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SAR EVALUATION REPORT

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

Date of Testing:
12/07/18 - 01/21/19
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
1M1812060222-01-R2.ZNF

FCC ID: **ZNFQ850QM**

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

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model: LM-Q850QM
Additional Model(s): LMQ850QM, Q850QM, LM-Q850QM5, LMQ850QM5, Q850QM5, LM-Q850QM6, LMQ850QM6, Q850QM6

Equipment Class	Band & Mode	Tx Frequency	SAR			
			1g Head (W/kg)	1g Body-Worn (W/kg)	1g Hotspot (W/kg)	10g Phablet (W/kg)
PCE	CDMA/EVDO BC10 (§90S)	817.90 - 823.10 MHz	0.24	0.48	0.46	N/A
PCE	CDMA/EVDO BC0 (§22H)	824.70 - 848.31 MHz	0.23	0.49	0.46	N/A
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.13	0.46	1.11	N/A
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.25	0.51	0.55	N/A
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	0.12	0.44	0.74	N/A
PCE	UMTS 850	826.40 - 846.60 MHz	0.19	0.40	0.40	N/A
PCE	UMTS 1750	1712.4 - 1752.6 MHz	0.14	0.68	1.02	N/A
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.12	0.51	0.89	N/A
PCE	LTE Band 12	699.7 - 715.3 MHz	0.13	0.32	0.32	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	0.20	0.38	0.38	N/A
PCE	LTE Band 26 (Cell)	814.7 - 848.3 MHz	0.19	0.39	0.39	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	0.15	0.80	1.13	N/A
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	0.14	0.56	1.19	N/A
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz	N/A	N/A	N/A	N/A
PCE	LTE Band 41	2498.5 - 2687.5 MHz	< 0.1	1.20	1.20	N/A
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.49	0.28	0.28	N/A
NII	U-NII-1	5180 - 5240 MHz	N/A	N/A	0.51	N/A
NII	U-NII-2A	5260 - 5320 MHz	0.72	0.55	N/A	1.77
NII	U-NII-2C	5500 - 5720 MHz	0.84	0.73	N/A	2.68
NII	U-NII-3	5745 - 5825 MHz	0.64	0.89	0.89	N/A
DSS/DTS	Bluetooth	2402 - 2480 MHz	0.11	<0.1	<0.1	N/A
Simultaneous SAR per KDB 690783 D01v01r03:			1.27	1.59	1.59	2.69

Note: This revised Test Report (S/N: 1M1812060222-01-R2.ZNF) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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

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

Randy Ortanez
President

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

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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
CDMA/EVDO BC10 (§90S)	Voice/Data	817.90 - 823.10 MHz
CDMA/EVDO BC0 (§22H)	Voice/Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
UMTS 1750	Voice/Data	1712.4 - 1752.6 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 12	Voice/Data	699.7 - 715.3 MHz
LTE Band 17	Voice/Data	706.5 - 713.5 MHz
LTE Band 13	Voice/Data	779.5 - 784.5 MHz
LTE Band 26 (Cell)	Voice/Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Voice/Data	824.7 - 848.3 MHz
LTE Band 66 (AWS)	Voice/Data	1710.7 - 1779.3 MHz
LTE Band 4 (AWS)	Voice/Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Voice/Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Voice/Data	1850.7 - 1909.3 MHz
LTE Band 41	Voice/Data	2498.5 - 2687.5 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2462 MHz
U-NII-1	Voice/Data	5180 - 5240 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz

1.2 Power Reduction for SAR

There is no power reduction used for any band/mode implemented in this device for SAR purposes.

1.3 Nominal and Maximum Output Power Specifications

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

1.3.1 Maximum Output Power

Mode / Band		Voice (dBm)	Burst Average GMSK (dBm)				Burst Average 8-PSK (dBm)			
		1 TX Slot	*1 TX Slots*	*2 TX Slots*	*3 TX Slots*	*4 TX Slots*	*1 TX Slots*	*2 TX Slots*	*3 TX Slots*	*4 TX Slots*
GSM/GPRS/EDGE 850	Maximum	**33.7**	**33.7**	**32.7**	**30.7**	**28.7**	**27.7**	**27.7**	**26.7**	**26.7**
	Nominal	**33.2**	**33.2**	**32.2**	**30.2**	**28.2**	**27.2**	**27.2**	**26.2**	**26.2**
GSM/GPRS/EDGE 1900	Maximum	**30.7**	**30.7**	**29.7**	**27.7**	**25.7**	**26.7**	**26.7**	**25.7**	**25.7**
	Nominal	**30.2**	**30.2**	**29.2**	**27.2**	**25.2**	**26.2**	**26.2**	**25.2**	**25.2**

Mode / Band		Modulated Average (dBm)		
		3GPP WCDMA	*3GPP HSDPA*	*3GPP HSUPA*
UMTS Band 5 (850 MHz)	Maximum	**25.5**	**25.5**	**25.5**
	Nominal	**25.0**	**25.0**	**25.0**
UMTS Band 4 (1750 MHz)	Maximum	**24.7**	**24.7**	**24.7**
	Nominal	**24.2**	**24.2**	**24.2**
UMTS Band 2 (1900 MHz)	Maximum	**24.7**	**24.7**	**24.7**
	Nominal	**24.2**	**24.2**	**24.2**

Mode / Band		Modulated Average (dBm)
CDMA/EVDO BC10 (§90S)	Maximum	**25.5**
	Nominal	**25.0**
CDMA/EVDO BC0 (§22H)	Maximum	**25.5**
	Nominal	**25.0**
PCS CDMA/EVDO	Maximum	**24.7**
	Nominal	**24.2**

Mode / Band		Modulated Average (dBm)
LTE Band 12	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 17	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 13	Maximum	**25.2**
	Nominal	**24.7**
LTE Band 26 (Cell)	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 5 (Cell)	Maximum	**25.5**
	Nominal	**25.0**
LTE Band 66 (AWS)	Maximum	**24.5**
	Nominal	**24.0**
LTE Band 4 (AWS)	Maximum	**24.5**
	Nominal	**24.0**
LTE Band 25 (PCS)	Maximum	**24.5**
	Nominal	**24.0**
LTE Band 2 (PCS)	Maximum	**24.5**
	Nominal	**24.0**
LTE Band 41 (PC3)	Maximum	**25.2**
	Nominal	**24.7**
LTE Band 41 (PC2)	Maximum	**27.2**
	Nominal	**26.7**

Mode / Band		Modulated Average - Single Tx Chain (dBm)
IEEE 802.11b (2.4 GHz)	Maximum	**18.0**
	Nominal	**17.0**
IEEE 802.11g (2.4 GHz)	Maximum	**18.0**
	Nominal	**17.0**
IEEE 802.11n (2.4 GHz)	Maximum	**18.0**
	Nominal	**17.0**
IEEE 802.11ac (2.4 GHz)	Maximum	**18.0**
	Nominal	**17.0**
Bluetooth 1Mbps (GFSK)	Maximum	**11.0**
	Nominal	**10.0**
Bluetooth 2 Mbps (DPSK)	Maximum	**10.0**
	Nominal	**9.0**
Bluetooth 3 Mbps (8DPSK)	Maximum	**10.0**
	Nominal	**9.0**
Bluetooth LE	Maximum	**2.0**
	Nominal	**1.0**

Mode / Band		Modulated Average - Single Tx Chain (dBm)						
		20 MHz Bandwidth			40 MHz Bandwidth	80 MHz Bandwidth		
	Channel	36-64	100-144	149-165	38-159	42-58	106	122-155
IEEE 802.11a (5 GHz)	Maximum	**18.0**	**17.0**	**16.5**				
	Nominal	**17.0**	**16.0**	**15.5**				
IEEE 802.11n (5 GHz)	Maximum	**18.0**	**17.0**	**16.5**	**16.0**			
	Nominal	**17.0**	**16.0**	**15.5**	**15.0**			
IEEE 802.11ac (5 GHz)	Maximum	**18.0**	**17.0**	**16.5**	**16.0**	**15.0**	**14.5**	**15.0**
	Nominal	**17.0**	**16.0**	**15.5**	**15.0**	**14.0**	**13.5**	**14.0**

Mode / Band		Modulated Average - MIMO (dBm)
		20 MHz Bandwidth
IEEE 802.11b (2.4 GHz)	Maximum	**21.0**
	Nominal	**20.0**
IEEE 802.11g (2.4 GHz)	Maximum	**21.0**
	Nominal	**20.0**
IEEE 802.11n (2.4 GHz)	Maximum	**21.0**
	Nominal	**20.0**
IEEE 802.11ac (2.4 GHz)	Maximum	**21.0**
	Nominal	**20.0**

Mode / Band		Modulated Average - MIMO (dBm)						
		20 MHz Bandwidth			40 MHz Bandwidth	80 MHz Bandwidth		
	Channel	36-64	100-144	149-165	38-159	42-58	106	122-155
IEEE 802.11a (5 GHz)	Maximum	**21.0**	**20.0**	**19.5**				
	Nominal	**20.0**	**19.0**	**18.5**				
IEEE 802.11n (5 GHz)	Maximum	**21.0**	**20.0**	**19.5**	**19.0**			
	Nominal	**20.0**	**19.0**	**18.5**	**18.0**			
IEEE 802.11ac (5 GHz)	Maximum	**21.0**	**20.0**	**19.5**	**19.0**	**18.0**	**17.5**	**18.0**
	Nominal	**20.0**	**19.0**	**18.5**	**18.0**	**17.0**	**16.5**	**17.0**

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	No	Yes
GPRS 850	Yes	Yes	No	Yes	Yes	Yes
GPRS 1900	Yes	Yes	No	Yes	No	Yes
UMTS 850	Yes	Yes	No	Yes	Yes	Yes
UMTS 1750	Yes	Yes	No	Yes	No	Yes
UMTS 1900	Yes	Yes	No	Yes	No	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	No	Yes
LTE Band 25 (PCS)	Yes	Yes	No	Yes	No	Yes
LTE Band 41	Yes	Yes	No	Yes	Yes	Yes
2.4 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
2.4 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 1	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN Ant 2	Yes	Yes	Yes	No	No	Yes
Bluetooth	Yes	Yes	Yes	No	No	Yes

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

1.5 Near Field Communications (NFC) Antenna

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

1.6 Simultaneous Transmission Capabilities

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

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

Table 1-2
Simultaneous Transmission Scenarios

Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Phablet	Notes
1x CDMA voice + 2.4 GHz WI-FI	Yes	Yes	N/A	Yes	
1x CDMA voice + 5 GHz WI-FI	Yes	Yes	N/A	Yes	
1x CDMA voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
1x CDMA voice + 2.4 GHz WI-FI MIMO	Yes	Yes	N/A	Yes	
1x CDMA voice + 5 GHz WI-FI MIMO	Yes	Yes	N/A	Yes	
1x CDMA voice + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
1x CDMA voice + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
GSM voice + 2.4 GHz WI-FI	Yes	Yes	N/A	Yes	
GSM voice + 5 GHz WI-FI	Yes	Yes	N/A	Yes	
GSM voice + 2.4 GHz Bluetooth	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
GSM voice + 2.4 GHz WI-FI MIMO	Yes	Yes	N/A	Yes	
GSM voice + 5 GHz WI-FI MIMO	Yes	Yes	N/A	Yes	
GSM voice + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
GSM voice + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes^	Yes	N/A	Yes	^ Bluetooth Tethering is considered
UMTS + 2.4 GHz WI-FI	Yes	Yes	Yes	Yes	
UMTS + 5 GHz WI-FI	Yes	Yes	Yes	Yes	
UMTS + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
UMTS + 2.4 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
UMTS + 5 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
UMTS + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
UMTS + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
LTE + 2.4 GHz WI-FI	Yes	Yes	Yes	Yes	
LTE + 5 GHz WI-FI	Yes	Yes	Yes	Yes	
LTE + 2.4 GHz Bluetooth	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
LTE + 2.4 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
LTE + 5 GHz WI-FI MIMO	Yes	Yes	Yes	Yes	
LTE + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
LTE + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes^	Yes	Yes^	Yes	^ Bluetooth Tethering is considered
CDMA/EVDO data + 2.4 GHz WI-FI	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
CDMA/EVDO data + 5 GHz WI-FI	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
CDMA/EVDO data + 2.4 GHz Bluetooth	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^ Bluetooth Tethering is considered
CDMA/EVDO data + 2.4 GHz WI-FI MIMO	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
CDMA/EVDO data + 5 GHz WI-FI MIMO	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
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
CDMA/EVDO data + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^ Bluetooth Tethering is considered
GPRS/EDGE + 2.4 GHz WI-FI	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
GPRS/EDGE + 5 GHz WI-FI	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
GPRS/EDGE + 2.4 GHz Bluetooth	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^ Bluetooth Tethering is considered
GPRS/EDGE + 2.4 GHz WI-FI MIMO	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
GPRS/EDGE + 5 GHz WI-FI MIMO	Yes*	Yes*	Yes	Yes	* Pre-installed VOIP applications are considered
GPRS/EDGE + 2.4 GHz Bluetooth + 5 GHz WI-FI	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^ Bluetooth Tethering is considered
GPRS/EDGE + 2.4 GHz Bluetooth + 5 GHz WI-FI MIMO	Yes*^	Yes*	Yes^	Yes	* Pre-installed VOIP applications are considered ^ Bluetooth Tethering is considered

1. 2.4 GHz WLAN, 5 GHz WLAN, and 2.4 GHz Bluetooth share the same antenna path and cannot transmit simultaneously.
2. All licensed modes share the same antenna path and cannot transmit simultaneously.
3. When the user utilizes multiple services in UMTS 3G mode it uses multi-Radio Access Bearer or multi-RAB. The power control is based on a physical control channel (Dedicated Physical Control Channel [DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the UMTS+WLAN scenario also represents the UMTS Voice/DATA + WLAN Hotspot scenario.
4. Per the manufacturer, WIFI Direct is expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Therefore, there are no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table.
5. 5 GHz Wireless Router is only supported for the U-NII-1 and U-NII-3 by S/W, therefore U-NII2A and U-NII2C were not evaluated for wireless router conditions.
6. This device supports 2x2 MIMO Tx for WLAN. 802.11a/g/n/ac supports CDD, 802.11b mode supports TDD operations only, and STBC and 802.11n/ac additionally supports SDM. Each WLAN antenna can transmit independently or together when operating with MIMO.
7. This device supports VOLTE.
8. This device supports VoWIFI.
9. This device supports Bluetooth Tethering.

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

This device supports IEEE 802.11ac with the following features:

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

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

(B) Licensed Transmitter(s)

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

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. Phablet SAR was not evaluated for licensed technologies since wireless router 1g SAR was < 1.2 W/kg for these modes.

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 64QAM on the uplink and 256QAM on the downlink for LTE Operations. Conducted powers for 64QAM configurations were measured per Section 5.1 of FCC KDB Publication 941225 D05v02r05. SAR was not required for 64QAM since the highest maximum output power for 64 QAM is ≤ ½ 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.

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)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)
- May 2017 TCB Workshop Notes (LTE Band 41 Power Class 2/3)
- April 2018 TCB Workshop Notes (LTE Carrier Aggregation)

1.9 Device Serial Numbers

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

2 LTE INFORMATION

LTE Information					
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 17 (706.5 - 713.5 MHz)				
	LTE Band 13 (779.5 - 784.5 MHz)				
	LTE Band 26 (Cell) (814.7 - 848.3 MHz)				
	LTE Band 5 (Cell) (824.7 - 848.3 MHz)				
	LTE Band 66 (AWS) (1710.7 - 1779.3 MHz)				
	LTE Band 4 (AWS) (1710.7 - 1754.3 MHz)				
	LTE Band 25 (PCS) (1850.7 - 1914.3 MHz)				
	LTE Band 2 (PCS) (1850.7 - 1909.3 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
Channel Bandwidths	LTE Band 12: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 17: 5 MHz, 10 MHz				
	LTE Band 13: 5 MHz, 10 MHz				
	LTE Band 26 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz				
	LTE Band 5 (Cell): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 66 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 4 (AWS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 25 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 2 (PCS): 1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz				
	LTE Band 41: 5 MHz, 10 MHz, 15 MHz, 20 MHz				
Channel Numbers and Frequencies (MHz)	Low	Low-Mid	Mid	Mid-High	High
LTE Band 12: 1.4 MHz	699.7 (23017)		707.5 (23095)	715.3 (23173)	
LTE Band 12: 3 MHz	700.5 (23025)		707.5 (23095)	714.5 (23165)	
LTE Band 12: 5 MHz	701.5 (23035)		707.5 (23095)	713.5 (23155)	
LTE Band 12: 10 MHz	704 (23060)		707.5 (23095)	711 (23130)	
LTE Band 17: 5 MHz	706.5 (23755)		710 (23790)	713.5 (23825)	
LTE Band 17: 10 MHz	709 (23780)		710 (23790)	711 (23800)	
LTE Band 13: 5 MHz	779.5 (23205)		782 (23230)	784.5 (23255)	
LTE Band 13: 10 MHz	N/A		782 (23230)	N/A	
LTE Band 26 (Cell): 1.4 MHz	814.7 (26697)		831.5 (26865)	848.3 (27033)	
LTE Band 26 (Cell): 3 MHz	815.5 (26705)		831.5 (26865)	847.5 (27025)	
LTE Band 26 (Cell): 5 MHz	816.5 (26715)		831.5 (26865)	846.5 (27015)	
LTE Band 26 (Cell): 10 MHz	819 (26740)		831.5 (26865)	844 (26990)	
LTE Band 26 (Cell): 15 MHz	821.5 (26765)		831.5 (26865)	841.5 (26965)	
LTE Band 5 (Cell): 1.4 MHz	824.7 (20407)		836.5 (20525)	848.3 (20643)	
LTE Band 5 (Cell): 3 MHz	825.5 (20415)		836.5 (20525)	847.5 (20635)	
LTE Band 5 (Cell): 5 MHz	826.5 (20425)		836.5 (20525)	846.5 (20625)	
LTE Band 5 (Cell): 10 MHz	829 (20450)		836.5 (20525)	844 (20600)	
LTE Band 66 (AWS): 1.4 MHz	1710.7 (131979)		1745 (132322)	1779.3 (132665)	
LTE Band 66 (AWS): 3 MHz	1711.5 (131987)		1745 (132322)	1778.5 (132657)	
LTE Band 66 (AWS): 5 MHz	1712.5 (131997)		1745 (132322)	1777.5 (132647)	
LTE Band 66 (AWS): 10 MHz	1715 (132022)		1745 (132322)	1775 (132622)	
LTE Band 66 (AWS): 15 MHz	1717.5 (132047)		1745 (132322)	1772.5 (132597)	
LTE Band 66 (AWS): 20 MHz	1720 (132072)		1745 (132322)	1770 (132572)	
LTE Band 4 (AWS): 1.4 MHz	1710.7 (19957)		1732.5 (20175)	1754.3 (20393)	
LTE Band 4 (AWS): 3 MHz	1711.5 (19965)		1732.5 (20175)	1753.5 (20385)	
LTE Band 4 (AWS): 5 MHz	1712.5 (19975)		1732.5 (20175)	1752.5 (20375)	
LTE Band 4 (AWS): 10 MHz	1715 (20000)		1732.5 (20175)	1750 (20350)	
LTE Band 4 (AWS): 15 MHz	1717.5 (20025)		1732.5 (20175)	1747.5 (20325)	
LTE Band 4 (AWS): 20 MHz	1720 (20050)		1732.5 (20175)	1745 (20300)	
LTE Band 25 (PCS): 1.4 MHz	1850.7 (26047)		1882.5 (26365)	1914.3 (26683)	
LTE Band 25 (PCS): 3 MHz	1851.5 (26055)		1882.5 (26365)	1913.5 (26675)	
LTE Band 25 (PCS): 5 MHz	1852.5 (26065)		1882.5 (26365)	1912.5 (26665)	
LTE Band 25 (PCS): 10 MHz	1855 (26090)		1882.5 (26365)	1910 (26640)	
LTE Band 25 (PCS): 15 MHz	1857.5 (26115)		1882.5 (26365)	1907.5 (26615)	
LTE Band 25 (PCS): 20 MHz	1860 (26140)		1882.5 (26365)	1905 (26590)	
LTE Band 2 (PCS): 1.4 MHz	1850.7 (18607)		1880 (18900)	1909.3 (19193)	
LTE Band 2 (PCS): 3 MHz	1851.5 (18615)		1880 (18900)	1908.5 (19185)	
LTE Band 2 (PCS): 5 MHz	1852.5 (18625)		1880 (18900)	1907.5 (19175)	
LTE Band 2 (PCS): 10 MHz	1855 (18650)		1880 (18900)	1905 (19150)	
LTE Band 2 (PCS): 15 MHz	1857.5 (18675)		1880 (18900)	1902.5 (19125)	
LTE Band 2 (PCS): 20 MHz	1860 (18700)		1880 (18900)	1900 (19100)	
LTE Band 41: 5 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 10 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 15 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
LTE Band 41: 20 MHz	2506 (39750)	2549.5 (40185)	2593 (40620)	2636.5 (41055)	2680 (41490)
UE Category	DL UE Cat 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 11. It supports carrier aggregation as shown in Appendix G. All other uplink communications are identical to the Release 8 specifications. Uplink communications are done on the PCC unless otherwise specified. The following LTE Release 11 Features are not supported: Wifi Offloading, Relay, HetNet, Enhanced eICIC, MDH, eMBMS, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

3 INTRODUCTION

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

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

3.1 SAR Definition

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

Equation 3-1
SAR Mathematical Equation

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

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

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

where:

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

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

4 DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

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

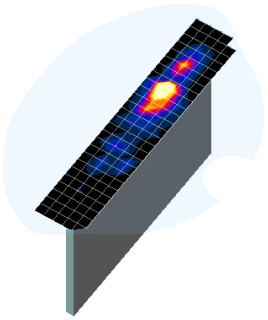


Figure 4-1
Sample SAR Area Scan

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

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

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

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

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

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

*Also compliant to IEEE 1528-2013 Table 6

5 DEFINITION OF REFERENCE POINTS

5.1 EAR REFERENCE POINT

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

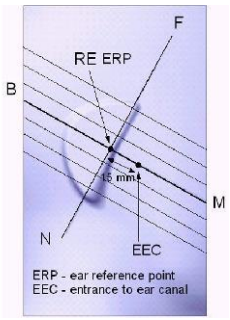


Figure 5-1
Close-Up Side view of ERP

5.2 HANDSET REFERENCE POINTS

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

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

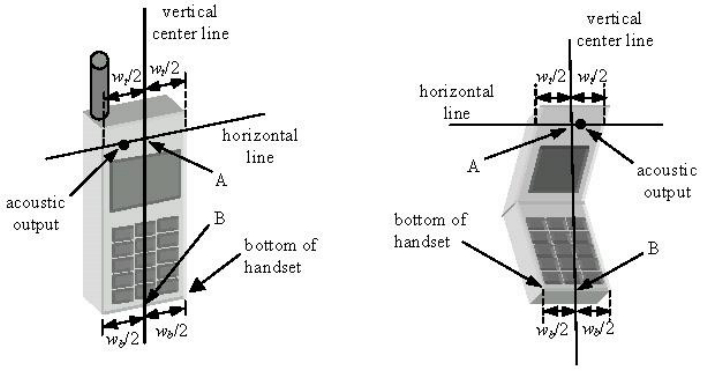


Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

6 TEST CONFIGURATION POSITIONS

6.1 Device Holder

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

6.2 Positioning for Cheek

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

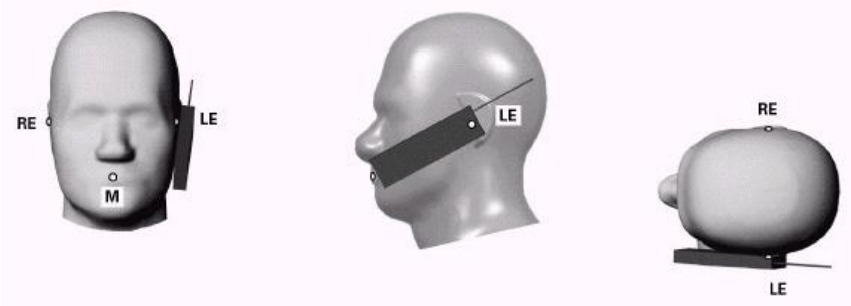


Figure 6-1 Front, Side and Top View of Cheek Position

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

6.3 Positioning for Ear / 15º Tilt

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

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

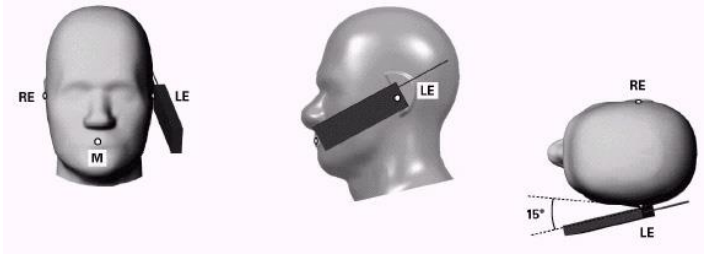


Figure 6-2 Front, Side and Top View of Ear/15º Tilt Position

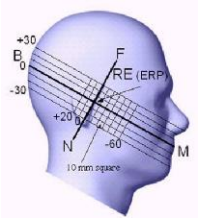


Figure 6-3
Side view w/ relevant markings

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

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

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

6.5 Body-Worn Accessory Configurations

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

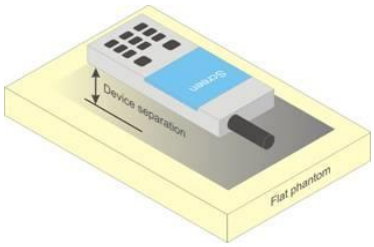


Figure 6-4
Sample Body-Worn Diagram

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that

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

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

6.6 Extremity Exposure Configurations

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

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

6.7 Wireless Router Configurations

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

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

6.8 Phablet Configurations

For smart phones with a display diagonal dimension > 150 mm or an overall diagonal dimension > 160 mm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the phablets procedures outlined in KDB Publication 648474 D04v01r03 should be applied to evaluate SAR compliance. A device marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance. In addition to the normally required head and body-worn accessory SAR test procedures required for handsets, the UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna <=25 mm from that surface or edge, in direct contact with the phantom, for 10g SAR. The UMPC mini-tablet 1g SAR at 5 mm is not required. When hotspot mode applies, 10g SAR is required only for the surfaces and edges with hotspot mode 1g SAR > 1.2 W/kg.

7 RF EXPOSURE LIMITS

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

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

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

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

8 FCC MEASUREMENT PROCEDURES

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

8.1 Measured and Reported SAR

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

8.2 3G SAR Test Reduction Procedure

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

8.3 Procedures Used to Establish RF Signal for SAR

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

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

8.4 SAR Measurement Conditions for CDMA2000

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

8.4.1 Output Power Verification

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

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

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

Table 8-1
Parameters for Max. Power for RC1

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

Table 8-2
Parameters for Max. Power for RC3

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

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

8.4.2 Head SAR Measurements

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

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

8.4.3 Body-worn SAR Measurements

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

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

8.4.4 Body-worn SAR Measurements for EVDO Devices

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

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

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

8.4.5 Body SAR Measurements for EVDO Hotspot

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

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

8.4.6 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. The1x 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.

8.5.3 Body SAR Measurements

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

8.5.4 SAR Measurements with Rel 5 HSDPA

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

8.5.5 SAR Measurements with Rel 6 HSUPA

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

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

8.6 SAR Measurement Conditions for LTE

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

8.6.1 Spectrum Plots for RB Configurations

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

8.6.2 MPR

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

8.6.3 A-MPR

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

8.6.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r04:

a. Per Section 5.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
   i. The required channel and offset combination with the highest maximum output power is required for SAR.
   ii. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.

iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.

b. Per Section 5.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Section 5.2.1.

c. Per Section 5.2.3, QPSK SAR is not required for the 100% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.

d. Per Section 5.2.4 and 5.3, SAR tests for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sections 5.2.1 through 5.2.3 is less than or equal to ½ dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is <1.45 W/kg.

8.6.5 TDD

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

8.6.6 Downlink Only Carrier Aggregation

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

8.7 SAR Testing with 802.11 Transmitters

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

8.7.1 General Device Setup

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

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

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

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

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

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

8.7.4 Initial Test Position Procedure

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

8.7.5 2.4 GHz SAR Test Requirements

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

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

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

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

8.7.6 OFDM Transmission Mode and SAR Test Channel Selection

When the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11ac or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.e., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. When the

maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

8.7.7 Initial Test Configuration Procedure

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

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

8.7.8 Subsequent Test Configuration Procedures

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

8.7.9 MIMO SAR considerations

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

9 RF CONDUCTED POWERS

9.1 CDMA Conducted Powers

Table 9-1
Maximum Conducted Power

				Loopback			Data			
Band	**Channel**	**Rule Part**	**Frequency**	**SO55 [dBm]**	**SO55 [dBm]**	**SO75 [dBm]**	**TDSO SO32 [dBm]**	**TDSO SO32 [dBm]**	**1x EvDO Rev. 0 [dBm]**	**1x EvDO Rev. A [dBm]**
	F-RC		MHz	RC1	RC3	RC11	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	564	90S	820.1	25.26	25.13	25.22	25.14	25.38	25.15	25.24
Cellular	1013	22H	824.7	25.29	25.47	25.12	25.22	25.40	25.40	25.47
	384	22H	836.52	25.27	25.17	25.23	25.47	25.31	25.34	25.38
	777	22H	848.31	25.22	25.33	25.45	25.45	25.41	25.30	25.38
PCS	25	24E	1851.25	24.36	24.48	24.32	24.37	24.60	24.53	24.62
	600	24E	1880	24.42	24.63	24.50	24.39	24.44	24.43	24.54
	1175	24E	1908.75	24.38	24.53	24.43	24.34	24.47	24.69	24.41

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

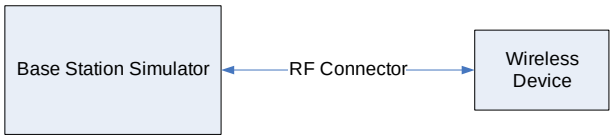


Figure 9-1
Power Measurement Setup

9.2 GSM Conducted Powers

Table 9-2
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	33.56	33.56	32.44	**30.58**	28.61	27.13	27.55	26.02	26.15
	190	33.52	33.52	32.47	**30.50**	28.68	27.56	27.42	26.42	26.56
	251	33.38	33.38	32.55	**30.70**	28.54	27.62	27.54	26.42	26.32
GSM 1900	512	30.54	30.54	29.47	**27.42**	25.70	26.20	26.20	25.47	25.70
	661	30.63	30.53	29.66	**27.64**	25.49	26.50	26.50	25.66	25.67
	810	30.60	30.60	29.30	**27.40**	25.64	26.10	26.30	25.56	25.41

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	24.53	24.53	26.42	**26.32**	25.60	18.10	21.53	21.76	23.14
	190	24.49	24.49	26.45	**26.24**	25.67	18.53	21.40	22.16	23.55
	251	24.35	24.35	26.53	**26.44**	25.53	18.59	21.52	22.16	23.31
GSM 1900	512	21.51	21.51	23.45	**23.16**	22.69	17.17	20.18	21.21	22.69
	661	21.60	21.50	23.64	**23.38**	22.48	17.47	20.48	21.40	22.66
	810	21.57	21.57	23.28	**23.14**	22.63	17.07	20.28	21.30	22.40
GSM 850	**Frame Avg.Targets:**	24.17	24.17	26.18	**25.94**	25.19	18.17	21.18	21.94	23.19
GSM 1900		21.17	21.17	23.18	**22.94**	22.19	17.17	20.18	20.94	22.19

Note:

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

GSM Class: B
GPRS Multislot class: 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

9.3 UMTS Conducted Powers

Table 9-3
Maximum Conducted Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			AWS Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	1312	1412	1513	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	25.50	25.42	25.45	24.68	24.48	24.68	24.70	24.60	24.63	-
99		12.2 kbps AMR	25.42	25.33	25.40	24.68	24.57	24.62	24.67	24.70	24.65	-
6	HSDPA	Subtest 1	25.37	25.40	25.50	24.61	24.66	24.68	24.69	24.67	24.67	0
6		Subtest 2	25.46	25.49	25.45	24.66	24.70	24.63	24.65	24.69	24.67	0
6		Subtest 3	24.98	24.92	24.95	24.13	24.18	24.20	24.18	24.18	24.11	0.5
6		Subtest 4	24.99	25.00	24.98	24.20	24.16	24.13	24.17	24.13	24.15	0.5
6	HSUPA	Subtest 1	24.59	24.58	24.64	24.60	24.66	24.63	24.58	24.61	24.64	0
6		Subtest 2	22.97	22.84	22.91	22.64	22.70	22.62	22.69	22.68	22.57	2
6		Subtest 3	23.97	23.97	23.99	23.61	23.67	23.64	23.51	23.58	23.66	1
6		Subtest 4	23.09	22.91	23.02	22.70	22.57	22.48	22.57	22.65	22.54	2
6		Subtest 5	24.53	24.65	24.62	24.68	24.57	24.55	24.65	24.63	24.54	0

This device does not support DC-HSDPA.

Figure 9-3
Power Measurement Setup

9.4 LTE Conducted Powers

9.4.1 LTE Band 12

Table 9-4
LTE Band 12 Conducted Powers - 10 MHz Bandwidth

LTE Band 12 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23095 (707.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**25.46**	0	0
	1	25	25.29		0
	1	49	25.35		0
	25	0	24.37	0-1	1
	25	12	24.43		1
	25	25	**24.48**		1
	50	0	24.43		1
16QAM	1	0	24.49	0-1	1
	1	25	24.31		1
	1	49	24.41		1
	25	0	23.47	0-2	2
	25	12	23.50		2
	25	25	23.44		2
	50	0	23.48		2
64QAM	1	0	23.47	0-2	2
	1	25	23.22		2
	1	49	23.30		2
	25	0	22.37	0-3	3
	25	12	22.40		3
	25	25	22.41		3
	50	0	22.39		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 9-5
LTE Band 12 Conducted Powers - 5 MHz Bandwidth

LTE Band 12 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23035 (701.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23155 (713.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.21	25.28	25.29	0	0
	1	12	25.34	25.33	25.30		0
	1	24	25.20	25.35	25.25		0
	12	0	24.32	24.32	24.19	0-1	1
	12	6	24.31	24.36	24.21		1
	12	13	24.25	24.41	24.24		1
	25	0	24.24	24.35	24.23		1
16QAM	1	0	24.30	24.43	24.33	0-1	1
	1	12	24.41	24.39	24.41		1
	1	24	24.38	24.40	24.37		1
	12	0	23.47	23.39	23.28	0-2	2
	12	6	23.42	23.42	23.32		2
	12	13	23.38	23.48	23.32		2
	25	0	23.34	23.35	23.25		2
64QAM	1	0	23.22	23.35	23.33	0-2	2
	1	12	23.39	23.27	23.35		2
	1	24	23.22	23.24	23.28		2
	12	0	22.35	22.24	22.15	0-3	3
	12	6	22.35	22.34	22.27		3
	12	13	22.32	22.34	22.22		3
	25	0	22.26	22.21	22.18		3

Table 9-6
LTE Band 12 Conducted Powers - 3 MHz Bandwidth

LTE Band 12 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23025 (700.5 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23165 (714.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.33	25.25	25.09	0	0
	1	7	25.42	25.34	25.15		0
	1	14	25.41	25.32	25.15		0
	8	0	24.27	24.31	24.22	0-1	1
	8	4	24.37	24.37	24.23		1
	8	7	24.37	24.38	24.25		1
	15	0	24.32	24.40	24.22		1
16QAM	1	0	24.38	24.32	24.09	0-1	1
	1	7	24.44	24.47	24.23		1
	1	14	24.33	24.39	24.10		1
	8	0	23.37	23.34	23.37	0-2	2
	8	4	23.48	23.40	23.35		2
	8	7	23.46	23.43	23.37		2
	15	0	23.43	23.37	23.33		2
64QAM	1	0	23.32	23.17	23.04	0-2	2
	1	7	23.33	23.33	23.21		2
	1	14	23.20	23.23	22.96		2
	8	0	22.34	22.22	22.34	0-3	3
	8	4	22.39	22.37	22.27		3
	8	7	22.38	22.30	22.27		3
	15	0	22.42	22.32	22.29		3

Table 9-7
LTE Band 12 Conducted Powers -1.4 MHz Bandwidth

LTE Band 12 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 23017 (699.7 MHz)	Mid Channel 23095 (707.5 MHz)	High Channel 23173 (715.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.24	25.32	25.38	0	0
	1	2	25.28	25.34	25.19		0
	1	5	25.31	25.31	25.13		0
	3	0	25.42	25.34	25.18		0
	3	2	25.42	25.36	25.14		0
	3	3	25.36	25.36	25.16		0
	6	0	24.27	24.26	24.09	0-1	1
16QAM	1	0	24.36	24.34	24.25	0-1	1
	1	2	24.47	24.47	24.37		1
	1	5	24.40	24.40	24.25		1
	3	0	24.35	24.31	24.32		1
	3	2	24.38	24.31	24.31		1
	3	3	24.49	24.46	24.33		1
	6	0	23.24	23.41	23.26	0-2	2
64QAM	1	0	23.28	23.19	23.15	0-2	2
	1	2	23.45	23.32	23.31		2
	1	5	23.26	23.35	23.17		2
	3	0	23.22	23.19	23.23		2
	3	2	23.37	23.30	23.23		2
	3	3	23.44	23.35	23.31		2
	6	0	22.19	22.36	22.26	0-3	3

9.4.2 LTE Band 13

Table 9-8
LTE Band 13 Conducted Powers - 10 MHz Bandwidth

LTE Band 13 10 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	24.70	0	0
	1	25	**25.10**		0
	1	49	24.64		0
	25	0	24.04	0-1	1
	25	12	24.03		1
	25	25	**24.19**		1
	50	0	24.01		1
16QAM	1	0	23.68	0-1	1
	1	25	24.03		1
	1	49	23.64		1
	25	0	23.03	0-2	2
	25	12	23.03		2
	25	25	23.16		2
	50	0	23.12		2
64QAM	1	0	22.64	0-2	2
	1	25	23.01		2
	1	49	22.64		2
	25	0	21.99	0-3	3
	25	12	21.96		3
	25	25	22.13		3
	50	0	22.07		3

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

LTE Band 13 5 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 23230 (782.0 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	25.01	0	0
	1	12	25.01		0
	1	24	25.01		0
	12	0	24.12	0-1	1
	12	6	24.12		1
	12	13	24.06		1
	25	0	24.13		1
16QAM	1	0	24.15	0-1	1
	1	12	24.11		1
	1	24	24.12		1
	12	0	23.20	0-2	2
	12	6	23.20		2
	12	13	23.10		2
	25	0	23.14		2
64QAM	1	0	22.98	0-2	2
	1	12	23.03		2
	1	24	23.10		2
	12	0	22.07	0-3	3
	12	6	22.11		3
	12	13	22.08		3
	25	0	22.08		3

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

9.4.3 LTE Band 26 (Cell)

Table 9-10
LTE Band 26 (Cell) Conducted Powers - 15 MHz Bandwidth

LTE Band 26 (Cell) 15 MHz Bandwidth					
Modulation	RB Size	RB Offset	Mid Channel 26865 (831.5 MHz) Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
QPSK	1	0	**25.43**	0	0
	1	36	25.23		0
	1	74	25.22		0
	36	0	**24.39**	0-1	1
	36	18	24.28		1
	36	37	24.25		1
	75	0	24.34		1
16QAM	1	0	24.34	0-1	1
	1	36	24.37		1
	1	74	24.49		1
	36	0	23.25	0-2	2
	36	18	23.27		2
	36	37	23.21		2
	75	0	23.31		2
64QAM	1	0	23.24	0-2	2
	1	36	23.27		2
	1	74	23.38		2
	36	0	22.12	0-3	3
	36	18	22.12		3
	36	37	22.21		3
	75	0	22.23		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 9-11
LTE Band 26 (Cell) Conducted Powers - 10 MHz Bandwidth

LTE Band 26 (Cell) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26740 (819.0 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 26990 (844.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.41	25.49	25.40	0	0
	1	25	25.36	25.30	25.16		0
	1	49	25.44	25.47	25.07		0
	25	0	24.39	24.48	24.38	0-1	1
	25	12	24.48	24.45	24.36		1
	25	25	24.48	24.44	24.40		1
	50	0	24.33	24.48	24.48		1
16QAM	1	0	24.45	24.45	24.43	0-1	1
	1	25	24.44	24.31	24.14		1
	1	49	24.42	24.42	24.05		1
	25	0	23.35	23.37	23.38	0-2	2
	25	12	23.47	23.42	23.29		2
	25	25	23.43	23.42	23.39		2
	50	0	23.45	23.42	23.45		2
64QAM	1	0	23.32	23.33	23.32	0-2	2
	1	25	23.31	23.24	23.13		2
	1	49	23.40	23.40	23.04		2
	25	0	22.19	22.26	22.26	0-3	3
	25	12	22.37	22.34	22.27		3
	25	25	22.43	22.39	22.28		3
	50	0	22.45	22.28	22.44		3

Table 9-12
LTE Band 26 (Cell) Conducted Powers - 5 MHz Bandwidth

LTE Band 26 (Cell) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26715 (816.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27015 (846.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.05	25.43	25.36	0	0
	1	12	25.21	25.38	25.34		0
	1	24	25.33	25.43	25.18		0
	12	0	24.40	24.32	24.33	0-1	1
	12	6	24.47	24.41	24.30		1
	12	13	24.36	24.38	24.29		1
	25	0	24.41	24.32	24.28		1
16QAM	1	0	24.44	24.48	24.48	0-1	1
	1	12	24.41	24.44	24.47		1
	1	24	24.45	24.45	24.26		1
	12	0	23.32	23.41	23.41	0-2	2
	12	6	23.44	23.49	23.41		2
	12	13	23.49	23.48	23.33		2
	25	0	23.48	23.33	23.31		2
64QAM	1	0	23.34	23.36	23.42	0-2	2
	1	12	23.24	23.41	23.37		2
	1	24	23.42	23.32	23.17		2
	12	0	22.20	22.29	22.37	0-3	3
	12	6	22.39	22.36	22.24		3
	12	13	22.47	22.39	22.31		3
	25	0	22.43	22.29	22.29		3

Table 9-13
LTE Band 26 (Cell) Conducted Powers - 3 MHz Bandwidth

LTE Band 26 (Cell) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26705 (815.5 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27025 (847.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.24	25.41	25.29	0	0
	1	7	25.36	25.39	25.24		0
	1	14	25.32	25.38	25.15		0
	8	0	24.18	24.42	24.28	0-1	1
	8	4	24.29	24.42	24.21		1
	8	7	24.38	24.42	24.10		1
	15	0	24.28	24.37	24.21		1
16QAM	1	0	24.30	24.39	24.19	0-1	1
	1	7	24.42	24.42	24.18		1
	1	14	24.40	24.38	24.05		1
	8	0	23.30	23.46	23.37	0-2	2
	8	4	23.43	23.47	23.33		2
	8	7	23.43	23.45	23.24		2
	15	0	23.40	23.34	23.27		2
64QAM	1	0	23.18	23.36	23.10	0-2	2
	1	7	23.35	23.33	23.05		2
	1	14	23.38	23.37	22.95		2
	8	0	22.30	22.39	22.31	0-3	3
	8	4	22.39	22.36	22.19		3
	8	7	22.34	22.29	22.09		3
	15	0	22.25	22.28	22.16		3

Table 9-14
LTE Band 26 (Cell) Conducted Powers -1.4 MHz Bandwidth

LTE Band 26 (Cell) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26697 (814.7 MHz)	Mid Channel 26865 (831.5 MHz)	High Channel 27033 (848.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	25.29	25.33	25.24	0	0
	1	2	25.31	25.34	25.19		0
	1	5	25.25	25.31	25.03		0
	3	0	25.29	25.36	25.12		0
	3	2	25.35	25.33	25.10		0
	3	3	25.33	25.31	25.00		0
	6	0	24.29	24.30	24.06	0-1	1
16QAM	1	0	24.42	24.27	24.29	0-1	1
	1	2	24.49	24.38	24.27		1
	1	5	24.42	24.34	24.11		1
	3	0	24.46	24.49	24.19		1
	3	2	24.33	24.48	24.17		1
	3	3	24.50	24.41	24.09		1
	6	0	23.21	23.47	23.22	0-2	2
64QAM	1	0	23.33	23.20	23.20	0-2	2
	1	2	23.34	23.34	23.12		2
	1	5	23.41	23.31	22.96		2
	3	0	23.33	23.38	23.14		2
	3	2	23.22	23.36	23.13		2
	3	3	23.43	23.25	23.08		2
	6	0	22.13	22.47	22.17	0-3	3

9.4.4 LTE Band 66 (AWS)

Table 9-15
LTE Band 66 (AWS) Conducted Powers - 20 MHz Bandwidth

LTE Band 66 (AWS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132072 (1720.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132572 (1770.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	**24.42**	24.12	24.34	0	0
	1	50	24.22	24.28	24.23		0
	1	99	23.94	23.99	24.00		0
	50	0	**23.40**	23.34	23.29	0-1	1
	50	25	23.08	23.28	23.20		1
	50	50	23.19	23.15	23.14		1
	100	0	23.27	23.26	23.28		1
16QAM	1	0	23.22	23.35	23.36	0-1	1
	1	50	23.41	23.45	23.32		1
	1	99	23.47	23.49	23.35		1
	50	0	22.37	22.40	22.32	0-2	2
	50	25	22.28	22.39	22.40		2
	50	50	22.40	22.25	22.38		2
	100	0	22.27	22.43	22.37		2
64QAM	1	0	22.25	22.24	22.31	0-2	2
	1	50	22.32	22.26	22.30		2
	1	99	22.37	22.30	22.36		2
	50	0	21.36	21.39	21.41	0-3	3
	50	25	21.25	21.38	21.31		3
	50	50	21.24	21.07	21.08		3
	100	0	21.18	21.37	21.24		3

Table 9-16
LTE Band 66 (AWS) Conducted Powers - 15 MHz Bandwidth

LTE Band 66 (AWS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132047 (1717.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132597 (1772.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.41	24.34	24.22	0	0
	1	36	24.39	24.31	24.48		0
	1	74	24.30	24.32	24.19		0
	36	0	23.23	23.35	23.36	0-1	1
	36	18	23.38	23.45	23.37		1
	36	37	23.36	23.35	23.23		1
	75	0	23.42	23.30	23.25		1
16QAM	1	0	23.31	23.41	23.21	0-1	1
	1	36	23.36	23.44	23.41		1
	1	74	23.44	23.32	23.31		1
	36	0	22.44	22.42	22.21	0-2	2
	36	18	22.42	22.38	22.28		2
	36	37	22.20	22.21	22.24		2
	75	0	22.26	22.31	22.29		2
64QAM	1	0	22.19	22.15	22.14	0-2	2
	1	36	22.22	22.31	22.32		2
	1	74	22.37	22.21	22.20		2
	36	0	21.35	21.23	21.15	0-3	3
	36	18	21.22	21.17	21.17		3
	36	37	21.18	21.09	21.20		3
	75	0	21.15	21.16	21.25		3

Table 9-17
LTE Band 66 (AWS) Conducted Powers - 10 MHz Bandwidth

LTE Band 66 (AWS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 132022 (1715.0 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132622 (1775.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.19	24.23	24.24	0	0
	1	25	24.20	24.14	24.18		0
	1	49	24.25	24.17	24.17		0
	25	0	23.27	23.31	23.32	0-1	1
	25	12	23.30	23.44	23.32		1
	25	25	23.19	23.25	23.29		1
	50	0	23.28	23.26	23.21		1
16QAM	1	0	23.30	23.33	23.34	0-1	1
	1	25	23.33	23.29	23.19		1
	1	49	23.25	23.24	23.23		1
	25	0	22.22	22.32	22.30	0-2	2
	25	12	22.33	22.28	22.27		2
	25	25	22.19	22.17	22.28		2
	50	0	22.27	22.15	22.31		2
64QAM	1	0	22.22	22.32	22.27	0-2	2
	1	25	22.40	22.13	22.09		2
	1	49	22.28	22.15	22.05		2
	25	0	21.17	21.16	21.14	0-3	3
	25	12	21.22	21.17	21.11		3
	25	25	21.11	21.17	21.22		3
	50	0	21.18	21.14	21.23		3

Table 9-18
LTE Band 66 (AWS) Conducted Powers - 5 MHz Bandwidth

LTE Band 66 (AWS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131997 (1712.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132647 (1777.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.29	24.35	24.37	0	0
	1	12	24.16	24.19	24.26		0
	1	24	24.25	24.41	24.32		0
	12	0	23.13	23.29	23.20	0-1	1
	12	6	23.21	23.32	23.21		1
	12	13	23.22	23.33	23.26		1
	25	0	23.13	23.06	23.15		1
16QAM	1	0	23.32	23.33	23.31	0-1	1
	1	12	23.21	23.19	23.41		1
	1	24	23.26	23.31	23.46		1
	12	0	22.36	22.41	22.34	0-2	2
	12	6	22.36	22.16	22.36		2
	12	13	22.39	22.29	22.24		2
	25	0	22.35	22.10	22.33		2
64QAM	1	0	22.19	22.19	22.15	0-2	2
	1	12	22.03	22.26	22.30		2
	1	24	22.29	22.21	22.34		2
	12	0	21.44	21.27	21.37	0-3	3
	12	6	21.31	21.18	21.19		3
	12	13	21.27	21.09	21.34		3
	25	0	21.26	21.07	21.08		3

Table 9-19
LTE Band 66 (AWS) Conducted Powers - 3 MHz Bandwidth

LTE Band 66 (AWS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131987 (1711.5 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132657 (1778.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.19	24.27	24.21	0	0
	1	7	24.32	24.35	24.31		0
	1	14	24.23	24.14	24.20		0
	8	0	23.20	23.27	23.45	0-1	1
	8	4	23.26	23.25	23.37		1
	8	7	23.19	23.15	23.28		1
	15	0	23.23	23.30	23.31		1
16QAM	1	0	23.26	23.28	23.27	0-1	1
	1	7	23.32	23.30	23.38		1
	1	14	23.33	23.29	23.16		1
	8	0	22.34	22.44	22.38	0-2	2
	8	4	22.37	22.23	22.35		2
	8	7	22.22	22.21	22.37		2
	15	0	22.35	22.15	22.40		2
64QAM	1	0	22.12	22.17	22.24	0-2	2
	1	7	22.35	22.30	22.35		2
	1	14	22.25	22.08	22.08		2
	8	0	21.29	21.32	21.27	0-3	3
	8	4	21.05	21.12	21.30		3
	8	7	21.11	21.06	21.30		3
	15	0	21.10	21.05	21.40		3

Table 9-20
LTE Band 66 (AWS) Conducted Powers -1.4 MHz Bandwidth

LTE Band 66 (AWS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 131979 (1710.7 MHz)	Mid Channel 132322 (1745.0 MHz)	High Channel 132665 (1779.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.28	24.34	24.39	0	0
	1	2	24.26	24.26	24.30		0
	1	5	24.20	24.29	24.29		0
	3	0	24.22	24.42	24.22		0
	3	2	24.33	24.39	24.39		0
	3	3	24.28	24.41	24.28		0
	6	0	23.27	23.33	23.28	0-1	1
16QAM	1	0	23.26	23.31	23.36	0-1	1
	1	2	23.24	23.26	23.23		1
	1	5	23.45	23.15	23.35		1
	3	0	23.30	23.12	23.41		1
	3	2	23.37	23.45	23.32		1
	3	3	23.34	23.40	23.26		1
	6	0	22.12	22.24	22.35	0-2	2
64QAM	1	0	22.16	22.08	22.37	0-2	2
	1	2	22.36	22.18	22.09		2
	1	5	22.40	22.09	22.28		2
	3	0	22.11	21.94	22.39		2
	3	2	22.28	22.35	22.25		2
	3	3	22.15	22.27	22.08		2
	6	0	21.17	21.15	21.22	0-3	3

