm (100 mW)

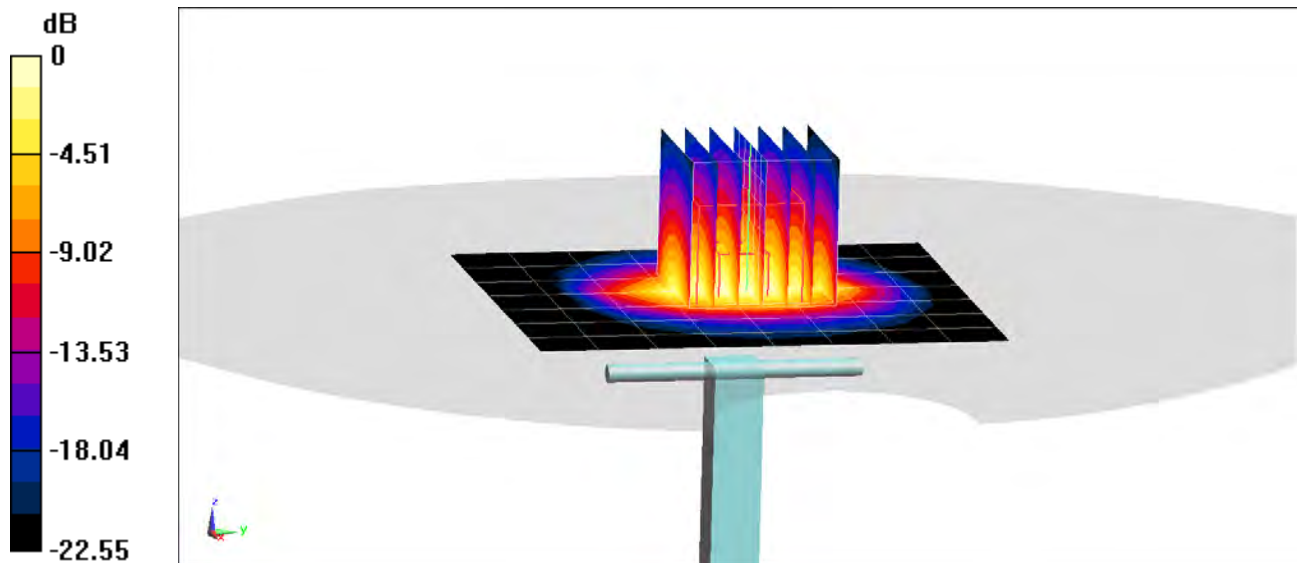
Area Scan (8x9x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 10.7 W/kg

SAR(1 g) = 5.11 W/kg; SAR(10 g) = 2.33 W/kg

Deviation(1 g) = 0.00%; Deviation(10 g) = -3.72%



0 dB = 8.57 W/kg = 9.33 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1071

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: 2600 Body; Medium parameters used:

$f = 2600 \text{ MHz}$; $\sigma = 2.225 \text{ S/m}$; $\epsilon_r = 50.654$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-29-2019; Ambient Temp: 22.2°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2600 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797

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

2600 MHz System Verification at 20.0 dBm (100 mW)

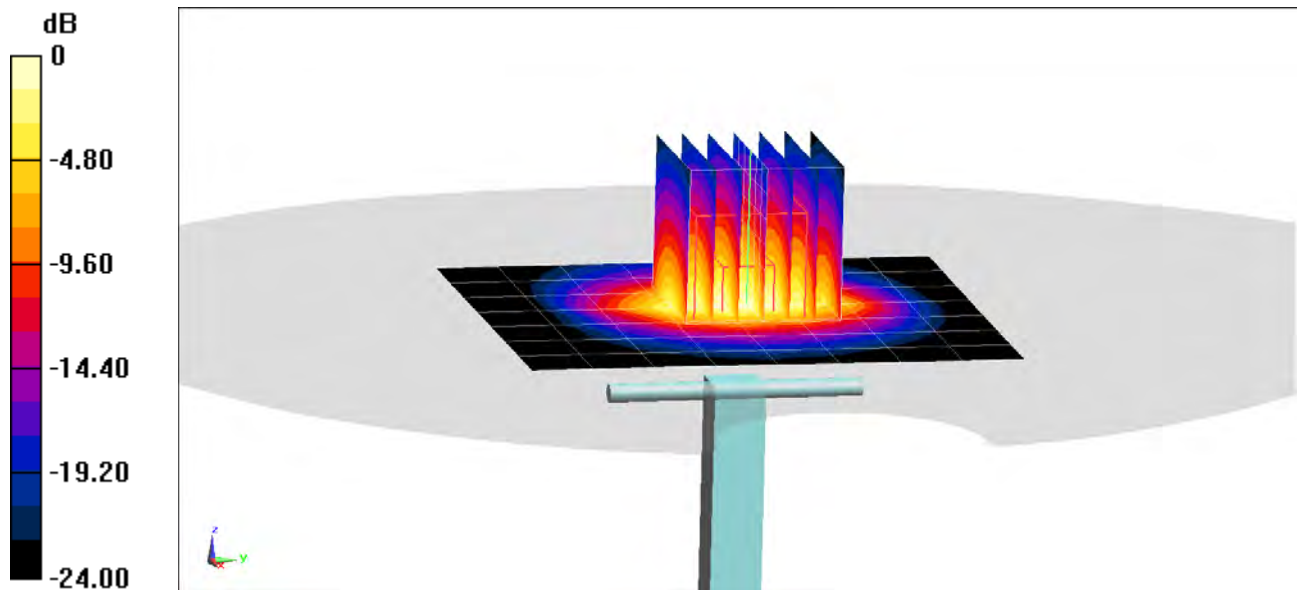
Area Scan (8x9x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 11.5 W/kg

SAR(1 g) = 5.29 W/kg

Deviation(1 g) = -2.40%



0 dB = 9.14 W/kg = 9.61 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1071

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: 2600 Body; Medium parameters used:

$f = 2600 \text{ MHz}$; $\sigma = 2.232 \text{ S/m}$; $\epsilon_r = 51.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-08-2019; Ambient Temp: 23.7°C; Tissue Temp: 21.9°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2600 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797

