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SAR EVALUATION REPORT

Applicant Name:
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Gyeonggi-do 443-742, Korea

Date of Testing:
06/08/15 –06/17/15
Test Site/Location:
PCTEST Lab, Columbia, MD, USA
Document Serial No.:
0Y1506081043-R1.A3L

FCC ID:	**A3LSMN920P**
APPLICANT:	**SAMSUNG ELECTRONICS, CO. LTD.**

DUT Type: Portable Handset
Application Type: Certification
FCC Rule Part(s): CFR §2.1093
Model(s): SM-N920P

Equipment Class	Band & Mode	Tx Frequency	SAR			
			1 gm Head (W/kg)	1 gm Body-Worn (W/kg)	1 gm Hotspot (W/kg)	10 gm Extremity (W/kg)
PCE	CDMA/EVDO BC10 (§90S)	817.90 - 823.10 MHz	0.30	0.60	0.72	1.55
PCE	CDMA/EVDO BC0 (§22H)	824.70 - 848.31 MHz	0.34	0.65	0.65	1.58
PCE	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.18	0.39	0.57	
PCE	UMTS 850	826.40 - 846.60 MHz	0.20	0.38	0.57	
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.14	0.73	0.93	1.85
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	0.10	0.46	1.08	
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.12	0.73	0.97	2.29
PCE	LTE Band 12	699.7 - 715.3 MHz	0.10	0.23	0.51	
PCE	LTE Band 26 (Cell)	814.7 - 848.3 MHz	0.23	0.43	0.61	
PCE	LTE Band 5 (Cell)	824.7 - 848.3 MHz				
PCE	LTE Band 4 (AWS)	1710.7 - 1754.3 MHz	0.18	0.59	0.72	2.86
PCE	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	0.12	0.53	0.79	2.41
PCE	LTE Band 2 (PCS)	1850.7 - 1909.3 MHz				
PCE	LTE Band 41	2506 - 2680 MHz	0.12	0.22	0.77	
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.23	0.12	0.12	
NII	U-NII-1	5180 - 5240 MHz	N/A			N/A
NII	U-NII-2A	5260 - 5320 MHz	0.52	0.13		0.66
NII	U-NII-2C	5500 - 5720 MHz	0.67	0.26		1.26
NII	U-NII-3	5745 - 5825 MHz	0.58	0.26	0.26	
DSS/DTS	Bluetooth	2402 - 2480 MHz	N/A			
Simultaneous SAR per KDB 690783 D01v01r03:			1.23	1.11	1.47	3.97

Note: This revised Test Report (S/N: 0Y1506081043-R1.A3L) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly

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

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

Randy Ortanez
President

The SAR Tick is an initiative of the Mobile Manufacturers Forum (MMF). While a product may be considered eligible, use of the SAR Tick logo requires an agreement with the MMF. Further details can be obtained by emailing: sartick@mmfai.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
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
LTE Band 12	Data	699.7 - 715.3 MHz
LTE Band 26 (Cell)	Data	814.7 - 848.3 MHz
LTE Band 5 (Cell)	Data	824.7 - 848.3 MHz
LTE Band 4 (AWS)	Data	1710.7 - 1754.3 MHz
LTE Band 25 (PCS)	Data	1850.7 - 1914.3 MHz
LTE Band 2 (PCS)	Data	1850.7 - 1909.3 MHz
LTE Band 41	Data	2506 - 2680 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2462 MHz
U-NII-1	Voice/Data	5180 - 5240 MHz
U-NII-2A	Voice/Data	5260 - 5320 MHz
U-NII-2C	Voice/Data	5500 - 5720 MHz
U-NII-3	Voice/Data	5745 - 5825 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
ANT+	Data	2402 - 2480 MHz
MST	Data	1- 8 kHz

1.2 Power Reduction for SAR

This device utilizes independent power reduction mechanisms for SAR compliance for the licensed transmitter and the WLAN transmitter. For the main transmitter, the device utilizes power reduction for some exposure and use conditions as outlined in Section 1.3.

Additionally, this device uses an independent single-step fixed level power reduction mechanism for WLAN operations during voice or VoIP held to ear scenarios. Per FCC Guidance, the held-to-ear exposure conditions were evaluated at reduced power according to the head SAR positions described in IEEE 1528.

The reduced powers for the power reduction mechanisms were confirmed via conducted power measurements at the RF port (See Section 9). Detailed descriptions of the mechanisms are included in the operational description.

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1.3 RF Output Target 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 D01v05.

1.3.1 Maximum Output Power

Mode / Band		Modulated Average (dBm)
CDMA/EVDO BC10 (§90S)	Maximum	**25.0**
	Nominal	**24.5**
CDMA/EVDO BC0 (§22H)	Maximum	**25.0**
	Nominal	**24.5**
PCS CDMA/EVDO	Maximum	**25.0**
	Nominal	**24.5**

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	**33.5**	**33.5**	**32.0**	**29.5**	**26.5**	**27.5**	**26.0**	**23.5**	**23.5**
	Nominal	**33.0**	**33.0**	**31.5**	**29.0**	**26.0**	**27.0**	**25.5**	**23.0**	**23.0**
GSM/GPRS/EDGE 1900	Maximum	**30.5**	**30.5**	**28.5**	**26.0**	**25.0**	**26.5**	**25.0**	**23.5**	**22.0**
	Nominal	**30.0**	**30.0**	**28.0**	**25.5**	**24.5**	**26.0**	**24.5**	**23.0**	**21.5**

Mode / Band		Modulated Average (dBm)		
		3GPP WCDMA	*3GPP HSDPA*	*3GPP HSUPA*
		Rel 99	*Rel 5*	*Rel 6*
UMTS Band 5 (850 MHz)	Maximum	**23.5**	**23.0**	**22.5**
	Nominal	**23.0**	**22.5**	**22.0**
UMTS Band 2 (1900 MHz)	Maximum	**23.5**	**23.0**	**22.5**
	Nominal	**23.0**	**22.5**	**22.0**

Mode / Band		Modulated Average (dBm)
LTE Band 12	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 26 (Cell)	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 5 (Cell)	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 4 (AWS)	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 25 (PCS)	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 2 (PCS)	Maximum	**24.0**
	Nominal	**23.5**
LTE Band 41	Maximum	**24.5**
	Nominal	**24.0**

Mode / Band		Modulated Average (dBm)	
		SISO Operations	MIMO Operations
IEEE 802.11b (2.4 GHz)	Maximum	**18.5**	**N/A**
	Nominal	**18.0**	**N/A**
IEEE 802.11g (2.4 GHz)	Maximum	**15.5**	**N/A**
	Nominal	**15.0**	**N/A**
IEEE 802.11n (2.4 GHz)	Maximum	**14.5**	**17.5**
	Nominal	**14.0**	**17.0**
Bluetooth	Maximum	**11.5**	**N/A**
	Nominal	**11.0**	**N/A**
Bluetooth LE	Maximum	**7.5**	**N/A**
	Nominal	**7.0**	**N/A**

Mode / Band		Modulated Average (dBm)					
		20 MHz Bandwidth		40 MHz Bandwidth		80 MHz Bandwidth	
		SISO Operations	MIMO Operations	SISO Operations	MIMO Operations	SISO Operations	MIMO Operations
IEEE 802.11a (5 GHz)	Maximum	**15.5**	**N/A**				
	Nominal	**15.0**	**N/A**				
IEEE 802.11n (5 GHz)	Maximum	**13.5**	**16.5**	**12.5**	**15.5**		
	Nominal	**13.0**	**16.0**	**12.0**	**15.0**		
IEEE 802.11ac (5 GHz)	Maximum	**13.5**	**16.5**	**12.5**	**15.5**	**11.5**	**14.5**
	Nominal	**13.0**	**16.0**	**12.0**	**15.0**	**11.0**	**14.0**

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1.3.2 Reduced Main Band Output Power- Held to Ear, Hotspot, Extremity

Mode / Band		Modulated Average (dBm)
CDMA/EVDO BC10 (§90S)	Maximum	**23.5**
	Nominal	**23.0**
CDMA/EVDO BC0 (§22H)	Maximum	**23.5**
	Nominal	**23.0**
PCS CDMA/EVDO	Maximum	**22.5**
	Nominal	**22.0**

Mode / Band		Modulated Average (dBm)		
		3GPP WCDMA	*3GPP HSDPA*	*3GPP HSUPA*
		Rel 99	*Rel 5*	*Rel 6*
UMTS Band 2 (1900 MHz)	Maximum	**21.5**	**21.0**	**20.5**
	Nominal	**21.0**	**20.5**	**20.0**

Mode / Band		Modulated Average (dBm)
LTE Band 4 (AWS)	Maximum	**21.5**
	Nominal	**21.0**
LTE Band 25 (PCS)	Maximum	**22.0**
	Nominal	**21.5**
LTE Band 2 (PCS)	Maximum	**21.5**
	Nominal	**21.0**

1.3.3 Reduced Main Band Output Power- Held to Ear

Mode / Band		Modulated Average (dBm)	
		SISO Operations	MIMO Operations
IEEE 802.11b (2.4 GHz)	Maximum	**14.5**	**N/A**
	Nominal	**14.0**	**N/A**
IEEE 802.11g (2.4 GHz)	Maximum	**13.5**	**N/A**
	Nominal	**13.0**	**N/A**
IEEE 802.11n (2.4 GHz)	Maximum	**13.5**	**16.5**
	Nominal	**13.0**	**16.0**

Mode / Band		Modulated Average (dBm)					
		20 MHz Bandwidth		40 MHz Bandwidth		80 MHz Bandwidth	
		SISO Operations	MIMO Operations	SISO Operations	MIMO Operations	SISO Operations	MIMO Operations
IEEE 802.11a (5 GHz)	Maximum	**10.5**	**N/A**				
	Nominal	**10.0**	**N/A**				
IEEE 802.11n (5 GHz)	Maximum	**9.5**	**12.5**	**9.5**	**12.5**		
	Nominal	**9.0**	**12.0**	**9.0**	**12.0**		
IEEE 802.11ac (5 GHz)	Maximum	**9.5**	**12.5**	**9.5**	**12.5**	**9.5**	**12.5**
	Nominal	**9.0**	**12.0**	**9.0**	**12.0**	**9.0**	**12.0**

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1.4 DUT Antenna Locations

Note: Exact antenna dimensions and separation distances are shown in the Technical Descriptions in the FCC Filing. Since the diagonal dimension of this device is > 160 mm and <200 mm, it is considered a "phablet.". A diagram showing the location of the device antennas can be found in appendix F.

Table 1-1
Mobile Sides for SAR Testing

Mode	Condition	Back	Front	Top	Bottom	Right	Left
EVDO BC10 (§90S)	Hotspot/Extremity	Yes	Yes	No	Yes	Yes	Yes
EVDO BC0 (§22H)	Hotspot/Extremity	Yes	Yes	No	Yes	Yes	Yes
GPRS 850	Hotspot	Yes	Yes	No	Yes	Yes	Yes
UMTS 850	Hotspot	Yes	Yes	No	Yes	Yes	Yes
PCS EVDO	Hotspot/Extremity	Yes	Yes	No	Yes	Yes	Yes
GPRS 1900	Hotspot	Yes	Yes	No	Yes	Yes	Yes
UMTS 1900	Hotspot/Extremity	Yes	Yes	No	Yes	Yes	Yes
LTE Band 12	Hotspot	Yes	Yes	No	Yes	Yes	Yes
LTE Band 26 (Cell)	Hotspot	Yes	Yes	No	Yes	Yes	Yes
LTE Band 4 (AWS)	Hotspot/Extremity	Yes	Yes	No	Yes	Yes	Yes
LTE Band 25 (PCS)	Hotspot/Extremity	Yes	Yes	No	Yes	Yes	Yes
LTE Band 41	Hotspot	Yes	Yes	No	Yes	No	Yes
2.4 GHz WLAN	Hotspot	Yes	Yes	Yes	No	No	Yes
U-NII-1, U-NII-2A&C	Extremity	Yes	Yes	Yes	No	No	Yes
U-NII-3	Hotspot	Yes	Yes	Yes	No	No	Yes

Note: Particular DUT edges were not required to be evaluated for Wireless Router SAR or Extremity SAR if the edges were greater than 2.5 cm from the transmitting antenna according to FCC KDB Publication 941225 D06v01 guidance, page 2 and FCC KDB 648474 D04v01r01. The distances between the transmit antennas and the edges of the device are included in the filing. When wireless router mode is enabled, 5.2-5.7 GHz WLAN operations are disabled.

1.5 Near Field Communications (NFC) Antenna

This DUT has NFC operations. The NFC antenna is integrated into the device, and all SAR tests were performed with devices containing the integrated NFC antenna. A diagram showing the location of the device antennas can be found in appendix F.

1.6 Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D05v01, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds. Possible transmission paths for the DUT are shown in Figure 1 and are color-coded to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.

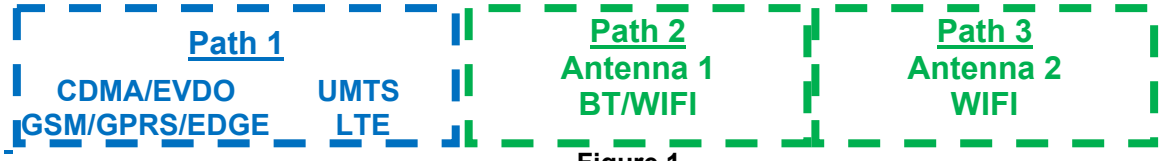

Figure 1
Simultaneous Transmission Paths

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB Publication 447498 D01v05 3) procedures.

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Table 1-2
Simultaneous Transmission Scenarios

No.	Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Extremity	Notes
1	1x CDMA voice + 2.4 GHz WI-FI	Yes	Yes	N/A	Yes	
2	1x CDMA voice + 5 GHz WI-FI	Yes	Yes	N/A	Yes	
3	1x CDMA voice + 2.4 GHz Bluetooth	N/A	Yes	N/A	Yes	
4	1x CDMA voice + 2.4 GHz WIFI MIMO	Yes	Yes	N/A	Yes	
5	1x CDMA voice + 5 GHz WIFI MIMO	Yes	Yes	N/A	Yes	
6	1x CDMA voice + 2.4 GHz WIFI Ant 1 + 5 GHz WIFI Ant 2	Yes	Yes	N/A	Yes	
7	1x CDMA voice + 2.4 GHz WIFI Ant 2 + 5 GHz WIFI Ant 1	Yes	Yes	N/A	Yes	
8	GSM voice + 2.4 GHz WI-FI	Yes	Yes	N/A	Yes	
9	GSM voice + 5 GHz WI-FI	Yes	Yes	N/A	Yes	
10	GSM voice + 2.4 GHz Bluetooth	N/A	Yes	N/A	Yes	
11	GSM voice + 2.4 GHz WIFI MIMO	Yes	Yes	N/A	Yes	
12	GSM voice + 5 GHz WIFI MIMO	Yes	Yes	N/A	Yes	
13	GSM voice + 2.4 GHz WIFI Ant 1 + 5 GHz WIFI Ant 2	Yes	Yes	N/A	Yes	
14	GSM voice + 2.4 GHz WIFI Ant 2 + 5 GHz WIFI Ant 1	Yes	Yes	N/A	Yes	
15	UMTS + 2.4 GHz WI-FI	Yes	Yes	Yes	Yes	
16	UMTS + 5 GHz WI-FI	Yes	Yes	Yes	Yes	
17	UMTS + 2.4 GHz Bluetooth	N/A	Yes	N/A	Yes	
18	UMTS + 2.4 GHz WIFI MIMO	Yes	Yes	Yes	Yes	
19	UMTS + 5 GHz WIFI MIMO	Yes	Yes	Yes	Yes	
20	UMTS + 2.4 GHz WIFI Ant 1 + 5 GHz WIFI Ant 2	Yes	Yes	Yes	Yes	
21	UMTS + 2.4 GHz WIFI Ant 2 + 5 GHz WIFI Ant 1	Yes	Yes	Yes	Yes	
22	LTE + 2.4 GHz WI-FI	Yes*	Yes*	Yes	Yes	* - Pre-installed VOIP applications are considered
23	LTE + 5 GHz WI-FI	Yes*	Yes*	Yes	Yes	* - Pre-installed VOIP applications are considered
24	LTE + 2.4 GHz Bluetooth	N/A	Yes*	N/A	Yes	* - Pre-installed VOIP applications are considered
25	LTE + 2.4 GHz WIFI MIMO	Yes*	Yes*	Yes	Yes	* - Pre-installed VOIP applications are considered
26	LTE + 5 GHz WIFI MIMO	Yes*	Yes*	Yes	Yes	* - Pre-installed VOIP applications are considered
27	LTE + 2.4 GHz WIFI Ant 1 + 5 GHz WIFI Ant 2	Yes*	Yes*	Yes	Yes	* - Pre-installed VOIP applications are considered
28	LTE + 2.4 GHz WIFI Ant 2 + 5 GHz WIFI Ant 1	Yes*	Yes*	Yes	Yes	* - Pre-installed VOIP applications are considered
29	CDMA/EVDO data + 2.4 GHz WI-FI	Yes*	Yes*	Yes	Yes	* - Pre-installed VOIP applications are considered
30	CDMA/EVDO data + 5 GHz WI-FI	Yes*	Yes*	Yes	Yes	* - Pre-installed VOIP applications are considered
31	CDMA/EVDO data + 2.4 GHz Bluetooth	N/A	Yes*	N/A	Yes	* - Pre-installed VOIP applications are considered
32	CDMA/EVDO data + 2.4 GHz WIFI MIMO	Yes*	Yes*	Yes	Yes	* - Pre-installed VOIP applications are considered
33	CDMA/EVDO data + 5 GHz WIFI MIMO	Yes*	Yes*	Yes	Yes	* - Pre-installed VOIP applications are considered
34	CDMA/EVDO data + 2.4 GHz WIFI Ant 1 + 5 GHz WIFI Ant 2	Yes*	Yes*	Yes	Yes	* - Pre-installed VOIP applications are considered
35	CDMA/EVDO data + 2.4 GHz WIFI Ant 2 + 5 GHz WIFI Ant 1	Yes*	Yes*	Yes	Yes	* - Pre-installed VOIP applications are considered
36	GPRS/EDGE + 2.4 GHz WI-FI	N/A	N/A	Yes	Yes	
37	GPRS/EDGE + 5 GHz WI-FI	N/A	N/A	Yes	Yes	
38	GRPS/EDGE + 2.4 GHz WIFI MIMO	N/A	N/A	Yes	Yes	
39	GRPS/EDGE + 5 GHz WIFI MIMO	N/A	N/A	Yes	Yes	
40	GRPS/EDGE + 2.4 GHz WIFI Ant 1 + 5 GHz WIFI Ant 2	N/A	N/A	Yes	Yes	
41	GRPS/EDGE + 2.4 GHz WIFI Ant 2 + 5 GHz WIFI Ant 1	N/A	N/A	Yes	Yes	
42	GSM voice + 2.4 GHz WIFI Ant 1 + 5 GHz WIFI Ant 1	N/A	N/A	N/A	N/A	Not Supported by HW
43	GSM voice + 2.4 GHz WIFI Ant 2 + 5 GHz WIFI Ant 2	N/A	N/A	N/A	N/A	Not Supported by HW
44	1x CDMA voice + 2.4 GHz WIFI Ant 1 + 5 GHz WIFI Ant 1	N/A	N/A	N/A	N/A	Not Supported by HW
45	1x CDMA voice + 2.4 GHz WIFI Ant 2 + 5 GHz WIFI Ant 2	N/A	N/A	N/A	N/A	Not Supported by HW
46	UMTS + 2.4 GHz WIFI Ant 1 + 5 GHz WIFI Ant 1	N/A	N/A	N/A	N/A	Not Supported by HW
47	UMTS + 2.4 GHz WIFI Ant 2 + 5 GHz WIFI Ant 2	N/A	N/A	N/A	N/A	Not Supported by HW
48	LTE + 2.4 GHz WIFI Ant 1 + 5 GHz WIFI Ant 1	N/A	N/A	N/A	N/A	Not Supported by HW
49	LTE + 2.4 GHz WIFI Ant 2 + 5 GHz WIFI Ant 2	N/A	N/A	N/A	N/A	Not Supported by HW
50	GPRS/EDGE + 2.4 GHz WIFI Ant 1 + 5 GHz WIFI Ant 1	N/A	N/A	N/A	N/A	Not Supported by HW
51	GPRS/EDGE + 2.4 GHz WIFI Ant 2 + 5 GHz WIFI Ant 2	N/A	N/A	N/A	N/A	Not Supported by HW
52	CDMA/EVDO data + 2.4 GHz WIFI Ant 1 + 5 GHz WIFI Ant 1	N/A	N/A	N/A	N/A	Not Supported by HW
53	CDMA/EVDO data + 2.4 GHz WIFI Ant 2 + 5 GHz WIFI Ant 2	N/A	N/A	N/A	N/A	Not Supported by HW

1. 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.
2. Per the manufacturer, WIFI Direct is not expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Therefore, there is no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table.
3. 5 GHz Wireless Router is only supported for the U-NII-3 by S/W, therefore U-NII-1, U-NII2A, and U-NII2C were not evaluated for wireless router conditions.
4. This device supports 2x2 MIMO Tx for IEEE 802.11n/ac. All licensed modes share the same antenna and cannot transmit simultaneously.

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1.7 SAR Test Exclusions Applied

(A) WIFI/BT

Since Wireless Router operations are not allowed by the chipset firmware using U-NII-1, U-NII-2A & U-NII-2C WIFI, only 2.4 GHz and U-NII-3 WIFI Hotspot SAR tests and combinations are considered for SAR with respect to Wireless Router configurations according to FCC KDB 941225 D06v02.

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 for 1 gram SAR and less than 3.0 W/kg for 10 gram SAR, SAR is not required for U-NII-1 band according to FCC KDB 248227 D01v02r01.

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 channels are supported
f) Band Gap channels are supported

Per FCC KDB 447498 D01v05, the 1g SAR exclusion threshold for distances <50mm is defined by the following equation:

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

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, body-worn Bluetooth SAR was not required; [(14/15)* √2.480] = 1.5< 3.0. Per KDB Publication 447498 D01v05, the maximum power of the channel was rounded to the nearest mW before calculation.

Per FCC KDB 447498 D01v05, the 10g SAR exclusion threshold for distances <50mm is defined by the following equation:

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

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, extremity Bluetooth SAR was not required; [(14/ 5)* √2.480] = 4.4< 7.5. Per KDB Publication 447498 D01v05, the maximum power of the channel was rounded to the nearest mW before calculation.

Per FCC KDB Publication 648474 D04v01r01, this device is considered a "phablet" since the diagonal dimension is greater than 160mm and less than 200mm. Extremity 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, extremity SAR tests were performed. Extremity SAR was not evaluated for 2.4 GHz and U-NII-3 WLAN operations since wireless router 1g SAR was < 1.2 W/kg.

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(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 D01v02.

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 D05v02r03.

This device supports both LTE Band 5 (Cell) and LTE Band 26 (Cell). Since the supported frequency span for LTE Band 5 (Cell) falls completely within the supported frequency span for LTE Band 26 (Cell), both LTE bands have the same target power, and both LTE bands share the same transmission path, SAR was only assessed for LTE Band 26 (Cell).

This device supports both LTE Band 25 (PCS) and LTE Band 2 (PCS). Since the supported frequency span for LTE Band 2 (PCS) falls completely within the supported frequency span for LTE Band 25 (PCS), LTE Band 25 (PCS) has the same max target power and higher reduced target power than LTE Band 2 (PCS), and both LTE bands share the same transmission path, SAR was only assessed for LTE Band 25 (PCS).

CDMA 1X Advanced technology was not required for SAR since the maximum output powers for 1x Advanced was not more than 0.25 dB higher than the maximum measured 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 D01v03.

This device supports intra-band LTE Carrier Aggregation (CA) in the downlink only. All uplink communications are identical to Release 8 specifications. Per FCC KDB Publication 941225 D05A v01r01, 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.

Per FCC KDB Publication 648474 D04v01r01, this device is considered a "phablet" since the diagonal dimension is greater than 160mm and less than 200mm. Therefore, extremity SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg when scaled to max power including tolerance.

1.8 Guidance Applied

- IEEE 1528-2003
- FCC KDB Publication 941225 D01v03, D05v02r03, D05Av01, D06v02 (2G/3G/4G and Hotspot)
- FCC KDB Publication 248227 D01v01r02 (SAR Considerations for 802.11 Devices)
- FCC KDB Publication 447498 D01v05r02 (General SAR Guidance)
- FCC KDB Publication 865664 D01v01r03, D02v01r01 (SAR Measurements up to 6 GHz)
- FCC KDB Publication 648474 D03-D04 (Phablet Procedures)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)

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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.

Mode	Max Head Serial Number	Reduced Head Serial Number	Body-Worn Serial Number	Hotspot Serial Number	Max Extremity Serial Number	Reduced Extremity Serial Number
CDMA/EVDO BC10 (§90S)	ABC54	ABC1B	ABC54	ABC1B	ABC54	ABC1B
CDMA/EVDO BC0 (§22H)	ABC54	ABC1B	ABC54	ABC1B	ABC54	ABC1B
GSM/GPRS/EDGE 850	ABC54	-	ABC54	ABC54	-	-
UMTS 850	ABC54	-	ABC54	ABC54	-	-
PCS CDMA/EVDO	ABF0D	ABB3E	ABF0D	ABB3E	ABF0D	ABB3E
GSM/GPRS/EDGE 1900	ABF0D	-	ABF0D	ABF0D	-	-
UMTS 1900	ABF0D	-	ABF0D	ABB3E	ABF0D	ABB3E
LTE Band 12	ABAFB	-	ABAFB	ABAFB	-	-
LTE Band 26 (Cell)	ABC1B	-	ABC1B	ABC1B	-	-
LTE Band 4 (AWS)	ABCC3	ABFAC	ABCC3	ABFAC	ABCC3	ABFAC
LTE Band 25 (PCS)	ABCC3	ABFAC	ABCC3	ABFAC	ABCC3	ABFAC
LTE Band 41	ABB41	-	ABB41	ABB41	-	-
2.4 GHz WLAN	-	ABAEB	ABAEB	ABAEB	-	-
5 GHz WLAN	-	ABAEB	ABAEB	ABAEB	ABAEB	-

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2 LTE INFORMATION

LTE Information					
FCC ID	**A3LSMN920P**				
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 12 (699.7 - 715.3 MHz)				
	LTE Band 26 (Cell) (814.7 - 848.3 MHz)				
	LTE Band 5 (Cell) (824.7 - 848.3 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 (2506 - 2680 MHz)				
Channel Bandwidths	LTE Band 12: 1.4 MHz, 3 MHz, 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 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	High-Mid	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 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	831.5 (26865)		836.5 (26915)	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 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	6				
Modulations Supported in UL	QPSK, 16QAM				
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 possible carrier aggregation combinations				
LTE Release 10 Additional Information	This device does not support full CA features on 3GPP Release 10. It supports a maximum of 2 carriers in the downlink. All uplink communications are identical to the Release 8 Specifications. Uplink communications are done on the PCC. Due to carrier capability, only the combinations listed above are supported. The following LTE Release 10 Features are not supported: Relay, HetNet, Enhanced MIMO, eICI, WIFI Offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.				

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3 INTRODUCTION

The FCC and Industry 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]

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4 DOSIMETRIC ASSESSMENT

4.1 Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01 and IEEE 1528-2013:

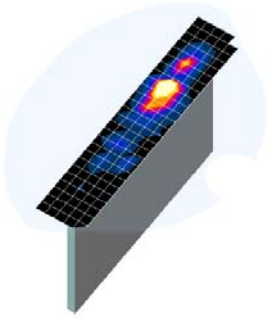

Figure 2
Sample SAR Area Scan

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 D01v01 (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 D01v01 (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 D01v01*

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

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5 DEFINITION OF REFERENCE POINTS

5.1 EAR REFERENCE POINT

Figure 4 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 3. 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 3). 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].

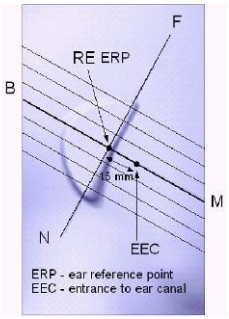

Figure 3
Close-Up Side view of ERP

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). 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 4
Front, back and side view of SAM Twin Phantom

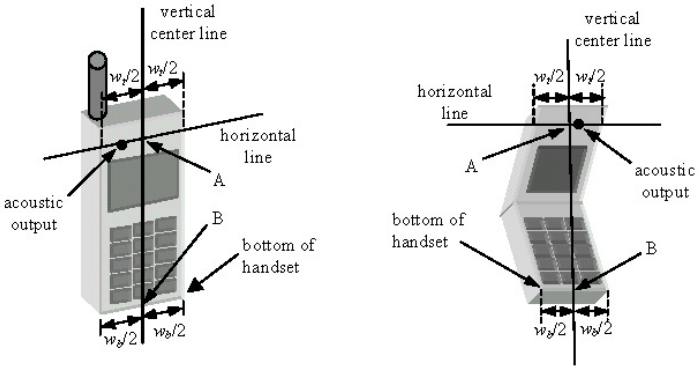

Figure 5
Handset Vertical Center & Horizontal Line Reference Points

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6 TEST CONFIGURATION POSITIONS FOR HANDSETS

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), 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.

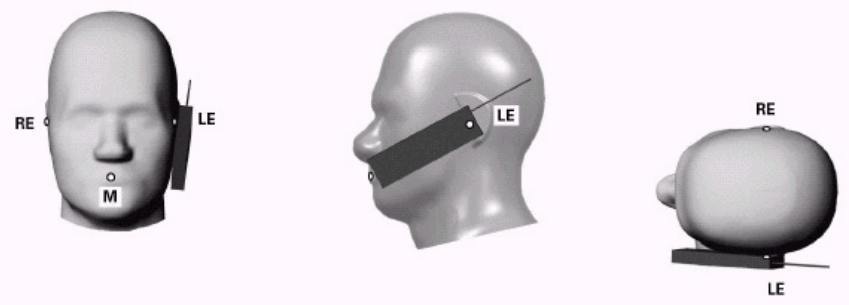

Figure 6 Front, Side and Top View of Cheek Position

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 7).

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 7).

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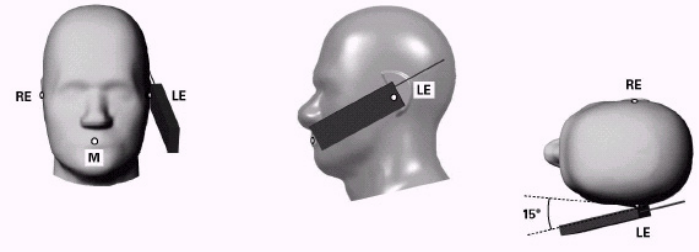

Figure 7 Front, Side and Top View of Ear/15º Tilt Position

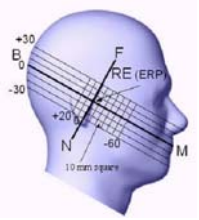

Figure 8
Side view w/ relevant markings

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 D04_v01. 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 9). Per FCC KDB Publication 648474 D04v01, 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 D01v05 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.

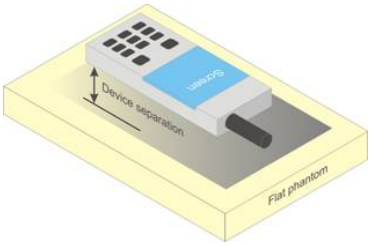

Figure 9
Sample Body-Worn Diagram

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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 1-g body and 10-g extremity SAR Exclusion Thresholds found in KDB Publication 447498 D01v05 should be applied to determine SAR test requirements.

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC minitablets that support voice calls next to the ear, the phablets procedures outlined in KDB Publication 648474 D04 v01r01DR04 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 10-g SAR. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g SAR is required only for the surfaces and edges with hotspot mode scaled to the maximum output power (including tolerance) is 1-g SAR > 1.2 W/kg.

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 D06v02 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 D01v05 publication procedures. The

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"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.

There is power reduction for some wireless modes and bands, as indicated in Section 1.3. The reduced powers were confirmed via conducted power measurements at the RF port (See Section 9). Detailed description of the power reduction mechanism are included in the operational description

6.8 Additional Test Positions due to Proximity Conditions

This device uses a sensor to reduce voice and data powers in extremity (hand-held) use conditions.

FCC KDB 616217 D04 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional exposure conditions. The smallest separation distance determined by the sensor triggering and sensor coverage for each applicable edge, minus 1 mm, was used as the test separation distance for SAR testing. Sensor triggering distance summary data is included in Appendix G.

FCC KDB 616217 D04 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional exposure conditions. Since the sensor activation distance for the front side of the device is 3 mm, a conservative distance of 2 mm was tested for SAR on the front side at maximum power. Since the sensor activation distance for the back side of the device is 4 mm, a conservative distance of 3 mm was tested for SAR on the back side at maximum power. Since the sensor activation distance for the bottom edge of the device is 5 mm, a conservative distance of 4 mm was tested for SAR on the bottom edge at maximum power. Sensor triggering distance summary data is included in Appendix G.

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

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7 RF EXPOSURE LIMITS

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

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

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT *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.

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8 FCC MEASUREMENT PROCEDURES

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

8.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v05, 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 D01v01r02.

8.2 3G SAR Test Reduction Procedure

In FCC KDB Publication 941225 D01v03, certain transmission modes within a frequency band and wireless mode evaluated for SAR are defined as primary modes. The equivalent modes considered for SAR test reduction are denoted as secondary modes. When the maximum output power including tune-up tolerance specified for production units in a secondary mode is $\leq$ 0.25 dB higher than the primary mode or when the highest reported SAR of the primary mode, scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode, is $\leq$ 1.2 W/kg, SAR measurements are not required for the secondary mode. These criteria are referred to as the 3G SAR test reduction procedure. When the 3G SAR test reduction procedure is not satisfied, SAR measurements are additionally required for the secondary mode.

8.3 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01v03 “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 D01v03 “3G SAR Measurement Procedures.”

8.4.1 Output Power Verification

See 3GPP2 C.S0011/TIA-98-E as recommended by FCC KDB Publication 941225 D01v03 “3G SAR Measurement Procedures.” Maximum output power is verified on the High, Middle and Low

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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 CDMA2000 1x Advanced

This device additionally supports 1x Advanced. Conducted powers were measured using SO75 with RC8 on the uplink and RC11 on the downlink per KDB Publication 941225 D02v02. Smart blanking was disabled for all measurements. The EUT was configured with forward power control Mode 000 and reverse power control at 400 bps. Conducted powers were measured on an Agilent 8960 Series 10 Wireless Communications Test Set, Model E5515C using the CDMA2000 1x Advanced application, Option E1962B-410.

Based on the maximum output power measured for 1x Advanced, SAR would have to be evaluated for 1x advanced if the maximum output for 1x Advanced is more than 0.25 dB higher than the maximum measured for 1x. Also, if the measured SAR in any 1x mode exposure conditions (head, body etc.) is larger than 1.2 W/kg, the highest of those configurations above 1.2 W/kg for each exposure condition in 1x Advanced has to be repeated. All measured SAR in 1x mode higher than 1.5 W/kg must be repeated for 1x Advanced.

8.4.3 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 8.4.6 for EVDO Rev. A configuration parameters.

8.4.4 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

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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.

8.4.5 Body-worn SAR Measurements for EVDO Devices

For handsets with Ev-Do capabilities, the 3G SAR test reduction procedure is applied to Ev-Do 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.

8.4.6 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 Ev-Do 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 Ev-Do 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.

8.4.7 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 D01v03. 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.

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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 D05v02r03 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

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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 D05v02r03:

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 guidance from FCC KDB 941225 D05v02r03 and the SAR test guidance provided in April 2013 TCB workshop notes. 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 D05v02r03. SAR testing is performed using the extended cyclic prefix listed in 3GPP TS 36.211 Section 4.