9.4.5 LTE Band 25 (PCS)

Table 9-21
LTE Band 25 (PCS) Conducted Powers - 20 MHz Bandwidth

LTE Band 25 (PCS) 20 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26140 (1860.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26590 (1905.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.32	**24.40**	24.27	0	0
	1	50	24.06	24.16	24.07		0
	1	99	24.27	24.38	24.20		0
	50	0	23.22	23.26	23.21	0-1	1
	50	25	23.27	23.24	23.23		1
	50	50	23.27	**23.41**	23.32		1
	100	0	23.40	23.25	23.24		1
16QAM	1	0	23.28	23.48	23.35	0-1	1
	1	50	23.47	23.39	23.34		1
	1	99	23.35	23.32	23.33		1
	50	0	22.38	22.42	22.30	0-2	2
	50	25	22.18	22.24	22.33		2
	50	50	22.43	22.40	22.28		2
	100	0	22.31	22.37	22.23		2
64QAM	1	0	22.16	22.42	22.22	0-2	2
	1	50	22.34	22.33	22.26		2
	1	99	22.30	22.19	22.28		2
	50	0	21.20	21.28	21.11	0-3	3
	50	25	21.30	21.11	21.24		3
	50	50	21.15	21.26	21.16		3
	100	0	21.29	21.19	21.20		3

Table 9-22
LTE Band 25 (PCS) Conducted Powers - 15 MHz Bandwidth

LTE Band 25 (PCS) 15 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26115 (1857.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26615 (1907.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.25	24.38	24.30	0	0
	1	36	24.09	24.02	24.10		0
	1	74	24.29	24.36	24.21		0
	36	0	23.34	23.34	23.21	0-1	1
	36	18	23.30	23.15	23.23		1
	36	37	23.29	23.17	23.14		1
	75	0	23.37	23.20	23.26		1
16QAM	1	0	23.35	23.36	23.42	0-1	1
	1	36	23.35	23.30	22.97		1
	1	74	23.32	23.34	23.23		1
	36	0	22.33	22.34	22.25	0-2	2
	36	18	22.20	22.19	22.28		2
	36	37	22.30	22.24	22.17		2
	75	0	22.38	22.17	22.32		2
64QAM	1	0	22.21	22.36	22.28	0-2	2
	1	36	22.27	22.18	21.94		2
	1	74	22.27	22.18	22.12		2
	36	0	21.22	21.15	21.13	0-3	3
	36	18	21.26	20.99	21.19		3
	36	37	21.15	21.04	21.20		3
	75	0	21.23	21.15	21.19		3

Table 9-23
LTE Band 25 (PCS) Conducted Powers - 10 MHz Bandwidth

LTE Band 25 (PCS) 10 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26090 (1855.0 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26640 (1910.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.40	24.37	24.17	0	0
	1	25	24.34	24.10	24.18		0
	1	49	24.31	24.23	24.10		0
	25	0	23.44	23.40	23.24	0-1	1
	25	12	23.43	23.31	23.19		1
	25	25	23.29	23.29	23.11		1
	50	0	23.38	23.25	23.17		1
16QAM	1	0	23.34	23.46	23.09	0-1	1
	1	25	23.25	23.30	22.95		1
	1	49	23.41	23.21	23.01		1
	25	0	22.21	22.24	22.14	0-2	2
	25	12	22.22	22.46	22.20		2
	25	25	22.39	22.37	22.12		2
	50	0	22.29	22.42	22.21		2
64QAM	1	0	22.33	22.42	21.97	0-2	2
	1	25	22.16	22.19	21.93		2
	1	49	22.21	22.23	21.95		2
	25	0	21.12	21.23	20.94	0-3	3
	25	12	21.25	21.30	21.11		3
	25	25	21.17	21.27	20.95		3
	50	0	21.35	21.26	21.09		3

Table 9-24
LTE Band 25 (PCS) Conducted Powers - 5 MHz Bandwidth

LTE Band 25 (PCS) 5 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26065 (1852.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26665 (1912.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.32	24.48	24.30	0	0
	1	12	24.27	24.31	24.32		0
	1	24	24.26	24.21	24.27		0
	12	0	23.33	23.29	23.16	0-1	1
	12	6	23.30	23.27	23.18		1
	12	13	23.32	23.20	23.11		1
	25	0	23.27	23.31	23.15		1
16QAM	1	0	23.25	23.40	23.43	0-1	1
	1	12	23.27	23.40	23.25		1
	1	24	23.31	23.23	23.38		1
	12	0	22.37	22.40	22.24	0-2	2
	12	6	22.28	22.39	22.37		2
	12	13	22.28	22.30	22.24		2
	25	0	22.38	22.26	22.12		2
64QAM	1	0	22.32	22.32	22.42	0-2	2
	1	12	22.23	22.28	22.24		2
	1	24	22.21	22.22	22.23		2
	12	0	21.32	21.40	21.15	0-3	3
	12	6	21.14	21.27	21.31		3
	12	13	21.17	21.19	21.10		3
	25	0	21.18	21.10	21.08		3

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

LTE Band 25 (PCS) 3 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26055 (1851.5 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26675 (1913.5 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.42	24.31	24.00	0	0
	1	7	24.35	24.35	24.19		0
	1	14	24.19	24.10	24.04		0
	8	0	23.20	23.32	23.23	0-1	1
	8	4	23.31	23.28	23.14		1
	8	7	23.21	23.27	23.14		1
	15	0	23.27	23.20	23.12		1
16QAM	1	0	23.32	23.33	23.01	0-1	1
	1	7	23.39	23.35	23.14		1
	1	14	23.30	23.14	22.94		1
	8	0	22.28	22.29	22.38	0-2	2
	8	4	22.38	22.32	22.26		2
	8	7	22.25	22.20	22.25		2
	15	0	22.30	22.27	22.16		2
64QAM	1	0	22.22	22.25	21.81	0-2	2
	1	7	22.28	22.26	22.01		2
	1	14	22.28	22.08	21.93		2
	8	0	21.19	21.22	21.27	0-3	3
	8	4	21.23	21.33	21.16		3
	8	7	21.21	21.18	21.09		3
	15	0	21.25	21.21	21.14		3

Table 9-26
LTE Band 25 (PCS) Conducted Powers -1.4 MHz Bandwidth

LTE Band 25 (PCS) 1.4 MHz Bandwidth							
Modulation	RB Size	RB Offset	Low Channel 26047 (1850.7 MHz)	Mid Channel 26365 (1882.5 MHz)	High Channel 26683 (1914.3 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]				
QPSK	1	0	24.25	24.10	24.11	0	0
	1	2	24.25	24.13	24.17		0
	1	5	24.21	24.15	24.12		0
	3	0	24.24	24.19	24.19		0
	3	2	24.34	24.27	24.23		0
	3	3	24.27	24.19	24.16		0
	6	0	23.10	23.22	22.96	0-1	1
16QAM	1	0	23.27	23.32	23.24	0-1	1
	1	2	23.34	23.22	23.18		1
	1	5	23.32	23.21	23.24		1
	3	0	23.22	23.37	23.21		1
	3	2	23.38	23.39	23.26		1
	3	3	23.42	23.46	23.20		1
	6	0	22.28	22.33	22.20	0-2	2
64QAM	1	0	22.18	22.06	22.04	0-2	2
	1	2	22.28	22.22	22.09		2
	1	5	22.15	22.16	22.20		2
	3	0	22.10	22.26	21.96		2
	3	2	22.22	22.25	22.09		2
	3	3	22.17	22.32	22.11		2
	6	0	21.32	21.26	21.07	0-3	3

9.4.6 LTE Band 41

Table 9-27
LTE Band 41 PC3 Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel 39750 (2506.0 MHz)	Low-Mid Channel 40185 (2549.5 MHz)	Mid Channel 40620 (2593.0 MHz)	Mid-High Channel 41055 (2636.5 MHz)	High Channel 41490 (2680.0 MHz)	MPR Allowed per 3GPP [dB]	MPR [dB]
			Conducted Power [dBm]						
QPSK	1	0	25.13	25.10	**25.14**	25.13	24.98	0	0
	1	50	25.10	25.06	24.98	25.07	25.11		0
	1	99	25.12	25.05	25.13	24.82	25.07		0
	50	0	24.12	24.13	**24.20**	24.10	24.01	0-1	1
	50	25	24.13	24.06	24.01	24.19	24.17		1
	50	50	24.12	23.98	24.09	24.04	**24.20**		1
	100	0	24.08	24.09	24.13	24.12	24.11		1
16QAM	1	0	24.19	24.20	24.18	24.17	24.15	0-1	1
	1	50	24.09	24.14	24.15	24.14	24.20		1
	1	99	24.11	24.14	24.11	24.06	24.12		1
	50	0	23.05	23.05	23.09	23.16	23.15	0-2	2
	50	25	23.16	23.03	23.01	23.08	23.20		2
	50	50	23.12	23.06	23.07	23.01	23.11		2
	100	0	23.13	23.04	23.10	23.19	23.19		2
64QAM	1	0	23.00	23.03	23.15	23.06	23.14	0-2	2
	1	50	23.02	23.07	23.06	23.09	23.13		2
	1	99	23.09	23.19	22.95	22.94	23.11		2
	50	0	21.96	22.03	21.91	22.06	22.08	0-3	3
	50	25	22.07	21.93	21.91	21.98	22.15		3
	50	50	22.08	21.89	21.96	21.85	21.93		3
	100	0	22.08	21.90	22.14	22.06	22.06		3

Table 9-28
LTE Band 41 PC3 Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	25.14	25.08	25.20	25.16	25.12	0	0
	1	36	25.20	25.10	24.97	25.01	25.05		0
	1	74	25.19	25.17	25.14	24.84	25.11		0
	36	0	24.15	24.10	24.20	24.00	24.05	0-1	1
	36	18	24.20	24.11	23.92	24.20	23.96		1
	36	37	24.05	24.15	24.11	24.03	24.04		1
	75	0	24.07	24.09	24.10	24.03	23.84		1
16QAM	1	0	24.13	24.14	24.17	24.19	24.17	0-1	1
	1	36	24.19	24.19	24.03	24.14	24.02		1
	1	74	24.13	24.14	24.17	24.08	24.13		1
	36	0	23.09	23.11	23.19	23.03	22.99	0-2	2
	36	18	23.10	23.19	23.18	22.98	23.02		2
	36	37	23.14	23.17	23.17	23.13	22.99		2
	75	0	23.20	23.10	23.08	23.10	23.07		2
64QAM	1	0	23.09	23.10	23.12	23.01	23.00	0-2	2
	1	36	23.10	23.17	22.83	23.18	22.88		2
	1	74	23.02	23.06	23.17	22.94	22.94		2
	36	0	22.00	21.91	22.16	21.95	21.81	0-3	3
	36	18	21.91	22.08	22.12	21.88	21.96		3
	36	37	22.01	22.12	22.19	22.00	21.82		3
	75	0	22.20	21.96	22.07	22.07	21.90		3

Table 9-29
LTE Band 41 PC3 Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	25.09	25.12	25.19	25.00	25.06	0	0
	1	25	25.18	24.96	25.00	24.92	25.03		0
	1	49	24.98	25.00	25.01	24.97	24.98		0
	25	0	24.02	24.17	24.12	24.04	24.03	0-1	1
	25	12	24.03	24.16	24.16	24.18	23.99		1
	25	25	23.98	24.07	24.19	24.03	24.18		1
	50	0	24.11	24.07	24.18	24.01	24.04		1
16QAM	1	0	24.04	24.14	24.10	24.13	24.13	0-1	1
	1	25	24.08	23.99	24.11	24.07	24.12		1
	1	49	24.14	24.15	24.12	24.01	24.13		1
	25	0	23.11	23.13	23.13	23.07	23.15	0-2	2
	25	12	23.09	23.13	23.10	23.12	23.06		2
	25	25	23.15	23.03	23.09	23.11	23.07		2
	50	0	23.12	23.16	23.19	23.05	23.10		2
64QAM	1	0	23.03	22.97	23.07	23.10	23.01	0-2	2
	1	25	22.99	22.87	22.98	22.93	23.03		2
	1	49	23.12	23.01	23.08	22.98	22.97		2
	25	0	22.15	22.00	22.08	22.06	22.15	0-3	3
	25	12	21.98	21.95	22.05	22.11	21.96		3
	25	25	22.10	21.86	22.09	22.11	21.98		3
	50	0	22.04	22.13	22.15	21.94	22.02		3

Table 9-30
LTE Band 41 PC3 Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	25.18	25.14	25.13	25.01	25.01	0	0
	1	12	25.10	25.04	25.06	24.95	24.93		0
	1	24	25.12	24.91	25.06	24.81	24.84		0
	12	0	24.04	24.00	23.99	24.12	24.03	0-1	1
	12	6	24.09	24.02	24.13	24.18	24.04		1
	12	13	23.94	24.03	24.05	24.13	23.92		1
	25	0	24.14	24.07	24.18	24.18	23.96		1
16QAM	1	0	24.08	24.15	23.97	24.20	24.06	0-1	1
	1	12	23.97	24.10	24.05	24.12	24.08		1
	1	24	24.17	24.17	24.00	24.11	24.09		1
	12	0	23.09	23.04	23.00	23.09	23.07	0-2	2
	12	6	23.13	23.17	23.02	22.93	23.14		2
	12	13	23.01	23.11	23.20	22.89	23.17		2
	25	0	23.16	23.13	23.12	23.07	23.01		2
64QAM	1	0	22.90	23.00	22.95	23.04	22.88	0-2	2
	1	12	22.96	22.92	22.93	23.18	23.04		2
	1	24	23.03	23.08	22.93	22.91	23.05		2
	12	0	22.07	21.94	21.85	21.93	22.01	0-3	3
	12	6	21.97	22.06	21.82	21.83	22.08		3
	12	13	21.90	22.02	22.09	21.74	22.06		3
	25	0	22.08	22.05	22.18	22.02	21.87		3

Table 9-31
LTE Band 41 PC2 Conducted Powers - 20 MHz Bandwidth

LTE Band 41 20 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	27.04	27.19	27.13	27.20	26.93	0	0
	1	50	27.02	27.06	27.03	27.06	27.17		0
	1	99	27.12	27.13	27.17	26.90	27.11		0
	50	0	26.11	26.15	26.19	26.18	26.06	0-1	1
	50	25	26.11	26.14	26.06	26.18	26.15		1
	50	50	26.12	26.00	26.17	26.00	26.18		1
	100	0	26.17	26.05	26.04	26.09	26.10		1
16QAM	1	0	26.19	26.18	26.18	26.15	26.14	0-1	1
	1	50	26.12	26.10	26.08	26.16	26.19		1
	1	99	26.12	26.10	26.19	26.00	26.12		1
	50	0	25.13	25.13	25.04	25.16	25.11	0-2	2
	50	25	25.07	25.02	25.04	25.12	25.19		2
	50	50	25.10	25.05	25.11	25.08	25.12		2
	100	0	25.17	25.03	25.18	25.14	25.11		2
64QAM	1	0	25.00	24.99	24.98	25.13	25.06	0-2	2
	1	50	25.06	24.93	25.03	25.14	25.12		2
	1	99	25.08	25.09	25.13	24.89	24.96		2
	50	0	24.06	24.05	23.95	24.09	24.02	0-3	3
	50	25	23.92	24.01	23.88	24.07	24.13		3
	50	50	24.06	23.95	23.98	23.96	24.09		3
	100	0	24.05	23.85	24.10	24.02	24.05		3

Table 9-32
LTE Band 41 PC2 Conducted Powers - 15 MHz Bandwidth

LTE Band 41 15 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	27.12	27.17	27.18	27.12	27.08	0	0
	1	36	27.16	27.18	27.09	26.99	27.14		0
	1	74	27.11	27.07	27.15	26.90	27.07		0
	36	0	26.11	26.10	26.12	26.03	26.12	0-1	1
	36	18	26.19	26.18	26.00	26.12	26.01		1
	36	37	26.07	26.13	26.04	26.04	26.03		1
	75	0	26.05	26.12	26.07	26.04	25.94		1
16QAM	1	0	26.16	26.19	26.16	26.19	26.17	0-1	1
	1	36	26.16	26.18	26.16	26.16	26.03		1
	1	74	26.17	26.13	26.16	26.08	26.15		1
	36	0	25.17	25.12	25.11	25.01	24.95	0-2	2
	36	18	25.13	25.19	25.19	25.03	25.04		2
	36	37	25.15	25.14	25.19	25.08	25.05		2
	75	0	25.15	25.15	25.18	25.06	25.16		2
64QAM	1	0	25.00	25.09	25.07	25.11	25.12	0-2	2
	1	36	25.12	24.99	25.12	25.02	24.98		2
	1	74	25.04	25.01	24.98	24.90	25.00		2
	36	0	24.04	23.94	24.00	23.84	23.78	0-3	3
	36	18	24.09	24.01	24.13	23.93	23.95		3
	36	37	24.08	24.11	24.05	23.99	24.03		3
	75	0	23.99	24.15	23.99	23.94	24.03		3

Table 9-33
LTE Band 41 PC2 Conducted Powers - 10 MHz Bandwidth

LTE Band 41 10 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	27.18	27.17	27.12	27.00	27.05	0	0
	1	25	27.11	27.05	26.98	26.95	26.99		0
	1	49	27.01	26.95	27.00	26.85	27.00		0
	25	0	26.04	26.13	26.17	26.10	26.14	0-1	1
	25	12	26.02	26.16	26.18	26.11	26.04		1
	25	25	25.95	26.01	26.16	26.01	26.15		1
	50	0	26.01	26.12	26.18	25.94	26.10		1
16QAM	1	0	26.06	26.02	26.08	26.16	26.13	0-1	1
	1	25	26.17	26.02	26.13	26.13	26.19		1
	1	49	26.19	26.09	26.13	26.03	26.16		1
	25	0	25.19	25.18	25.15	25.11	25.09	0-2	2
	25	12	25.16	25.12	25.09	25.13	25.06		2
	25	25	25.13	25.08	25.11	25.09	25.16		2
	50	0	25.16	25.18	25.20	25.08	25.15		2
64QAM	1	0	25.05	24.89	25.03	25.14	25.00	0-2	2
	1	25	25.01	24.93	25.03	24.95	25.11		2
	1	49	25.17	25.03	25.06	25.01	25.03		2
	25	0	24.01	24.17	24.04	24.04	24.01	0-3	3
	25	12	24.16	24.11	24.04	23.98	23.96		3
	25	25	24.00	23.91	23.93	23.93	24.02		3
	50	0	24.09	24.06	24.18	24.02	23.97		3

Table 9-34
LTE Band 41 PC2 Conducted Powers - 5 MHz Bandwidth

LTE Band 41 5 MHz Bandwidth									
Modulation	RB Size	RB Offset	Low Channel	Low-Mid Channel	Mid Channel	Mid-High Channel	High Channel	MPR Allowed per 3GPP [dB]	MPR [dB]
			39750 (2506.0 MHz)	40185 (2549.5 MHz)	40620 (2593.0 MHz)	41055 (2636.5 MHz)	41490 (2680.0 MHz)		
			Conducted Power [dBm]						
QPSK	1	0	27.19	27.11	27.11	26.91	27.14	0	0
	1	12	27.11	27.04	27.09	26.88	27.03		0
	1	24	27.07	26.93	27.02	26.84	26.90		0
	12	0	26.07	26.09	26.00	26.12	26.02	0-1	1
	12	6	26.02	26.11	26.13	26.15	26.07		1
	12	13	25.96	26.04	26.13	26.15	25.98		1
	25	0	26.04	26.05	26.10	26.15	26.04		1
16QAM	1	0	26.06	26.07	26.01	26.15	26.08	0-1	1
	1	12	26.00	26.09	26.05	26.14	26.16		1
	1	24	26.17	26.06	26.11	26.09	26.03		1
	12	0	25.04	25.05	25.02	25.02	25.12	0-2	2
	12	6	25.15	25.19	25.03	25.04	25.18		2
	12	13	25.11	25.18	25.16	24.91	25.07		2
	25	0	25.15	25.09	25.13	25.03	25.05		2
64QAM	1	0	24.88	24.98	24.83	25.12	25.05	0-2	2
	1	12	24.97	25.02	25.04	25.10	25.00		2
	1	24	25.00	24.91	25.02	25.00	24.85		2
	12	0	23.89	24.03	24.00	23.94	23.94	0-3	3
	12	6	24.07	24.03	23.87	23.85	24.16		3
	12	13	24.05	24.09	24.01	23.88	23.92		3
	25	0	23.98	24.03	24.11	23.96	23.98		3

9.5 WLAN Conducted Powers

Table 9-35
2.4 GHz WLAN Maximum Average RF Power – Ant 1

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ac
		Average	Average	Average	Average
2412	1	17.73	17.41	17.41	17.39
2437	6	17.69	17.38	17.34	17.28
2462	11	17.72	17.42	17.33	17.28

Table 9-36
2.4 GHz WLAN Maximum Average RF Power – Ant 2

2.4GHz Conducted Power [dBm]					
Freq [MHz]	Channel	IEEE Transmission Mode			
		802.11b	802.11g	802.11n	802.11ac
		Average	Average	Average	Average
2412	1	17.63	17.78	17.50	17.55
2437	6	17.81	17.80	17.58	17.58
2462	11	17.66	17.28	17.48	17.05

Table 9-37
5 GHz WLAN Maximum Average RF Power – Ant 1

5GHz (20MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
		Average	Average	Average
5180	36	17.71	17.56	17.43
5200	40	17.76	17.45	17.26
5220	44	17.68	17.51	17.34
5240	48	17.82	17.64	17.65
5260	52	17.73	17.50	17.45
5280	56	17.70	17.54	17.52
5300	60	17.72	17.46	17.43
5320	64	17.78	17.48	17.32
5500	100	16.97	16.75	16.73
5600	120	16.96	16.73	16.78
5620	124	16.99	16.72	16.80
5720	144	16.52	16.32	16.33
5745	149	16.47	16.35	16.34
5785	157	16.44	16.32	16.36
5825	165	16.48	16.36	16.39

Table 9-38
5 GHz WLAN Maximum Average RF Power – Ant 2

5GHz (20MHz) Conducted Power [dBm]				
Freq [MHz]	Channel	IEEE Transmission Mode		
		802.11a	802.11n	802.11ac
		Average	Average	Average
5180	36	17.68	17.48	17.12
5200	40	17.71	17.54	17.33
5220	44	17.67	17.51	17.27
5240	48	17.81	17.43	17.56
5260	52	17.61	17.65	17.47
5280	56	17.67	17.67	17.62
5300	60	17.54	17.78	17.76
5320	64	17.68	17.54	17.62
5500	100	16.98	16.94	16.90
5600	120	16.99	16.89	16.84
5620	124	16.94	16.90	16.82
5720	144	16.85	16.68	16.55
5745	149	16.48	16.48	16.48
5785	157	16.49	16.43	16.41
5825	165	16.40	16.49	16.49

Table 9-39
5 GHz WLAN Maximum Average RF Power – MIMO

5GHz (20MHz) 802.11n Conducted Power [dBm]				
Freq [MHz]	Channel	ANT1	ANT2	MIMO
5180	36	17.56	17.48	20.53
5200	40	17.45	17.54	20.51
5220	44	17.51	17.51	20.52
5240	48	17.64	17.43	20.55
5260	52	17.50	17.65	20.59
5280	56	17.54	17.67	20.62
5300	60	17.46	17.78	20.63
5320	64	17.48	17.54	20.52
5500	100	16.75	16.94	19.86
5600	120	16.73	16.89	19.82
5620	124	16.72	16.90	19.82
5720	144	16.32	16.68	19.51
5745	149	16.35	16.48	19.43
5785	157	16.32	16.43	19.39
5825	165	16.36	16.49	19.44

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.

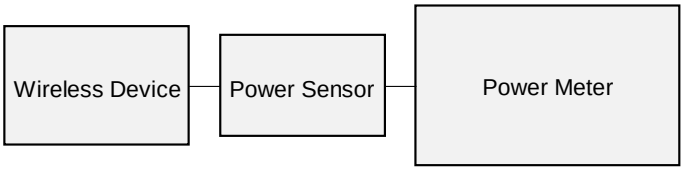


Figure 9-4
Power Measurement Setup

9.6 Bluetooth Conducted Powers

Table 9-40
Bluetooth Average RF Power

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	9.25	8.408
2441	1.0	39	9.90	9.763
2480	1.0	78	8.68	7.376
2402	2.0	0	8.65	7.331
2441	2.0	39	9.30	8.515
2480	2.0	78	8.10	6.452
2402	3.0	0	8.71	7.432
2441	3.0	39	9.36	8.630
2480	3.0	78	8.16	6.540

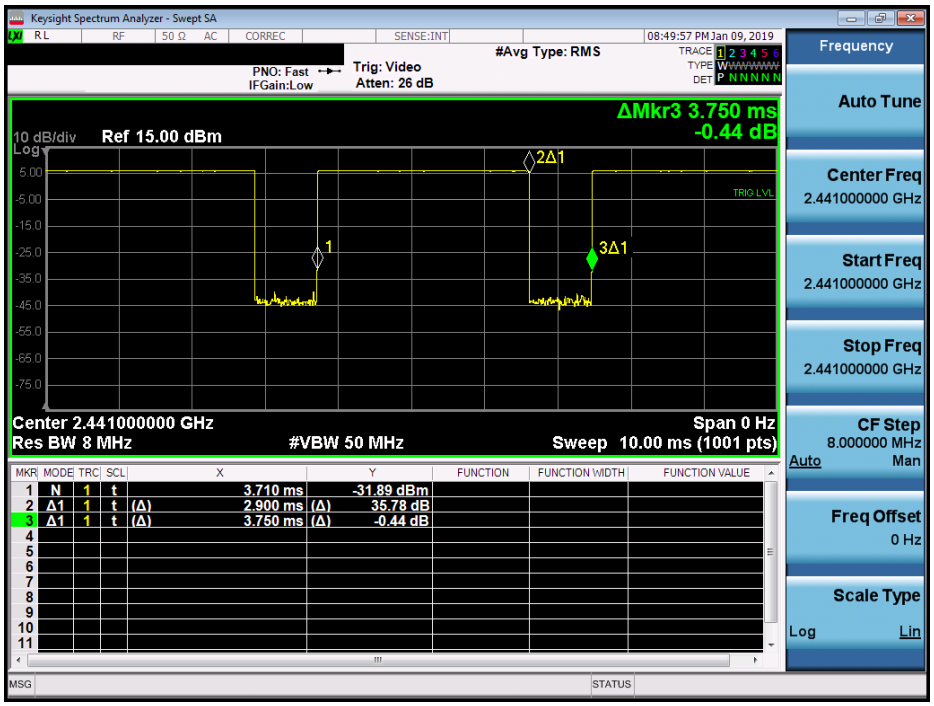


Figure 9-5
Bluetooth Transmission Plot

Equation 9-1
Bluetooth Duty Cycle Calculation

$$Duty\ Cycle = \frac{Pulse\ Width}{Period} * 100\% = \frac{2.9ms}{3.75ms} * 100\% = 77.3\%$$

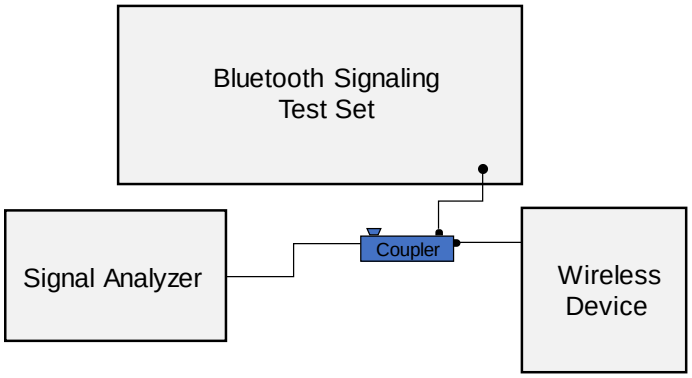


Figure 9-6
Power Measurement Setup

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
12/19/2018	750H	19.8	700	0.860	42.519	0.889	42.201	-3.26%	0.75%
			710	0.863	42.476	0.890	42.149	-3.03%	0.78%
			740	0.874	42.354	0.893	41.994	-2.13%	0.86%
			755	0.880	42.310	0.894	41.916	-1.57%	0.94%
			770	0.886	42.279	0.895	41.838	-1.01%	1.05%
			785	0.891	42.245	0.896	41.760	-0.56%	1.16%
12/31/2018	835H	21.0	820	0.898	41.747	0.899	41.578	-0.11%	0.41%
			835	0.913	41.535	0.900	41.500	1.44%	0.08%
			850	0.929	41.340	0.916	41.500	1.42%	-0.39%
1/2/2019	835H	20.7	820	0.897	42.154	0.899	41.578	-0.22%	1.39%
			835	0.910	41.959	0.900	41.500	1.11%	1.11%
			850	0.926	41.774	0.916	41.500	1.09%	0.66%
12/31/2018	1750H	20.8	1710	1.341	38.791	1.348	40.142	-0.52%	-3.37%
			1750	1.364	38.734	1.371	40.079	-0.51%	-3.36%
			1790	1.386	38.661	1.394	40.016	-0.57%	-3.39%
1/3/2019	1750H	19.6	1710	1.338	38.834	1.348	40.142	-0.74%	-3.26%
			1750	1.363	38.770	1.371	40.079	-0.58%	-3.27%
			1790	1.386	38.709	1.394	40.016	-0.57%	-3.27%
12/31/2018	1900H	20.8	1850	1.423	38.587	1.400	40.000	1.64%	-3.53%
			1880	1.440	38.549	1.400	40.000	2.86%	-3.63%
			1910	1.458	38.496	1.400	40.000	4.14%	-3.76%
1/3/2019	1900H	19.6	1850	1.423	38.614	1.400	40.000	1.64%	-3.47%
			1880	1.443	38.565	1.400	40.000	3.07%	-3.59%
			1910	1.462	38.508	1.400	40.000	4.43%	-3.73%
12/17/2018	2450H	22.7	2400	1.805	38.467	1.756	39.289	2.79%	-2.09%
			2450	1.862	38.272	1.800	39.200	3.44%	-2.37%
			2500	1.914	38.094	1.855	39.136	3.18%	-2.66%
1/2/2019	2450H	20.8	2400	1.818	40.565	1.756	39.289	3.53%	3.25%
			2450	1.860	40.485	1.800	39.200	3.33%	3.28%
			2500	1.892	40.373	1.855	39.136	1.99%	3.16%
			2550	1.937	40.304	1.909	39.073	1.47%	3.15%
			2600	1.982	40.241	1.964	39.009	0.92%	3.16%
			2650	2.030	40.184	2.018	38.945	0.59%	3.18%
			2700	2.069	40.032	2.073	38.882	-0.19%	2.96%
12/16/2018	5200H-5800H	20.2	5180	4.474	34.895	4.635	36.009	-3.47%	-3.09%
			5200	4.488	34.893	4.655	35.986	-3.59%	-3.04%
			5220	4.508	34.872	4.676	35.963	-3.59%	-3.03%
			5240	4.522	34.819	4.696	35.940	-3.71%	-3.12%
			5260	4.548	34.762	4.717	35.917	-3.58%	-3.22%
			5280	4.579	34.735	4.737	35.894	-3.34%	-3.23%
			5300	4.588	34.730	4.758	35.871	-3.57%	-3.18%
			5320	4.604	34.685	4.778	35.849	-3.64%	-3.25%
			5500	4.793	34.499	4.963	35.643	-3.43%	-3.21%
			5520	4.807	34.457	4.983	35.620	-3.53%	-3.27%
			5540	4.830	34.428	5.004	35.597	-3.48%	-3.28%
			5560	4.852	34.376	5.024	35.574	-3.42%	-3.37%
			5580	4.878	34.372	5.045	35.551	-3.31%	-3.32%
			5600	4.892	34.355	5.065	35.529	-3.42%	-3.30%
			5620	4.912	34.299	5.086	35.506	-3.42%	-3.40%
			5640	4.939	34.259	5.106	35.483	-3.27%	-3.45%
			5660	4.961	34.254	5.127	35.460	-3.24%	-3.40%
			5680	4.964	34.236	5.147	35.437	-3.56%	-3.39%
			5700	4.992	34.191	5.168	35.414	-3.41%	-3.45%
			5745	5.049	34.102	5.214	35.363	-3.16%	-3.57%
			5765	5.072	34.067	5.234	35.340	-3.10%	-3.60%
			5785	5.085	34.058	5.255	35.317	-3.24%	-3.56%
			5800	5.098	34.034	5.270	35.300	-3.26%	-3.59%
			5805	5.099	34.004	5.275	35.294	-3.34%	-3.66%
			5825	5.123	33.988	5.296	35.271	-3.27%	-3.64%

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
12/19/2018	750B	20.1	700	0.925	54.207	0.959	55.726	-3.55%	-2.73%
			710	0.927	54.253	0.960	55.687	-3.44%	-2.58%
			740	0.940	54.191	0.963	55.570	-2.39%	-2.48%
			755	0.944	54.125	0.964	55.512	-2.07%	-2.50%
			770	0.951	54.009	0.965	55.453	-1.45%	-2.60%
			785	0.956	53.943	0.966	55.395	-1.04%	-2.62%
12/7/2018	835B	19.2	820	0.932	54.852	0.969	55.258	-3.82%	-0.73%
			835	0.936	54.810	0.970	55.200	-3.51%	-0.71%
			850	0.941	54.750	0.988	55.154	-4.76%	-0.73%
12/17/2018	835B	20.5	820	0.990	52.657	0.969	55.258	2.17%	-4.71%
			835	0.995	52.605	0.970	55.200	2.58%	-4.70%
			850	1.001	52.547	0.988	55.154	1.32%	-4.73%
1/2/2019	835B	20.4	820	0.961	55.480	0.969	55.258	-0.83%	0.40%
			835	0.968	55.401	0.970	55.200	-0.21%	0.36%
			850	0.975	55.398	0.988	55.154	-1.32%	0.44%
1/2/2019	1750B	21.5	1710	1.464	52.622	1.463	53.537	0.07%	-1.71%
			1750	1.512	52.517	1.488	53.432	1.61%	-1.71%
			1790	1.556	52.347	1.514	53.326	2.77%	-1.84%
1/4/2019	1750B	20.8	1710	1.487	51.064	1.463	53.537	1.64%	-4.62%
			1750	1.535	50.904	1.488	53.432	3.16%	-4.73%
			1790	1.578	50.739	1.514	53.326	4.23%	-4.85%
1/7/2019	1750B	22.8	1710	1.417	53.785	1.463	53.537	-3.14%	0.46%
			1750	1.445	53.727	1.488	53.432	-2.89%	0.55%
			1790	1.473	53.681	1.514	53.326	-2.71%	0.67%
12/9/2018	1900B	22.4	1850	1.505	52.898	1.520	53.300	-0.99%	-0.75%
			1880	1.542	52.822	1.520	53.300	1.45%	-0.90%
			1910	1.576	52.692	1.520	53.300	3.68%	-1.14%
12/12/2018	1900B	23.0	1850	1.496	51.280	1.520	53.300	-1.58%	-3.79%
			1880	1.529	51.157	1.520	53.300	0.59%	-4.02%
			1910	1.570	51.100	1.520	53.300	3.29%	-4.13%
1/2/2019	1900B	22.3.	1850	1.488	52.635	1.520	53.300	-2.11%	-1.25%
			1880	1.521	52.539	1.520	53.300	0.07%	-1.43%
			1910	1.554	52.423	1.520	53.300	2.24%	-1.65%
1/4/2019	1900B	22.1	1850	1.498	51.636	1.520	53.300	-1.45%	-3.12%
			1880	1.532	51.518	1.520	53.300	0.79%	-3.34%
			1910	1.565	51.393	1.520	53.300	2.96%	-3.58%
12/11/2018	2450B	20.4	2400	1.969	52.882	1.902	52.767	3.52%	0.22%
			2450	2.018	52.828	1.950	52.700	3.49%	0.24%
			2500	2.062	52.734	2.021	52.636	2.03%	0.19%
			2550	2.110	52.667	2.092	52.573	0.86%	0.18%
			2600	2.156	52.593	2.163	52.509	-0.32%	0.16%
			2650	2.208	52.495	2.234	52.445	-1.16%	0.10%
			2700	2.255	52.404	2.305	52.382	-2.17%	0.04%
1/2/2019	2450B	23.1	2400	1.941	52.795	1.902	52.767	2.05%	0.05%
			2450	2.011	52.581	1.950	52.700	3.13%	-0.23%
			2500	2.083	52.400	2.021	52.636	3.07%	-0.45%
			2550	2.149	52.249	2.092	52.573	2.72%	-0.62%
			2600	2.224	51.993	2.163	52.509	2.82%	-0.98%
			2650	2.281	51.865	2.234	52.445	2.10%	-1.11%
			2700	2.354	51.637	2.305	52.382	2.13%	-1.42%
1/17/2019	2450B	24.5	2400	1.960	50.743	1.902	52.767	3.05%	-3.84%
			2450	2.017	50.605	1.950	52.700	3.44%	-3.98%
			2500	2.073	50.472	2.021	52.636	2.57%	-4.11%

Table 10-3
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
01/03/2019	5200B-5800B	21.7	5180	5.307	47.482	5.276	49.041	0.59%	-3.18%
			5200	5.321	47.426	5.299	49.014	0.42%	-3.24%
			5220	5.356	47.399	5.323	48.987	0.62%	-3.24%
			5240	5.377	47.382	5.346	48.960	0.58%	-3.22%
			5260	5.427	47.316	5.369	48.933	1.08%	-3.30%
			5280	5.466	47.288	5.393	48.906	1.35%	-3.31%
			5300	5.477	47.257	5.416	48.879	1.13%	-3.32%
			5320	5.494	47.173	5.439	48.851	1.01%	-3.43%
			5500	5.752	46.860	5.650	48.607	1.81%	-3.59%
			5520	5.779	46.843	5.673	48.580	1.87%	-3.58%
			5540	5.819	46.752	5.696	48.553	2.16%	-3.71%
			5560	5.852	46.752	5.720	48.526	2.31%	-3.66%
			5580	5.882	46.729	5.743	48.499	2.42%	-3.65%
			5600	5.888	46.674	5.766	48.471	2.12%	-3.71%
			5620	5.927	46.624	5.790	48.444	2.37%	-3.76%
			5640	5.967	46.562	5.813	48.417	2.65%	-3.83%
			5660	6.003	46.584	5.837	48.390	2.84%	-3.73%
			5680	6.013	46.528	5.860	48.363	2.61%	-3.79%
			5700	6.052	46.454	5.883	48.336	2.87%	-3.89%
			5745	6.132	46.377	5.936	48.275	3.30%	-3.93%
			5765	6.157	46.380	5.959	48.248	3.32%	-3.87%
			5785	6.173	46.358	5.982	48.220	3.19%	-3.86%
			5800	6.197	46.298	6.000	48.200	3.28%	-3.95%
			5805	6.204	46.279	6.006	48.193	3.30%	-3.97%
			5825	6.235	46.256	6.029	48.166	3.42%	-3.97%
01/21/2019	5200B-5800B	19.3	5180	5.367	47.870	5.276	49.041	1.72%	-2.39%
			5200	5.394	47.807	5.299	49.014	1.79%	-2.46%
			5220	5.430	47.789	5.323	48.987	2.01%	-2.45%
			5240	5.466	47.711	5.346	48.960	2.24%	-2.55%
			5260	5.486	47.681	5.369	48.933	2.18%	-2.56%
			5280	5.504	47.640	5.393	48.906	2.06%	-2.59%
			5300	5.539	47.621	5.416	48.879	2.27%	-2.57%
			5320	5.574	47.559	5.439	48.851	2.48%	-2.64%
			5500	5.819	47.231	5.650	48.607	2.99%	-2.83%
			5520	5.851	47.140	5.673	48.580	3.14%	-2.96%
			5540	5.884	47.108	5.696	48.553	3.30%	-2.98%
			5560	5.919	47.083	5.720	48.526	3.48%	-2.97%
			5580	5.952	47.066	5.743	48.499	3.64%	-2.95%
			5600	5.977	47.026	5.766	48.471	3.66%	-2.98%
			5620	6.007	46.923	5.790	48.444	3.75%	-3.14%
			5640	6.030	46.895	5.813	48.417	3.73%	-3.14%
			5660	6.065	46.893	5.837	48.390	3.91%	-3.09%
			5680	6.102	46.867	5.860	48.363	4.13%	-3.09%
			5700	6.121	46.851	5.883	48.336	4.05%	-3.07%
			5745	6.193	46.707	5.936	48.275	4.33%	-3.25%
			5765	6.242	46.679	5.959	48.248	4.75%	-3.25%
			5785	6.260	46.665	5.982	48.220	4.65%	-3.22%
			5800	6.278	46.620	6.000	48.200	4.63%	-3.28%
			5805	6.288	46.614	6.006	48.193	4.70%	-3.28%
			5825	6.322	46.579	6.029	48.166	4.86%	-3.29%

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.

10.2 Test System Verification

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

Table 10-4
System Verification Results – 1g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	$Deviation_{1g}$ (%)
M	750	HEAD	12/19/2018	21.3	19.8	0.200	1054	3287	1.730	8.370	8.650	3.35%
G	835	HEAD	12/31/2018	21.7	21.0	0.200	4d047	7410	2.000	9.470	10.000	5.60%
G	835	HEAD	01/02/2019	21.7	20.7	0.200	4d047	7410	1.980	9.470	9.900	4.54%
M	1750	HEAD	12/31/2018	21.7	20.8	0.100	1148	3287	3.350	36.400	33.500	-7.97%
M	1750	HEAD	01/03/2019	20.2	19.6	0.100	1148	3287	3.600	36.400	36.000	-1.10%
M	1900	HEAD	12/31/2018	21.7	20.8	0.100	5d148	3287	4.190	40.100	41.900	4.49%
M	1900	HEAD	01/03/2019	20.2	19.6	0.100	5d148	3287	4.160	40.100	41.600	3.74%
G	2450	HEAD	12/17/2018	21.9	22.0	0.100	981	7410	5.250	52.300	52.500	0.38%
I	2450	HEAD	01/02/2019	20.3	20.5	0.100	797	7406	5.180	52.700	51.800	-1.71%
I	2600	HEAD	01/02/2019	20.3	20.5	0.100	1071	7406	5.800	56.300	58.000	3.02%
H	5250	HEAD	12/16/2018	20.8	20.4	0.050	1191	7409	3.890	78.900	77.800	-1.39%
H	5600	HEAD	12/16/2018	20.8	20.4	0.050	1191	7409	3.970	83.600	79.400	-5.02%
H	5750	HEAD	12/16/2018	20.8	20.4	0.050	1191	7409	3.930	79.100	78.600	-0.63%
I	750	BODY	12/19/2018	21.1	19.7	0.200	1054	7406	1.760	8.610	8.800	2.21%
J	835	BODY	12/07/2018	19.5	19.2	0.200	4d047	3347	1.980	9.710	9.900	1.96%
J	835	BODY	12/17/2018	20.1	20.5	0.200	4d047	3347	1.970	9.710	9.850	1.44%
H	835	BODY	01/02/2019	21.1	20.4	0.200	4d047	7409	2.060	9.710	10.300	6.08%
D	1750	BODY	01/02/2019	22.3	21.5	0.100	1150	7357	3.710	36.600	37.100	1.37%
D	1750	BODY	01/04/2019	22.8	20.8	0.100	1150	7357	3.950	36.600	39.500	7.92%
D	1750	BODY	01/07/2019	22.1	22.8	0.100	1150	7357	3.650	36.600	36.500	-0.27%
E	1900	BODY	12/09/2018	21.6	21.1	0.100	5d148	3332	4.140	39.600	41.400	4.55%
E	1900	BODY	12/12/2018	23.6	22.0	0.100	5d080	3332	4.200	39.200	42.000	7.14%
E	1900	BODY	01/02/2019	22.9	22.4	0.100	5d080	3332	3.860	39.200	38.600	-1.53%
E	1900	BODY	01/04/2019	21.9	22.1	0.100	5d149	3332	4.060	39.400	40.600	3.05%
J	2450	BODY	12/11/2018	20.5	20.4	0.100	719	3347	5.060	50.100	50.600	1.00%
J	2600	BODY	12/11/2018	20.5	20.4	0.100	1071	3347	5.350	54.200	53.500	-1.29%
J	2450	BODY	01/02/2019	21.7	21.9	0.100	719	3347	4.940	50.100	49.400	-1.40%
J	2600	BODY	01/02/2019	21.7	21.9	0.100	1126	3347	5.350	54.100	53.500	-1.11%
K	2450	BODY	01/17/2019	23.4	22.5	0.100	981	3319	5.180	50.900	51.800	1.77%
L	5250	BODY	01/21/2019	20.6	20.7	0.050	1057	7308	3.730	75.900	74.600	-1.71%
L	5600	BODY	01/21/2019	20.6	20.7	0.050	1057	7308	4.060	79.900	81.200	1.63%
L	5750	BODY	01/21/2019	20.6	20.7	0.050	1057	7308	3.650	76.700	73.000	-4.82%

Table 10-5
System Verification Results – 10g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Source SN	Probe SN	Measured SAR_{10g} (W/kg)	1 W Target SAR_{10g} (W/kg)	1 W Normalized SAR_{10g} (W/kg)	$Deviation_{10g}$ (%)
L	5250	BODY	01/03/2019	21.5	21.0	0.050	1191	7308	0.999	21.600	19.980	-7.50%
L	5600	BODY	01/03/2019	21.5	21.0	0.050	1191	7308	1.080	22.200	21.600	-2.70%
L	5750	BODY	01/03/2019	21.5	21.0	0.050	1191	7308	0.979	21.200	19.580	-7.64%

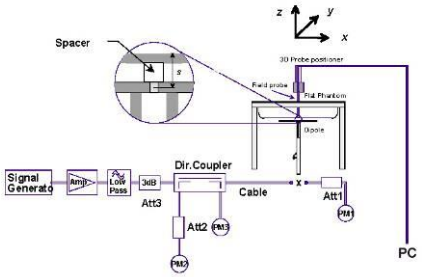


Figure 10-1
System Verification Setup Diagram

Figure 10-2
System Verification Setup Photo

11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
CDMA BC10 (§90S) Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.13	-0.01	Right	Cheek	00315	1:1	0.223	1.089	0.243	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.13	-0.01	Right	Tilt	00315	1:1	0.111	1.089	0.121	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.13	0.02	Left	Cheek	00315	1:1	0.174	1.089	0.189	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.5	25.13	-0.04	Left	Tilt	00315	1:1	0.129	1.089	0.140	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.24	0.07	Right	Cheek	00315	1:1	0.227	1.062	0.241	A1
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.24	0.03	Right	Tilt	00315	1:1	0.113	1.062	0.120	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.24	-0.12	Left	Cheek	00315	1:1	0.175	1.062	0.186	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.5	25.24	0.12	Left	Tilt	00315	1:1	0.109	1.062	0.116	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-2
CDMA BC0 (§22H) Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.17	-0.09	Right	Cheek	00315	1:1	0.216	1.079	0.233	A2
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.17	-0.06	Right	Tilt	00315	1:1	0.101	1.079	0.109	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.17	0.09	Left	Cheek	00315	1:1	0.158	1.079	0.170	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.5	25.17	0.02	Left	Tilt	00315	1:1	0.105	1.079	0.113	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.38	0.03	Right	Cheek	00315	1:1	0.192	1.028	0.197	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.38	0.12	Right	Tilt	00315	1:1	0.096	1.028	0.099	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.38	0.02	Left	Cheek	00315	1:1	0.135	1.028	0.139	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.5	25.38	0.06	Left	Tilt	00315	1:1	0.094	1.028	0.097	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-3
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	24.7	24.63	0.05	Right	Cheek	00349	1:1	0.109	1.016	0.111	
1880.00	600	PCS CDMA	RC3 / SO55	24.7	24.63	0.06	Right	Tilt	00349	1:1	0.118	1.016	0.120	
1880.00	600	PCS CDMA	RC3 / SO55	24.7	24.63	-0.01	Left	Cheek	00349	1:1	0.120	1.016	0.122	
1880.00	600	PCS CDMA	RC3 / SO55	24.7	24.63	-0.01	Left	Tilt	00349	1:1	0.125	1.016	0.127	A3
1880.00	600	PCS CDMA	EVDO Rev. A	24.7	24.54	0.12	Right	Cheek	00349	1:1	0.106	1.038	0.110	
1880.00	600	PCS CDMA	EVDO Rev. A	24.7	24.54	0.05	Right	Tilt	00349	1:1	0.120	1.038	0.125	
1880.00	600	PCS CDMA	EVDO Rev. A	24.7	24.54	-0.09	Left	Cheek	00349	1:1	0.121	1.038	0.126	
1880.00	600	PCS CDMA	EVDO Rev. A	24.7	24.54	-0.05	Left	Tilt	00349	1:1	0.124	1.038	0.129	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-4
GSM 850 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	# of Time Slots	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.7	33.52	-0.02	Right	Cheek	00315	1	1:8.3	0.143	1.042	0.149	
836.60	190	GSM 850	GSM	33.7	33.52	0.05	Right	Tilt	00315	1	1:8.3	0.066	1.042	0.069	
836.60	190	GSM 850	GSM	33.7	33.52	0.09	Left	Cheek	00315	1	1:8.3	0.107	1.042	0.111	
836.60	190	GSM 850	GSM	33.7	33.52	-0.15	Left	Tilt	00315	1	1:8.3	0.064	1.042	0.067	
836.60	190	GSM 850	GPRS	30.7	30.50	0.03	Right	Cheek	00315	3	1:2.76	0.240	1.047	**0.251**	A4
836.60	190	GSM 850	GPRS	30.7	30.50	0.02	Right	Tilt	00315	3	1:2.76	0.119	1.047	0.125	
836.60	190	GSM 850	GPRS	30.7	30.50	0.15	Left	Cheek	00315	3	1:2.76	0.181	1.047	0.190	
836.60	190	GSM 850	GPRS	30.7	30.50	0.00	Left	Tilt	00315	3	1:2.76	0.117	1.047	0.122	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11-5
GSM 1900 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	# of Time Slots	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GSM	30.7	30.63	0.13	Right	Cheek	00349	1	1:8.3	0.077	1.016	0.078	
1880.00	661	GSM 1900	GSM	30.7	30.63	-0.15	Right	Tilt	00349	1	1:8.3	0.074	1.016	0.075	
1880.00	661	GSM 1900	GSM	30.7	30.63	0.12	Left	Cheek	00349	1	1:8.3	0.081	1.016	0.082	
1880.00	661	GSM 1900	GSM	30.7	30.63	0.11	Left	Tilt	00349	1	1:8.3	0.077	1.016	0.078	
1880.00	661	GSM 1900	GPRS	27.7	27.64	0.12	Right	Cheek	00349	3	1:2.76	0.110	1.014	0.112	
1880.00	661	GSM 1900	GPRS	27.7	27.64	0.18	Right	Tilt	00349	3	1:2.76	0.107	1.014	0.108	
1880.00	661	GSM 1900	GPRS	27.7	27.64	-0.02	Left	Cheek	00349	3	1:2.76	0.119	1.014	0.121	A5
1880.00	661	GSM 1900	GPRS	27.7	27.64	0.12	Left	Tilt	00349	3	1:2.76	0.117	1.014	0.119	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