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

2600 MHz System Verification at 20.0 dBm (100 mW)

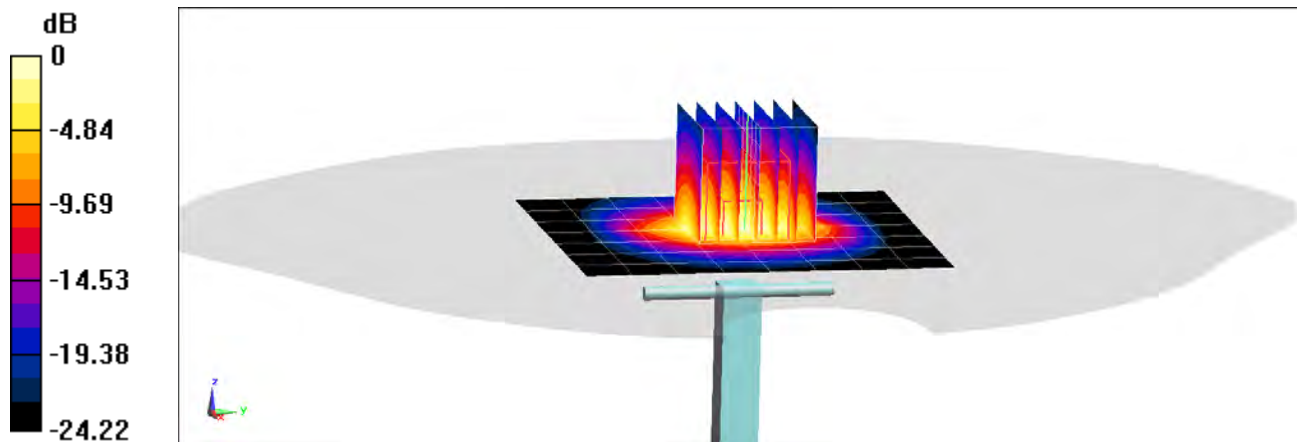
Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 11.4 W/kg

SAR(1 g) = 5.24 W/kg; SAR(10 g) = 2.33 W/kg

Deviation(1 g) = -3.32%; Deviation(10 g) = -4.90%



0 dB = 8.96 W/kg = 9.52 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1071

Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Medium: 2450 Body; Medium parameters used:

$f = 2600 \text{ MHz}$; $\sigma = 2.212 \text{ S/m}$; $\epsilon_r = 51.502$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 05-13-2019; Ambient Temp: 21.9°C; Tissue Temp: 20.9°C

Probe: EX3DV4 - SN7417; ConvF(7.37, 7.37, 7.37) @ 2600 MHz; Calibrated: 2/19/2019

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/13/2019

Phantom: Right Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1797

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

2600 MHz System Verification at 20.0 dBm (100 mW)

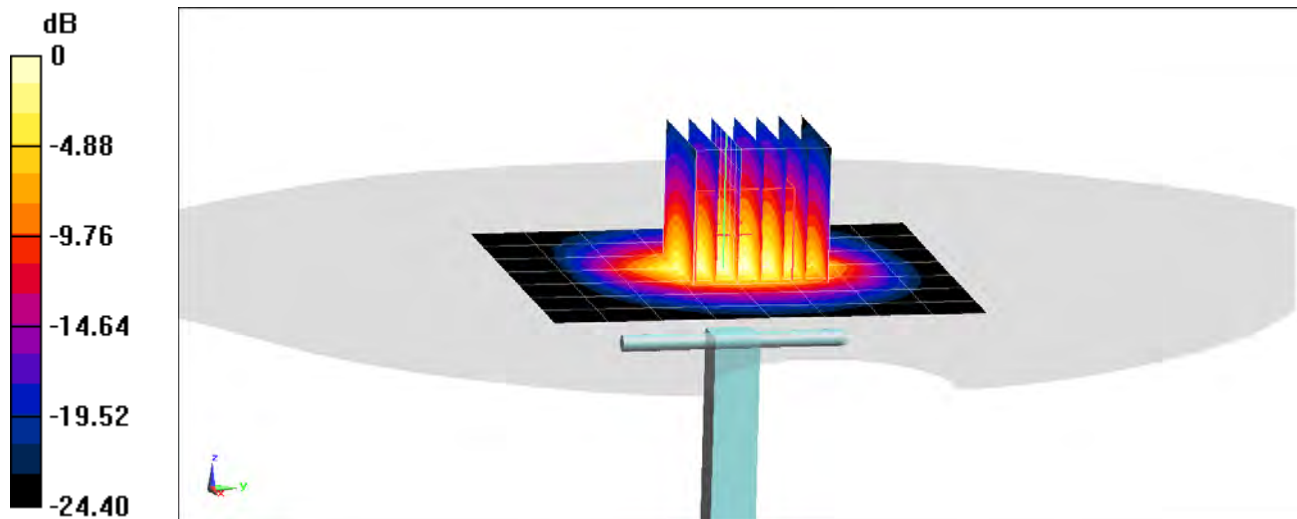
Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm

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

Peak SAR (extrapolated) = 11.6 W/kg

SAR(1 g) = 5.24 W/kg

Deviation(1 g) = -3.32%



0 dB = 9.01 W/kg = 9.55 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1

Medium: 5GHz Body Medium parameters used (interpolated):

$f = 5250 \text{ MHz}$; $\sigma = 5.445 \text{ S/m}$; $\epsilon_r = 47.261$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-05-2019; Ambient Temp: 23.4°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7308; ConvF(4.48, 4.48, 4.48) @ 5250 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)