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8.6.6 Downlink Carrier Aggregation

LTE Carrier Aggregation (CA) measurements are made in accordance to 3GPP TS 36.521-1 V10.4.0 (2012-12). 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 the Secondary component carrier (SCC) on the downlink only. All uplink communications and acknowledgements remain identical to release 8 specifications on the PCC. Additional output powers are measured using two carriers in the downlink for the release 8 configurations with the highest output power among all channels, RB configurations and bandwidths for each uplink band. Per FCC KDB Publication 941225 D05A v01r01, no SAR measurements are required when the average output power with downlink carrier aggregation active is not more than 0.25 dB higher than the average output power with downlink 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 FCC KDB Publication 248227 D01v01r02 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 for 1 gram SAR or > 3.0 W/kg for 10 gram SAR. 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 for 1 gram SAR or > 3.0 W/kg for 10 gram SAR.

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.

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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.

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.

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.

8.7.6 OFDM Transmission Mode and SAR Test Channel Selection

For the 2.4 GHz and 5 GHz bands, 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, in both 2.4 and 5 GHz bands, 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

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configuration(s) with the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode. If the average RF output powers of the highest identical transmission modes are within 0.25 dB of each other, mid channel of the transmission mode with highest average RF output power is the initial test channel. Otherwise, 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 for 1 gram SAR and ≤ 2.0 W/kg for 10 gram SAR, 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 for 1 gram SAR and ≤ 3.0 W/kg for 10 gram SAR or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements (See Section 8.7.6).

8.7.8 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg for 1g SAR or ≤ 3.0 W/kg for 10g SAr, no additional SAR tests for the subsequent test configurations are required.

8.7.9 MIMO SAR considerations

Per FCC KDB Publication 248227 D01v01r02, the simultaneous SAR provisions in KDB Publication 447498 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 for 1g SAR or <4.0 for 10g SAR, no additional SAR measurements for MIMO are required. Alternatively, SAR for MIMO can be measured with all antennas transmitting simultaneously at the specified maximum output power of MIMO operation.

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9 RF CONDUCTED POWERS

9.1 CDMA2000 Conducted Powers

Table 9-1
Maximum Average RF Output Powers

Band	Channel	Rule Part	Frequency	SO55 [dBm]	SO55 [dBm]	SO75 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	RC11	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	564	90S	820.1	24.72	24.99	24.88	24.84	24.83	24.84	24.79
Cellular	1013	22H	824.7	24.63	24.91	24.77	24.89	24.93	24.93	24.61
	384	22H	836.52	24.70	25.00	24.90	24.90	24.92	24.90	24.89
	777	22H	848.31	24.65	24.75	24.82	24.80	24.73	24.71	24.60
PCS	25	24E	1851.25	24.78	24.71	24.76	24.89	24.73	24.73	24.61
	600	24E	1880	24.82	24.83	24.88	24.78	24.83	24.71	24.84
	1175	24E	1908.75	24.81	24.82	24.90	24.92	24.92	24.96	24.94

Note: RC1 is only applicable for IS-95 compatibility.

Table 9-2
Reduced Average RF Output Powers – Hotspot, Extremity

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	23.00	23.05	23.13	22.97	22.99	23.00	23.10
Cellular	1013	22H	824.7	22.71	22.75	22.83	22.72	22.70	22.94	22.83
	384	22H	836.52	22.72	22.77	22.84	22.75	22.73	23.06	23.11
	777	22H	848.31	22.55	22.60	22.67	22.53	22.52	22.72	22.85
PCS	25	24E	1851.25	20.99	21.05	21.10	22.19	22.23	22.03	22.01
	600	24E	1880	21.22	21.32	21.36	22.20	22.19	22.11	22.04
	1175	24E	1908.75	21.78	21.87	21.92	22.46	22.50	22.41	22.33

Note: RC1 is only applicable for IS-95 compatibility.

Figure 10
Power Measurement Setup

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9.2 GSM Conducted Powers

Table 9-3
Maximum Average RF Output Powers

		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	33.00	33.02	**31.69**	28.91	26.11	26.96	25.50	23.39	23.23
	190	33.10	33.12	**31.73**	29.00	25.63	26.77	25.24	23.11	22.99
	251	32.74	32.72	**31.41**	28.57	25.68	26.36	24.90	22.65	22.60
GSM 1900	512	29.28	29.68	**28.32**	25.52	24.40	25.37	24.66	22.86	21.51
	661	29.53	29.52	**28.49**	25.82	24.65	25.84	25.00	23.19	21.84
	810	29.77	29.78	**28.50**	26.00	24.86	25.89	24.99	23.34	22.00
		Calculated Maximum Frame-Averaged Output Power								
		Voice	*GPRS/EDGE Data (GMSK)*				*EDGE Data (8-PSK)*			
Band	**Channel**	**GSM [dBm] CS (1 Slot)**	**GPRS [dBm] 1 Tx Slot**	**GPRS [dBm] 2 Tx Slot**	**GPRS [dBm] 3 Tx Slot**	**GPRS [dBm] 4 Tx Slot**	**EDGE [dBm] 1 Tx Slot**	**EDGE [dBm] 2 Tx Slot**	**EDGE [dBm] 3 Tx Slot**	**EDGE [dBm] 4 Tx Slot**
GSM 850	128	23.97	23.99	**25.67**	24.65	23.10	17.93	19.48	19.13	20.22
	190	24.07	24.09	**25.71**	24.74	22.62	17.74	19.22	18.85	19.98
	251	23.71	23.69	**25.39**	24.31	22.67	17.33	18.88	18.39	19.59
GSM 1900	512	20.25	20.65	**22.30**	21.26	21.39	16.34	18.64	18.60	18.50
	661	20.50	20.49	**22.47**	21.56	21.64	16.81	18.98	18.93	18.83
	810	20.74	20.75	**22.48**	21.74	21.85	16.86	18.97	19.08	18.99
GSM 850	**Frame Avg.Targets:**	23.97	23.97	**25.48**	24.74	22.99	17.97	19.48	18.74	19.99
GSM 1900		20.97	20.97	**21.98**	21.24	21.49	16.97	18.48	18.74	18.49

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. 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 and Extremity 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. 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.
4. EDGE (8-PSK) output powers were measured with MCS7 on the base station simulator. MCS7 coding scheme was used to measure the output powers for EDGE since investigation has shown that choosing MCS7 coding scheme will ensure 8-PSK modulation. It has been shown that MCS levels that produce 8PSK modulation do not have an impact on output power.

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

Figure 11
Power Measurement Setup

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9.3 UMTS Conducted Powers

Table 9-4
Maximum Average RF Output Powers

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			PCS Band [dBm]			3GPP MPR [dB]
			4132	4183	4233	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	23.33	23.20	22.93	23.39	23.46	23.48	-
99		12.2 kbps AMR	23.27	23.18	22.96	23.44	23.39	23.50	-
6	HSDPA	Subtest 1	22.02	22.99	22.74	22.26	22.25	22.25	0
6		Subtest 2	22.02	21.96	21.67	22.24	22.21	22.25	0
6		Subtest 3	21.56	22.86	20.60	21.74	21.72	21.67	0.5
6		Subtest 4	21.67	21.43	21.41	21.77	21.73	21.74	0.5
6	HSUPA	Subtest 1	21.98	21.93	21.69	22.25	22.03	21.67	0
6		Subtest 2	20.73	20.49	20.28	21.24	21.26	21.23	2
6		Subtest 3	20.21	20.16	20.57	21.02	20.76	20.85	1
6		Subtest 4	21.09	20.78	20.52	21.74	21.69	21.75	2
6		Subtest 5	22.07	21.96	21.71	22.04	21.92	21.95	0

Table 9-5
Reduced Average RF Output Powers – Hotspot, Extremity

3GPP Release Version	Mode	3GPP 34.121 Subtest	PCS Band [dBm]			3GPP MPR [dB]
			9262	9400	9538	
99	WCDMA	12.2 kbps RMC	21.25	21.22	21.11	-
99		12.2 kbps AMR	20.30	21.00	21.10	-
6	HSDPA	Subtest 1	20.02	20.05	20.06	0
6		Subtest 2	20.03	20.04	20.16	0
6		Subtest 3	19.46	19.51	19.89	0.5
6		Subtest 4	19.49	20.76	20.68	0.5
6	HSUPA	Subtest 1	19.67	19.85	19.90	0
6		Subtest 2	18.71	18.77	19.00	2
6		Subtest 3	18.61	18.37	19.01	1
6		Subtest 4	19.04	19.55	18.86	2
6		Subtest 5	20.05	20.06	20.08	0

This device does not support DC-HSDPA.

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

Figure 12
Power Measurement Setup

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9.4 Maximum LTE Conducted Powers

9.4.1 Maximum LTE Band 12 Conducted Powers

Table 9-6
Maximum LTE Band 12 Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Mid	707.5	23095	10	QPSK	1	0	**23.78**	0	0
	707.5	23095	10	QPSK	1	25	23.40	0	0
	707.5	23095	10	QPSK	1	49	23.35	0	0
	707.5	23095	10	QPSK	25	0	**22.54**	0-1	1
	707.5	23095	10	QPSK	25	12	22.52	0-1	1
	707.5	23095	10	QPSK	25	25	22.36	0-1	1
	707.5	23095	10	QPSK	50	0	22.47	0-1	1
	707.5	23095	10	16QAM	1	0	23.00	0-1	1
	707.5	23095	10	16QAM	1	25	22.75	0-1	1
	707.5	23095	10	16QAM	1	49	22.65	0-1	1
	707.5	23095	10	16QAM	25	0	21.54	0-2	2
	707.5	23095	10	16QAM	25	12	21.56	0-2	2
	707.5	23095	10	16QAM	25	25	21.39	0-2	2
	707.5	23095	10	16QAM	50	0	21.48	0-2	2

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.

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Table 9-7
Maximum LTE Band 12 Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	701.5	23035	5	QPSK	1	0	23.74	0	0
	701.5	23035	5	QPSK	1	12	23.78	0	0
	701.5	23035	5	QPSK	1	24	23.61	0	0
	701.5	23035	5	QPSK	12	0	22.81	0-1	1
	701.5	23035	5	QPSK	12	6	22.74	0-1	1
	701.5	23035	5	QPSK	12	13	22.72	0-1	1
	701.5	23035	5	QPSK	25	0	22.80	0-1	1
	701.5	23035	5	16-QAM	1	0	22.94	0-1	1
	701.5	23035	5	16-QAM	1	12	23.00	0-1	1
	701.5	23035	5	16-QAM	1	24	22.91	0-1	1
	701.5	23035	5	16-QAM	12	0	21.83	0-2	2
	701.5	23035	5	16-QAM	12	6	21.81	0-2	2
	701.5	23035	5	16-QAM	12	13	21.73	0-2	2
	701.5	23035	5	16-QAM	25	0	21.83	0-2	2
Mid	707.5	23095	5	QPSK	1	0	23.66	0	0
	707.5	23095	5	QPSK	1	12	23.62	0	0
	707.5	23095	5	QPSK	1	24	23.51	0	0
	707.5	23095	5	QPSK	12	0	22.66	0-1	1
	707.5	23095	5	QPSK	12	6	22.61	0-1	1
	707.5	23095	5	QPSK	12	13	22.56	0-1	1
	707.5	23095	5	QPSK	25	0	22.56	0-1	1
	707.5	23095	5	16-QAM	1	0	23.00	0-1	1
	707.5	23095	5	16-QAM	1	12	22.96	0-1	1
	707.5	23095	5	16-QAM	1	24	22.86	0-1	1
	707.5	23095	5	16-QAM	12	0	21.70	0-2	2
	707.5	23095	5	16-QAM	12	6	21.66	0-2	2
	707.5	23095	5	16-QAM	12	13	21.63	0-2	2
	707.5	23095	5	16-QAM	25	0	21.57	0-2	2
High	713.5	23155	5	QPSK	1	0	23.46	0	0
	713.5	23155	5	QPSK	1	12	23.40	0	0
	713.5	23155	5	QPSK	1	24	23.31	0	0
	713.5	23155	5	QPSK	12	0	22.44	0-1	1
	713.5	23155	5	QPSK	12	6	22.43	0-1	1
	713.5	23155	5	QPSK	12	13	22.32	0-1	1
	713.5	23155	5	QPSK	25	0	22.37	0-1	1
	713.5	23155	5	16-QAM	1	0	22.87	0-1	1
	713.5	23155	5	16-QAM	1	12	22.84	0-1	1
	713.5	23155	5	16-QAM	1	24	22.65	0-1	1
	713.5	23155	5	16-QAM	12	0	21.47	0-2	2
	713.5	23155	5	16-QAM	12	6	21.44	0-2	2
	713.5	23155	5	16-QAM	12	13	21.29	0-2	2
	713.5	23155	5	16-QAM	25	0	21.43	0-2	2

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Table 9-8
Maximum LTE Band 12 Conducted Powers - 3 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	700.5	23025	3	QPSK	1	0	23.90	0	0
	700.5	23025	3	QPSK	1	7	23.84	0	0
	700.5	23025	3	QPSK	1	14	23.72	0	0
	700.5	23025	3	QPSK	8	0	22.77	0-1	1
	700.5	23025	3	QPSK	8	4	22.77	0-1	1
	700.5	23025	3	QPSK	8	7	22.73	0-1	1
	700.5	23025	3	QPSK	15	0	22.84	0-1	1
	700.5	23025	3	16-QAM	1	0	23.00	0-1	1
	700.5	23025	3	16-QAM	1	7	22.94	0-1	1
	700.5	23025	3	16-QAM	1	14	22.81	0-1	1
	700.5	23025	3	16-QAM	8	0	21.68	0-2	2
	700.5	23025	3	16-QAM	8	4	21.63	0-2	2
	700.5	23025	3	16-QAM	8	7	21.62	0-2	2
	700.5	23025	3	16-QAM	15	0	21.79	0-2	2
Mid	707.5	23095	3	QPSK	1	0	23.56	0	0
	707.5	23095	3	QPSK	1	7	23.57	0	0
	707.5	23095	3	QPSK	1	14	23.47	0	0
	707.5	23095	3	QPSK	8	0	22.56	0-1	1
	707.5	23095	3	QPSK	8	4	22.59	0-1	1
	707.5	23095	3	QPSK	8	7	22.49	0-1	1
	707.5	23095	3	QPSK	15	0	22.50	0-1	1
	707.5	23095	3	16-QAM	1	0	22.76	0-1	1
	707.5	23095	3	16-QAM	1	7	22.83	0-1	1
	707.5	23095	3	16-QAM	1	14	22.69	0-1	1
	707.5	23095	3	16-QAM	8	0	21.64	0-2	2
	707.5	23095	3	16-QAM	8	4	21.65	0-2	2
	707.5	23095	3	16-QAM	8	7	21.58	0-2	2
	707.5	23095	3	16-QAM	15	0	21.51	0-2	2
High	714.5	23165	3	QPSK	1	0	23.35	0	0
	714.5	23165	3	QPSK	1	7	23.39	0	0
	714.5	23165	3	QPSK	1	14	23.22	0	0
	714.5	23165	3	QPSK	8	0	22.34	0-1	1
	714.5	23165	3	QPSK	8	4	22.35	0-1	1
	714.5	23165	3	QPSK	8	7	22.27	0-1	1
	714.5	23165	3	QPSK	15	0	22.32	0-1	1
	714.5	23165	3	16-QAM	1	0	22.70	0-1	1
	714.5	23165	3	16-QAM	1	7	22.77	0-1	1
	714.5	23165	3	16-QAM	1	14	22.57	0-1	1
	714.5	23165	3	16-QAM	8	0	21.28	0-2	2
	714.5	23165	3	16-QAM	8	4	21.23	0-2	2
	714.5	23165	3	16-QAM	8	7	21.15	0-2	2
	714.5	23165	3	16-QAM	15	0	21.35	0-2	2

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Table 9-9
Maximum LTE Band 12 Conducted Powers – 1.4 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	699.7	23017	1.4	QPSK	1	0	23.85	0	0
	699.7	23017	1.4	QPSK	1	2	23.88	0	0
	699.7	23017	1.4	QPSK	1	5	23.75	0	0
	699.7	23017	1.4	QPSK	3	0	23.88	0	0
	699.7	23017	1.4	QPSK	3	2	23.86	0	0
	699.7	23017	1.4	QPSK	3	3	23.87	0	0
	699.7	23017	1.4	QPSK	6	0	22.80	0-1	1
	699.7	23017	1.4	16-QAM	1	0	22.90	0-1	1
	699.7	23017	1.4	16-QAM	1	2	22.93	0-1	1
	699.7	23017	1.4	16-QAM	1	5	22.83	0-1	1
	699.7	23017	1.4	16-QAM	3	0	22.96	0-1	1
	699.7	23017	1.4	16-QAM	3	2	22.93	0-1	1
	699.7	23017	1.4	16-QAM	3	3	22.91	0-1	1
	699.7	23017	1.4	16-QAM	6	0	21.76	0-2	2
Mid	707.5	23095	1.4	QPSK	1	0	23.49	0	0
	707.5	23095	1.4	QPSK	1	2	23.59	0	0
	707.5	23095	1.4	QPSK	1	5	23.50	0	0
	707.5	23095	1.4	QPSK	3	0	23.48	0	0
	707.5	23095	1.4	QPSK	3	2	23.59	0	0
	707.5	23095	1.4	QPSK	3	3	23.54	0	0
	707.5	23095	1.4	QPSK	6	0	22.49	0-1	1
	707.5	23095	1.4	16-QAM	1	0	22.69	0-1	1
	707.5	23095	1.4	16-QAM	1	2	22.80	0-1	1
	707.5	23095	1.4	16-QAM	1	5	22.69	0-1	1
	707.5	23095	1.4	16-QAM	3	0	22.45	0-1	1
	707.5	23095	1.4	16-QAM	3	2	22.61	0-1	1
	707.5	23095	1.4	16-QAM	3	3	22.52	0-1	1
	707.5	23095	1.4	16-QAM	6	0	21.49	0-2	2
High	715.3	23173	1.4	QPSK	1	0	23.35	0	0
	715.3	23173	1.4	QPSK	1	2	23.36	0	0
	715.3	23173	1.4	QPSK	1	5	23.40	0	0
	715.3	23173	1.4	QPSK	3	0	23.21	0	0
	715.3	23173	1.4	QPSK	3	2	23.34	0	0
	715.3	23173	1.4	QPSK	3	3	23.27	0	0
	715.3	23173	1.4	QPSK	6	0	22.13	0-1	1
	715.3	23173	1.4	16-QAM	1	0	22.11	0-1	1
	715.3	23173	1.4	16-QAM	1	2	22.15	0-1	1
	715.3	23173	1.4	16-QAM	1	5	22.15	0-1	1
	715.3	23173	1.4	16-QAM	3	0	22.17	0-1	1
	715.3	23173	1.4	16-QAM	3	2	22.31	0-1	1
	715.3	23173	1.4	16-QAM	3	3	22.22	0-1	1
	715.3	23173	1.4	16-QAM	6	0	21.21	0-2	2

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9.4.2 Maximum LTE Band 26 (Cell) Conducted Powers

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

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Mid	836.5	26915	15	QPSK	1	0	**23.69**	0	0
	836.5	26915	15	QPSK	1	36	23.47	0	0
	836.5	26915	15	QPSK	1	74	23.28	0	0
	836.5	26915	15	QPSK	36	0	**22.58**	0-1	1
	836.5	26915	15	QPSK	36	18	22.44	0-1	1
	836.5	26915	15	QPSK	36	37	22.36	0-1	1
	836.5	26915	15	QPSK	75	0	22.41	0-1	1
	836.5	26915	15	16QAM	1	0	22.92	0-1	1
	836.5	26915	15	16QAM	1	36	22.69	0-1	1
	836.5	26915	15	16QAM	1	74	22.55	0-1	1
	836.5	26915	15	16QAM	36	0	21.49	0-2	2
	836.5	26915	15	16QAM	36	18	21.38	0-2	2
	836.5	26915	15	16QAM	36	37	21.22	0-2	2
	836.5	26915	15	16QAM	75	0	21.43	0-2	2

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.

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Table 9-11
Maximum LTE Band 26 (Cell) Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	819	26740	10	QPSK	1	0	23.66	0	0
	819	26740	10	QPSK	1	25	23.44	0	0
	819	26740	10	QPSK	1	49	23.25	0	0
	819	26740	10	QPSK	25	0	22.55	0-1	1
	819	26740	10	QPSK	25	12	22.41	0-1	1
	819	26740	10	QPSK	25	25	22.33	0-1	1
	819	26740	10	QPSK	50	0	22.38	0-1	1
	819	26740	10	16QAM	1	0	22.85	0-1	1
	819	26740	10	16QAM	1	25	22.66	0-1	1
	819	26740	10	16QAM	1	49	22.52	0-1	1
	819	26740	10	16QAM	25	0	21.46	0-2	2
	819	26740	10	16QAM	25	12	21.35	0-2	2
	819	26740	10	16QAM	25	25	21.19	0-2	2
	819	26740	10	16QAM	50	0	21.40	0-2	2
Mid	831.5	26865	10	QPSK	1	0	23.61	0	0
	831.5	26865	10	QPSK	1	25	23.40	0	0
	831.5	26865	10	QPSK	1	49	23.23	0	0
	831.5	26865	10	QPSK	25	0	22.53	0-1	1
	831.5	26865	10	QPSK	25	12	22.39	0-1	1
	831.5	26865	10	QPSK	25	25	22.31	0-1	1
	831.5	26865	10	QPSK	50	0	22.36	0-1	1
	831.5	26865	10	16QAM	1	0	22.87	0-1	1
	831.5	26865	10	16QAM	1	25	22.62	0-1	1
	831.5	26865	10	16QAM	1	49	22.53	0-1	1
	831.5	26865	10	16QAM	25	0	21.44	0-2	2
	831.5	26865	10	16QAM	25	12	21.33	0-2	2
	831.5	26865	10	16QAM	25	25	21.17	0-2	2
	831.5	26865	10	16QAM	50	0	21.38	0-2	2
High	844	26990	10	QPSK	1	0	23.67	0	0
	844	26990	10	QPSK	1	25	23.45	0	0
	844	26990	10	QPSK	1	49	23.25	0	0
	844	26990	10	QPSK	25	0	22.56	0-1	1
	844	26990	10	QPSK	25	12	22.42	0-1	1
	844	26990	10	QPSK	25	25	22.34	0-1	1
	844	26990	10	QPSK	50	0	22.31	0-1	1
	844	26990	10	16QAM	1	0	22.87	0-1	1
	844	26990	10	16QAM	1	25	22.67	0-1	1
	844	26990	10	16QAM	1	49	22.53	0-1	1
	844	26990	10	16QAM	25	0	21.47	0-2	2
	844	26990	10	16QAM	25	12	21.36	0-2	2
	844	26990	10	16QAM	25	25	21.23	0-2	2
	844	26990	10	16QAM	50	0	21.40	0-2	2

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

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	816.5	26715	5	QPSK	1	0	23.61	0	0
	816.5	26715	5	QPSK	1	12	23.39	0	0
	816.5	26715	5	QPSK	1	24	23.20	0	0
	816.5	26715	5	QPSK	12	0	22.50	0-1	1
	816.5	26715	5	QPSK	12	6	22.36	0-1	1
	816.5	26715	5	QPSK	12	13	22.28	0-1	1
	816.5	26715	5	QPSK	25	0	22.33	0-1	1
	816.5	26715	5	16-QAM	1	0	22.69	0-1	1
	816.5	26715	5	16-QAM	1	12	22.61	0-1	1
	816.5	26715	5	16-QAM	1	24	22.47	0-1	1
	816.5	26715	5	16-QAM	12	0	21.41	0-2	2
	816.5	26715	5	16-QAM	12	6	21.30	0-2	2
	816.5	26715	5	16-QAM	12	13	21.14	0-2	2
	816.5	26715	5	16-QAM	25	0	21.35	0-2	2
Mid	831.5	26865	5	QPSK	1	0	23.56	0	0
	831.5	26865	5	QPSK	1	12	23.35	0	0
	831.5	26865	5	QPSK	1	24	23.20	0	0
	831.5	26865	5	QPSK	12	0	22.48	0-1	1
	831.5	26865	5	QPSK	12	6	22.34	0-1	1
	831.5	26865	5	QPSK	12	13	22.29	0-1	1
	831.5	26865	5	QPSK	25	0	22.30	0-1	1
	831.5	26865	5	16-QAM	1	0	22.82	0-1	1
	831.5	26865	5	16-QAM	1	12	22.57	0-1	1
	831.5	26865	5	16-QAM	1	24	22.49	0-1	1
	831.5	26865	5	16-QAM	12	0	21.39	0-2	2
	831.5	26865	5	16-QAM	12	6	21.28	0-2	2
	831.5	26865	5	16-QAM	12	13	21.10	0-2	2
	831.5	26865	5	16-QAM	25	0	21.35	0-2	2
High	846.5	27015	5	QPSK	1	0	23.62	0	0
	846.5	27015	5	QPSK	1	12	23.50	0	0
	846.5	27015	5	QPSK	1	24	23.31	0	0
	846.5	27015	5	QPSK	12	0	22.41	0-1	1
	846.5	27015	5	QPSK	12	6	22.30	0-1	1
	846.5	27015	5	QPSK	12	13	22.29	0-1	1
	846.5	27015	5	QPSK	25	0	22.26	0-1	1
	846.5	27015	5	16-QAM	1	0	22.82	0-1	1
	846.5	27015	5	16-QAM	1	12	22.62	0-1	1
	846.5	27015	5	16-QAM	1	24	22.50	0-1	1
	846.5	27015	5	16-QAM	12	0	21.42	0-2	2
	846.5	27015	5	16-QAM	12	6	21.31	0-2	2
	846.5	27015	5	16-QAM	12	13	21.22	0-2	2
	846.5	27015	5	16-QAM	25	0	21.40	0-2	2

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Table 9-13
Maximum LTE Band 5 (Cell) Conducted Powers – 3 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	815.5	26705	3	QPSK	1	0	23.58	0	0
	815.5	26705	3	QPSK	1	7	23.36	0	0
	815.5	26705	3	QPSK	1	14	23.17	0	0
	815.5	26705	3	QPSK	8	0	22.47	0-1	1
	815.5	26705	3	QPSK	8	4	22.33	0-1	1
	815.5	26705	3	QPSK	8	7	22.25	0-1	1
	815.5	26705	3	QPSK	15	0	22.30	0-1	1
	815.5	26705	3	16-QAM	1	0	22.66	0-1	1
	815.5	26705	3	16-QAM	1	7	22.58	0-1	1
	815.5	26705	3	16-QAM	1	14	22.44	0-1	1
	815.5	26705	3	16-QAM	8	0	21.38	0-2	2
	815.5	26705	3	16-QAM	8	4	21.27	0-2	2
	815.5	26705	3	16-QAM	8	7	21.11	0-2	2
	815.5	26705	3	16-QAM	15	0	21.32	0-2	2
Mid	831.5	26865	3	QPSK	1	0	23.53	0	0
	831.5	26865	3	QPSK	1	7	23.32	0	0
	831.5	26865	3	QPSK	1	14	23.17	0	0
	831.5	26865	3	QPSK	8	0	22.45	0-1	1
	831.5	26865	3	QPSK	8	4	22.31	0-1	1
	831.5	26865	3	QPSK	8	7	22.26	0-1	1
	831.5	26865	3	QPSK	15	0	22.33	0-1	1
	831.5	26865	3	16-QAM	1	0	22.79	0-1	1
	831.5	26865	3	16-QAM	1	7	22.54	0-1	1
	831.5	26865	3	16-QAM	1	14	22.45	0-1	1
	831.5	26865	3	16-QAM	8	0	21.36	0-2	2
	831.5	26865	3	16-QAM	8	4	21.25	0-2	2
	831.5	26865	3	16-QAM	8	7	21.07	0-2	2
	831.5	26865	3	16-QAM	15	0	21.32	0-2	2
High	847.5	27025	3	QPSK	1	0	23.59	0	0
	847.5	27025	3	QPSK	1	7	23.47	0	0
	847.5	27025	3	QPSK	1	14	23.37	0	0
	847.5	27025	3	QPSK	8	0	22.48	0-1	1
	847.5	27025	3	QPSK	8	4	22.34	0-1	1
	847.5	27025	3	QPSK	8	7	22.26	0-1	1
	847.5	27025	3	QPSK	15	0	22.23	0-1	1
	847.5	27025	3	16-QAM	1	0	22.79	0-1	1
	847.5	27025	3	16-QAM	1	7	22.59	0-1	1
	847.5	27025	3	16-QAM	1	14	22.47	0-1	1
	847.5	27025	3	16-QAM	8	0	21.39	0-2	2
	847.5	27025	3	16-QAM	8	4	21.28	0-2	2
	847.5	27025	3	16-QAM	8	7	21.19	0-2	2
	847.5	27025	3	16-QAM	15	0	21.32	0-2	2

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

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	814.7	26697	1.4	QPSK	1	0	23.64	0	0
	814.7	26697	1.4	QPSK	1	2	23.42	0	0
	814.7	26697	1.4	QPSK	1	5	23.23	0	0
	814.7	26697	1.4	QPSK	3	0	23.53	0	0
	814.7	26697	1.4	QPSK	3	2	23.36	0	0
	814.7	26697	1.4	QPSK	3	3	23.31	0	0
	814.7	26697	1.4	QPSK	6	0	22.36	0-1	1
	814.7	26697	1.4	16-QAM	1	0	22.72	0-1	1
	814.7	26697	1.4	16-QAM	1	2	22.64	0-1	1
	814.7	26697	1.4	16-QAM	1	5	22.50	0-1	1
	814.7	26697	1.4	16-QAM	3	0	22.42	0-1	1
	814.7	26697	1.4	16-QAM	3	2	22.31	0-1	1
	814.7	26697	1.4	16-QAM	3	3	22.19	0-1	1
	814.7	26697	1.4	16-QAM	6	0	21.38	0-2	2
Mid	831.5	26865	1.4	QPSK	1	0	23.59	0	0
	831.5	26865	1.4	QPSK	1	2	23.38	0	0
	831.5	26865	1.4	QPSK	1	5	23.23	0	0
	831.5	26865	1.4	QPSK	3	0	23.64	0	0
	831.5	26865	1.4	QPSK	3	2	23.23	0	0
	831.5	26865	1.4	QPSK	3	3	23.32	0	0
	831.5	26865	1.4	QPSK	6	0	22.39	0-1	1
	831.5	26865	1.4	16-QAM	1	0	22.85	0-1	1
	831.5	26865	1.4	16-QAM	1	2	22.60	0-1	1
	831.5	26865	1.4	16-QAM	1	5	22.51	0-1	1
	831.5	26865	1.4	16-QAM	3	0	22.43	0-1	1
	831.5	26865	1.4	16-QAM	3	2	22.38	0-1	1
	831.5	26865	1.4	16-QAM	3	3	22.13	0-1	1
	831.5	26865	1.4	16-QAM	6	0	21.38	0-2	2
High	848.3	27033	1.4	QPSK	1	0	23.65	0	0
	848.3	27033	1.4	QPSK	1	2	23.53	0	0
	848.3	27033	1.4	QPSK	1	5	23.43	0	0
	848.3	27033	1.4	QPSK	3	0	23.51	0	0
	848.3	27033	1.4	QPSK	3	2	23.40	0	0
	848.3	27033	1.4	QPSK	3	3	23.32	0	0
	848.3	27033	1.4	QPSK	6	0	22.29	0-1	1
	848.3	27033	1.4	16-QAM	1	0	22.85	0-1	1
	848.3	27033	1.4	16-QAM	1	2	22.65	0-1	1
	848.3	27033	1.4	16-QAM	1	5	22.53	0-1	1
	848.3	27033	1.4	16-QAM	3	0	22.31	0-1	1
	848.3	27033	1.4	16-QAM	3	2	22.34	0-1	1
	848.3	27033	1.4	16-QAM	3	3	22.23	0-1	1
	848.3	27033	1.4	16-QAM	6	0	21.38	0-2	2

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9.4.3 Maximum LTE Band 4 (AWS) Conducted Powers

Table 9-15
Maximum LTE Band 4 (AWS) Conducted Powers - 20 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Mid	1732.5	20175	20	QPSK	1	0	**23.84**	0	0
	1732.5	20175	20	QPSK	1	50	23.61	0	0
	1732.5	20175	20	QPSK	1	99	23.70	0	0
	1732.5	20175	20	QPSK	50	0	22.70	0-1	1
	1732.5	20175	20	QPSK	50	25	22.61	0-1	1
	1732.5	20175	20	QPSK	50	50	**22.72**	0-1	1
	1732.5	20175	20	QPSK	100	0	22.68	0-1	1
	1732.5	20175	20	16QAM	1	0	23.00	0-1	1
	1732.5	20175	20	16QAM	1	50	22.85	0-1	1
	1732.5	20175	20	16QAM	1	99	22.91	0-1	1
	1732.5	20175	20	16QAM	50	0	21.64	0-2	2
	1732.5	20175	20	16QAM	50	25	21.55	0-2	2
	1732.5	20175	20	16QAM	50	50	21.62	0-2	2
	1732.5	20175	20	16QAM	100	0	21.66	0-2	2

Note: LTE Band 4 (AWS) at 20 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

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Table 9-16
Maximum LTE Band 4 (AWS) Conducted Powers - 15 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1717.5	20025	15	QPSK	1	0	23.82	0	0
	1717.5	20025	15	QPSK	1	36	23.47	0	0
	1717.5	20025	15	QPSK	1	74	23.54	0	0
	1717.5	20025	15	QPSK	36	0	22.51	0-1	1
	1717.5	20025	15	QPSK	36	18	22.43	0-1	1
	1717.5	20025	15	QPSK	36	37	22.40	0-1	1
	1717.5	20025	15	QPSK	75	0	22.33	0-1	1
	1717.5	20025	15	16QAM	1	0	23.00	0-1	1
	1717.5	20025	15	16QAM	1	36	22.86	0-1	1
	1717.5	20025	15	16QAM	1	74	22.84	0-1	1
	1717.5	20025	15	16QAM	36	0	21.40	0-2	2
	1717.5	20025	15	16QAM	36	18	21.40	0-2	2
	1717.5	20025	15	16QAM	36	37	21.35	0-2	2
	1717.5	20025	15	16QAM	75	0	21.34	0-2	2
Mid	1732.5	20175	15	QPSK	1	0	23.50	0	0
	1732.5	20175	15	QPSK	1	36	23.38	0	0
	1732.5	20175	15	QPSK	1	74	23.46	0	0
	1732.5	20175	15	QPSK	36	0	22.44	0-1	1
	1732.5	20175	15	QPSK	36	18	22.43	0-1	1
	1732.5	20175	15	QPSK	36	37	22.35	0-1	1
	1732.5	20175	15	QPSK	75	0	22.37	0-1	1
	1732.5	20175	15	16QAM	1	0	23.00	0-1	1
	1732.5	20175	15	16QAM	1	36	22.96	0-1	1
	1732.5	20175	15	16QAM	1	74	22.83	0-1	1
	1732.5	20175	15	16QAM	36	0	21.32	0-2	2
	1732.5	20175	15	16QAM	36	18	21.32	0-2	2
	1732.5	20175	15	16QAM	36	37	21.31	0-2	2
	1732.5	20175	15	16QAM	75	0	21.35	0-2	2
High	1747.5	20325	15	QPSK	1	0	23.52	0	0
	1747.5	20325	15	QPSK	1	36	23.35	0	0
	1747.5	20325	15	QPSK	1	74	23.73	0	0
	1747.5	20325	15	QPSK	36	0	22.38	0-1	1
	1747.5	20325	15	QPSK	36	18	22.39	0-1	1
	1747.5	20325	15	QPSK	36	37	22.39	0-1	1
	1747.5	20325	15	QPSK	75	0	22.40	0-1	1
	1747.5	20325	15	16QAM	1	0	22.53	0-1	1
	1747.5	20325	15	16QAM	1	36	22.49	0-1	1
	1747.5	20325	15	16QAM	1	74	22.71	0-1	1
	1747.5	20325	15	16QAM	36	0	21.37	0-2	2
	1747.5	20325	15	16QAM	36	18	21.38	0-2	2
	1747.5	20325	15	16QAM	36	37	21.38	0-2	2
	1747.5	20325	15	16QAM	75	0	21.44	0-2	2