Table 11-6
UMTS 850 Head SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.60	4183	UMTS 850	RMC	25.5	25.42	-0.03	Right	Cheek	00315	1:1	0.188	1.019	0.192	A6
836.60	4183	UMTS 850	RMC	25.5	25.42	0.01	Right	Tilt	00315	1:1	0.080	1.019	0.082	
836.60	4183	UMTS 850	RMC	25.5	25.42	-0.05	Left	Cheek	00315	1:1	0.132	1.019	0.135	
836.60	4183	UMTS 850	RMC	25.5	25.42	-0.03	Left	Tilt	00315	1:1	0.076	1.019	0.077	
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	24.7	24.48	0.08	Right	Cheek	00349	1:1	0.122	1.052	0.128	
1732.40	1412	UMTS 1750	RMC	24.7	24.48	0.04	Right	Tilt	00349	1:1	0.124	1.052	0.130	
1732.40	1412	UMTS 1750	RMC	24.7	24.48	0.01	Left	Cheek	00349	1:1	0.130	1.052	0.137	A7
1732.40	1412	UMTS 1750	RMC	24.7	24.48	0.02	Left	Tilt	00349	1:1	0.110	1.052	0.116	
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	24.7	24.60	0.08	Right	Cheek	00349	1:1	0.108	1.023	0.110	
1880.00	9400	UMTS 1900	RMC	24.7	24.60	-0.12	Right	Tilt	00349	1:1	0.104	1.023	0.106	
1880.00	9400	UMTS 1900	RMC	24.7	24.60	0.07	Left	Cheek	00349	1:1	0.121	1.023	0.124	A8
1880.00	9400	UMTS 1900	RMC	24.7	24.60	0.01	Left	Tilt	00349	1:1	0.120	1.023	0.123	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-9
LTE Band 12 Head SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	25.5	25.46	-0.03	0	Right	Cheek	QPSK	1	0	00323	1:1	0.129	1.009	0.130	A9
707.50	23095	Mid	LTE Band 12	10	24.5	24.48	-0.01	1	Right	Cheek	QPSK	25	25	00323	1:1	0.105	1.005	0.106	
707.50	23095	Mid	LTE Band 12	10	25.5	25.46	-0.17	0	Right	Tilt	QPSK	1	0	00323	1:1	0.068	1.009	0.069	
707.50	23095	Mid	LTE Band 12	10	24.5	24.48	0.19	1	Right	Tilt	QPSK	25	25	00323	1:1	0.063	1.005	0.063	
707.50	23095	Mid	LTE Band 12	10	25.5	25.46	0.06	0	Left	Cheek	QPSK	1	0	00323	1:1	0.101	1.009	0.102	
707.50	23095	Mid	LTE Band 12	10	24.5	24.48	0.03	1	Left	Cheek	QPSK	25	25	00323	1:1	0.091	1.005	0.091	
707.50	23095	Mid	LTE Band 12	10	25.5	25.46	0.07	0	Left	Tilt	QPSK	1	0	00323	1:1	0.074	1.009	0.075	
707.50	23095	Mid	LTE Band 12	10	24.5	24.48	0.06	1	Left	Tilt	QPSK	25	25	00323	1:1	0.066	1.005	0.066	
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 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	25.10	0.06	0	Right	Cheek	QPSK	1	25	00323	1:1	0.195	1.023	0.199	A10
782.00	23230	Mid	LTE Band 13	10	24.2	24.19	0.14	1	Right	Cheek	QPSK	25	25	00323	1:1	0.174	1.002	0.174	
782.00	23230	Mid	LTE Band 13	10	25.2	25.10	-0.07	0	Right	Tilt	QPSK	1	25	00323	1:1	0.111	1.023	0.114	
782.00	23230	Mid	LTE Band 13	10	24.2	24.19	-0.04	1	Right	Tilt	QPSK	25	25	00323	1:1	0.086	1.002	0.086	
782.00	23230	Mid	LTE Band 13	10	25.2	25.10	0.15	0	Left	Cheek	QPSK	1	25	00323	1:1	0.130	1.023	0.133	
782.00	23230	Mid	LTE Band 13	10	24.2	24.19	0.09	1	Left	Cheek	QPSK	25	25	00323	1:1	0.107	1.002	0.107	
782.00	23230	Mid	LTE Band 13	10	25.2	25.10	-0.05	0	Left	Tilt	QPSK	1	25	00323	1:1	0.121	1.023	0.124	
782.00	23230	Mid	LTE Band 13	10	24.2	24.19	0.05	1	Left	Tilt	QPSK	25	25	00323	1:1	0.094	1.002	0.094	
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 26 (Cell) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.43	-0.16	0	Right	Cheek	QPSK	1	0	00315	1:1	0.184	1.016	0.187	A11
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.39	0.15	1	Right	Cheek	QPSK	36	0	00315	1:1	0.143	1.026	0.147	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.43	0.03	0	Right	Tilt	QPSK	1	0	00315	1:1	0.102	1.016	0.104	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.39	0.05	1	Right	Tilt	QPSK	36	0	00315	1:1	0.072	1.026	0.074	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.43	0.09	0	Left	Cheek	QPSK	1	0	00315	1:1	0.153	1.016	0.155	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.39	0.13	1	Left	Cheek	QPSK	36	0	00315	1:1	0.124	1.026	0.127	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.43	0.07	0	Left	Tilt	QPSK	1	0	00315	1:1	0.112	1.016	0.114	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.39	0.05	1	Left	Tilt	QPSK	36	0	00315	1:1	0.077	1.026	0.079	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Head 1.6 W/kg (mW/g) averaged over 1 gram					

Table 11-12
LTE Band 66 (AWS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.5	24.42	0.15	0	Right	Cheek	QPSK	1	0	00349	1:1	0.142	1.019	0.145	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	23.40	0.10	1	Right	Cheek	QPSK	50	0	00349	1:1	0.125	1.023	0.128	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.5	24.42	0.10	0	Right	Tilt	QPSK	1	0	00349	1:1	0.107	1.019	0.109	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	23.40	0.05	1	Right	Tilt	QPSK	50	0	00349	1:1	0.095	1.023	0.097	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.5	24.42	0.06	0	Left	Cheek	QPSK	1	0	00349	1:1	0.149	1.019	0.152	A12
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	23.40	-0.03	1	Left	Cheek	QPSK	50	0	00349	1:1	0.137	1.023	0.140	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.5	24.42	0.13	0	Left	Tilt	QPSK	1	0	00349	1:1	0.130	1.019	0.132	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	23.40	0.05	1	Left	Tilt	QPSK	50	0	00349	1:1	0.104	1.023	0.106	
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 25 (PCS) Head SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Side	Test Position	Modulation	RB Size	RB Offset	Device Serial Number	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.5	24.40	0.17	0	Right	Cheek	QPSK	1	0	00349	1:1	0.131	1.023	0.134	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.5	23.41	0.07	1	Right	Cheek	QPSK	50	50	00349	1:1	0.109	1.021	0.111	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.5	24.40	0.03	0	Right	Tilt	QPSK	1	0	00349	1:1	0.125	1.023	0.128	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.5	23.41	0.04	1	Right	Tilt	QPSK	50	50	00349	1:1	0.090	1.021	0.092	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.5	24.40	-0.07	0	Left	Cheek	QPSK	1	0	00349	1:1	0.140	1.023	0.143	A13
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.5	23.41	0.03	1	Left	Cheek	QPSK	50	50	00349	1:1	0.116	1.021	0.118	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.5	24.40	0.03	0	Left	Tilt	QPSK	1	0	00349	1:1	0.111	1.023	0.114	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.5	23.41	-0.01	1	Left	Tilt	QPSK	50	50	00349	1:1	0.104	1.021	0.106	
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 41 Head SAR

MEASUREMENT RESULTS																					
Power Class	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)	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	25.2	25.14	0.15	0	Right	Cheek	QPSK	1	0	00323	1:1.58	0.062	1.014	0.063	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	0.19	1	Right	Cheek	QPSK	50	0	00323	1:1.58	0.046	1.000	0.046	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	25.2	25.14	-0.20	0	Right	Tilt	QPSK	1	0	00323	1:1.58	0.049	1.014	0.050	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	0.20	1	Right	Tilt	QPSK	50	0	00323	1:1.58	0.032	1.000	0.032	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	25.2	25.14	0.16	0	Left	Cheek	QPSK	1	0	00323	1:1.58	0.064	1.014	0.065	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	0.04	1	Left	Cheek	QPSK	50	0	00323	1:1.58	0.052	1.000	0.052	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	25.2	25.14	0.00	0	Left	Tilt	QPSK	1	0	00323	1:1.58	0.086	1.014	0.087	A14
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	0.16	1	Left	Tilt	QPSK	50	0	00323	1:1.58	0.028	1.000	0.028	
Power Class 2	2593.00	40620	Mid	LTE Band 41	20	27.2	27.13	-0.01	0	Left	Tilt	QPSK	1	0	00323	1:2.31	0.085	1.016	0.086	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Head 1.6 W/kg (mW/g) averaged over 1 gram					

Table 11-15
DTS Head SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	18.0	17.73	0.07	Right	Cheek	1	00257	1	99.1	0.672	-	1.064	1.009	-	
2412	1	802.11b	DSSS	22	18.0	17.73	0.07	Right	Tilt	1	00257	1	99.1	0.674	0.460	1.064	1.009	**0.494**	A15
2412	1	802.11b	DSSS	22	18.0	17.73	-0.01	Left	Cheek	1	00257	1	99.1	0.462	-	1.064	1.009	-	
2412	1	802.11b	DSSS	22	18.0	17.73	0.03	Left	Tilt	1	00257	1	99.1	0.701	0.415	1.064	1.009	0.446	
2437	6	802.11b	DSSS	22	18.0	17.81	0.15	Right	Cheek	2	00257	1	99.2	0.200	0.104	1.045	1.008	0.110	
2437	6	802.11b	DSSS	22	18.0	17.81	0.10	Right	Tilt	2	00257	1	99.2	0.062	-	1.045	1.008	-	
2437	6	802.11b	DSSS	22	18.0	17.81	-0.19	Left	Cheek	2	00257	1	99.2	0.054	-	1.045	1.008	-	
2437	6	802.11b	DSSS	22	18.0	17.81	0.19	Left	Tilt	2	00257	1	99.2	0.014	-	1.045	1.008	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Head 1.6 W/kg (mW/g) averaged over 1 gram					

Table 11-16
NII Head SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5320	64	802.11a	OFDM	20	18.0	17.78	0.17	Right	Cheek	1	00257	6	95.1	1.222	0.646	1.052	1.052	0.715	
5320	64	802.11a	OFDM	20	18.0	17.78	0.16	Right	Tilt	1	00257	6	95.1	0.926	0.393	1.052	1.052	0.435	
5320	64	802.11a	OFDM	20	18.0	17.78	-0.16	Left	Cheek	1	00257	6	95.1	0.283	-	1.052	1.052	-	
5320	64	802.11a	OFDM	20	18.0	17.78	0.12	Left	Tilt	1	00257	6	95.1	0.323	-	1.052	1.052	-	
5320	64	802.11a	OFDM	20	18.0	17.68	0.16	Right	Cheek	2	00257	6	95.3	0.075	0.044	1.076	1.049	0.050	
5320	64	802.11a	OFDM	20	18.0	17.68	0.19	Right	Tilt	2	00257	6	95.3	0.041	-	1.076	1.049	-	
5320	64	802.11a	OFDM	20	18.0	17.68	-0.19	Left	Cheek	2	00257	6	95.3	0.062	-	1.076	1.049	-	
5320	64	802.11a	OFDM	20	18.0	17.68	0.15	Left	Tilt	2	00257	6	95.3	0.057	-	1.076	1.049	-	
5500	100	802.11a	OFDM	20	17.0	16.97	-0.03	Right	Cheek	1	00257	6	95.1	1.452	0.792	1.007	1.052	**0.839**	A16
5620	124	802.11a	OFDM	20	17.0	16.99	-0.18	Right	Cheek	1	00257	6	95.1	1.526	0.754	1.002	1.052	0.795	
5720	144	802.11a	OFDM	20	17.0	16.52	0.19	Right	Cheek	1	00257	6	95.1	1.366	0.684	1.117	1.052	0.804	
5620	124	802.11a	OFDM	20	17.0	16.99	0.19	Right	Tilt	1	00257	6	95.1	1.092	0.586	1.002	1.052	0.618	
5620	124	802.11a	OFDM	20	17.0	16.99	-0.13	Left	Cheek	1	00257	6	95.1	0.416	-	1.002	1.052	-	
5620	124	802.11a	OFDM	20	17.0	16.99	0.14	Left	Tilt	1	00257	6	95.1	0.477	-	1.002	1.052	-	
5600	120	802.11a	OFDM	20	17.0	16.99	0.19	Right	Cheek	2	00257	6	95.3	0.108	0.051	1.002	1.049	0.054	
5600	120	802.11a	OFDM	20	17.0	16.99	0.00	Right	Tilt	2	00257	6	95.3	0.079	-	1.002	1.049	-	
5600	120	802.11a	OFDM	20	17.0	16.99	0.17	Left	Cheek	2	00257	6	95.3	0.097	-	1.002	1.049	-	
5600	120	802.11a	OFDM	20	17.0	16.99	0.19	Left	Tilt	2	00257	6	95.3	0.108	-	1.002	1.049	-	
5825	165	802.11a	OFDM	20	16.5	16.48	0.14	Right	Cheek	1	00257	6	95.1	1.720	0.606	1.005	1.052	0.641	
5825	165	802.11a	OFDM	20	16.5	16.48	-0.08	Right	Tilt	1	00257	6	95.1	0.806	0.456	1.005	1.052	0.482	
5825	165	802.11a	OFDM	20	16.5	16.48	-0.12	Left	Cheek	1	00257	6	95.1	0.355	-	1.005	1.052	-	
5825	165	802.11a	OFDM	20	16.5	16.48	0.20	Left	Tilt	1	00257	6	95.1	0.365	-	1.005	1.052	-	
5785	157	802.11a	OFDM	20	16.5	16.49	-0.19	Right	Cheek	2	00257	6	95.3	0.142	0.064	1.002	1.049	0.067	
5785	157	802.11a	OFDM	20	16.5	16.49	0.15	Right	Tilt	2	00257	6	95.3	0.110	-	1.002	1.049	-	
5785	157	802.11a	OFDM	20	16.5	16.49	-0.18	Left	Cheek	2	00257	6	95.3	0.113	-	1.002	1.049	-	
5785	157	802.11a	OFDM	20	16.5	16.49	0.00	Left	Tilt	2	00257	6	95.3	0.139	-	1.002	1.049	-	

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

Table 11-17
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	11.0	9.90	-0.13	Right	Cheek	00240	1	77.3	0.067	1.288	1.294	**0.112**	A17
2441.00	39	Bluetooth	FHSS	11.0	9.90	0.19	Right	Tilt	00240	1	77.3	0.067	1.288	1.294	**0.112**	
2441.00	39	Bluetooth	FHSS	11.0	9.90	0.11	Left	Cheek	00240	1	77.3	0.037	1.288	1.294	0.062	
2441.00	39	Bluetooth	FHSS	11.0	9.90	0.19	Left	Tilt	00240	1	77.3	0.050	1.288	1.294	0.083	

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

11.2 Standalone Body-Worn SAR Data

Table 11-18
GSM/UMTS/CDMA Body-Worn SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	TDSO / SO32	25.5	25.38	-0.01	10 mm	00331	N/A	1:1	back	0.468	1.028	0.481	A18
836.52	384	CDMA BC0 (§22H)	TDSO / SO32	25.5	25.31	0.00	10 mm	00331	N/A	1:1	back	0.468	1.045	0.489	A20
1880.00	600	PCS CDMA	TDSO / SO32	24.7	24.44	0.03	10 mm	00323	N/A	1:1	back	0.430	1.062	0.457	A22
836.60	190	GSM 850	GSM	33.7	33.52	-0.06	10 mm	00331	1	1:8.3	back	0.286	1.042	0.298	
836.60	190	GSM 850	GPRS	30.7	30.50	-0.07	10 mm	00331	3	1:2.76	back	0.485	1.047	0.508	A24
1880.00	661	GSM 1900	GSM	30.7	30.63	-0.01	10 mm	00349	1	1:8.3	back	0.309	1.016	0.314	
1880.00	661	GSM 1900	GPRS	27.7	27.64	-0.16	10 mm	00349	3	1:2.76	back	0.438	1.014	0.444	A26
836.60	4183	UMTS 850	RMC	25.5	25.42	-0.05	10 mm	00315	N/A	1:1	back	0.389	1.019	0.396	A28
1712.40	1312	UMTS 1750	RMC	24.7	24.68	-0.05	10 mm	00331	N/A	1:1	back	0.670	1.005	0.673	A29
1732.40	1412	UMTS 1750	RMC	24.7	24.48	-0.04	10 mm	00331	N/A	1:1	back	0.648	1.052	0.682	
1752.60	1513	UMTS 1750	RMC	24.7	24.68	-0.03	10 mm	00331	N/A	1:1	back	0.635	1.005	0.638	
1880.00	9400	UMTS 1900	RMC	24.7	24.60	-0.04	10 mm	00349	N/A	1:1	back	0.496	1.023	0.507	A31
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 11-19
LTE Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	25.5	25.46	0.01	0	00331	QPSK	1	0	10 mm	back	1:1	0.319	1.009	0.322	A33
707.50	23095	Mid	LTE Band 12	10	24.5	24.48	-0.02	1	00331	QPSK	25	25	10 mm	back	1:1	0.255	1.005	0.256	
782.00	23230	Mid	LTE Band 13	10	25.2	25.10	-0.05	0	00331	QPSK	1	25	10 mm	back	1:1	0.371	1.023	0.380	A34
782.00	23230	Mid	LTE Band 13	10	24.2	24.19	0.02	1	00331	QPSK	25	25	10 mm	back	1:1	0.333	1.002	0.334	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.43	-0.03	0	00349	QPSK	1	0	10 mm	back	1:1	0.382	1.016	0.388	A35
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.39	-0.06	1	00349	QPSK	36	0	10 mm	back	1:1	0.311	1.026	0.319	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.5	24.42	-0.10	0	00331	QPSK	1	0	10 mm	back	1:1	0.786	1.019	0.801	A36
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.5	24.28	-0.01	0	00331	QPSK	1	50	10 mm	back	1:1	0.617	1.052	0.649	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.5	24.34	0.01	0	00331	QPSK	1	0	10 mm	back	1:1	0.702	1.038	0.729	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	23.40	0.03	1	00331	QPSK	50	0	10 mm	back	1:1	0.674	1.023	0.690	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.5	23.28	-0.02	1	00331	QPSK	100	0	10 mm	back	1:1	0.647	1.052	0.681	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.5	24.40	-0.08	0	00323	QPSK	1	0	10 mm	back	1:1	0.546	1.023	0.559	A38
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.5	23.41	-0.02	1	00323	QPSK	50	50	10 mm	back	1:1	0.485	1.021	0.495	
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 11-20
LTE B41 Body-Worn SAR

MEASUREMENT RESULTS																				
Power Class	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)	
Power Class 3	2506.00	39750	Low	LTE Band 41	20	25.2	25.13	0.16	0	00315	QPSK	1	0	10 mm	back	1:1.58	1.180	1.016	**1.199**	A40
Power Class 3	2549.50	40185	Low-Mid	LTE Band 41	20	25.2	25.10	0.03	0	00315	QPSK	1	0	10 mm	back	1:1.58	1.130	1.023	1.156	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	25.2	25.14	0.03	0	00315	QPSK	1	0	10 mm	back	1:1.58	0.977	1.014	0.991	
Power Class 3	2636.50	41055	Mid-High	LTE Band 41	20	25.2	25.13	-0.03	0	00315	QPSK	1	0	10 mm	back	1:1.58	0.765	1.016	0.777	
Power Class 3	2680.00	41490	High	LTE Band 41	20	25.2	25.11	0.02	0	00315	QPSK	1	50	10 mm	back	1:1.58	0.685	1.021	0.699	
Power Class 3	2506.00	39750	Low	LTE Band 41	20	24.2	24.13	-0.02	1	00315	QPSK	50	25	10 mm	back	1:1.58	0.749	1.016	0.761	
Power Class 3	2549.50	40185	Low-Mid	LTE Band 41	20	24.2	24.13	0.08	1	00315	QPSK	50	0	10 mm	back	1:1.58	0.698	1.016	0.709	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	0.03	1	00315	QPSK	50	0	10 mm	back	1:1.58	0.709	1.000	0.709	
Power Class 3	2636.50	41055	Mid-High	LTE Band 41	20	24.2	24.19	0.08	1	00315	QPSK	50	25	10 mm	back	1:1.58	0.607	1.002	0.608	
Power Class 3	2680.00	41490	High	LTE Band 41	20	24.2	24.20	0.16	1	00315	QPSK	50	50	10 mm	back	1:1.58	0.526	1.000	0.526	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	24.2	24.13	0.05	1	00315	QPSK	100	0	10 mm	back	1:1.58	0.666	1.016	0.677	
Power Class 2	2506.00	39750	Low	LTE Band 41	20	27.2	27.04	0.20	0	00315	QPSK	1	0	10 mm	back	1:2.31	1.140	1.038	1.183	
Power Class 3	2506.00	39750	Low	LTE Band 41	20	25.2	25.13	0.16	0	00315	QPSK	1	0	10 mm	back	1:1.58	1.140	1.016	1.158	
Power Class 3	2549.50	40185	Low-Mid	LTE Band 41	20	25.2	25.10	0.03	0	00315	QPSK	1	0	10 mm	back	1:1.58	1.060	1.023	1.084	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Body 1.6 W/kg (mW/g) averaged over 1 gram											

Note: blue entry represents variability measurement.

Table 11-21
DTS Body-Worn SAR

MEASUREMENT RESULTS																		
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2412	1	802.11b	DSSS	22	18.0	17.73	-0.02	10 mm	1	00257	1	back	99.1	0.197	0.179	1.064	1.009	0.192	
2437	6	802.11b	DSSS	22	18.0	17.81	0.00	10 mm	2	00257	1	back	99.2	0.283	0.265	1.045	1.008	**0.279**	A41
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 11-22
NII Body-Worn SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5320	64	802.11a	OFDM	20	18.0	17.78	-0.12	10 mm	1	00240	6	back	95.1	0.275	0.120	1.052	1.052	0.133	
5320	64	802.11a	OFDM	20	18.0	17.68	-0.05	10 mm	2	00240	6	back	95.3	1.164	0.490	1.076	1.049	0.553	
5620	124	802.11a	OFDM	20	17.0	16.99	0.06	10 mm	1	00240	6	back	95.1	0.201	0.084	1.002	1.052	0.089	
5600	120	802.11a	OFDM	20	17.0	16.99	-0.01	10 mm	2	00240	6	back	95.3	1.740	0.698	1.002	1.049	0.734	
5825	165	802.11a	OFDM	20	16.5	16.48	0.17	10 mm	1	00240	6	back	95.1	0.189	0.070	1.005	1.052	0.074	
5745	149	802.11a	OFDM	20	16.5	16.48	0.18	10 mm	2	00240	6	back	95.3	1.744	0.732	1.005	1.049	0.772	
5785	157	802.11a	OFDM	20	16.5	16.49	-0.01	10 mm	2	00240	6	back	95.3	2.048	0.804	1.002	1.049	0.845	
5825	165	802.11a	OFDM	20	16.5	16.40	-0.03	10 mm	2	00240	6	back	95.3	1.851	0.830	1.023	1.049	**0.891**	A42
5825	165	802.11a	OFDM	20	16.5	16.40	-0.08	10 mm	2	00240	6	back	95.3	2.130	0.827	1.023	1.049	**0.887**	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Body 1.6 W/kg (mW/g) averaged over 1 gram							

Note: blue entry represents variability measurement.

Table 11-23
NII MIMO Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
5300	60	802.11n	OFDM	20	18.0	17.46	18.0	17.78	-0.05	10 mm	MIMO	00240	13	back	94.7	1.190	0.473	1.132	1.056	0.565	
5500	100	802.11n	OFDM	20	17.0	16.75	17.0	16.94	0.03	10 mm	MIMO	00240	13	back	94.7	1.193	0.505	1.059	1.056	0.565	
5745	149	802.11n	OFDM	20	16.5	16.35	16.5	16.48	0.03	10 mm	MIMO	00240	13	back	94.7	1.686	0.702	1.035	1.056	0.767	
5785	157	802.11n	OFDM	20	16.5	16.32	16.5	16.43	0.13	10 mm	MIMO	00240	13	back	94.7	1.697	0.709	1.042	1.056	0.780	
5825	165	802.11n	OFDM	20	16.5	16.36	16.5	16.49	0.09	10 mm	MIMO	00240	13	back	94.7	1.909	0.795	1.033	1.056	0.867	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram							

To achieve the 21.0 dBm (ch.60), 20 dBm (ch.100) and 19.5 dBm (ch.149-165) maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18.0 dBm (ch.60), 17 dBm (ch 100), and 16.5 dBm (ch.149-165).

Table 11-24
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	11.0	9.90	-0.07	10 mm	00240	1	back	77.3	0.027	1.288	1.294	**0.045**	A44
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 11-25
GPRS/UMTS/CDMA Hotspot SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	# of GPRS Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.15	-0.14	10 mm	00331	N/A	1:1	back	0.397	1.084	0.430	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.15	0.05	10 mm	00331	N/A	1:1	front	0.359	1.084	0.389	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.15	0.00	10 mm	00331	N/A	1:1	bottom	0.236	1.084	0.256	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.15	-0.03	10 mm	00331	N/A	1:1	right	0.423	1.084	0.459	A19
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.5	25.15	0.13	10 mm	00331	N/A	1:1	left	0.191	1.084	0.207	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.34	-0.12	10 mm	00331	N/A	1:1	back	0.447	1.038	0.464	A21
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.34	0.00	10 mm	00331	N/A	1:1	front	0.363	1.038	0.377	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.34	0.02	10 mm	00331	N/A	1:1	bottom	0.227	1.038	0.236	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.34	-0.14	10 mm	00331	N/A	1:1	right	0.399	1.038	0.414	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.5	25.34	-0.05	10 mm	00331	N/A	1:1	left	0.135	1.038	0.140	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.43	0.05	10 mm	00323	N/A	1:1	back	0.441	1.064	0.469	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.43	0.05	10 mm	00323	N/A	1:1	front	0.363	1.064	0.386	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.7	24.53	0.00	10 mm	00323	N/A	1:1	bottom	1.070	1.040	1.113	A23
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.43	-0.01	10 mm	00323	N/A	1:1	bottom	0.948	1.064	1.009	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.7	24.69	-0.08	10 mm	00323	N/A	1:1	bottom	0.914	1.002	0.916	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.7	24.43	0.02	10 mm	00323	N/A	1:1	left	0.210	1.064	0.223	
836.60	190	GSM 850	GPRS	30.7	30.50	-0.07	10 mm	00331	3	1:2.76	back	0.485	1.047	0.508	
836.60	190	GSM 850	GPRS	30.7	30.50	0.02	10 mm	00331	3	1:2.76	front	0.405	1.047	0.424	
836.60	190	GSM 850	GPRS	30.7	30.50	-0.19	10 mm	00331	3	1:2.76	bottom	0.335	1.047	0.351	
836.60	190	GSM 850	GPRS	30.7	30.50	-0.03	10 mm	00331	3	1:2.76	right	0.527	1.047	0.552	A25
836.60	190	GSM 850	GPRS	30.7	30.50	-0.03	10 mm	00331	3	1:2.76	left	0.215	1.047	0.225	
1880.00	661	GSM 1900	GPRS	27.7	27.64	-0.16	10 mm	00349	3	1:2.76	back	0.438	1.014	0.444	
1880.00	661	GSM 1900	GPRS	27.7	27.64	0.00	10 mm	00349	3	1:2.76	front	0.388	1.014	0.393	
1850.20	512	GSM 1900	GPRS	27.7	27.42	0.02	10 mm	00349	3	1:2.76	bottom	0.656	1.067	0.700	
1880.00	661	GSM 1900	GPRS	27.7	27.64	0.07	10 mm	00349	3	1:2.76	bottom	0.725	1.014	0.735	A27
1909.80	810	GSM 1900	GPRS	27.7	27.40	0.05	10 mm	00349	3	1:2.76	bottom	0.674	1.072	0.723	
1880.00	661	GSM 1900	GPRS	27.7	27.64	-0.01	10 mm	00349	3	1:2.76	left	0.188	1.014	0.191	
836.60	4183	UMTS 850	RMC	25.5	25.42	-0.05	10 mm	00315	N/A	1:1	back	0.389	1.019	0.396	A28
836.60	4183	UMTS 850	RMC	25.5	25.42	-0.07	10 mm	00315	N/A	1:1	front	0.285	1.019	0.290	
836.60	4183	UMTS 850	RMC	25.5	25.42	-0.07	10 mm	00315	N/A	1:1	bottom	0.257	1.019	0.262	
836.60	4183	UMTS 850	RMC	25.5	25.42	0.01	10 mm	00315	N/A	1:1	right	0.368	1.019	0.375	
836.60	4183	UMTS 850	RMC	25.5	25.42	0.09	10 mm	00315	N/A	1:1	left	0.097	1.019	0.099	
1732.40	1412	UMTS 1750	RMC	24.7	24.48	-0.04	10 mm	00331	N/A	1:1	back	0.648	1.052	0.682	
1732.40	1412	UMTS 1750	RMC	24.7	24.48	-0.11	10 mm	00331	N/A	1:1	front	0.590	1.052	0.621	
1712.40	1312	UMTS 1750	RMC	24.7	24.68	-0.04	10 mm	00331	N/A	1:1	bottom	0.923	1.005	0.928	
1732.40	1412	UMTS 1750	RMC	24.7	24.48	-0.10	10 mm	00331	N/A	1:1	bottom	0.941	1.052	0.990	
1752.60	1513	UMTS 1750	RMC	24.7	24.68	-0.05	10 mm	00331	N/A	1:1	bottom	1.010	1.005	1.015	A30
1732.40	1412	UMTS 1750	RMC	24.7	24.48	0.04	10 mm	00331	N/A	1:1	left	0.385	1.052	0.405	
1880.00	9400	UMTS 1900	RMC	24.7	24.60	-0.04	10 mm	00349	N/A	1:1	back	0.496	1.023	0.507	
1880.00	9400	UMTS 1900	RMC	24.7	24.60	0.04	10 mm	00349	N/A	1:1	front	0.435	1.023	0.445	
1852.40	9262	UMTS 1900	RMC	24.7	24.70	-0.03	10 mm	00349	N/A	1:1	bottom	0.894	1.000	0.894	A32
1880.00	9400	UMTS 1900	RMC	24.7	24.60	-0.05	10 mm	00349	N/A	1:1	bottom	0.828	1.023	0.847	
1907.60	9538	UMTS 1900	RMC	24.7	24.63	-0.03	10 mm	00349	N/A	1:1	bottom	0.818	1.016	0.831	
1880.00	9400	UMTS 1900	RMC	24.7	24.60	-0.03	10 mm	00349	N/A	1:1	left	0.231	1.023	0.236	
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
LTE Band 12 Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	25.5	25.46	0.01	0	00331	QPSK	1	0	10 mm	back	1:1	0.319	1.009	0.322	A33
707.50	23095	Mid	LTE Band 12	10	24.5	24.48	-0.02	1	00331	QPSK	25	25	10 mm	back	1:1	0.255	1.005	0.256	
707.50	23095	Mid	LTE Band 12	10	25.5	25.46	-0.01	0	00331	QPSK	1	0	10 mm	front	1:1	0.229	1.009	0.231	
707.50	23095	Mid	LTE Band 12	10	24.5	24.48	-0.01	1	00331	QPSK	25	25	10 mm	front	1:1	0.185	1.005	0.186	
707.50	23095	Mid	LTE Band 12	10	25.5	25.46	0.01	0	00331	QPSK	1	0	10 mm	bottom	1:1	0.080	1.009	0.081	
707.50	23095	Mid	LTE Band 12	10	24.5	24.48	0.00	1	00331	QPSK	25	25	10 mm	bottom	1:1	0.075	1.005	0.075	
707.50	23095	Mid	LTE Band 12	10	25.5	25.46	-0.02	0	00331	QPSK	1	0	10 mm	right	1:1	0.214	1.009	0.216	
707.50	23095	Mid	LTE Band 12	10	24.5	24.48	0.00	1	00331	QPSK	25	25	10 mm	right	1:1	0.174	1.005	0.175	
707.50	23095	Mid	LTE Band 12	10	25.5	25.46	0.01	0	00331	QPSK	1	0	10 mm	left	1:1	0.112	1.009	0.113	
707.50	23095	Mid	LTE Band 12	10	24.5	24.48	-0.01	1	00331	QPSK	25	25	10 mm	left	1:1	0.097	1.005	0.097	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram					

Table 11-27
LTE 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	25.10	-0.05	0	00331	QPSK	1	25	10 mm	back	1:1	0.371	1.023	0.380	A34
782.00	23230	Mid	LTE Band 13	10	24.2	24.19	0.02	1	00331	QPSK	25	25	10 mm	back	1:1	0.333	1.002	0.334	
782.00	23230	Mid	LTE Band 13	10	25.2	25.10	0.05	0	00331	QPSK	1	25	10 mm	front	1:1	0.297	1.023	0.304	
782.00	23230	Mid	LTE Band 13	10	24.2	24.19	-0.19	1	00331	QPSK	25	25	10 mm	front	1:1	0.248	1.002	0.248	
782.00	23230	Mid	LTE Band 13	10	25.2	25.10	-0.03	0	00331	QPSK	1	25	10 mm	bottom	1:1	0.174	1.023	0.178	
782.00	23230	Mid	LTE Band 13	10	24.2	24.19	-0.10	1	00331	QPSK	25	25	10 mm	bottom	1:1	0.145	1.002	0.145	
782.00	23230	Mid	LTE Band 13	10	25.2	25.10	0.00	0	00331	QPSK	1	25	10 mm	right	1:1	0.334	1.023	0.342	
782.00	23230	Mid	LTE Band 13	10	24.2	24.19	-0.01	1	00331	QPSK	25	25	10 mm	right	1:1	0.301	1.002	0.302	
782.00	23230	Mid	LTE Band 13	10	25.2	25.10	0.01	0	00331	QPSK	1	25	10 mm	left	1:1	0.164	1.023	0.168	
782.00	23230	Mid	LTE Band 13	10	24.2	24.19	-0.03	1	00331	QPSK	25	25	10 mm	left	1:1	0.149	1.002	0.149	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram					

Table 11-28
LTE Band 26 (Cell) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.43	-0.03	0	00349	QPSK	1	0	10 mm	back	1:1	0.382	1.016	0.388	A35
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.39	-0.06	1	00349	QPSK	36	0	10 mm	back	1:1	0.311	1.026	0.319	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.43	-0.02	0	00349	QPSK	1	0	10 mm	front	1:1	0.307	1.016	0.312	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.39	-0.04	1	00349	QPSK	36	0	10 mm	front	1:1	0.251	1.026	0.258	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.43	-0.07	0	00349	QPSK	1	0	10 mm	bottom	1:1	0.235	1.016	0.239	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.39	-0.08	1	00349	QPSK	36	0	10 mm	bottom	1:1	0.192	1.026	0.197	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.43	0.00	0	00349	QPSK	1	0	10 mm	right	1:1	0.371	1.016	0.377	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.39	0.00	1	00349	QPSK	36	0	10 mm	right	1:1	0.286	1.026	0.293	
831.50	26865	Mid	LTE Band 26 (Cell)	15	25.5	25.43	0.00	0	00349	QPSK	1	0	10 mm	left	1:1	0.118	1.016	0.120	
831.50	26865	Mid	LTE Band 26 (Cell)	15	24.5	24.39	-0.01	1	00349	QPSK	36	0	10 mm	left	1:1	0.087	1.026	0.089	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram										

Table 11-29
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	24.5	24.42	-0.10	0	00331	QPSK	1	0	10 mm	back	1:1	0.786	1.019	0.801	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.5	24.28	-0.01	0	00331	QPSK	1	50	10 mm	back	1:1	0.617	1.052	0.649	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.5	24.34	0.01	0	00331	QPSK	1	0	10 mm	back	1:1	0.702	1.038	0.729	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	23.40	0.03	1	00331	QPSK	50	0	10 mm	back	1:1	0.674	1.023	0.690	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.5	23.28	-0.02	1	00331	QPSK	100	0	10 mm	back	1:1	0.647	1.052	0.681	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.5	24.42	-0.08	0	00331	QPSK	1	0	10 mm	front	1:1	0.595	1.019	0.606	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	23.40	-0.02	1	00331	QPSK	50	0	10 mm	front	1:1	0.542	1.023	0.554	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.5	24.42	0.01	0	00331	QPSK	1	0	10 mm	bottom	1:1	0.916	1.019	0.933	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	24.5	24.28	-0.02	0	00331	QPSK	1	50	10 mm	bottom	1:1	0.805	1.052	0.847	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.5	24.34	-0.03	0	00331	QPSK	1	0	10 mm	bottom	1:1	1.090	1.038	1.131	A37
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	23.40	0.00	1	00331	QPSK	50	0	10 mm	bottom	1:1	0.837	1.023	0.856	
1745.00	132322	Mid	LTE Band 66 (AWS)	20	23.5	23.34	-0.01	1	00331	QPSK	50	0	10 mm	bottom	1:1	0.843	1.038	0.875	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.5	23.29	-0.01	1	00331	QPSK	50	0	10 mm	bottom	1:1	0.903	1.050	0.948	
1770.00	132572	High	LTE Band 66 (AWS)	20	23.5	23.28	0.01	1	00331	QPSK	100	0	10 mm	bottom	1:1	0.962	1.052	1.012	
1720.00	132072	Low	LTE Band 66 (AWS)	20	24.5	24.42	-0.02	0	00331	QPSK	1	0	10 mm	left	1:1	0.393	1.019	0.400	
1720.00	132072	Low	LTE Band 66 (AWS)	20	23.5	23.40	0.01	1	00331	QPSK	50	0	10 mm	left	1:1	0.345	1.023	0.353	
1770.00	132572	High	LTE Band 66 (AWS)	20	24.5	24.34	-0.01	0	00331	QPSK	1	0	10 mm	bottom	1:1	1.010	1.038	1.048	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram										

Note: blue entry represents variability measurement.

Table 11-30
LTE Band 25 (PCS) Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (1g)	Scaling Factor	Reported SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.5	24.40	-0.08	0	00323	QPSK	1	0	10 mm	back	1:1	0.546	1.023	0.559	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.5	23.41	-0.02	1	00323	QPSK	50	50	10 mm	back	1:1	0.485	1.021	0.495	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.5	24.40	-0.01	0	00323	QPSK	1	0	10 mm	front	1:1	0.494	1.023	0.505	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.5	23.41	-0.02	1	00323	QPSK	50	50	10 mm	front	1:1	0.424	1.021	0.433	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.5	24.32	-0.07	0	00323	QPSK	1	0	10 mm	bottom	1:1	1.140	1.042	1.188	A39
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.5	24.40	0.04	0	00323	QPSK	1	0	10 mm	bottom	1:1	1.100	1.023	1.125	
1905.00	26590	High	LTE Band 25 (PCS)	20	24.5	24.27	-0.01	0	00323	QPSK	1	0	10 mm	bottom	1:1	1.050	1.054	1.107	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.5	23.27	-0.02	1	00323	QPSK	50	50	10 mm	bottom	1:1	0.989	1.054	1.042	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.5	23.41	-0.02	1	00323	QPSK	50	50	10 mm	bottom	1:1	0.935	1.021	0.955	
1905.00	26590	High	LTE Band 25 (PCS)	20	23.5	23.32	-0.04	1	00323	QPSK	50	50	10 mm	bottom	1:1	0.881	1.042	0.918	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.5	23.40	-0.02	1	00323	QPSK	100	0	10 mm	bottom	1:1	0.983	1.023	1.006	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.5	24.40	-0.03	0	00323	QPSK	1	0	10 mm	left	1:1	0.241	1.023	0.247	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	23.5	23.41	-0.04	1	00323	QPSK	50	50	10 mm	left	1:1	0.219	1.021	0.224	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.5	24.32	-0.06	0	00323	QPSK	1	0	10 mm	bottom	1:1	1.000	1.042	1.042	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram						

Note: blue entry represents variability measurement.

Table 11-31
LTE Band 41 Hotspot SAR

MEASUREMENT RESULTS																				
Power Class	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) (W/kg)	Scaling Factor	Reported SAR (1g) (W/kg)	Plot #
	MHz	Ch.																		
Power Class 3	2506.00	39750	Low	LTE Band 41	20	25.2	25.13	0.16	0	00315	QPSK	1	0	10 mm	back	1:1.58	1.180	1.016	**1.199**	A40
Power Class 3	2549.50	40185	Low-Mid	LTE Band 41	20	25.2	25.10	0.03	0	00315	QPSK	1	0	10 mm	back	1:1.58	1.130	1.023	1.156	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	25.2	25.14	0.03	0	00315	QPSK	1	0	10 mm	back	1:1.58	0.977	1.014	0.991	
Power Class 3	2636.50	41055	Mid-High	LTE Band 41	20	25.2	25.13	-0.03	0	00315	QPSK	1	0	10 mm	back	1:1.58	0.765	1.016	0.777	
Power Class 3	2680.00	41490	High	LTE Band 41	20	25.2	25.11	0.02	0	00315	QPSK	1	50	10 mm	back	1:1.58	0.685	1.021	0.699	
Power Class 3	2506.00	39750	Low	LTE Band 41	20	24.2	24.13	-0.02	1	00315	QPSK	50	25	10 mm	back	1:1.58	0.749	1.016	0.761	
Power Class 3	2549.50	40185	Low-Mid	LTE Band 41	20	24.2	24.13	0.08	1	00315	QPSK	50	0	10 mm	back	1:1.58	0.698	1.016	0.709	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	0.03	1	00315	QPSK	50	0	10 mm	back	1:1.58	0.709	1.000	0.709	
Power Class 3	2636.50	41055	Mid-High	LTE Band 41	20	24.2	24.19	0.08	1	00315	QPSK	50	25	10 mm	back	1:1.58	0.607	1.002	0.608	
Power Class 3	2680.00	41490	High	LTE Band 41	20	24.2	24.20	0.16	1	00315	QPSK	50	50	10 mm	back	1:1.58	0.526	1.000	0.526	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	24.2	24.13	0.05	1	00315	QPSK	100	0	10 mm	back	1:1.58	0.666	1.016	0.677	
Power Class 2	2506.00	39750	Low	LTE Band 41	20	27.2	27.04	0.20	0	00315	QPSK	1	0	10 mm	back	1:2.31	1.140	1.038	1.183	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	25.2	25.14	-0.04	0	00315	QPSK	1	0	10 mm	front	1:1.58	0.369	1.014	0.374	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	0.00	1	00315	QPSK	50	0	10 mm	front	1:1.58	0.268	1.000	0.268	
Power Class 3	2506.00	39750	Low	LTE Band 41	20	25.2	25.13	-0.05	0	00315	QPSK	1	0	10 mm	bottom	1:1.58	1.020	1.016	1.036	
Power Class 3	2549.50	40185	Low-Mid	LTE Band 41	20	25.2	25.10	-0.06	0	00315	QPSK	1	0	10 mm	bottom	1:1.58	0.755	1.023	0.772	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	25.2	25.14	-0.02	0	00315	QPSK	1	0	10 mm	bottom	1:1.58	0.879	1.014	0.891	
Power Class 3	2636.50	41055	Mid-High	LTE Band 41	20	25.2	25.13	-0.08	0	00315	QPSK	1	0	10 mm	bottom	1:1.58	0.772	1.016	0.784	
Power Class 3	2680.00	41490	High	LTE Band 41	20	25.2	25.11	-0.11	0	00315	QPSK	1	50	10 mm	bottom	1:1.58	0.767	1.021	0.783	
Power Class 3	2506.00	39750	Low	LTE Band 41	20	24.2	24.13	0.00	1	00315	QPSK	50	25	10 mm	bottom	1:1.58	0.728	1.016	0.740	
Power Class 3	2549.50	40185	Low-Mid	LTE Band 41	20	24.2	24.13	-0.08	1	00315	QPSK	50	0	10 mm	bottom	1:1.58	0.615	1.016	0.625	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	-0.09	1	00315	QPSK	50	0	10 mm	bottom	1:1.58	0.642	1.000	0.642	
Power Class 3	2636.50	41055	Mid-High	LTE Band 41	20	24.2	24.19	-0.06	1	00315	QPSK	50	25	10 mm	bottom	1:1.58	0.586	1.002	0.587	
Power Class 3	2680.00	41490	High	LTE Band 41	20	24.2	24.20	0.11	1	00315	QPSK	50	50	10 mm	bottom	1:1.58	0.617	1.000	0.617	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	24.2	24.13	-0.06	1	00315	QPSK	100	0	10 mm	bottom	1:1.58	0.642	1.016	0.652	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	25.2	25.14	-0.02	0	00315	QPSK	1	0	10 mm	right	1:1.58	0.114	1.014	0.116	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	0.01	1	00315	QPSK	50	0	10 mm	right	1:1.58	0.086	1.000	0.086	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	25.2	25.14	0.09	0	00315	QPSK	1	0	10 mm	left	1:1.58	0.085	1.014	0.086	
Power Class 3	2593.00	40620	Mid	LTE Band 41	20	24.2	24.20	0.18	1	00315	QPSK	50	0	10 mm	left	1:1.58	0.065	1.000	0.065	
Power Class 3	2506.00	39750	Low	LTE Band 41	20	25.2	25.13	0.16	0	00315	QPSK	1	0	10 mm	back	1:1.58	1.140	1.016	1.158	
Power Class 3	2549.50	40185	Low-Mid	LTE Band 41	20	25.2	25.10	0.03	0	00315	QPSK	1	0	10 mm	back	1:1.58	1.060	1.023	1.084	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population															Body 1.6 W/kg (mW/g) averaged over 1 gram					

Note: Blue entry represents variability measurement.

Table 11-32
WLAN Hotspot SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan W/kg	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
2412	1	802.11b	DSSS	22	18.0	17.73	-0.02	10 mm	1	00257	1	back	99.1	0.197	0.179	1.064	1.009	0.192	
2412	1	802.11b	DSSS	22	18.0	17.73	-0.03	10 mm	1	00257	1	front	99.1	0.147	-	1.064	1.009	-	
2412	1	802.11b	DSSS	22	18.0	17.73	0.14	10 mm	1	00257	1	top	99.1	0.282	0.228	1.064	1.009	0.245	
2412	1	802.11b	DSSS	22	18.0	17.73	0.14	10 mm	1	00257	1	left	99.1	0.071	-	1.064	1.009	-	
2437	6	802.11b	DSSS	22	18.0	17.81	0.00	10 mm	2	00257	1	back	99.2	0.283	0.265	1.045	1.008	**0.279**	A41
2437	6	802.11b	DSSS	22	18.0	17.81	-0.05	10 mm	2	00257	1	front	99.2	0.034	-	1.045	1.008	-	
2437	6	802.11b	DSSS	22	18.0	17.81	0.04	10 mm	2	00257	1	top	99.2	0.017	-	1.045	1.008	-	
2437	6	802.11b	DSSS	22	18.0	17.81	0.14	10 mm	2	00257	1	left	99.2	0.113	-	1.045	1.008	-	
5240	48	802.11a	OFDM	20	18.0	17.82	0.00	10 mm	1	00240	6	back	95.1	0.236	0.107	1.042	1.052	0.117	
5240	48	802.11a	OFDM	20	18.0	17.82	0.19	10 mm	1	00240	6	front	95.1	0.031	-	1.042	1.052	-	
5240	48	802.11a	OFDM	20	18.0	17.82	0.12	10 mm	1	00240	6	top	95.1	0.057	-	1.042	1.052	-	
5240	48	802.11a	OFDM	20	18.0	17.82	0.00	10 mm	1	00240	6	left	95.1	0.050	-	1.042	1.052	-	
5240	48	802.11a	OFDM	20	18.0	17.81	0.19	10 mm	2	00240	6	back	95.3	1.096	0.464	1.045	1.049	0.509	
5240	48	802.11a	OFDM	20	18.0	17.81	0.00	10 mm	2	00240	6	front	95.3	0.012	0.008	1.045	1.049	0.009	
5240	48	802.11a	OFDM	20	18.0	17.81	0.00	10 mm	2	00240	6	top	95.3	0.072	-	1.045	1.049	-	
5240	48	802.11a	OFDM	20	18.0	17.81	0.17	10 mm	2	00240	6	left	95.3	0.252	0.100	1.045	1.049	0.110	
5825	165	802.11a	OFDM	20	16.5	16.48	0.17	10 mm	1	00240	6	back	95.1	0.189	0.070	1.005	1.052	0.074	
5825	165	802.11a	OFDM	20	16.5	16.48	0.00	10 mm	1	00240	6	front	95.1	0.075	-	1.005	1.052	-	
5825	165	802.11a	OFDM	20	16.5	16.48	0.00	10 mm	1	00240	6	top	95.1	0.064	-	1.005	1.052	-	
5825	165	802.11a	OFDM	20	16.5	16.48	0.00	10 mm	1	00240	6	left	95.1	0.036	-	1.005	1.052	-	
5745	149	802.11a	OFDM	20	16.5	16.48	0.18	10 mm	2	00240	6	back	95.3	1.744	0.732	1.005	1.049	0.772	
5785	157	802.11a	OFDM	20	16.5	16.49	-0.01	10 mm	2	00240	6	back	95.3	2.048	0.804	1.002	1.049	0.845	
5825	165	802.11a	OFDM	20	16.5	16.40	-0.03	10 mm	2	00240	6	back	95.3	1.851	0.830	1.023	1.049	**0.891**	A42
5785	157	802.11a	OFDM	20	16.5	16.49	0.00	10 mm	2	00240	6	front	95.3	0.020	0.007	1.002	1.049	0.007	
5785	157	802.11a	OFDM	20	16.5	16.49	0.15	10 mm	2	00240	6	top	95.3	0.182	-	1.002	1.049	-	
5785	157	802.11a	OFDM	20	16.5	16.49	0.07	10 mm	2	00240	6	left	95.3	0.427	0.172	1.002	1.049	0.181	
5825	165	802.11a	OFDM	20	16.5	16.40	-0.08	10 mm	2	00240	6	back	95.3	2.130	0.827	1.023	1.049	**0.887**	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**														**Body** **1.6 W/kg (mW/g)** averaged over 1 gram					

Note: Blue entry represents variability measurement

Table 11-33
WLAN MIMO Hotspot SAR

MEASUREMENT RESULTS																						
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (1g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (1g)	Plot #
MHz	Ch.															W/kg	(W/kg)			(W/kg)	
5240	48	802.11n	OFDM	20	18.0	17.64	18.0	17.43	0.02	10 mm	MIMO	00240	13	back	94.7	0.920	0.423	1.140	1.056	0.509	
5240	48	802.11n	OFDM	20	18.0	17.64	18.0	17.43	0.00	10 mm	MIMO	00240	13	front	94.7	0.029	0.011	1.140	1.056	0.013	
5240	48	802.11n	OFDM	20	18.0	17.64	18.0	17.43	-0.11	10 mm	MIMO	00240	13	top	94.7	0.099	-	1.140	1.056	-	
5240	48	802.11n	OFDM	20	18.0	17.64	18.0	17.43	0.13	10 mm	MIMO	00240	13	left	94.7	0.259	0.109	1.140	1.056	0.131	
5745	149	802.11n	OFDM	20	16.5	16.35	16.5	16.48	0.03	10 mm	MIMO	00240	13	back	94.7	1.686	0.702	1.035	1.056	0.767	
5785	157	802.11n	OFDM	20	16.5	16.32	16.5	16.43	0.13	10 mm	MIMO	00240	13	back	94.7	1.697	0.709	1.042	1.056	0.780	
5825	165	802.11n	OFDM	20	16.5	16.36	16.5	16.49	0.09	10 mm	MIMO	00240	13	back	94.7	1.909	0.795	1.033	1.056	0.867	
5825	165	802.11n	OFDM	20	16.5	16.36	16.5	16.49	0.00	10 mm	MIMO	00240	13	front	94.7	0.038	0.014	1.033	1.056	0.015	
5825	165	802.11n	OFDM	20	16.5	16.36	16.5	16.49	-0.17	10 mm	MIMO	00240	13	top	94.7	0.222	-	1.033	1.056	-	
5825	165	802.11n	OFDM	20	16.5	16.36	16.5	16.49	-0.16	10 mm	MIMO	00240	13	left	94.7	0.432	0.171	1.033	1.056	0.187	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram							

To achieve the 21.0 dBm (ch.48) and 19.5 dBm (ch.149-165) maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18.0 dBm (ch.48), and 16.5 dBm (ch.149-165).