5250 MHz System Verification at 17.0 dBm (50 mW)

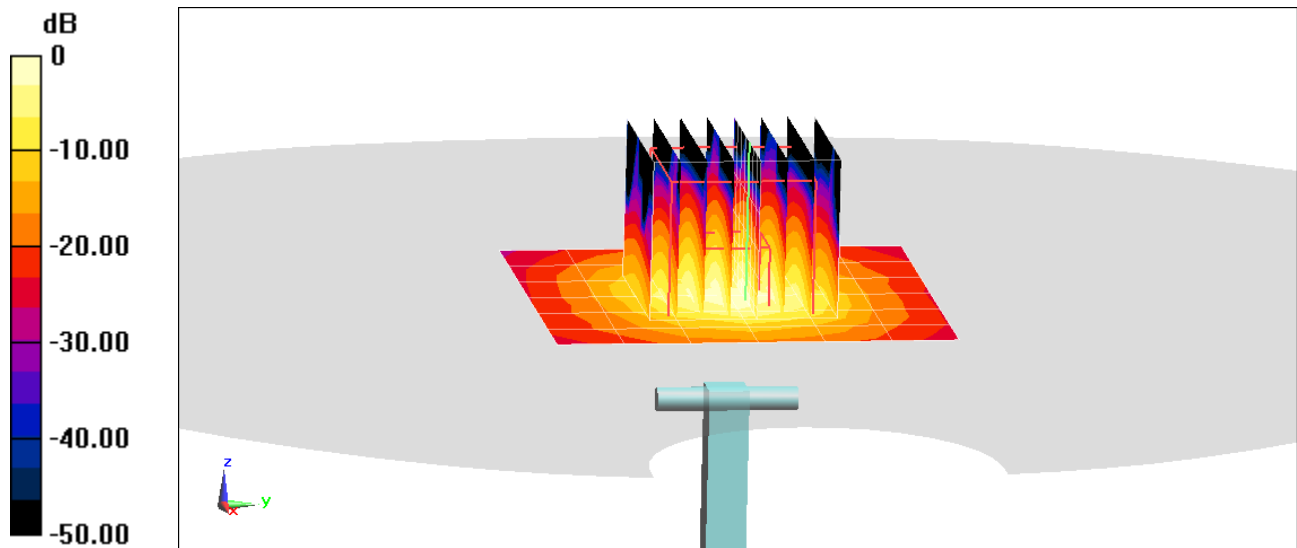
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 15.5 W/kg

SAR(1 g) = 3.84 W/kg; SAR(10 g) = 1.07 W/kg

Deviation(1 g) = -0.26%; Deviation(10 g) = -0.93%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1

Medium: 5GHz Body Medium parameters used:

$f = 5600 \text{ MHz}$; $\sigma = 5.948 \text{ S/m}$; $\epsilon_r = 46.593$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-05-2019; Ambient Temp: 23.4°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7308; ConvF(4, 4, 4) @ 5600 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)

5600 MHz System Verification at 17.0 dBm (50 mW)

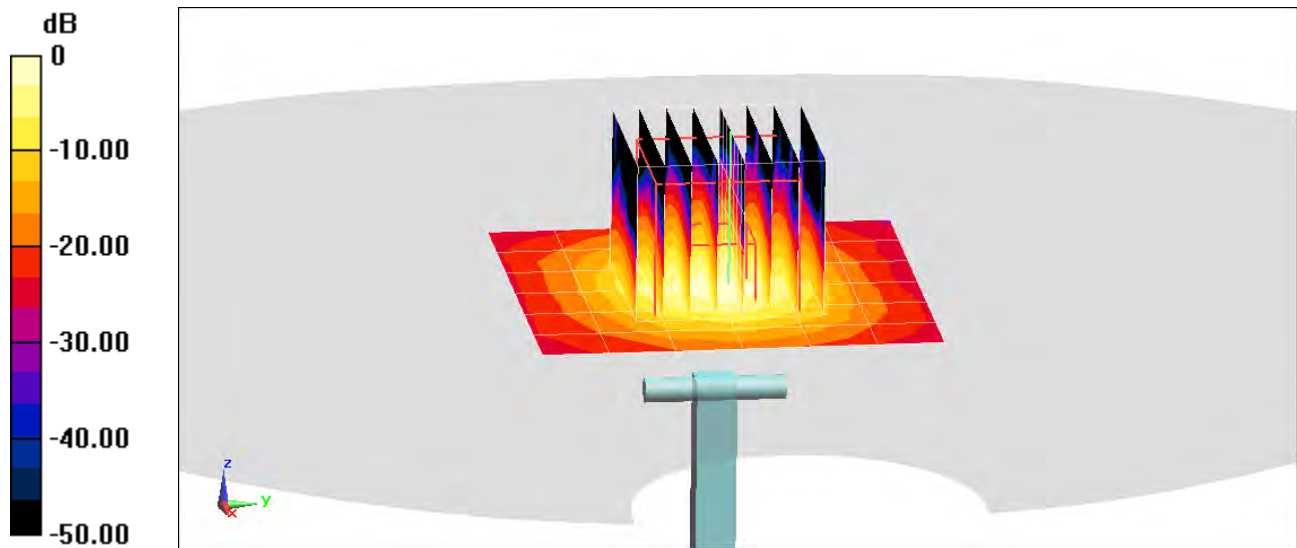
Area Scan (7x7x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Peak SAR (extrapolated) = 17.7 W/kg

SAR(1 g) = 4.03 W/kg; SAR(10 g) = 1.11 W/kg

Deviation(1 g) = 1.77%; Deviation(10 g) = 0.00%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1

Medium: 5GHz Body Medium parameters used (interpolated):

$f = 5750 \text{ MHz}$; $\sigma = 6.176 \text{ S/m}$; $\epsilon_r = 46.282$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 04-05-2019; Ambient Temp: 23.4°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7308; ConvF(4.18, 4.18, 4.18) @ 5750 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)