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Table 9-17
Maximum LTE Band 4 (AWS) Conducted Powers - 10 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1715	20000	10	QPSK	1	0	23.42	0	0
	1715	20000	10	QPSK	1	25	23.35	0	0
	1715	20000	10	QPSK	1	49	23.37	0	0
	1715	20000	10	QPSK	25	0	22.36	0-1	1
	1715	20000	10	QPSK	25	12	22.44	0-1	1
	1715	20000	10	QPSK	25	25	22.45	0-1	1
	1715	20000	10	QPSK	50	0	22.43	0-1	1
	1715	20000	10	16QAM	1	0	22.63	0-1	1
	1715	20000	10	16QAM	1	25	22.62	0-1	1
	1715	20000	10	16QAM	1	49	22.66	0-1	1
	1715	20000	10	16QAM	25	0	21.34	0-2	2
	1715	20000	10	16QAM	25	12	21.40	0-2	2
	1715	20000	10	16QAM	25	25	21.44	0-2	2
	1715	20000	10	16QAM	50	0	21.36	0-2	2
Mid	1732.5	20175	10	QPSK	1	0	23.33	0	0
	1732.5	20175	10	QPSK	1	25	23.26	0	0
	1732.5	20175	10	QPSK	1	49	23.44	0	0
	1732.5	20175	10	QPSK	25	0	22.34	0-1	1
	1732.5	20175	10	QPSK	25	12	22.28	0-1	1
	1732.5	20175	10	QPSK	25	25	22.37	0-1	1
	1732.5	20175	10	QPSK	50	0	22.39	0-1	1
	1732.5	20175	10	16QAM	1	0	22.88	0-1	1
	1732.5	20175	10	16QAM	1	25	22.87	0-1	1
	1732.5	20175	10	16QAM	1	49	22.93	0-1	1
	1732.5	20175	10	16QAM	25	0	21.33	0-2	2
	1732.5	20175	10	16QAM	25	12	21.28	0-2	2
	1732.5	20175	10	16QAM	25	25	21.37	0-2	2
	1732.5	20175	10	16QAM	50	0	21.36	0-2	2
High	1750	20350	10	QPSK	1	0	23.38	0	0
	1750	20350	10	QPSK	1	25	23.37	0	0
	1750	20350	10	QPSK	1	49	23.68	0	0
	1750	20350	10	QPSK	25	0	22.34	0-1	1
	1750	20350	10	QPSK	25	12	22.47	0-1	1
	1750	20350	10	QPSK	25	25	22.45	0-1	1
	1750	20350	10	QPSK	50	0	22.46	0-1	1
	1750	20350	10	16QAM	1	0	22.37	0-1	1
	1750	20350	10	16QAM	1	25	22.37	0-1	1
	1750	20350	10	16QAM	1	49	22.40	0-1	1
	1750	20350	10	16QAM	25	0	21.42	0-2	2
	1750	20350	10	16QAM	25	12	21.44	0-2	2
	1750	20350	10	16QAM	25	25	21.50	0-2	2
	1750	20350	10	16QAM	50	0	21.49	0-2	2

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Table 9-18
Maximum LTE Band 4 (AWS) Conducted Powers - 5 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1712.5	19975	5	QPSK	1	0	23.75	0	0
	1712.5	19975	5	QPSK	1	12	23.54	0	0
	1712.5	19975	5	QPSK	1	24	23.42	0	0
	1712.5	19975	5	QPSK	12	0	22.36	0-1	1
	1712.5	19975	5	QPSK	12	6	22.40	0-1	1
	1712.5	19975	5	QPSK	12	13	22.38	0-1	1
	1712.5	19975	5	QPSK	25	0	22.37	0-1	1
	1712.5	19975	5	16-QAM	1	0	22.88	0-1	1
	1712.5	19975	5	16-QAM	1	12	22.83	0-1	1
	1712.5	19975	5	16-QAM	1	24	22.71	0-1	1
	1712.5	19975	5	16-QAM	12	0	21.27	0-2	2
	1712.5	19975	5	16-QAM	12	6	21.35	0-2	2
	1712.5	19975	5	16-QAM	12	13	21.26	0-2	2
	1712.5	19975	5	16-QAM	25	0	21.27	0-2	2
Mid	1732.5	20175	5	QPSK	1	0	23.27	0	0
	1732.5	20175	5	QPSK	1	12	23.37	0	0
	1732.5	20175	5	QPSK	1	24	23.43	0	0
	1732.5	20175	5	QPSK	12	0	22.30	0-1	1
	1732.5	20175	5	QPSK	12	6	22.32	0-1	1
	1732.5	20175	5	QPSK	12	13	22.38	0-1	1
	1732.5	20175	5	QPSK	25	0	22.34	0-1	1
	1732.5	20175	5	16-QAM	1	0	22.71	0-1	1
	1732.5	20175	5	16-QAM	1	12	22.70	0-1	1
	1732.5	20175	5	16-QAM	1	24	22.72	0-1	1
	1732.5	20175	5	16-QAM	12	0	21.21	0-2	2
	1732.5	20175	5	16-QAM	12	6	21.27	0-2	2
	1732.5	20175	5	16-QAM	12	13	21.34	0-2	2
	1732.5	20175	5	16-QAM	25	0	21.29	0-2	2
High	1752.5	20375	5	QPSK	1	0	23.58	0	0
	1752.5	20375	5	QPSK	1	12	23.25	0	0
	1752.5	20375	5	QPSK	1	24	23.57	0	0
	1752.5	20375	5	QPSK	12	0	22.48	0-1	1
	1752.5	20375	5	QPSK	12	6	22.49	0-1	1
	1752.5	20375	5	QPSK	12	13	22.45	0-1	1
	1752.5	20375	5	QPSK	25	0	22.44	0-1	1
	1752.5	20375	5	16-QAM	1	0	22.71	0-1	1
	1752.5	20375	5	16-QAM	1	12	22.68	0-1	1
	1752.5	20375	5	16-QAM	1	24	22.73	0-1	1
	1752.5	20375	5	16-QAM	12	0	21.49	0-2	2
	1752.5	20375	5	16-QAM	12	6	21.47	0-2	2
	1752.5	20375	5	16-QAM	12	13	21.40	0-2	2
	1752.5	20375	5	16-QAM	25	0	21.49	0-2	2

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Table 9-19
Maximum LTE Band 4 (AWS) Conducted Powers - 3 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1711.5	19965	3	QPSK	1	0	23.67	0	0
	1711.5	19965	3	QPSK	1	7	23.61	0	0
	1711.5	19965	3	QPSK	1	14	23.41	0	0
	1711.5	19965	3	QPSK	8	0	22.36	0-1	1
	1711.5	19965	3	QPSK	8	4	22.31	0-1	1
	1711.5	19965	3	QPSK	8	7	22.32	0-1	1
	1711.5	19965	3	QPSK	15	0	22.39	0-1	1
	1711.5	19965	3	16-QAM	1	0	22.32	0-1	1
	1711.5	19965	3	16-QAM	1	7	22.34	0-1	1
	1711.5	19965	3	16-QAM	1	14	22.16	0-1	1
	1711.5	19965	3	16-QAM	8	0	21.36	0-2	2
	1711.5	19965	3	16-QAM	8	4	21.21	0-2	2
	1711.5	19965	3	16-QAM	8	7	21.25	0-2	2
	1711.5	19965	3	16-QAM	15	0	21.37	0-2	2
Mid	1732.5	20175	3	QPSK	1	0	23.29	0	0
	1732.5	20175	3	QPSK	1	7	23.46	0	0
	1732.5	20175	3	QPSK	1	14	23.44	0	0
	1732.5	20175	3	QPSK	8	0	22.31	0-1	1
	1732.5	20175	3	QPSK	8	4	22.40	0-1	1
	1732.5	20175	3	QPSK	8	7	22.36	0-1	1
	1732.5	20175	3	QPSK	15	0	22.34	0-1	1
	1732.5	20175	3	16-QAM	1	0	22.42	0-1	1
	1732.5	20175	3	16-QAM	1	7	22.56	0-1	1
	1732.5	20175	3	16-QAM	1	14	22.49	0-1	1
	1732.5	20175	3	16-QAM	8	0	21.26	0-2	2
	1732.5	20175	3	16-QAM	8	4	21.33	0-2	2
	1732.5	20175	3	16-QAM	8	7	21.32	0-2	2
	1732.5	20175	3	16-QAM	15	0	21.28	0-2	2
High	1753.5	20385	3	QPSK	1	0	23.49	0	0
	1753.5	20385	3	QPSK	1	7	23.48	0	0
	1753.5	20385	3	QPSK	1	14	23.53	0	0
	1753.5	20385	3	QPSK	8	0	22.38	0-1	1
	1753.5	20385	3	QPSK	8	4	22.44	0-1	1
	1753.5	20385	3	QPSK	8	7	22.46	0-1	1
	1753.5	20385	3	QPSK	15	0	22.40	0-1	1
	1753.5	20385	3	16-QAM	1	0	22.79	0-1	1
	1753.5	20385	3	16-QAM	1	7	22.72	0-1	1
	1753.5	20385	3	16-QAM	1	14	22.73	0-1	1
	1753.5	20385	3	16-QAM	8	0	21.48	0-2	2
	1753.5	20385	3	16-QAM	8	4	21.46	0-2	2
	1753.5	20385	3	16-QAM	8	7	21.49	0-2	2
	1753.5	20385	3	16-QAM	15	0	21.43	0-2	2

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Table 9-20
Maximum LTE Band 4 (AWS) Conducted Powers – 1.4 MHz Bandwidth

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1710.7	19957	1.4	QPSK	1	0	23.38	0	0
	1710.7	19957	1.4	QPSK	1	2	23.41	0	0
	1710.7	19957	1.4	QPSK	1	5	23.29	0	0
	1710.7	19957	1.4	QPSK	3	0	23.25	0	0
	1710.7	19957	1.4	QPSK	3	2	23.34	0	0
	1710.7	19957	1.4	QPSK	3	3	23.34	0	0
	1710.7	19957	1.4	QPSK	6	0	22.37	0-1	1
	1710.7	19957	1.4	16-QAM	1	0	22.63	0-1	1
	1710.7	19957	1.4	16-QAM	1	2	22.71	0-1	1
	1710.7	19957	1.4	16-QAM	1	5	22.55	0-1	1
	1710.7	19957	1.4	16-QAM	3	0	22.18	0-1	1
	1710.7	19957	1.4	16-QAM	3	2	22.30	0-1	1
	1710.7	19957	1.4	16-QAM	3	3	22.26	0-1	1
	1710.7	19957	1.4	16-QAM	6	0	21.38	0-2	2
Mid	1732.5	20175	1.4	QPSK	1	0	23.80	0	0
	1732.5	20175	1.4	QPSK	1	2	23.82	0	0
	1732.5	20175	1.4	QPSK	1	5	23.80	0	0
	1732.5	20175	1.4	QPSK	3	0	23.81	0	0
	1732.5	20175	1.4	QPSK	3	2	23.84	0	0
	1732.5	20175	1.4	QPSK	3	3	23.79	0	0
	1732.5	20175	1.4	QPSK	6	0	22.91	0-1	1
	1732.5	20175	1.4	16-QAM	1	0	22.45	0-1	1
	1732.5	20175	1.4	16-QAM	1	2	22.88	0-1	1
	1732.5	20175	1.4	16-QAM	1	5	22.82	0-1	1
	1732.5	20175	1.4	16-QAM	3	0	23.00	0-1	1
	1732.5	20175	1.4	16-QAM	3	2	22.96	0-1	1
	1732.5	20175	1.4	16-QAM	3	3	22.94	0-1	1
	1732.5	20175	1.4	16-QAM	6	0	21.36	0-2	2
High	1754.3	20393	1.4	QPSK	1	0	23.26	0	0
	1754.3	20393	1.4	QPSK	1	2	23.31	0	0
	1754.3	20393	1.4	QPSK	1	5	23.27	0	0
	1754.3	20393	1.4	QPSK	3	0	23.21	0	0
	1754.3	20393	1.4	QPSK	3	2	23.29	0	0
	1754.3	20393	1.4	QPSK	3	3	23.25	0	0
	1754.3	20393	1.4	QPSK	6	0	22.36	0-1	1
	1754.3	20393	1.4	16-QAM	1	0	22.39	0-1	1
	1754.3	20393	1.4	16-QAM	1	2	22.48	0-1	1
	1754.3	20393	1.4	16-QAM	1	5	22.46	0-1	1
	1754.3	20393	1.4	16-QAM	3	0	22.34	0-1	1
	1754.3	20393	1.4	16-QAM	3	2	22.38	0-1	1
	1754.3	20393	1.4	16-QAM	3	3	22.33	0-1	1
	1754.3	20393	1.4	16-QAM	6	0	21.52	0-2	2

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9.4.4 Maximum LTE Band 25 (PCS) Conducted Powers

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

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1860	26140	20	QPSK	1	0	23.78	0	0
	1860	26140	20	QPSK	1	50	23.71	0	0
	1860	26140	20	QPSK	1	99	**23.89**	0	0
	1860	26140	20	QPSK	50	0	22.63	0-1	1
	1860	26140	20	QPSK	50	25	22.72	0-1	1
	1860	26140	20	QPSK	50	50	**22.77**	0-1	1
	1860	26140	20	QPSK	100	0	22.70	0-1	1
	1860	26140	20	16QAM	1	0	23.00	0-1	1
	1860	26140	20	16QAM	1	50	22.91	0-1	1
	1860	26140	20	16QAM	1	99	22.96	0-1	1
	1860	26140	20	16QAM	50	0	21.55	0-2	2
	1860	26140	20	16QAM	50	25	21.63	0-2	2
	1860	26140	20	16QAM	50	50	21.67	0-2	2
	1860	26140	20	16QAM	100	0	21.65	0-2	2
Mid	1882.5	26365	20	QPSK	1	0	23.82	0	0
	1882.5	26365	20	QPSK	1	50	23.60	0	0
	1882.5	26365	20	QPSK	1	99	23.47	0	0
	1882.5	26365	20	QPSK	50	0	22.72	0-1	1
	1882.5	26365	20	QPSK	50	25	22.68	0-1	1
	1882.5	26365	20	QPSK	50	50	22.63	0-1	1
	1882.5	26365	20	QPSK	100	0	22.65	0-1	1
	1882.5	26365	20	16QAM	1	0	23.00	0-1	1
	1882.5	26365	20	16QAM	1	50	22.95	0-1	1
	1882.5	26365	20	16QAM	1	99	22.85	0-1	1
	1882.5	26365	20	16QAM	50	0	21.74	0-2	2
	1882.5	26365	20	16QAM	50	25	21.70	0-2	2
	1882.5	26365	20	16QAM	50	50	21.63	0-2	2
	1882.5	26365	20	16QAM	100	0	21.61	0-2	2
High	1905	26590	20	QPSK	1	0	23.77	0	0
	1905	26590	20	QPSK	1	50	23.34	0	0
	1905	26590	20	QPSK	1	99	23.41	0	0
	1905	26590	20	QPSK	50	0	22.37	0-1	1
	1905	26590	20	QPSK	50	25	22.30	0-1	1
	1905	26590	20	QPSK	50	50	22.37	0-1	1
	1905	26590	20	QPSK	100	0	22.38	0-1	1
	1905	26590	20	16QAM	1	0	23.00	0-1	1
	1905	26590	20	16QAM	1	50	22.74	0-1	1
	1905	26590	20	16QAM	1	99	22.76	0-1	1
	1905	26590	20	16QAM	50	0	21.43	0-2	2
	1905	26590	20	16QAM	50	25	21.31	0-2	2
	1905	26590	20	16QAM	50	50	21.30	0-2	2
	1905	26590	20	16QAM	100	0	21.33	0-2	2

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

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1857.5	26115	15	QPSK	1	0	23.58	0	0
	1857.5	26115	15	QPSK	1	36	23.63	0	0
	1857.5	26115	15	QPSK	1	74	23.64	0	0
	1857.5	26115	15	QPSK	36	0	22.49	0-1	1
	1857.5	26115	15	QPSK	36	18	22.51	0-1	1
	1857.5	26115	15	QPSK	36	37	22.53	0-1	1
	1857.5	26115	15	QPSK	75	0	22.56	0-1	1
	1857.5	26115	15	16QAM	1	0	22.76	0-1	1
	1857.5	26115	15	16QAM	1	36	22.93	0-1	1
	1857.5	26115	15	16QAM	1	74	22.94	0-1	1
	1857.5	26115	15	16QAM	36	0	21.53	0-2	2
	1857.5	26115	15	16QAM	36	18	21.52	0-2	2
	1857.5	26115	15	16QAM	36	37	21.55	0-2	2
	1857.5	26115	15	16QAM	75	0	21.54	0-2	2
Mid	1882.5	26365	15	QPSK	1	0	23.72	0	0
	1882.5	26365	15	QPSK	1	36	23.65	0	0
	1882.5	26365	15	QPSK	1	74	23.36	0	0
	1882.5	26365	15	QPSK	36	0	22.48	0-1	1
	1882.5	26365	15	QPSK	36	18	22.60	0-1	1
	1882.5	26365	15	QPSK	36	37	22.58	0-1	1
	1882.5	26365	15	QPSK	75	0	22.52	0-1	1
	1882.5	26365	15	16QAM	1	0	22.85	0-1	1
	1882.5	26365	15	16QAM	1	36	22.77	0-1	1
	1882.5	26365	15	16QAM	1	74	22.71	0-1	1
	1882.5	26365	15	16QAM	36	0	21.60	0-2	2
	1882.5	26365	15	16QAM	36	18	21.56	0-2	2
	1882.5	26365	15	16QAM	36	37	21.47	0-2	2
	1882.5	26365	15	16QAM	75	0	21.48	0-2	2
High	1907.5	26615	15	QPSK	1	0	23.16	0	0
	1907.5	26615	15	QPSK	1	36	23.17	0	0
	1907.5	26615	15	QPSK	1	74	23.06	0	0
	1907.5	26615	15	QPSK	36	0	22.10	0-1	1
	1907.5	26615	15	QPSK	36	18	22.13	0-1	1
	1907.5	26615	15	QPSK	36	37	22.12	0-1	1
	1907.5	26615	15	QPSK	75	0	22.10	0-1	1
	1907.5	26615	15	16QAM	1	0	22.37	0-1	1
	1907.5	26615	15	16QAM	1	36	22.28	0-1	1
	1907.5	26615	15	16QAM	1	74	22.24	0-1	1
	1907.5	26615	15	16QAM	36	0	21.04	0-2	2
	1907.5	26615	15	16QAM	36	18	21.08	0-2	2
	1907.5	26615	15	16QAM	36	37	21.10	0-2	2
	1907.5	26615	15	16QAM	75	0	21.09	0-2	2

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

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1855	26090	10	QPSK	1	0	23.36	0	0
	1855	26090	10	QPSK	1	25	23.51	0	0
	1855	26090	10	QPSK	1	49	23.59	0	0
	1855	26090	10	QPSK	25	0	22.54	0-1	1
	1855	26090	10	QPSK	25	12	22.58	0-1	1
	1855	26090	10	QPSK	25	25	22.52	0-1	1
	1855	26090	10	QPSK	50	0	22.52	0-1	1
	1855	26090	10	16QAM	1	0	22.87	0-1	1
	1855	26090	10	16QAM	1	25	22.90	0-1	1
	1855	26090	10	16QAM	1	49	22.85	0-1	1
	1855	26090	10	16QAM	25	0	21.55	0-2	2
	1855	26090	10	16QAM	25	12	21.57	0-2	2
	1855	26090	10	16QAM	25	25	21.55	0-2	2
	1855	26090	10	16QAM	50	0	21.51	0-2	2
Mid	1882.5	26365	10	QPSK	1	0	23.44	0	0
	1882.5	26365	10	QPSK	1	25	23.53	0	0
	1882.5	26365	10	QPSK	1	49	23.66	0	0
	1882.5	26365	10	QPSK	25	0	22.61	0-1	1
	1882.5	26365	10	QPSK	25	12	22.57	0-1	1
	1882.5	26365	10	QPSK	25	25	22.55	0-1	1
	1882.5	26365	10	QPSK	50	0	22.53	0-1	1
	1882.5	26365	10	16QAM	1	0	22.75	0-1	1
	1882.5	26365	10	16QAM	1	25	22.85	0-1	1
	1882.5	26365	10	16QAM	1	49	22.66	0-1	1
	1882.5	26365	10	16QAM	25	0	21.57	0-2	2
	1882.5	26365	10	16QAM	25	12	21.55	0-2	2
	1882.5	26365	10	16QAM	25	25	21.52	0-2	2
	1882.5	26365	10	16QAM	50	0	21.48	0-2	2
High	1910	26640	10	QPSK	1	0	23.09	0	0
	1910	26640	10	QPSK	1	25	23.32	0	0
	1910	26640	10	QPSK	1	49	23.33	0	0
	1910	26640	10	QPSK	25	0	22.28	0-1	1
	1910	26640	10	QPSK	25	12	22.30	0-1	1
	1910	26640	10	QPSK	25	25	22.33	0-1	1
	1910	26640	10	QPSK	50	0	22.31	0-1	1
	1910	26640	10	16QAM	1	0	22.36	0-1	1
	1910	26640	10	16QAM	1	25	22.47	0-1	1
	1910	26640	10	16QAM	1	49	22.56	0-1	1
	1910	26640	10	16QAM	25	0	21.27	0-2	2
	1910	26640	10	16QAM	25	12	21.34	0-2	2
	1910	26640	10	16QAM	25	25	21.34	0-2	2
	1910	26640	10	16QAM	50	0	21.33	0-2	2

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

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1852.5	26065	5	QPSK	1	0	23.41	0	0
	1852.5	26065	5	QPSK	1	12	23.45	0	0
	1852.5	26065	5	QPSK	1	24	23.48	0	0
	1852.5	26065	5	QPSK	12	0	22.45	0-1	1
	1852.5	26065	5	QPSK	12	6	22.41	0-1	1
	1852.5	26065	5	QPSK	12	13	22.55	0-1	1
	1852.5	26065	5	QPSK	25	0	22.48	0-1	1
	1852.5	26065	5	16-QAM	1	0	22.57	0-1	1
	1852.5	26065	5	16-QAM	1	12	22.65	0-1	1
	1852.5	26065	5	16-QAM	1	24	22.63	0-1	1
	1852.5	26065	5	16-QAM	12	0	21.42	0-2	2
	1852.5	26065	5	16-QAM	12	6	21.39	0-2	2
	1852.5	26065	5	16-QAM	12	13	21.46	0-2	2
	1852.5	26065	5	16-QAM	25	0	21.45	0-2	2
Mid	1882.5	26365	5	QPSK	1	0	23.64	0	0
	1882.5	26365	5	QPSK	1	12	23.69	0	0
	1882.5	26365	5	QPSK	1	24	23.65	0	0
	1882.5	26365	5	QPSK	12	0	22.57	0-1	1
	1882.5	26365	5	QPSK	12	6	22.56	0-1	1
	1882.5	26365	5	QPSK	12	13	22.58	0-1	1
	1882.5	26365	5	QPSK	25	0	22.60	0-1	1
	1882.5	26365	5	16-QAM	1	0	22.88	0-1	1
	1882.5	26365	5	16-QAM	1	12	22.91	0-1	1
	1882.5	26365	5	16-QAM	1	24	22.81	0-1	1
	1882.5	26365	5	16-QAM	12	0	21.54	0-2	2
	1882.5	26365	5	16-QAM	12	6	21.51	0-2	2
	1882.5	26365	5	16-QAM	12	13	21.51	0-2	2
	1882.5	26365	5	16-QAM	25	0	21.64	0-2	2
High	1912.5	26665	5	QPSK	1	0	23.53	0	0
	1912.5	26665	5	QPSK	1	12	23.59	0	0
	1912.5	26665	5	QPSK	1	24	23.39	0	0
	1912.5	26665	5	QPSK	12	0	22.33	0-1	1
	1912.5	26665	5	QPSK	12	6	22.30	0-1	1
	1912.5	26665	5	QPSK	12	13	22.39	0-1	1
	1912.5	26665	5	QPSK	25	0	22.36	0-1	1
	1912.5	26665	5	16-QAM	1	0	22.53	0-1	1
	1912.5	26665	5	16-QAM	1	12	22.67	0-1	1
	1912.5	26665	5	16-QAM	1	24	22.69	0-1	1
	1912.5	26665	5	16-QAM	12	0	21.30	0-2	2
	1912.5	26665	5	16-QAM	12	6	21.26	0-2	2
	1912.5	26665	5	16-QAM	12	13	21.32	0-2	2
	1912.5	26665	5	16-QAM	25	0	21.33	0-2	2

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

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1851.5	26055	3	QPSK	1	0	23.42	0	0
	1851.5	26055	3	QPSK	1	7	23.58	0	0
	1851.5	26055	3	QPSK	1	14	23.34	0	0
	1851.5	26055	3	QPSK	8	0	22.45	0-1	1
	1851.5	26055	3	QPSK	8	4	22.57	0-1	1
	1851.5	26055	3	QPSK	8	7	22.44	0-1	1
	1851.5	26055	3	QPSK	15	0	22.42	0-1	1
	1851.5	26055	3	16-QAM	1	0	22.89	0-1	1
	1851.5	26055	3	16-QAM	1	7	22.94	0-1	1
	1851.5	26055	3	16-QAM	1	14	22.91	0-1	1
	1851.5	26055	3	16-QAM	8	0	21.51	0-2	2
	1851.5	26055	3	16-QAM	8	4	21.57	0-2	2
	1851.5	26055	3	16-QAM	8	7	21.53	0-2	2
	1851.5	26055	3	16-QAM	15	0	21.54	0-2	2
Mid	1882.5	26365	3	QPSK	1	0	23.56	0	0
	1882.5	26365	3	QPSK	1	7	23.76	0	0
	1882.5	26365	3	QPSK	1	14	23.64	0	0
	1882.5	26365	3	QPSK	8	0	22.48	0-1	1
	1882.5	26365	3	QPSK	8	4	22.62	0-1	1
	1882.5	26365	3	QPSK	8	7	22.55	0-1	1
	1882.5	26365	3	QPSK	15	0	22.60	0-1	1
	1882.5	26365	3	16-QAM	1	0	22.68	0-1	1
	1882.5	26365	3	16-QAM	1	7	22.88	0-1	1
	1882.5	26365	3	16-QAM	1	14	22.71	0-1	1
	1882.5	26365	3	16-QAM	8	0	21.51	0-2	2
	1882.5	26365	3	16-QAM	8	4	21.56	0-2	2
	1882.5	26365	3	16-QAM	8	7	21.57	0-2	2
	1882.5	26365	3	16-QAM	15	0	21.59	0-2	2
High	1913.5	26675	3	QPSK	1	0	23.39	0	0
	1913.5	26675	3	QPSK	1	7	23.48	0	0
	1913.5	26675	3	QPSK	1	14	23.33	0	0
	1913.5	26675	3	QPSK	8	0	22.28	0-1	1
	1913.5	26675	3	QPSK	8	4	22.36	0-1	1
	1913.5	26675	3	QPSK	8	7	22.31	0-1	1
	1913.5	26675	3	QPSK	15	0	22.34	0-1	1
	1913.5	26675	3	16-QAM	1	0	22.64	0-1	1
	1913.5	26675	3	16-QAM	1	7	22.74	0-1	1
	1913.5	26675	3	16-QAM	1	14	22.70	0-1	1
	1913.5	26675	3	16-QAM	8	0	21.28	0-2	2
	1913.5	26675	3	16-QAM	8	4	21.33	0-2	2
	1913.5	26675	3	16-QAM	8	7	21.31	0-2	2
	1913.5	26675	3	16-QAM	15	0	21.34	0-2	2

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

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1850.7	26047	1.4	QPSK	1	0	23.46	0	0
	1850.7	26047	1.4	QPSK	1	2	23.49	0	0
	1850.7	26047	1.4	QPSK	1	5	23.43	0	0
	1850.7	26047	1.4	QPSK	3	0	23.42	0	0
	1850.7	26047	1.4	QPSK	3	2	23.40	0	0
	1850.7	26047	1.4	QPSK	3	3	23.37	0	0
	1850.7	26047	1.4	QPSK	6	0	22.45	0-1	1
	1850.7	26047	1.4	16-QAM	1	0	22.76	0-1	1
	1850.7	26047	1.4	16-QAM	1	2	22.87	0-1	1
	1850.7	26047	1.4	16-QAM	1	5	22.73	0-1	1
	1850.7	26047	1.4	16-QAM	3	0	22.38	0-1	1
	1850.7	26047	1.4	16-QAM	3	2	22.40	0-1	1
	1850.7	26047	1.4	16-QAM	3	3	22.35	0-1	1
	1850.7	26047	1.4	16-QAM	6	0	21.52	0-2	2
Mid	1882.5	26365	1.4	QPSK	1	0	23.73	0	0
	1882.5	26365	1.4	QPSK	1	2	23.88	0	0
	1882.5	26365	1.4	QPSK	1	5	23.73	0	0
	1882.5	26365	1.4	QPSK	3	0	23.72	0	0
	1882.5	26365	1.4	QPSK	3	2	23.76	0	0
	1882.5	26365	1.4	QPSK	3	3	23.72	0	0
	1882.5	26365	1.4	QPSK	6	0	22.77	0-1	1
	1882.5	26365	1.4	16-QAM	1	0	22.78	0-1	1
	1882.5	26365	1.4	16-QAM	1	2	22.96	0-1	1
	1882.5	26365	1.4	16-QAM	1	5	22.88	0-1	1
	1882.5	26365	1.4	16-QAM	3	0	22.75	0-1	1
	1882.5	26365	1.4	16-QAM	3	2	22.62	0-1	1
	1882.5	26365	1.4	16-QAM	3	3	22.59	0-1	1
	1882.5	26365	1.4	16-QAM	6	0	21.56	0-2	2
High	1914.3	26683	1.4	QPSK	1	0	23.42	0	0
	1914.3	26683	1.4	QPSK	1	2	23.46	0	0
	1914.3	26683	1.4	QPSK	1	5	23.30	0	0
	1914.3	26683	1.4	QPSK	3	0	23.28	0	0
	1914.3	26683	1.4	QPSK	3	2	23.31	0	0
	1914.3	26683	1.4	QPSK	3	3	23.23	0	0
	1914.3	26683	1.4	QPSK	6	0	22.31	0-1	1
	1914.3	26683	1.4	16-QAM	1	0	22.88	0-1	1
	1914.3	26683	1.4	16-QAM	1	2	22.95	0-1	1
	1914.3	26683	1.4	16-QAM	1	5	22.91	0-1	1
	1914.3	26683	1.4	16-QAM	3	0	23.00	0-1	1
	1914.3	26683	1.4	16-QAM	3	2	22.97	0-1	1
	1914.3	26683	1.4	16-QAM	3	3	23.00	0-1	1
	1914.3	26683	1.4	16-QAM	6	0	21.43	0-2	2

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9.4.5 Maximum LTE Band 41 Conducted Powers

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

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	2506.0	39750	20	QPSK	1	0	24.19	0	0
	2506.0	39750	20	QPSK	1	50	24.18	0	0
	2506.0	39750	20	QPSK	1	99	23.70	0	0
	2506.0	39750	20	QPSK	50	0	23.49	0-1	1
	2506.0	39750	20	QPSK	50	25	23.49	0-1	1
	2506.0	39750	20	QPSK	50	50	23.32	0-1	1
	2506.0	39750	20	QPSK	100	0	23.40	0-1	1
	2506.0	39750	20	16QAM	1	0	23.00	0-1	1
	2506.0	39750	20	16QAM	1	50	23.05	0-1	1
	2506.0	39750	20	16QAM	1	99	22.56	0-1	1
	2506.0	39750	20	16QAM	50	0	22.42	0-2	2
	2506.0	39750	20	16QAM	50	25	22.49	0-2	2
	2506.0	39750	20	16QAM	50	50	22.39	0-2	2
	2506.0	39750	20	16QAM	100	0	22.35	0-2	2
Low Mid	2549.5	40185	20	QPSK	1	0	23.97	0	0
	2549.5	40185	20	QPSK	1	50	23.94	0	0
	2549.5	40185	20	QPSK	1	99	23.64	0	0
	2549.5	40185	20	QPSK	50	0	23.35	0-1	1
	2549.5	40185	20	QPSK	50	25	23.32	0-1	1
	2549.5	40185	20	QPSK	50	50	23.15	0-1	1
	2549.5	40185	20	QPSK	100	0	23.25	0-1	1
	2549.5	40185	20	16-QAM	1	0	22.85	0-1	1
	2549.5	40185	20	16-QAM	1	50	22.78	0-1	1
	2549.5	40185	20	16-QAM	1	99	22.54	0-1	1
	2549.5	40185	20	16-QAM	50	0	22.39	0-2	2
	2549.5	40185	20	16-QAM	50	25	22.37	0-2	2
	2549.5	40185	20	16-QAM	50	50	22.19	0-2	2
	2549.5	40185	20	16-QAM	100	0	22.25	0-2	2
Mid	2593.0	40620	20	QPSK	1	0	**24.40**	0	0
	2593.0	40620	20	QPSK	1	50	24.23	0	0
	2593.0	40620	20	QPSK	1	99	23.85	0	0
	2593.0	40620	20	QPSK	50	0	**23.50**	0-1	1
	2593.0	40620	20	QPSK	50	25	23.45	0-1	1
	2593.0	40620	20	QPSK	50	50	23.35	0-1	1
	2593.0	40620	20	QPSK	100	0	23.47	0-1	1
	2593.0	40620	20	16-QAM	1	0	23.46	0-1	1
	2593.0	40620	20	16-QAM	1	50	23.47	0-1	1
	2593.0	40620	20	16-QAM	1	99	23.08	0-1	1
	2593.0	40620	20	16-QAM	50	0	22.50	0-2	2
	2593.0	40620	20	16-QAM	50	25	22.49	0-2	2
	2593.0	40620	20	16-QAM	50	50	22.27	0-2	2
	2593.0	40620	20	16-QAM	100	0	22.49	0-2	2
Mid High	2636.5	41055	20	QPSK	1	0	24.32	0	0
	2636.5	41055	20	QPSK	1	50	24.38	0	0
	2636.5	41055	20	QPSK	1	99	23.89	0	0
	2636.5	41055	20	QPSK	50	0	23.48	0-1	1
	2636.5	41055	20	QPSK	50	25	23.49	0-1	1
	2636.5	41055	20	QPSK	50	50	23.46	0-1	1
	2636.5	41055	20	QPSK	100	0	23.46	0-1	1
	2636.5	41055	20	16-QAM	1	0	23.23	0-1	1
	2636.5	41055	20	16-QAM	1	50	23.22	0-1	1
	2636.5	41055	20	16-QAM	1	99	22.70	0-1	1
	2636.5	41055	20	16-QAM	50	0	22.45	0-2	2
	2636.5	41055	20	16-QAM	50	25	22.49	0-2	2
	2636.5	41055	20	16-QAM	50	50	22.47	0-2	2
	2636.5	41055	20	16-QAM	100	0	22.50	0-2	2
High	2680.0	41490	20	QPSK	1	0	24.01	0	0
	2680.0	41490	20	QPSK	1	50	23.97	0	0
	2680.0	41490	20	QPSK	1	99	23.50	0	0
	2680.0	41490	20	QPSK	50	0	23.29	0-1	1
	2680.0	41490	20	QPSK	50	25	23.29	0-1	1
	2680.0	41490	20	QPSK	50	50	23.03	0-1	1
	2680.0	41490	20	QPSK	100	0	23.15	0-1	1
	2680.0	41490	20	16-QAM	1	0	23.28	0-1	1
	2680.0	41490	20	16-QAM	1	50	23.16	0-1	1
	2680.0	41490	20	16-QAM	1	99	22.76	0-1	1
	2680.0	41490	20	16-QAM	50	0	22.28	0-2	2
	2680.0	41490	20	16-QAM	50	25	22.29	0-2	2
	2680.0	41490	20	16-QAM	50	50	22.02	0-2	2
	2680.0	41490	20	16-QAM	100	0	22.15	0-2	2