Table 11-34
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	11.0	9.90	-0.07	10 mm	00240	1	back	77.3	0.027	1.288	1.294	**0.045**	
2441	39	Bluetooth	FHSS	11.0	9.90	0.13	10 mm	00240	1	front	77.3	0.014	1.288	1.294	0.023	
2441	39	Bluetooth	FHSS	11.0	9.90	0.11	10 mm	00240	1	top	77.3	0.031	1.288	1.294	**0.052**	A45
2441	39	Bluetooth	FHSS	11.0	9.90	0.15	10 mm	00240	1	left	77.3	0.007	1.288	1.294	0.012	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Body 1.6 W/kg (mW/g) averaged over 1 gram						

11.4 Standalone Phablet SAR Data

Table 11-35
WLAN Phablet SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan W/kg	SAR (10g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g) (W/kg)	Plot #
MHz	Ch.																		
5320	64	802.11a	OFDM	20	18.0	17.78	0.08	0 mm	1	00240	6	back	95.1	2.892	0.402	1.052	1.052	0.445	
5320	64	802.11a	OFDM	20	18.0	17.78	0.21	0 mm	1	00240	6	front	95.1	2.716	-	1.052	1.052	-	
5320	64	802.11a	OFDM	20	18.0	17.78	-0.05	0 mm	1	00240	6	top	95.1	0.472	-	1.052	1.052	-	
5320	64	802.11a	OFDM	20	18.0	17.78	0.19	0 mm	1	00240	6	left	95.1	0.394	-	1.052	1.052	-	
5320	64	802.11a	OFDM	20	18.0	17.68	-0.14	0 mm	2	00240	6	back	95.3	26.398	1.570	1.076	1.049	1.772	
5320	64	802.11a	OFDM	20	18.0	17.68	0.00	0 mm	2	00240	6	front	95.3	0.137	-	1.076	1.049	-	
5320	64	802.11a	OFDM	20	18.0	17.68	0.14	0 mm	2	00240	6	top	95.3	0.174	-	1.076	1.049	-	
5320	64	802.11a	OFDM	20	18.0	17.68	0.19	0 mm	2	00240	6	left	95.3	2.555	0.243	1.076	1.049	0.274	
5620	124	802.11a	OFDM	20	17.0	16.99	0.06	0 mm	1	00240	6	back	95.1	3.053	0.461	1.002	1.052	0.486	
5620	124	802.11a	OFDM	20	17.0	16.99	0.20	0 mm	1	00240	6	front	95.1	2.674	-	1.002	1.052	-	
5620	124	802.11a	OFDM	20	17.0	16.99	-0.13	0 mm	1	00240	6	top	95.1	0.476	-	1.002	1.052	-	
5620	124	802.11a	OFDM	20	17.0	16.99	0.19	0 mm	1	00240	6	left	95.1	0.422	-	1.002	1.052	-	
5500	100	802.11a	OFDM	20	17.0	16.98	-0.09	0 mm	2	00240	6	back	95.3	36.794	2.070	1.005	1.049	2.182	
5600	120	802.11a	OFDM	20	17.0	16.99	-0.06	0 mm	2	00240	6	back	95.3	45.625	2.490	1.002	1.049	2.617	A43
5720	144	802.11a	OFDM	20	17.0	16.85	-0.17	0 mm	2	00240	6	back	95.3	47.437	2.470	1.035	1.049	2.682	
5600	120	802.11a	OFDM	20	17.0	16.99	0.00	0 mm	2	00240	6	front	95.3	0.162	-	1.002	1.049	-	
5600	120	802.11a	OFDM	20	17.0	16.99	0.15	0 mm	2	00240	6	top	95.3	0.369	-	1.002	1.049	-	
5600	120	802.11a	OFDM	20	17.0	16.99	0.16	0 mm	2	00240	6	left	95.3	4.628	0.396	1.002	1.049	0.416	
5600	120	802.11a	OFDM	20	17.0	16.99	0.11	0 mm	2	00240	6	back	95.3	37.087	2.460	1.002	1.049	2.586	
5720	144	802.11a	OFDM	20	17.0	16.85	-0.01	0 mm	2	00240	6	back	95.3	24.343	2.360	1.035	1.049	2.562	
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 entries represent variability measurements.

Table 11-36
WLAN MIMO Phablet SAR

MEASUREMENT RESULTS																						
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power (Ant 1) [dBm]	Conducted Power (Ant 1) [dBm]	Maximum Allowed Power (Ant 2) [dBm]	Conducted Power (Ant 2) [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan W/kg	SAR (10g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Reported SAR (10g) (W/kg)	Plot #
MHz	Ch.																					
5300	60	802.11n	OFDM	20	18.0	17.46	18.0	17.78	-0.20	0 mm	MIMO	00240	13	back	94.7	21.634	1.350	1.132	1.056	1.614		
5300	60	802.11n	OFDM	20	18.0	17.46	18.0	17.78	0.18	0 mm	MIMO	00240	13	front	94.7	2.042	-	1.132	1.056	-		
5300	60	802.11n	OFDM	20	18.0	17.46	18.0	17.78	0.12	0 mm	MIMO	00240	13	top	94.7	0.451	-	1.132	1.056	-		
5300	60	802.11n	OFDM	20	18.0	17.46	18.0	17.78	0.13	0 mm	MIMO	00240	13	left	94.7	2.194	0.230	1.132	1.056	0.275		
5500	100	802.11n	OFDM	20	17.0	16.75	17.0	16.94	-0.03	0 mm	MIMO	00240	13	back	94.7	28.114	1.780	1.059	1.056	1.991		
5600	120	802.11n	OFDM	20	17.0	16.73	17.0	16.89	-0.17	0 mm	MIMO	00240	13	back	94.7	36.785	2.030	1.064	1.056	2.281		
5620	124	802.11n	OFDM	20	17.0	16.72	17.0	16.90	-0.14	0 mm	MIMO	00240	13	back	94.7	39.471	2.150	1.067	1.056	2.423		
5720	144	802.11n	OFDM	20	17.0	16.32	17.0	16.68	-0.07	0 mm	MIMO	00240	13	back	94.7	42.669	2.180	1.169	1.056	2.691		
5500	100	802.11n	OFDM	20	17.0	16.75	17.0	16.94	0.15	0 mm	MIMO	00240	13	front	94.7	2.194	-	1.059	1.056	-		
5500	100	802.11n	OFDM	20	17.0	16.75	17.0	16.94	0.13	0 mm	MIMO	00240	13	top	94.7	0.612	-	1.059	1.056	-		
5500	100	802.11n	OFDM	20	17.0	16.75	17.0	16.94	0.21	0 mm	MIMO	00240	13	left	94.7	4.298	0.353	1.059	1.056	0.395		
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Phablet 4.0 W/kg (mW/g) averaged over 10 grams										

To achieve the 21.0 dBm (ch.60) and 20 dBm (ch.100-144) maximum allowed MIMO power shown in the documentation, each antenna transmits at a maximum allowed power of 18.0 dBm (ch.60) and 17 dBm (ch 100-144).

11.5 SAR Test Notes

General Notes:

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

GSM Test Notes:

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

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

CDMA Notes:

1. Head SAR for CDMA2000 mode was tested under RC3/SO55 per FCC KDB Publication 941225 D01v03r01.
2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. EVDO Rev0 and RevA and TDSO / SO32 FCH+SCH SAR tests were not required per the 3G SAR Test Reduction Procedure in FCC KDB Publication 941225 D01v03r01.
3. CDMA Wireless Router SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 according to KDB 941225 D01v03r01 procedures for data devices. Wireless Router SAR tests for Subtype 2 of Rev.A and 1x RTT configurations were not required per the 3G SAR Test Reduction Policy in KDB Publication 941225 D01v03r01.
4. Head SAR was additionally evaluated using EVDO Rev. A to determine compliance for VoIP operations.
5. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg for 1g evaluations then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel was used.
6. CDMA 1X Advanced technology was not required for SAR since the maximum allowed output powers for 1X Advanced was not more than 0.25 dB higher than the maximum powers for 1X.

UMTS Notes:

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

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r04. The general test procedures used for testing can be found in Section 8.6.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 and MCC=001 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

4. Per FCC KDB Publication 447498 D01v06, when the reported LTE Band 41 SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg for 1g evaluations, testing at the other channels was required for such test configurations.
5. TDD LTE was tested per the guidance provided in FCC KDB Publication 941225 D05v02r04. Testing was performed using UL-DL configuration 0 with 6 UL subframes and 2 S subframes using extended cyclic prefix only and special subframe configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Section 4, the duty factor for special subframe configuration 6 using extended cyclic prefix is 0.633.
6. Per KDB Publication 941225 D05Av01r02, SAR for downlink only LTE CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.
7. This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per FCC Guidance, all SAR tests were performed using Power Class 3. SAR with power class 2 at the available duty factor was additionally performed for the power class 3 configuration with the highest SAR configuration for each exposure conditions. Please see Section 14 for linearity results.

WLAN Notes:

1. For held-to-ear, hotspot, and phablet operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g evaluations, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg or all test positions are measured.
2. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 2.4 GHz WIFI single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR. See Section 8.7.5 for more information.
3. Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02 for 5 GHz WIFI single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission modes were not investigated since the highest reported SAR for initial test configuration adjusted by the ratio of maximum output powers is less than 1.2 W/kg for 1g evaluations. See Section 8.7.6 for more information.
4. Per KDB Publication 248227 D01v02r02, SAR for MIMO was evaluated by following the simultaneous SAR provisions from KDB Publication 447498 D01v06 by either evaluating the sum of the 1g SAR values of each antenna transmitting independently or making a SAR measurement with both antennas transmitting simultaneously. Please see Section 12 for complete analysis.
5. When the maximum reported 1g averaged SAR is ≤0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg for 1g evaluations or all test channels were measured.
6. The device was configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated EMC test reports.
7. 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.

12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

12.1 Introduction

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

12.2 Simultaneous Transmission Procedures

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

Main antenna SAR testing was not required for phablet exposure conditions per FCC KDB 648474 D04v01r03. Therefore, no further analysis was required to determine that possible simultaneous scenarios would not exceed the SAR limit.

12.3 Head SAR Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	CDMA/EVDO BC10 (§90S)	0.243	0.494	0.110	0.737	0.353	0.847
	CDMA/EVDO BC0 (§22H)	0.233	0.494	0.110	0.727	0.343	0.837
	PCS CDMA/EVDO	0.129	0.494	0.110	0.623	0.239	0.733
	GSM/GPRS 850	0.251	0.494	0.110	0.745	0.361	**0.855**
	GSM/GPRS 1900	0.121	0.494	0.110	0.615	0.231	0.725
	UMTS 850	0.192	0.494	0.110	0.686	0.302	0.796
	UMTS 1750	0.137	0.494	0.110	0.631	0.247	0.741
	UMTS 1900	0.124	0.494	0.110	0.618	0.234	0.728
	LTE Band 12	0.130	0.494	0.110	0.624	0.240	0.734
	LTE Band 13	0.199	0.494	0.110	0.693	0.309	0.803
	LTE Band 26 (Cell)	0.187	0.494	0.110	0.681	0.297	0.791
	LTE Band 66 (AWS)	0.152	0.494	0.110	0.646	0.262	0.756
	LTE Band 25 (PCS)	0.143	0.494	0.110	0.637	0.253	0.747
	LTE Band 41	0.087	0.494	0.110	0.581	0.197	0.691

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Head SAR	CDMA/EVDO BC10 (§90S)	0.243	0.839	0.067	1.082	0.310	1.149
	CDMA/EVDO BC0 (§22H)	0.233	0.839	0.067	1.072	0.300	1.139
	PCS CDMA/EVDO	0.129	0.839	0.067	0.968	0.196	1.035
	GSM/GPRS 850	0.251	0.839	0.067	1.090	0.318	**1.157**
	GSM/GPRS 1900	0.121	0.839	0.067	0.960	0.188	1.027
	UMTS 850	0.192	0.839	0.067	1.031	0.259	1.098
	UMTS 1750	0.137	0.839	0.067	0.976	0.204	1.043
	UMTS 1900	0.124	0.839	0.067	0.963	0.191	1.030
	LTE Band 12	0.130	0.839	0.067	0.969	0.197	1.036
	LTE Band 13	0.199	0.839	0.067	1.038	0.266	1.105
	LTE Band 26 (Cell)	0.187	0.839	0.067	1.026	0.254	1.093
	LTE Band 66 (AWS)	0.152	0.839	0.067	0.991	0.219	1.058
	LTE Band 25 (PCS)	0.143	0.839	0.067	0.982	0.210	1.049
	LTE Band 41	0.087	0.839	0.067	0.926	0.154	0.993

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)	0.243	0.112	0.355
	CDMA/EVDO BC0 (§22H)	0.233	0.112	0.345
	PCS CDMA/EVDO	0.129	0.112	0.241
	GSM/GPRS 850	0.251	0.112	**0.363**
	GSM/GPRS 1900	0.121	0.112	0.233
	UMTS 850	0.192	0.112	0.304
	UMTS 1750	0.137	0.112	0.249
	UMTS 1900	0.124	0.112	0.236
	LTE Band 12	0.130	0.112	0.242
	LTE Band 13	0.199	0.112	0.311
	LTE Band 26 (Cell)	0.187	0.112	0.299
	LTE Band 66 (AWS)	0.152	0.112	0.264
	LTE Band 25 (PCS)	0.143	0.112	0.255
	LTE Band 41	0.087	0.112	0.199

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	4	1+2+3+4
Head SAR	CDMA/EVDO BC10 (§90S)	0.243	0.839	0.067	0.112	1.261
	CDMA/EVDO BC0 (§22H)	0.233	0.839	0.067	0.112	1.251
	PCS CDMA/EVDO	0.129	0.839	0.067	0.112	1.147
	GSM/GPRS 850	0.251	0.839	0.067	0.112	**1.269**
	GSM/GPRS 1900	0.121	0.839	0.067	0.112	1.139
	UMTS 850	0.192	0.839	0.067	0.112	1.210
	UMTS 1750	0.137	0.839	0.067	0.112	1.155
	UMTS 1900	0.124	0.839	0.067	0.112	1.142
	LTE Band 12	0.130	0.839	0.067	0.112	1.148
	LTE Band 13	0.199	0.839	0.067	0.112	1.217
	LTE Band 26 (Cell)	0.187	0.839	0.067	0.112	1.205
	LTE Band 66 (AWS)	0.152	0.839	0.067	0.112	1.170
	LTE Band 25 (PCS)	0.143	0.839	0.067	0.112	1.161
	LTE Band 41	0.087	0.839	0.067	0.112	1.105

12.4 Body-Worn Simultaneous Transmission Analysis

Table 12-5
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body-Worn	CDMA BC10 (§90S)	0.481	0.192	0.279	0.673	0.760	0.952	N/A	N/A	N/A
	CDMA BC0 (§22H)	0.489	0.192	0.279	0.681	0.768	0.960	N/A	N/A	N/A
	PCS CDMA	0.457	0.192	0.279	0.649	0.736	0.928	N/A	N/A	N/A
	GSM/GPRS 850	0.508	0.192	0.279	0.700	0.787	0.979	N/A	N/A	N/A
	GSM/GPRS 1900	0.444	0.192	0.279	0.636	0.723	0.915	N/A	N/A	N/A
	UMTS 850	0.396	0.192	0.279	0.588	0.675	0.867	N/A	N/A	N/A
	UMTS 1750	0.682	0.192	0.279	0.874	0.961	1.153	N/A	N/A	N/A
	UMTS 1900	0.507	0.192	0.279	0.699	0.786	0.978	N/A	N/A	N/A
	LTE Band 12	0.322	0.192	0.279	0.514	0.601	0.793	N/A	N/A	N/A
	LTE Band 13	0.380	0.192	0.279	0.572	0.659	0.851	N/A	N/A	N/A
	LTE Band 26 (Cell)	0.388	0.192	0.279	0.580	0.667	0.859	N/A	N/A	N/A
	LTE Band 66 (AWS)	0.801	0.192	0.279	0.993	1.080	1.272	N/A	N/A	N/A
	LTE Band 25 (PCS)	0.559	0.192	0.279	0.751	0.838	1.030	N/A	N/A	N/A
	LTE Band 41	1.199	0.192	0.279	1.391	**1.478**	See Note 1	0.01	0.01	0.02

Table 12-6
Simultaneous Transmission Scenario with 5 GHz WLAN Antenna 1 (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	CDMA BC10 (§90S)	0.481	0.133	0.614
	CDMA BC0 (§22H)	0.489	0.133	0.622
	PCS CDMA	0.457	0.133	0.590
	GSM/GPRS 850	0.508	0.133	0.641
	GSM/GPRS 1900	0.444	0.133	0.577
	UMTS 850	0.396	0.133	0.529
	UMTS 1750	0.682	0.133	0.815
	UMTS 1900	0.507	0.133	0.640
	LTE Band 12	0.322	0.133	0.455
	LTE Band 13	0.380	0.133	0.513
	LTE Band 26 (Cell)	0.388	0.133	0.521
	LTE Band 66 (AWS)	0.801	0.133	0.934
	LTE Band 25 (PCS)	0.559	0.133	0.692
	LTE Band 41	1.199	0.133	**1.332**

Table 12-7
Simultaneous Transmission Scenario with 5 GHz WLAN Antenna 2 (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body-Worn	CDMA BC10 (§90S)	0.481	0.891	1.372	N/A
	CDMA BC0 (§22H)	0.489	0.891	1.380	N/A
	PCS CDMA	0.457	0.891	1.348	N/A
	GSM/GPRS 850	0.508	0.891	1.399	N/A
	GSM/GPRS 1900	0.444	0.891	1.335	N/A
	UMTS 850	0.396	0.891	1.287	N/A
	UMTS 1750	0.682	0.891	**1.573**	0.02
	UMTS 1900	0.507	0.891	1.398	N/A
	LTE Band 12	0.322	0.891	1.213	N/A
	LTE Band 13	0.380	0.891	1.271	N/A
	LTE Band 26 (Cell)	0.388	0.891	1.279	N/A
	LTE Band 66 (AWS)	0.801	0.891	See Note 1	0.02
	LTE Band 25 (PCS)	0.559	0.891	1.450	N/A
	LTE Band 41	1.199	0.891	See Note 1	0.03

Table 12-8
Simultaneous Transmission Scenario with 5 GHz WLAN MIMO (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Body-Worn	CDMA BC10 (§90S)	0.481	0.867	1.348	N/A
	CDMA BC0 (§22H)	0.489	0.867	1.356	N/A
	PCS CDMA	0.457	0.867	1.324	N/A
	GSM/GPRS 850	0.508	0.867	1.375	N/A
	GSM/GPRS 1900	0.444	0.867	1.311	N/A
	UMTS 850	0.396	0.867	1.263	N/A
	UMTS 1750	0.682	0.867	**1.549**	N/A
	UMTS 1900	0.507	0.867	1.374	N/A
	LTE Band 12	0.322	0.867	1.189	N/A
	LTE Band 13	0.380	0.867	1.247	N/A
	LTE Band 26 (Cell)	0.388	0.867	1.255	N/A
	LTE Band 66 (AWS)	0.801	0.867	See Note 1	0.02
	LTE Band 25 (PCS)	0.559	0.867	1.426	N/A
	LTE Band 41	1.199	0.867	See Note 1	0.03

Table 12-9
Simultaneous Transmission Scenario with Bluetooth (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	CDMA BC10 (§90S)	0.481	0.045	0.526
	CDMA BC0 (§22H)	0.489	0.045	0.534
	PCS CDMA	0.457	0.045	0.502
	GSM/GPRS 850	0.508	0.045	0.553
	GSM/GPRS 1900	0.444	0.045	0.489
	UMTS 850	0.396	0.045	0.441
	UMTS 1750	0.682	0.045	0.727
	UMTS 1900	0.507	0.045	0.552
	LTE Band 12	0.322	0.045	0.367
	LTE Band 13	0.380	0.045	0.425
	LTE Band 26 (Cell)	0.388	0.045	0.433
	LTE Band 66 (AWS)	0.801	0.045	0.846
	LTE Band 25 (PCS)	0.559	0.045	0.604
	LTE Band 41	1.199	0.045	**1.244**

Table 12-10
Simultaneous Transmission Scenario with 5 GHz Ant 1 and Bluetooth (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	CDMA BC10 (§90S)	0.481	0.133	0.045	0.659
	CDMA BC0 (§22H)	0.489	0.133	0.045	0.667
	PCS CDMA	0.457	0.133	0.045	0.635
	GSM/GPRS 850	0.508	0.133	0.045	0.686
	GSM/GPRS 1900	0.444	0.133	0.045	0.622
	UMTS 850	0.396	0.133	0.045	0.574
	UMTS 1750	0.682	0.133	0.045	0.860
	UMTS 1900	0.507	0.133	0.045	0.685
	LTE Band 12	0.322	0.133	0.045	0.500
	LTE Band 13	0.380	0.133	0.045	0.558
	LTE Band 26 (Cell)	0.388	0.133	0.045	0.566
	LTE Band 66 (AWS)	0.801	0.133	0.045	0.979
	LTE Band 25 (PCS)	0.559	0.133	0.045	0.737
	LTE Band 41	1.199	0.133	0.045	**1.377**

Table 12-11
Simultaneous Transmission Scenario with 5 GHz Ant 2 and Bluetooth (Body-Worn at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Body-Worn	CDMA BC10 (§90S)	0.481	0.891	0.045	1.417	N/A	N/A	N/A
	CDMA BC0 (§22H)	0.489	0.891	0.045	1.425	N/A	N/A	N/A
	PCS CDMA	0.457	0.891	0.045	1.393	N/A	N/A	N/A
	GSM/GPRS 850	0.508	0.891	0.045	1.444	N/A	N/A	N/A
	GSM/GPRS 1900	0.444	0.891	0.045	1.380	N/A	N/A	N/A
	UMTS 850	0.396	0.891	0.045	1.332	N/A	N/A	N/A
	UMTS 1750	0.682	0.891	0.045	See Note 1	0.02	0.00	0.04
	UMTS 1900	0.507	0.891	0.045	1.443	N/A	N/A	N/A
	LTE Band 12	0.322	0.891	0.045	1.258	N/A	N/A	N/A
	LTE Band 13	0.380	0.891	0.045	1.316	N/A	N/A	N/A
	LTE Band 26 (Cell)	0.388	0.891	0.045	1.324	N/A	N/A	N/A
	LTE Band 66 (AWS)	0.801	0.891	0.045	See Note 1	0.02	0.01	0.04
	LTE Band 25 (PCS)	0.559	0.891	0.045	1.495	N/A	N/A	N/A
	LTE Band 41	1.199	0.891	0.045	See Note 1	0.03	0.01	0.04

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Body-Worn	CDMA BC10 (§90S)	0.481	0.867	0.045	1.348	0.526	1.393	N/A	N/A	N/A
	CDMA BC0 (§22H)	0.489	0.867	0.045	1.356	0.534	1.401	N/A	N/A	N/A
	PCS CDMA	0.457	0.867	0.045	1.324	0.502	1.369	N/A	N/A	N/A
	GSM/GPRS 850	0.508	0.867	0.045	1.375	0.553	1.420	N/A	N/A	N/A
	GSM/GPRS 1900	0.444	0.867	0.045	1.311	0.489	1.356	N/A	N/A	N/A
	UMTS 850	0.396	0.867	0.045	1.263	0.441	1.308	N/A	N/A	N/A
	UMTS 1750	0.682	0.867	0.045	1.549	0.727	**1.594**	N/A	N/A	N/A
	UMTS 1900	0.507	0.867	0.045	1.374	0.552	1.419	N/A	N/A	N/A
	LTE Band 12	0.322	0.867	0.045	1.189	0.367	1.234	N/A	N/A	N/A
	LTE Band 13	0.380	0.867	0.045	1.247	0.425	1.292	N/A	N/A	N/A
	LTE Band 26 (Cell)	0.388	0.867	0.045	1.255	0.433	1.300	N/A	N/A	N/A
	LTE Band 66 (AWS)	0.801	0.867	0.045	See Note 1	0.846	See Note 1	0.02	0.01	0.04
	LTE Band 25 (PCS)	0.559	0.867	0.045	1.426	0.604	1.471	N/A	N/A	N/A
	LTE Band 41	1.199	0.867	0.045	See Note 1	1.244	See Note 1	0.03	0.01	0.04

Notes:

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

12.5 Hotspot SAR Simultaneous Transmission Analysis

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

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

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.459	0.245	0.279	0.704	0.738	0.983
	EVDO BC0 (§22H)	0.464	0.245	0.279	0.709	0.743	0.988
	PCS EVDO	1.113	0.245	0.279	1.358	1.392	See Table Below
	GPRS 850	0.552	0.245	0.279	0.797	0.831	1.076
	GPRS 1900	0.735	0.245	0.279	0.980	1.014	1.259
	UMTS 850	0.396	0.245	0.279	0.641	0.675	0.920
	UMTS 1750	1.015	0.245	0.279	1.260	1.294	**1.539**
	UMTS 1900	0.894	0.245	0.279	1.139	1.173	1.418
	LTE Band 12	0.322	0.245	0.279	0.567	0.601	0.846
	LTE Band 13	0.380	0.245	0.279	0.625	0.659	0.904
	LTE Band 26 (Cell)	0.388	0.245	0.279	0.633	0.667	0.912
	LTE Band 66 (AWS)	1.131	0.245	0.279	1.376	1.410	See Table Below
	LTE Band 25 (PCS)	1.188	0.245	0.279	1.433	1.467	See Table Below
	LTE Band 41	1.199	0.245	0.279	1.444	1.478	See Table Below

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.469	0.192	0.279	0.661	0.748	0.940
	Front	0.386	0.245*	0.279*	0.631	0.665	0.910
	Top	-	0.245	0.279*	0.245	0.279	0.524
	Bottom	1.113	-	-	**1.113**	**1.113**	**1.113**
	Right	-	-	-	0.000	0.000	0.000
	Left	0.223	0.245*	0.279*	0.468	0.502	0.747

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.801	0.192	0.279	0.993	1.080	**1.272**
	Front	0.606	0.245*	0.279*	0.851	0.885	1.130
	Top	-	0.245	0.279*	0.245	0.279	0.524
	Bottom	1.131	-	-	1.131	1.131	1.131
	Right	-	-	-	0.000	0.000	0.000
	Left	0.400	0.245*	0.279*	0.645	0.679	0.924

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)		
		1	2	3	1+2	1+3	1+2+3
Hotspot SAR	Back	0.559	0.192	0.279	0.751	0.838	1.030
	Front	0.505	0.245*	0.279*	0.750	0.784	1.029
	Top	-	0.245	0.279*	0.245	0.279	0.524
	Bottom	1.188	-	-	**1.188**	**1.188**	**1.188**
	Right	-	-	-	0.000	0.000	0.000
	Left	0.247	0.245*	0.279*	0.492	0.526	0.771

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			SPLSR		
		1	2	3	1+2	1+3	1+2+3	1+2	1+3	2+3
Hotspot SAR	Back	1.199	0.192	0.279	1.391	**1.478**	See Note 1	0.01	0.01	0.02
	Front	0.374	0.245*	0.279*	0.619	0.653	0.898	N/A	N/A	N/A
	Top	-	0.245	0.279*	0.245	0.279	0.524	N/A	N/A	N/A
	Bottom	1.036	-	-	1.036	1.036	1.036	N/A	N/A	N/A
	Right	0.116	-	-	0.116	0.116	0.116	N/A	N/A	N/A
	Left	0.086	0.245*	0.279*	0.331	0.365	0.610	N/A	N/A	N/A

Table 12-14
Simultaneous Transmission Scenario with 5 GHz WLAN Antenna 1 (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.459	0.117	0.576
	EVDO BC0 (§22H)	0.464	0.117	0.581
	PCS EVDO	1.113	0.117	1.230
	GPRS 850	0.552	0.117	0.669
	GPRS 1900	0.735	0.117	0.852
	UMTS 850	0.396	0.117	0.513
	UMTS 1750	1.015	0.117	1.132
	UMTS 1900	0.894	0.117	1.011
	LTE Band 12	0.322	0.117	0.439
	LTE Band 13	0.380	0.117	0.497
	LTE Band 26 (Cell)	0.388	0.117	0.505
	LTE Band 66 (AWS)	1.131	0.117	1.248
	LTE Band 25 (PCS)	1.188	0.117	1.305
	LTE Band 41	1.199	0.117	**1.316**

Table 12-15
Simultaneous Transmission Scenario with 5 GHz WLAN Antenna 2 (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.459	0.891	1.350
	EVDO BC0 (§22H)	0.464	0.891	1.355
	PCS EVDO	1.113	0.891	See Table Below
	GPRS 850	0.552	0.891	**1.443**
	GPRS 1900	0.735	0.891	See Table Below
	UMTS 850	0.396	0.891	1.287
	UMTS 1750	1.015	0.891	See Table Below
	UMTS 1900	0.894	0.891	See Table Below
	LTE Band 12	0.322	0.891	1.213
	LTE Band 13	0.380	0.891	1.271
	LTE Band 26 (Cell)	0.388	0.891	1.279
	LTE Band 66 (AWS)	1.131	0.891	See Table Below
	LTE Band 25 (PCS)	1.188	0.891	See Table Below
	LTE Band 41	1.199	0.891	See Table Below

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.469	0.891	**1.360**
	Front	0.386	0.009	0.395
	Top	-	0.891*	0.891
	Bottom	1.113	-	1.113
	Right	-	-	0.000
	Left	0.223	0.181	0.404

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.444	0.891	**1.335**
	Front	0.393	0.009	0.402
	Top	-	0.891*	0.891
	Bottom	0.735	-	0.735
	Right	-	-	0.000
	Left	0.191	0.181	0.372

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.682	0.891	**1.573**
	Front	0.621	0.009	0.630
	Top	-	0.891*	0.891
	Bottom	1.015	-	1.015
	Right	-	-	0.000
	Left	0.405	0.181	0.586

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.507	0.891	**1.398**
	Front	0.445	0.009	0.454
	Top	-	0.891*	0.891
	Bottom	0.894	-	0.894
	Right	-	-	0.000
	Left	0.236	0.181	0.417

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Hotspot SAR	Back	0.801	0.891	See Note 1	0.02
	Front	0.606	0.009	0.615	N/A
	Top	-	0.891*	0.891	N/A
	Bottom	1.131	-	**1.131**	N/A
	Right	-	-	0.000	N/A
	Left	0.400	0.181	0.581	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.559	0.891	**1.450**
	Front	0.505	0.009	0.514
	Top	-	0.891*	0.891
	Bottom	1.188	-	1.188
	Right	-	-	0.000
	Left	0.247	0.181	0.428

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Hotspot SAR	Back	1.199	0.891	See Note 1	0.03
	Front	0.374	0.009	0.383	N/A
	Top	-	0.891*	0.891	N/A
	Bottom	1.036	-	**1.036**	N/A
	Right	0.116	-	0.116	N/A
	Left	0.086	0.181	0.267	N/A

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.459	0.867	1.326
	EVDO BC0 (§22H)	0.464	0.867	1.331
	PCS EVDO	1.113	0.867	See Table Below
	GPRS 850	0.552	0.867	**1.419**
	GPRS 1900	0.735	0.867	See Table Below
	UMTS 850	0.396	0.867	1.263
	UMTS 1750	1.015	0.867	See Table Below
	UMTS 1900	0.894	0.867	See Table Below
	LTE Band 12	0.322	0.867	1.189
	LTE Band 13	0.380	0.867	1.247
	LTE Band 26 (Cell)	0.388	0.867	1.255
	LTE Band 66 (AWS)	1.131	0.867	See Table Below
	LTE Band 25 (PCS)	1.188	0.867	See Table Below
	LTE Band 41	1.199	0.867	See Table Below

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.469	0.867	**1.336**
	Front	0.386	0.015	0.401
	Top	-	0.867*	0.867
	Bottom	1.113	-	1.113
	Right	-	-	0.000
	Left	0.223	0.187	0.410

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.444	0.867	**1.311**
	Front	0.393	0.015	0.408
	Top	-	0.867*	0.867
	Bottom	0.735	-	0.735
	Right	-	-	0.000
	Left	0.191	0.187	0.378

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.682	0.867	**1.549**
	Front	0.621	0.015	0.636
	Top	-	0.867*	0.867
	Bottom	1.015	-	1.015
	Right	-	-	0.000
	Left	0.405	0.187	0.592

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.507	0.867	**1.374**
	Front	0.445	0.015	0.460
	Top	-	0.867*	0.867
	Bottom	0.894	-	0.894
	Right	-	-	0.000
	Left	0.236	0.187	0.423

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Hotspot SAR	Back	0.801	0.867	See Note 1	0.02
	Front	0.606	0.015	0.621	N/A
	Top	-	0.867*	0.867	N/A
	Bottom	1.131	-	**1.131**	N/A
	Right	-	-	0.000	N/A
	Left	0.400	0.187	0.587	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	Back	0.559	0.867	**1.426**
	Front	0.505	0.015	0.520
	Top	-	0.867*	0.867
	Bottom	1.188	-	1.188
	Right	-	-	0.000
	Left	0.247	0.187	0.434

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Hotspot SAR	Back	1.199	0.867	See Note 1	0.03
	Front	0.374	0.015	0.389	N/A
	Top	-	0.867*	0.867	N/A
	Bottom	1.036	-	**1.036**	N/A
	Right	0.116	-	0.116	N/A
	Left	0.086	0.187	0.273	N/A

Table 12-17
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)	0.459	0.052	0.511
	EVDO BC0 (§22H)	0.464	0.052	0.516
	PCS EVDO	1.113	0.052	1.165
	GPRS 850	0.552	0.052	0.604
	GPRS 1900	0.735	0.052	0.787
	UMTS 850	0.396	0.052	0.448
	UMTS 1750	1.015	0.052	1.067
	UMTS 1900	0.894	0.052	0.946
	LTE Band 12	0.322	0.052	0.374
	LTE Band 13	0.380	0.052	0.432
	LTE Band 26 (Cell)	0.388	0.052	0.440
	LTE Band 66 (AWS)	1.131	0.052	1.183
	LTE Band 25 (PCS)	1.188	0.052	1.240
	LTE Band 41	1.199	0.052	**1.251**

Table 12-18
Simultaneous Transmission Scenario with 5 GHz Ant 1 and Bluetooth (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.459	0.117	0.052	0.628
	EVDO BC0 (§22H)	0.464	0.117	0.052	0.633
	PCS EVDO	1.113	0.117	0.052	1.282
	GPRS 850	0.552	0.117	0.052	0.721
	GPRS 1900	0.735	0.117	0.052	0.904
	UMTS 850	0.396	0.117	0.052	0.565
	UMTS 1750	1.015	0.117	0.052	1.184
	UMTS 1900	0.894	0.117	0.052	1.063
	LTE Band 12	0.322	0.117	0.052	0.491
	LTE Band 13	0.380	0.117	0.052	0.549
	LTE Band 26 (Cell)	0.388	0.117	0.052	0.557
	LTE Band 66 (AWS)	1.131	0.117	0.052	1.300
	LTE Band 25 (PCS)	1.188	0.117	0.052	1.357
	LTE Band 41	1.199	0.117	0.052	**1.368**

Table 12-19
Simultaneous Transmission Scenario with 5 GHz Ant 2 and Bluetooth (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.459	0.891	0.052	1.402
	EVDO BC0 (§22H)	0.464	0.891	0.052	1.407
	PCS EVDO	1.113	0.891	0.052	See Table Below
	GPRS 850	0.552	0.891	0.052	**1.495**
	GPRS 1900	0.735	0.891	0.052	See Table Below
	UMTS 850	0.396	0.891	0.052	1.339
	UMTS 1750	1.015	0.891	0.052	See Table Below
	UMTS 1900	0.894	0.891	0.052	See Table Below
	LTE Band 12	0.322	0.891	0.052	1.265
	LTE Band 13	0.380	0.891	0.052	1.323
	LTE Band 26 (Cell)	0.388	0.891	0.052	1.331
	LTE Band 66 (AWS)	1.131	0.891	0.052	See Table Below
	LTE Band 25 (PCS)	1.188	0.891	0.052	See Table Below
	LTE Band 41	1.199	0.891	0.052	See Table Below

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.469	0.891	0.045	**1.405**
	Front	0.386	0.009	0.023	0.418
	Top	-	0.891*	0.052	0.943
	Bottom	1.113	-	-	1.113
	Right	-	-	-	0.000
	Left	0.223	0.181	0.012	0.416

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.444	0.891	0.045	**1.380**
	Front	0.393	0.009	0.023	0.425
	Top	-	0.891*	0.052	0.943
	Bottom	0.735	-	-	0.735
	Right	-	-	-	0.000
	Left	0.191	0.181	0.012	0.384

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Hotspot SAR	Back	0.682	0.891	0.045	See Note 1	0.02	0.00	0.04
	Front	0.621	0.009	0.023	0.653	N/A	N/A	N/A
	Top	-	0.891*	0.052	0.943	N/A	N/A	N/A
	Bottom	1.015	-	-	1.015	N/A	N/A	N/A
	Right	-	-	-	0.000	N/A	N/A	N/A
	Left	0.405	0.181	0.012	0.598	N/A	N/A	N/A

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.507	0.891	0.045	**1.443**
	Front	0.445	0.009	0.023	0.477
	Top	-	0.891*	0.052	0.943
	Bottom	0.894	-	-	0.894
	Right	-	-	-	0.000
	Left	0.236	0.181	0.012	0.429

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Hotspot SAR	Back	0.801	0.891	0.045	See Note 1	0.02	0.01	0.04
	Front	0.606	0.009	0.023	0.638	N/A	N/A	N/A
	Top	-	0.891*	0.052	0.943	N/A	N/A	N/A
	Bottom	1.131	-	-	**1.131**	N/A	N/A	N/A
	Right	-	-	-	0.000	N/A	N/A	N/A
	Left	0.400	0.181	0.012	0.593	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.559	0.891	0.045	**1.495**
	Front	0.505	0.009	0.023	0.537
	Top	-	0.891*	0.052	0.943
	Bottom	1.188	-	-	1.188
	Right	-	-	-	0.000
	Left	0.247	0.181	0.012	0.440

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Hotspot SAR	Back	1.199	0.891	0.045	See Note 1	0.03	0.01	0.04
	Front	0.374	0.009	0.023	0.406	N/A	N/A	N/A
	Top	-	0.891*	0.052	0.943	N/A	N/A	N/A
	Bottom	1.036	-	-	1.036	N/A	N/A	N/A
	Right	0.116	-	-	0.116	N/A	N/A	N/A
	Left	0.086	0.181	0.012	0.279	N/A	N/A	N/A

Table 12-20
Simultaneous Transmission Scenario with 5 GHz MIMO and Bluetooth (Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.459	0.867	0.052	1.378
	EVDO BC0 (§22H)	0.464	0.867	0.052	1.383
	PCS EVDO	1.113	0.867	0.052	See Table Below
	GPRS 850	0.552	0.867	0.052	**1.471**
	GPRS 1900	0.735	0.867	0.052	See Table Below
	UMTS 850	0.396	0.867	0.052	1.315
	UMTS 1750	1.015	0.867	0.052	See Table Below
	UMTS 1900	0.894	0.867	0.052	See Table Below
	LTE Band 12	0.322	0.867	0.052	1.241
	LTE Band 13	0.380	0.867	0.052	1.299
	LTE Band 26 (Cell)	0.388	0.867	0.052	1.307
	LTE Band 66 (AWS)	1.131	0.867	0.052	See Table Below
	LTE Band 25 (PCS)	1.188	0.867	0.052	See Table Below
	LTE Band 41	1.199	0.867	0.052	See Table Below

Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.469	0.867	0.045	**1.381**
	Front	0.386	0.015	0.023	0.424
	Top	-	0.867*	0.052	0.919
	Bottom	1.113	-	-	1.113
	Right	-	-	-	0.000
	Left	0.223	0.187	0.012	0.422

Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.444	0.867	0.045	**1.356**
	Front	0.393	0.015	0.023	0.431
	Top	-	0.867*	0.052	0.919
	Bottom	0.735	-	-	0.735
	Right	-	-	-	0.000
	Left	0.191	0.187	0.012	0.390

Simult Tx	Configuration	UMTS 1750 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.682	0.867	0.045	**1.594**
	Front	0.621	0.015	0.023	0.659
	Top	-	0.867*	0.052	0.919
	Bottom	1.015	-	-	1.015
	Right	-	-	-	0.000
	Left	0.405	0.187	0.012	0.604

Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.507	0.867	0.045	**1.419**
	Front	0.445	0.015	0.023	0.483
	Top	-	0.867*	0.052	0.919
	Bottom	0.894	-	-	0.894
	Right	-	-	-	0.000
	Left	0.236	0.187	0.012	0.435

Simult Tx	Configuration	LTE Band 66 (AWS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Hotspot SAR	Back	0.801	0.867	0.045	See Note 1	0.02	0.01	0.04
	Front	0.606	0.015	0.023	0.644	N/A	N/A	N/A
	Top	-	0.867*	0.052	0.919	N/A	N/A	N/A
	Bottom	1.131	-	-	**1.131**	N/A	N/A	N/A
	Right	-	-	-	0.000	N/A	N/A	N/A
	Left	0.400	0.187	0.012	0.599	N/A	N/A	N/A

Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	Back	0.559	0.867	0.045	**1.471**
	Front	0.505	0.015	0.023	0.543
	Top	-	0.867*	0.052	0.919
	Bottom	1.188	-	-	1.188
	Right	-	-	-	0.000
	Left	0.247	0.187	0.012	0.446

Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)	SPLSR		
		1	2	3	1+2+3	1+2	1+3	2+3
Hotspot SAR	Back	1.199	0.867	0.045	See Note 1	0.03	0.01	0.04
	Front	0.374	0.015	0.023	0.412	N/A	N/A	N/A
	Top	-	0.867*	0.052	0.919	N/A	N/A	N/A
	Bottom	1.036	-	-	1.036	N/A	N/A	N/A
	Right	0.116	-	-	0.116	N/A	N/A	N/A
	Left	0.086	0.187	0.012	0.285	N/A	N/A	N/A

Notes:

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

12.6 SPLSR Evaluation and Analysis

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

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

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

12.6.1 Back Side SPLSR Evaluation and Analysis

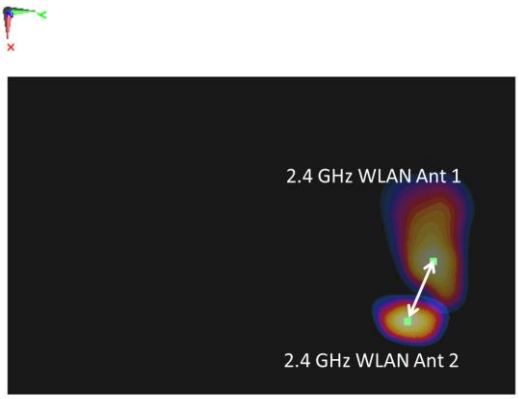
Table 12-21
Peak SAR Locations for Body Back Side

Mode/Band	x (mm)	y (mm)
2.4 GHz WLAN Ant 1	-10.40	64.80
2.4 GHz WLAN Ant 2	7.40	55.20
2.4 GHz Bluetooth	-11.60	62.40
5 GHz WLAN Ant 2	3.00	45.00
5 GHz WLAN MIMO	3.00	47.00
UMTS 1750	-15.50	-70.50
LTE Band 66	-15.50	-72.00
LTE Band 41	-17.90	-64.80

Table 12-22
Back Side SAR to Peak Location Separation Ratio Calculations

Antenna Pair		Standalone SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio	Plot Number
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$	
2.4 GHz WLAN Ant 1	2.4 GHz WLAN Ant 2	0.192	0.279	0.471	20.22	0.02	1
2.4 GHz WLAN Ant 1	LTE Band 41	0.192	1.199	1.391	129.82	0.01	2
2.4 GHz WLAN Ant 2	LTE Band 41	0.279	1.199	1.478	122.64	0.01	3
5 GHz WLAN Ant 2	UMTS 1750	0.891	0.682	1.573	116.97	0.02	4
5 GHz WLAN Ant 2	LTE Band 66	0.891	0.801	1.692	118.45	0.02	5
5 GHz WLAN Ant 2	LTE Band 41	0.891	1.199	2.090	111.77	0.03	6
5 GHz WLAN Ant 2	2.4 GHz Bluetooth	0.891	0.045	0.936	22.71	0.04	7
5 GHz WLAN MIMO	LTE Band 66	0.867	0.801	1.668	120.43	0.02	8
5 GHz WLAN MIMO	LTE Band 41	0.867	1.199	2.066	113.74	0.03	9
5 GHz WLAN MIMO	2.4 GHz Bluetooth	0.867	0.045	0.912	21.22	0.04	10
2.4 GHz Bluetooth	UMTS 1750	0.045	0.682	0.727	132.96	0.00	11
2.4 GHz Bluetooth	LTE Band 66	0.045	0.801	0.846	134.46	0.01	12
2.4 GHz Bluetooth	LTE Band 41	0.045	1.199	1.244	127.36	0.01	13

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



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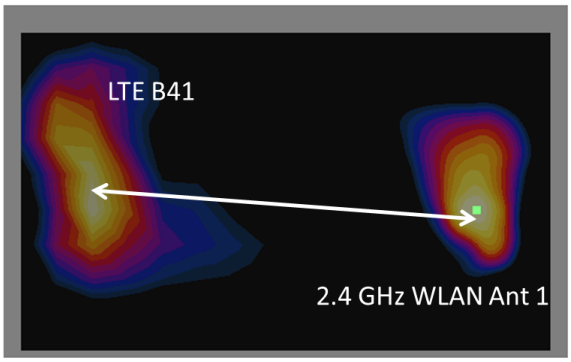

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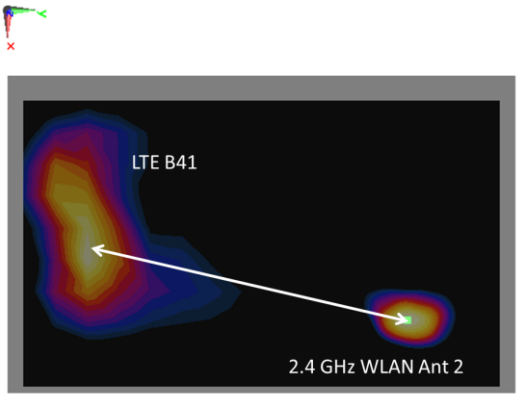

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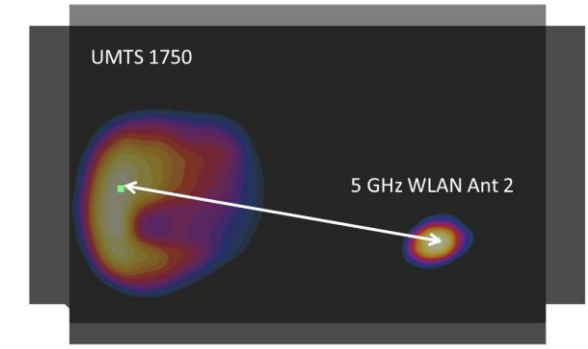

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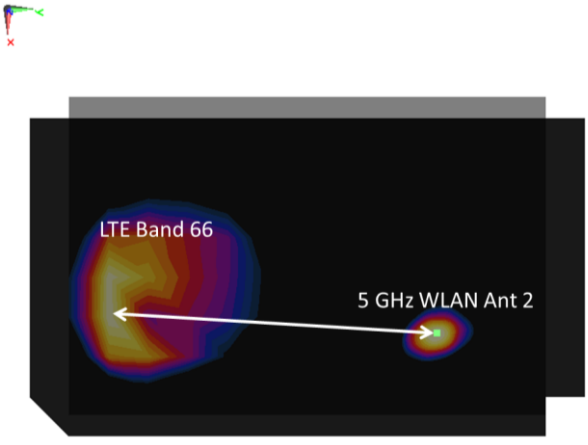

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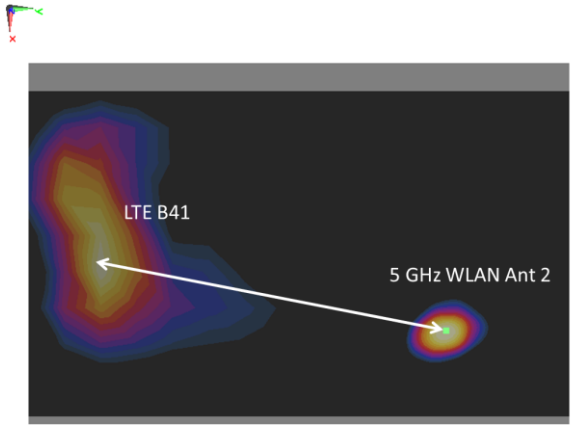

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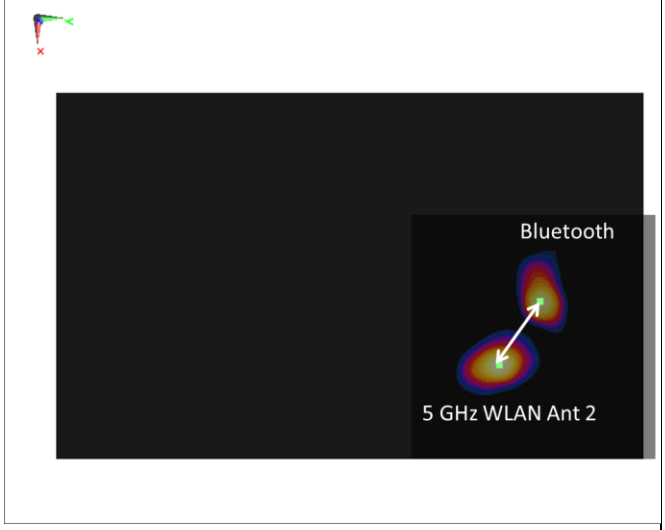

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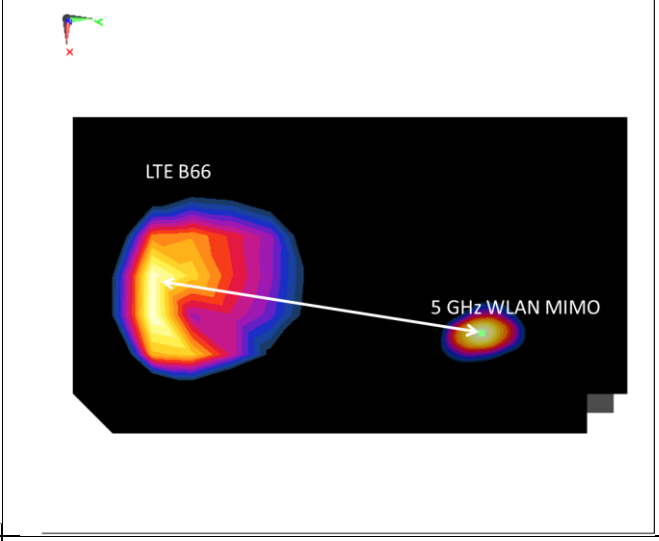

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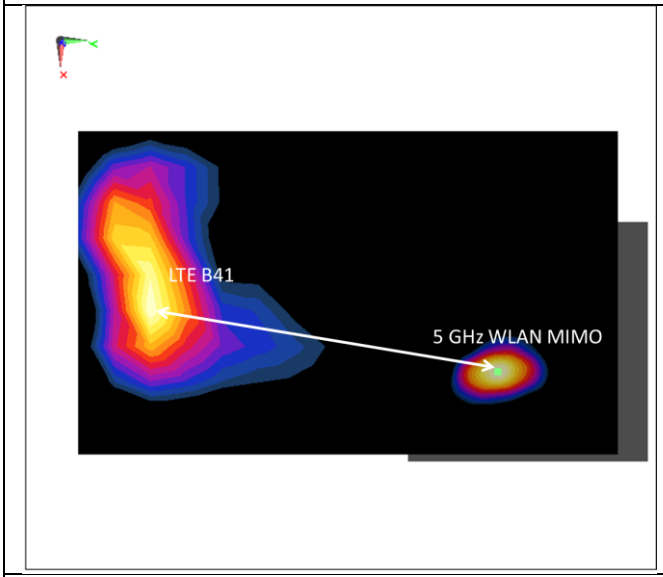

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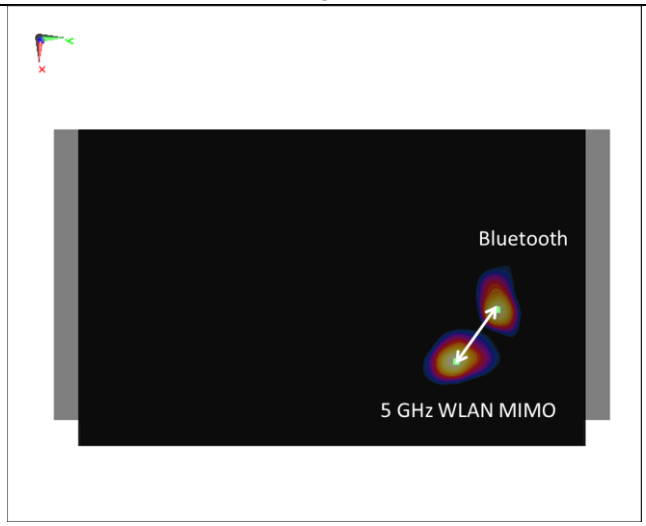

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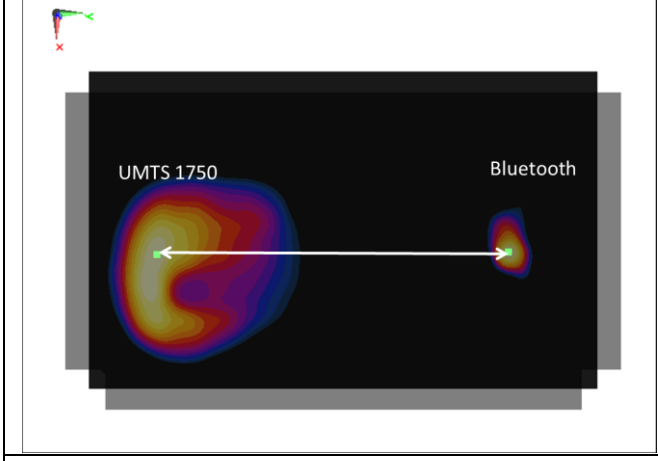

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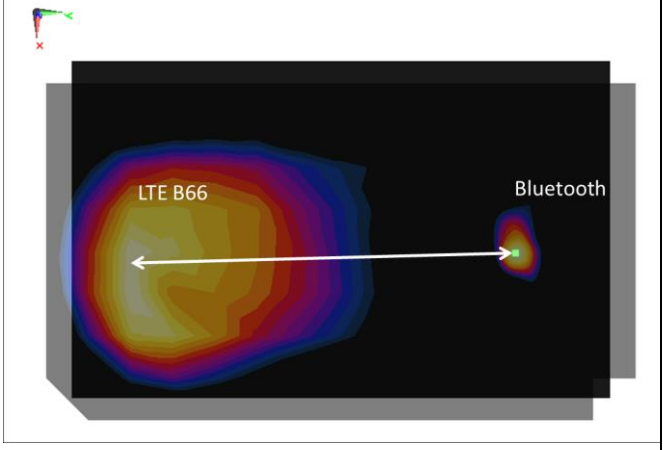

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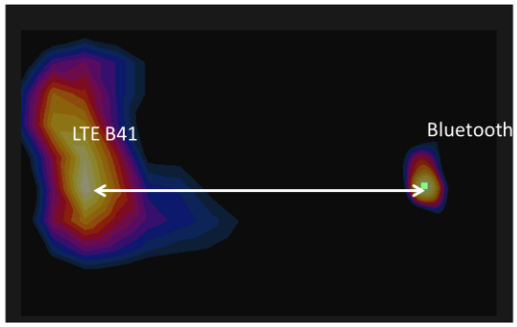

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12.7 Simultaneous Transmission Conclusion

The above numerical summed SAR results 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 and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and IEEE 1528-2013 Section 6.3.4.1.2.