5750 MHz System Verification at 17.0 dBm (50 mW)

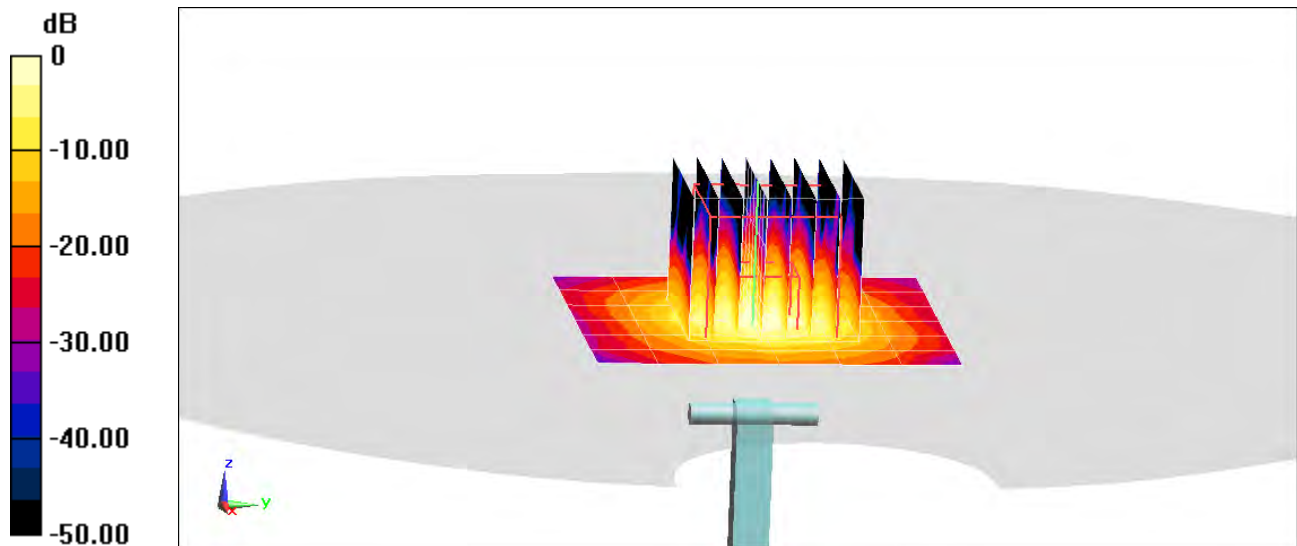
Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4

Peak SAR (extrapolated) = 17.0 W/kg

SAR(1 g) = 3.66 W/kg; SAR(10 g) = 1.02 W/kg

Deviation(1 g) = -3.81%; Deviation(10 g) = -3.77%



0 dB = 9.00 W/kg = 9.54 dBW/kg

APPENDIX C: PROBE CALIBRATION



Accredited by the Swiss Accreditation Service (SAS)
 The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Client **PC Test**

Certificate No: **EX3-3589_Jan19**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3589**

Calibration procedure(s) **QA CAL-01.v9, QA CAL-14.v5, QA CAL-23.v5, QA CAL-25.v7**
Calibration procedure for dosimetric E-field probes

BN ✓
02-06-2019

Calibration date: **January 25, 2019**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
 The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP	SN: 104778	04-Apr-18 (No. 217-02672/02673)	Apr-19
Power sensor NRP-Z91	SN: 103244	04-Apr-18 (No. 217-02672)	Apr-19
Power sensor NRP-Z91	SN: 103245	04-Apr-18 (No. 217-02673)	Apr-19
Reference 20 dB Attenuator	SN: S5277 (20x)	04-Apr-18 (No. 217-02682)	Apr-19
DAE4	SN: 660	19-Dec-18 (No. DAE4-660_Dec18)	Dec-19
Reference Probe ES3DV2	SN: 3013	31-Dec-18 (No. ES3-3013_Dec18)	Dec-19
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-18)	In house check: Jun-20
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-18)	In house check: Jun-20
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature
			Issued: January 29, 2019
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			



Accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: **SCS 0108**

The Swiss Accreditation Service is one of the signatories to the EA
 Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,y,z}
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
- IEC 62209-1, "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
- IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\vartheta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}; A, B, C, D** are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ MHz) and inside waveguide using analytical field distributions based on power measurements for $f > 800$ MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM_{x,y,z} * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3589

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V/m})^2$) ^A	0.44	0.40	0.39	± 10.1 %
DCP (mV) ^B	104.1	102.3	101.6	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Max dev.	Max Unc ^E (k=2)
0	CW	X	0.00	0.00	1.00	0.00	161.0	± 2.2 %	± 4.7 %
		Y	0.00	0.00	1.00		172.8		
		Z	0.00	0.00	1.00		161.9		
10352- AAA	Pulse Waveform (200Hz, 10%)	X	15.00	89.05	22.73	10.00	60.0	± 1.8 %	± 9.6 %
		Y	15.00	87.03	21.09		60.0		
		Z	15.00	88.89	22.24		60.0		
10353- AAA	Pulse Waveform (200Hz, 20%)	X	15.00	89.55	21.62	6.99	80.0	± 0.9 %	± 9.6 %
		Y	15.00	87.28	19.70		80.0		
		Z	15.00	89.25	21.07		80.0		
10354- AAA	Pulse Waveform (200Hz, 40%)	X	15.00	91.62	21.02	3.98	95.0	± 0.9 %	± 9.6 %
		Y	15.00	87.00	17.73		95.0		
		Z	15.00	91.02	20.33		95.0		
10355- AAA	Pulse Waveform (200Hz, 60%)	X	15.00	97.72	22.56	2.22	120.0	± 1.3 %	± 9.6 %
		Y	15.00	85.70	15.52		120.0		
		Z	15.00	94.39	20.55		120.0		
10387- AAA	QPSK Waveform, 1 MHz	X	0.93	64.13	11.59	0.00	150.0	± 3.0 %	± 9.6 %
		Y	0.57	60.00	7.45		150.0		
		Z	0.83	63.49	10.36		150.0		
10388- AAA	QPSK Waveform, 10 MHz	X	2.36	68.76	16.09	0.00	150.0	± 1.5 %	± 9.6 %
		Y	1.95	66.09	14.43		150.0		
		Z	2.37	69.14	16.27		150.0		
10396- AAA	64-QAM Waveform, 100 kHz	X	3.76	72.95	19.72	3.01	150.0	± 0.7 %	± 9.6 %
		Y	3.11	69.51	18.06		150.0		
		Z	4.24	75.35	20.59		150.0		
10399- AAA	64-QAM Waveform, 40 MHz	X	3.57	67.40	15.92	0.00	150.0	± 2.7 %	± 9.6 %
		Y	3.33	66.26	15.18		150.0		
		Z	3.47	67.09	15.77		150.0		
10414- AAA	WLAN CCDF, 64-QAM, 40MHz	X	4.95	65.72	15.56	0.00	150.0	± 4.8 %	± 9.6 %
		Y	4.74	65.16	15.23		150.0		
		Z	4.81	65.57	15.48		150.0		

Note: For details on UID parameters see Appendix

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^A The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required.