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

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	2506.0	39750	15	QPSK	1	0	24.34	0	0
	2506.0	39750	15	QPSK	1	36	24.38	0	0
	2506.0	39750	15	QPSK	1	74	24.09	0	0
	2506.0	39750	15	QPSK	36	0	23.46	0-1	1
	2506.0	39750	15	QPSK	36	18	23.42	0-1	1
	2506.0	39750	15	QPSK	36	37	23.50	0-1	1
	2506.0	39750	15	QPSK	75	0	23.46	0-1	1
	2506.0	39750	15	16QAM	1	0	23.48	0-1	1
	2506.0	39750	15	16QAM	1	36	23.49	0-1	1
	2506.0	39750	15	16QAM	1	74	23.03	0-1	1
	2506.0	39750	15	16QAM	36	0	22.50	0-2	2
	2506.0	39750	15	16QAM	36	18	22.47	0-2	2
	2506.0	39750	15	16QAM	36	37	22.45	0-2	2
	2506.0	39750	15	16QAM	75	0	22.41	0-2	2
Low Mid	2549.5	40185	15	QPSK	1	0	24.39	0	0
	2549.5	40185	15	QPSK	1	36	24.24	0	0
	2549.5	40185	15	QPSK	1	74	23.98	0	0
	2549.5	40185	15	QPSK	36	0	23.50	0-1	1
	2549.5	40185	15	QPSK	36	18	23.46	0-1	1
	2549.5	40185	15	QPSK	36	37	23.43	0-1	1
	2549.5	40185	15	QPSK	75	0	23.40	0-1	1
	2549.5	40185	15	16-QAM	1	0	23.50	0-1	1
	2549.5	40185	15	16-QAM	1	36	23.48	0-1	1
	2549.5	40185	15	16-QAM	1	74	23.28	0-1	1
	2549.5	40185	15	16-QAM	36	0	22.50	0-2	2
	2549.5	40185	15	16-QAM	36	18	22.45	0-2	2
	2549.5	40185	15	16-QAM	36	37	22.41	0-2	2
	2549.5	40185	15	16-QAM	75	0	22.39	0-2	2
Mid	2593.0	40620	15	QPSK	1	0	24.32	0	0
	2593.0	40620	15	QPSK	1	36	24.36	0	0
	2593.0	40620	15	QPSK	1	74	24.10	0	0
	2593.0	40620	15	QPSK	36	0	23.48	0-1	1
	2593.0	40620	15	QPSK	36	18	23.50	0-1	1
	2593.0	40620	15	QPSK	36	37	23.43	0-1	1
	2593.0	40620	15	QPSK	75	0	23.46	0-1	1
	2593.0	40620	15	16-QAM	1	0	23.42	0-1	1
	2593.0	40620	15	16-QAM	1	36	23.48	0-1	1
	2593.0	40620	15	16-QAM	1	74	23.38	0-1	1
	2593.0	40620	15	16-QAM	36	0	22.42	0-2	2
	2593.0	40620	15	16-QAM	36	18	22.50	0-2	2
	2593.0	40620	15	16-QAM	36	37	22.43	0-2	2
	2593.0	40620	15	16-QAM	75	0	22.49	0-2	2
Mid High	2636.5	41055	15	QPSK	1	0	24.38	0	0
	2636.5	41055	15	QPSK	1	36	24.35	0	0
	2636.5	41055	15	QPSK	1	74	23.92	0	0
	2636.5	41055	15	QPSK	36	0	23.50	0-1	1
	2636.5	41055	15	QPSK	36	18	23.46	0-1	1
	2636.5	41055	15	QPSK	36	37	23.49	0-1	1
	2636.5	41055	15	QPSK	75	0	23.37	0-1	1
	2636.5	41055	15	16-QAM	1	0	23.50	0-1	1
	2636.5	41055	15	16-QAM	1	36	23.45	0-1	1
	2636.5	41055	15	16-QAM	1	74	23.22	0-1	1
	2636.5	41055	15	16-QAM	36	0	22.45	0-2	2
	2636.5	41055	15	16-QAM	36	18	22.49	0-2	2
	2636.5	41055	15	16-QAM	36	37	22.50	0-2	2
	2636.5	41055	15	16-QAM	75	0	22.44	0-2	2
High	2680.0	41490	15	QPSK	1	0	24.07	0	0
	2680.0	41490	15	QPSK	1	36	23.97	0	0
	2680.0	41490	15	QPSK	1	74	23.61	0	0
	2680.0	41490	15	QPSK	36	0	23.33	0-1	1
	2680.0	41490	15	QPSK	36	18	23.29	0-1	1
	2680.0	41490	15	QPSK	36	37	23.25	0-1	1
	2680.0	41490	15	QPSK	75	0	23.24	0-1	1
	2680.0	41490	15	16-QAM	1	0	23.20	0-1	1
	2680.0	41490	15	16-QAM	1	36	23.12	0-1	1
	2680.0	41490	15	16-QAM	1	74	22.80	0-1	1
	2680.0	41490	15	16-QAM	36	0	22.40	0-2	2
	2680.0	41490	15	16-QAM	36	18	22.36	0-2	2
	2680.0	41490	15	16-QAM	36	37	22.24	0-2	2
	2680.0	41490	15	16-QAM	75	0	22.13	0-2	2

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

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	2506.0	39750	10	QPSK	1	0	24.36	0	0
	2506.0	39750	10	QPSK	1	25	24.35	0	0
	2506.0	39750	10	QPSK	1	49	24.27	0	0
	2506.0	39750	10	QPSK	25	0	23.42	0-1	1
	2506.0	39750	10	QPSK	25	12	23.48	0-1	1
	2506.0	39750	10	QPSK	25	25	23.48	0-1	1
	2506.0	39750	10	QPSK	50	0	23.42	0-1	1
	2506.0	39750	10	16QAM	1	0	23.45	0-1	1
	2506.0	39750	10	16QAM	1	25	23.37	0-1	1
	2506.0	39750	10	16QAM	1	49	23.24	0-1	1
	2506.0	39750	10	16QAM	25	0	22.43	0-2	2
	2506.0	39750	10	16QAM	25	12	22.47	0-2	2
	2506.0	39750	10	16QAM	25	25	22.47	0-2	2
	2506.0	39750	10	16QAM	50	0	22.50	0-2	2
Low Mid	2549.5	40185	10	QPSK	1	0	24.24	0	0
	2549.5	40185	10	QPSK	1	25	24.18	0	0
	2549.5	40185	10	QPSK	1	49	24.06	0	0
	2549.5	40185	10	QPSK	25	0	23.50	0-1	1
	2549.5	40185	10	QPSK	25	12	23.46	0-1	1
	2549.5	40185	10	QPSK	25	25	23.38	0-1	1
	2549.5	40185	10	QPSK	50	0	23.45	0-1	1
	2549.5	40185	10	16-QAM	1	0	23.50	0-1	1
	2549.5	40185	10	16-QAM	1	25	23.46	0-1	1
	2549.5	40185	10	16-QAM	1	49	23.29	0-1	1
	2549.5	40185	10	16-QAM	25	0	22.48	0-2	2
	2549.5	40185	10	16-QAM	25	12	22.37	0-2	2
	2549.5	40185	10	16-QAM	25	25	22.30	0-2	2
	2549.5	40185	10	16-QAM	50	0	22.44	0-2	2
Mid	2593.0	40620	10	QPSK	1	0	24.34	0	0
	2593.0	40620	10	QPSK	1	25	24.29	0	0
	2593.0	40620	10	QPSK	1	49	24.14	0	0
	2593.0	40620	10	QPSK	25	0	23.50	0-1	1
	2593.0	40620	10	QPSK	25	12	23.44	0-1	1
	2593.0	40620	10	QPSK	25	25	23.39	0-1	1
	2593.0	40620	10	QPSK	50	0	23.50	0-1	1
	2593.0	40620	10	16-QAM	1	0	23.41	0-1	1
	2593.0	40620	10	16-QAM	1	25	23.28	0-1	1
	2593.0	40620	10	16-QAM	1	49	23.14	0-1	1
	2593.0	40620	10	16-QAM	25	0	22.50	0-2	2
	2593.0	40620	10	16-QAM	25	12	22.46	0-2	2
	2593.0	40620	10	16-QAM	25	25	22.40	0-2	2
	2593.0	40620	10	16-QAM	50	0	22.42	0-2	2
Mid High	2636.5	41055	10	QPSK	1	0	24.17	0	0
	2636.5	41055	10	QPSK	1	25	24.19	0	0
	2636.5	41055	10	QPSK	1	49	24.02	0	0
	2636.5	41055	10	QPSK	25	0	23.50	0-1	1
	2636.5	41055	10	QPSK	25	12	23.50	0-1	1
	2636.5	41055	10	QPSK	25	25	23.29	0-1	1
	2636.5	41055	10	QPSK	50	0	23.47	0-1	1
	2636.5	41055	10	16-QAM	1	0	23.42	0-1	1
	2636.5	41055	10	16-QAM	1	25	23.43	0-1	1
	2636.5	41055	10	16-QAM	1	49	23.28	0-1	1
	2636.5	41055	10	16-QAM	25	0	22.47	0-2	2
	2636.5	41055	10	16-QAM	25	12	22.45	0-2	2
	2636.5	41055	10	16-QAM	25	25	22.29	0-2	2
	2636.5	41055	10	16-QAM	50	0	22.25	0-2	2
High	2680.0	41490	10	QPSK	1	0	23.99	0	0
	2680.0	41490	10	QPSK	1	25	23.92	0	0
	2680.0	41490	10	QPSK	1	49	23.78	0	0
	2680.0	41490	10	QPSK	25	0	23.20	0-1	1
	2680.0	41490	10	QPSK	25	12	23.24	0-1	1
	2680.0	41490	10	QPSK	25	25	23.12	0-1	1
	2680.0	41490	10	QPSK	50	0	23.19	0-1	1
	2680.0	41490	10	16-QAM	1	0	23.09	0-1	1
	2680.0	41490	10	16-QAM	1	25	22.91	0-1	1
	2680.0	41490	10	16-QAM	1	49	22.80	0-1	1
	2680.0	41490	10	16-QAM	25	0	22.18	0-2	2
	2680.0	41490	10	16-QAM	25	12	22.14	0-2	2
	2680.0	41490	10	16-QAM	25	25	22.13	0-2	2
	2680.0	41490	10	16-QAM	50	0	22.23	0-2	2

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

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	2506.0	39750	5	QPSK	1	0	24.37	0	0
	2506.0	39750	5	QPSK	1	12	24.33	0	0
	2506.0	39750	5	QPSK	1	24	24.36	0	0
	2506.0	39750	5	QPSK	12	0	23.48	0-1	1
	2506.0	39750	5	QPSK	12	6	23.45	0-1	1
	2506.0	39750	5	QPSK	12	13	23.42	0-1	1
	2506.0	39750	5	QPSK	25	0	23.49	0-1	1
	2506.0	39750	5	16-QAM	1	0	23.48	0-1	1
	2506.0	39750	5	16-QAM	1	12	23.50	0-1	1
	2506.0	39750	5	16-QAM	1	24	23.44	0-1	1
	2506.0	39750	5	16-QAM	12	0	22.45	0-2	2
	2506.0	39750	5	16-QAM	12	6	22.48	0-2	2
	2506.0	39750	5	16-QAM	12	13	22.42	0-2	2
	2506.0	39750	5	16-QAM	25	0	22.44	0-2	2
Low Mid	2549.5	40185	5	QPSK	1	0	24.30	0	0
	2549.5	40185	5	QPSK	1	12	24.25	0	0
	2549.5	40185	5	QPSK	1	24	24.19	0	0
	2549.5	40185	5	QPSK	12	0	23.48	0-1	1
	2549.5	40185	5	QPSK	12	6	23.47	0-1	1
	2549.5	40185	5	QPSK	12	13	23.40	0-1	1
	2549.5	40185	5	QPSK	25	0	23.43	0-1	1
	2549.5	40185	5	16-QAM	1	0	23.48	0-1	1
	2549.5	40185	5	16-QAM	1	12	23.42	0-1	1
	2549.5	40185	5	16-QAM	1	24	23.32	0-1	1
	2549.5	40185	5	16-QAM	12	0	22.49	0-2	2
	2549.5	40185	5	16-QAM	12	6	22.46	0-2	2
	2549.5	40185	5	16-QAM	12	13	22.45	0-2	2
	2549.5	40185	5	16-QAM	25	0	22.39	0-2	2
Mid	2593.0	40620	5	QPSK	1	0	24.39	0	0
	2593.0	40620	5	QPSK	1	12	24.34	0	0
	2593.0	40620	5	QPSK	1	24	24.29	0	0
	2593.0	40620	5	QPSK	12	0	23.49	0-1	1
	2593.0	40620	5	QPSK	12	6	23.50	0-1	1
	2593.0	40620	5	QPSK	12	13	23.48	0-1	1
	2593.0	40620	5	QPSK	25	0	23.47	0-1	1
	2593.0	40620	5	16-QAM	1	0	23.50	0-1	1
	2593.0	40620	5	16-QAM	1	12	23.46	0-1	1
	2593.0	40620	5	16-QAM	1	24	23.42	0-1	1
	2593.0	40620	5	16-QAM	12	0	22.44	0-2	2
	2593.0	40620	5	16-QAM	12	6	22.48	0-2	2
	2593.0	40620	5	16-QAM	12	13	22.41	0-2	2
	2593.0	40620	5	16-QAM	25	0	22.40	0-2	2
Mid High	2636.5	41055	5	QPSK	1	0	24.27	0	0
	2636.5	41055	5	QPSK	1	12	24.26	0	0
	2636.5	41055	5	QPSK	1	24	24.13	0	0
	2636.5	41055	5	QPSK	12	0	23.44	0-1	1
	2636.5	41055	5	QPSK	12	6	23.45	0-1	1
	2636.5	41055	5	QPSK	12	13	23.33	0-1	1
	2636.5	41055	5	QPSK	25	0	23.40	0-1	1
	2636.5	41055	5	16-QAM	1	0	23.44	0-1	1
	2636.5	41055	5	16-QAM	1	12	23.43	0-1	1
	2636.5	41055	5	16-QAM	1	24	23.28	0-1	1
	2636.5	41055	5	16-QAM	12	0	22.50	0-2	2
	2636.5	41055	5	16-QAM	12	6	22.49	0-2	2
	2636.5	41055	5	16-QAM	12	13	22.42	0-2	2
	2636.5	41055	5	16-QAM	25	0	22.38	0-2	2
High	2680.0	41490	5	QPSK	1	0	24.02	0	0
	2680.0	41490	5	QPSK	1	12	23.96	0	0
	2680.0	41490	5	QPSK	1	24	23.97	0	0
	2680.0	41490	5	QPSK	12	0	23.20	0-1	1
	2680.0	41490	5	QPSK	12	6	23.22	0-1	1
	2680.0	41490	5	QPSK	12	13	23.11	0-1	1
	2680.0	41490	5	QPSK	25	0	23.10	0-1	1
	2680.0	41490	5	16-QAM	1	0	23.28	0-1	1
	2680.0	41490	5	16-QAM	1	12	23.28	0-1	1
	2680.0	41490	5	16-QAM	1	24	23.24	0-1	1
	2680.0	41490	5	16-QAM	12	0	22.10	0-2	2
	2680.0	41490	5	16-QAM	12	6	22.15	0-2	2
	2680.0	41490	5	16-QAM	12	13	22.13	0-2	2
	2680.0	41490	5	16-QAM	25	0	22.03	0-2	2

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9.5 Reduced Conducted Powers

9.5.1 LTE Band 4 (AWS) Conducted Powers

Table 9-31
LTE Band 4 (AWS) Reduced Conducted Powers - 20 MHz Bandwidth – Hotspot, Extremity

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Mid	1732.5	20175	20	QPSK	1	0	**21.48**	0	0
	1732.5	20175	20	QPSK	1	50	21.21	0	0
	1732.5	20175	20	QPSK	1	99	21.40	0	0
	1732.5	20175	20	QPSK	50	0	**20.32**	0-1	1
	1732.5	20175	20	QPSK	50	25	20.23	0-1	1
	1732.5	20175	20	QPSK	50	50	20.27	0-1	1
	1732.5	20175	20	QPSK	100	0	20.27	0-1	1
	1732.5	20175	20	16QAM	1	0	20.50	0-1	1
	1732.5	20175	20	16QAM	1	50	20.41	0-1	1
	1732.5	20175	20	16QAM	1	99	20.49	0-1	1
	1732.5	20175	20	16QAM	50	0	19.34	0-2	2
	1732.5	20175	20	16QAM	50	25	19.24	0-2	2
	1732.5	20175	20	16QAM	50	50	19.23	0-2	2
	1732.5	20175	20	16QAM	100	0	19.25	0-2	2

Note: LTE Band 4 (AWS) at 20 MHz bandwidth does not support three non-overlapping channels. Per KDB Publication 941225 D05v02, when a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

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Table 9-32
LTE Band 4 (AWS) Reduced Conducted Powers - 15 MHz Bandwidth – Hotspot, Extremity

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1717.5	20025	15	QPSK	1	0	21.01	0	0
	1717.5	20025	15	QPSK	1	36	20.84	0	0
	1717.5	20025	15	QPSK	1	74	20.80	0	0
	1717.5	20025	15	QPSK	36	0	19.94	0-1	1
	1717.5	20025	15	QPSK	36	18	19.81	0-1	1
	1717.5	20025	15	QPSK	36	37	19.81	0-1	1
	1717.5	20025	15	QPSK	75	0	19.83	0-1	1
	1717.5	20025	15	16QAM	1	0	20.31	0-1	1
	1717.5	20025	15	16QAM	1	36	20.13	0-1	1
	1717.5	20025	15	16QAM	1	74	20.20	0-1	1
	1717.5	20025	15	16QAM	36	0	18.86	0-2	2
	1717.5	20025	15	16QAM	36	18	18.78	0-2	2
	1717.5	20025	15	16QAM	36	37	18.82	0-2	2
	1717.5	20025	15	16QAM	75	0	18.79	0-2	2
Mid	1732.5	20175	15	QPSK	1	0	20.95	0	0
	1732.5	20175	15	QPSK	1	36	20.72	0	0
	1732.5	20175	15	QPSK	1	74	20.78	0	0
	1732.5	20175	15	QPSK	36	0	19.77	0-1	1
	1732.5	20175	15	QPSK	36	18	19.68	0-1	1
	1732.5	20175	15	QPSK	36	37	19.67	0-1	1
	1732.5	20175	15	QPSK	75	0	19.68	0-1	1
	1732.5	20175	15	16QAM	1	0	20.01	0-1	1
	1732.5	20175	15	16QAM	1	36	19.86	0-1	1
	1732.5	20175	15	16QAM	1	74	19.93	0-1	1
	1732.5	20175	15	16QAM	36	0	18.71	0-2	2
	1732.5	20175	15	16QAM	36	18	18.60	0-2	2
	1732.5	20175	15	16QAM	36	37	18.63	0-2	2
	1732.5	20175	15	16QAM	75	0	18.65	0-2	2
High	1747.5	20325	15	QPSK	1	0	20.92	0	0
	1747.5	20325	15	QPSK	1	36	20.74	0	0
	1747.5	20325	15	QPSK	1	74	21.06	0	0
	1747.5	20325	15	QPSK	36	0	19.70	0-1	1
	1747.5	20325	15	QPSK	36	18	19.77	0-1	1
	1747.5	20325	15	QPSK	36	37	19.79	0-1	1
	1747.5	20325	15	QPSK	75	0	19.75	0-1	1
	1747.5	20325	15	16QAM	1	0	20.00	0-1	1
	1747.5	20325	15	16QAM	1	36	19.67	0-1	1
	1747.5	20325	15	16QAM	1	74	20.09	0-1	1
	1747.5	20325	15	16QAM	36	0	18.65	0-2	2
	1747.5	20325	15	16QAM	36	18	18.73	0-2	2
	1747.5	20325	15	16QAM	36	37	18.80	0-2	2
	1747.5	20325	15	16QAM	75	0	18.75	0-2	2

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Table 9-33
LTE Band 4 (AWS) Reduced Conducted Powers - 10 MHz Bandwidth – Hotspot, Extremity

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1715	20000	10	QPSK	1	0	21.08	0	0
	1715	20000	10	QPSK	1	25	20.86	0	0
	1715	20000	10	QPSK	1	49	20.77	0	0
	1715	20000	10	QPSK	25	0	19.75	0-1	1
	1715	20000	10	QPSK	25	12	19.79	0-1	1
	1715	20000	10	QPSK	25	25	19.81	0-1	1
	1715	20000	10	QPSK	50	0	19.81	0-1	1
	1715	20000	10	16QAM	1	0	20.11	0-1	1
	1715	20000	10	16QAM	1	25	20.15	0-1	1
	1715	20000	10	16QAM	1	49	20.37	0-1	1
	1715	20000	10	16QAM	25	0	18.73	0-2	2
	1715	20000	10	16QAM	25	12	18.80	0-2	2
	1715	20000	10	16QAM	25	25	18.80	0-2	2
	1715	20000	10	16QAM	50	0	18.79	0-2	2
Mid	1732.5	20175	10	QPSK	1	0	20.85	0	0
	1732.5	20175	10	QPSK	1	25	20.73	0	0
	1732.5	20175	10	QPSK	1	49	20.85	0	0
	1732.5	20175	10	QPSK	25	0	19.67	0-1	1
	1732.5	20175	10	QPSK	25	12	19.59	0-1	1
	1732.5	20175	10	QPSK	25	25	19.70	0-1	1
	1732.5	20175	10	QPSK	50	0	19.69	0-1	1
	1732.5	20175	10	16QAM	1	0	20.16	0-1	1
	1732.5	20175	10	16QAM	1	25	20.12	0-1	1
	1732.5	20175	10	16QAM	1	49	20.08	0-1	1
	1732.5	20175	10	16QAM	25	0	18.72	0-2	2
	1732.5	20175	10	16QAM	25	12	18.67	0-2	2
	1732.5	20175	10	16QAM	25	25	18.76	0-2	2
	1732.5	20175	10	16QAM	50	0	18.71	0-2	2
High	1750	20350	10	QPSK	1	0	20.84	0	0
	1750	20350	10	QPSK	1	25	20.89	0	0
	1750	20350	10	QPSK	1	49	21.10	0	0
	1750	20350	10	QPSK	25	0	19.85	0-1	1
	1750	20350	10	QPSK	25	12	19.77	0-1	1
	1750	20350	10	QPSK	25	25	19.86	0-1	1
	1750	20350	10	QPSK	50	0	19.83	0-1	1
	1750	20350	10	16QAM	1	0	19.72	0-1	1
	1750	20350	10	16QAM	1	25	19.84	0-1	1
	1750	20350	10	16QAM	1	49	20.20	0-1	1
	1750	20350	10	16QAM	25	0	18.73	0-2	2
	1750	20350	10	16QAM	25	12	18.72	0-2	2
	1750	20350	10	16QAM	25	25	18.76	0-2	2
	1750	20350	10	16QAM	50	0	18.80	0-2	2

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Table 9-34
LTE Band 4 (AWS) Reduced Conducted Powers - 5 MHz Bandwidth – Hotspot, Extremity

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1712.5	19975	5	QPSK	1	0	20.91	0	0
	1712.5	19975	5	QPSK	1	12	20.87	0	0
	1712.5	19975	5	QPSK	1	24	20.68	0	0
	1712.5	19975	5	QPSK	12	0	19.79	0-1	1
	1712.5	19975	5	QPSK	12	6	19.78	0-1	1
	1712.5	19975	5	QPSK	12	13	19.69	0-1	1
	1712.5	19975	5	QPSK	25	0	19.62	0-1	1
	1712.5	19975	5	16-QAM	1	0	20.40	0-1	1
	1712.5	19975	5	16-QAM	1	12	20.26	0-1	1
	1712.5	19975	5	16-QAM	1	24	20.25	0-1	1
	1712.5	19975	5	16-QAM	12	0	18.77	0-2	2
	1712.5	19975	5	16-QAM	12	6	18.78	0-2	2
	1712.5	19975	5	16-QAM	12	13	18.70	0-2	2
	1712.5	19975	5	16-QAM	25	0	18.72	0-2	2
Mid	1732.5	20175	5	QPSK	1	0	20.70	0	0
	1732.5	20175	5	QPSK	1	12	20.79	0	0
	1732.5	20175	5	QPSK	1	24	20.74	0	0
	1732.5	20175	5	QPSK	12	0	19.63	0-1	1
	1732.5	20175	5	QPSK	12	6	19.71	0-1	1
	1732.5	20175	5	QPSK	12	13	19.72	0-1	1
	1732.5	20175	5	QPSK	25	0	19.64	0-1	1
	1732.5	20175	5	16-QAM	1	0	19.97	0-1	1
	1732.5	20175	5	16-QAM	1	12	19.97	0-1	1
	1732.5	20175	5	16-QAM	1	24	19.98	0-1	1
	1732.5	20175	5	16-QAM	12	0	18.59	0-2	2
	1732.5	20175	5	16-QAM	12	6	18.69	0-2	2
	1732.5	20175	5	16-QAM	12	13	18.68	0-2	2
	1732.5	20175	5	16-QAM	25	0	18.65	0-2	2
High	1752.5	20375	5	QPSK	1	0	20.91	0	0
	1752.5	20375	5	QPSK	1	12	21.10	0	0
	1752.5	20375	5	QPSK	1	24	21.07	0	0
	1752.5	20375	5	QPSK	12	0	19.80	0-1	1
	1752.5	20375	5	QPSK	12	6	19.88	0-1	1
	1752.5	20375	5	QPSK	12	13	19.86	0-1	1
	1752.5	20375	5	QPSK	25	0	19.83	0-1	1
	1752.5	20375	5	16-QAM	1	0	20.49	0-1	1
	1752.5	20375	5	16-QAM	1	12	20.47	0-1	1
	1752.5	20375	5	16-QAM	1	24	20.34	0-1	1
	1752.5	20375	5	16-QAM	12	0	18.80	0-2	2
	1752.5	20375	5	16-QAM	12	6	18.92	0-2	2
	1752.5	20375	5	16-QAM	12	13	18.88	0-2	2
	1752.5	20375	5	16-QAM	25	0	18.80	0-2	2

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Table 9-35
LTE Band 4 (AWS) Reduced Conducted Powers 3 MHz Bandwidth – Hotspot, Extremity

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1711.5	19965	3	QPSK	1	0	20.92	0	0
	1711.5	19965	3	QPSK	1	7	21.06	0	0
	1711.5	19965	3	QPSK	1	14	20.73	0	0
	1711.5	19965	3	QPSK	8	0	19.70	0-1	1
	1711.5	19965	3	QPSK	8	4	19.67	0-1	1
	1711.5	19965	3	QPSK	8	7	19.68	0-1	1
	1711.5	19965	3	QPSK	15	0	19.67	0-1	1
	1711.5	19965	3	16-QAM	1	0	20.05	0-1	1
	1711.5	19965	3	16-QAM	1	7	20.07	0-1	1
	1711.5	19965	3	16-QAM	1	14	19.97	0-1	1
	1711.5	19965	3	16-QAM	8	0	18.90	0-2	2
	1711.5	19965	3	16-QAM	8	4	18.88	0-2	2
	1711.5	19965	3	16-QAM	8	7	18.83	0-2	2
	1711.5	19965	3	16-QAM	15	0	18.55	0-2	2
Mid	1732.5	20175	3	QPSK	1	0	20.63	0	0
	1732.5	20175	3	QPSK	1	7	20.76	0	0
	1732.5	20175	3	QPSK	1	14	20.69	0	0
	1732.5	20175	3	QPSK	8	0	19.61	0-1	1
	1732.5	20175	3	QPSK	8	4	19.80	0-1	1
	1732.5	20175	3	QPSK	8	7	19.70	0-1	1
	1732.5	20175	3	QPSK	15	0	19.65	0-1	1
	1732.5	20175	3	16-QAM	1	0	19.74	0-1	1
	1732.5	20175	3	16-QAM	1	7	19.91	0-1	1
	1732.5	20175	3	16-QAM	1	14	19.93	0-1	1
	1732.5	20175	3	16-QAM	8	0	18.69	0-2	2
	1732.5	20175	3	16-QAM	8	4	18.82	0-2	2
	1732.5	20175	3	16-QAM	8	7	18.74	0-2	2
	1732.5	20175	3	16-QAM	15	0	18.62	0-2	2
High	1753.5	20385	3	QPSK	1	0	20.95	0	0
	1753.5	20385	3	QPSK	1	7	21.17	0	0
	1753.5	20385	3	QPSK	1	14	20.99	0	0
	1753.5	20385	3	QPSK	8	0	19.78	0-1	1
	1753.5	20385	3	QPSK	8	4	19.89	0-1	1
	1753.5	20385	3	QPSK	8	7	19.89	0-1	1
	1753.5	20385	3	QPSK	15	0	19.85	0-1	1
	1753.5	20385	3	16-QAM	1	0	20.11	0-1	1
	1753.5	20385	3	16-QAM	1	7	20.20	0-1	1
	1753.5	20385	3	16-QAM	1	14	20.13	0-1	1
	1753.5	20385	3	16-QAM	8	0	18.77	0-2	2
	1753.5	20385	3	16-QAM	8	4	18.89	0-2	2
	1753.5	20385	3	16-QAM	8	7	18.89	0-2	2
	1753.5	20385	3	16-QAM	15	0	18.85	0-2	2

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Table 9-36
LTE Band 4 (AWS) Reduced Conducted Powers- 1.4 MHz Bandwidth – Hotspot, Extremity

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1710.7	19957	1.4	QPSK	1	0	20.84	0	0
	1710.7	19957	1.4	QPSK	1	2	21.00	0	0
	1710.7	19957	1.4	QPSK	1	5	20.96	0	0
	1710.7	19957	1.4	QPSK	3	0	20.99	0	0
	1710.7	19957	1.4	QPSK	3	2	21.12	0	0
	1710.7	19957	1.4	QPSK	3	3	21.07	0	0
	1710.7	19957	1.4	QPSK	6	0	20.08	0-1	1
	1710.7	19957	1.4	16-QAM	1	0	19.93	0-1	1
	1710.7	19957	1.4	16-QAM	1	2	20.07	0-1	1
	1710.7	19957	1.4	16-QAM	1	5	19.85	0-1	1
	1710.7	19957	1.4	16-QAM	3	0	20.02	0-1	1
	1710.7	19957	1.4	16-QAM	3	2	20.07	0-1	1
	1710.7	19957	1.4	16-QAM	3	3	20.05	0-1	1
	1710.7	19957	1.4	16-QAM	6	0	18.71	0-2	2
Mid	1732.5	20175	1.4	QPSK	1	0	20.62	0	0
	1732.5	20175	1.4	QPSK	1	2	20.75	0	0
	1732.5	20175	1.4	QPSK	1	5	20.68	0	0
	1732.5	20175	1.4	QPSK	3	0	20.62	0	0
	1732.5	20175	1.4	QPSK	3	2	20.60	0	0
	1732.5	20175	1.4	QPSK	3	3	20.62	0	0
	1732.5	20175	1.4	QPSK	6	0	19.58	0-1	1
	1732.5	20175	1.4	16-QAM	1	0	19.55	0-1	1
	1732.5	20175	1.4	16-QAM	1	2	19.73	0-1	1
	1732.5	20175	1.4	16-QAM	1	5	19.84	0-1	1
	1732.5	20175	1.4	16-QAM	3	0	19.95	0-1	1
	1732.5	20175	1.4	16-QAM	3	2	19.97	0-1	1
	1732.5	20175	1.4	16-QAM	3	3	19.89	0-1	1
	1732.5	20175	1.4	16-QAM	6	0	18.69	0-2	2
High	1754.3	20393	1.4	QPSK	1	0	20.93	0	0
	1754.3	20393	1.4	QPSK	1	2	20.95	0	0
	1754.3	20393	1.4	QPSK	1	5	20.92	0	0
	1754.3	20393	1.4	QPSK	3	0	20.94	0	0
	1754.3	20393	1.4	QPSK	3	2	21.01	0	0
	1754.3	20393	1.4	QPSK	3	3	20.95	0	0
	1754.3	20393	1.4	QPSK	6	0	20.06	0-1	1
	1754.3	20393	1.4	16-QAM	1	0	20.02	0-1	1
	1754.3	20393	1.4	16-QAM	1	2	19.98	0-1	1
	1754.3	20393	1.4	16-QAM	1	5	19.96	0-1	1
	1754.3	20393	1.4	16-QAM	3	0	19.89	0-1	1
	1754.3	20393	1.4	16-QAM	3	2	19.90	0-1	1
	1754.3	20393	1.4	16-QAM	3	3	19.87	0-1	1
	1754.3	20393	1.4	16-QAM	6	0	18.82	0-2	2

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9.5.2 LTE Band 25 (PCS) Reduced Conducted Powers

Table 9-37
LTE Band 25 (PCS) Reduced Conducted Powers - 20 MHz Bandwidth – Hotspot, Extremity

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1860	26140	20	QPSK	1	0	21.03	0	0
	1860	26140	20	QPSK	1	50	20.94	0	0
	1860	26140	20	QPSK	1	99	21.05	0	0
	1860	26140	20	QPSK	50	0	19.88	0-1	1
	1860	26140	20	QPSK	50	25	19.94	0-1	1
	1860	26140	20	QPSK	50	50	20.03	0-1	1
	1860	26140	20	QPSK	100	0	19.98	0-1	1
	1860	26140	20	16QAM	1	0	20.27	0-1	1
	1860	26140	20	16QAM	1	50	20.16	0-1	1
	1860	26140	20	16QAM	1	99	20.33	0-1	1
	1860	26140	20	16QAM	50	0	18.85	0-2	2
	1860	26140	20	16QAM	50	25	18.91	0-2	2
	1860	26140	20	16QAM	50	50	19.00	0-2	2
	1860	26140	20	16QAM	100	0	18.96	0-2	2
Mid	1882.5	26365	20	QPSK	1	0	**21.41**	0	0
	1882.5	26365	20	QPSK	1	50	21.07	0	0
	1882.5	26365	20	QPSK	1	99	20.92	0	0
	1882.5	26365	20	QPSK	50	0	**20.08**	0-1	1
	1882.5	26365	20	QPSK	50	25	19.96	0-1	1
	1882.5	26365	20	QPSK	50	50	19.97	0-1	1
	1882.5	26365	20	QPSK	100	0	19.97	0-1	1
	1882.5	26365	20	16QAM	1	0	20.50	0-1	1
	1882.5	26365	20	16QAM	1	50	20.48	0-1	1
	1882.5	26365	20	16QAM	1	99	20.32	0-1	1
	1882.5	26365	20	16QAM	50	0	19.13	0-2	2
	1882.5	26365	20	16QAM	50	25	19.03	0-2	2
	1882.5	26365	20	16QAM	50	50	19.00	0-2	2
	1882.5	26365	20	16QAM	100	0	18.96	0-2	2
High	1905	26590	20	QPSK	1	0	20.89	0	0
	1905	26590	20	QPSK	1	50	20.56	0	0
	1905	26590	20	QPSK	1	99	20.69	0	0
	1905	26590	20	QPSK	50	0	19.82	0-1	1
	1905	26590	20	QPSK	50	25	19.78	0-1	1
	1905	26590	20	QPSK	50	50	19.76	0-1	1
	1905	26590	20	QPSK	100	0	19.84	0-1	1
	1905	26590	20	16QAM	1	0	20.36	0-1	1
	1905	26590	20	16QAM	1	50	20.00	0-1	1
	1905	26590	20	16QAM	1	99	20.06	0-1	1
	1905	26590	20	16QAM	50	0	18.81	0-2	2
	1905	26590	20	16QAM	50	25	18.80	0-2	2
	1905	26590	20	16QAM	50	50	18.75	0-2	2
	1905	26590	20	16QAM	100	0	18.81	0-2	2