13 SAR MEASUREMENT VARIABILITY

13.1 Measurement Variability

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

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

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

Table 13-1
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Data Rate (Mbps)	Side	Spacing	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	Ratio	3rd Repeated SAR (1g)	Ratio
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1750	1770.00	132572	LTE Band 66 (AWS), 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	N/A	bottom	10 mm	1.090	1.010	1.08	N/A	N/A	N/A	N/A
1900	1860.00	26140	LTE Band 25 (PCS), 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	N/A	bottom	10 mm	1.140	1.000	1.14	N/A	N/A	N/A	N/A
2450	2506.00	39750	LTE Band 41, 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	N/A	back	10 mm	1.180	1.140	1.04	N/A	N/A	N/A	N/A
2600	2549.50	40185	LTE Band 41, 20 MHz Bandwidth	QPSK, 1 RB, 0 RB Offset	N/A	back	10 mm	1.130	1.060	1.07	N/A	N/A	N/A	N/A
5750	5825.00	165	802.11a, 20 MHz Bandwidth	OFDM, ANT 2	6	back	10 mm	0.830	0.827	1.00	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Body 1.6 W/kg (mW/g) averaged over 1 gram						

Table 13-2
Phablet SAR Measurement Variability Results

PHABLET VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Data Rate (Mbps)	Side	Spacing	Measured SAR (10g)	1st Repeated SAR (10g)	Ratio	2nd Repeated SAR (10g)	Ratio	3rd Repeated SAR (10g)	Ratio
	MHz	Ch.						(W/kg)	(W/kg)		(W/kg)		(W/kg)	
5600	5600.00	120	802.11a, 20 MHz Bandwidth	OFDM, Ant 2	6	back	0 mm	2.490	2.460	1.01	N/A	N/A	N/A	N/A
5750	5720.00	144	802.11a, 20 MHz Bandwidth	OFDM, Ant 2	6	back	0 mm	2.470	2.360	1.05	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Phablet 4.0 W/kg (mW/g) averaged over 10 grams						

13.2 Measurement Uncertainty

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

14 ADDITIONAL TESTING PER FCC GUIDANCE

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

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

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

Table 14-1
LTE Band 41 Head Linearity Data

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.2	27.2
Measured Output Power (dBm)	25.14	27.13
Measured SAR (W/kg)	0.086	0.085
Measured Power (mW)	326.59	516.42
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	206.73	223.61
% deviation from expected linearity		-8.62%

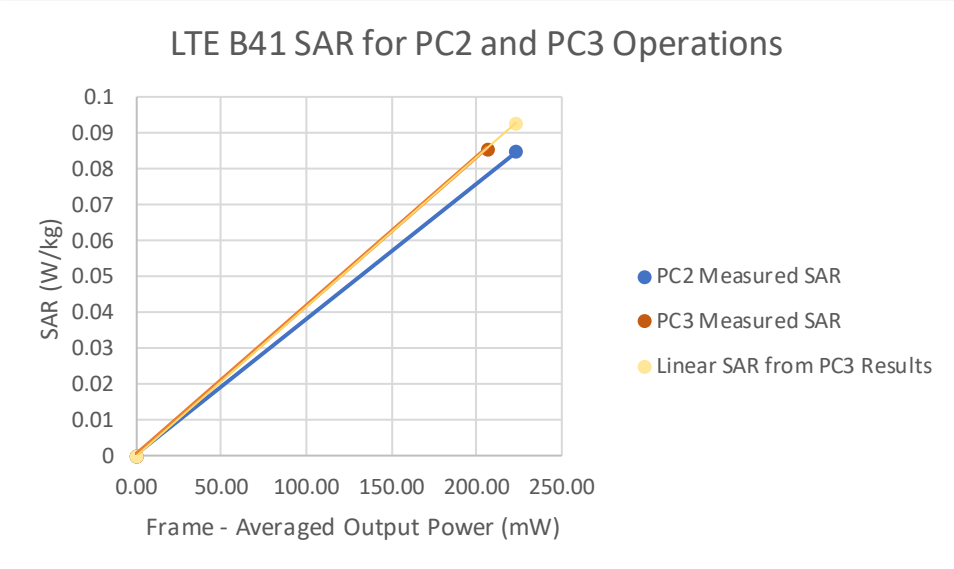

Figure 14-1
LTE Band 41 Head Linearity

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

	LTE Band 41 PC3	LTE Band 41 PC2
Maximum Allowed Output Power (dBm)	25.2	27.2
Measured Output Power (dBm)	25.13	27.04
Measured SAR (W/kg)	1.18	1.14
Measured Power (mW)	325.84	505.82
Duty Cycle	63.3%	43.3%
Frame Averaged Output Power (mW)	206.25	219.02
% deviation from expected linearity		-9.02%

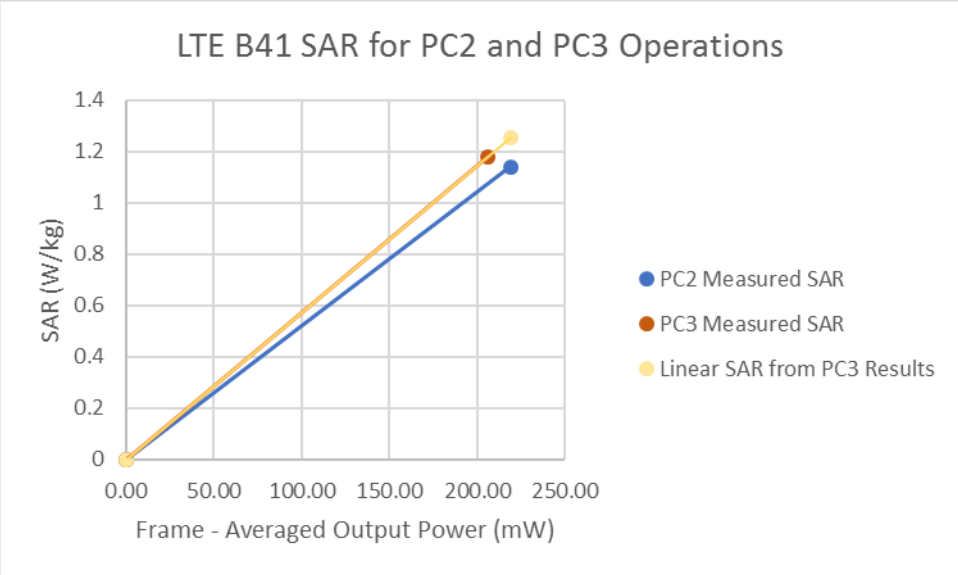

Figure 14-2
LTE Band 41 Body-Worn and Hotspot Linearity

15 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	85033E	3.5mm Standard Calibration Kit	8/13/2018	Annual	8/13/2019	MY53402352
Agilent	8753E	(30kHz-6GHz) Network Analyzer	9/28/2018	Annual	9/28/2019	JP38020182
Agilent	8753ES	S-Parameter Network Analyzer	2/8/2018	Annual	2/8/2019	US39170122
Agilent	E4438C	ESG Vector Signal Generator	3/24/2017	Biennial	3/24/2019	MY42082385
Agilent	E4440A	PSA Series Spectrum Analyzer	11/14/2018	Annual	11/14/2019	MY46186272
Agilent	E5515C	Wireless Communications Test Set	2/28/2018	Biennial	2/28/2020	GB41450275
Agilent	E5515C	8960 Series 10 Wireless Communications Test Set	12/18/2018	Annual	12/18/2019	GB42230325
Agilent	E5515C	Wireless Communications Test Set	1/29/2016	Triennial	1/29/2019	GB46310798
Agilent	N4010A	Wireless Connectivity Test Set	N/A	N/A	N/A	GB44450273
Agilent	N5182A	MXG Vector Signal Generator	11/28/2018	Annual	11/28/2019	MY47420603
Agilent	N9020A	MXA Signal Analyzer	1/24/2018	Annual	1/24/2019	US46470561
Amplifier Research	150A100C	Amplifier	CBT	N/A	CBT	350132
Anritsu	MA24106A	USB Power Sensor	7/17/2018	Annual	7/17/2019	1827527
Anritsu	MA24106A	USB Power Sensor	6/5/2018	Annual	6/5/2019	1231535
Anritsu	MA24106A	USB Power Sensor	6/5/2018	Annual	6/5/2019	1231538
Anritsu	MA24106A	USB Power Sensor	6/21/2018	Annual	6/21/2019	1244512
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1126066
Anritsu	MA2411B	Pulse Power Sensor	10/30/2018	Annual	10/30/2019	1207470
Anritsu	ML2496A	Power Meter	5/21/2018	Annual	5/21/2019	1351001
Anritsu	MT8820C	Radio Communication Analyzer	6/27/2018	Annual	6/27/2019	6201240328
Anritsu	MT8821C	Radio Communication Analyzer	11/6/2018	Annual	11/6/2019	6200901190
Anritsu	MT8821C	Radio Communication Analyzer	7/26/2018	Annual	7/26/2019	6201144418
Anritsu	MT8821C	Radio Communication Analyzer	7/24/2018	Annual	7/24/2019	6201664756
Anritsu	MT8862A	Wireless Connectivity Test Set	7/3/2018	Annual	7/3/2019	6261782395
COMTech	AR85729-5	Solid State Amplifier	CBT	N/A	CBT	M1SSA00-009
COMTECH	AR85729-5/5759B	Solid State Amplifier	CBT	N/A	CBT	M3W1A00-1002
Control Company	4040	Temperature / Humidity Monitor	2/28/2018	Biennial	2/28/2020	150761911
Control Company	4040	Therm./ Clock/ Humidity Monitor	3/1/2017	Biennial	3/1/2019	170152009
Control Company	4352	Ultra Long Stem Thermometer	2/14/2017	Biennial	2/14/2019	170112507
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Keysight Technologies	85033E	Standard Mechanical Calibration Kit (DC to 9GHz, 3.5mm)	6/4/2018	Annual	6/4/2019	MY53401181
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
Mini Circuits	PWR-4GHS	USB Power Sensor	1/22/2018	Annual	1/22/2019	11710030062
Mini Circuits	PWR-4GHS	USB Power Sensor	1/20/2018	Annual	1/20/2019	11710030063
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mitutoyo	CD-6"CSX	Digital Caliper	4/18/2018	Biennial	4/18/2020	13264165
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
Pasternack	NC-100	Torque Wrench	4/18/2018	Annual	4/18/2019	1445
Pasternack	NC-100	Torque Wrench	11/1/2017	Biennial	11/1/2019	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE5011-1	Torque Wrench	7/19/2017	Biennial	7/19/2019	N/A
Rohde& Schwarz	CMW500	Wideband Radio Communication Tester	7/5/2018	Annual	7/5/2019	145663
Rohde& Schwarz	CMW500	Wideband Radio Communication Tester	7/6/2018	Annual	7/6/2019	151849
Seekonk	NC-100	Torque Wrench (8" lb)	5/10/2018	Biennial	5/10/2020	21053
Seekonk	NC-100	Torque Wrench (8" lb)	5/23/2018	Biennial	5/23/2020	N/A
SPEAG	D1750V2	1750 MHz SAR Dipole	5/9/2017	Biennial	5/9/2019	1148
SPEAG	D1750V2	1750 MHz SAR Dipole	10/22/2018	Annual	10/22/2019	1150
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Annual	10/23/2019	5d080
SPEAG	D1900V2	1900 MHz SAR Dipole	2/7/2018	Annual	2/7/2019	5d148
SPEAG	D1900V2	1900 MHz SAR Dipole	10/23/2018	Annual	10/23/2019	5d149
SPEAG	D2450V2	2450 MHz SAR Dipole	8/17/2017	Biennial	8/17/2019	719
SPEAG	D2450V2	2450 MHz SAR Dipole	9/11/2017	Biennial	9/11/2019	797
SPEAG	D2450V2	2450 MHz SAR Dipole	8/16/2018	Annual	8/16/2019	981
SPEAG	D2600V2	2600 MHz SAR Dipole	9/13/2016	Triennial	9/13/2019	1071
SPEAG	D2600V2	2600 MHz SAR Dipole	8/13/2018	Annual	8/13/2019	1126
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/16/2018	Biennial	1/16/2020	1057
SPEAG	D5GHzV2	5 GHz SAR Dipole	9/21/2016	Triennial	9/21/2019	1191
SPEAG	D750V3	750 MHz Dipole	3/7/2017	Biennial	3/7/2019	1054
SPEAG	D835V2	835 MHz SAR Dipole	10/19/2018	Annual	10/19/2019	4d047
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/15/2018	Annual	2/15/2019	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	5/22/2018	Annual	5/22/2019	859
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/9/2018	Annual	2/9/2019	1272
SPEAG	DAE4	Dasy Data Acquisition Electronics	7/11/2018	Annual	7/11/2019	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/18/2018	Annual	10/18/2019	1333
SPEAG	DAE4	Dasy Data Acquisition Electronics	6/18/2018	Annual	6/18/2019	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/7/2018	Annual	3/7/2019	1368
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/11/2018	Annual	4/11/2019	1407
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/3/2018	Annual	10/3/2019	1558
SPEAG	DAK-12	Dielectric Assessment Kit (10MHz - 3GHz)	3/13/2018	Annual	3/13/2019	1102
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/15/2018	Annual	5/15/2019	1070
SPEAG	DAKS-3.5	Portable Dielectric Assessment Kit	7/11/2018	Annual	7/11/2019	1039
SPEAG	ES3DV3	SAR Probe	10/22/2018	Annual	10/22/2019	3287
SPEAG	ES3DV3	SAR Probe	3/13/2018	Annual	3/13/2019	3319
SPEAG	ES3DV3	SAR Probe	8/22/2018	Annual	8/22/2019	3332
SPEAG	ES3DV3	SAR Probe	3/27/2018	Annual	3/27/2019	3347
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

Note:

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

16 MEASUREMENT UNCERTAINTIES

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

17 CONCLUSION

17.1 Measurement Conclusion

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

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

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APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00315

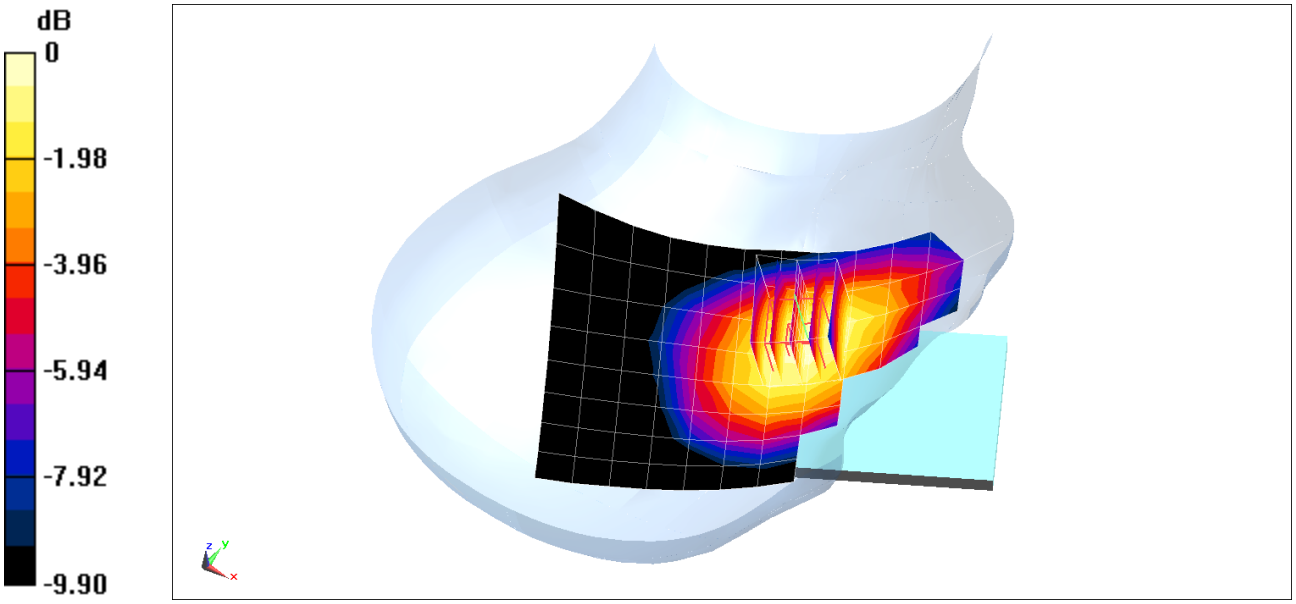
Communication System: UID 0, Cellular CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.897 S/m; ε_r = 42.153; ρ = 1000 kg/m^3
Phantom section: Right Section

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

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

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grifd: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.18 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.286 W/kg
SAR(1 g) = 0.227 W/kg



0 dB = 0.267 W/kg = -5.73 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00315

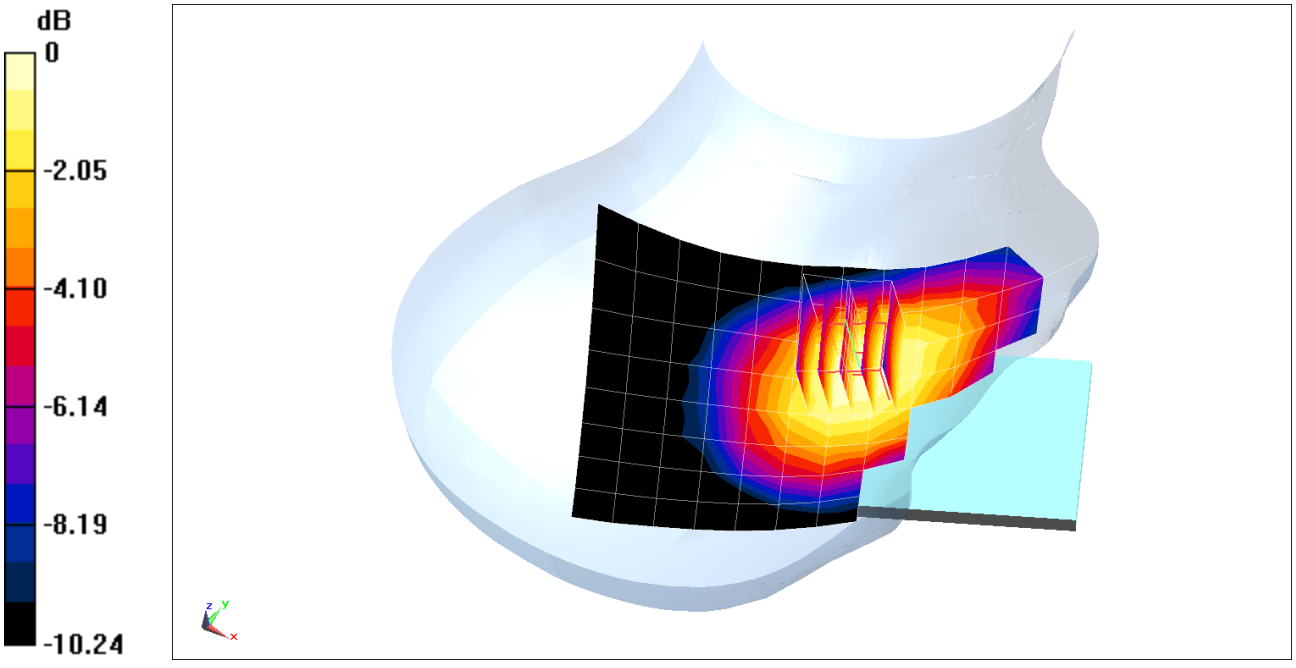
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.912 S/m; ε_r = 41.94; ρ = 1000 kg/m^3
Phantom section: Right Section

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

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 836.52 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10; 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 (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.70 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.272 W/kg
SAR(1 g) = 0.216 W/kg



0 dB = 0.251 W/kg = -6.00 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00349

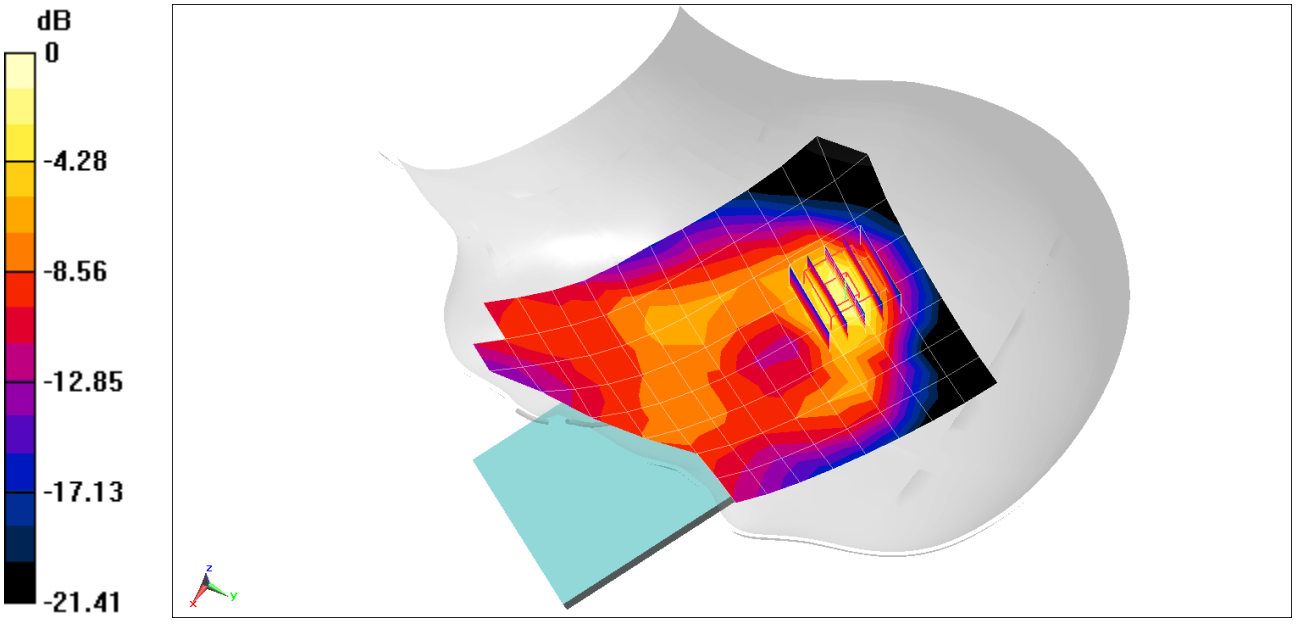
Communication System: UID 0, PCS CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.443 S/m; ε_r = 38.565; ρ = 1000 kg/m^3
Phantom section: Left Section

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

Probe: ES3DV3 - SN3287; ConvF(5.24, 5.24, 5.24) @ 1880 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.257 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.226 W/kg
SAR(1 g) = 0.125 W/kg



0 dB = 0.158 W/kg = -8.01 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00315

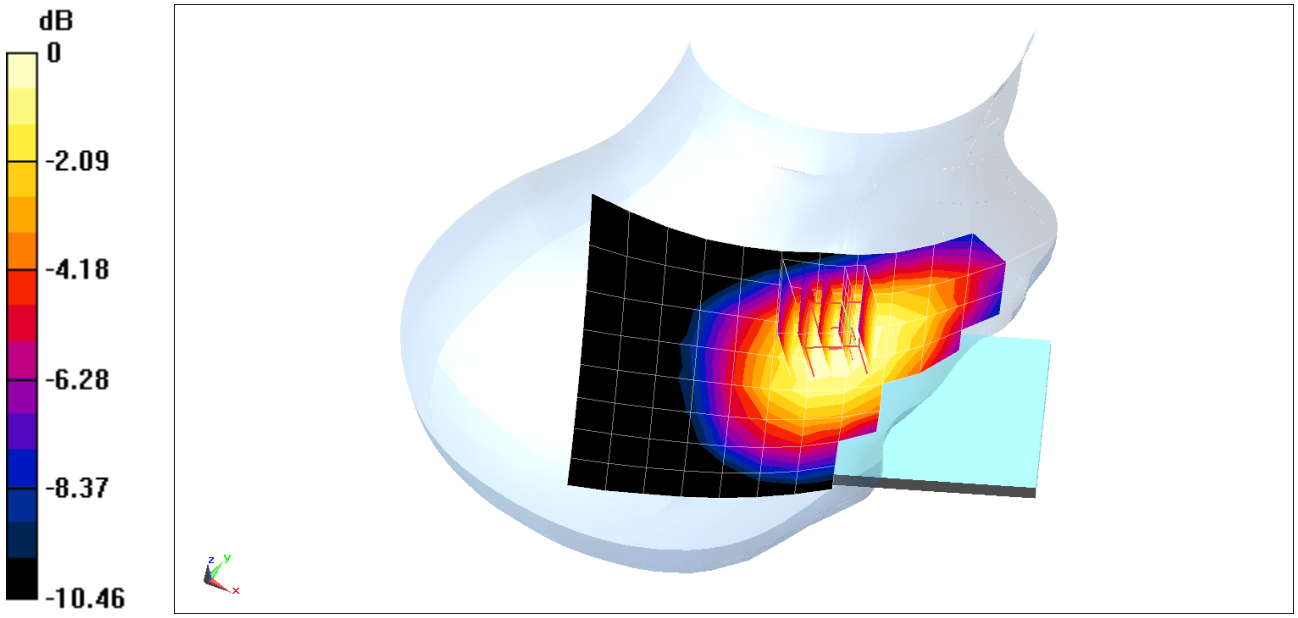
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:2.76
Medium: 835 Head Medium parameters used (interpolated):
$f = 836.6$ MHz; $\sigma = 0.915$ S/m; $\varepsilon_r = 41.514$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 12-31-2018; Ambient Temp: 21.7°C; Tissue Temp: 21.0°C

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

Mode: GPRS 850, Right Head, Cheek, Mid.ch, 3 Tx slots

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.54 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.302 W/kg
SAR(1 g) = 0.240 W/kg



0 dB = 0.280 W/kg = -5.53 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00349

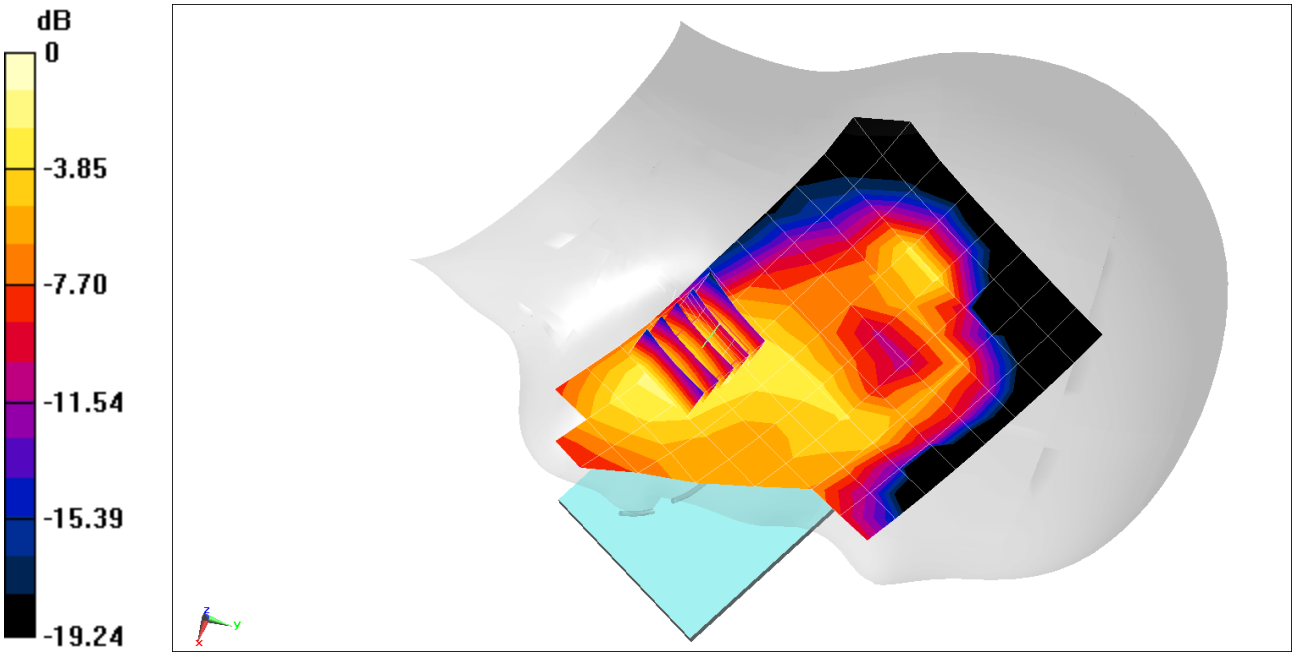
Communication System: UID 0, GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.443 S/m; ε_r = 38.565; ρ = 1000 kg/m^3
Phantom section: Left Section

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

Probe: ES3DV3 - SN3287; ConvF(5.24, 5.24, 5.24) @ 1880 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

Mode: GPRS 1900, Left Head, Cheek, Mid.ch, 3 Tx slots

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.039 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.193 W/kg
SAR(1 g) = 0.119 W/kg



0 dB = 0.145 W/kg = -8.39 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00315

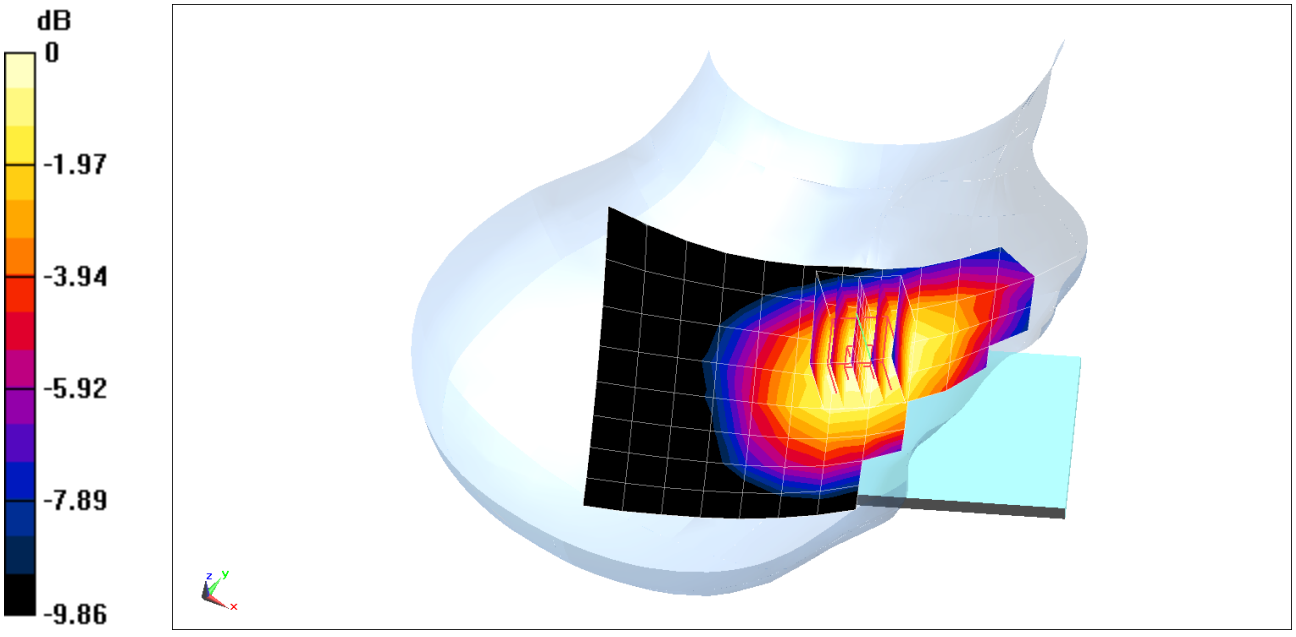
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
$f = 836.6$ MHz; $\sigma = 0.915$ S/m; $\varepsilon_r = 41.514$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 12-31-2018; Ambient Temp: 21.7°C; Tissue Temp: 21.0°C

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

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.72 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.237 W/kg
SAR(1 g) = 0.188 W/kg



0 dB = 0.220 W/kg = -6.58 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00349

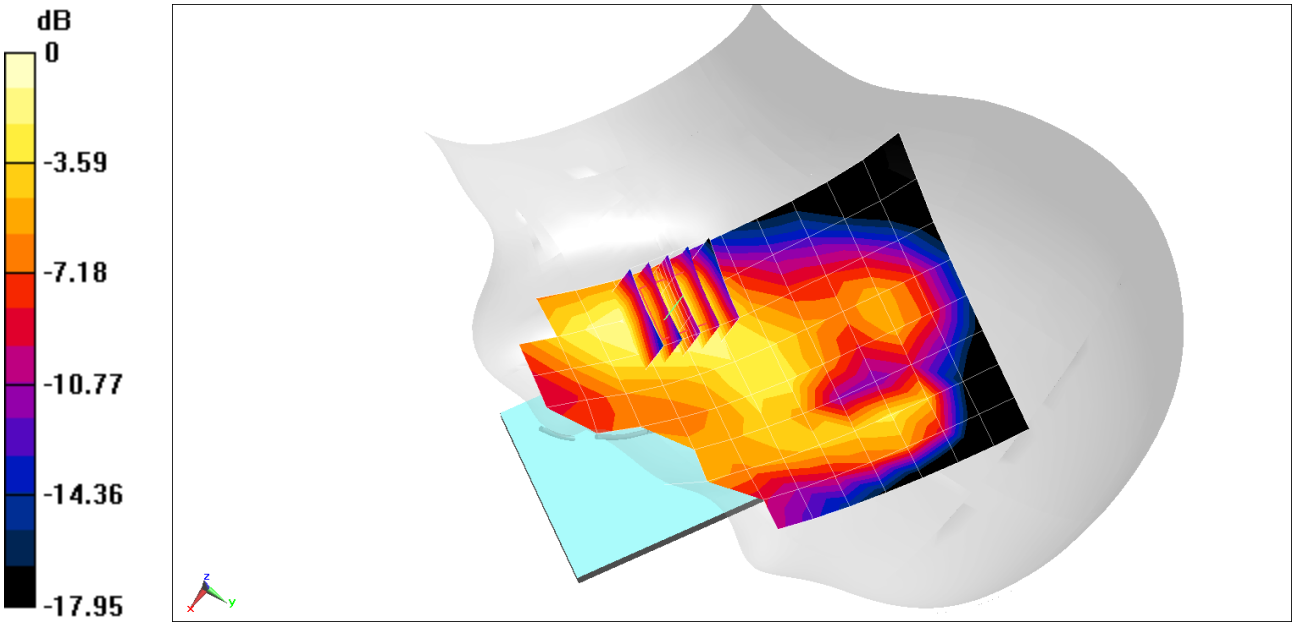
Communication System: UID 0, UMTS; Frequency: 1732.4 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1732.4 MHz; σ = 1.354 S/m; ε_r = 38.759; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 12-31-2018; Ambient Temp: 21.7°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3287; ConvF(5.48, 5.48, 5.48) @ 1732.4 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; 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 = 10.29 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.204 W/kg
SAR(1 g) = 0.130 W/kg



0 dB = 0.154 W/kg = -8.12 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00349

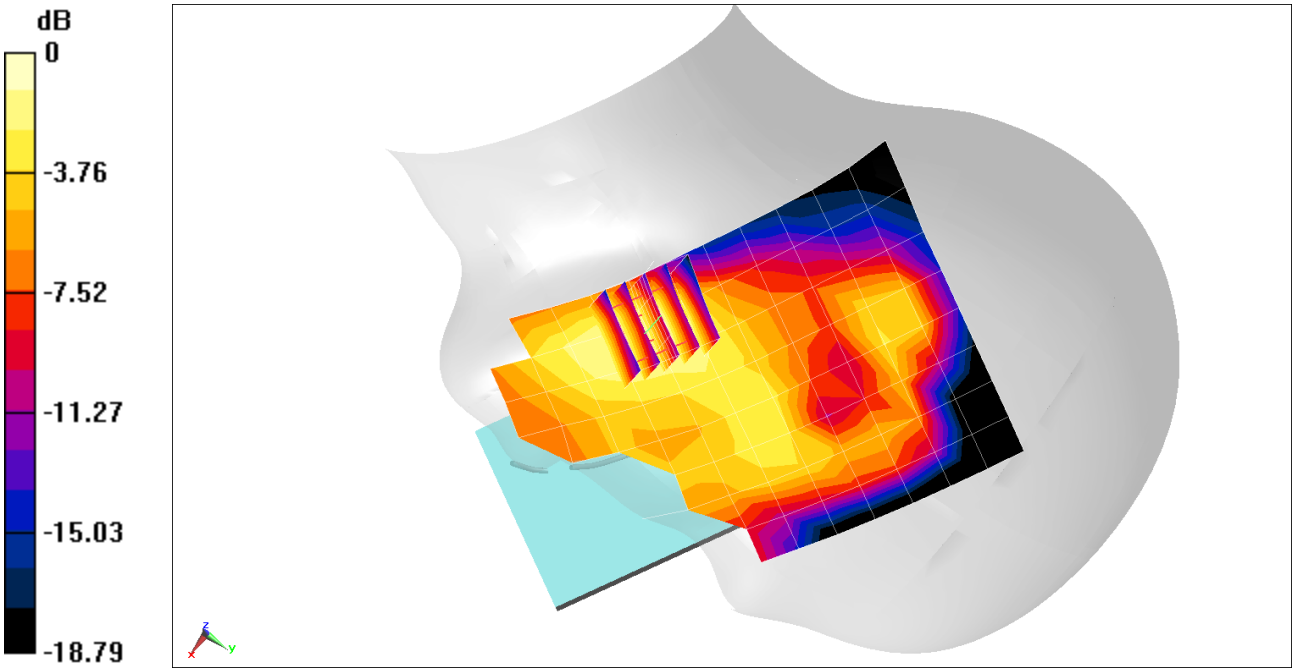
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.44 S/m; ε_r = 38.549; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 12-31-2018; Ambient Temp: 21.7°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3287; ConvF(5.24, 5.24, 5.24) @ 1880 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.353 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 0.196 W/kg
SAR(1 g) = 0.121 W/kg



0 dB = 0.145 W/kg = -8.39 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00323

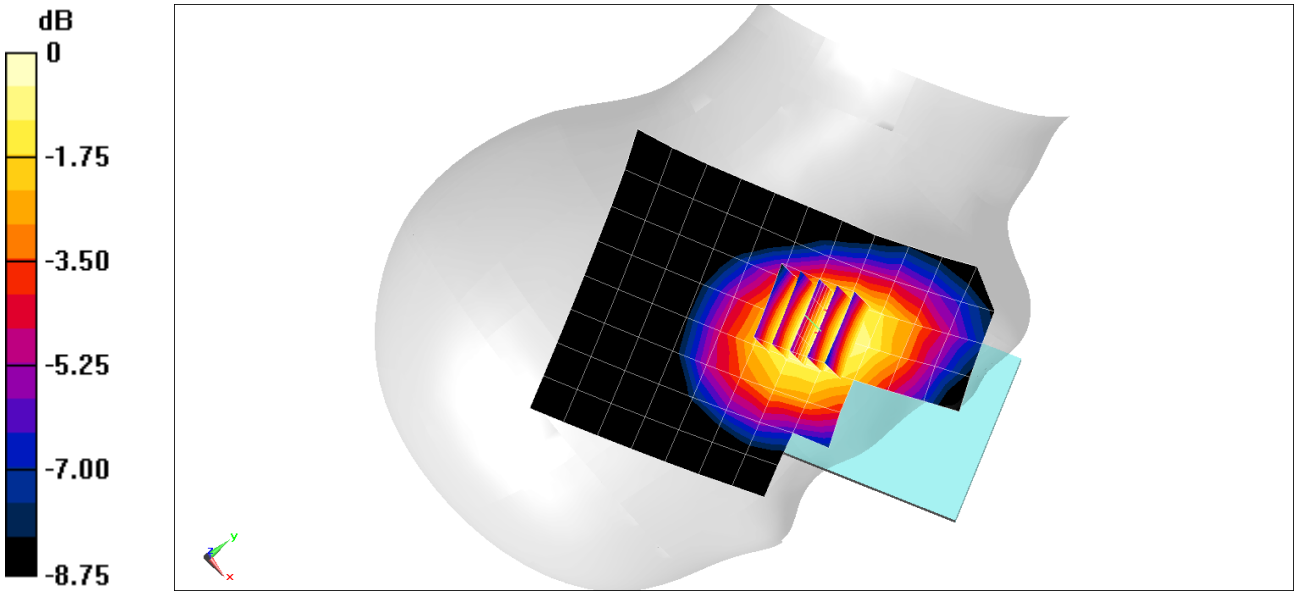
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.862 S/m; ε_r = 42.487; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-19-2018; Ambient Temp: 21.3°C; Tissue Temp: 19.8°C

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

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.09 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.164 W/kg
SAR(1 g) = 0.129 W/kg



0 dB = 0.139 W/kg = -8.57 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00323

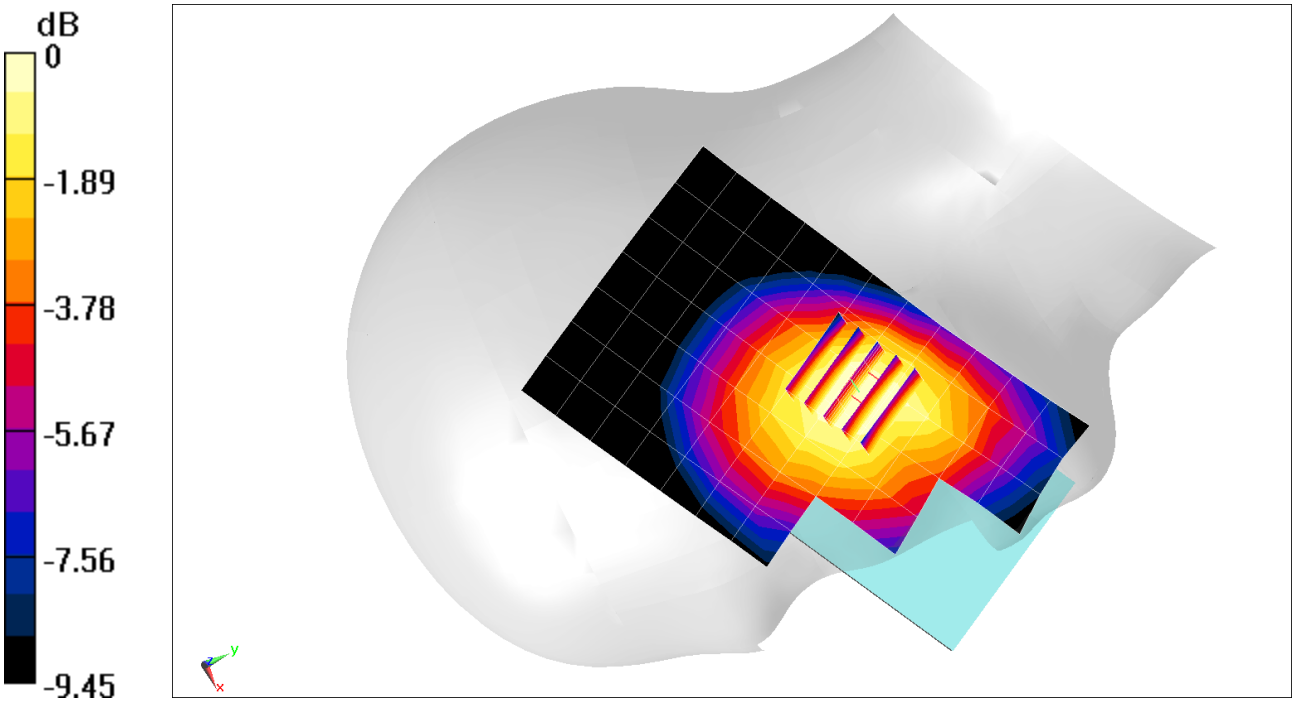
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 782 MHz; σ = 0.89 S/m; ε_r = 42.252; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-19-2018; Ambient Temp: 21.3°C; Tissue Temp: 19.8°C

Probe: ES3DV3 - SN3287; ConvF(6.76, 6.76, 6.76) @ 782 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; 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 (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.99 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.249 W/kg
SAR(1 g) = 0.195 W/kg



0 dB = 0.212 W/kg = -6.74 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00315

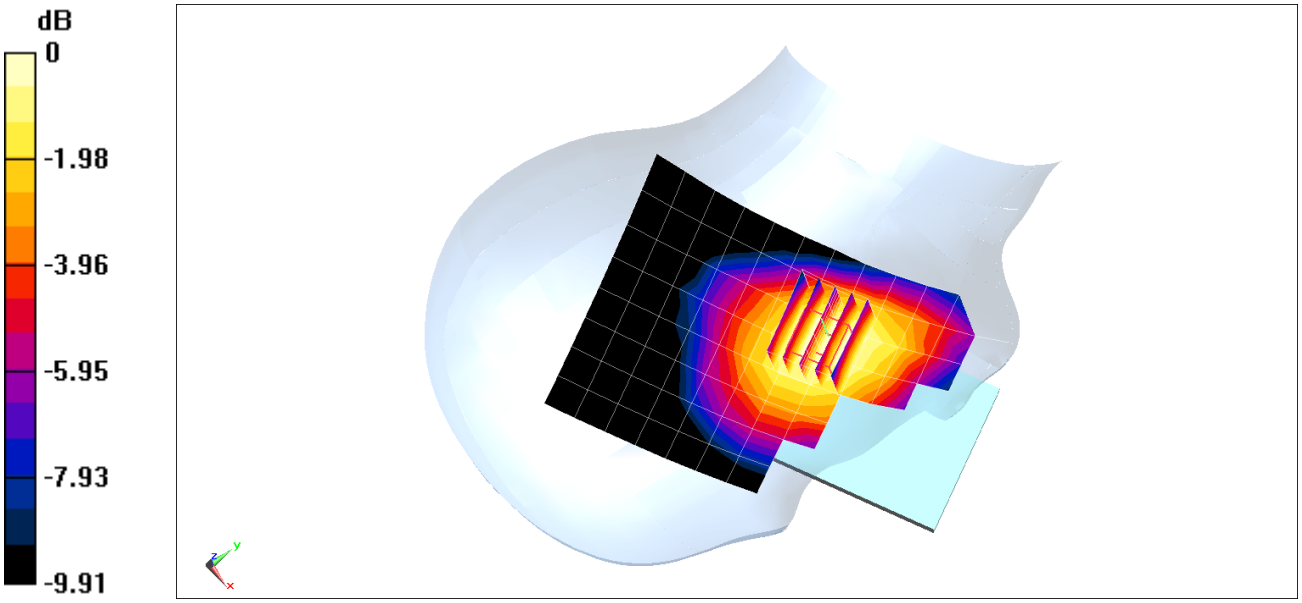
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.907 S/m; ε_r = 42.005; ρ = 1000 kg/m^3
Phantom section: Right Section