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3589

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $ms.V^{-2}$	T2 $ms.V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	55.3	407.97	34.85	27.50	1.34	5.10	1.23	0.50	1.01
Y	46.7	357.99	37.12	21.71	1.59	5.07	0.00	0.73	1.01
Z	46.1	339.04	34.64	23.94	1.27	5.07	1.73	0.40	1.01

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	-30.3
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	1.4 mm

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3589

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	41.9	0.89	8.67	8.67	8.67	0.70	0.80	± 12.0 %
835	41.5	0.90	8.39	8.39	8.39	0.63	0.81	± 12.0 %
1750	40.1	1.37	7.31	7.31	7.31	0.40	0.80	± 12.0 %
1900	40.0	1.40	7.08	7.08	7.08	0.39	0.80	± 12.0 %
2300	39.5	1.67	6.77	6.77	6.77	0.31	0.85	± 12.0 %
2450	39.2	1.80	6.46	6.46	6.46	0.30	0.85	± 12.0 %
2600	39.0	1.96	6.25	6.25	6.25	0.40	0.83	± 12.0 %
3500	37.9	2.91	6.16	6.16	6.16	0.26	1.20	± 13.1 %
3700	37.7	3.12	6.02	6.02	6.02	0.26	1.20	± 13.1 %

^C Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3589

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^G (mm)	Unc (k=2)
750	55.5	0.96	8.34	8.34	8.34	0.42	0.84	± 12.0 %
835	55.2	0.97	8.29	8.29	8.29	0.41	0.84	± 12.0 %
1750	53.4	1.49	6.82	6.82	6.82	0.43	0.80	± 12.0 %
1900	53.3	1.52	6.75	6.75	6.75	0.35	0.85	± 12.0 %
2300	52.9	1.81	6.71	6.71	6.71	0.36	0.87	± 12.0 %
2450	52.7	1.95	6.66	6.66	6.66	0.34	0.88	± 12.0 %
2600	52.5	2.16	6.47	6.47	6.47	0.28	0.95	± 12.0 %
3500	51.3	3.31	6.21	6.21	6.21	0.25	1.25	± 13.1 %
3700	51.0	3.55	6.13	6.13	6.13	0.20	1.25	± 13.1 %

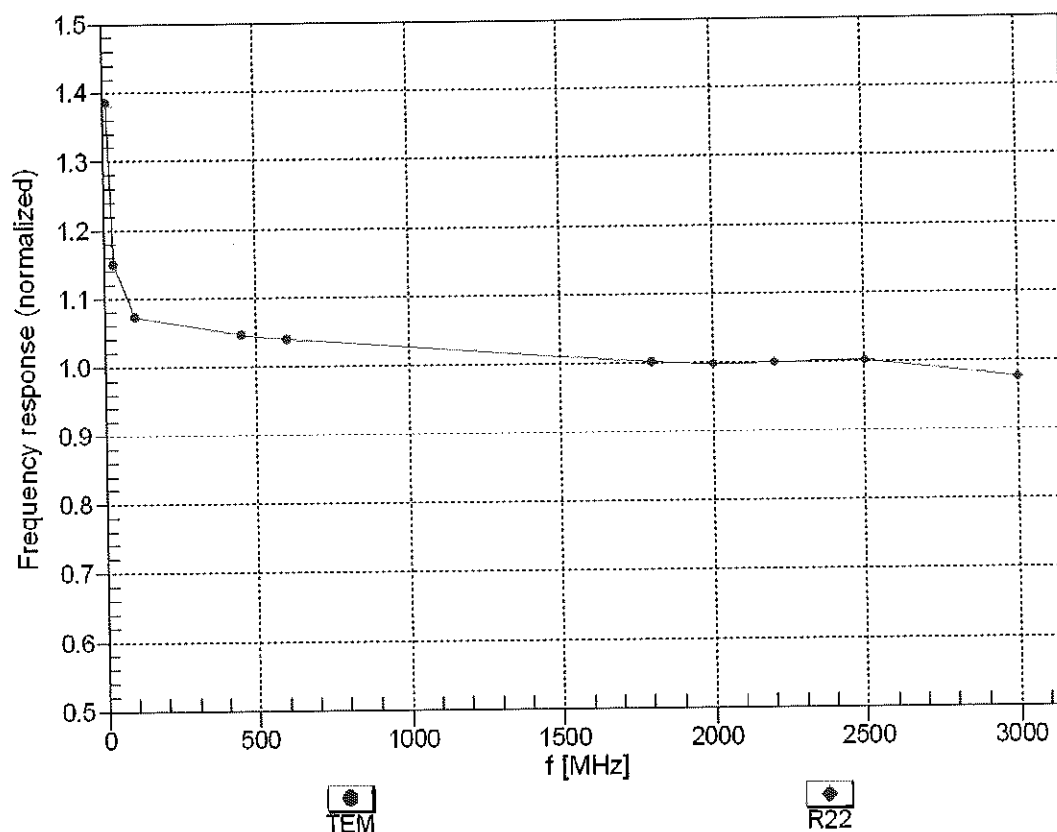
^C Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz.