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Table 9-38
LTE Band 25 (PCS) Reduced Conducted Powers - 15 MHz Bandwidth– Hotspot, Extremity

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1857.5	26115	15	QPSK	1	0	20.85	0	0
	1857.5	26115	15	QPSK	1	36	20.86	0	0
	1857.5	26115	15	QPSK	1	74	20.90	0	0
	1857.5	26115	15	QPSK	36	0	19.80	0-1	1
	1857.5	26115	15	QPSK	36	18	19.93	0-1	1
	1857.5	26115	15	QPSK	36	37	19.93	0-1	1
	1857.5	26115	15	QPSK	75	0	19.87	0-1	1
	1857.5	26115	15	16QAM	1	0	19.98	0-1	1
	1857.5	26115	15	16QAM	1	36	20.01	0-1	1
	1857.5	26115	15	16QAM	1	74	20.09	0-1	1
	1857.5	26115	15	16QAM	36	0	18.75	0-2	2
	1857.5	26115	15	16QAM	36	18	18.89	0-2	2
	1857.5	26115	15	16QAM	36	37	18.91	0-2	2
	1857.5	26115	15	16QAM	75	0	18.90	0-2	2
Mid	1882.5	26365	15	QPSK	1	0	21.20	0	0
	1882.5	26365	15	QPSK	1	36	21.17	0	0
	1882.5	26365	15	QPSK	1	74	20.92	0	0
	1882.5	26365	15	QPSK	36	0	20.08	0-1	1
	1882.5	26365	15	QPSK	36	18	20.02	0-1	1
	1882.5	26365	15	QPSK	36	37	19.91	0-1	1
	1882.5	26365	15	QPSK	75	0	19.94	0-1	1
	1882.5	26365	15	16QAM	1	0	20.32	0-1	1
	1882.5	26365	15	16QAM	1	36	20.29	0-1	1
	1882.5	26365	15	16QAM	1	74	20.04	0-1	1
	1882.5	26365	15	16QAM	36	0	19.13	0-2	2
	1882.5	26365	15	16QAM	36	18	19.10	0-2	2
	1882.5	26365	15	16QAM	36	37	19.00	0-2	2
	1882.5	26365	15	16QAM	75	0	18.99	0-2	2
High	1907.5	26615	15	QPSK	1	0	20.73	0	0
	1907.5	26615	15	QPSK	1	36	20.78	0	0
	1907.5	26615	15	QPSK	1	74	20.77	0	0
	1907.5	26615	15	QPSK	36	0	19.60	0-1	1
	1907.5	26615	15	QPSK	36	18	19.75	0-1	1
	1907.5	26615	15	QPSK	36	37	19.73	0-1	1
	1907.5	26615	15	QPSK	75	0	19.65	0-1	1
	1907.5	26615	15	16QAM	1	0	19.89	0-1	1
	1907.5	26615	15	16QAM	1	36	19.95	0-1	1
	1907.5	26615	15	16QAM	1	74	19.94	0-1	1
	1907.5	26615	15	16QAM	36	0	18.63	0-2	2
	1907.5	26615	15	16QAM	36	18	18.76	0-2	2
	1907.5	26615	15	16QAM	36	37	18.75	0-2	2
	1907.5	26615	15	16QAM	75	0	18.71	0-2	2

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Table 9-39
LTE Band 25 (PCS) Reduced Conducted Powers - 10 MHz Bandwidth – Hotspot, Extremity

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1855	26090	10	QPSK	1	0	20.64	0	0
	1855	26090	10	QPSK	1	25	20.65	0	0
	1855	26090	10	QPSK	1	49	20.72	0	0
	1855	26090	10	QPSK	25	0	19.69	0-1	1
	1855	26090	10	QPSK	25	12	19.75	0-1	1
	1855	26090	10	QPSK	25	25	19.74	0-1	1
	1855	26090	10	QPSK	50	0	19.72	0-1	1
	1855	26090	10	16QAM	1	0	19.99	0-1	1
	1855	26090	10	16QAM	1	25	20.04	0-1	1
	1855	26090	10	16QAM	1	49	20.07	0-1	1
	1855	26090	10	16QAM	25	0	18.71	0-2	2
	1855	26090	10	16QAM	25	12	18.79	0-2	2
	1855	26090	10	16QAM	25	25	18.80	0-2	2
	1855	26090	10	16QAM	50	0	18.75	0-2	2
Mid	1882.5	26365	10	QPSK	1	0	20.90	0	0
	1882.5	26365	10	QPSK	1	25	20.95	0	0
	1882.5	26365	10	QPSK	1	49	20.87	0	0
	1882.5	26365	10	QPSK	25	0	20.04	0-1	1
	1882.5	26365	10	QPSK	25	12	20.02	0-1	1
	1882.5	26365	10	QPSK	25	25	19.93	0-1	1
	1882.5	26365	10	QPSK	50	0	19.94	0-1	1
	1882.5	26365	10	16QAM	1	0	20.21	0-1	1
	1882.5	26365	10	16QAM	1	25	20.25	0-1	1
	1882.5	26365	10	16QAM	1	49	20.06	0-1	1
	1882.5	26365	10	16QAM	25	0	19.05	0-2	2
	1882.5	26365	10	16QAM	25	12	18.99	0-2	2
	1882.5	26365	10	16QAM	25	25	18.93	0-2	2
	1882.5	26365	10	16QAM	50	0	18.95	0-2	2
High	1910	26640	10	QPSK	1	0	20.50	0	0
	1910	26640	10	QPSK	1	25	20.54	0	0
	1910	26640	10	QPSK	1	49	20.57	0	0
	1910	26640	10	QPSK	25	0	19.60	0-1	1
	1910	26640	10	QPSK	25	12	19.62	0-1	1
	1910	26640	10	QPSK	25	25	19.54	0-1	1
	1910	26640	10	QPSK	50	0	19.67	0-1	1
	1910	26640	10	16QAM	1	0	19.75	0-1	1
	1910	26640	10	16QAM	1	25	19.73	0-1	1
	1910	26640	10	16QAM	1	49	19.79	0-1	1
	1910	26640	10	16QAM	25	0	18.56	0-2	2
	1910	26640	10	16QAM	25	12	18.62	0-2	2
	1910	26640	10	16QAM	25	25	18.54	0-2	2
	1910	26640	10	16QAM	50	0	18.63	0-2	2

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Table 9-40
LTE Band 25 (PCS) Reduced Conducted Powers - 5 MHz Bandwidth– Hotspot, Extremity

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1852.5	26065	5	QPSK	1	0	20.52	0	0
	1852.5	26065	5	QPSK	1	12	20.53	0	0
	1852.5	26065	5	QPSK	1	24	20.60	0	0
	1852.5	26065	5	QPSK	12	0	19.67	0-1	1
	1852.5	26065	5	QPSK	12	6	19.66	0-1	1
	1852.5	26065	5	QPSK	12	13	19.68	0-1	1
	1852.5	26065	5	QPSK	25	0	19.63	0-1	1
	1852.5	26065	5	16-QAM	1	0	19.98	0-1	1
	1852.5	26065	5	16-QAM	1	12	20.02	0-1	1
	1852.5	26065	5	16-QAM	1	24	20.03	0-1	1
	1852.5	26065	5	16-QAM	12	0	18.68	0-2	2
	1852.5	26065	5	16-QAM	12	6	18.71	0-2	2
	1852.5	26065	5	16-QAM	12	13	18.67	0-2	2
	1852.5	26065	5	16-QAM	25	0	18.68	0-2	2
Mid	1882.5	26365	5	QPSK	1	0	20.96	0	0
	1882.5	26365	5	QPSK	1	12	21.00	0	0
	1882.5	26365	5	QPSK	1	24	20.93	0	0
	1882.5	26365	5	QPSK	12	0	19.95	0-1	1
	1882.5	26365	5	QPSK	12	6	19.94	0-1	1
	1882.5	26365	5	QPSK	12	13	19.97	0-1	1
	1882.5	26365	5	QPSK	25	0	19.95	0-1	1
	1882.5	26365	5	16-QAM	1	0	20.47	0-1	1
	1882.5	26365	5	16-QAM	1	12	20.46	0-1	1
	1882.5	26365	5	16-QAM	1	24	20.33	0-1	1
	1882.5	26365	5	16-QAM	12	0	18.99	0-2	2
	1882.5	26365	5	16-QAM	12	6	18.96	0-2	2
	1882.5	26365	5	16-QAM	12	13	18.96	0-2	2
	1882.5	26365	5	16-QAM	25	0	18.97	0-2	2
High	1912.5	26665	5	QPSK	1	0	20.55	0	0
	1912.5	26665	5	QPSK	1	12	20.59	0	0
	1912.5	26665	5	QPSK	1	24	20.61	0	0
	1912.5	26665	5	QPSK	12	0	19.54	0-1	1
	1912.5	26665	5	QPSK	12	6	19.62	0-1	1
	1912.5	26665	5	QPSK	12	13	19.59	0-1	1
	1912.5	26665	5	QPSK	25	0	19.51	0-1	1
	1912.5	26665	5	16-QAM	1	0	19.94	0-1	1
	1912.5	26665	5	16-QAM	1	12	20.08	0-1	1
	1912.5	26665	5	16-QAM	1	24	20.04	0-1	1
	1912.5	26665	5	16-QAM	12	0	18.54	0-2	2
	1912.5	26665	5	16-QAM	12	6	18.61	0-2	2
	1912.5	26665	5	16-QAM	12	13	18.56	0-2	2
	1912.5	26665	5	16-QAM	25	0	18.55	0-2	2

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Table 9-41
LTE Band 25 (PCS) Reduced Conducted Powers - 3 MHz Bandwidth– Hotspot, Extremity

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1851.5	26055	3	QPSK	1	0	20.60	0	0
	1851.5	26055	3	QPSK	1	7	20.75	0	0
	1851.5	26055	3	QPSK	1	14	20.59	0	0
	1851.5	26055	3	QPSK	8	0	19.62	0-1	1
	1851.5	26055	3	QPSK	8	4	19.71	0-1	1
	1851.5	26055	3	QPSK	8	7	19.64	0-1	1
	1851.5	26055	3	QPSK	15	0	19.63	0-1	1
	1851.5	26055	3	16-QAM	1	0	19.91	0-1	1
	1851.5	26055	3	16-QAM	1	7	20.10	0-1	1
	1851.5	26055	3	16-QAM	1	14	19.98	0-1	1
	1851.5	26055	3	16-QAM	8	0	18.54	0-2	2
	1851.5	26055	3	16-QAM	8	4	18.63	0-2	2
	1851.5	26055	3	16-QAM	8	7	18.59	0-2	2
	1851.5	26055	3	16-QAM	15	0	18.68	0-2	2
Mid	1882.5	26365	3	QPSK	1	0	20.91	0	0
	1882.5	26365	3	QPSK	1	7	21.12	0	0
	1882.5	26365	3	QPSK	1	14	20.94	0	0
	1882.5	26365	3	QPSK	8	0	19.91	0-1	1
	1882.5	26365	3	QPSK	8	4	19.96	0-1	1
	1882.5	26365	3	QPSK	8	7	19.92	0-1	1
	1882.5	26365	3	QPSK	15	0	19.99	0-1	1
	1882.5	26365	3	16-QAM	1	0	20.11	0-1	1
	1882.5	26365	3	16-QAM	1	7	20.23	0-1	1
	1882.5	26365	3	16-QAM	1	14	20.03	0-1	1
	1882.5	26365	3	16-QAM	8	0	18.83	0-2	2
	1882.5	26365	3	16-QAM	8	4	18.87	0-2	2
	1882.5	26365	3	16-QAM	8	7	18.85	0-2	2
	1882.5	26365	3	16-QAM	15	0	18.93	0-2	2
High	1913.5	26675	3	QPSK	1	0	20.56	0	0
	1913.5	26675	3	QPSK	1	7	20.72	0	0
	1913.5	26675	3	QPSK	1	14	20.60	0	0
	1913.5	26675	3	QPSK	8	0	19.54	0-1	1
	1913.5	26675	3	QPSK	8	4	19.58	0-1	1
	1913.5	26675	3	QPSK	8	7	19.63	0-1	1
	1913.5	26675	3	QPSK	15	0	19.57	0-1	1
	1913.5	26675	3	16-QAM	1	0	19.80	0-1	1
	1913.5	26675	3	16-QAM	1	7	19.87	0-1	1
	1913.5	26675	3	16-QAM	1	14	19.82	0-1	1
	1913.5	26675	3	16-QAM	8	0	18.60	0-2	2
	1913.5	26675	3	16-QAM	8	4	18.61	0-2	2
	1913.5	26675	3	16-QAM	8	7	18.65	0-2	2
	1913.5	26675	3	16-QAM	15	0	18.50	0-2	2

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Table 9-42
LTE Band 25 (PCS) Reduced Conducted Powers – 1.4 MHz Bandwidth– Hotspot, Extremity

	Frequency [MHz]	Channel	Bandwidth [MHz]	Modulation	RB Size	RB Offset	Conducted Power [dBm]	MPR Allowed per 3GPP [dB]	MPR [dB]
Low	1850.7	26047	1.4	QPSK	1	0	20.69	0	0
	1850.7	26047	1.4	QPSK	1	2	20.77	0	0
	1850.7	26047	1.4	QPSK	1	5	20.67	0	0
	1850.7	26047	1.4	QPSK	3	0	20.65	0	0
	1850.7	26047	1.4	QPSK	3	2	20.60	0	0
	1850.7	26047	1.4	QPSK	3	3	20.56	0	0
	1850.7	26047	1.4	QPSK	6	0	19.61	0-1	1
	1850.7	26047	1.4	16-QAM	1	0	19.51	0-1	1
	1850.7	26047	1.4	16-QAM	1	2	19.59	0-1	1
	1850.7	26047	1.4	16-QAM	1	5	19.50	0-1	1
	1850.7	26047	1.4	16-QAM	3	0	19.58	0-1	1
	1850.7	26047	1.4	16-QAM	3	2	19.62	0-1	1
	1850.7	26047	1.4	16-QAM	3	3	19.58	0-1	1
	1850.7	26047	1.4	16-QAM	6	0	18.70	0-2	2
Mid	1882.5	26365	1.4	QPSK	1	0	20.84	0	0
	1882.5	26365	1.4	QPSK	1	2	20.89	0	0
	1882.5	26365	1.4	QPSK	1	5	20.75	0	0
	1882.5	26365	1.4	QPSK	3	0	20.89	0	0
	1882.5	26365	1.4	QPSK	3	2	20.86	0	0
	1882.5	26365	1.4	QPSK	3	3	20.83	0	0
	1882.5	26365	1.4	QPSK	6	0	19.73	0-1	1
	1882.5	26365	1.4	16-QAM	1	0	20.31	0-1	1
	1882.5	26365	1.4	16-QAM	1	2	20.03	0-1	1
	1882.5	26365	1.4	16-QAM	1	5	20.04	0-1	1
	1882.5	26365	1.4	16-QAM	3	0	19.98	0-1	1
	1882.5	26365	1.4	16-QAM	3	2	20.10	0-1	1
	1882.5	26365	1.4	16-QAM	3	3	20.02	0-1	1
	1882.5	26365	1.4	16-QAM	6	0	18.81	0-2	2
High	1914.3	26683	1.4	QPSK	1	0	20.58	0	0
	1914.3	26683	1.4	QPSK	1	2	20.68	0	0
	1914.3	26683	1.4	QPSK	1	5	20.58	0	0
	1914.3	26683	1.4	QPSK	3	0	20.61	0	0
	1914.3	26683	1.4	QPSK	3	2	20.68	0	0
	1914.3	26683	1.4	QPSK	3	3	20.65	0	0
	1914.3	26683	1.4	QPSK	6	0	19.59	0-1	1
	1914.3	26683	1.4	16-QAM	1	0	19.75	0-1	1
	1914.3	26683	1.4	16-QAM	1	2	19.88	0-1	1
	1914.3	26683	1.4	16-QAM	1	5	19.81	0-1	1
	1914.3	26683	1.4	16-QAM	3	0	19.52	0-1	1
	1914.3	26683	1.4	16-QAM	3	2	19.64	0-1	1
	1914.3	26683	1.4	16-QAM	3	3	19.57	0-1	1
	1914.3	26683	1.4	16-QAM	6	0	18.57	0-2	2

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9.5.3 Maximum LTE Carrier Aggregation Conducted Powers

Table 9-43

PCC							SCC				Power	
PCC Band	PCC Bandwidth [MHz]	PCC (UL) Frequency [MHz]	PCC (UL) Channel	Modulation Type	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (DL) Frequency [MHz]	SCC (DL) Channel	LTE Rel 10 Tx.Power (dBm)	LTE Rel. 8 Tx.Power (dBm)
LTE B41	20	2593	40620	QPSK	1	0	LTE B41	20	2612.8	40818	24.13	24.40

Notes:

1. The device does not support all Rel. 10 Carrier Aggregation features due to modem chipset limitation.
2. The device only supports downlink Carrier Aggregation. Uplink Carrier Aggregation is not supported. Power measurements were performed with two DL carriers for the Release 8 configuration that had the highest output power (across all bandwidths, channels and RB Configurations) for each band
3. This device supports intra-band CA with 2 carriers (B41+B41).
4. All control and acknowledge data is sent on uplink channels that operate identical to release 8 specifications.

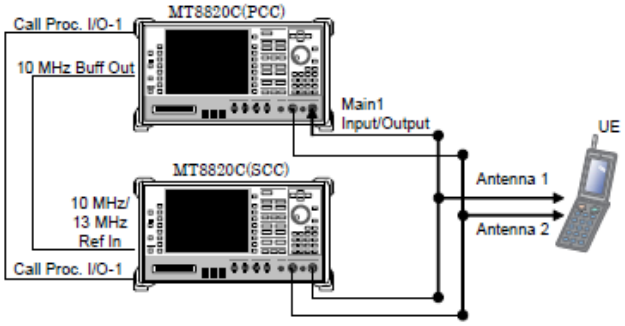

Figure 13
Power Measurement Setup

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9.6 Maximum WLAN Conducted Powers

Table 9-44
2.4 GHz WLAN Maximum Average RF Power – Antenna 1

Freq [MHz]	Channel	2.4GHz Conducted Power [dBm]	
		IEEE Transmission Mode	
		802.11b	802.11g
2412	1	17.84	15.01
2437	6	**18.08**	15.33
2462	11	17.75	14.93

Table 9-45
2.4 GHz WLAN Maximum Average RF Power – Antenna 2

Freq [MHz]	Channel	2.4GHz Conducted Power [dBm]	
		IEEE Transmission Mode	
		802.11b	802.11g
2412	1	17.79	15.25
2437	6	**18.29**	14.95
2462	11	18.05	14.75

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Table 9-46
5 GHz WLAN Maximum Average RF Power – Antenna 1

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]
		IEEE Transmission Mode
		802.11a
5180	36	15.16
5200	40	15.05
5220	44	15.15
5240	48	15.19
5260	52	14.98
5280	56	14.97
5300	60	**15.04**
5320	64	14.91
5500	100	15.11
5600	120	14.74
5620	124	14.85
5720	144	**15.18**
5745	149	**15.48**
5785	157	15.31
5825	165	15.23

Table 9-47
5 GHz WLAN Maximum Average RF Power – Antenna 2

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]
		IEEE Transmission Mode
		802.11a
5180	36	15.22
5200	40	15.05
5220	44	15.04
5240	48	15.28
5260	52	**15.33**
5280	56	15.20
5300	60	15.19
5320	64	15.27
5500	100	**15.15**
5600	120	14.91
5620	124	14.92
5720	144	14.85
5745	149	**14.83**
5785	157	14.77
5825	165	14.71

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Table 9-48
5 GHz WLAN Maximum Average RF Power – MIMO

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]
		IEEE Transmission Mode
		802.11 n
5180	36	16.27
5200	40	16.31
5220	44	16.30
5240	48	16.34
5260	52	15.94
5280	56	15.89
5300	60	**15.94**
5320	64	15.89
5500	100	**16.27**
5600	120	16.14
5620	124	15.95
5720	144	16.16
5745	149	16.30
5785	157	16.19
5825	165	16.13

9.7 WLAN Reduced Conducted Powers

Table 9-49
2.4 GHz WLAN Reduced Average RF Power – Antenna 1- Held to Ear

Freq [MHz]	Channel	2.4GHz Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11b	802.11g	802.11n
2412	1	13.37	12.79	12.60
2437	6	**13.95**	13.26	12.65
2462	11	13.22	12.79	12.52

Table 9-50
2.4 GHz WLAN Reduced Average RF Power – Antenna 2- Held to Ear

Freq [MHz]	Channel	2.4GHz Conducted Power [dBm]		
		IEEE Transmission Mode		
		802.11b	802.11g	802.11n
2412	1	13.85	13.32	12.87
2437	6	**14.50**	12.78	12.70
2462	11	14.23	12.74	12.55

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Table 9-51
5 GHz WLAN Reduced Average RF Power – Antenna 1- Held to Ear

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]
		IEEE Transmission Mode
		802.11a
5180	36	10.33
5200	40	10.11
5220	44	10.03
5240	48	10.03
5260	52	10.16
5280	56	10.20
5300	60	10.15
5320	64	**10.21**
5500	100	**10.50**
5600	120	10.11
5620	124	9.98
5720	144	9.81
5745	149	9.95
5785	157	10.00
5825	165	**10.10**

Table 9-52
5 GHz WLAN Reduced Average RF Power – Antenna 2- Held to Ear

Freq [MHz]	Channel	5GHz (20MHz) Conducted Power [dBm]
		IEEE Transmission Mode
		802.11a
5180	36	9.86
5200	40	10.15
5220	44	10.14
5240	48	10.06
5260	52	9.95
5280	56	**10.04**
5300	60	9.94
5320	64	10.00
5500	100	**9.77**
5600	120	9.61
5620	124	9.72
5720	144	9.62
5745	149	**10.49**
5785	157	10.42
5825	165	10.27

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Table 9-53
5 GHz WLAN Reduced Average RF Power – MIMO- Held to Ear

Freq [MHz]	Channel	5GHz (80MHz) Conducted Power [dBm]
		IEEE Transmission Mode
		802.11ac
5210	42	12.19
5290	58	**12.04**
5530	106	11.91
5610	122	**12.14**
5690	138	11.91
5775	155	**11.98**

Justification for test configurations for WLAN per FCC KDB Publication 248227 D01v01r02:

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

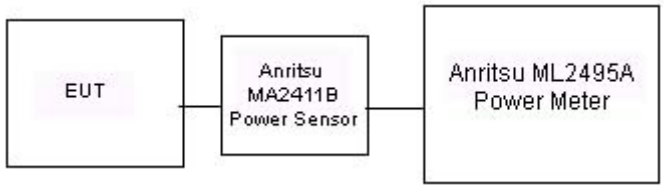

Figure 14
Power Measurement Setup for Bandwidths < 50 MHz

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10 SYSTEM VERIFICATION

10.1 Tissue Verification

Table 10-1
Measured Tissue Properties (Head)

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (C°)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	%dev σ	%dev ε
6/10/2015	750H	23.8	700	0.845	42.653	0.889	42.201	-4.95%	1.07%
			710	0.855	42.471	0.890	42.149	-3.93%	0.76%
			725	0.869	42.314	0.891	42.071	-2.47%	0.58%
			740	0.883	42.129	0.893	41.994	-1.12%	0.32%
			755	0.898	41.978	0.894	41.916	0.45%	0.15%
6/8/2015	835H	21.5	820	0.883	40.658	0.899	41.578	-1.78%	-2.21%
			835	0.898	40.464	0.900	41.500	-0.22%	-2.50%
			850	0.912	40.263	0.916	41.500	-0.44%	-2.98%
6/17/2015	835H	21.4	820	0.882	40.453	0.899	41.578	-1.89%	-2.71%
			835	0.894	40.228	0.900	41.500	-0.67%	-3.07%
			850	0.910	40.029	0.916	41.500	-0.66%	-3.54%
6/12/2015	1750H	22.9	1710	1.310	39.272	1.348	40.142	-2.82%	-2.17%
			1750	1.350	39.087	1.371	40.079	-1.53%	-2.48%
			1790	1.389	38.941	1.394	40.016	-0.36%	-2.69%
6/11/2015	1900H	23.2	1850	1.375	38.825	1.400	40.000	-1.79%	-2.94%
			1880	1.408	38.723	1.400	40.000	0.57%	-3.19%
			1910	1.443	38.607	1.400	40.000	3.07%	-3.48%
6/17/2015	2450H	23.7	2400	1.764	39.081	1.756	39.289	0.46%	-0.53%
			2450	1.825	38.879	1.800	39.200	1.39%	-0.82%
			2500	1.883	38.670	1.855	39.136	1.51%	-1.19%
6/11/2015	2600H	21.1	2500	1.920	38.381	1.855	39.136	3.50%	-1.93%
			2550	1.981	38.154	1.909	39.073	3.77%	-2.35%
			2600	2.040	37.941	1.964	39.009	3.87%	-2.74%
6/15/2015	5200H-5800H	21.6	5280	4.710	34.444	4.737	35.894	-0.57%	-4.04%
			5300	4.720	34.391	4.758	35.871	-0.80%	-4.13%
			5320	4.739	34.329	4.778	35.849	-0.82%	-4.24%
			5500	4.950	34.051	4.963	35.643	-0.26%	-4.47%
			5600	5.037	33.874	5.065	35.529	-0.55%	-4.66%
			5620	5.077	33.836	5.086	35.506	-0.18%	-4.70%
			5745	5.206	33.650	5.214	35.363	-0.15%	-4.84%
			5765	5.240	33.615	5.234	35.340	0.11%	-4.88%
			5785	5.264	33.603	5.255	35.317	0.17%	-4.85%
			5800	5.268	33.587	5.270	35.300	-0.04%	-4.85%
			5825	5.276	33.555	5.296	35.271	-0.38%	-4.87%

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Table 10-2
Measured Tissue Properties (Body)

Calibrated for Tests Performed on:	Tissue Type	Tissue Temp During Calibration (C°)	Measured Frequency (MHz)	Measured Conductivity, σ (S/m)	Measured Dielectric Constant, ε	TARGET Conductivity, σ (S/m)	TARGET Dielectric Constant, ε	%dev σ	%dev ε
6/10/2015	750B	22.2	700	0.922	55.681	0.959	55.726	-3.86%	-0.08%
			710	0.931	55.586	0.960	55.687	-3.02%	-0.18%
			740	0.960	55.308	0.963	55.570	-0.31%	-0.47%
			755	0.974	55.170	0.964	55.512	1.04%	-0.62%
6/10/2015	835B	21.8	820	0.964	54.261	0.969	55.258	-0.52%	-1.80%
			835	0.982	54.062	0.970	55.200	1.24%	-2.06%
			850	0.995	53.926	0.988	55.154	0.71%	-2.23%
6/13/2015	835B	21.7	820	0.986	54.091	0.969	55.258	1.75%	-2.11%
			835	1.000	53.915	0.970	55.200	3.09%	-2.33%
			850	1.015	53.746	0.988	55.154	2.73%	-2.55%
6/17/2015	835B	22.1	820	0.981	53.101	0.969	55.258	1.24%	-3.90%
			835	0.999	52.923	0.970	55.200	2.99%	-4.13%
			850	1.017	52.796	0.988	55.154	2.94%	-4.28%
6/8/2015	1750B	21.8	1710	1.438	52.743	1.463	53.537	-1.71%	-1.48%
			1750	1.484	52.598	1.488	53.432	-0.27%	-1.56%
			1790	1.526	52.440	1.514	53.326	0.79%	-1.66%
06/12/2015	1750B	22.2	1710	1.421	52.224	1.463	53.537	-2.87%	-2.45%
			1750	1.463	52.037	1.488	53.432	-1.68%	-2.61%
			1790	1.513	51.928	1.514	53.326	-0.07%	-2.62%
6/8/2015	1900B	22.0	1850	1.501	51.793	1.520	53.300	-1.25%	-2.83%
			1880	1.535	51.709	1.520	53.300	0.99%	-2.98%
			1910	1.571	51.607	1.520	53.300	3.36%	-3.18%
6/10/2015	1900B	22.0	1850	1.474	52.117	1.520	53.300	-3.03%	-2.22%
			1880	1.508	51.980	1.520	53.300	-0.79%	-2.48%
			1910	1.547	51.870	1.520	53.300	1.78%	-2.68%
6/13/2015	1900B	21.6	1850	1.504	52.540	1.520	53.300	-1.05%	-1.43%
			1880	1.540	52.457	1.520	53.300	1.32%	-1.58%
			1910	1.575	52.342	1.520	53.300	3.62%	-1.80%
6/15/2015	1900B	21.8	1850	1.475	52.286	1.520	53.300	-2.96%	-1.90%
			1880	1.509	52.184	1.520	53.300	-0.72%	-2.09%
			1910	1.543	52.074	1.520	53.300	1.51%	-2.30%
6/9/2015	2450B	21.9	2401	1.964	51.549	1.903	52.765	3.21%	-2.30%
			2450	2.032	51.385	1.950	52.700	4.21%	-2.50%
			2499	2.094	51.188	2.019	52.638	3.71%	-2.75%
6/16/2015	2450-2600B	22.0	2450	2.029	51.186	1.950	52.700	4.05%	-2.87%
			2500	2.098	50.987	2.021	52.636	3.81%	-3.13%
			2550	2.169	50.795	2.092	52.573	3.68%	-3.38%
			2600	2.239	50.598	2.163	52.509	3.51%	-3.64%
			2650	2.309	50.400	2.234	52.445	3.36%	-3.90%
			2700	2.379	50.210	2.305	52.382	3.21%	-4.15%
06/08/2015	5200B-5800B	21.2	5260	5.392	47.859	5.369	48.933	0.43%	-2.19%
			5300	5.456	47.753	5.416	48.879	0.74%	-2.30%
			5500	5.718	47.478	5.650	48.607	1.20%	-2.32%
			5700	6.005	47.115	5.883	48.336	2.07%	-2.53%
			5745	6.061	46.998	5.936	48.275	2.11%	-2.65%
			5800	6.145	46.937	6.000	48.200	2.42%	-2.62%

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 and IEEE 1528-2013 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

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10.2 Test System Verification

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

Table 10-3
System Verification Results – 1g

System Verification TARGET & MEASURED												
SAR System #	Tissue Frequency (MHz)	Tissue Type	Date:	Amb. Temp (°C)	Liquid Temp (°C)	Input Power (W)	Dipole SN	Probe SN	Measured SAR_{1g} (W/kg)	1 W Target SAR_{1g} (W/kg)	1 W Normalized SAR_{1g} (W/kg)	$Deviation_{1g}$ (%)
G	750	HEAD	06/10/2015	23.4	22.1	0.200	1003	3318	1.660	8.090	8.300	2.60%
K	835	HEAD	06/08/2015	22.3	21.5	0.200	4d133	3288	1.940	9.200	9.700	5.43%
H	835	HEAD	06/17/2015	22.7	22.0	0.200	4d132	3263	1.890	9.250	9.450	2.16%
K	1750	HEAD	06/12/2015	22.7	22.9	0.100	1051	3288	3.770	36.200	37.700	4.14%
K	1900	HEAD	06/11/2015	23.3	23.4	0.100	5d141	3288	4.240	39.900	42.400	6.27%
E	2450	HEAD	06/17/2015	23.0	22.2	0.100	719	3332	5.170	52.100	51.700	-0.77%
G	2600	HEAD	06/11/2015	20.9	21.4	0.100	1071	3318	6.090	57.500	60.900	5.91%
D	5300	HEAD	06/15/2015	23.1	21.6	0.050	1057	7357	4.440	84.700	88.800	4.84%
D	5500	HEAD	06/15/2015	22.5	21.6	0.050	1057	7357	4.280	84.300	85.600	1.54%
D	5600	HEAD	06/15/2015	22.5	21.6	0.050	1057	7357	4.500	83.800	90.000	7.40%
D	5800	HEAD	06/15/2015	22.7	21.6	0.050	1057	7357	4.200	81.100	84.000	3.58%
H	750	BODY	06/10/2015	24.2	22.7	0.200	1054	3263	1.810	8.530	9.050	6.10%
K	835	BODY	06/10/2015	23.3	21.9	0.200	4d133	3288	2.030	9.350	10.150	8.56%
G	835	BODY	06/13/2015	23.2	21.8	0.200	4d133	3318	1.990	9.350	9.950	6.42%
J	835	BODY	06/17/2015	21.5	22.0	0.200	4d132	3319	1.840	9.140	9.200	0.66%
G	1750	BODY	06/08/2015	20.2	21.8	0.100	1051	3318	3.710	37.100	37.100	0.00%
H	1900	BODY	06/08/2015	21.0	22.0	0.100	5d149	3263	4.190	40.400	41.900	3.71%
H	1900	BODY	06/10/2015	23.7	22.0	0.100	5d141	3263	4.270	40.000	42.700	6.75%
H	1900	BODY	06/15/2015	21.1	21.8	0.100	5d141	3263	4.070	40.000	40.700	1.75%
G	2450	BODY	06/09/2015	21.5	21.9	0.100	719	3318	5.370	51.800	53.700	3.67%
G	2450	BODY	06/16/2015	21.9	22.0	0.100	719	3318	5.220	51.800	52.200	0.77%
G	2600	BODY	06/16/2015	21.9	22.0	0.100	1071	3318	5.510	56.900	55.100	-3.16%
E	5300	BODY	06/08/2015	22.6	21.3	0.050	1057	3589	3.890	74.200	77.800	4.85%
E	5500	BODY	06/08/2015	22.6	21.3	0.050	1057	3589	3.760	79.200	75.200	-5.05%
E	5800	BODY	06/08/2015	22.4	21.3	0.050	1057	3589	3.450	75.100	69.000	-8.12%

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Table 10-4
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)	Dipole SN	Probe SN	Measured SAR_{10g} (W/kg)	1 W Target SAR_{10g} (W/kg)	1 W Normalized SAR_{10g} (W/kg)	$Deviation_{10g}$ (%)
J	835	BODY	06/17/2015	21.5	22.0	0.200	4d132	3319	1.220	5.980	6.100	2.01%
G	1750	BODY	06/12/2015	22.0	22.6	0.100	1051	3318	2.000	20.000	20.000	0.00%
H	1900	BODY	06/13/2015	21.3	21.3	0.100	5d141	3263	2.210	21.200	22.100	4.25%
H	1900	BODY	06/15/2015	21.1	21.8	0.100	5d141	3263	2.130	21.200	21.300	0.47%
E	5300	BODY	06/08/2015	22.6	21.3	0.050	1057	3589	1.090	20.900	21.800	4.31%
E	5500	BODY	06/08/2015	22.6	21.3	0.050	1057	3589	1.050	22.000	21.000	-4.55%
E	5800	BODY	06/08/2015	22.4	21.3	0.050	1057	3589	0.966	20.600	19.320	-6.21%

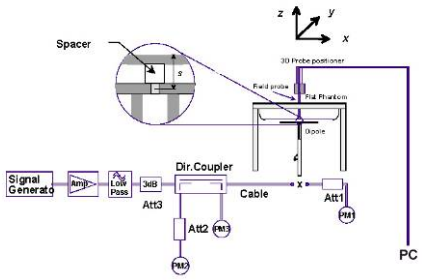

Figure 15
System Verification Setup Diagram

Figure 16
System Verification Setup Photo

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11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