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

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

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.09 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.231 W/kg
SAR(1 g) = 0.184 W/kg



0 dB = 0.215 W/kg = -6.68 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00349

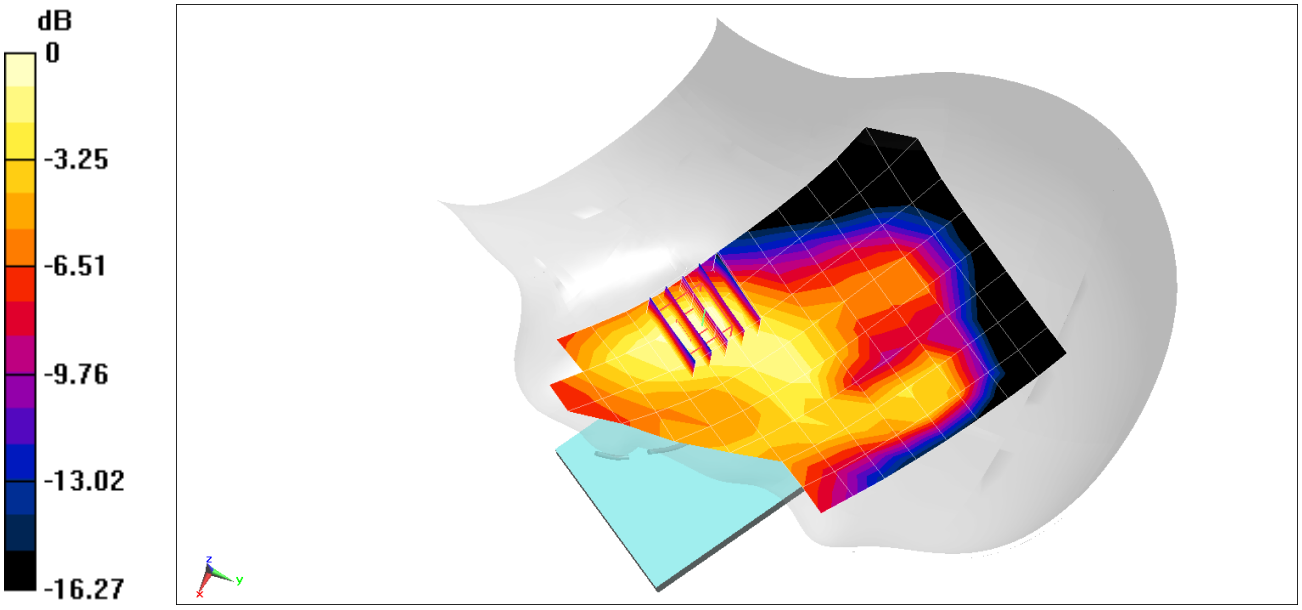
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
$f = 1720$ MHz; $\sigma = 1.344$ S/m; $\varepsilon_r = 38.818$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

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

Probe: ES3DV3 - SN3287; ConvF(5.48, 5.48, 5.48) @ 1720 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.93 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.233 W/kg
SAR(1 g) = 0.149 W/kg



0 dB = 0.175 W/kg = -7.57 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00349

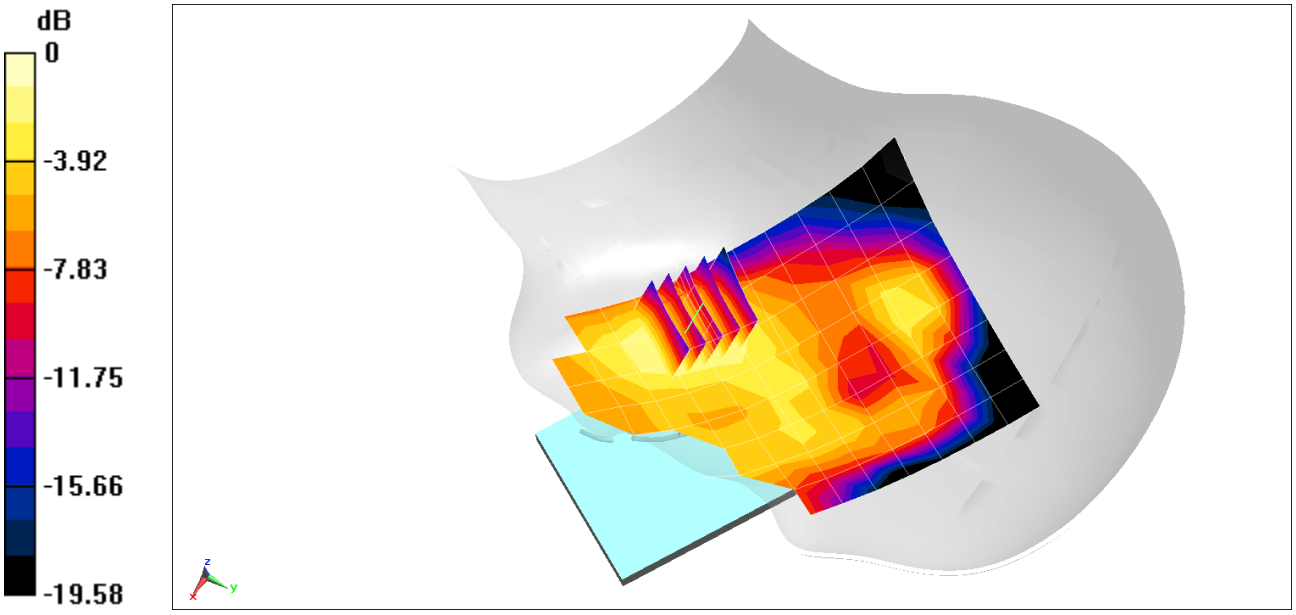
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1882.5 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
f = 1882.5 MHz; σ = 1.445 S/m; ε_r = 38.56; ρ = 1000 kg/m^3
Phantom section: Left Section

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

Probe: ES3DV3 - SN3287; ConvF(5.24, 5.24, 5.24) @ 1882.5 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.95 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.228 W/kg
SAR(1 g) = 0.140 W/kg



0 dB = 0.171 W/kg = -7.67 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00323

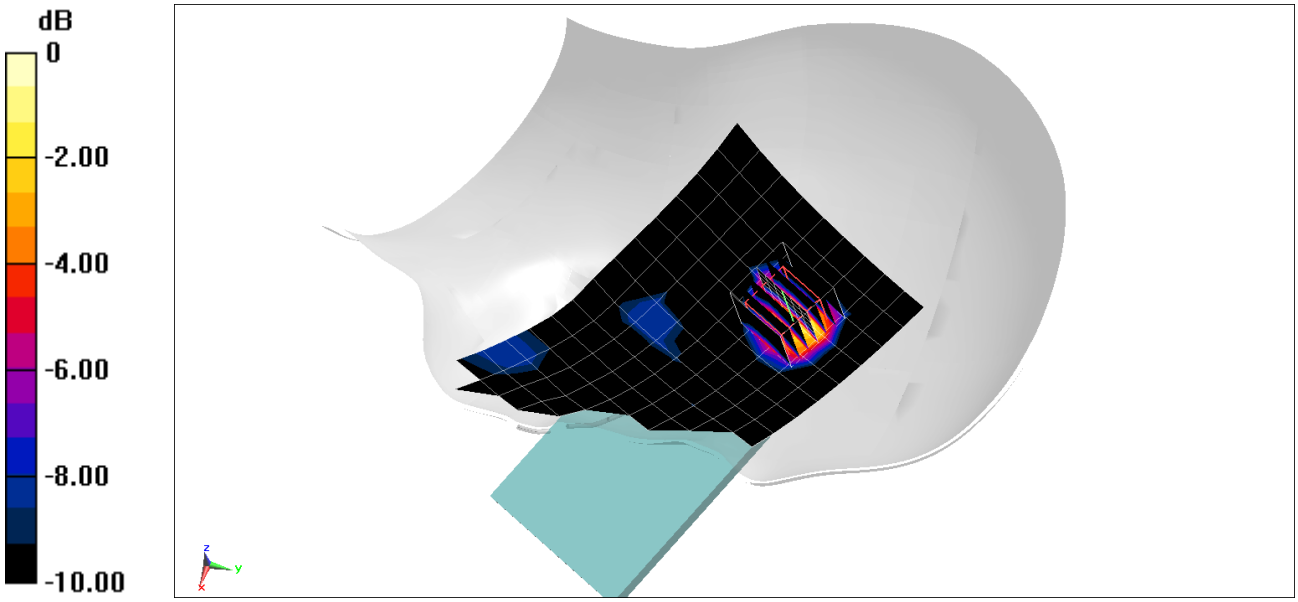
Communication System: UID 0, LTE Band 41 (Class 3); Frequency: 2593 MHz; Duty Cycle: 1:1.58
Medium: 2450 Head Medium parameters used (interpolated):
$f = 2593$ MHz; $\sigma = 1.976$ S/m; $\varepsilon_r = 40.25$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 01-02-2019; Ambient Temp: 20.3°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7406; ConvF(7.4, 7.4, 7.4) @ 2593 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; SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 41 PC3, Left Tilt, Mid.ch, QPSK
20 MHz Bandwidth, 1 RB, 0 RB Offset

Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.581 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.158 W/kg
SAR(1 g) = 0.086 W/kg



0 dB = 0.0710 W/kg = -11.49 dBW/kg

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DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00257

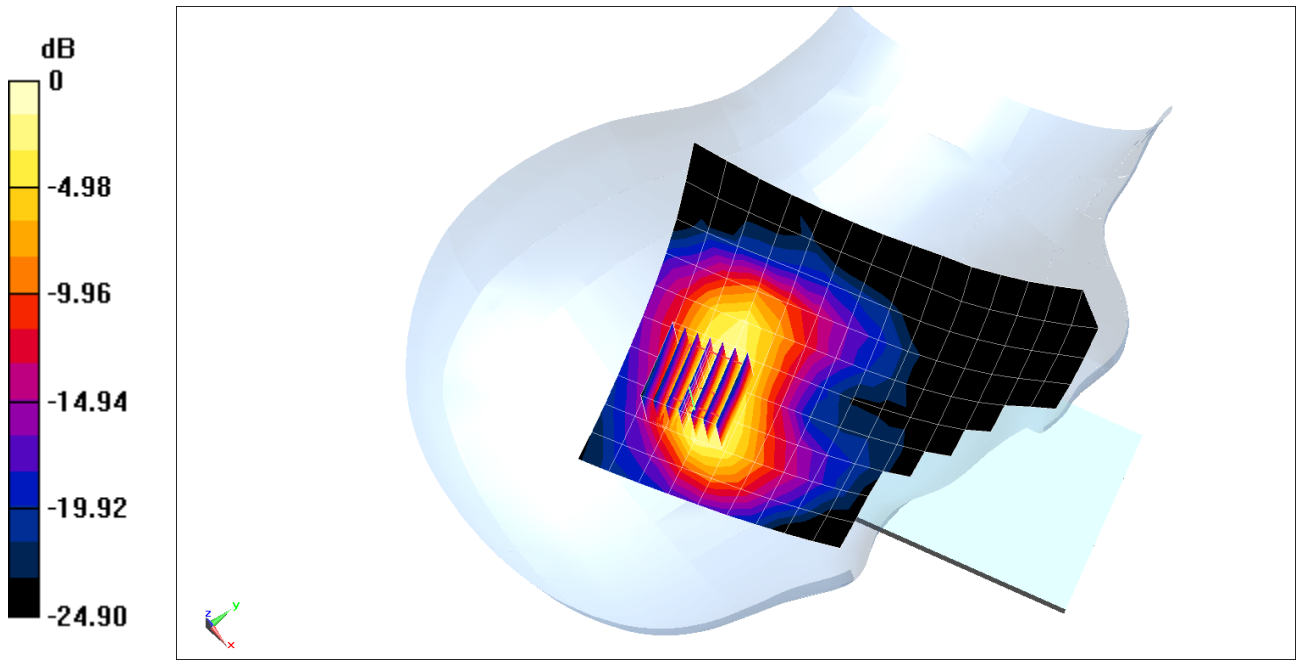
Communication System: UID 0, _IEEE 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used (interpolated):
f = 2412 MHz; σ = 1.819 S/m; ε_r = 38.42; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-17-2018; Ambient Temp: 21.9°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7410; ConvF(7.5, 7.5, 7.5) @ 2412 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; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (11x11x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.16 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.460 W/kg



0 dB = 0.840 W/kg = -0.76 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00257

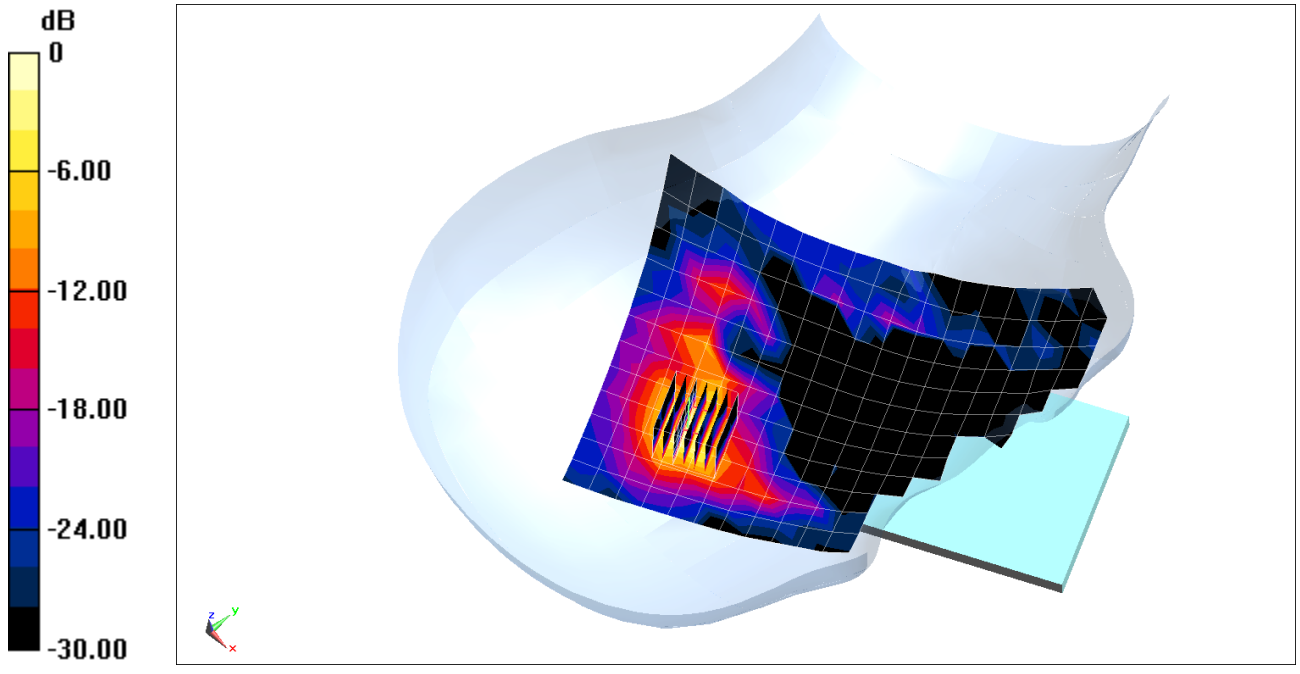
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used:
f = 5500 MHz; σ = 4.793 S/m; ε_r = 34.499; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 12-16-2018; Ambient Temp: 20.8°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7409; ConvF(4.77, 4.77, 4.77) @ 5500 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; SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11a, U-NII-2C, 20 MHz Bandwidth,
Antenna 1, Right Head, Cheek, Ch 100, 6 Mbps

Area Scan (13x21x1): 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 = 4.467 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.77 W/kg
SAR(1 g) = 0.792 W/kg



0 dB = 2.03 W/kg = 3.07 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00240

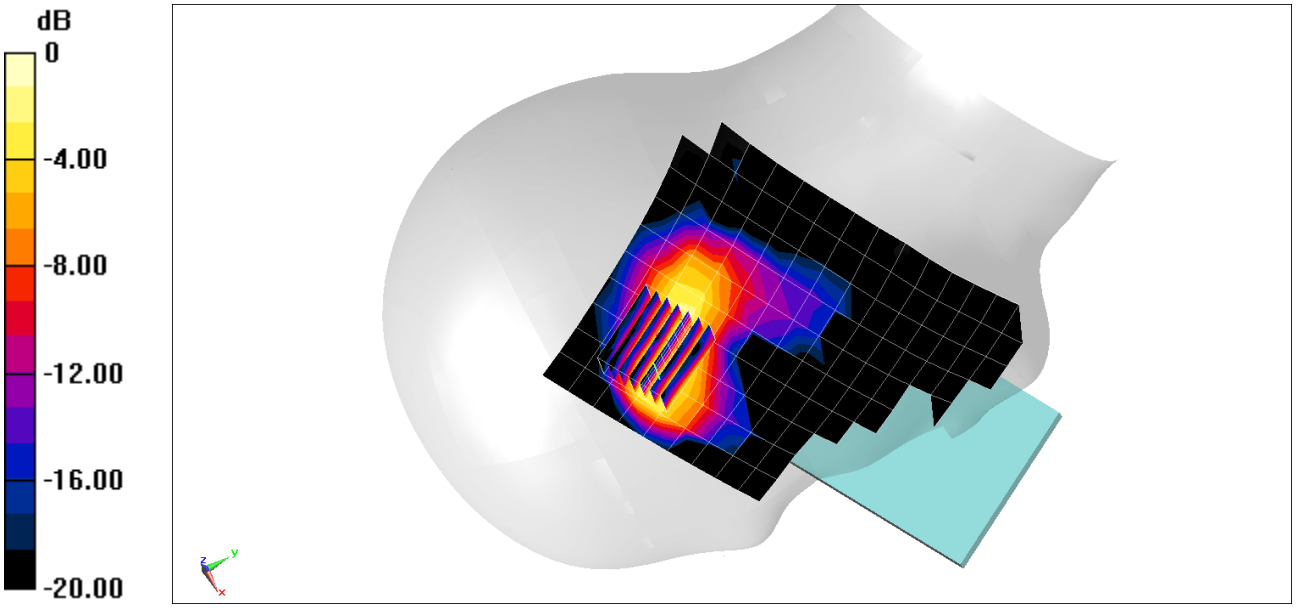
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.294
Medium: 2450 Head Medium parameters used (interpolated):
f = 2441 MHz; σ = 1.852 S/m; ε_r = 40.499; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 01-02-2019; Ambient Temp: 20.3°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7406; ConvF(7.54, 7.54, 7.54) @ 2441 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; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (11x19x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.927 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.142 W/kg
SAR(1 g) = 0.067 W/kg



0 dB = 0.111 W/kg = -9.55 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00331

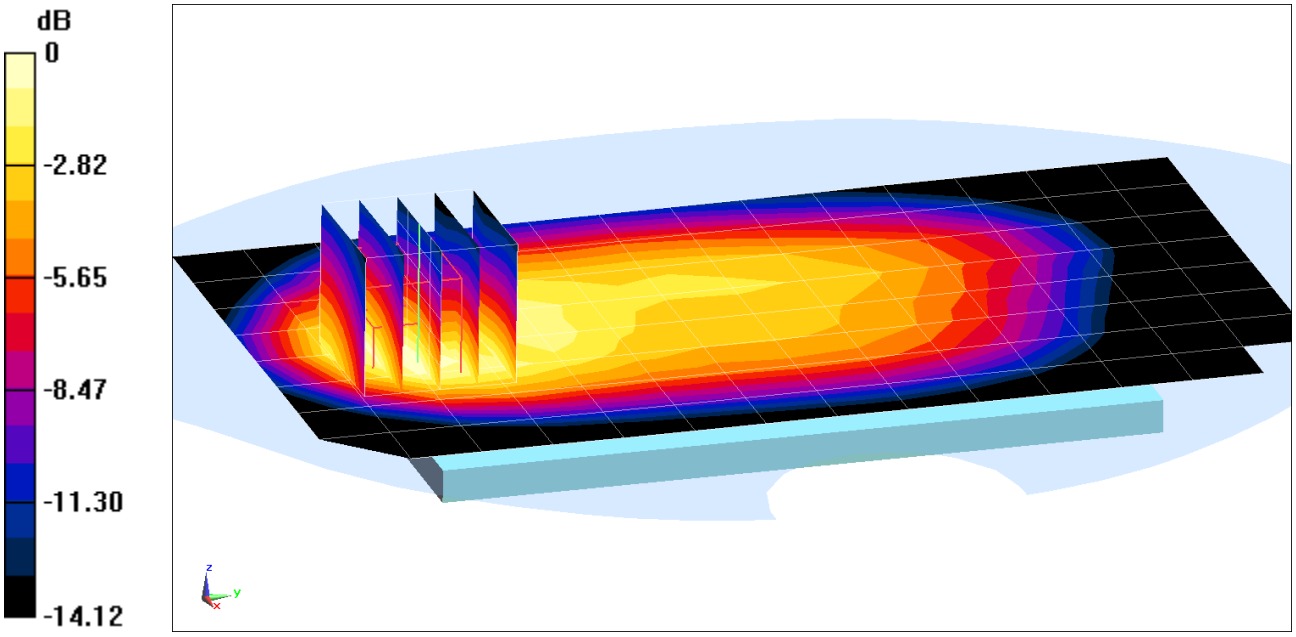
Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.961 S/m; ε_r = 55.479; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 21.1°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7409; ConvF(9.63, 9.63, 9.63) @ 820.1 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; SEMCAD X Version 14.6.12 (7450)

Mode: Cell. CDMA, Rule Part 90S, 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 = 22.61 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.841 W/kg
SAR(1 g) = 0.468 W/kg



0 dB = 0.684 W/kg = -1.65 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00331

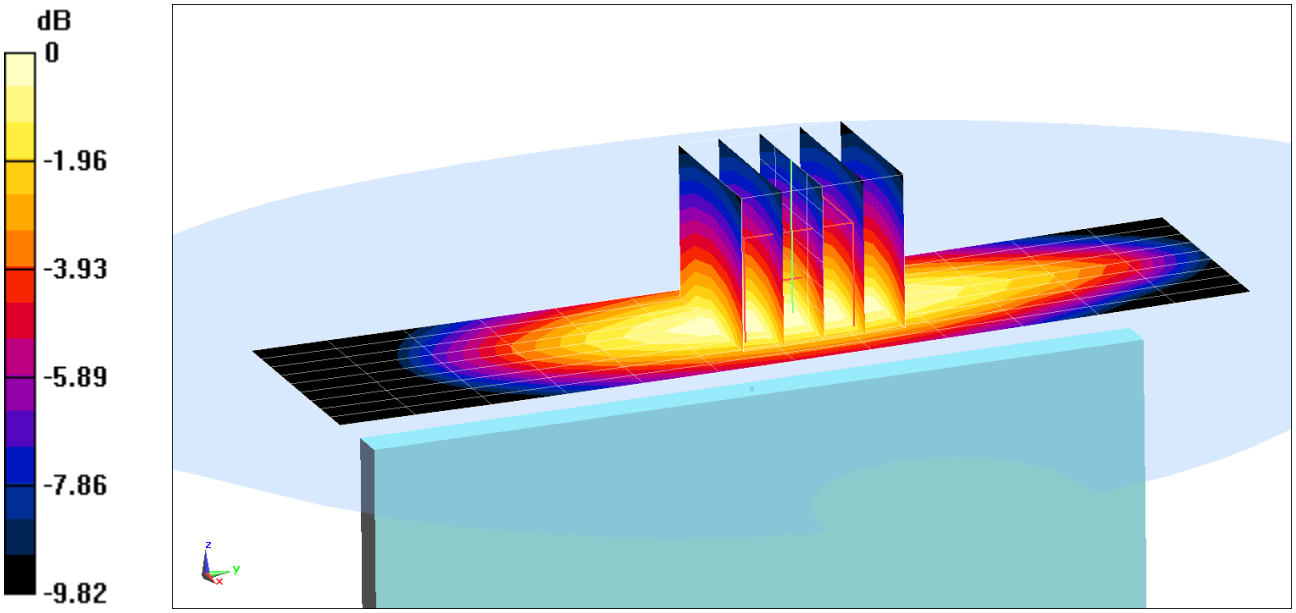
Communication System: UID 0, CDMA; Frequency: 820.1 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.961 S/m; ε_r = 55.479; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 21.1°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7409; ConvF(9.63, 9.63, 9.63) @ 820.1 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; SEMCAD X Version 14.6.12 (7450)

Mode: Cell. EVDO, Rule Part 90S, Body SAR, Right Edge, Mid.ch

Area Scan (10x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.50 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.649 W/kg
SAR(1 g) = 0.423 W/kg



0 dB = 0.567 W/kg = -2.46 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00331

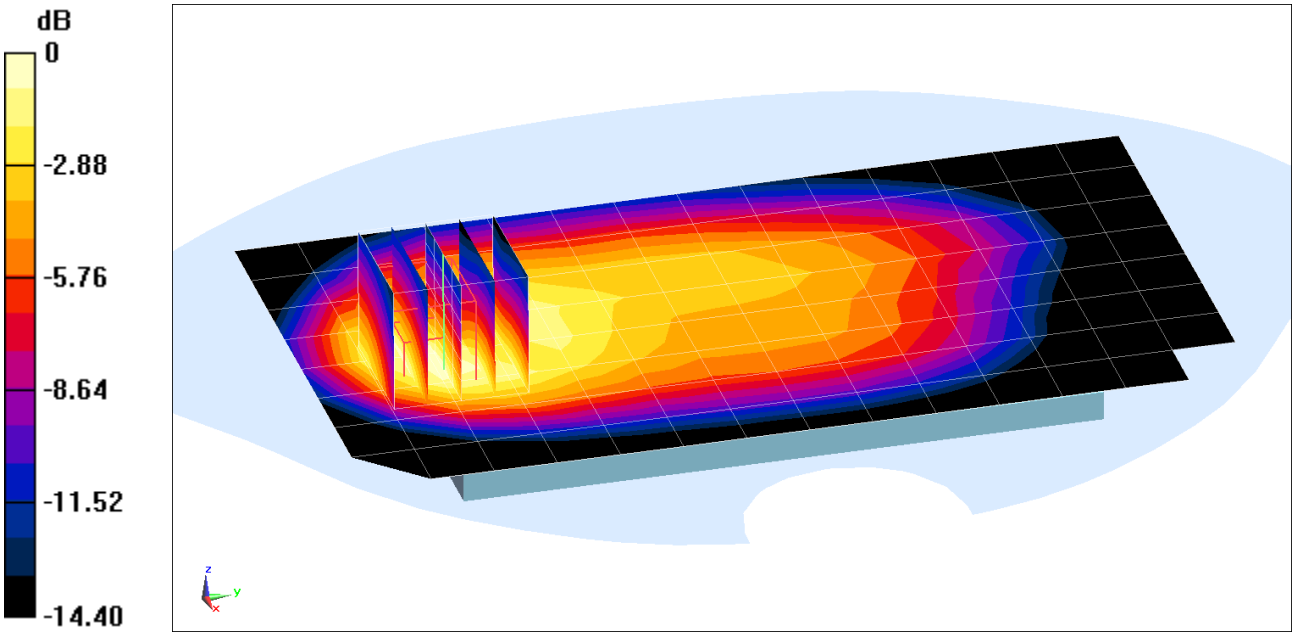
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.969 S/m; ε_r = 55.401; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 21.1°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7409; ConvF(9.63, 9.63, 9.63) @ 836.52 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; SEMCAD X Version 14.6.12 (7450)

Mode: Cell. CDMA, Rule Part 22H, 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 = 22.53 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.832 W/kg
SAR(1 g) = 0.468 W/kg



0 dB = 0.677 W/kg = -1.69 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00331

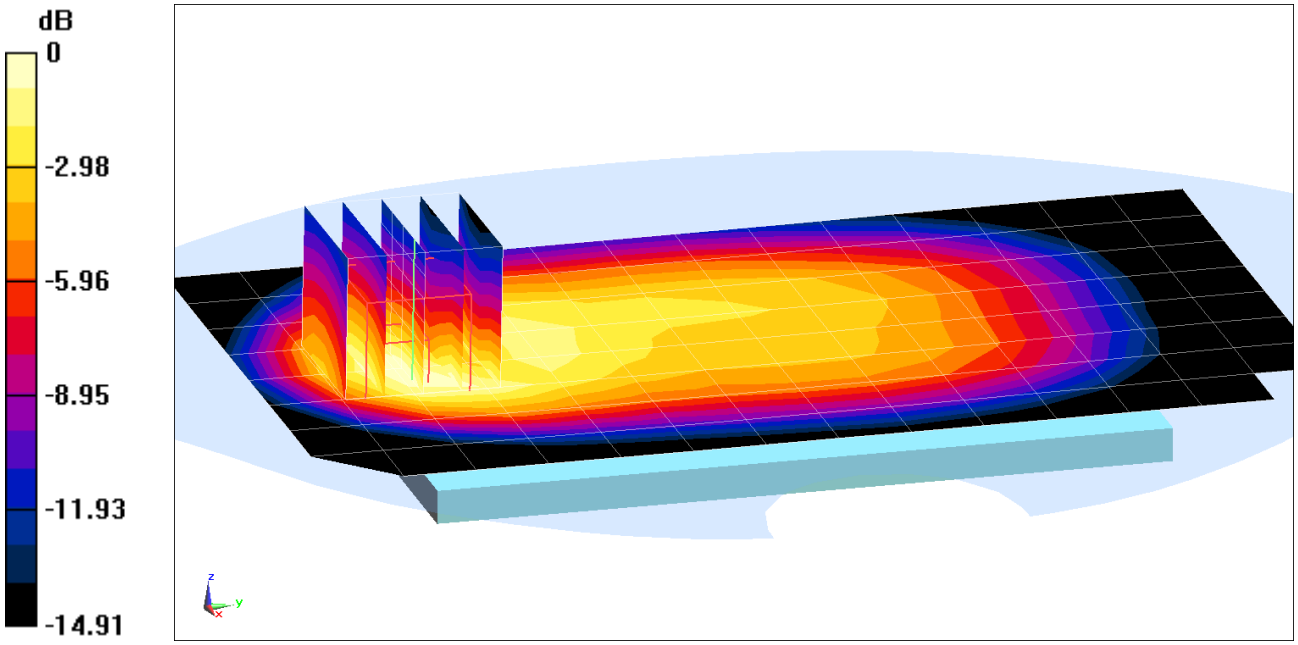
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 0.969 S/m; ε_r = 55.401; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 21.1°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7409; ConvF(9.63, 9.63, 9.63) @ 836.52 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; SEMCAD X Version 14.6.12 (7450)

Mode: Cell. EVDO Part 22H, 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 = 21.75 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.801 W/kg
SAR(1 g) = 0.447 W/kg



0 dB = 0.648 W/kg = -1.88 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00323

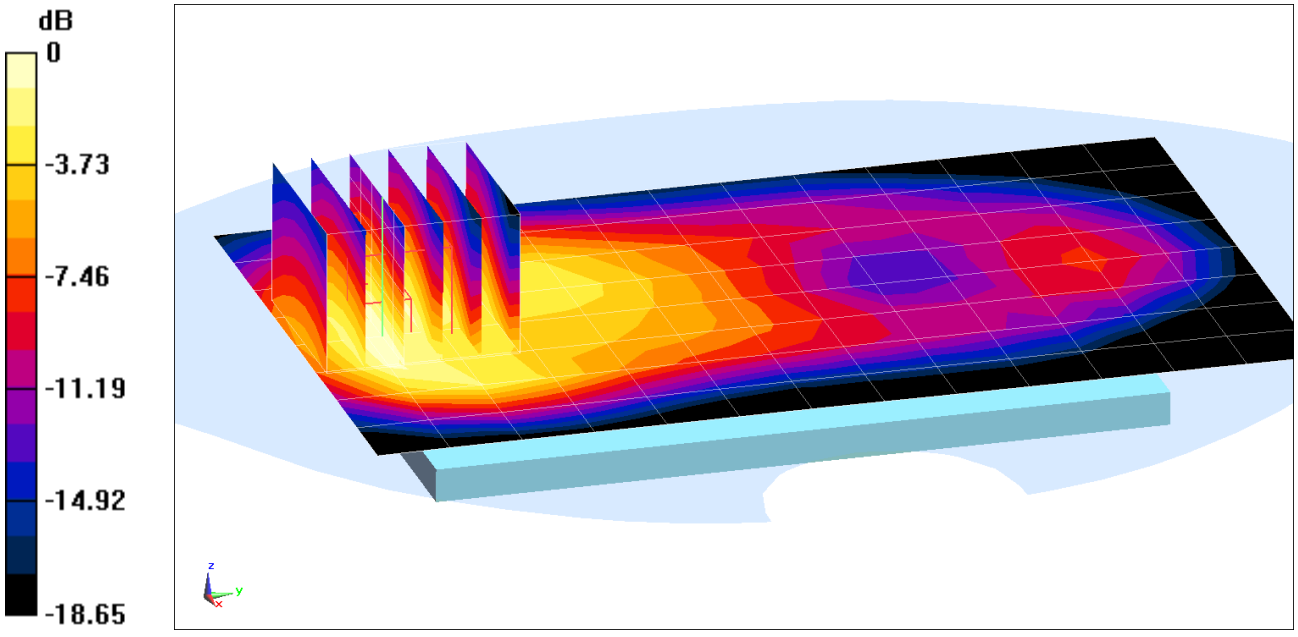
Communication System: UID 0, CDMA; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.521 S/m; ε_r = 52.539; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 22.9°C; Tissue Temp: 22.4°C

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

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.95 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.693 W/kg
SAR(1 g) = 0.430 W/kg



0 dB = 0.513 W/kg = -2.90 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00323

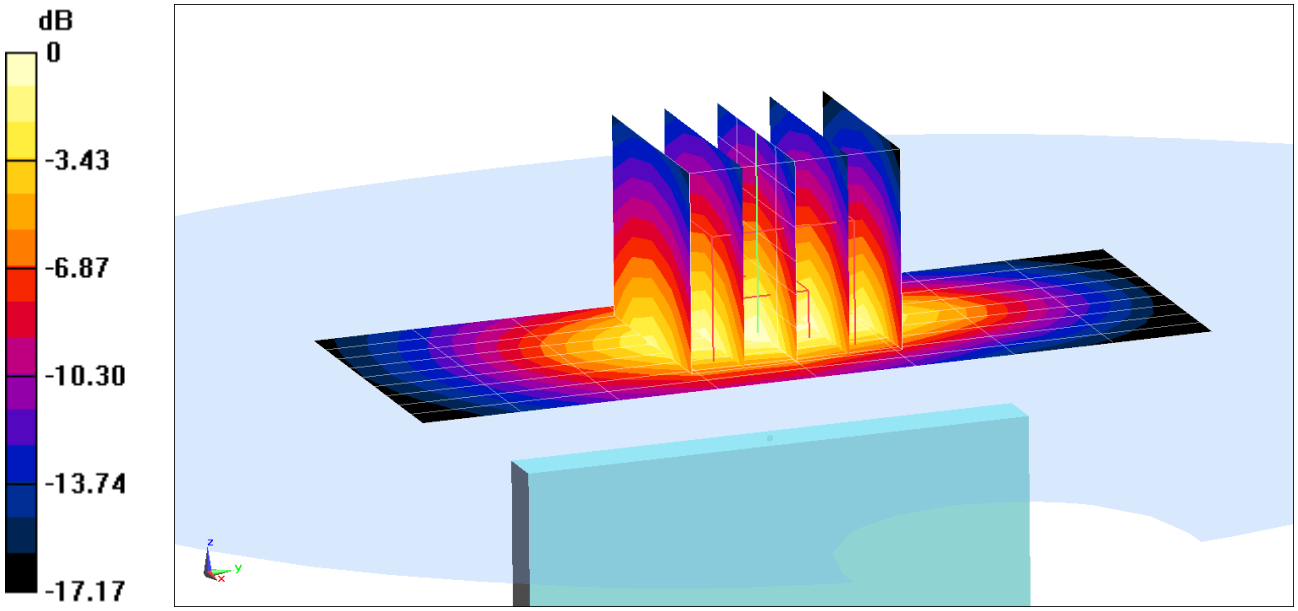
Communication System: UID 0, CDMA; Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1851.25 MHz; σ = 1.489 S/m; ε_r = 52.631; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 22.9°C; Tissue Temp: 22.4°C

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

Mode: PCS EVDO, Body SAR, Bottom Edge, Low ch

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.94 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.76 W/kg
SAR(1 g) = 1.07 W/kg



0 dB = 1.32 W/kg = 1.21 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00331

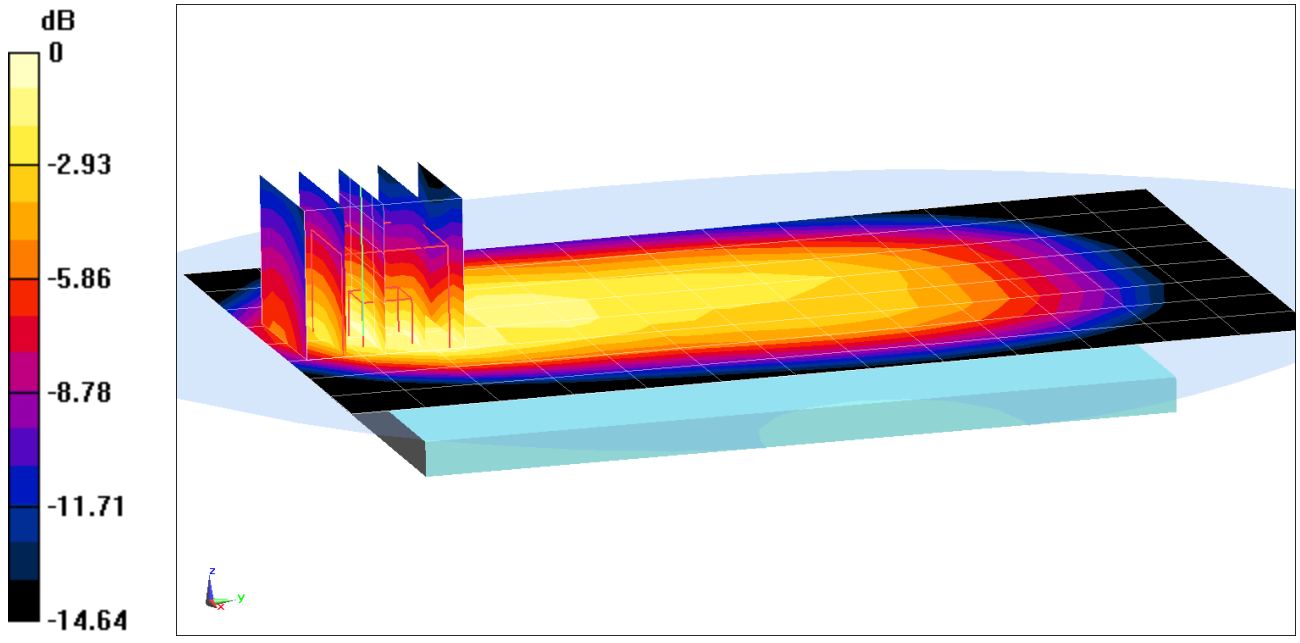
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:2.76
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.969 S/m; ε_r = 55.401; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 21.1°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7409; ConvF(9.63, 9.63, 9.63) @ 836.6 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; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.40 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.852 W/kg
SAR(1 g) = 0.485 W/kg



0 dB = 0.706 W/kg = -1.51 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00331

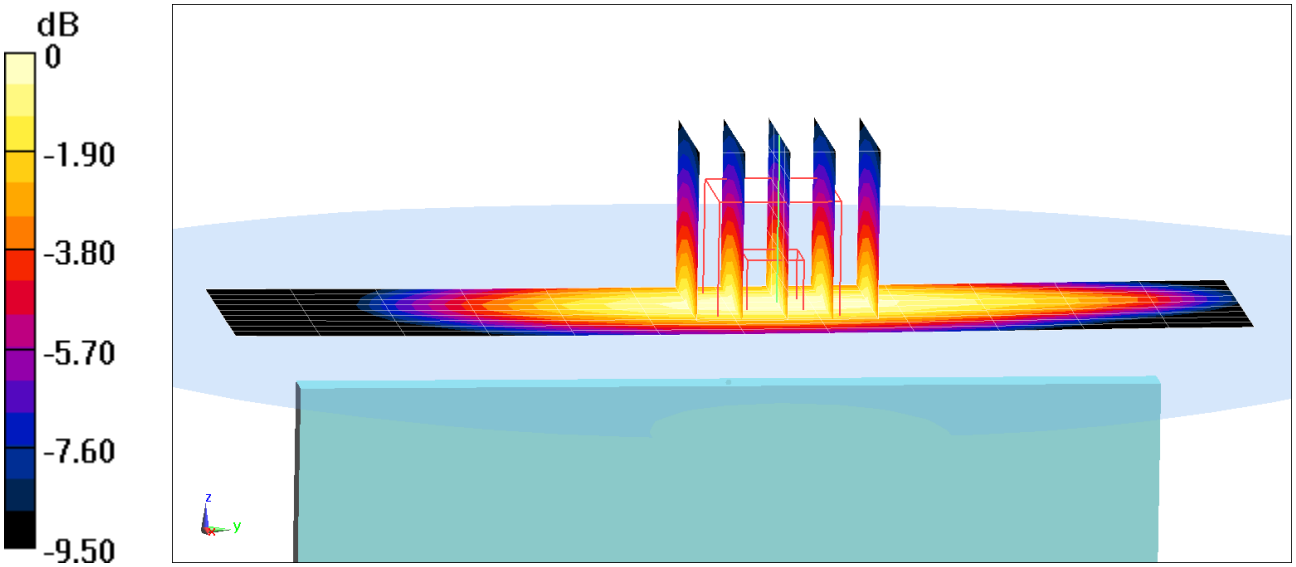
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 836.6 MHz; Duty Cycle: 1:2.76
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.969 S/m; ε_r = 55.401; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 21.1°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7409; ConvF(9.63, 9.63, 9.63) @ 836.6 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; SEMCAD X Version 14.6.12 (7450)

Mode: GPRS 850, Body SAR, Right Edge, Mid.ch, 3 Tx Slots

Area Scan (10x13x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.82 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.798 W/kg
SAR(1 g) = 0.527 W/kg



0 dB = 0.700 W/kg = -1.55 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00349

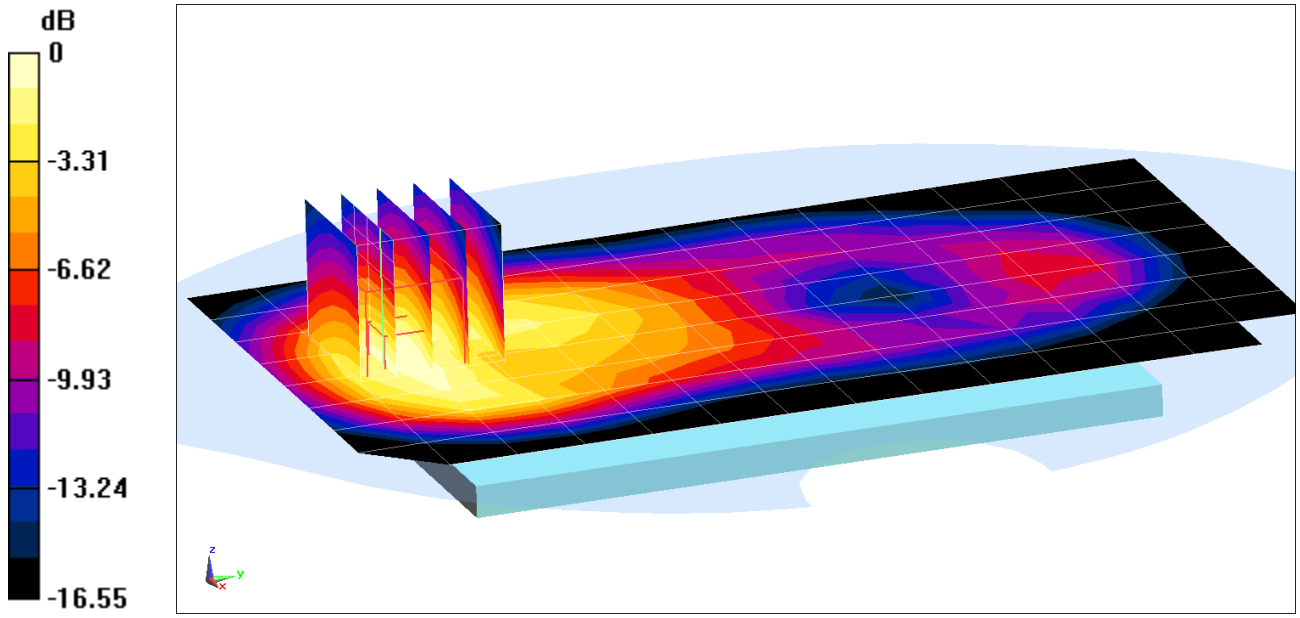
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.529 S/m; ε_r = 51.157; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-12-2018; Ambient Temp: 23.6°C; Tissue Temp: 22.0°C

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

Mode: GPRS 1900, Body SAR, Back side, Mid.ch, 3 Tx Slots

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.75 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.701 W/kg
SAR(1 g) = 0.438 W/kg



0 dB = 0.505 W/kg = -2.97 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00349

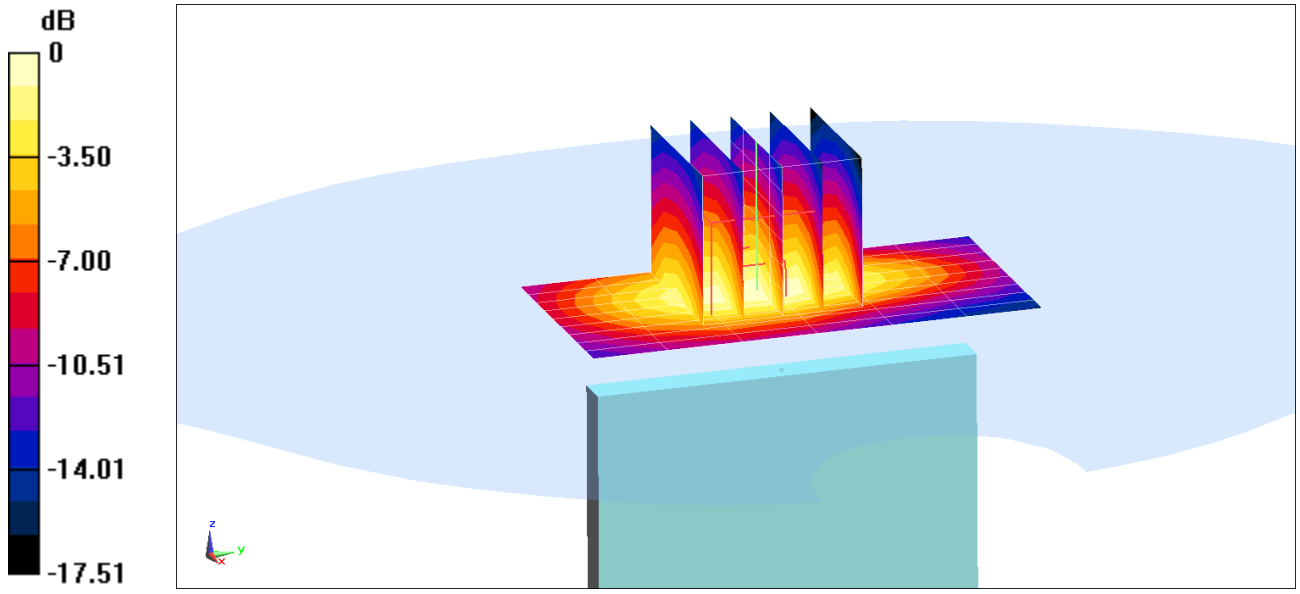
Communication System: UID 0, _GSM GPRS; 3 Tx slots; Frequency: 1880 MHz; Duty Cycle: 1:2.76
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.529 S/m; ε_r = 51.157; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-12-2018; Ambient Temp: 23.6°C; Tissue Temp: 22.0°C

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

Mode: GPRS 1900, Body SAR, Bottom Edge, Mid.ch, 3 Tx Slots

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.43 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.725 W/kg



0 dB = 0.892 W/kg = -0.50 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00315

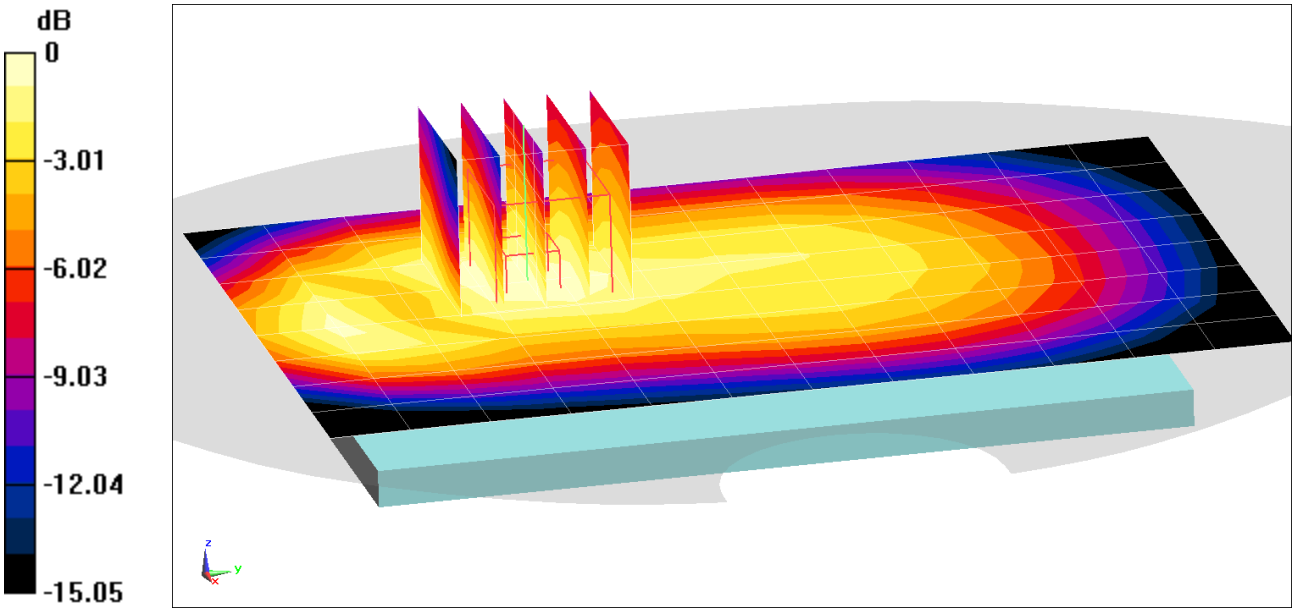
Communication System: UID 0, UMTS; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium: 835 MHz Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.996 S/m; ε_r = 52.599; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