^F At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

^G Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

Frequency Response of E-Field

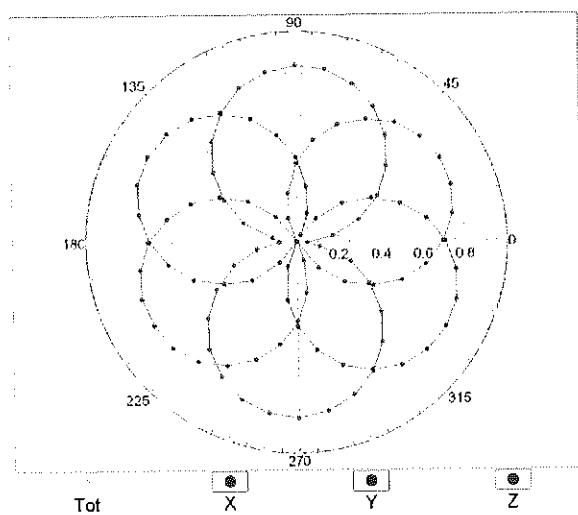
(TEM-Cell:ifi110 EXX, Waveguide: R22)



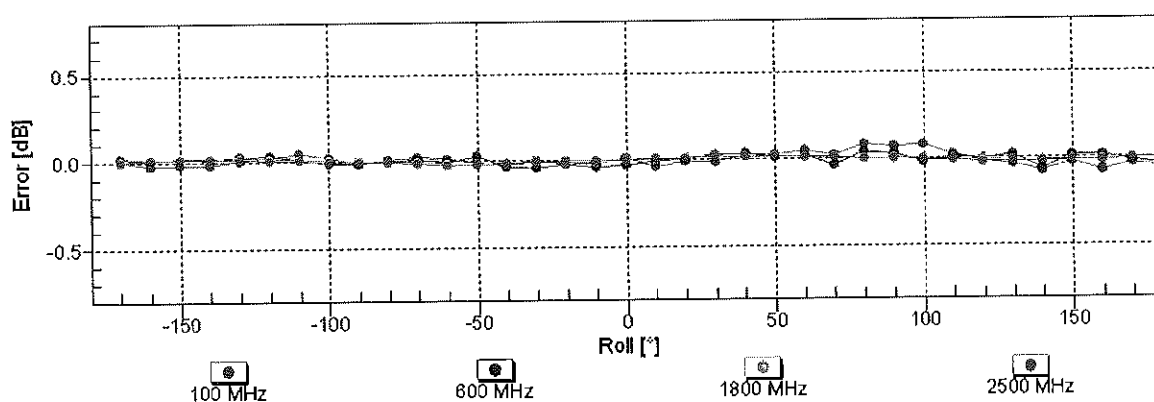
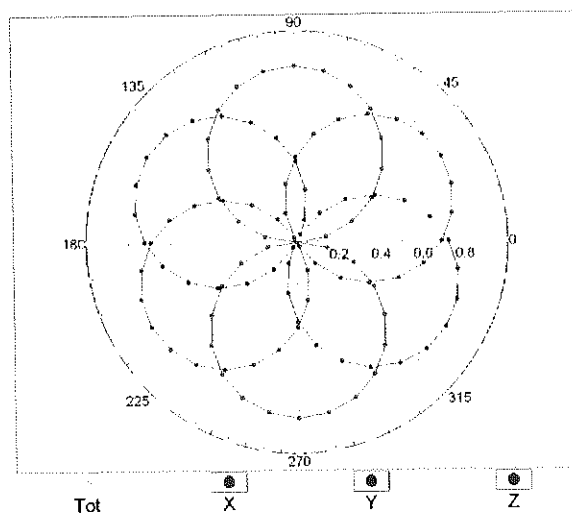
Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

Receiving Pattern (ϕ), $\theta = 0^\circ$

f=600 MHz, TEM

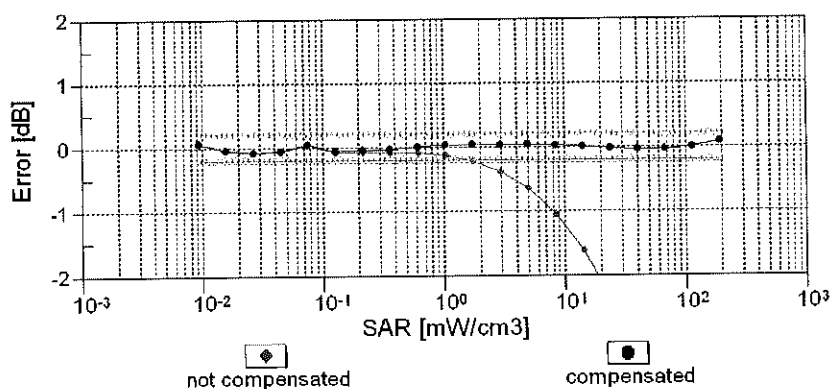
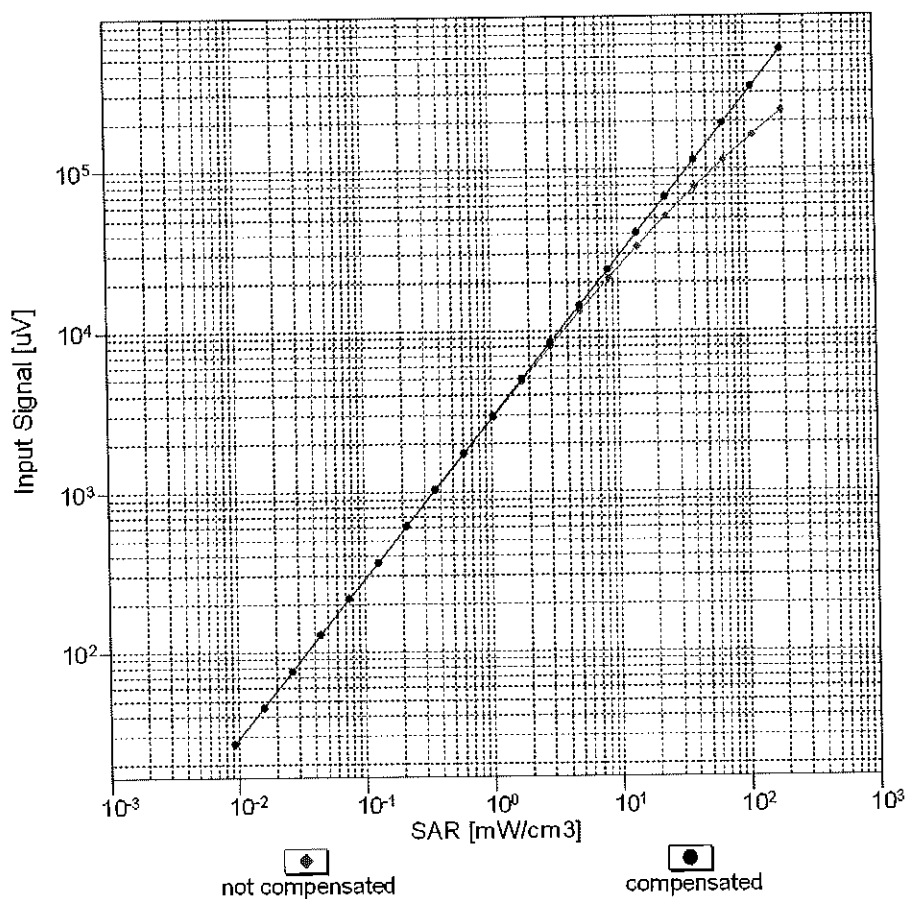