Table 11-1
CDMA BC10 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	Scaled SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.0	24.99	0.02	Right	Cheek	ABC54	1:1	0.286	1.002	0.287	A1
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.0	24.99	0.02	Right	Tilt	ABC54	1:1	0.109	1.002	0.109	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.0	24.99	-0.10	Left	Cheek	ABC54	1:1	0.143	1.002	0.143	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	25.0	24.99	-0.03	Left	Tilt	ABC54	1:1	0.079	1.002	0.079	
820.10	564	CDMA BC10 (§90S)	EVDO Rev A	23.5	23.10	0.03	Right	Cheek	ABC1B	1:1	0.141	1.096	0.155	
820.10	564	CDMA BC10 (§90S)	EVDO Rev A	23.5	23.10	0.02	Right	Tilt	ABC1B	1:1	0.062	1.096	0.068	
820.10	564	CDMA BC10 (§90S)	EVDO Rev A	23.5	23.10	0.11	Left	Cheek	ABC1B	1:1	0.102	1.096	0.112	
820.10	564	CDMA BC10 (§90S)	EVDO Rev A	23.5	23.10	0.03	Left	Tilt	ABC1B	1:1	0.076	1.096	0.083	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.0	24.79	0.03	Right	Cheek	ABC54	1:1	0.281	1.050	0.295	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.0	24.79	0.01	Right	Tilt	ABC54	1:1	0.112	1.050	0.118	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.0	24.79	0.14	Left	Cheek	ABC54	1:1	0.141	1.050	0.148	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	25.0	24.79	-0.03	Left	Tilt	ABC54	1:1	0.078	1.050	0.082	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-2
CDMA BC0 Head SAR Data

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	Scaled SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.0	25.00	0.03	Right	Cheek	ABC54	1:1	0.339	1.000	0.339	A2
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.0	25.00	0.06	Right	Tilt	ABC54	1:1	0.107	1.000	0.107	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.0	25.00	0.11	Left	Cheek	ABC54	1:1	0.193	1.000	0.193	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	25.0	25.00	0.13	Left	Tilt	ABC54	1:1	0.105	1.000	0.105	
836.52	384	CDMA BC0 (§22H)	EVDO Rev A	23.5	23.11	-0.03	Right	Cheek	ABC1B	1:1	0.171	1.094	0.187	
836.52	384	CDMA BC0 (§22H)	EVDO Rev A	23.5	23.11	-0.01	Right	Tilt	ABC1B	1:1	0.077	1.094	0.084	
836.52	384	CDMA BC0 (§22H)	EVDO Rev A	23.5	23.11	0.11	Left	Cheek	ABC1B	1:1	0.123	1.094	0.135	
836.52	384	CDMA BC0 (§22H)	EVDO Rev A	23.5	23.11	0.16	Left	Tilt	ABC1B	1:1	0.069	1.094	0.075	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.0	24.89	0.04	Right	Cheek	ABC54	1:1	0.334	1.026	0.343	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.0	24.89	0.03	Right	Tilt	ABC54	1:1	0.102	1.026	0.105	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.0	24.89	0.10	Left	Cheek	ABC54	1:1	0.176	1.026	0.181	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	25.0	24.89	0.06	Left	Tilt	ABC54	1:1	0.098	1.026	0.101	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

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Table 11-3
GSM 850 Head SAR Data

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	Scaled SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.5	33.10	-0.06	Right	Cheek	ABC54	1:8.3	0.164	1.096	0.180	A3
836.60	190	GSM 850	GSM	33.5	33.10	0.03	Right	Tilt	ABC54	1:8.3	0.065	1.096	0.071	
836.60	190	GSM 850	GSM	33.5	33.10	0.03	Left	Cheek	ABC54	1:8.3	0.114	1.096	0.125	
836.60	190	GSM 850	GSM	33.5	33.10	-0.03	Left	Tilt	ABC54	1:8.3	0.054	1.096	0.059	
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
UMTS 850 Head SAR Data

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	Scaled SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
836.60	4183	UMTS 850	RMC	23.5	23.20	0.03	Right	Cheek	ABC54	1:1	0.183	1.072	0.196	A4
836.60	4183	UMTS 850	RMC	23.5	23.20	0.10	Right	Tilt	ABC54	1:1	0.077	1.072	0.083	
836.60	4183	UMTS 850	RMC	23.5	23.20	0.03	Left	Cheek	ABC54	1:1	0.120	1.072	0.129	
836.60	4183	UMTS 850	RMC	23.5	23.20	-0.08	Left	Tilt	ABC54	1:1	0.068	1.072	0.073	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-5
PCS CDMA Head SAR Data

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	Scaled SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.83	-0.01	Right	Cheek	ABF0D	1:1	0.091	1.040	0.095	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.83	0.06	Right	Tilt	ABF0D	1:1	0.057	1.040	0.059	
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.83	0.08	Left	Cheek	ABF0D	1:1	0.136	1.040	0.141	A5
1880.00	600	PCS CDMA	RC3 / SO55	25.0	24.83	-0.02	Left	Tilt	ABF0D	1:1	0.057	1.040	0.059	
1880.00	600	PCS CDMA	EVDO Rev. A	22.5	22.04	0.05	Right	Cheek	ABB3E	1:1	0.044	1.112	0.049	
1880.00	600	PCS CDMA	EVDO Rev. A	22.5	22.04	0.08	Right	Tilt	ABB3E	1:1	0.028	1.112	0.031	
1880.00	600	PCS CDMA	EVDO Rev. A	22.5	22.04	0.10	Left	Cheek	ABB3E	1:1	0.074	1.112	0.082	
1880.00	600	PCS CDMA	EVDO Rev. A	22.5	22.04	0.03	Left	Tilt	ABB3E	1:1	0.027	1.112	0.030	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.84	-0.11	Right	Cheek	ABF0D	1:1	0.084	1.038	0.087	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.84	-0.12	Right	Tilt	ABF0D	1:1	0.044	1.038	0.046	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.84	0.04	Left	Cheek	ABF0D	1:1	0.126	1.038	0.131	
1880.00	600	PCS CDMA	EVDO Rev. A	25.0	24.84	-0.05	Left	Tilt	ABF0D	1:1	0.042	1.038	0.044	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

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Table 11-6
GSM 1900 Head SAR Data

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	Scaled SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	661	GSM 1900	GSM	30.5	29.53	-0.02	Right	Cheek	ABF0D	1:8.3	0.051	1.250	0.064	
1880.00	661	GSM 1900	GSM	30.5	29.53	0.10	Right	Tilt	ABF0D	1:8.3	0.036	1.250	0.045	
1880.00	661	GSM 1900	GSM	30.5	29.53	0.00	Left	Cheek	ABF0D	1:8.3	0.076	1.250	0.095	A6
1880.00	661	GSM 1900	GSM	30.5	29.53	0.08	Left	Tilt	ABF0D	1:8.3	0.028	1.250	0.035	
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 1900 Head SAR Data

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	Scaled SAR (1g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
1880.00	9400	UMTS 1900	RMC	23.5	23.46	-0.18	Right	Cheek	ABF0D	1:1	0.081	1.009	0.082	
1880.00	9400	UMTS 1900	RMC	23.5	23.46	0.05	Right	Tilt	ABF0D	1:1	0.054	1.009	0.054	
1880.00	9400	UMTS 1900	RMC	23.5	23.46	0.02	Left	Cheek	ABF0D	1:1	0.118	1.009	0.119	A7
1880.00	9400	UMTS 1900	RMC	23.5	23.46	0.19	Left	Tilt	ABF0D	1:1	0.046	1.009	0.046	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-8
LTE Band 12 Head SAR Data

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	Scaled SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	24.0	23.78	-0.03	0	Right	Cheek	QPSK	1	0	ABAFB	1:1	0.091	1.052	0.096	A8
707.50	23095	Mid	LTE Band 12	10	23.0	22.54	0.08	1	Right	Cheek	QPSK	25	0	ABAFB	1:1	0.070	1.112	0.078	
707.50	23095	Mid	LTE Band 12	10	24.0	23.78	0.20	0	Right	Tilt	QPSK	1	0	ABAFB	1:1	0.030	1.052	0.032	
707.50	23095	Mid	LTE Band 12	10	23.0	22.54	0.12	1	Right	Tilt	QPSK	25	0	ABAFB	1:1	0.024	1.112	0.027	
707.50	23095	Mid	LTE Band 12	10	24.0	23.78	-0.17	0	Left	Cheek	QPSK	1	0	ABAFB	1:1	0.071	1.052	0.075	
707.50	23095	Mid	LTE Band 12	10	23.0	22.54	-0.01	1	Left	Cheek	QPSK	25	0	ABAFB	1:1	0.053	1.112	0.059	
707.50	23095	Mid	LTE Band 12	10	24.0	23.78	0.03	0	Left	Tilt	QPSK	1	0	ABAFB	1:1	0.047	1.052	0.049	
707.50	23095	Mid	LTE Band 12	10	23.0	22.54	0.02	1	Left	Tilt	QPSK	25	0	ABAFB	1:1	0.032	1.112	0.036	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population									Head 1.6 W/kg (mW/g) averaged over 1 gram										

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Table 11-9
LTE Band 26 (Cell) Head SAR Data

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) (W/kg)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.																			
836.50	26915	Mid	LTE Band 26 (Cell)	15	24.0	23.69	-0.19	0	Right	Cheek	QPSK	1	0	ABC1B	1:1	0.214	1.074	0.230	A9
836.50	26915	Mid	LTE Band 26 (Cell)	15	23.0	22.58	0.14	1	Right	Cheek	QPSK	36	0	ABC1B	1:1	0.159	1.102	0.175	
836.50	26915	Mid	LTE Band 26 (Cell)	15	24.0	23.69	-0.02	0	Right	Tilt	QPSK	1	0	ABC1B	1:1	0.081	1.074	0.087	
836.50	26915	Mid	LTE Band 26 (Cell)	15	23.0	22.58	0.07	1	Right	Tilt	QPSK	36	0	ABC1B	1:1	0.065	1.102	0.072	
836.50	26915	Mid	LTE Band 26 (Cell)	15	24.0	23.69	0.05	0	Left	Cheek	QPSK	1	0	ABC1B	1:1	0.112	1.074	0.120	
836.50	26915	Mid	LTE Band 26 (Cell)	15	23.0	22.58	0.17	1	Left	Cheek	QPSK	36	0	ABC1B	1:1	0.087	1.102	0.096	
836.50	26915	Mid	LTE Band 26 (Cell)	15	24.0	23.69	0.02	0	Left	Tilt	QPSK	1	0	ABC1B	1:1	0.072	1.074	0.077	
836.50	26915	Mid	LTE Band 26 (Cell)	15	23.0	22.58	-0.01	1	Left	Tilt	QPSK	36	0	ABC1B	1:1	0.054	1.102	0.060	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-10
LTE Band 4 (AWS) Head SAR Data

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) (W/kg)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.																			
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.84	0.03	0	Right	Cheek	QPSK	1	0	ABCC3	1:1	0.169	1.038	0.175	A10
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.72	0.07	1	Right	Cheek	QPSK	50	50	ABCC3	1:1	0.120	1.067	0.128	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.84	0.02	0	Right	Tilt	QPSK	1	0	ABCC3	1:1	0.059	1.038	0.061	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.72	0.11	1	Right	Tilt	QPSK	50	50	ABCC3	1:1	0.059	1.067	0.063	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.84	0.07	0	Left	Cheek	QPSK	1	0	ABCC3	1:1	0.083	1.038	0.086	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.72	0.03	1	Left	Cheek	QPSK	50	50	ABCC3	1:1	0.076	1.067	0.081	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.84	-0.13	0	Left	Tilt	QPSK	1	0	ABCC3	1:1	0.043	1.038	0.045	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.72	0.13	1	Left	Tilt	QPSK	50	50	ABCC3	1:1	0.046	1.067	0.049	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	21.5	21.48	-0.02	0	Right	Cheek	QPSK	1	0	ABFAC	1:1	0.049	1.005	0.049	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.32	-0.01	1	Right	Cheek	QPSK	50	0	ABFAC	1:1	0.036	1.042	0.038	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	21.5	21.48	0.10	0	Right	Tilt	QPSK	1	0	ABFAC	1:1	0.029	1.005	0.029	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.32	0.09	1	Right	Tilt	QPSK	50	0	ABFAC	1:1	0.031	1.042	0.032	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	21.5	21.48	0.17	0	Left	Cheek	QPSK	1	0	ABFAC	1:1	0.066	1.005	0.066	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.32	-0.05	1	Left	Cheek	QPSK	50	0	ABFAC	1:1	0.052	1.042	0.054	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	21.5	21.48	0.02	0	Left	Tilt	QPSK	1	0	ABFAC	1:1	0.029	1.005	0.029	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.32	0.16	1	Left	Tilt	QPSK	50	0	ABFAC	1:1	0.025	1.042	0.026	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population												Head 1.6 W/kg (mW/g) averaged over 1 gram							

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

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) (W/kg)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.																			
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.89	-0.14	0	Right	Cheek	QPSK	1	99	ABCC3	1:1	0.085	1.026	0.087	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.77	0.14	1	Right	Cheek	QPSK	50	50	ABCC3	1:1	0.071	1.054	0.075	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.89	-0.02	0	Right	Tilt	QPSK	1	99	ABCC3	1:1	0.043	1.026	0.044	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.77	-0.01	1	Right	Tilt	QPSK	50	50	ABCC3	1:1	0.038	1.054	0.040	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.89	0.17	0	Left	Cheek	QPSK	1	99	ABCC3	1:1	0.116	1.026	0.119	A11
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.77	0.08	1	Left	Cheek	QPSK	50	50	ABCC3	1:1	0.102	1.054	0.108	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.89	-0.04	0	Left	Tilt	QPSK	1	99	ABCC3	1:1	0.042	1.026	0.043	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.77	0.18	1	Left	Tilt	QPSK	50	50	ABCC3	1:1	0.037	1.054	0.039	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	22.0	21.41	-0.20	0	Right	Cheek	QPSK	1	0	ABFAC	1:1	0.044	1.146	0.050	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	21.0	20.08	0.04	1	Right	Cheek	QPSK	50	0	ABFAC	1:1	0.033	1.236	0.041	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	22.0	21.41	-0.05	0	Right	Tilt	QPSK	1	0	ABFAC	1:1	0.029	1.146	0.033	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	21.0	20.08	0.21	1	Right	Tilt	QPSK	50	0	ABFAC	1:1	0.020	1.236	0.025	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	22.0	21.41	-0.20	0	Left	Cheek	QPSK	1	0	ABFAC	1:1	0.065	1.146	0.074	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	21.0	20.08	-0.14	1	Left	Cheek	QPSK	50	0	ABFAC	1:1	0.051	1.236	0.063	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	22.0	21.41	-0.09	0	Left	Tilt	QPSK	1	0	ABFAC	1:1	0.027	1.146	0.031	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	21.0	20.08	0.03	1	Left	Tilt	QPSK	50	0	ABFAC	1:1	0.019	1.236	0.023	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Head 1.6 W/kg (mW/g) averaged over 1 gram			

Table 11-12
LTE Band 41 Head SAR Data

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) (W/kg)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
2593.00	40620	Mid	LTE Band 41	20	24.5	24.40	-0.04	0	Right	Cheek	QPSK	1	0	ABB41	1:1.58	0.047	1.023	0.048	
2593.00	40620	Mid	LTE Band 41	20	23.5	23.50	0.02	1	Right	Cheek	QPSK	50	0	ABB41	1:1.58	0.033	1.000	0.033	
2593.00	40620	Mid	LTE Band 41	20	24.5	24.40	0.04	0	Right	Tilt	QPSK	1	0	ABB41	1:1.58	0.054	1.023	0.055	
2593.00	40620	Mid	LTE Band 41	20	23.5	23.50	0.11	1	Right	Tilt	QPSK	50	0	ABB41	1:1.58	0.045	1.000	0.045	
2593.00	40620	Mid	LTE Band 41	20	24.5	24.40	-0.16	0	Left	Cheek	QPSK	1	0	ABB41	1:1.58	0.112	1.023	0.115	A15
2593.00	40620	Mid	LTE Band 41	20	23.5	23.50	0.07	1	Left	Cheek	QPSK	50	0	ABB41	1:1.58	0.099	1.000	0.099	
2593.00	40620	Mid	LTE Band 41	20	24.5	24.40	0.04	0	Left	Tilt	QPSK	1	0	ABB41	1:1.58	0.035	1.023	0.036	
2593.00	40620	Mid	LTE Band 41	20	23.5	23.50	0.14	1	Left	Tilt	QPSK	50	0	ABB41	1:1.58	0.030	1.000	0.030	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population																Head 1.6 W/kg (mW/g) averaged over 1 gram			

Table 11-13
DTS Head SAR Data

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 W/kg	SAR (1g) (W/kg)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
2437	6	802.11b	DSSS	22	14.5	13.95	0.17	Right	Cheek	1	ABAEB	1	99.6	0.257	0.203	1.135	1.004	**0.231**	
2437	6	802.11b	DSSS	22	14.5	13.95	-	Right	Tilt	1	ABAEB	1	99.6	0.192	-	1.135	1.004	-	
2437	6	802.11b	DSSS	22	14.5	13.95	-	Left	Cheek	1	ABAEB	1	99.6	0.066	-	1.135	1.004	-	
2437	6	802.11b	DSSS	22	14.5	13.95	-	Left	Tilt	1	ABAEB	1	99.6	0.052	-	1.135	1.004	-	
2437	6	802.11b	DSSS	22	14.5	14.50	0.15	Right	Cheek	2	ABAEB	1	99.9	0.208	0.219	1.000	1.001	0.219	A13
2437	6	802.11b	DSSS	22	14.5	14.50	-	Right	Tilt	2	ABAEB	1	99.9	0.019	-	1.000	1.001	-	
2437	6	802.11b	DSSS	22	14.5	14.50	-	Left	Cheek	2	ABAEB	1	99.9	0.150	-	1.000	1.001	-	
2437	6	802.11b	DSSS	22	14.5	14.50	-	Left	Tilt	2	ABAEB	1	99.9	0.130	-	1.000	1.001	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Head 1.6 W/kg (mW/g) averaged over 1 gram					

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Table 11-14
NII Head SAR Data

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)	Scaled SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5320	64	802.11a	OFDM	20	10.5	10.21	0.04	Right	Cheek	1	ABAEB	6	98.5	1.010	0.481	1.069	1.015	0.522	
5320	64	802.11a	OFDM	20	10.5	10.21	0.17	Right	Tilt	1	ABAEB	6	98.5	0.651	0.342	1.069	1.015	0.371	
5320	64	802.11a	OFDM	20	10.5	10.21	-	Left	Cheek	1	ABAEB	6	98.5	0.350	-	1.069	1.015	-	
5320	64	802.11a	OFDM	20	10.5	10.21	-	Left	Tilt	1	ABAEB	6	98.5	0.321	-	1.069	1.015	-	
5280	56	802.11a	OFDM	20	10.5	10.04	0.09	Right	Cheek	2	ABAEB	6	99.8	0.061	0.025	1.112	1.002	0.028	
5280	56	802.11a	OFDM	20	10.5	10.04	-	Right	Tilt	2	ABAEB	6	99.8	0.045	-	1.112	1.002	-	
5280	56	802.11a	OFDM	20	10.5	10.04	-	Left	Cheek	2	ABAEB	6	99.8	0.008	-	1.112	1.002	-	
5280	56	802.11a	OFDM	20	10.5	10.04	-	Left	Tilt	2	ABAEB	6	99.8	0.006	-	1.112	1.002	-	
5290	58	802.11ac	OFDM	80	12.5	12.04	0.03	Right	Cheek	MIMO	ABAEB	58.5	98.9	0.626	0.262	1.127	1.011	0.299	
5290	58	802.11ac	OFDM	80	12.5	12.04	-	Right	Tilt	MIMO	ABAEB	58.5	98.9	0.517	-	1.127	1.011	-	
5290	58	802.11ac	OFDM	80	12.5	12.04	-	Left	Cheek	MIMO	ABAEB	58.5	98.9	0.143	-	1.127	1.011	-	
5290	58	802.11ac	OFDM	80	12.5	12.04	-	Left	Tilt	MIMO	ABAEB	58.5	98.9	0.120	-	1.127	1.011	-	
5500	100	802.11a	OFDM	20	10.5	10.50	0.03	Right	Cheek	1	ABAEB	6	98.5	1.840	0.657	1.000	1.015	**0.667**	A14
5500	100	802.11a	OFDM	20	10.5	10.50	0.16	Right	Tilt	1	ABAEB	6	98.5	0.772	0.448	1.000	1.015	0.455	
5500	100	802.11a	OFDM	20	10.5	10.50	-	Left	Cheek	1	ABAEB	6	98.5	0.492	-	1.000	1.015	-	
5500	100	802.11a	OFDM	20	10.5	10.50	-	Left	Tilt	1	ABAEB	6	98.5	0.390	-	1.000	1.015	-	
5500	100	802.11a	OFDM	20	10.5	9.77	-0.02	Right	Cheek	2	ABAEB	6	99.8	0.218	0.173	1.183	1.002	0.205	
5500	100	802.11a	OFDM	20	10.5	9.77	-	Right	Tilt	2	ABAEB	6	99.8	0.215	-	1.183	1.002	-	
5500	100	802.11a	OFDM	20	10.5	9.77	-	Left	Cheek	2	ABAEB	6	99.8	0.019	-	1.183	1.002	-	
5500	100	802.11a	OFDM	20	10.5	9.77	-	Left	Tilt	2	ABAEB	6	99.8	0.009	-	1.183	1.002	-	
5610	122	802.11ac	OFDM	80	12.5	12.14	0.02	Right	Cheek	MIMO	ABAEB	58.5	96.3	0.998	0.434	1.211	1.039	0.546	
5610	122	802.11ac	OFDM	80	12.5	12.14	0.05	Right	Tilt	MIMO	ABAEB	58.5	96.3	0.664	0.301	1.211	1.039	0.379	
5610	122	802.11ac	OFDM	80	12.5	12.14	-	Left	Cheek	MIMO	ABAEB	58.5	96.3	0.482	-	1.211	1.039	-	
5610	122	802.11ac	OFDM	80	12.5	12.14	-	Left	Tilt	MIMO	ABAEB	58.5	96.3	0.324	-	1.211	1.039	-	
5825	165	802.11a	OFDM	20	10.5	10.10	0.13	Right	Cheek	1	ABAEB	6	98.5	1.160	0.522	1.096	1.015	0.581	
5825	165	802.11a	OFDM	20	10.5	10.10	-0.07	Right	Tilt	1	ABAEB	6	98.5	0.663	0.359	1.096	1.015	0.399	
5825	165	802.11a	OFDM	20	10.5	10.10	-	Left	Cheek	1	ABAEB	6	98.5	0.289	-	1.096	1.015	-	
5825	165	802.11a	OFDM	20	10.5	10.10	-	Left	Tilt	1	ABAEB	6	98.5	0.327	-	1.096	1.015	-	
5745	149	802.11a	OFDM	20	10.5	10.49	0.12	Right	Cheek	2	ABAEB	6	99.8	0.634	0.285	1.002	1.002	0.287	
5745	149	802.11a	OFDM	20	10.5	10.49	-	Right	Tilt	2	ABAEB	6	99.8	0.470	-	1.002	1.002	-	
5745	149	802.11a	OFDM	20	10.5	10.49	-	Left	Cheek	2	ABAEB	6	99.8	0.279	-	1.002	1.002	-	
5745	149	802.11a	OFDM	20	10.5	10.49	-	Left	Tilt	2	ABAEB	6	99.8	0.240	-	1.002	1.002	-	
5775	155	802.11ac	OFDM	80	12.5	11.98	0.07	Right	Cheek	MIMO	ABAEB	58.5	96.3	1.281	0.599	1.148	1.039	0.715	
5775	155	802.11ac	OFDM	80	12.5	11.98	0.06	Right	Tilt	MIMO	ABAEB	58.5	96.3	0.785	0.332	1.148	1.039	0.396	
5775	155	802.11ac	OFDM	80	12.5	11.98	-	Left	Cheek	MIMO	ABAEB	58.5	96.3	0.478	-	1.148	1.039	-	
5775	155	802.11ac	OFDM	80	12.5	11.98	-	Left	Tilt	MIMO	ABAEB	58.5	96.3	0.293	-	1.148	1.039	-	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT **Spatial Peak** **Uncontrolled Exposure/General Population**								**Head** **1.6 W/kg (mW/g)** averaged over 1 gram											

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11.2 Standalone Body-Worn SAR Data

Table 11-15
CDMA/GSM/UMTS 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	Scaled SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	TDSO / SO32	25.0	24.83	0.01	15 mm	ABC54	N/A	1:1	back	0.577	1.040	0.600	A15
836.52	384	CDMA BC0 (§22H)	TDSO / SO32	25.0	24.92	0.03	15 mm	ABC54	N/A	1:1	back	0.637	1.019	0.649	A17
836.60	190	GSM 850	GSM	33.5	33.10	0.03	15 mm	ABC54	1	1:8.3	back	0.358	1.096	0.392	A19
836.60	4183	UMTS 850	RMC	23.5	23.20	0.00	15 mm	ABC54	N/A	1:1	back	0.353	1.072	0.378	A21
1880.00	600	PCS CDMA	TDSO / SO32	25.0	24.83	0.00	15 mm	ABF0D	N/A	1:1	back	0.705	1.040	**0.733**	A23
1880.00	661	GSM 1900	GSM	30.5	29.53	0.01	15 mm	ABF0D	1	1:8.3	back	0.364	1.250	0.455	A25
1880.00	9400	UMTS 1900	RMC	23.5	23.46	-0.04	15 mm	ABF0D	N/A	1:1	back	0.723	1.009	0.730	A27
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 11-16
LTE Body-Worn SAR Data

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	Scaled SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
707.50	23095	Mid	LTE Band 12	10	24.0	23.78	0.05	0	ABAFB	QPSK	1	0	15 mm	back	1:1	0.215	1.052	0.226	A29
707.50	23095	Mid	LTE Band 12	10	23.0	22.54	0.01	1	ABAFB	QPSK	25	0	15 mm	back	1:1	0.163	1.112	0.181	
836.50	26915	Mid	LTE Band 26 (Cell)	15	24.0	23.69	0.02	0	ABC1B	QPSK	1	0	15 mm	back	1:1	0.404	1.074	0.434	A31
836.50	26915	Mid	LTE Band 26 (Cell)	15	23.0	22.58	0.03	1	ABC1B	QPSK	36	0	15 mm	back	1:1	0.300	1.102	0.331	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.84	0.00	0	ABCC3	QPSK	1	0	15 mm	back	1:1	0.564	1.038	0.585	A33
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.72	0.05	1	ABCC3	QPSK	50	50	15 mm	back	1:1	0.429	1.067	0.458	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.89	0.06	0	ABCC3	QPSK	1	99	15 mm	back	1:1	0.520	1.026	0.534	A35
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.77	0.01	1	ABCC3	QPSK	50	50	15 mm	back	1:1	0.421	1.054	0.444	
2593.00	40620	Mid	LTE Band 41	20	24.5	24.40	-0.06	0	ABB41	QPSK	1	0	15 mm	back	1:1.58	0.212	1.023	0.217	A37
2593.00	40620	Mid	LTE Band 41	20	23.5	23.50	-0.01	1	ABB41	QPSK	50	0	15 mm	back	1:1.58	0.175	1.000	0.175	
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 11-17
DTS Body-Worn SAR Data

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)	Scaled SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
2437	6	802.11b	DSSS	22	18.5	18.08	0.13	10 mm	1	ABAEB	1	back	99.6	0.145	0.111	1.102	1.004	**0.122**	
2437	6	802.11b	DSSS	22	18.5	18.29	0.10	10 mm	2	ABAEB	1	back	99.9	0.145	0.114	1.050	1.001	0.120	A39
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 11-18
NII Body-Worn SAR Data

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)	Scaled SAR (1g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5300	60	802.11a	OFDM	20	15.5	15.04	-0.05	10 mm	1	ABAEB	6	back	98.5	0.318	0.114	1.112	1.015	0.129	
5260	52	802.11a	OFDM	20	15.5	15.33	-0.14	10 mm	2	ABAEB	6	back	99.8	0.169	0.088	1.040	1.002	0.092	
5720	144	802.11a	OFDM	20	15.5	15.18	0.10	10 mm	1	ABAEB	6	back	98.5	0.503	0.235	1.076	1.015	0.257	
5500	100	802.11a	OFDM	20	15.5	15.15	0.05	10 mm	2	ABAEB	6	back	99.8	0.217	0.093	1.084	1.002	0.101	
5745	149	802.11a	OFDM	20	15.5	15.48	0.03	10 mm	1	ABAEB	6	back	98.5	0.501	0.256	1.005	1.015	**0.261**	A40
5745	149	802.11a	OFDM	20	15.5	14.83	0.05	10 mm	2	ABAEB	6	back	99.8	0.156	0.077	1.167	1.002	0.090	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram					

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11.3 Standalone Wireless Router SAR Data

Table 11-19
CDMA/GPRS/UMTS Hotspot SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	# of GPRS Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	23.5	23.00	-0.04	10 mm	ABC1B	N/A	1:1	back	0.638	1.122	0.716	A16
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	23.5	23.00	-0.05	10 mm	ABC1B	N/A	1:1	front	0.569	1.122	0.638	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	23.5	23.00	-0.05	10 mm	ABC1B	N/A	1:1	bottom	0.321	1.122	0.360	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	23.5	23.00	0.06	10 mm	ABC1B	N/A	1:1	right	0.320	1.122	0.359	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	23.5	23.00	-0.08	10 mm	ABC1B	N/A	1:1	left	0.049	1.122	0.055	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	23.5	23.06	-0.02	10 mm	ABC1B	N/A	1:1	back	0.586	1.107	0.649	A18
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	23.5	23.06	-0.04	10 mm	ABC1B	N/A	1:1	front	0.552	1.107	0.611	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	23.5	23.06	0.12	10 mm	ABC1B	N/A	1:1	bottom	0.237	1.107	0.262	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	23.5	23.06	0.01	10 mm	ABC1B	N/A	1:1	right	0.253	1.107	0.280	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	23.5	23.06	0.03	10 mm	ABC1B	N/A	1:1	left	0.047	1.107	0.052	
836.60	190	GSM 850	GPRS	32.0	31.73	0.00	10 mm	ABC54	2	1:4.15	back	0.522	1.064	0.555	
836.60	190	GSM 850	GPRS	32.0	31.73	-0.07	10 mm	ABC54	2	1:4.15	front	0.536	1.064	0.570	A20
836.60	190	GSM 850	GPRS	32.0	31.73	0.00	10 mm	ABC54	2	1:4.15	bottom	0.287	1.064	0.305	
836.60	190	GSM 850	GPRS	32.0	31.73	-0.01	10 mm	ABC54	2	1:4.15	right	0.315	1.064	0.335	
836.60	190	GSM 850	GPRS	32.0	31.73	-0.10	10 mm	ABC54	2	1:4.15	left	0.053	1.064	0.056	
836.60	4183	UMTS 850	RMC	23.5	23.20	-0.15	10 mm	ABC54	N/A	1:1	back	0.533	1.072	0.571	A22
836.60	4183	UMTS 850	RMC	23.5	23.20	0.00	10 mm	ABC54	N/A	1:1	front	0.514	1.072	0.551	
836.60	4183	UMTS 850	RMC	23.5	23.20	-0.01	10 mm	ABC54	N/A	1:1	bottom	0.251	1.072	0.269	
836.60	4183	UMTS 850	RMC	23.5	23.20	-0.01	10 mm	ABC54	N/A	1:1	right	0.265	1.072	0.284	
836.60	4183	UMTS 850	RMC	23.5	23.20	0.02	10 mm	ABC54	N/A	1:1	left	0.038	1.072	0.041	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.11	-0.02	10 mm	ABB3E	N/A	1:1	back	0.650	1.094	0.711	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.11	-0.03	10 mm	ABB3E	N/A	1:1	front	0.503	1.094	0.550	
1851.25	25	PCS CDMA	EVDO Rev. 0	22.5	22.03	0.00	10 mm	ABB3E	N/A	1:1	bottom	0.837	1.114	0.932	A24
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.11	0.01	10 mm	ABB3E	N/A	1:1	bottom	0.800	1.094	0.875	
1908.75	1175	PCS CDMA	EVDO Rev. 0	22.5	22.41	-0.02	10 mm	ABB3E	N/A	1:1	bottom	0.748	1.021	0.764	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.11	-0.03	10 mm	ABB3E	N/A	1:1	right	0.148	1.094	0.162	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.11	-0.03	10 mm	ABB3E	N/A	1:1	left	0.050	1.094	0.055	
1850.20	512	GSM 1900	GPRS	28.5	28.32	-0.02	10 mm	ABF0D	2	1:4.15	back	0.961	1.042	1.001	
1880.00	661	GSM 1900	GPRS	28.5	28.49	-0.03	10 mm	ABF0D	2	1:4.15	back	1.050	1.002	1.052	
1909.80	810	GSM 1900	GPRS	28.5	28.50	-0.04	10 mm	ABF0D	2	1:4.15	back	1.030	1.000	1.030	
1880.00	661	GSM 1900	GPRS	28.5	28.49	0.02	10 mm	ABF0D	2	1:4.15	front	0.777	1.002	0.779	
1850.20	512	GSM 1900	GPRS	28.5	28.32	-0.03	10 mm	ABF0D	2	1:4.15	bottom	1.040	1.042	**1.084**	
1880.00	661	GSM 1900	GPRS	28.5	28.49	-0.01	10 mm	ABF0D	2	1:4.15	bottom	0.979	1.002	0.981	
1909.80	810	GSM 1900	GPRS	28.5	28.50	-0.08	10 mm	ABF0D	2	1:4.15	bottom	0.792	1.000	0.792	
1880.00	661	GSM 1900	GPRS	28.5	28.49	0.02	10 mm	ABF0D	2	1:4.15	right	0.215	1.002	0.215	
1880.00	661	GSM 1900	GPRS	28.5	28.49	-0.01	10 mm	ABF0D	2	1:4.15	left	0.076	1.002	0.076	
1880.00	661	GSM 1900	GPRS	28.5	28.49	-0.10	10 mm	ABF0D	2	1:4.15	back	1.070	1.002	1.072	A26
1880.00	9400	UMTS 1900	RMC	21.5	21.22	-0.03	10 mm	ABB3E	N/A	1:1	back	0.749	1.067	0.799	
1880.00	9400	UMTS 1900	RMC	21.5	21.22	-0.02	10 mm	ABB3E	N/A	1:1	front	0.562	1.067	0.600	
1852.40	9262	UMTS 1900	RMC	21.5	21.25	-0.02	10 mm	ABB3E	N/A	1:1	bottom	0.916	1.059	0.970	A28
1880.00	9400	UMTS 1900	RMC	21.5	21.22	-0.02	10 mm	ABB3E	N/A	1:1	bottom	0.893	1.067	0.953	
1907.60	9538	UMTS 1900	RMC	21.5	21.11	-0.01	10 mm	ABB3E	N/A	1:1	bottom	0.789	1.094	0.863	
1880.00	9400	UMTS 1900	RMC	21.5	21.22	-0.01	10 mm	ABB3E	N/A	1:1	right	0.140	1.067	0.149	
1880.00	9400	UMTS 1900	RMC	21.5	21.22	-0.01	10 mm	ABB3E	N/A	1:1	left	0.059	1.067	0.063	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population											Body 1.6 W/kg (mW/g) averaged over 1 gram				

Blue entry represents variability measurement

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Table 11-20
LTE Band 12 Hotspot SAR Data