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

Probe: ES3DV3 - SN3347; ConvF(6.37, 6.37, 6.37) @ 836.6 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.70 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.526 W/kg
SAR(1 g) = 0.389 W/kg



0 dB = 0.442 W/kg = -3.55 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00331

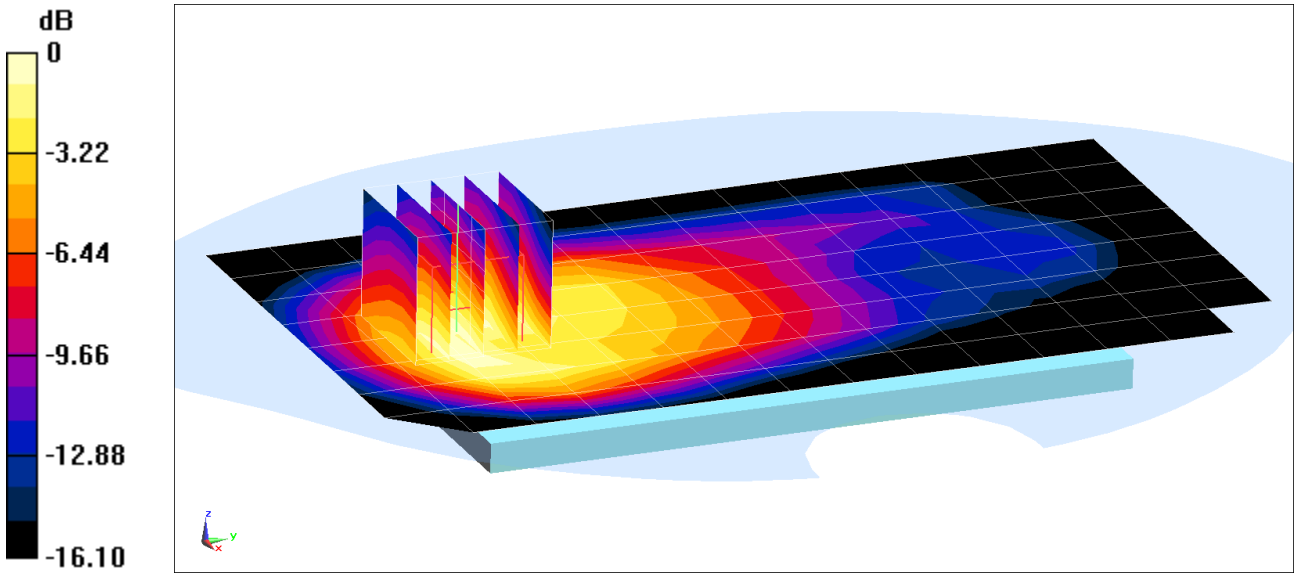
Communication System: UID 0, UMTS; Frequency: 1712.4 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1712.4 MHz; σ = 1.467 S/m; ε_r = 52.616; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(8.43, 8.43, 8.43) @ 1712.4 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

Mode: UMTS 1750, 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 = 22.27 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.670 W/kg



0 dB = 0.919 W/kg = -0.37 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00331

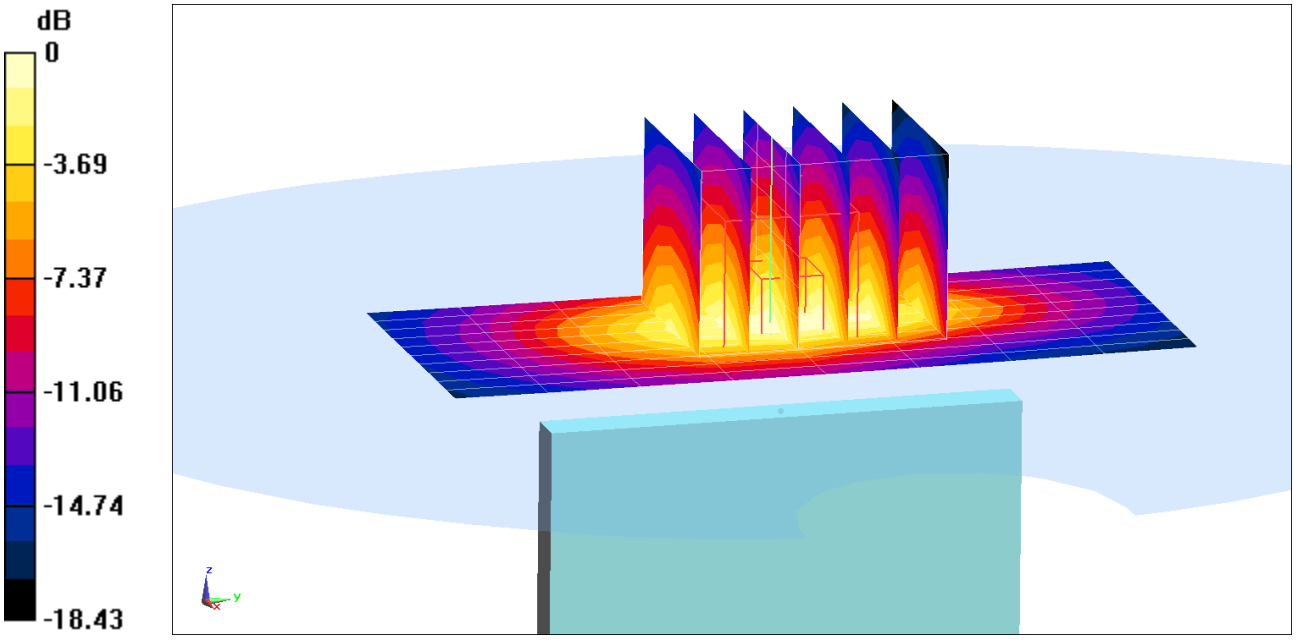
Communication System: UID 0, UMTS; Frequency: 1752.6 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1752.6 MHz; σ = 1.515 S/m; ε_r = 52.506; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(8.43, 8.43, 8.43) @ 1752.6 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (11x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.84 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 1.73 W/kg
SAR(1 g) = 1.01 W/kg



0 dB = 1.47 W/kg = 1.67 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00349

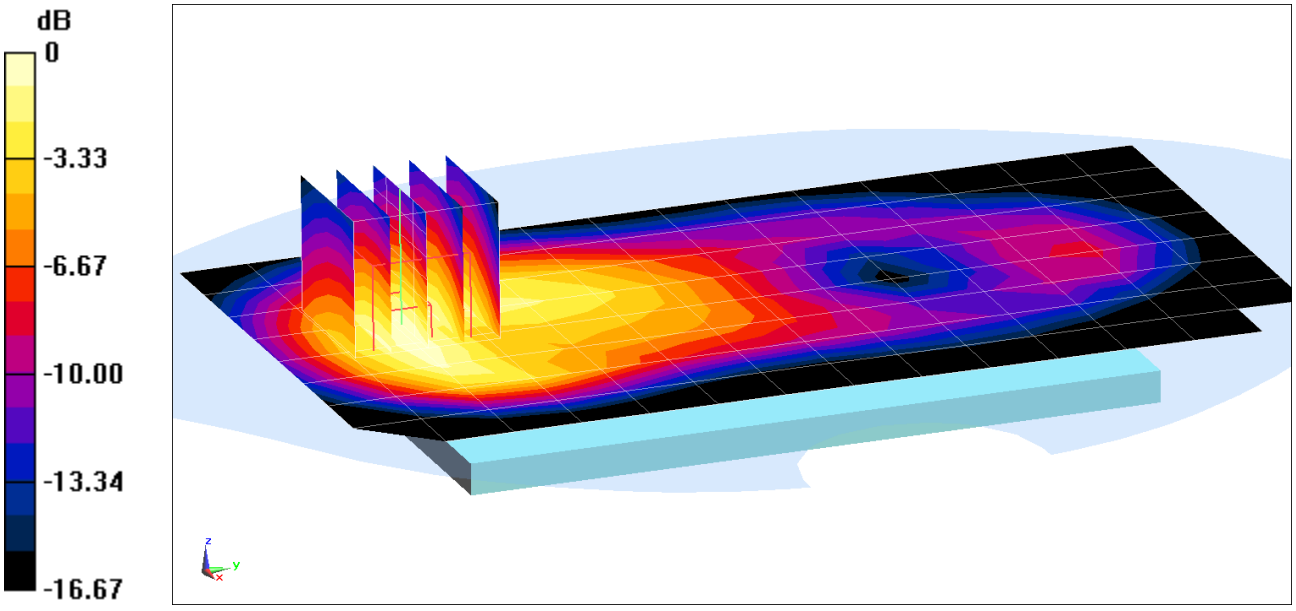
Communication System: UID 0, UMTS; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.542 S/m; ε_r = 52.822; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-09-2018; Ambient Temp: 21.6°C; Tissue Temp: 21.1°C

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

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.05 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.787 W/kg
SAR(1 g) = 0.496 W/kg



0 dB = 0.586 W/kg = -2.32 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00349

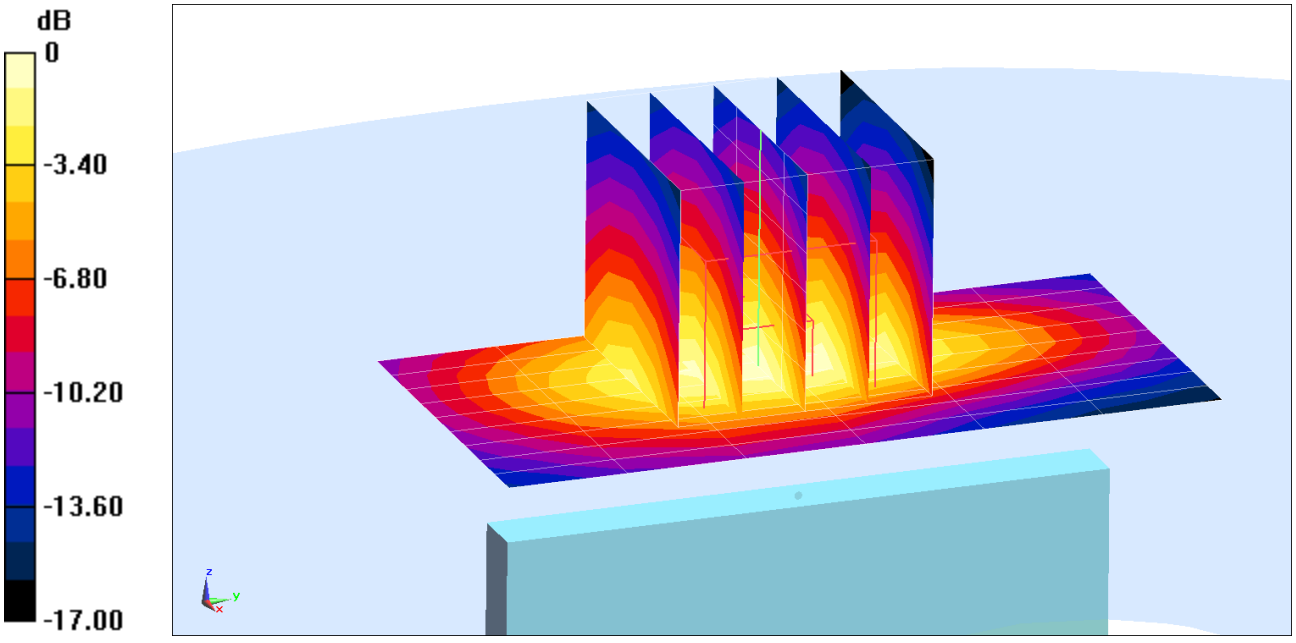
Communication System: UID 0, _UMTS; Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1852.4 MHz; σ = 1.508 S/m; ε_r = 52.892; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-09-2018; Ambient Temp: 21.6°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1852.4 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (10x7x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.38 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 0.894 W/kg



0 dB = 1.10 W/kg = 0.41 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00331

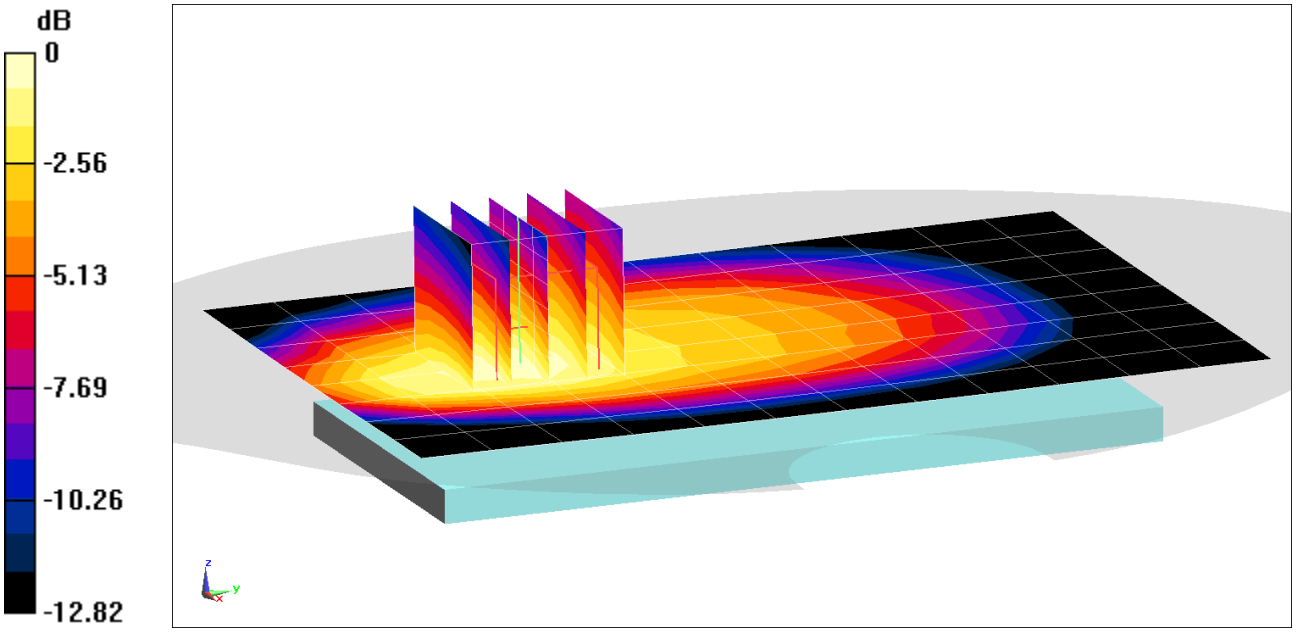
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.927 S/m; ε_r = 54.241; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-19-2018; Ambient Temp: 21.1°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7406; ConvF(9.91, 9.91, 9.91) @ 707.5 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; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.03 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.475 W/kg
SAR(1 g) = 0.319 W/kg



0 dB = 0.411 W/kg = -3.86 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00331

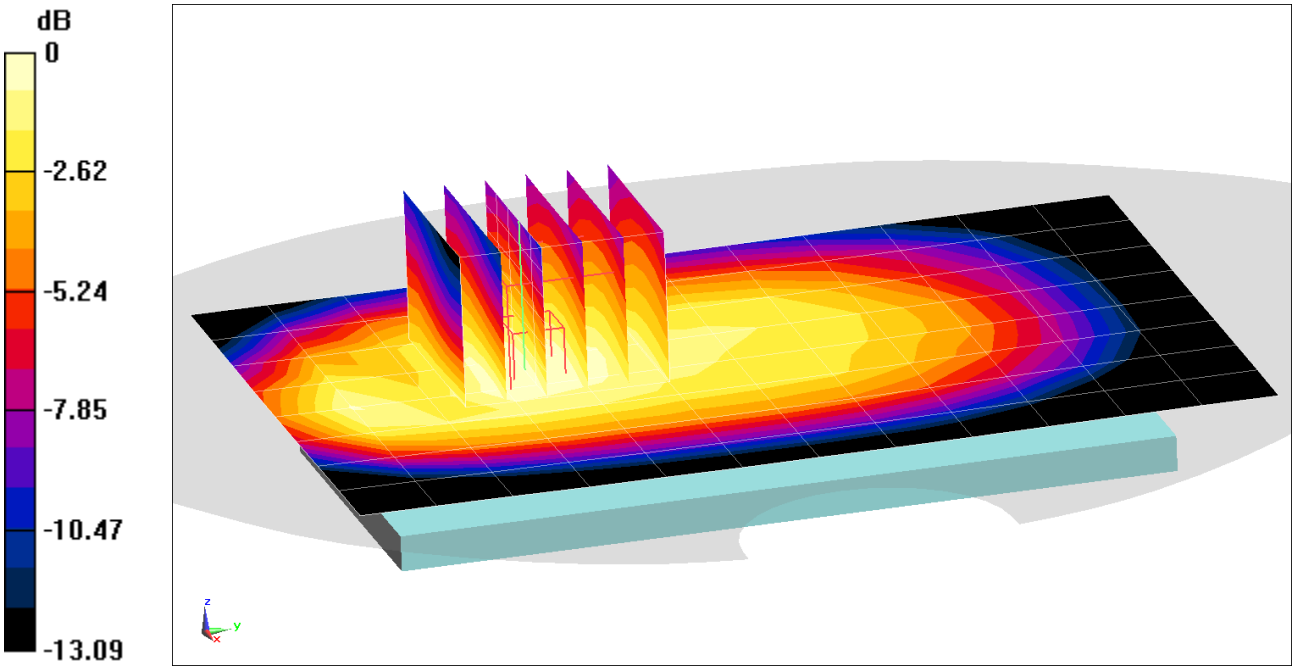
Communication System: UID 0, LTE Band 13; Frequency: 782 MHz; Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 782 MHz; σ = 0.955 S/m; ε_r = 53.956; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-19-2018; Ambient Temp: 21.1°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7406; ConvF(9.91, 9.91, 9.91) @ 782 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; SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 13, Body SAR, Back side, Mid.ch
10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset

Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.15 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.526 W/kg
SAR(1 g) = 0.371 W/kg



0 dB = 0.469 W/kg = -3.29 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00349

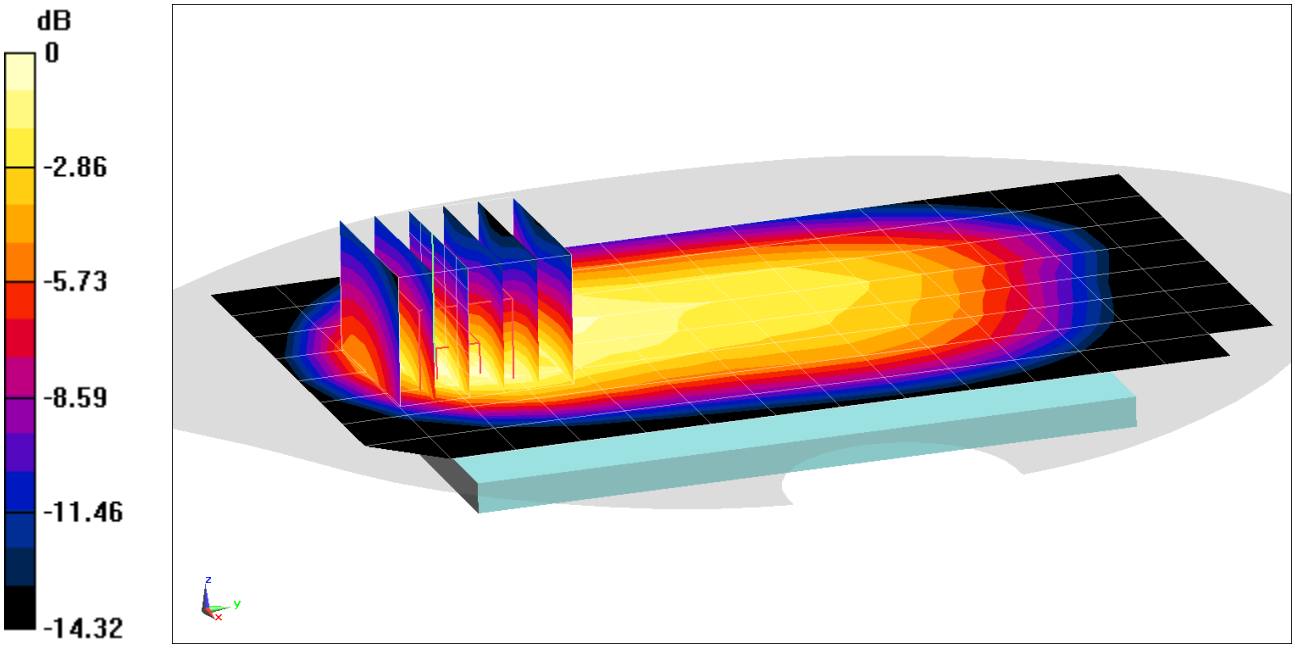
Communication System: UID 0, LTE Band 26; Frequency: 831.5 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 831.5 MHz; σ = 0.935 S/m; ε_r = 54.82; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-07-2018; Ambient Temp: 19.5 C; Tissue Temp: 19.2°C

Probe: ES3DV3 - SN3347; ConvF(6.37, 6.37, 6.37) @ 831.5 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10; 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 (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.37 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.658 W/kg
SAR(1 g) = 0.382 W/kg



0 dB = 0.464 W/kg = -3.33 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00331

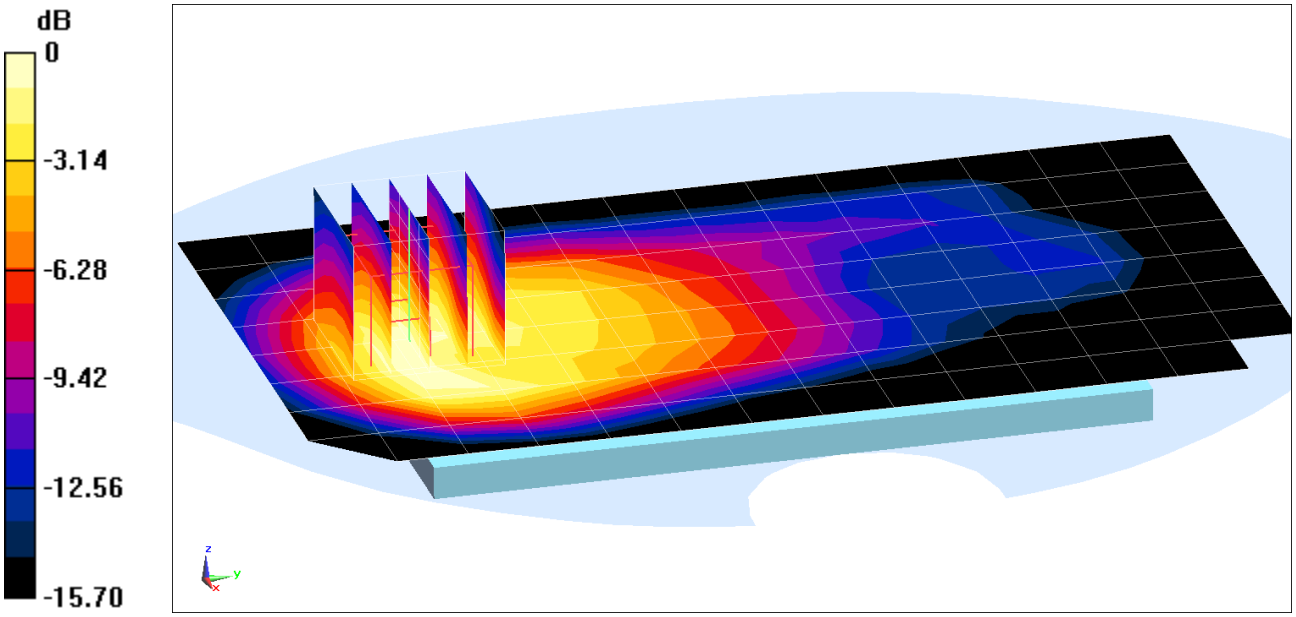
Communication System: UID 0, LTE Band 66 (AWS); Frequency: 1720 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1720 MHz; σ = 1.499 S/m; ε_r = 51.024; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-04-2019; Ambient Temp: 22.8°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7357; ConvF(8.43, 8.43, 8.43) @ 1720 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.89 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.786 W/kg



0 dB = 1.08 W/kg = 0.33 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00331

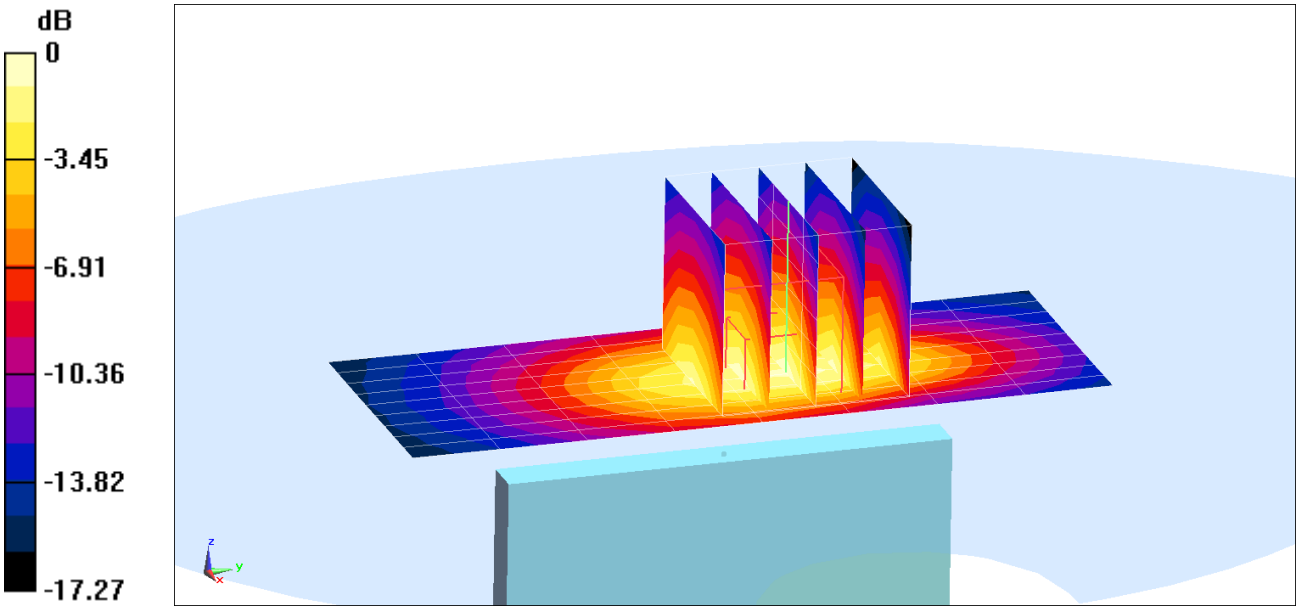
Communication System: UID 0, _LTE Band 66 (AWS); Frequency: 1770 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
f = 1770 MHz; σ = 1.459 S/m; ε_r = 53.704; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-07-2019; Ambient Temp: 22.1°C; Tissue Temp: 22.8°C

Probe: EX3DV4 - SN7357; ConvF(8.43, 8.43, 8.43) @ 1770 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Left; Type: QD000P40CD; Serial: 1687
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 66 (AWS), Body SAR, Bottom edge, High.ch
20 MHz Bandwidth, QPSK, 1 RB, 0 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 = 28.67 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.81 W/kg
SAR(1 g) = 1.09 W/kg



0 dB = 1.55 W/kg = 1.90 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00323

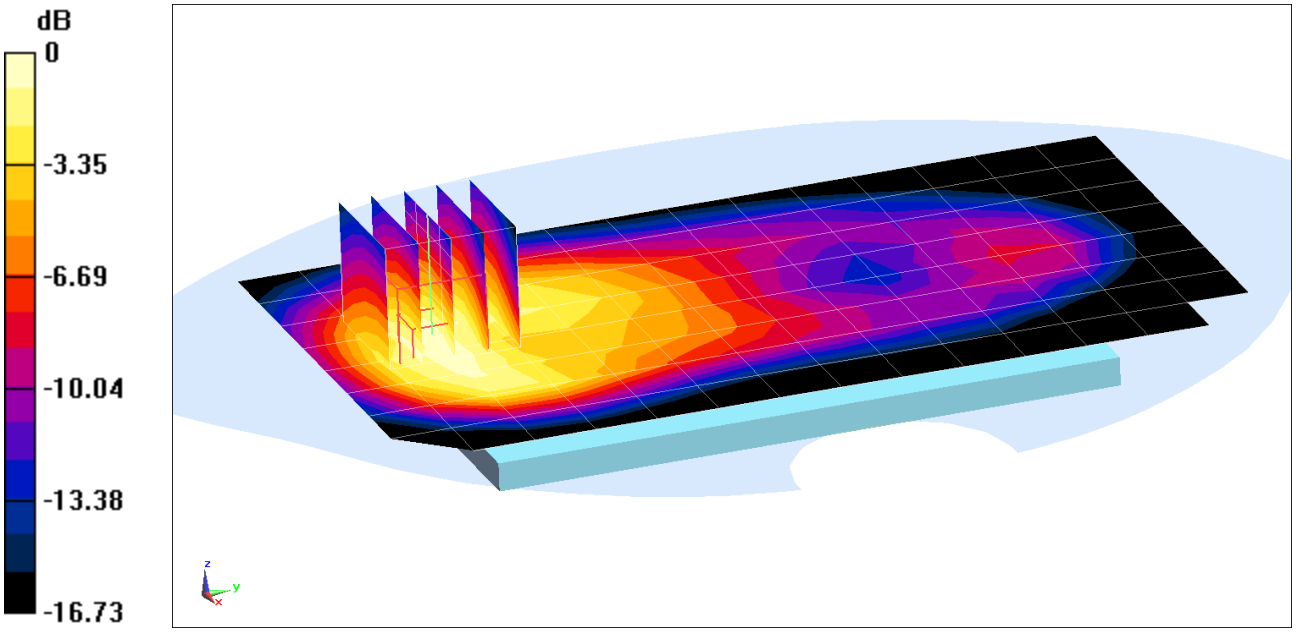
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1882.5 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
$f = 1882.5$ MHz; $\sigma = 1.524$ S/m; $\varepsilon_r = 52.529$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 22.9°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1882.5 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.88 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.870 W/kg
SAR(1 g) = 0.546 W/kg



0 dB = 0.625 W/kg = -2.04 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00323

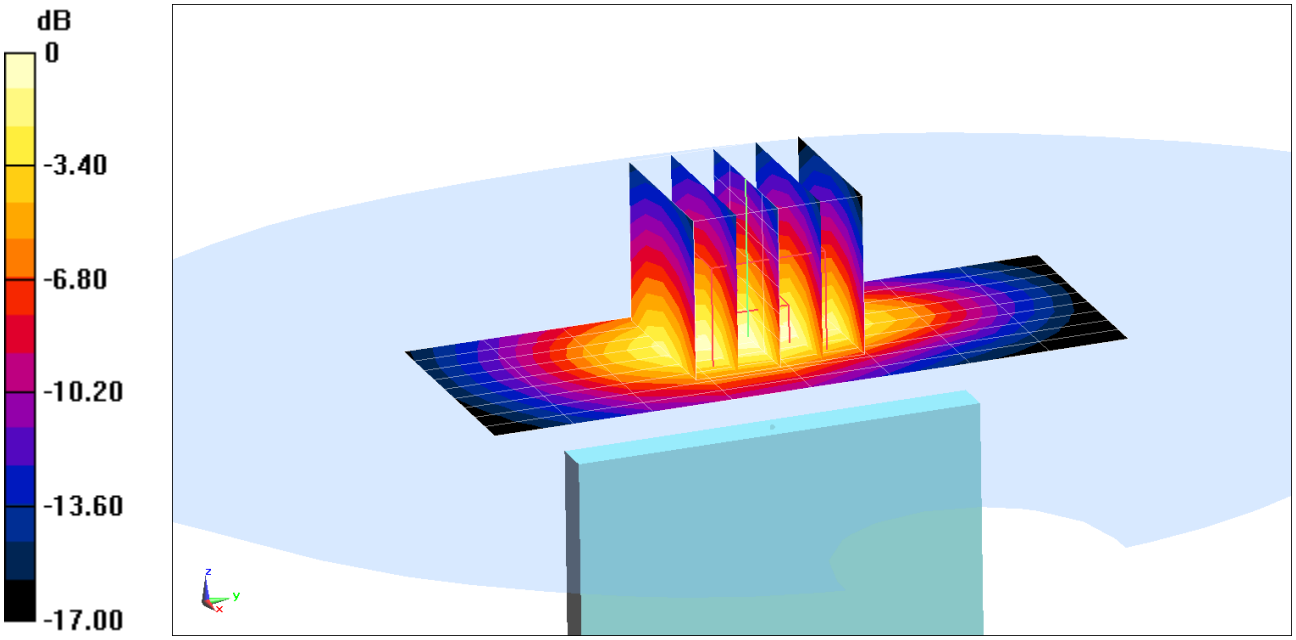
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1860 MHz; σ = 1.499 S/m; ε_r = 52.603; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 22.9°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3332; ConvF(4.77, 4.77, 4.77) @ 1860 MHz; Calibrated: 8/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 2/9/2018
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.92 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.85 W/kg
SAR(1 g) = 1.14 W/kg



0 dB = 1.40 W/kg = 1.46 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00315

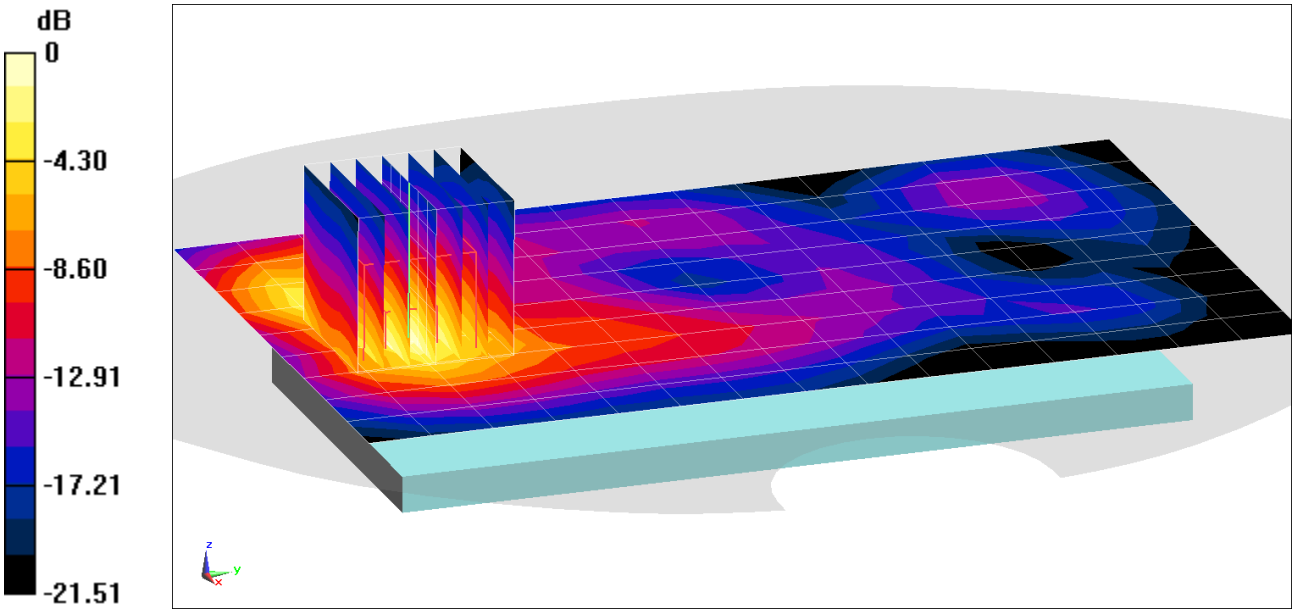
Communication System: UID 0, LTE Band 41 (Class 3); Frequency: 2506 MHz; Duty Cycle: 1:1.58
Medium: 2450 MHz Body Medium parameters used (interpolated):
f = 2506 MHz; σ = 2.068 S/m; ε_r = 52.726; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-11-2018; Ambient Temp: 20.5°C; Tissue Temp: 20.4°C

Probe: ES3DV3 - SN3347; ConvF(4.64, 4.64, 4.64) @ 2506 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

Mode: LTE Band 41 PC3, 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 = 25.47 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 2.59 W/kg
SAR(1 g) = 1.18 W/kg



0 dB = 1.58 W/kg = 1.99 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00257

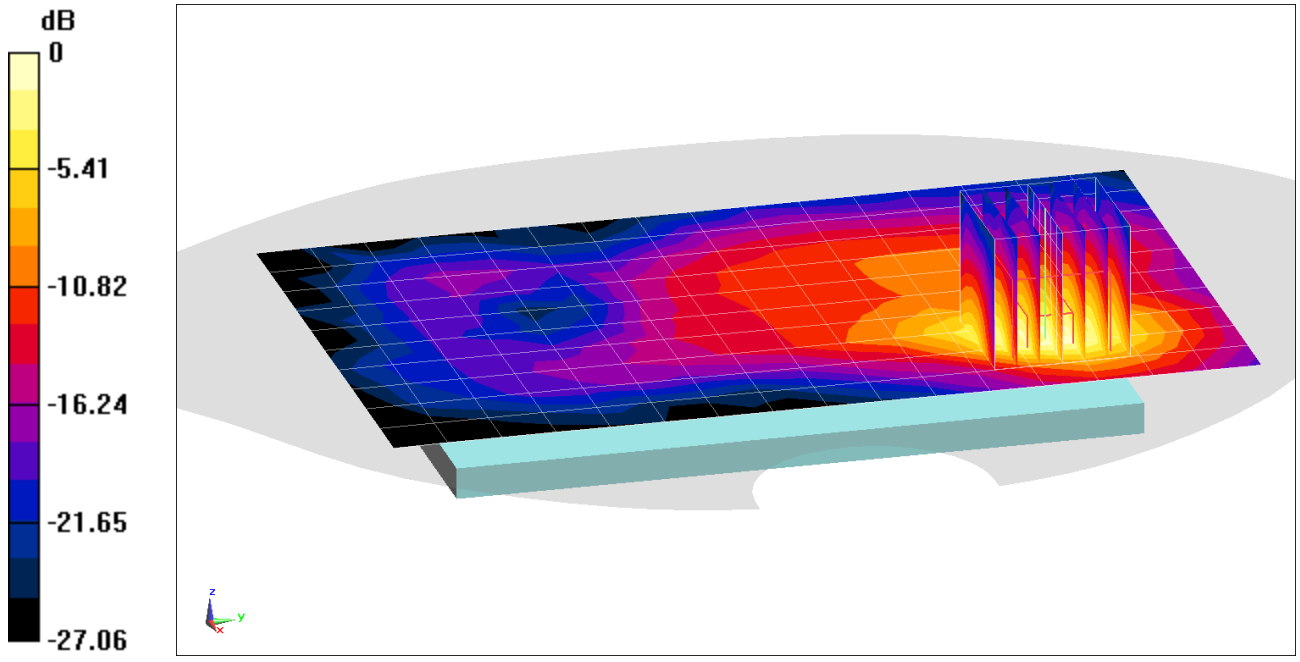
Communication System: UID 0, _IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
f = 2437 MHz; σ = 1.993 S/m; ε_r = 52.637; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 21.7°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3347; ConvF(4.64, 4.64, 4.64) @ 2437 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

Mode: IEEE 802.11b Antenna 2, 22 MHz Bandwidth, Body SAR, Ch 06, 1 Mbps, Back Side

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.072 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.609 W/kg
SAR(1 g) = 0.265 W/kg



0 dB = 0.366 W/kg = -4.37 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00240

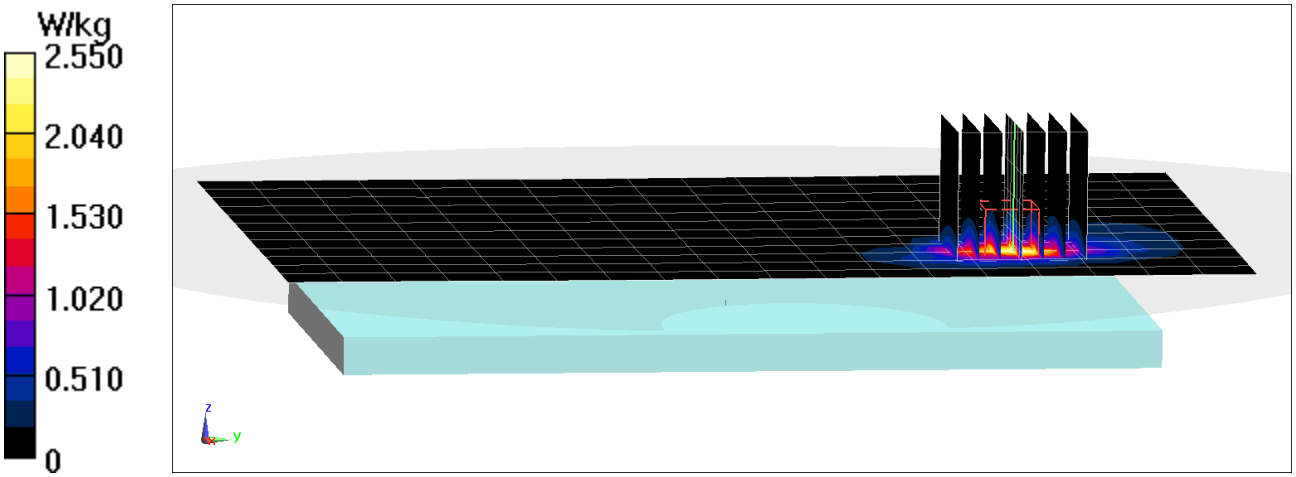
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5825 MHz; σ = 6.322 S/m; ε_r = 46.579; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-21-2019; Ambient Temp: 20.6°C; Tissue Temp: 20.7°C

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

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

Area Scan (9x9x1): 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 = 11.08 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.81 W/kg
SAR(1 g) = 0.830 W/kg



DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00240

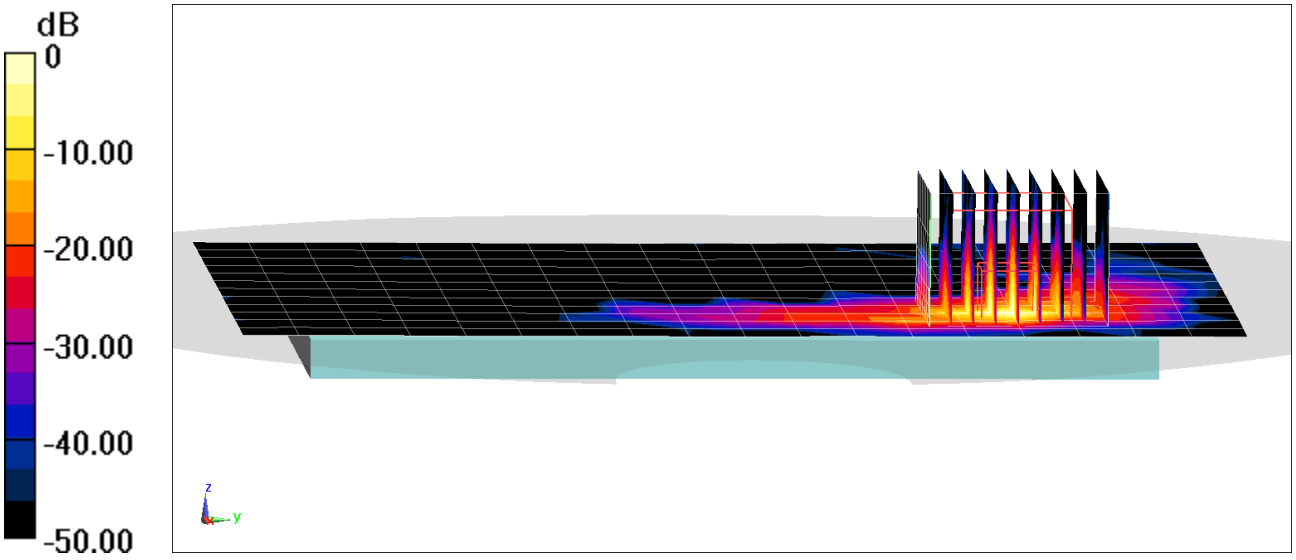
Communication System: UID 0, 802.11a 5.2-5.8 GHz Band; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5600 MHz; σ = 5.888 S/m; ε_r = 46.674; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0.0 cm

Test Date: 01-03-2019; Ambient Temp: 21.5°C; Tissue Temp: 21.0°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; SEMCAD X Version 14.6.12 (7450)

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

Area Scan (9x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (9x9x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio: 1.4
Reference Value = 60.58 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 93.3 W/kg
SAR(10 g) = 2.49 W/kg



0 dB = 48.8 W/kg = 16.88 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00240

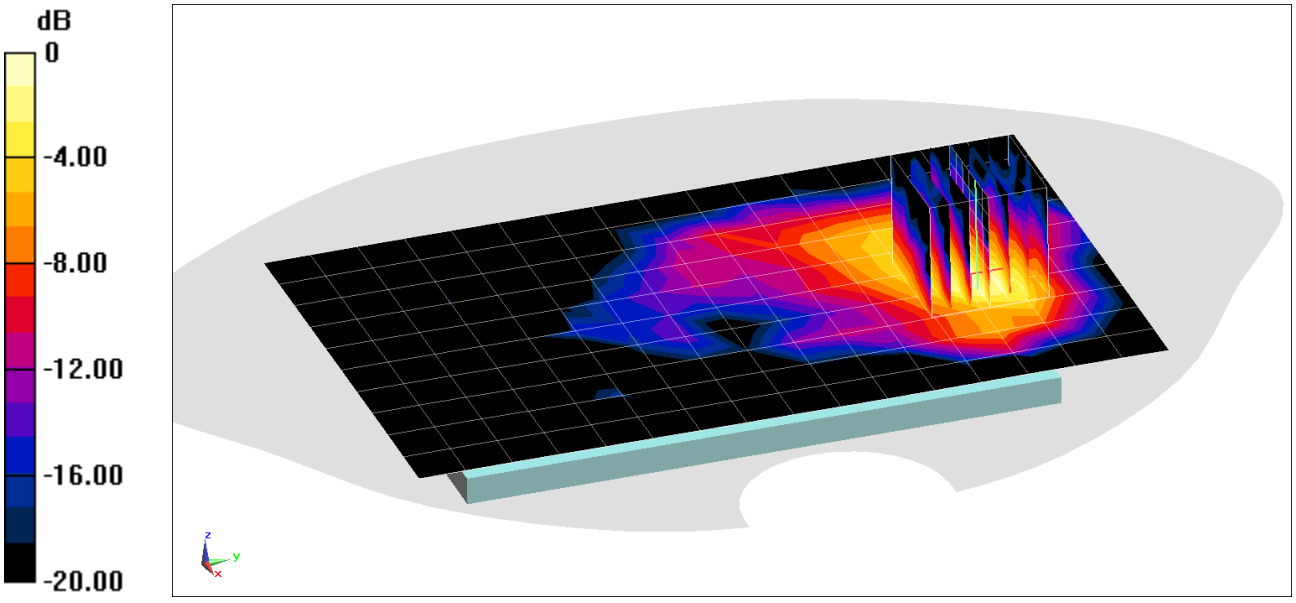
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.2936
Medium: 2450 Body Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.007 S/m; ε_r = 50.63; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-17-2019; Ambient Temp: 23.4°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2441 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

Mode: Mode: Bluetooth, Body SAR, Ch 39, 1 Mbps, Back Side

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.900 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.0570 W/kg
SAR(1 g) = 0.027 W/kg



0 dB = 0.0351 W/kg = -14.55 dBW/kg

DUT: ZNFQ850QM; Type: Portable Handset; Serial: 00240

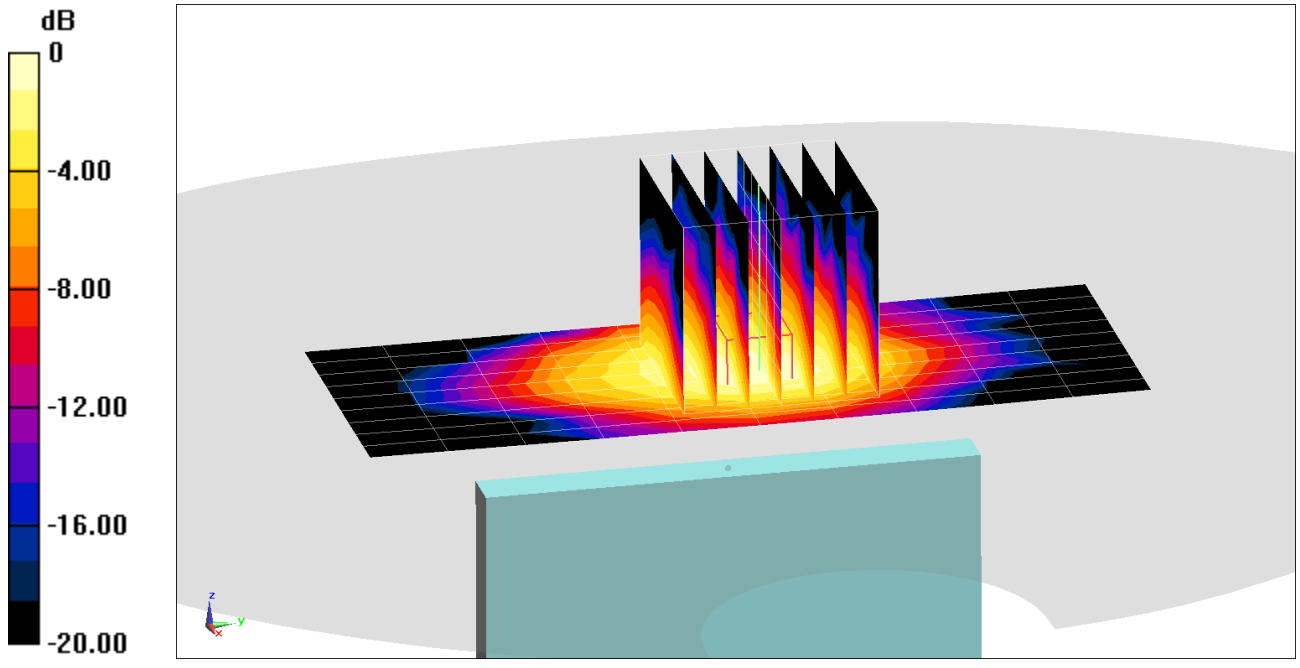
Communication System: UID 0, Bluetooth; Frequency: 2441 MHz; Duty Cycle: 1:1.294
Medium: 2450 Body Medium parameters used (interpolated):
f = 2441 MHz; σ = 2.007 S/m; ε_r = 50.63; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-17-2019; Ambient Temp: 23.4°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3319; ConvF(4.51, 4.51, 4.51) @ 2441 MHz; Calibrated: 3/13/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/7/2018
Phantom: LeftTwin-SAM V5.0; Type: QD 000 P40 CD; Serial: TP1375
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

Mode: Bluetooth, Body SAR, Ch 39, 1 Mbps, Top Edge

Area Scan (10x11x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.089 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.0630 W/kg
SAR(1 g) = 0.031 W/kg



0 dB = 0.0401 W/kg = -13.97 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1054