f=1800 MHz, R22



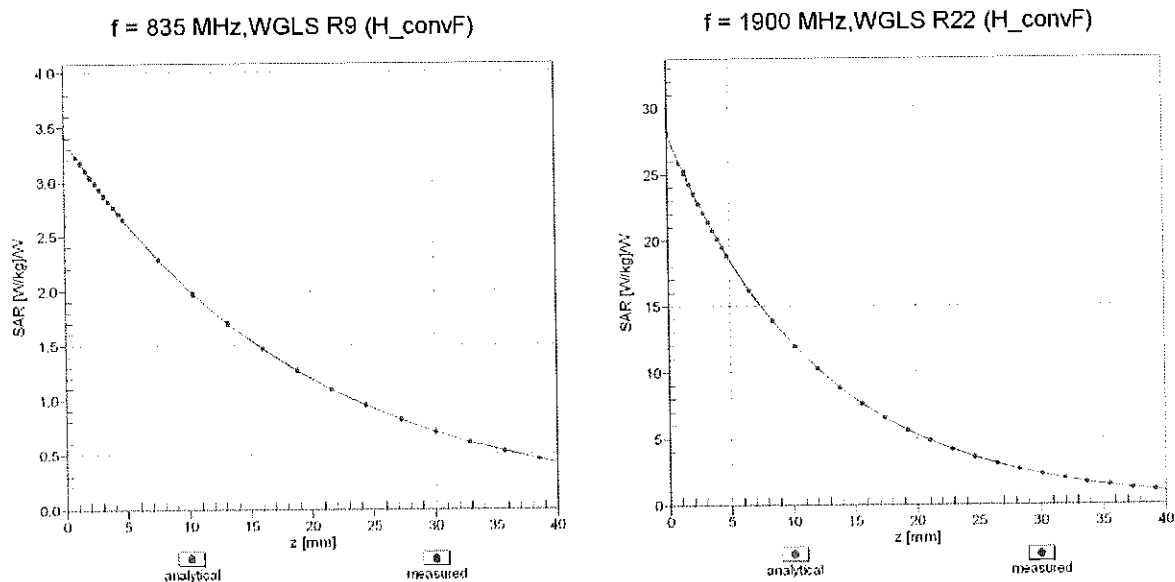
Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

Dynamic Range $f(\text{SAR}_{\text{head}})$ (TEM cell , $f_{\text{eval}} = 1900 \text{ MHz}$)



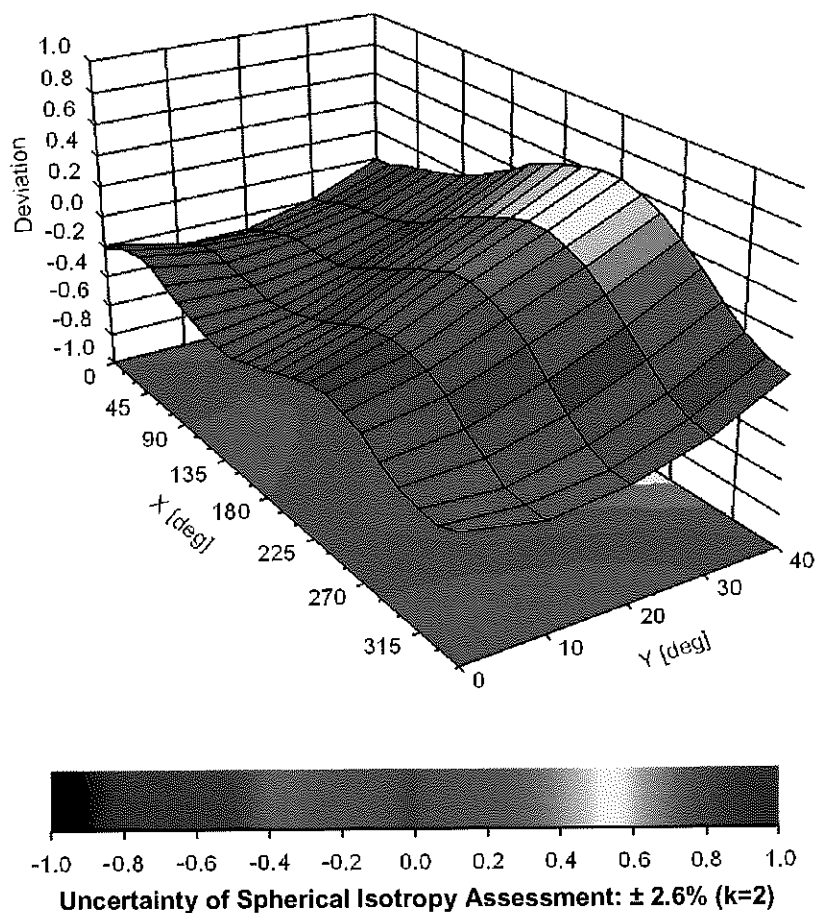
Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, θ), $f = 900 \text{ MHz}$



Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E (k=2)
0		CW	CW	0.00	± 4.7 %
10010	CAA	SAR Validation (Square, 100ms, 10ms)	Test	10.00	± 9.6 %
10011	CAB	UMTS-FDD (WCDMA)	WCDMA	2.91	± 9.6 %
10012	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.87	± 9.6 %
10013	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9.46	± 9.6 %
10021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	± 9.6 %
10023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	9.57	± 9.6 %
10024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6.56	± 9.6 %
10025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	GSM	12.62	± 9.6 %
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	± 9.6 %
10027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	4.80	± 9.6 %
10028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	± 9.6 %
10029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7.78	± 9.6 %
10030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5.30	± 9.6 %
10031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Bluetooth	1.87	± 9.6 %
10032	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	± 9.6 %
10033	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	± 9.6 %
10034	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	Bluetooth	4.53	± 9.6 %
10035	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	Bluetooth	3.83	± 9.6 %
10036	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	Bluetooth	8.01	± 9.6 %
10037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	± 9.6 %
10038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4.10	± 9.6 %
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000	4.57	± 9.6 %
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	AMPS	7.78	± 9.6 %
10044	CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	AMPS	0.00	± 9.6 %
10048	CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	± 9.6 %
10049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	± 9.6 %
10056	CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	TD-SCDMA	11.01	± 9.6 %
10058	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	6.52	± 9.6 %
10059	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	WLAN	2.12	± 9.6 %
10060	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	± 9.6 %
10061	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	WLAN	3.60	± 9.6 %
10062	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	± 9.6 %
10063	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	± 9.6 %
10064	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	± 9.6 %
10065	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	± 9.6 %
10066	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	± 9.6 %
10067	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	WLAN	10.12	± 9.6 %
10068	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	± 9.6 %
10069	CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	WLAN	10.56	± 9.6 %
10071	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	9.83	± 9.6 %
10072	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.62	± 9.6 %
10073	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	± 9.6 %
10074	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	± 9.6 %
10075	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	± 9.6 %
10076	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	± 9.6 %
10077	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	± 9.6 %
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	± 9.6 %
10082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	AMPS	4.77	± 9.6 %
10090	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	6.56	± 9.6 %
10097	CAB	UMTS-FDD (HSDPA)	WCDMA	3.98	± 9.6 %
10098	CAB	UMTS-FDD (HSUPA, Subtest 2)	WCDMA	3.98	± 9.6 %
10099	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	± 9.6 %
10100	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	± 9.6 %
10101	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10102	CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10103	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10104	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	± 9.6 %
10105	CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	± 9.6 %
10108	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	± 9.6 %

10109	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10110	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10111	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD	6.44	± 9.6 %
10112	CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.59	± 9.6 %
10113	CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10114	CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10115	CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	± 9.6 %
10116	CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	± 9.6 %
10117	CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	± 9.6 %
10118	CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	± 9.6 %
10119	CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	8.13	± 9.6 %
10140	CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10141	CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	± 9.6 %
10142	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10143	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	± 9.6 %
10144	CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	6.65	± 9.6 %
10145	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	± 9.6 %
10146	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	± 9.6 %
10147	CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	± 9.6 %
10149	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	± 9.6 %
10150	CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	± 9.6 %
10151	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	± 9.6 %
10152	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10153	CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	± 9.6 %
10154	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	± 9.6 %
10155	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10156	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	± 9.6 %
10157	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	± 9.6 %
10158	CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	± 9.6 %
10159	CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	± 9.6 %
10160	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	± 9.6 %
10161	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	± 9.6 %
10162	CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	± 9.6 %
10166	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	± 9.6 %
10167	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	± 9.6 %
10168	CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	± 9.6 %
10169	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10170	CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10171	AAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	± 9.6 %
10172	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10173	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10174	CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10175	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10176	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10177	CAI	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10178	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10179	CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10180	CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10181	CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10182	CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10183	AAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10184	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10185	CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	± 9.6 %
10186	AAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10187	CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.73	± 9.6 %
10188	CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	± 9.6 %
10189	AAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	± 9.6 %
10193	CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	± 9.6 %
10194	CAC	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	± 9.6 %
10195	CAC	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	± 9.6 %
10196	CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	± 9.6 %
10197	CAC	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10198	CAC	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10219	CAC	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	± 9.6 %

10220	CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	± 9.6 %
10221	CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	± 9.6 %
10222	CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	± 9.6 %
10223	CAC	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	± 9.6 %
10224	CAC	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.08	± 9.6 %
10225	CAB	UMTS-FDD (HSPA+)	WCDMA	5.97	± 9.6 %
10226	CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	± 9.6 %
10227	CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	± 9.6 %
10228	CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	± 9.6 %
10229	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10230	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10231	CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	± 9.6 %
10232	CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10233	CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10234	CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10235	CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10236	CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10237	CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10238	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	± 9.6 %
10239	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	± 9.6 %
10240	CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	± 9.6 %
10241	CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	± 9.6 %
10242	CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.86	± 9.6 %
10243	CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	± 9.6 %
10244	CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10245	CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	± 9.6 %
10246	CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10247	CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	± 9.6 %
10248	CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	± 9.6 %
10249	CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	± 9.6 %
10250	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	± 9.6 %
10251	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	± 9.6 %
10252	CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10253	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	± 9.6 %
10254	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	± 9.6 %
10255	CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	± 9.6 %
10256	CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	± 9.6 %
10257	CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	± 9.6 %
10258	CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	± 9.6 %
10259	CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	± 9.6 %
10260	CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	± 9.6 %
10261	CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	± 9.6 %
10262	CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	± 9.6 %
10263	CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.16	± 9.6 %
10264	CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	± 9.6 %
10265	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	± 9.6 %
10266	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	± 9.6 %
10267	CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	± 9.6 %
10268	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	± 9.6 %
10269	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	± 9.6 %
10270	CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	± 9.6 %
10274	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	± 9.6 %
10275	CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	± 9.6 %
10277	CAA	PHS (QPSK)	PHS	11.81	± 9.6 %
10278	CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	PHS	11.81	± 9.6 %
10279	CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	PHS	12.18	± 9.6 %
10290	AAB	CDMA2000, RC1, SO55, Full Rate	CDMA2000	3.91	± 9.6 %
10291	AAB	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	± 9.6 %
10292	AAB	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	± 9.6 %
10293	AAB	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	± 9.6 %
10295	AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.49	± 9.6 %
10297	AAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	± 9.6 %
10298	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	± 9.6 %
10299	AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	± 9.6 %