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) (W/kg)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
707.50	23095	Mid	LTE Band 12	10	24.0	23.78	-0.03	0	ABAFB	QPSK	1	0	10 mm	back	1:1	0.443	1.052	0.466	
707.50	23095	Mid	LTE Band 12	10	23.0	22.54	-0.03	1	ABAFB	QPSK	25	0	10 mm	back	1:1	0.339	1.112	0.377	
707.50	23095	Mid	LTE Band 12	10	24.0	23.78	-0.01	0	ABAFB	QPSK	1	0	10 mm	front	1:1	0.483	1.052	0.508	A30
707.50	23095	Mid	LTE Band 12	10	23.0	22.54	0.00	1	ABAFB	QPSK	25	0	10 mm	front	1:1	0.374	1.112	0.416	
707.50	23095	Mid	LTE Band 12	10	24.0	23.78	-0.02	0	ABAFB	QPSK	1	0	10 mm	bottom	1:1	0.276	1.052	0.290	
707.50	23095	Mid	LTE Band 12	10	23.0	22.54	0.03	1	ABAFB	QPSK	25	0	10 mm	bottom	1:1	0.214	1.112	0.238	
707.50	23095	Mid	LTE Band 12	10	24.0	23.78	0.00	0	ABAFB	QPSK	1	0	10 mm	right	1:1	0.201	1.052	0.211	
707.50	23095	Mid	LTE Band 12	10	23.0	22.54	0.05	1	ABAFB	QPSK	25	0	10 mm	right	1:1	0.148	1.112	0.165	
707.50	23095	Mid	LTE Band 12	10	24.0	23.78	0.03	0	ABAFB	QPSK	1	0	10 mm	left	1:1	0.066	1.052	0.069	
707.50	23095	Mid	LTE Band 12	10	23.0	22.54	0.00	1	ABAFB	QPSK	25	0	10 mm	left	1:1	0.053	1.112	0.059	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram					

Table 11-21
LTE Band 26 (Cell) Hotspot SAR Data

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) (W/kg)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
836.50	26915	Mid	LTE Band 26 (Cell)	15	24.0	23.69	-0.03	0	ABC1B	QPSK	1	0	10 mm	back	1:1	0.527	1.074	0.566	
836.50	26915	Mid	LTE Band 26 (Cell)	15	23.0	22.58	0.00	1	ABC1B	QPSK	36	0	10 mm	back	1:1	0.400	1.102	0.441	
836.50	26915	Mid	LTE Band 26 (Cell)	15	24.0	23.69	0.00	0	ABC1B	QPSK	1	0	10 mm	front	1:1	0.566	1.074	0.608	A32
836.50	26915	Mid	LTE Band 26 (Cell)	15	23.0	22.58	-0.03	1	ABC1B	QPSK	36	0	10 mm	front	1:1	0.426	1.102	0.469	
836.50	26915	Mid	LTE Band 26 (Cell)	15	24.0	23.69	-0.01	0	ABC1B	QPSK	1	0	10 mm	bottom	1:1	0.256	1.074	0.275	
836.50	26915	Mid	LTE Band 26 (Cell)	15	23.0	22.58	0.00	1	ABC1B	QPSK	36	0	10 mm	bottom	1:1	0.191	1.102	0.210	
836.50	26915	Mid	LTE Band 26 (Cell)	15	24.0	23.69	-0.01	0	ABC1B	QPSK	1	0	10 mm	right	1:1	0.292	1.074	0.314	
836.50	26915	Mid	LTE Band 26 (Cell)	15	23.0	22.58	0.01	1	ABC1B	QPSK	36	0	10 mm	right	1:1	0.221	1.102	0.244	
836.50	26915	Mid	LTE Band 26 (Cell)	15	24.0	23.69	0.03	0	ABC1B	QPSK	1	0	10 mm	left	1:1	0.065	1.074	0.070	
836.50	26915	Mid	LTE Band 26 (Cell)	15	23.0	22.58	0.04	1	ABC1B	QPSK	36	0	10 mm	left	1:1	0.042	1.102	0.046	
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
LTE Band 4 (AWS) Hotspot SAR Data

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) (W/kg)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
1732.50	20175	Mid	LTE Band 4 (AWS)	20	21.5	21.48	-0.07	0	ABFAC	QPSK	1	0	10 mm	back	1:1	0.715	1.005	0.719	A34
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.32	-0.05	1	ABFAC	QPSK	50	0	10 mm	back	1:1	0.545	1.042	0.568	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	21.5	21.48	0.09	0	ABFAC	QPSK	1	0	10 mm	front	1:1	0.696	1.005	0.699	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.32	0.06	1	ABFAC	QPSK	50	0	10 mm	front	1:1	0.526	1.042	0.548	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	21.5	21.48	-0.03	0	ABFAC	QPSK	1	0	10 mm	bottom	1:1	0.708	1.005	0.712	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.32	-0.01	1	ABFAC	QPSK	50	0	10 mm	bottom	1:1	0.547	1.042	0.570	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	21.5	21.48	0.02	0	ABFAC	QPSK	1	0	10 mm	right	1:1	0.173	1.005	0.174	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.32	0.05	1	ABFAC	QPSK	50	0	10 mm	right	1:1	0.125	1.042	0.130	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	21.5	21.48	-0.04	0	ABFAC	QPSK	1	0	10 mm	left	1:1	0.018	1.005	0.018	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.32	0.03	1	ABFAC	QPSK	50	0	10 mm	left	1:1	0.014	1.042	0.015	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram					

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Table 11-23
LTE Band 25 (PCS) Hotspot SAR Data

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	Scaled SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	22.0	21.41	-0.04	0	ABFAC	QPSK	1	0	10 mm	back	1:1	0.660	1.146	0.756	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	21.0	20.08	0.00	1	ABFAC	QPSK	50	0	10 mm	back	1:1	0.493	1.236	0.609	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	22.0	21.41	-0.03	0	ABFAC	QPSK	1	0	10 mm	front	1:1	0.467	1.146	0.535	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	21.0	20.08	-0.06	1	ABFAC	QPSK	50	0	10 mm	front	1:1	0.348	1.236	0.430	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	22.0	21.41	-0.01	0	ABFAC	QPSK	1	0	10 mm	bottom	1:1	0.692	1.146	0.793	A36
1882.50	26365	Mid	LTE Band 25 (PCS)	20	21.0	20.08	-0.03	1	ABFAC	QPSK	50	0	10 mm	bottom	1:1	0.505	1.236	0.624	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	22.0	21.41	0.02	0	ABFAC	QPSK	1	0	10 mm	right	1:1	0.120	1.146	0.138	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	21.0	20.08	0.01	1	ABFAC	QPSK	50	0	10 mm	right	1:1	0.086	1.236	0.106	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	22.0	21.41	-0.07	0	ABFAC	QPSK	1	0	10 mm	left	1:1	0.048	1.146	0.055	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	21.0	20.08	0.02	1	ABFAC	QPSK	50	0	10 mm	left	1:1	0.037	1.236	0.046	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram						

Table 11-24
LTE Band 41 Hotspot SAR Data

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	Scaled SAR (1g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
2593.00	40620	Mid	LTE Band 41	20	24.5	24.40	-0.02	0	ABB41	QPSK	1	0	10 mm	back	1:1.58	0.405	1.023	0.414	
2593.00	40620	Mid	LTE Band 41	20	23.5	23.50	-0.05	1	ABB41	QPSK	50	0	10 mm	back	1:1.58	0.337	1.000	0.337	
2593.00	40620	Mid	LTE Band 41	20	24.5	24.40	0.01	0	ABB41	QPSK	1	0	10 mm	front	1:1.58	0.282	1.023	0.288	
2593.00	40620	Mid	LTE Band 41	20	23.5	23.50	-0.09	1	ABB41	QPSK	50	0	10 mm	front	1:1.58	0.234	1.000	0.234	
2506.00	39750	Low	LTE Band 41	20	24.5	24.19	0.01	0	ABB41	QPSK	1	0	10 mm	bottom	1:1.58	0.655	1.074	0.703	
2549.50	40185	Low-Mid	LTE Band 41	20	24.5	23.97	-0.07	0	ABB41	QPSK	1	0	10 mm	bottom	1:1.58	0.679	1.130	0.767	A38
2593.00	40620	Mid	LTE Band 41	20	24.5	24.40	-0.12	0	ABB41	QPSK	1	0	10 mm	bottom	1:1.58	0.649	1.023	0.664	
2636.50	41055	Mid-High	LTE Band 41	20	24.5	24.38	-0.13	0	ABB41	QPSK	1	50	10 mm	bottom	1:1.58	0.352	1.028	0.362	
2680.00	41490	High	LTE Band 41	20	24.5	24.01	-0.01	0	ABB41	QPSK	1	0	10 mm	bottom	1:1.58	0.656	1.119	0.734	
2593.00	40620	Mid	LTE Band 41	20	23.5	23.50	-0.01	1	ABB41	QPSK	50	0	10 mm	bottom	1:1.58	0.526	1.000	0.526	
2593.00	40620	Mid	LTE Band 41	20	23.5	23.47	-0.03	1	ABB41	QPSK	100	0	10 mm	bottom	1:1.58	0.444	1.007	0.447	
2593.00	40620	Mid	LTE Band 41	20	24.5	24.40	-0.03	0	ABB41	QPSK	1	0	10 mm	left	1:1.58	0.182	1.023	0.186	
2593.00	40620	Mid	LTE Band 41	20	23.5	23.50	-0.01	1	ABB41	QPSK	50	0	10 mm	left	1:1.58	0.180	1.000	0.180	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Body 1.6 W/kg (mW/g) averaged over 1 gram						

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Table 11-25
WLAN Hotspot SAR Data

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)	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.																		
2437	6	802.11b	DSSS	22	18.5	18.08	0.02	10 mm	1	ABAEB	1	back	99.6	0.145	0.111	1.102	1.004	**0.122**	
2437	6	802.11b	DSSS	22	18.5	18.08	-	10 mm	1	ABAEB	1	front	99.6	0.109	-	1.102	1.004	-	
2437	6	802.11b	DSSS	22	18.5	18.08	-	10 mm	1	ABAEB	1	top	99.6	0.034	-	1.102	1.004	-	
2437	6	802.11b	DSSS	22	18.5	18.08	-	10 mm	1	ABAEB	1	left	99.6	0.078	-	1.102	1.004	-	
2437	6	802.11b	DSSS	22	18.5	18.29	0.10	10 mm	2	ABAEB	1	back	99.9	0.145	0.114	1.050	1.001	0.120	A39
2437	6	802.11b	DSSS	22	18.5	18.29	-	10 mm	2	ABAEB	1	front	99.9	0.012	-	1.050	1.001	-	
2437	6	802.11b	DSSS	22	18.5	18.29	-	10 mm	2	ABAEB	1	top	99.9	0.030	-	1.050	1.001	-	
2437	6	802.11b	DSSS	22	18.5	18.29	-	10 mm	2	ABAEB	1	left	99.9	0.005	-	1.050	1.001	-	
5745	149	802.11a	OFDM	20	15.5	15.48	0.03	10 mm	1	ABAEB	6	back	98.5	0.501	0.256	1.005	1.015	**0.261**	A40
5745	149	802.11a	OFDM	20	15.5	15.48	-	10 mm	1	ABAEB	6	front	98.5	0.240	-	1.005	1.015	-	
5745	149	802.11a	OFDM	20	15.5	15.48	-	10 mm	1	ABAEB	6	top	98.5	0.079	-	1.005	1.015	-	
5745	149	802.11a	OFDM	20	15.5	15.48	-	10 mm	1	ABAEB	6	left	98.5	0.107	-	1.005	1.015	-	
5745	149	802.11a	OFDM	20	15.5	14.83	-	10 mm	2	ABAEB	6	back	99.8	0.156	-	1.167	1.002	-	
5745	149	802.11a	OFDM	20	15.5	14.83	0.03	10 mm	2	ABAEB	6	front	99.8	0.199	0.081	1.167	1.002	0.095	
5745	149	802.11a	OFDM	20	15.5	14.83	-	10 mm	2	ABAEB	6	top	99.8	0.167	-	1.167	1.002	-	
5745	149	802.11a	OFDM	20	15.5	14.83	-	10 mm	2	ABAEB	6	left	99.8	0.043	-	1.167	1.002	-	

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

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11.4 Standalone Extremity SAR Data

Table 11-26
CDMA/UMTS Extremity SAR

MEASUREMENT RESULTS														
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Device Serial Number	Duty Cycle	Side	SAR (10g)	Scaling Factor	Scaled SAR (10g)	Plot #
MHz	Ch.										(W/kg)		(W/kg)	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.0	24.84	0.01	3 mm	ABC54	1:1	back	1.300	1.038	1.349	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.0	24.84	0.10	2 mm	ABC54	1:1	front	1.490	1.038	1.547	A41
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.0	24.84	-0.11	4 mm	ABC54	1:1	bottom	0.522	1.038	0.542	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.0	24.84	0.01	0 mm	ABC54	1:1	right	0.463	1.038	0.481	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	25.0	24.84	0.00	0 mm	ABC54	1:1	left	0.310	1.038	0.322	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	23.5	23.00	-0.01	0 mm	ABC1B	1:1	back	0.866	1.122	0.972	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	23.5	23.00	0.03	0 mm	ABC1B	1:1	front	0.966	1.122	1.084	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. 0	23.5	23.00	0.00	0 mm	ABC1B	1:1	bottom	0.326	1.122	0.366	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.0	24.90	0.11	3 mm	ABC54	1:1	back	1.370	1.023	1.402	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.0	24.90	-0.01	2 mm	ABC54	1:1	front	1.540	1.023	1.575	A42
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.0	24.90	0.00	4 mm	ABC54	1:1	bottom	0.504	1.023	0.516	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.0	24.90	0.04	0 mm	ABC54	1:1	right	0.486	1.023	0.497	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	25.0	24.90	-0.02	0 mm	ABC54	1:1	left	0.359	1.023	0.367	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	23.5	23.06	0.00	0 mm	ABC1B	1:1	back	0.982	1.107	1.087	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	23.5	23.06	-0.08	0 mm	ABC1B	1:1	front	1.230	1.107	1.362	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. 0	23.5	23.06	-0.03	0 mm	ABC1B	1:1	bottom	0.357	1.107	0.395	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.71	-0.05	3 mm	ABF0D	1:1	back	1.690	1.069	1.807	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.71	-0.03	2 mm	ABF0D	1:1	front	1.730	1.069	1.849	A43
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.71	0.00	4 mm	ABF0D	1:1	bottom	1.680	1.069	1.796	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.71	0.01	0 mm	ABF0D	1:1	right	0.440	1.069	0.470	
1880.00	600	PCS CDMA	EVDO Rev. 0	25.0	24.71	0.00	0 mm	ABF0D	1:1	left	0.168	1.069	0.180	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.11	-0.02	0 mm	ABB3E	1:1	back	1.570	1.094	1.718	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.11	-0.02	0 mm	ABB3E	1:1	front	1.640	1.094	1.794	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.11	-0.10	0 mm	ABB3E	1:1	bottom	1.510	1.094	1.652	
1852.40	9262	UMTS 1900	RMC	23.5	23.39	0.01	3 mm	ABF0D	1:1	back	2.230	1.026	2.288	A44
1880.00	9400	UMTS 1900	RMC	23.5	23.46	0.01	3 mm	ABF0D	1:1	back	2.160	1.009	2.179	
1907.60	9538	UMTS 1900	RMC	23.5	23.48	-0.01	3 mm	ABF0D	1:1	back	2.090	1.005	2.100	
1880.00	9400	UMTS 1900	RMC	23.5	23.46	-0.07	2 mm	ABF0D	1:1	front	1.940	1.009	1.957	
1880.00	9400	UMTS 1900	RMC	23.5	23.46	-0.05	4 mm	ABF0D	1:1	bottom	1.780	1.009	1.796	
1880.00	9400	UMTS 1900	RMC	23.5	23.46	-0.04	0 mm	ABF0D	1:1	right	0.439	1.009	0.443	
1880.00	9400	UMTS 1900	RMC	23.5	23.46	0.03	0 mm	ABF0D	1:1	left	0.204	1.009	0.206	
1880.00	9400	UMTS 1900	RMC	21.5	21.22	0.00	0 mm	ABB3E	1:1	back	1.720	1.067	1.835	
1880.00	9400	UMTS 1900	RMC	21.5	21.22	-0.09	0 mm	ABB3E	1:1	front	1.810	1.067	1.931	
1880.00	9400	UMTS 1900	RMC	21.5	21.22	0.02	0 mm	ABB3E	1:1	bottom	1.730	1.067	1.846	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population										Extremity 4.0 W/kg (mW/g) averaged over 10 grams				

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Table 11-27
LTE Extremity SAR

MEASUREMENT RESULTS																			
FREQUENCY			Mode	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	MPR [dB]	Device Serial Number	Modulation	RB Size	RB Offset	Spacing	Side	Duty Cycle	SAR (10g)	Scaling Factor	Scaled SAR (10g)	Plot #
MHz	Ch.															(W/kg)		(W/kg)	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.84	-0.04	0	ABCC3	QPSK	1	0	3 mm	back	1:1	2.670	1.038	2.771	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.72	-0.11	1	ABCC3	QPSK	50	50	3 mm	back	1:1	2.090	1.067	2.230	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.68	-0.05	1	ABCC3	QPSK	100	0	3 mm	back	1:1	2.090	1.076	2.249	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.84	0.09	0	ABCC3	QPSK	1	0	2 mm	front	1:1	2.690	1.038	2.792	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.72	0.08	1	ABCC3	QPSK	50	50	2 mm	front	1:1	2.100	1.067	2.241	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.68	0.10	1	ABCC3	QPSK	100	0	2 mm	front	1:1	2.100	1.076	2.260	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.84	0.07	0	ABCC3	QPSK	1	0	4 mm	bottom	1:1	1.930	1.038	2.003	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.72	0.06	1	ABCC3	QPSK	50	50	4 mm	bottom	1:1	1.530	1.067	1.633	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.68	0.05	1	ABCC3	QPSK	100	0	4 mm	bottom	1:1	1.550	1.076	1.668	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.84	-0.03	0	ABCC3	QPSK	1	0	0 mm	right	1:1	0.577	1.038	0.599	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.72	0.00	1	ABCC3	QPSK	50	50	0 mm	right	1:1	0.428	1.067	0.457	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.84	-0.08	0	ABCC3	QPSK	1	0	0 mm	left	1:1	0.106	1.038	0.110	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	23.0	22.72	-0.03	1	ABCC3	QPSK	50	50	0 mm	left	1:1	0.079	1.067	0.084	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	21.5	21.48	-0.06	0	ABFAC	QPSK	1	0	0 mm	back	1:1	2.490	1.005	2.502	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.32	0.05	1	ABFAC	QPSK	50	0	0 mm	back	1:1	1.930	1.042	2.011	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.27	0.07	1	ABFAC	QPSK	100	0	0 mm	back	1:1	1.880	1.054	1.982	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	21.5	21.48	-0.03	0	ABFAC	QPSK	1	0	0 mm	front	1:1	2.310	1.005	2.322	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.32	-0.21	1	ABFAC	QPSK	50	0	0 mm	front	1:1	1.790	1.042	1.865	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.27	-0.19	1	ABFAC	QPSK	100	0	0 mm	front	1:1	1.770	1.054	1.866	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	21.5	21.48	-0.07	0	ABFAC	QPSK	1	0	0 mm	bottom	1:1	2.260	1.005	2.271	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.32	0.01	1	ABFAC	QPSK	50	0	0 mm	bottom	1:1	1.750	1.042	1.824	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	20.5	20.27	-0.02	1	ABFAC	QPSK	100	0	0 mm	bottom	1:1	1.750	1.054	1.845	
1732.50	20175	Mid	LTE Band 4 (AWS)	20	24.0	23.84	-0.05	0	ABCC3	QPSK	1	0	2 mm	front	1:1	2.750	1.038	**2.855**	A45
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.89	-0.03	0	ABCC3	QPSK	1	99	3 mm	back	1:1	2.150	1.026	2.206	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.82	0.05	0	ABCC3	QPSK	1	0	3 mm	back	1:1	2.310	1.042	2.407	A46
1905.00	26590	High	LTE Band 25 (PCS)	20	24.0	23.77	0.11	0	ABCC3	QPSK	1	0	3 mm	back	1:1	2.200	1.054	2.319	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.77	0.01	1	ABCC3	QPSK	50	50	3 mm	back	1:1	1.740	1.054	1.834	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.70	0.02	1	ABCC3	QPSK	100	0	3 mm	back	1:1	1.700	1.072	1.822	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.89	-0.08	0	ABCC3	QPSK	1	99	2 mm	front	1:1	1.690	1.026	1.734	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.77	-0.05	1	ABCC3	QPSK	50	50	2 mm	front	1:1	1.170	1.054	1.233	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.89	0.03	0	ABCC3	QPSK	1	99	4 mm	bottom	1:1	1.900	1.026	1.949	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.77	0.02	1	ABCC3	QPSK	50	50	4 mm	bottom	1:1	1.520	1.054	1.602	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.89	0.01	0	ABCC3	QPSK	1	99	0 mm	right	1:1	0.471	1.026	0.483	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.77	0.07	1	ABCC3	QPSK	50	50	0 mm	right	1:1	0.368	1.054	0.388	
1860.00	26140	Low	LTE Band 25 (PCS)	20	24.0	23.89	0.01	0	ABCC3	QPSK	1	99	0 mm	left	1:1	0.169	1.026	0.173	
1860.00	26140	Low	LTE Band 25 (PCS)	20	23.0	22.77	-0.01	1	ABCC3	QPSK	50	50	0 mm	left	1:1	0.133	1.054	0.140	
1860.00	26140	Low	LTE Band 25 (PCS)	20	22.0	21.05	-0.03	0	ABFAC	QPSK	1	99	0 mm	back	1:1	1.800	1.245	2.241	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	22.0	21.41	-0.04	0	ABFAC	QPSK	1	0	0 mm	back	1:1	1.920	1.146	2.200	
1905.00	26590	High	LTE Band 25 (PCS)	20	22.0	20.89	-0.03	0	ABFAC	QPSK	1	0	0 mm	back	1:1	1.780	1.291	2.298	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	21.0	20.08	-0.03	1	ABFAC	QPSK	50	0	0 mm	back	1:1	1.440	1.236	1.780	
1860.00	26140	Low	LTE Band 25 (PCS)	20	21.0	19.98	0.00	1	ABFAC	QPSK	100	0	0 mm	back	1:1	1.450	1.265	1.834	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	22.0	21.41	0.00	0	ABFAC	QPSK	1	0	0 mm	front	1:1	1.340	1.146	1.536	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	21.0	20.08	0.01	1	ABFAC	QPSK	50	0	0 mm	front	1:1	1.150	1.236	1.421	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	22.0	21.41	0.03	0	ABFAC	QPSK	1	0	0 mm	bottom	1:1	1.230	1.146	1.410	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	21.0	20.08	0.02	1	ABFAC	QPSK	50	0	0 mm	bottom	1:1	1.110	1.236	1.372	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	24.0	23.82	0.00	0	ABCC3	QPSK	1	0	3 mm	back	1:1	2.200	1.042	2.292	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Extremity 4.0 W/kg (mW/g) averaged over 10 grams					

Blue entries represent variability measurements

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Table 11-28
WLAN Extremity SAR

MEASUREMENT RESULTS																			
FREQUENCY		Mode	Service	Bandwidth [MHz]	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle (%)	Peak SAR of Area Scan	SAR (10g)	Scaling Factor (Power)	Scaling Factor (Duty Cycle)	Scaled SAR (10g)	Plot #
MHz	Ch.													W/kg	(W/kg)			(W/kg)	
5300	60	802.11a	OFDM	20	15.5	15.04	0.06	0 mm	1	ABAEB	6	back	98.5	5.820	0.582	1.112	1.015	0.657	
5300	60	802.11a	OFDM	20	15.5	15.04	-	0 mm	1	ABAEB	6	front	98.5	5.230	-	1.112	1.015	-	
5300	60	802.11a	OFDM	20	15.5	15.04	-	0 mm	1	ABAEB	6	top	98.5	1.420	-	1.112	1.015	-	
5300	60	802.11a	OFDM	20	15.5	15.04	-	0 mm	1	ABAEB	6	left	98.5	0.616	-	1.112	1.015	-	
5260	52	802.11a	OFDM	20	15.5	15.33	0.09	0 mm	2	ABAEB	6	back	99.8	12.900	0.564	1.040	1.002	0.588	
5260	52	802.11a	OFDM	20	15.5	15.33	-	0 mm	2	ABAEB	6	front	99.8	1.350	-	1.040	1.002	-	
5260	52	802.11a	OFDM	20	15.5	15.33	-	0 mm	2	ABAEB	6	top	99.8	0.599	-	1.040	1.002	-	
5260	52	802.11a	OFDM	20	15.5	15.33	-	0 mm	2	ABAEB	6	left	99.8	0.042	-	1.040	1.002	-	
5300	60	802.11n	OFDM	20	16.5	15.94	-0.17	0 mm	MIMO	ABAEB	13	back	98.9	6.110	0.779	1.194	1.011	0.940	
5300	60	802.11n	OFDM	20	16.5	15.94	0.04	0 mm	MIMO	ABAEB	13	front	98.9	2.840	0.425	1.194	1.011	0.513	
5720	144	802.11a	OFDM	20	15.5	15.18	0.13	0 mm	1	ABAEB	6	back	98.5	5.220	1.100	1.076	1.015	1.202	
5720	144	802.11a	OFDM	20	15.5	15.18	0.10	0 mm	1	ABAEB	6	front	98.5	4.720	1.150	1.076	1.015	**1.256**	A47
5720	144	802.11a	OFDM	20	15.5	15.18	-	0 mm	1	ABAEB	6	top	98.5	1.660	-	1.076	1.015	-	
5720	144	802.11a	OFDM	20	15.5	15.18	-	0 mm	1	ABAEB	6	left	98.5	1.390	-	1.076	1.015	-	
5500	100	802.11a	OFDM	20	15.5	15.15	0.06	0 mm	2	ABAEB	6	back	99.8	4.070	0.569	1.084	1.002	0.618	
5500	100	802.11a	OFDM	20	15.5	15.15	-	0 mm	2	ABAEB	6	front	99.8	1.710	-	1.084	1.002	-	
5500	100	802.11a	OFDM	20	15.5	15.15	-	0 mm	2	ABAEB	6	top	99.8	2.470	-	1.084	1.002	-	
5500	100	802.11a	OFDM	20	15.5	15.15	-	0 mm	2	ABAEB	6	left	99.8	0.676	-	1.084	1.002	-	
5500	100	802.11n	OFDM	20	16.5	16.27	0.12	0 mm	MIMO	ABAEB	13	back	98.9	6.240	0.918	1.091	1.011	1.013	
5500	100	802.11n	OFDM	20	16.5	16.27	0.03	0 mm	MIMO	ABAEB	13	front	98.9	4.170	0.769	1.091	1.011	0.848	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population														Extremity 4.0 W/kg (mW/g) averaged over 10 grams					

11.5 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2003, and FCC KDB Publication 447498 D01v05.
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 D01v05.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB Publication 648474 D04v01, 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 D01 v01, variability SAR tests were performed when the measured SAR results for a frequency band were greater than 0.8 W/kg for 1 g SAR and 2.0 W/kg for 10g SAR. 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 D06v02, 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 D04v01r01, this device is considered a "phablet" since the diagonal dimension is > 160 mm and < 200 mm. Therefore, hand SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg.
11. This device utilizes power reduction for some wireless modes and technologies, as outlined in Section 1.3. The maximum output power allowed for each transmitter and exposure condition was evaluated for SAR compliance based on expected use conditions and simultaneous transmission scenarios.

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12. Additional SAR tests for extremity SAR were evaluated per KDB 616217 Section 6 (See Section 6.8 for more information).

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 D01v01 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 D01v05, 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 1 g SAR and 2.0 W/kg for 10 g SAR, 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.

CDMA Notes:

1. Head SAR for CDMA2000 mode was tested under RC3/SO55 per the 3G SAR Test Reduction Procedure specified in FCC KDB Publication 941225 D01v03
2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. EVDO and TDSO / SO32 FCH+SCH SAR tests were not required per the 3G SAR Test Reduction Procedure specified in FCC KDB Publication 941225 D01v03.
3. CDMA Wireless Router SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 according to KDB 941225 D01v03 procedures for data devices. Since the average output power of Subtype 2 for Rev. A is less than the Rev. 0 power levels, EVDO Rev. A SAR is not required. SAR is not required for 1x RTT for Ev-Do hotspot devices when the maximum average output of each channel is less than ¼ dB higher than that measured in Subtype 0/1 Physical Layer configurations for Rev. 0.
4. Head SAR was additionally evaluated using EVDO Rev. A to determine compliance for VoIP operations.
5. Per FCC KDB Publication 447498 D01v05, 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 1 g SAR and 2.0 W/kg for 10 g SAR, 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. 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.

UMTS Notes:

1. UMTS mode in was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v03. AMR and HSPA SAR was not required since the average output power of the HSPA subtests was not more than 0.25 dB higher than the RMC level and SAR was less than 1.2 W/kg for 1 gram SAR and less than 3.0 W/kg for 10 gram SAR.
2. Per FCC KDB Publication 447498 D01v05, 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 1 g SAR and 2.0 W/kg for 10 g SAR, 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 D05v02r03. The general test procedures used for testing can be found in Section 8.6.4.

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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 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 KDB Publication 941225 D05Av01r01, 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.
5. Per FCC KDB Publication 447498 D01v05r01, when the reported (scaled) for LTE Band 41 SAR measured at the highest output power channel in a given a test configuration was > 0.6 W/kg, testing at the other channels was required for such test configurations.
6. TDD LTE was tested per FCC KDB 941225 D05v02r03 and using the guidance provided in April 2013 TCB workshop notes. 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.

WLAN Notes:

1. For held-to-ear and hotspot operations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g SAR and ≤ 1.0 W/kg for 10g SAR, 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 for 1g SAR and ≤ 2.0 for 10g SAR or all test positions are measured.
2. Justification for test configurations for WLAN per FCC KDB Publication 248227 D01v01r02 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 D01v01r02 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. See Section 8.7.6 for more information.
4. Per KDB Publication 248227 D01v02r01, SAR for MIMO was evaluated by following the simultaneous SAR provisions from KDB Publication 447498 or by measuring MIMO SAR with both antennas transmitting simultaneously at the specified maximum output power in MIMO mode. Please see section 12 for complete analysis.
5. When the maximum reported averaged SAR is ≤0.8 W/kg for 1 g SAR and 2.0 W/kg for 10 g SAR, 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 1 g SAR and ≤ 3.0 W/kg for 10 g SAR 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. For SAR compliance, this device always uses power reduction when the device is in a held-to-ear RF exposure condition with WIFI operations. Per FCC Guidance, WIFI Head SAR was evaluated at reduced power levels.

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12 FCC MULTI-TX AND ANTENNA SAR CONSIDERATIONS

12.1 Introduction

The following procedures adopted from FCC KDB Publication 447498 D01v05 are applicable to handsets with built-in unlicensed transmitters such as 802.11a/b/g/n/ac 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 447498 D01v05 IV.C.1.iii and IEEE 1528-2013 Section 6.3.4.1.2, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is ≤1.6 W/kg. When standalone SAR is not required to be measured, per FCC KDB 447498 D01v05 4.3.2 2), the following equations must be used to estimate the standalone 1g SAR and 10g SAR for simultaneous transmission assessment involving that transmitter.

$$Estimated\ 1g\ SAR = \frac{\sqrt{\mathrm{f(GHz)}}}{7.5} * \frac{(\mathrm{Max\ Power\ of\ channel, mW})}{\mathrm{Min.\ Separation\ Distance, mm}}$$

$$Estimated\ 10g\ SAR = \frac{\sqrt{\mathrm{f(GHz}}}{18.75} * \frac{(\mathrm{Max\ Power\ of\ channel, mW})}{\mathrm{Min.\ Separation\ Distance, mm}}$$

Table 12-1
Estimated SAR

Mode	Frequency	Maximum Allowed Power	Separation Distance (Body)	Estimated SAR (Bodyworn 1g)	Estimated SAR (Extremity 10 g)
	[MHz]	[dBm]	[mm]	[W/kg]	[W/kg]
Bluetooth	2480	11.50	15	0.196	-
Bluetooth	2480	11.50	5*	-	0.235

Note: Held-to ear configurations are not applicable to Bluetooth operations and therefore were not considered for simultaneous transmission. Per KDB Publication 447498 D01v05, the maximum power of the channel was rounded to the nearest mW before calculation.

(*) – Per FCC KDB Publication 447498, when the test separation distance is <5 mm, a distance of 5mm is applied to determine estimated SAR.