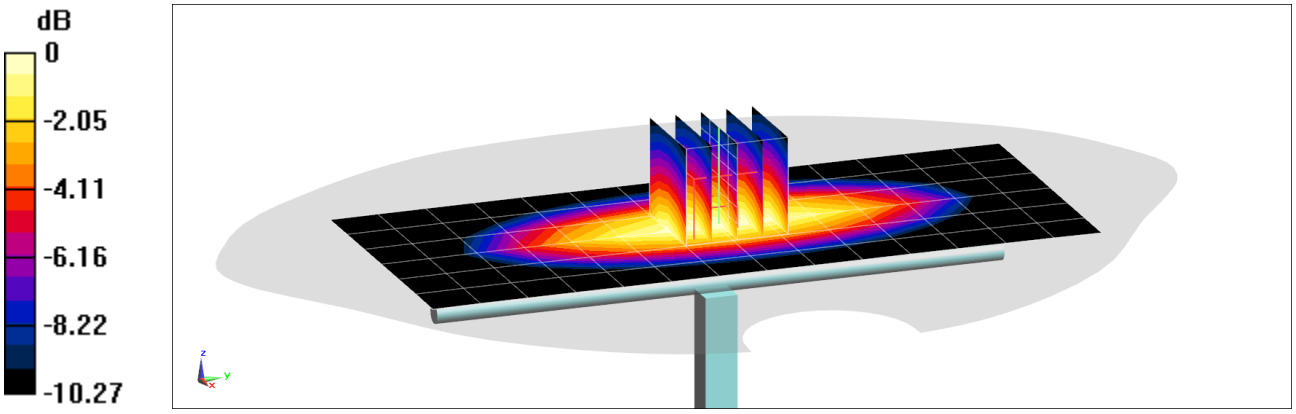
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Head; Medium parameters used (interpolated):
f = 750 MHz; σ = 0.878 S/m; ε_r = 42.325; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-19-2018; Ambient Temp: 21.3°C; Tissue Temp: 19.8°C

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

750 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.59 W/kg
SAR(1 g) = 1.73 W/kg
Deviation(1 g) = 3.35%



0 dB = 2.03 W/kg = 3.07 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

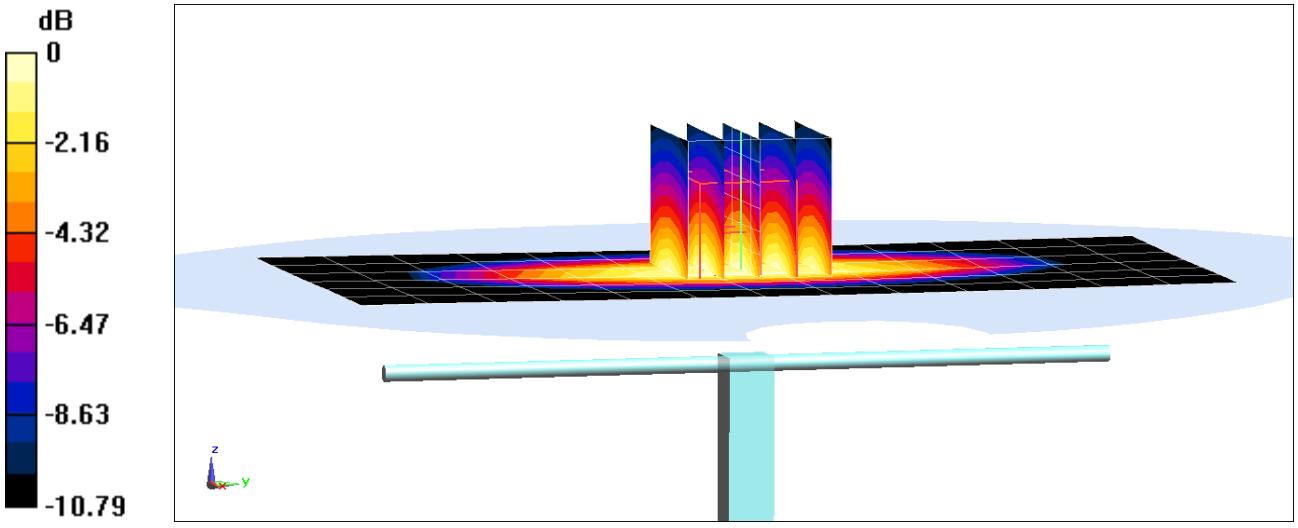
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.913 S/m; ε_r = 41.535; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-31-2018; Ambient Temp: 21.7°C; Tissue Temp: 21.0°C

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

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 3.01 W/kg
SAR(1 g) = 2 W/kg
Deviation(1 g) = 5.60%



0 dB = 2.66 W/kg = 4.25 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

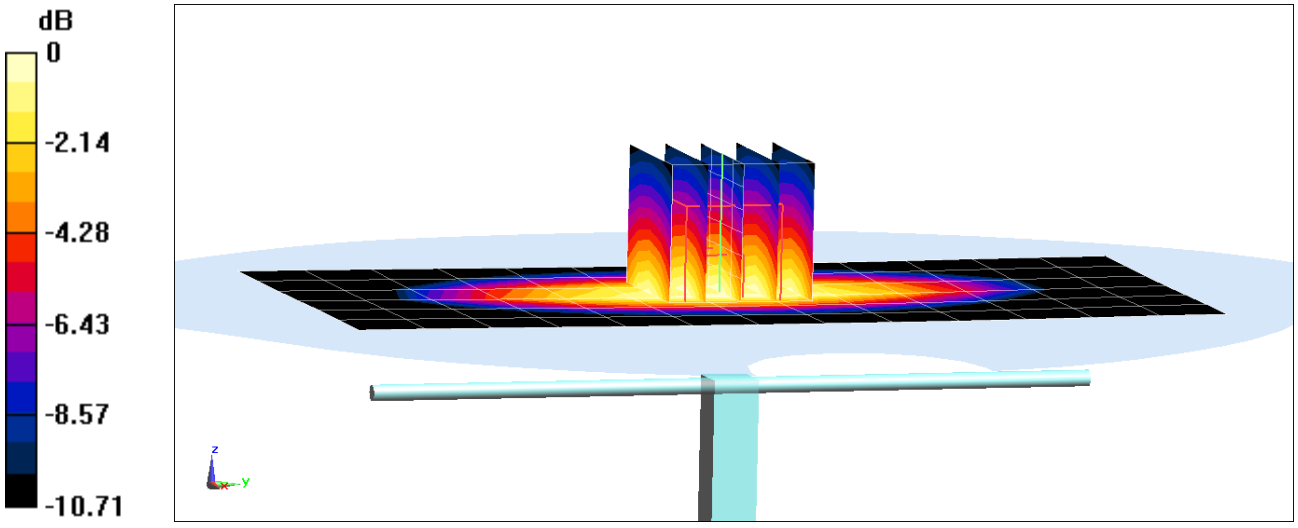
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.91 S/m; ε_r = 41.959; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

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

Probe: EX3DV4 - SN7410; ConvF(9.81, 9.81, 9.81) @ 835 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10; 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) = 2.98 W/kg
SAR(1 g) = 1.98 W/kg
Deviation(1 g) = 4.54%



0 dB = 2.65 W/kg = 4.23 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1148

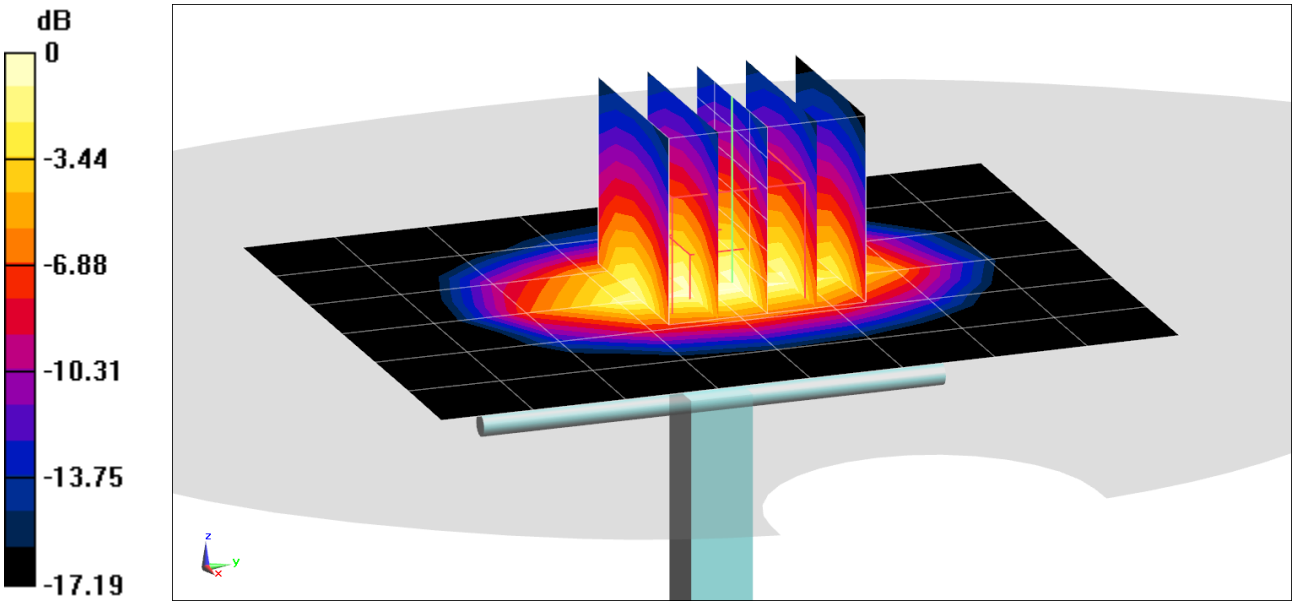
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head; Medium parameters used:
f = 1750 MHz; σ = 1.364 S/m; ε_r = 38.734; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-31-2018; Ambient Temp: 21.7°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3287; ConvF(5.48, 5.48, 5.48) @ 1750 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; 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) = 6.01 W/kg
SAR(1 g) = 3.35 W/kg
Deviation(1 g) = -7.97%



0 dB = 4.16 W/kg = 6.19 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1148

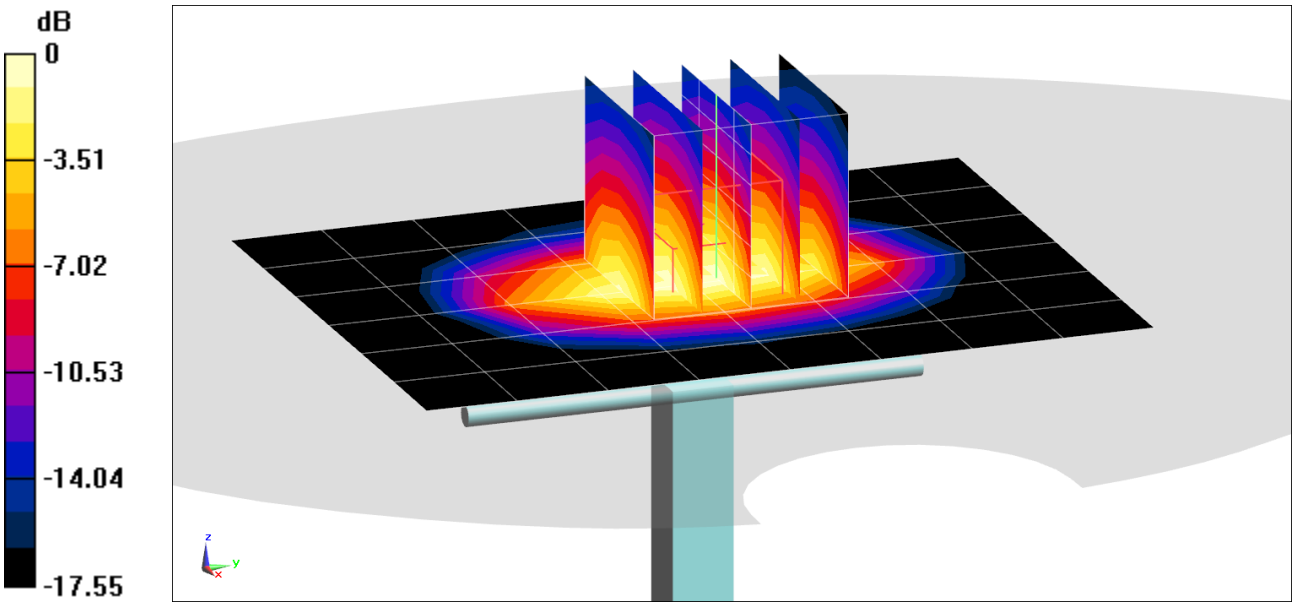
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head; Medium parameters used:
f = 1750 MHz; σ = 1.363 S/m; ε_r = 38.77; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

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

Probe: ES3DV3 - SN3287; ConvF(5.48, 5.48, 5.48) @ 1750 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

1750 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 6.51 W/kg
SAR(1 g) = 3.6 W/kg
Deviation(1 g) = -1.10%



0 dB = 4.45 W/kg = 6.48 dBW/kg

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d148

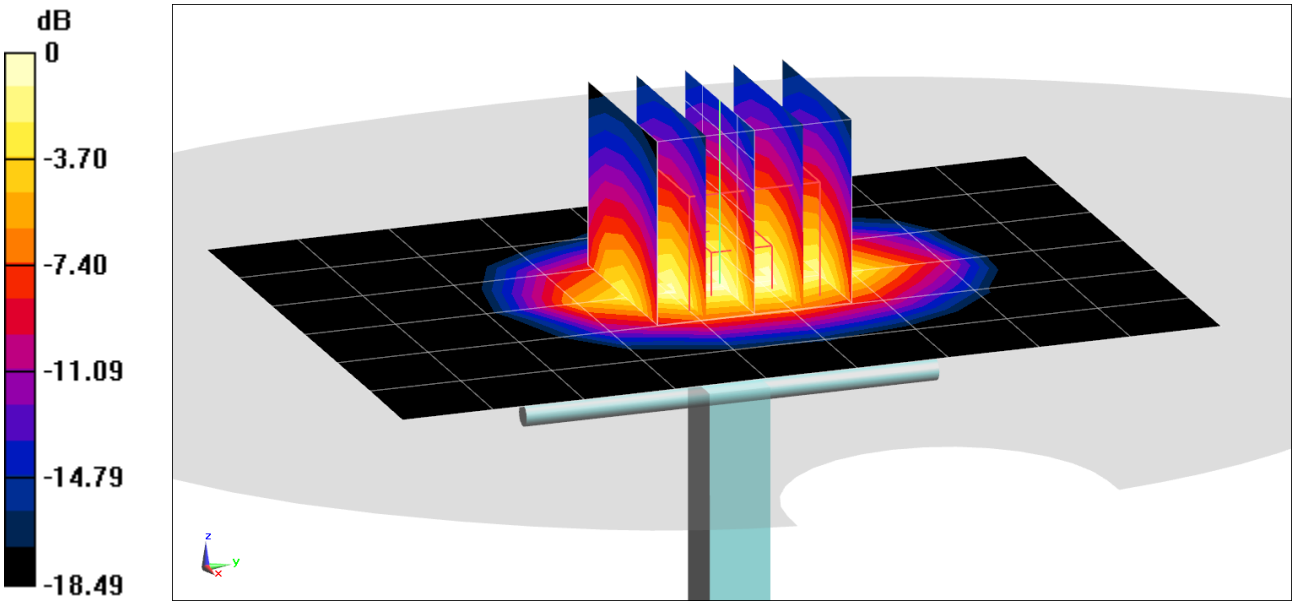
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.452 S/m; ε_r = 38.514; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-31-2018; Ambient Temp: 21.7°C; Tissue Temp: 20.8°C

Probe: ES3DV3 - SN3287; ConvF(5.24, 5.24, 5.24) @ 1900 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.74 W/kg
SAR(1 g) = 4.19 W/kg
Deviation(1 g) = 4.49%



0 dB = 5.31 W/kg = 7.25 dBW/kg

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d148

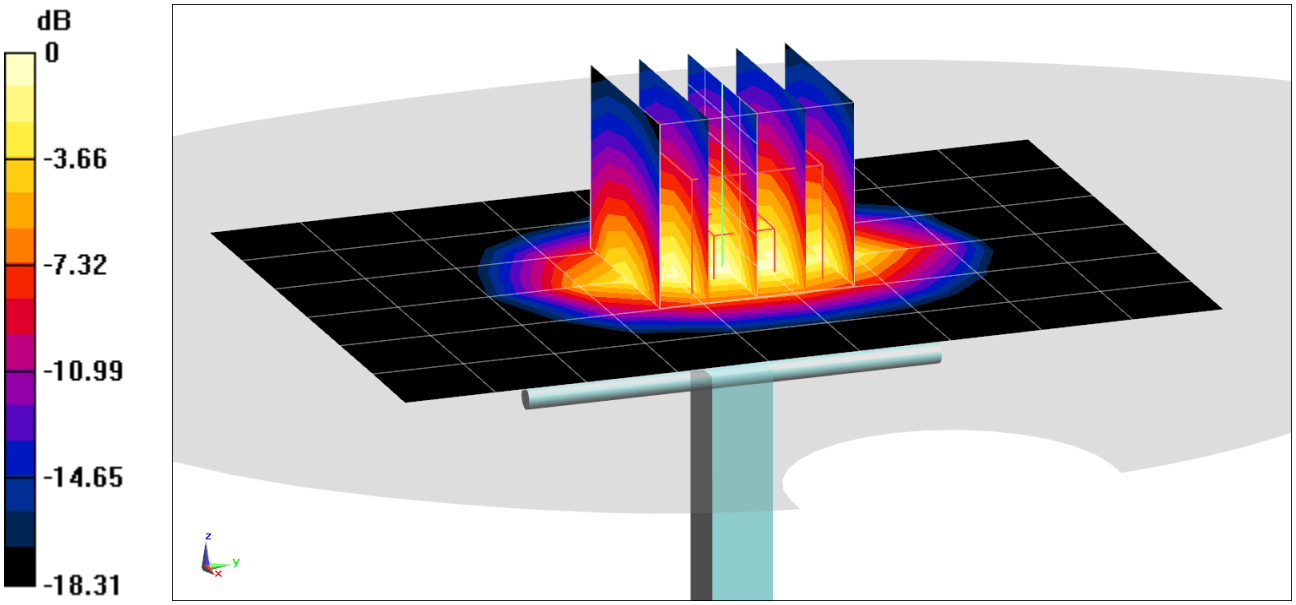
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head; Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.456 S/m; ε_r = 38.527; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

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

Probe: ES3DV3 - SN3287; ConvF(5.24, 5.24, 5.24) @ 1900 MHz; Calibrated: 10/22/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1333; Calibrated: 10/18/2018
Phantom: Twin-SAM V8.0; Type: QD 000 P41 Ax; Serial: 1964
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

1900 MHz System Verification at 20.0 dBm (100 mW)

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 7.70 W/kg
SAR(1 g) = 4.16 W/kg
Deviation(1 g) = 3.74%



0 dB = 5.28 W/kg = 7.23 dBW/kg

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 981

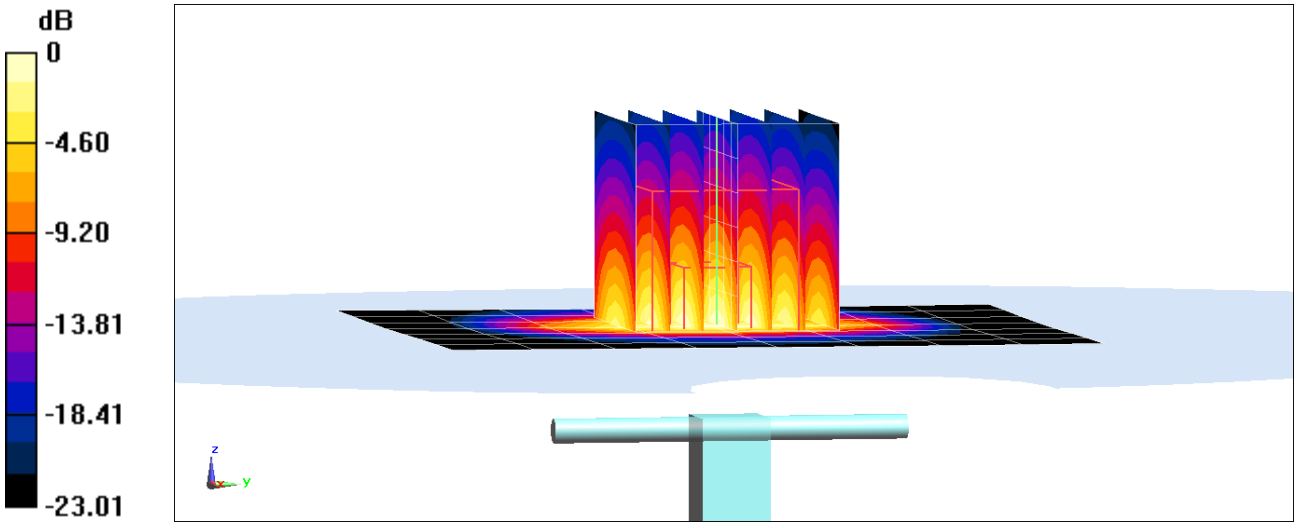
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head Medium parameters used:
f = 2450 MHz; σ = 1.862 S/m; ε_r = 38.272; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-17-2018; Ambient Temp: 21.9°C; Tissue Temp: 22.0°C

Probe: EX3DV4 - SN7410; ConvF(7.5, 7.5, 7.5) @ 2450 MHz; Calibrated: 7/20/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1322; Calibrated: 7/11/2018
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.10; 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) = 5.25 W/kg
Deviation(1 g) = 0.38%



0 dB = 8.96 W/kg = 9.52 dBW/kg

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 797

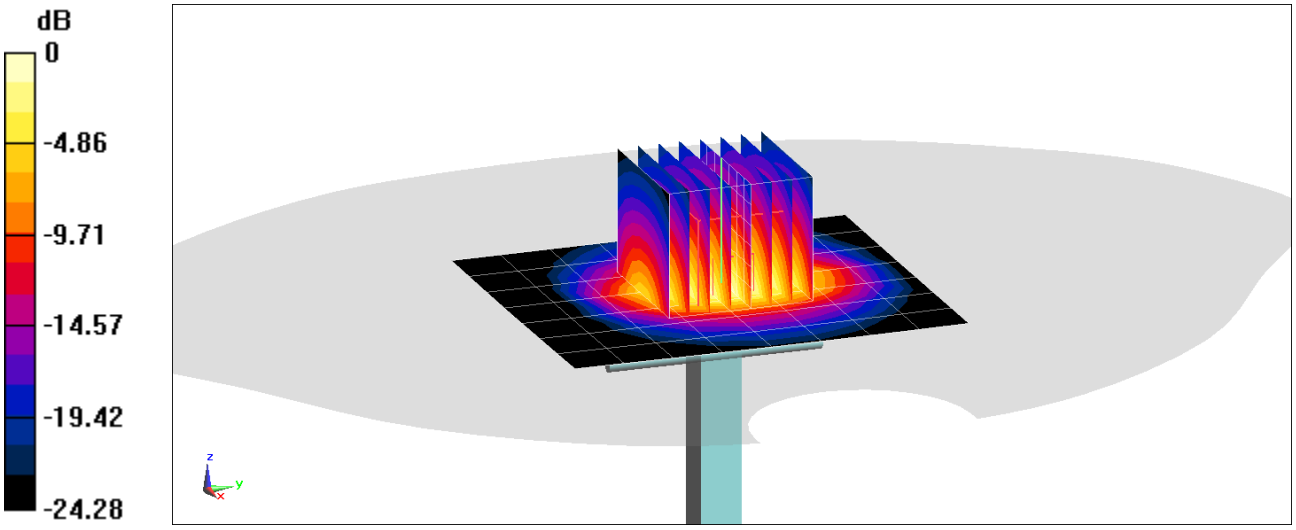
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used:
f = 2450 MHz; σ = 1.86 S/m; ε_r = 40.485; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 20.3°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7406; ConvF(7.54, 7.54, 7.54) @ 2450 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10; 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 (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Peak SAR (extrapolated) = 10.9 W/kg
SAR(1 g) = 5.18 W/kg
Deviation(1 g) = -1.71%;



0 dB = 8.22 W/kg = 9.15 dBW/kg

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DUT: Dipole 2600 MHz; Type: D2600V2; Serial: 1071

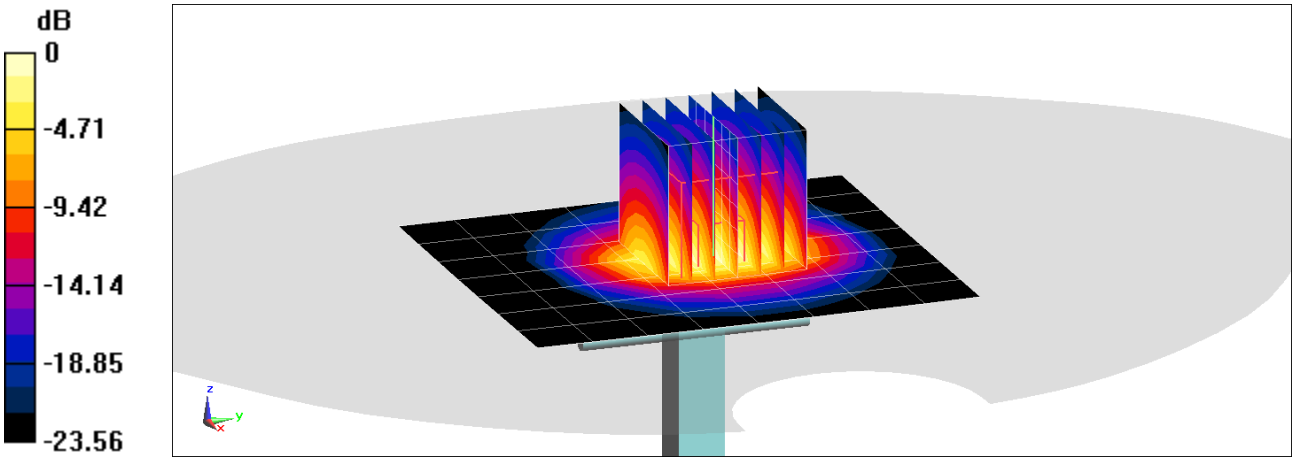
Communication System: UID 0, CW; Frequency: 2600 MHz; Duty Cycle: 1:1
Medium: 2450 Head; Medium parameters used:
f = 2600 MHz; σ = 1.982 S/m; ε_r = 40.241; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 20.3°C; Tissue Temp: 20.5°C

Probe: EX3DV4 - SN7406; ConvF(7.4, 7.4, 7.4) @ 2600 MHz; Calibrated: 5/22/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn859; Calibrated: 5/22/2018
Phantom: Twin-SAM V4.0 Front Right; Type: QD 000 P40 CC; Serial: 1167
Measurement SW: DASY52, Version 52.10; 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) = 12.8 W/kg
SAR(1 g) = 5.8 W/kg
Deviation(1 g) = 3.02%



0 dB = 10.1 W/kg = 10.04 dBW/kg

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

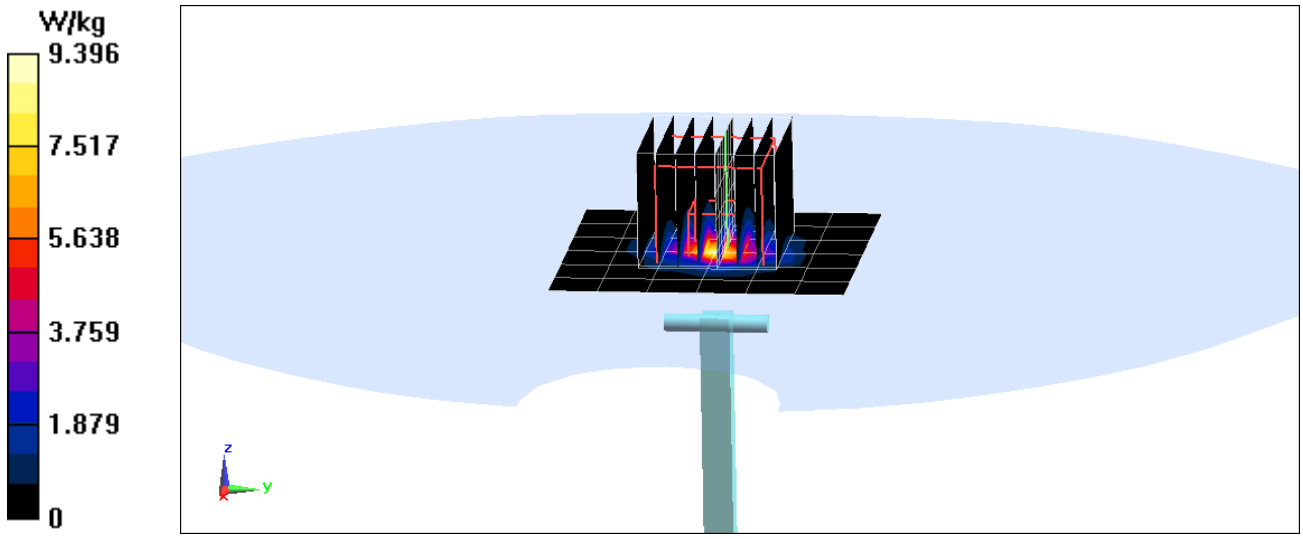
Communication System: UID 0, CW; Frequency: 5250 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used (interpolated):
$f = 5250$ MHz; $\sigma = 4.535$ S/m; $\varepsilon_r = 34.791$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-16-2018; Ambient Temp: 20.8°C; Tissue Temp: 20.4°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; 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) = 16.0 W/kg
SAR(1 g) = 3.89 W/kg
Deviation(1 g) = -1.39%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

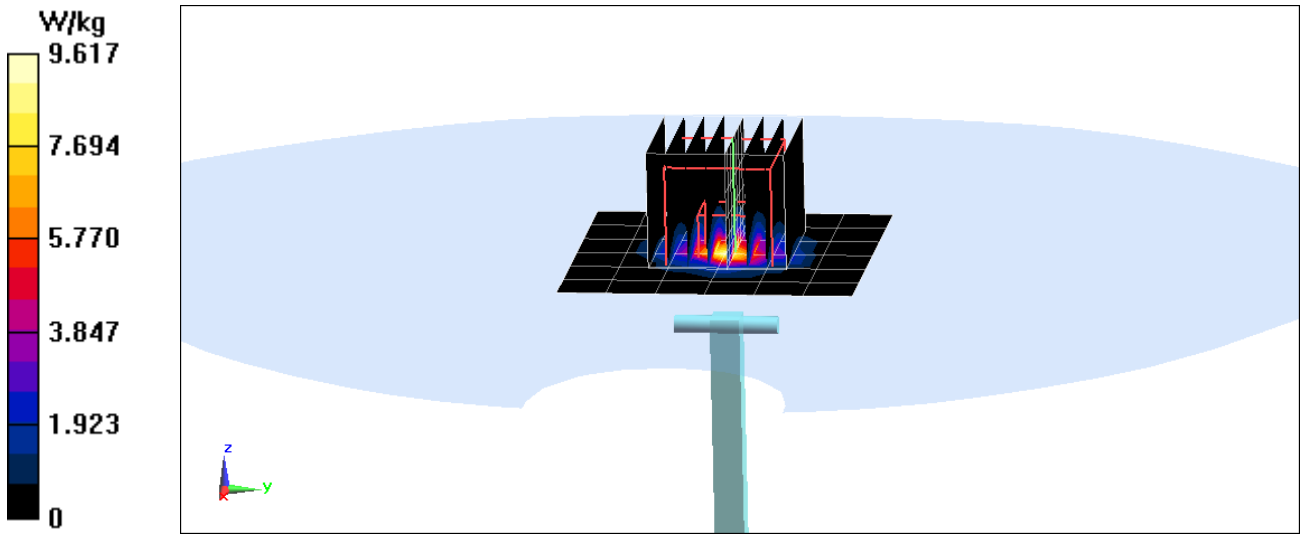
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used:
f = 5600 MHz; σ = 4.892 S/m; ε_r = 34.355; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-16-2018; Ambient Temp: 20.8°C; Tissue Temp: 20.4°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; 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) = 17.7 W/kg
SAR(1 g) = 3.97 W/kg
Deviation(1 g) = -5.02%



DUT: Dipole 5 GHz; Type: D5GHzV2; Serial: 1191

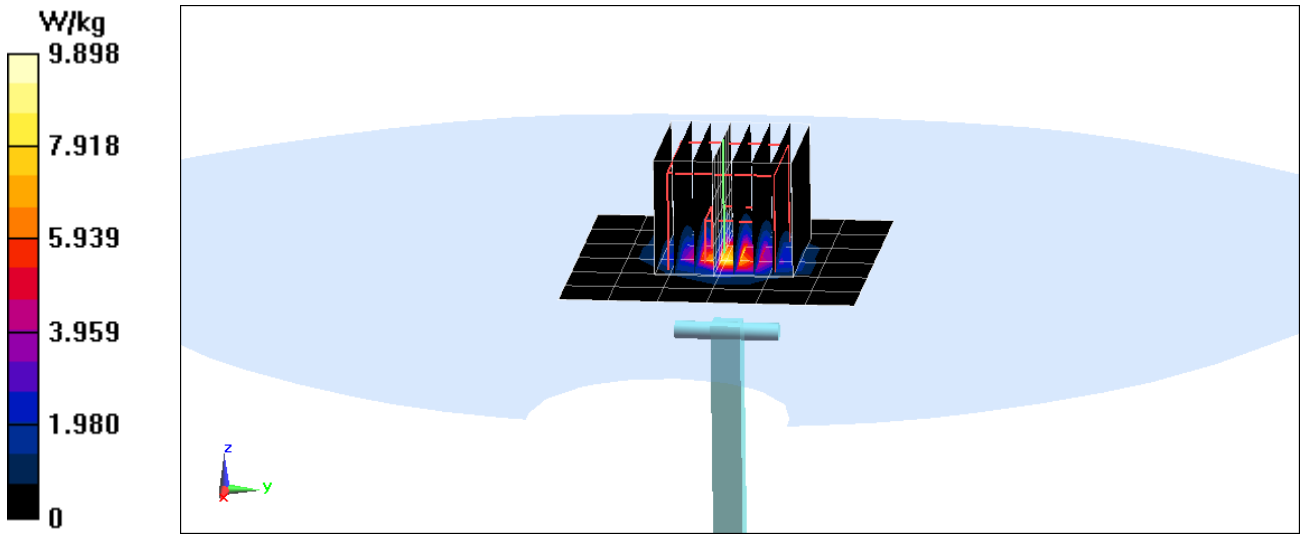
Communication System: UID 0, CW; Frequency: 5750 MHz; Duty Cycle: 1:1
Medium: 5GHz Head Medium parameters used (interpolated):
f = 5750 MHz; σ = 5.055 S/m; ε_r = 34.093; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 12-16-2018; Ambient Temp: 20.8°C; Tissue Temp: 20.4°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; 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) = 18.4 W/kg
SAR(1 g) = 3.93 W/kg
Deviation(1 g) = -0.63%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 750 MHz; Type: D750V3; Serial: 1054

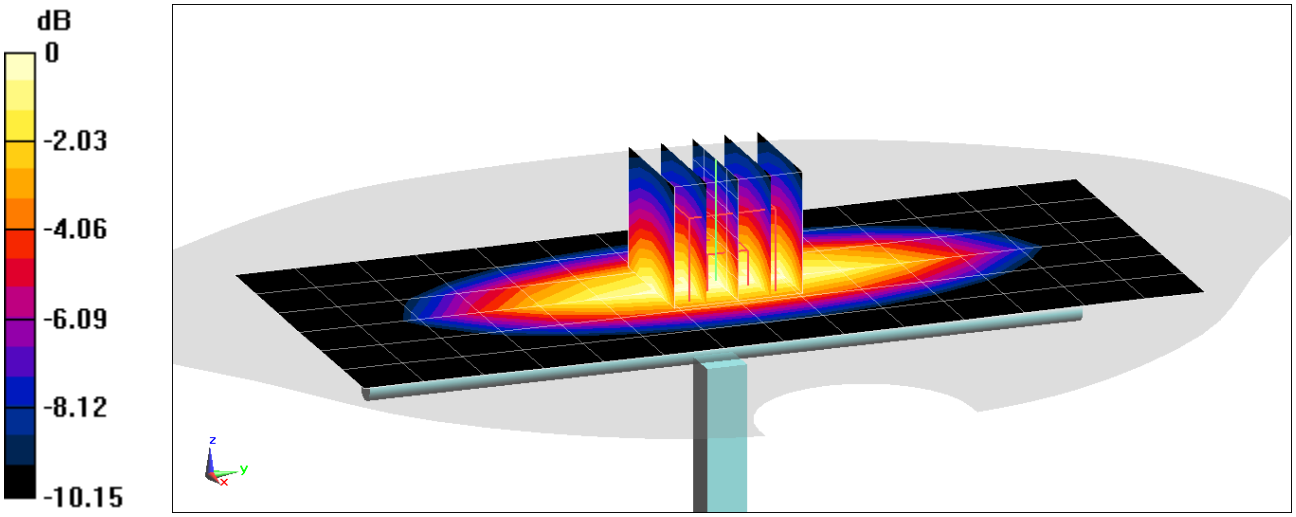
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Body; Medium parameters used (interpolated):
f = 750 MHz; σ = 0.943 S/m; ε_r = 54.147; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-19-2018; Ambient Temp: 21.1°C; Tissue Temp: 19.7°C

Probe: EX3DV4 - SN7406; ConvF(9.91, 9.91, 9.91) @ 750 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; SEMCAD X Version 14.6.12 (7450)

750 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.62 W/kg
SAR(1 g) = 1.76 W/kg
Deviation(1 g) = 2.21%



0 dB = 2.33 W/kg = 3.67 dBW/kg

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

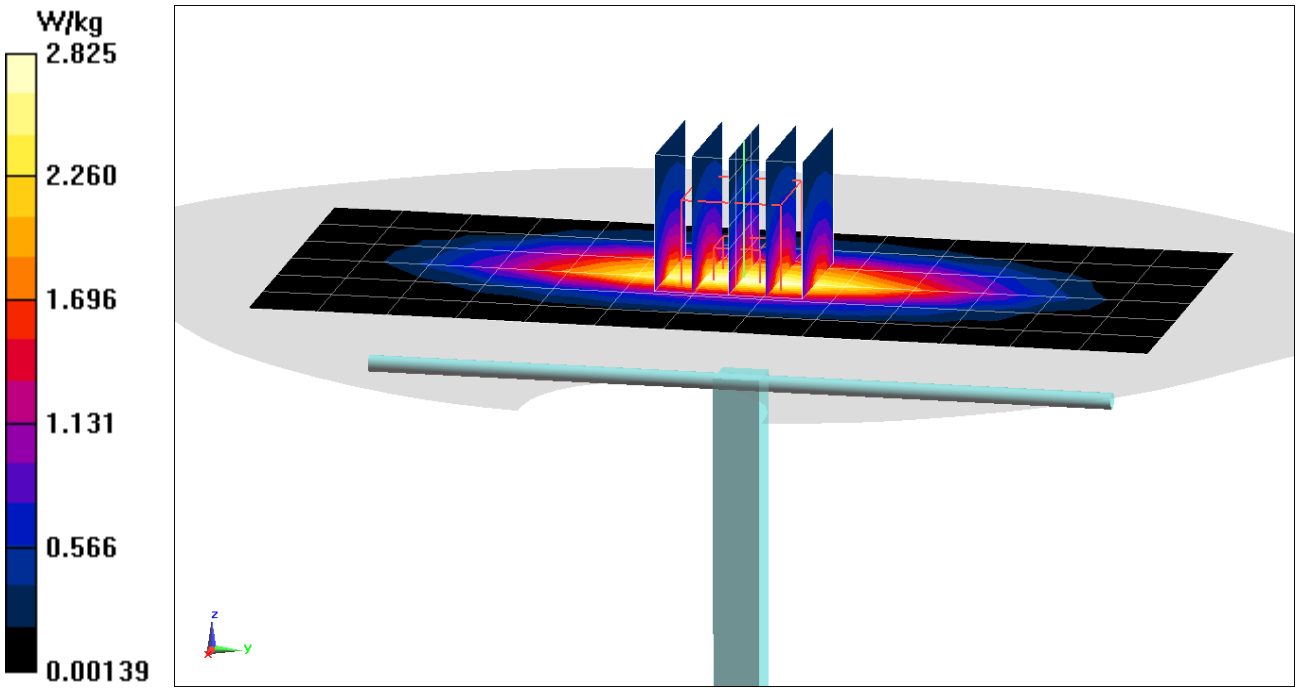
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.936 S/m; ε_r = 54.81; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 12-07-2018; Ambient Temp: 19.5 C; Tissue Temp: 19.2°C

Probe: ES3DV3 - SN3347; ConvF(6.37, 6.37, 6.37) @ 835 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 3.14 W/kg
SAR(1 g) = 1.98 W/kg
Deviation(1 g) = 1.96%



PCTEST ENGINEERING LABORATORY, INC.

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

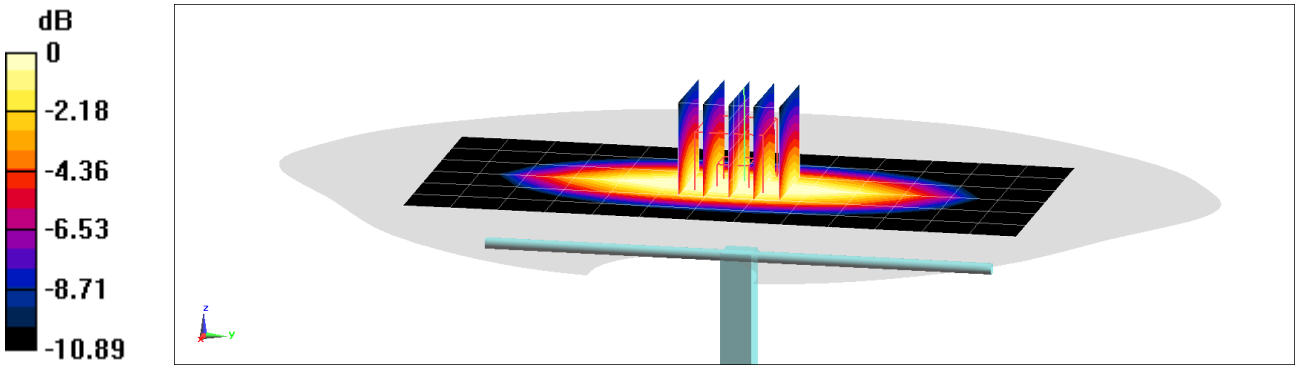
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 MHz Body Medium parameters used:
f = 835 MHz; σ = 0.995 S/m; ε_r = 52.605; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

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

Probe: ES3DV3 - SN3347; ConvF(6.37, 6.37, 6.37) @ 835 MHz; Calibrated: 3/27/2018
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn665; Calibrated: 2/15/2018
Phantom: Twin-SAM V5.0; Type: QD 000 P40 CD; Serial: 1800
Measurement SW: DASY52, Version 52.10; SEMCAD X Version 14.6.12 (7450)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 2.95 W/kg
SAR(1 g) = 1.97 W/kg
Deviation(1 g) = 1.44%



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

PCTEST ENGINEERING LABORATORY, INC.

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

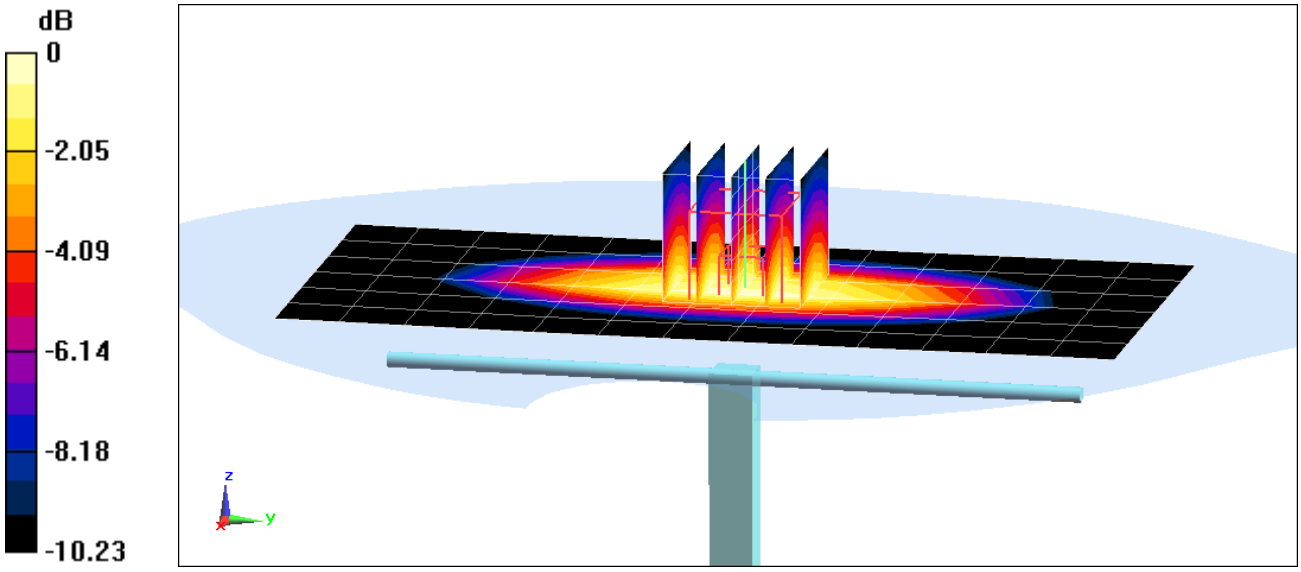
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.968 S/m; ε_r = 55.401; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 01-02-2019; Ambient Temp: 21.1°C; Tissue Temp: 20.4°C

Probe: EX3DV4 - SN7409; ConvF(9.63, 9.63, 9.63) @ 835 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; SEMCAD X Version 14.6.12 (7450)

835 MHz System Verification at 23.0 dBm (200 mW)

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Peak SAR (extrapolated) = 3.10 W/kg
SAR(1 g) = 2.06 W/kg
Deviation(1 g) = 6.08%



0 dB = 2.74 W/kg = 4.38 dBW/kg

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1150

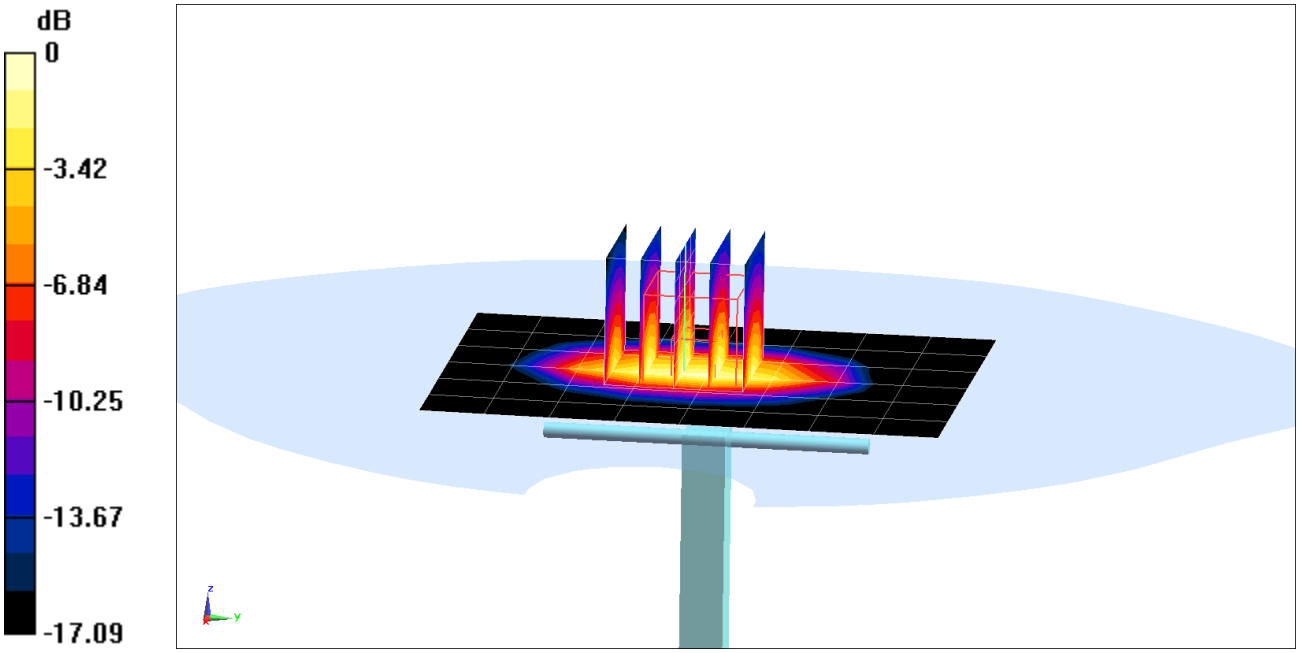
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.512 S/m; ε_r = 52.517; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-02-2019; Ambient Temp: 22.3°C; Tissue Temp: 21.5°C

Probe: EX3DV4 - SN7357; ConvF(8.43, 8.43, 8.43) @ 1750 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10; 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) = 6.70 W/kg
SAR(1 g) = 3.71 W/kg
Deviation(1 g) = 1.37%



0 dB = 5.64 W/kg = 7.51 dBW/kg

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DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1150

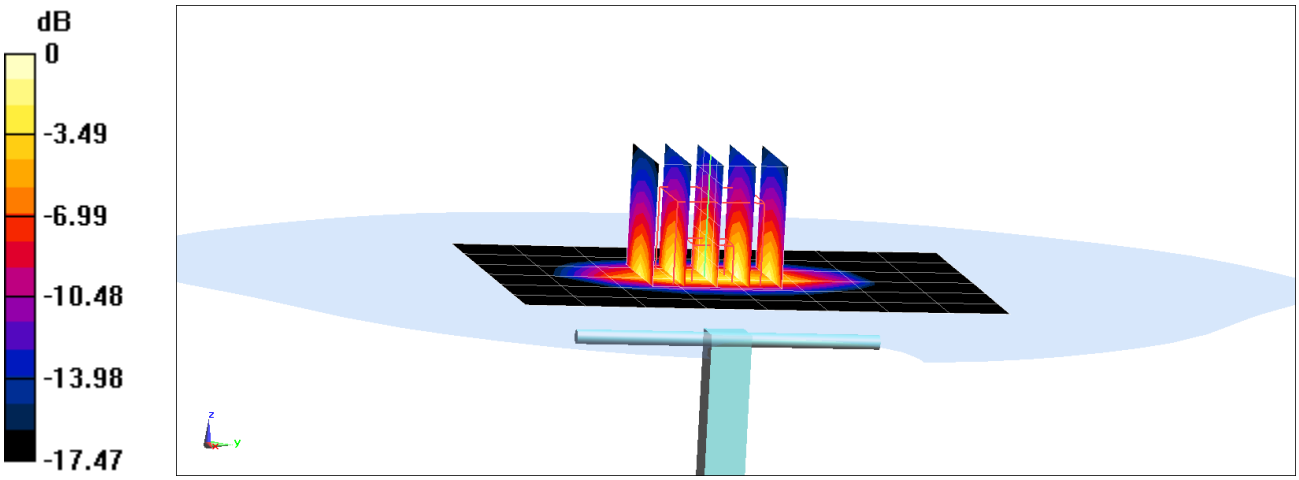
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.535 S/m; ε_r = 50.904; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 01-04-2019; Ambient Temp: 22.8°C; Tissue Temp: 20.8°C

Probe: EX3DV4 - SN7357; ConvF(8.43, 8.43, 8.43) @ 1750 MHz; Calibrated: 4/18/2018
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1407; Calibrated: 4/11/2018
Phantom: SAM with CRP v5.0 Front; Type: QD000P40CD; Serial: 1646
Measurement SW: DASY52, Version 52.10; 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) = 7.27 W/kg
SAR(1 g) = 3.95 W/kg
Deviation(1 g) = 7.92%



0 dB = 6.13 W/kg = 7.87 dBW/kg