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12.3 Head SAR Simultaneous Transmission Analysis

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	CDMA/EVDO BC10	0.287	0.231	0.518
	CDMA/EVDO BC0	0.339	0.231	**0.570**
	GSM 850	0.180	0.231	0.411
	UMTS 850	0.196	0.231	0.427
	PCS CDMA/EVDO	0.141	0.231	0.372
	GSM 1900	0.095	0.231	0.326
	UMTS 1900	0.119	0.231	0.350
	LTE Band 12	0.096	0.231	0.327
	LTE Band 26 (Cell)	0.230	0.231	0.461
	LTE Band 4 (AWS)	0.066	0.231	0.297
	LTE Band 25 (PCS)	0.074	0.231	0.305
	LTE Band 41	0.115	0.231	0.346

Table 12-3
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 2 (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	CDMA/EVDO BC10	0.287	0.219	0.506
	CDMA/EVDO BC0	0.339	0.219	**0.558**
	GSM 850	0.180	0.219	0.399
	UMTS 850	0.196	0.219	0.415
	PCS CDMA/EVDO	0.141	0.219	0.360
	GSM 1900	0.095	0.219	0.314
	UMTS 1900	0.119	0.219	0.338
	LTE Band 12	0.096	0.219	0.315
	LTE Band 26 (Cell)	0.230	0.219	0.449
	LTE Band 4 (AWS)	0.066	0.219	0.285
	LTE Band 25 (PCS)	0.074	0.219	0.293
	LTE Band 41	0.115	0.219	0.334

Table 12-4
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	CDMA/EVDO BC10	0.287	0.231	0.219	0.737
	CDMA/EVDO BC0	0.339	0.231	0.219	**0.789**
	GSM 850	0.180	0.231	0.219	0.630
	UMTS 850	0.196	0.231	0.219	0.646
	PCS CDMA/EVDO	0.141	0.231	0.219	0.591
	GSM 1900	0.095	0.231	0.219	0.545
	UMTS 1900	0.119	0.231	0.219	0.569
	LTE Band 12	0.096	0.231	0.219	0.546
	LTE Band 26 (Cell)	0.230	0.231	0.219	0.680
	LTE Band 4 (AWS)	0.066	0.231	0.219	0.516
	LTE Band 25 (PCS)	0.074	0.231	0.219	0.524
	LTE Band 41	0.115	0.231	0.219	0.565

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

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
Head SAR	CDMA/EVDO BC10	0.287	0.667	0.954
	CDMA/EVDO BC0	0.339	0.667	**1.006**
	GSM 850	0.180	0.667	0.847
	UMTS 850	0.196	0.667	0.863
	PCS CDMA/EVDO	0.141	0.667	0.808
	GSM 1900	0.095	0.667	0.762
	UMTS 1900	0.119	0.667	0.786
	LTE Band 12	0.096	0.667	0.763
	LTE Band 26 (Cell)	0.230	0.667	0.897
	LTE Band 4 (AWS)	0.066	0.667	0.733
	LTE Band 25 (PCS)	0.074	0.667	0.741
	LTE Band 41	0.115	0.667	0.782

Table 12-6
Simultaneous Transmission Scenario with 5 GHz WLAN Ant 2 (Held to Ear)

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
Head SAR	CDMA/EVDO BC10	0.287	0.287	0.574
	CDMA/EVDO BC0	0.339	0.287	**0.626**
	GSM 850	0.180	0.287	0.467
	UMTS 850	0.196	0.287	0.483
	PCS CDMA/EVDO	0.141	0.287	0.428
	GSM 1900	0.095	0.287	0.382
	UMTS 1900	0.119	0.287	0.406
	LTE Band 12	0.096	0.287	0.383
	LTE Band 26 (Cell)	0.230	0.287	0.517
	LTE Band 4 (AWS)	0.066	0.287	0.353
	LTE Band 25 (PCS)	0.074	0.287	0.361
	LTE Band 41	0.115	0.287	0.402

Table 12-7
Simultaneous Transmission Scenario with 5 GHz WLAN MIMO (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Head SAR	CDMA/EVDO BC10	0.287	0.715	1.002
	CDMA/EVDO BC0	0.339	0.715	**1.054**
	GSM 850	0.180	0.715	0.895
	UMTS 850	0.196	0.715	0.911
	PCS CDMA/EVDO	0.141	0.715	0.856
	GSM 1900	0.095	0.715	0.810
	UMTS 1900	0.119	0.715	0.834
	LTE Band 12	0.096	0.715	0.811
	LTE Band 26 (Cell)	0.230	0.715	0.945
	LTE Band 4 (AWS)	0.066	0.715	0.781
	LTE Band 25 (PCS)	0.074	0.715	0.789
	LTE Band 41	0.115	0.715	0.830

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Table 12-8
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 and 5 GHz WLAN Ant 2 (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	CDMA/EVDO BC10	0.287	0.231	0.287	0.805
	CDMA/EVDO BC0	0.339	0.231	0.287	**0.857**
	GSM 850	0.180	0.231	0.287	0.698
	UMTS 850	0.196	0.231	0.287	0.714
	PCS CDMA/EVDO	0.141	0.231	0.287	0.659
	GSM 1900	0.095	0.231	0.287	0.613
	UMTS 1900	0.119	0.231	0.287	0.637
	LTE Band 12	0.096	0.231	0.287	0.614
	LTE Band 26 (Cell)	0.230	0.231	0.287	0.748
	LTE Band 4 (AWS)	0.066	0.231	0.287	0.584
	LTE Band 25 (PCS)	0.074	0.231	0.287	0.592
	LTE Band 41	0.115	0.231	0.287	0.633

Table 12-9
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 2 and 5 GHz WLAN Ant 1 (Held to Ear)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Head SAR	CDMA/EVDO BC10	0.287	0.219	0.667	1.173
	CDMA/EVDO BC0	0.339	0.219	0.667	**1.225**
	GSM 850	0.180	0.219	0.667	1.066
	UMTS 850	0.196	0.219	0.667	1.082
	PCS CDMA/EVDO	0.141	0.219	0.667	1.027
	GSM 1900	0.095	0.219	0.667	0.981
	UMTS 1900	0.119	0.219	0.667	1.005
	LTE Band 12	0.096	0.219	0.667	0.982
	LTE Band 26 (Cell)	0.230	0.219	0.667	1.116
	LTE Band 4 (AWS)	0.066	0.219	0.667	0.952
	LTE Band 25 (PCS)	0.074	0.219	0.667	0.960
	LTE Band 41	0.115	0.219	0.667	1.001

Note: For Tables 12-5 to 12-9, the worst case 5 GHz WIFI reported SAR for each head configuration was considered for simultaneous SAR exclusion via summation of standalone SAR, regardless of whether the WIFI channel has WIFI Hotspot capability, for simplicity to determine compliance. Please note that the actual simultaneous transmission SAR will not exceed the summed levels indicated.

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12.4 Body-Worn Simultaneous Transmission Analysis

Notes: For SAR summations for body-worn back side at 15 mm with WLAN, WLAN SAR values for 1.0 cm were used since the 1.0 cm test distance for WLAN was more conservative. "<" denotes that the 1.0 cm WLAN SAR values were used for summation purposes.

For SAR summations for body-worn back side at 15 mm where power reduction would be active, LTE Bands 4 and 25 SAR values at max power were used since they were more conservative. "<" denotes that the max power LTE Bands 4 and 25 SAR values were used for summation purposes.

Table 12-10
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	CDMA BC10 (§90S)	0.600	< 0.122	< 0.722
	CDMA BC0 (§22H)	0.649	< 0.122	< 0.771
	GSM 850	0.392	< 0.122	< 0.514
	UMTS 850	0.378	< 0.122	< 0.5
	PCS CDMA	0.733	< 0.122	**< 0.855**
	GSM 1900	0.455	< 0.122	< 0.577
	UMTS 1900	0.730	< 0.122	< 0.852
	LTE Band 12	0.226	< 0.122	< 0.348
	LTE Band 26 (Cell)	0.434	< 0.122	< 0.556
	LTE Band 4 (AWS)	< 0.585	< 0.122	< 0.707
	LTE Band 25 (PCS)	< 0.534	< 0.122	< 0.656
	LTE Band 41	0.217	< 0.122	< 0.339

Table 12-11
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 2 (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	CDMA BC10 (§90S)	0.600	< 0.12	< 0.72
	CDMA BC0 (§22H)	0.649	< 0.12	< 0.769
	GSM 850	0.392	< 0.12	< 0.512
	UMTS 850	0.378	< 0.12	< 0.498
	PCS CDMA	0.733	< 0.12	**< 0.853**
	GSM 1900	0.455	< 0.12	< 0.575
	UMTS 1900	0.730	< 0.12	< 0.85
	LTE Band 12	0.226	< 0.12	< 0.346
	LTE Band 26 (Cell)	0.434	< 0.12	< 0.554
	LTE Band 4 (AWS)	< 0.585	< 0.12	< 0.705
	LTE Band 25 (PCS)	< 0.534	< 0.12	< 0.654
	LTE Band 41	0.217	< 0.12	< 0.337

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

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	CDMA BC10 (§90S)	0.600	< 0.122	< 0.12	< 0.842
	CDMA BC0 (§22H)	0.649	< 0.122	< 0.12	< 0.891
	GSM 850	0.392	< 0.122	< 0.12	< 0.634
	UMTS 850	0.378	< 0.122	< 0.12	< 0.62
	PCS CDMA	0.733	< 0.122	< 0.12	**< 0.975**
	GSM 1900	0.455	< 0.122	< 0.12	< 0.697
	UMTS 1900	0.730	< 0.122	< 0.12	< 0.972
	LTE Band 12	0.226	< 0.122	< 0.12	< 0.468
	LTE Band 26 (Cell)	0.434	< 0.122	< 0.12	< 0.676
	LTE Band 4 (AWS)	< 0.585	< 0.122	< 0.12	< 0.827
	LTE Band 25 (PCS)	< 0.534	< 0.122	< 0.12	< 0.776
	LTE Band 41	0.217	< 0.122	< 0.12	< 0.459

Table 12-13
Simultaneous Transmission Scenario with 5 GHz WLAN Ant 1 (Body-Worn at 1.5 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)	0.600	< 0.261	< 0.861
	CDMA BC0 (§22H)	0.649	< 0.261	< 0.91
	GSM 850	0.392	< 0.261	< 0.653
	UMTS 850	0.378	< 0.261	< 0.639
	PCS CDMA	0.733	< 0.261	**< 0.994**
	GSM 1900	0.455	< 0.261	< 0.716
	UMTS 1900	0.730	< 0.261	< 0.991
	LTE Band 12	0.226	< 0.261	< 0.487
	LTE Band 26 (Cell)	0.434	< 0.261	< 0.695
	LTE Band 4 (AWS)	< 0.585	< 0.261	< 0.846
	LTE Band 25 (PCS)	< 0.534	< 0.261	< 0.795
	LTE Band 41	0.217	< 0.261	< 0.478

Table 12-14
Simultaneous Transmission Scenario with 5 GHz WLAN Ant 2 (Body-Worn at 1.5 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
Body-Worn	CDMA BC10 (§90S)	0.600	< 0.101	< 0.701
	CDMA BC0 (§22H)	0.649	< 0.101	< 0.75
	GSM 850	0.392	< 0.101	< 0.493
	UMTS 850	0.378	< 0.101	< 0.479
	PCS CDMA	0.733	< 0.101	**< 0.834**
	GSM 1900	0.455	< 0.101	< 0.556
	UMTS 1900	0.730	< 0.101	< 0.831
	LTE Band 12	0.226	< 0.101	< 0.327
	LTE Band 26 (Cell)	0.434	< 0.101	< 0.535
	LTE Band 4 (AWS)	< 0.585	< 0.101	< 0.686
	LTE Band 25 (PCS)	< 0.534	< 0.101	< 0.635
	LTE Band 41	0.217	< 0.101	< 0.318

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Table 12-15
Simultaneous Transmission Scenario with 5 GHz WLAN MIMO (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	CDMA BC10 (§90S)	0.600	< 0.261	< 0.101	< 0.962
	CDMA BC0 (§22H)	0.649	< 0.261	< 0.101	< 1.011
	GSM 850	0.392	< 0.261	< 0.101	< 0.754
	UMTS 850	0.378	< 0.261	< 0.101	< 0.74
	PCS CDMA	0.733	< 0.261	< 0.101	**< 1.095**
	GSM 1900	0.455	< 0.261	< 0.101	< 0.817
	UMTS 1900	0.730	< 0.261	< 0.101	< 1.092
	LTE Band 12	0.226	< 0.261	< 0.101	< 0.588
	LTE Band 26 (Cell)	0.434	< 0.261	< 0.101	< 0.796
	LTE Band 4 (AWS)	< 0.585	< 0.261	< 0.101	< 0.947
	LTE Band 25 (PCS)	< 0.534	< 0.261	< 0.101	< 0.896
	LTE Band 41	0.217	< 0.261	< 0.101	< 0.579

Table 12-16
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 and 5 GHz WLAN Ant 2 (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	CDMA BC10 (§90S)	0.600	< 0.122	< 0.101	< 0.823
	CDMA BC0 (§22H)	0.649	< 0.122	< 0.101	< 0.872
	GSM 850	0.392	< 0.122	< 0.101	< 0.615
	UMTS 850	0.378	< 0.122	< 0.101	< 0.601
	PCS CDMA	0.733	< 0.122	< 0.101	**< 0.956**
	GSM 1900	0.455	< 0.122	< 0.101	< 0.678
	UMTS 1900	0.730	< 0.122	< 0.101	< 0.953
	LTE Band 12	0.226	< 0.122	< 0.101	< 0.449
	LTE Band 26 (Cell)	0.434	< 0.122	< 0.101	< 0.657
	LTE Band 4 (AWS)	< 0.585	< 0.122	< 0.101	< 0.808
	LTE Band 25 (PCS)	< 0.534	< 0.122	< 0.101	< 0.757
	LTE Band 41	0.217	< 0.122	< 0.101	< 0.44

Table 12-17
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 2 and 5 GHz WLAN Ant 1 (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Body-Worn	CDMA BC10 (§90S)	0.600	< 0.12	< 0.261	< 0.981
	CDMA BC0 (§22H)	0.649	< 0.12	< 0.261	< 1.03
	GSM 850	0.392	< 0.12	< 0.261	< 0.773
	UMTS 850	0.378	< 0.12	< 0.261	< 0.759
	PCS CDMA	0.733	< 0.12	< 0.261	**< 1.114**
	GSM 1900	0.455	< 0.12	< 0.261	< 0.836
	UMTS 1900	0.730	< 0.12	< 0.261	< 1.111
	LTE Band 12	0.226	< 0.12	< 0.261	< 0.607
	LTE Band 26 (Cell)	0.434	< 0.12	< 0.261	< 0.815
	LTE Band 4 (AWS)	< 0.585	< 0.12	< 0.261	< 0.966
	LTE Band 25 (PCS)	< 0.534	< 0.12	< 0.261	< 0.915
	LTE Band 41	0.217	< 0.12	< 0.261	< 0.598

Note: For Tables 12-13 to 12-17, the worst case 5 GHz WIFI reported SAR for each body-worn configuration was considered for simultaneous SAR exclusion via summation of standalone SAR, regardless of whether the WIFI channel has WIFI Hotspot capability, for simplicity to determine compliance. Please note that the actual simultaneous transmission SAR will not exceed the summed levels indicated

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Table 12-18
Simultaneous Transmission Scenario with Bluetooth (Body-Worn at 1.5 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Body-Worn	CDMA BC10 (§90S)	0.600	0.196	0.796
	CDMA BC0 (§22H)	0.649	0.196	0.845
	GSM 850	0.392	0.196	0.588
	UMTS 850	0.378	0.196	0.574
	PCS CDMA	0.733	0.196	**0.929**
	GSM 1900	0.455	0.196	0.651
	UMTS 1900	0.730	0.196	0.926
	LTE Band 12	0.226	0.196	0.422
	LTE Band 26 (Cell)	0.434	0.196	0.630
	LTE Band 4 (AWS)	0.585	0.196	0.781
	LTE Band 25 (PCS)	0.534	0.196	0.730
	LTE Band 41	0.217	0.196	0.413

Note: Bluetooth SAR was not required to be measured per FCC KDB 447498. Estimated SAR results were used in the above table to determine simultaneous transmission SAR test exclusion.

12.5 Hotspot SAR Simultaneous Transmission Analysis

Table 12-19
Simultaneous Transmission Scenario (2.4 GHz WLAN Ant 1 Hotspot at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.716	0.122	0.838
	EVDO BC0 (§22H)	0.649	0.122	0.771
	GPRS 850	0.570	0.122	0.692
	UMTS 850	0.571	0.122	0.693
	PCS EVDO	0.932	0.122	1.054
	GPRS 1900	1.084	0.122	**1.206**
	UMTS 1900	0.970	0.122	1.092
	LTE Band 12	0.508	0.122	0.630
	LTE Band 26 (Cell)	0.608	0.122	0.730
	LTE Band 4 (AWS)	0.719	0.122	0.841
	LTE Band 25 (PCS)	0.793	0.122	0.915
	LTE Band 41	0.767	0.122	0.889

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Table 12-20
Simultaneous Transmission Scenario (2.4 GHz WLAN Ant 2 at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Hotspot SAR	EVDO BC10 (§90S)	0.716	0.120	0.836
	EVDO BC0 (§22H)	0.649	0.120	0.769
	GPRS 850	0.570	0.120	0.690
	UMTS 850	0.571	0.120	0.691
	PCS EVDO	0.932	0.120	1.052
	GPRS 1900	1.084	0.120	**1.204**
	UMTS 1900	0.970	0.120	1.090
	LTE Band 12	0.508	0.120	0.628
	LTE Band 26 (Cell)	0.608	0.120	0.728
	LTE Band 4 (AWS)	0.719	0.120	0.839
	LTE Band 25 (PCS)	0.793	0.120	0.913
	LTE Band 41	0.767	0.120	0.887

Table 12-21
Simultaneous Transmission Scenario (2.4 GHz WLAN MIMO 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+3
Hotspot SAR	EVDO BC10 (§90S)	0.716	0.122	0.120	0.958
	EVDO BC0 (§22H)	0.649	0.122	0.120	0.891
	GPRS 850	0.570	0.122	0.120	0.812
	UMTS 850	0.571	0.122	0.120	0.813
	PCS EVDO	0.932	0.122	0.120	1.174
	GPRS 1900	1.084	0.122	0.120	**1.326**
	UMTS 1900	0.970	0.122	0.120	1.212
	LTE Band 12	0.508	0.122	0.120	0.750
	LTE Band 26 (Cell)	0.608	0.122	0.120	0.850
	LTE Band 4 (AWS)	0.719	0.122	0.120	0.961
	LTE Band 25 (PCS)	0.793	0.122	0.120	1.035
	LTE Band 41	0.767	0.122	0.120	1.009

Table 12-22
Simultaneous Transmission Scenario (5 GHz WLAN Ant 1 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)	0.716	0.261	0.977
	EVDO BC0 (§22H)	0.649	0.261	0.910
	GPRS 850	0.570	0.261	0.831
	UMTS 850	0.571	0.261	0.832
	PCS EVDO	0.932	0.261	1.193
	GPRS 1900	1.084	0.261	**1.345**
	UMTS 1900	0.970	0.261	1.231
	LTE Band 12	0.508	0.261	0.769
	LTE Band 26 (Cell)	0.608	0.261	0.869
	LTE Band 4 (AWS)	0.719	0.261	0.980
	LTE Band 25 (PCS)	0.793	0.261	1.054
	LTE Band 41	0.767	0.261	1.028

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Table 12-23
Simultaneous Transmission Scenario (5 GHz WLAN Ant 2 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)	0.716	0.095	0.811
	EVDO BC0 (§22H)	0.649	0.095	0.744
	GPRS 850	0.570	0.095	0.665
	UMTS 850	0.571	0.095	0.666
	PCS EVDO	0.932	0.095	1.027
	GPRS 1900	1.084	0.095	**1.179**
	UMTS 1900	0.970	0.095	1.065
	LTE Band 12	0.508	0.095	0.603
	LTE Band 26 (Cell)	0.608	0.095	0.703
	LTE Band 4 (AWS)	0.719	0.095	0.814
	LTE Band 25 (PCS)	0.793	0.095	0.888
	LTE Band 41	0.767	0.095	0.862

Table 12-24
Simultaneous Transmission Scenario (5 GHz WLAN MIMO at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.716	0.261	0.095	1.072
	EVDO BC0 (§22H)	0.649	0.261	0.095	1.005
	GPRS 850	0.570	0.261	0.095	0.926
	UMTS 850	0.571	0.261	0.095	0.927
	PCS EVDO	0.932	0.261	0.095	1.288
	GPRS 1900	1.084	0.261	0.095	**1.440**
	UMTS 1900	0.970	0.261	0.095	1.326
	LTE Band 12	0.508	0.261	0.095	0.864
	LTE Band 26 (Cell)	0.608	0.261	0.095	0.964
	LTE Band 4 (AWS)	0.719	0.261	0.095	1.075
	LTE Band 25 (PCS)	0.793	0.261	0.095	1.149
	LTE Band 41	0.767	0.261	0.095	1.123

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Table 12-25
Simultaneous Transmission Scenario
(2.4 GHz WLAN Ant 1 and 5 GHz WLAN Ant 2 at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.716	0.122	0.095	0.933
	EVDO BC0 (§22H)	0.649	0.122	0.095	0.866
	GPRS 850	0.570	0.122	0.095	0.787
	UMTS 850	0.571	0.122	0.095	0.788
	PCS EVDO	0.932	0.122	0.095	1.149
	GPRS 1900	1.084	0.122	0.095	**1.301**
	UMTS 1900	0.970	0.122	0.095	1.187
	LTE Band 12	0.508	0.122	0.095	0.725
	LTE Band 26 (Cell)	0.608	0.122	0.095	0.825
	LTE Band 4 (AWS)	0.719	0.122	0.095	0.936
	LTE Band 25 (PCS)	0.793	0.122	0.095	1.010
	LTE Band 41	0.767	0.122	0.095	0.984

Table 12-26
Simultaneous Transmission Scenario
(2.4 GHz WLAN Ant 2 and 5 GHz WLAN Ant 1 at 1.0 cm)

Exposure Condition	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	3	1+2+3
Hotspot SAR	EVDO BC10 (§90S)	0.716	0.120	0.261	1.097
	EVDO BC0 (§22H)	0.649	0.120	0.261	1.030
	GPRS 850	0.570	0.120	0.261	0.951
	UMTS 850	0.571	0.120	0.261	0.952
	PCS EVDO	0.932	0.120	0.261	1.313
	GPRS 1900	1.084	0.120	0.261	**1.465**
	UMTS 1900	0.970	0.120	0.261	1.351
	LTE Band 12	0.508	0.120	0.261	0.889
	LTE Band 26 (Cell)	0.608	0.120	0.261	0.989
	LTE Band 4 (AWS)	0.719	0.120	0.261	1.100
	LTE Band 25 (PCS)	0.793	0.120	0.261	1.174
	LTE Band 41	0.767	0.120	0.261	1.148

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12.6 Extremity SAR Simultaneous Transmission Analysis

Table 12-27
Simultaneous Transmission Scenario - 5 GHz WLAN Ant 1 Extremity

Exposure Condition	Mode	3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Extremity SAR	CDMA BC10 (§90S)	1.547	1.256	2.803
	CDMA BC0 (§22H)	1.575	1.256	2.831
	PCS CDMA	1.849	1.256	3.105
	UMTS 1900	2.288	1.256	3.544
	LTE Band 4 (AWS)	2.855	1.256	**See Table 12-28**
	LTE Band 25 (PCS)	2.407	1.256	**3.663**

Table 12-28
Simultaneous Transmission Scenario – LTE Band 4 with 5 GHz WLAN Ant 1 Extremity

Simult Tx	Configuration	LTE Band 4 (AWS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	SPLSR
		1	2	1+2	1+2
Extremity SAR	Back	2.771	< 1.202	**<3.973**	N/A
	Front	2.855	<1.256	See note 1	< 0.05
	Top	-	1.256*	1.256	N/A
	Bottom	2.271	-	2.271	N/A
	Right	0.599	-	0.599	N/A
	Left	0.110	1.256*	1.366	N/A

-

Table 12-29
Simultaneous Transmission Scenario - 5 GHz WLAN Ant 2 Extremity

Exposure Condition	Mode	3G/4G SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Extremity SAR	CDMA BC10 (§90S)	1.547	< 0.618	< 2.165
	CDMA BC0 (§22H)	1.575	< 0.618	< 2.193
	PCS CDMA	1.849	< 0.618	< 2.467
	UMTS 1900	2.288	< 0.618	< 2.906
	LTE Band 4 (AWS)	2.855	< 0.618	**< 3.473**
	LTE Band 25 (PCS)	2.407	< 0.618	< 3.025

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Table 12-30
Simultaneous Transmission Scenario - 5 GHz WLAN MIMO Extremity

Exposure Condition	Mode	3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Extremity SAR	CDMA BC10 (§90S)	1.547	< 0.979	< 2.526
	CDMA BC0 (§22H)	1.575	< 0.979	< 2.554
	PCS CDMA	1.849	< 0.979	< 2.828
	UMTS 1900	2.288	< 0.979	< 3.267
	LTE Band 4 (AWS)	2.855	< 0.979	**< 3.834**
	LTE Band 25 (PCS)	2.407	< 0.979	< 3.386

Table 12-31
Simultaneous Transmission Scenario - Bluetooth Extremity

Exposure Condition	Mode	3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
		1	2	1+2
Extremity SAR	CDMA BC10 (§90S)	1.547	0.235	1.782
	CDMA BC0 (§22H)	1.575	0.235	1.810
	PCS CDMA	1.849	0.235	2.084
	UMTS 1900	2.288	0.235	2.523
	LTE Band 4 (AWS)	2.855	0.235	**3.090**
	LTE Band 25 (PCS)	2.407	0.235	2.642

Notes:

1. No evaluation was performed to determine the aggregate 10g SAR for these configurations as the SPLS ratio between the antenna pairs was less than 0.10 per FCC KDB 447498 D01v05. See Section 12.7 for detailed SPLS ratio analysis.
2. Per FCC KDB Publication 648474 D04 Handset SAR v01r02, extremity SAR tests were not required when wireless router mode does not apply and if wireless router 1g SAR (scaled to the maximum output power, including tolerance) < 1.2 W/kg. Therefore no further analysis was required to determine that SAR limit would not be exceed for all possible simultaneous scenarios, including those involving bands/modes not required to be evaluated for extremity SAR.
3. Per FCC KDB Publication 648474 D04 Handset SAR v01r01, the device's edges with antennas more than 2.5 cm from edge listed in Table 12-28 are not required to be evaluated for SAR ("-").
4. (*) In Table 12-28, for WLAN devices edges with antennas less than 2.5 cm from edge that were not required to be evaluated for SAR, the worst case 5 GHz Extremity Ant 1 WLAN SAR was used as it is more conservative.
5. Bluetooth Extremity SAR was not required to be measured per FCC KDB 447498. Estimated SAR results were used in the above table to determine simultaneous transmission SAR test exclusion. See table 12-1.

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12.7 SPLSR Evaluation and Analysis

Per FCC KDB Publication 447498 D01v05, when the sum of the standalone transmitters is more than 4.0 W/kg, 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 ≤ 0.10, simultaneous SAR evaluation is not required. The distance between the transmitters was calculated using the following formula.

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

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

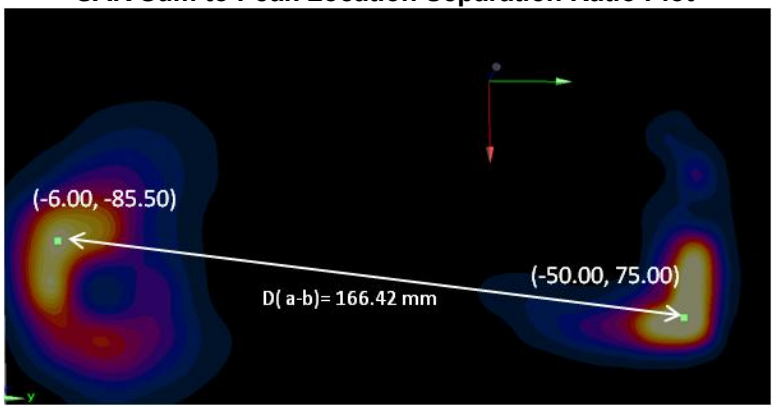
Table 12-32
Peak SAR Locations for Extremity Front Side

Mode/Band	x (mm)	y (mm)
5 GHz WLAN Ant 1 Front Side	-50.00	75.00
LTE B4 Front Side	-6.00	-85.50

Table 12-33
SAR Sum to Peak Location Separation Ratio Calculations

Antenna Pair		Standalone 1g SAR (W/kg)		Standalone SAR Sum (W/kg)	Peak SAR Separation Distance (mm)	SPLS Ratio
Ant "a"	Ant "b"	a	b	a+b	D_{a-b}	$(a+b)^{1.5}/D_{a-b}$
5 GHz WLAN Ant 1 Front Side	LTE B4 Front Side	< 1.256	2.855	< 4.111	166.42	< 0.05

Figure 12-134
SAR Sum to Peak Location Separation Ratio Plot



12.8 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 D01v05 and IEEE 1528-2013 Section 6.3.4.1.2.

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13 SAR MEASUREMENT VARIABILITY

13.1 Measurement Variability

Per FCC KDB Publication 865664 D01v01, 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.

Per FCC KDB Publication 865664 D01v01, Extremity SAR measurement variability was assessed since measured 1g SAR for some frequency band was above 0.8 W/kg and measured 10g SAR for some frequency band was above 2.0 W/kg.

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 preformed 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 1-g 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) 10g Extremity SAR measurement variability analysis applies a factor of 2.5 to the procedures outlined above.

Table 13-1
Body SAR Measurement Variability Results

BODY VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	# of Time Slots	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)	
1900	1880.00	661	GSM 1900	GPRS	2	back	10 mm	1.050	1.070	1.019	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
Extremity SAR Measurement Variability Results

EXTREMITY VARIABILITY RESULTS														
Band	FREQUENCY		Mode	Service	Side	Spacing	Measured SAR (10g)	1st Repeated SAR (10g)	Ratio	2nd Repeated SAR (10g)	Ratio	3rd Repeated SAR (10g)	Ratio
	MHz	Ch.					(W/kg)	(W/kg)		(W/kg)		(W/kg)	
1750	1732.50	20175	LTE Band 4 (AWS)	QPSK, 1 RB, 0 RB Offset	front	2 mm	2.690	2.750	1.022	N/A	N/A	N/A	N/A
1900	1882.50	26365	LTE Band 25 (PCS)	QPSK, 1 RB, 0 RB Offset	back	3 mm	2.310	2.200	1.050	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Extremity 4.0 W/kg (mW/g) averaged over 10 grams						

13.2 Measurement Uncertainty

The measured 1g SAR was <1.5 W/kg and 10g SAR was <3.75 W/kg for all frequency bands. Therefore, per KDB Publication 865664 D01v01, the extended measurement uncertainty analysis per IEEE 1528-2003 was not required.

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14 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
SPEAG	D1750V2	1750 MHz SAR Dipole	4/15/2015	Annual	4/15/2016	1051
SPEAG	D1900V2	1900 MHz SAR Dipole	4/14/2015	Annual	4/14/2016	5d141
SPEAG	D1900V2	1900 MHz SAR Dipole	7/23/2014	Annual	7/23/2015	5d149
SPEAG	D2450V2	2450 MHz SAR Dipole	8/11/2014	Annual	8/11/2015	719
SPEAG	D2600V2	2600 MHz SAR Dipole	10/20/2014	Annual	10/20/2015	1071
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/21/2015	Annual	1/21/2016	1057
SPEAG	D750V3	750 MHz Dipole	1/16/2015	Annual	1/16/2016	1003
SPEAG	D750V3	750 MHz Dipole	3/11/2015	Annual	3/11/2016	1054
SPEAG	D835V2	835 MHz SAR Dipole	1/16/2015	Annual	1/16/2016	4d132
SPEAG	D835V2	835 MHz SAR Dipole	7/24/2014	Annual	7/24/2015	4d133
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/14/2015	Annual	1/14/2016	1272
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/17/2014	Annual	9/17/2015	1323
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/13/2015	Annual	3/13/2016	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	9/18/2014	Annual	9/18/2015	1364
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/13/2015	Annual	3/13/2016	1368
SPEAG	DAE4	Dasy Data Acquisition Electronics	10/23/2014	Annual	10/23/2015	1408
SPEAG	DAK-3.5	Dielectric Assessment Kit	10/21/2014	Annual	10/21/2015	1091
SPEAG	DAKS-3.5	Portable Dielectric Assessment Kit	7/15/2014	Annual	7/15/2015	1039
SPEAG	ES3DV3	SAR Probe	5/20/2015	Annual	5/20/2016	3263
SPEAG	ES3DV3	SAR Probe	9/24/2014	Annual	9/24/2015	3288
SPEAG	ES3DV3	SAR Probe	1/23/2015	Annual	1/23/2016	3318
SPEAG	ES3DV3	SAR Probe	3/19/2015	Annual	3/19/2016	3319
SPEAG	ES3DV3	SAR Probe	9/18/2014	Annual	9/18/2015	3332
SPEAG	EX3DV4	SAR Probe	1/22/2015	Annual	1/22/2016	3589
SPEAG	EX3DV4	SAR Probe	4/23/2015	Annual	4/23/2016	7357
Seekonk	NC-100	Torque Wrench 5/16", 8" lbs	3/18/2014	Biennial	3/18/2016	N/A
Rohde & Schwarz	CMW500	Radio Communication tester	5/5/2015	Annual	5/5/2016	140144
Rohde & Schwarz	CMW500	Radio Communication Tester	4/8/2015	Annual	4/8/2016	140148
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
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
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R8979500903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
Keysight	772D	Dual Directional Coupler	CBT	N/A	CBT	MY52180215
Gigatronics	80701A	(0.05-18GHz) Power Sensor	10/30/2014	Annual	10/30/2015	1833460
Gigatronics	8651A	Universal Power Meter	10/30/2014	Annual	10/30/2015	8650319
Control Company	4040	Digital Thermometer	3/18/2015	Biennial	3/18/2017	150195001
Control Company	4040	Digital Thermometer	3/15/2015	Biennial	3/15/2017	150195005
Control Company	4353	Long Stem Thermometer	3/5/2015	Biennial	3/5/2017	150149534
Control Company	4353	Long Stem Thermometer	3/5/2015	Biennial	3/5/2017	150149565
Anritsu	ML2438A	Power Meter	3/13/2015	Annual	3/13/2016	1070030
Anritsu	ML2495A	Power Meter	10/31/2013	Biennial	10/31/2015	941001
Anritsu	ML2496A	Power Meter	3/13/2015	Annual	3/13/2016	1351001
Anritsu	MA2481A	Power Sensor	3/10/2015	Annual	3/10/2016	2400
Anritsu	MA2411B	Pulse Power Sensor	11/17/2014	Annual	11/17/2015	1207364
Anritsu	MT8820C	Radio Communication Analyzer	8/28/2014	Annual	8/28/2015	6201240328
Anritsu	MT8820C	Radio Communication Analyzer	11/18/2014	Annual	11/18/2015	6201300731
Anritsu	MA24106A	USB Power Sensor	3/2/2015	Annual	3/2/2016	1344545
Anritsu	MA24106A	USB Power Sensor	3/11/2015	Annual	3/11/2016	1344554
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433971
Amplifier Research	15S1G6	Amplifier	CBT	N/A	CBT	433972
Agilent	E8257D	(250kHz-20GHz) Signal Generator	3/15/2015	Annual	3/15/2016	MY45470194
Agilent	8753E	(30kHz-6GHz) Network Analyzer	12/30/2014	Annual	12/30/2015	JP38020182
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A	N/A	N/A	3051A00187
Agilent	8648D	(9kHz-4GHz) Signal Generator	3/15/2015	Annual	3/15/2016	3629U00687
Agilent	E4438C	ESG Vector Signal Generator	3/13/2015	Annual	3/13/2016	MY42082385
Agilent	E4432B	ESG-D Series Signal Generator	3/16/2015	Annual	3/16/2016	US40053896
Agilent	N9020A	MXA Signal Analyzer	10/27/2014	Annual	10/27/2015	US46470561
Agilent	N5182A	MXG Vector Signal Generator	10/27/2014	Annual	10/27/2015	MY47420603
Agilent	8753ES	Network Analyzer	3/20/2015	Annual	3/20/2016	MY40001472
Agilent	8753ES	S-Parameter Network Analyzer	3/12/2015	Annual	3/12/2016	MY40000670
Agilent	E5515C	Wireless Communications Test Set	2/23/2015	Biennial	2/23/2017	GB41450275

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.

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15 MEASUREMENT UNCERTAINTIES

Applicable for frequencies less than 3000 MHz.

a	b	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	IEEE 1528 Sec.	Tol. (± %)	Prob. Dist.	Div.	c_i 1gm	c_i 10 gms	1gm u_i (± %)	10gms u_i (± %)	v_i
Measurement System									
Probe Calibration	E.2.1	6.0	N	1	1.0	1.0	6.0	6.0	∞
Axial Isotropy	E.2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E.2.2	1.3	N	1	1.0	1.0	1.3	1.3	∞
Boundary Effect	E.2.3	0.4	N	1	1.0	1.0	0.4	0.4	∞
Linearity	E.2.4	0.3	N	1	1.0	1.0	0.3	0.3	∞
System Detection Limits	E.2.5	5.1	N	1	1.0	1.0	5.1	5.1	∞
Readout Electronics	E.2.6	1.0	N	1	1.0	1.0	1.0	1.0	∞
Response Time	E.2.7	0.8	R	1.73	1.0	1.0	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.73	1.0	1.0	1.5	1.5	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	R	1.73	1.0	1.0	0.2	0.2	∞
Probe Positioning w/ respect to Phantom	E.6.3	2.9	R	1.73	1.0	1.0	1.7	1.7	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	1.0	R	1.73	1.0	1.0	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	E.4.2	6.0	N	1	1.0	1.0	6.0	6.0	287
Device Holder Uncertainty	E.4.1	3.32	R	1.73	1.0	1.0	1.9	1.9	∞
Output Power Variation - SAR drift measurement	6.6.2	5.0	R	1.73	1.0	1.0	2.9	2.9	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E.3.1	4.0	R	1.73	1.0	1.0	2.3	2.3	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity - measurement uncertainty	E.3.3	3.8	N	1	0.64	0.43	2.4	1.6	6
Liquid Permittivity - deviation from target values	E.3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Liquid Permittivity - measurement uncertainty	E.3.3	4.5	N	1	0.60	0.49	2.7	2.2	6
Combined Standard Uncertainty (k=1)			RSS				12.1	11.7	299
Expanded Uncertainty (95% CONFIDENCE LEVEL)			k=2				24.2	23.5	

The above measurement uncertainties are according to IEEE Std. 1528-2003

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Applicable for frequencies up to 6 GHz.

a	b	c	d	e= f(d,k)	f	g	h = c x f/e	i = c x g/e	k
Uncertainty Component	**IEEE 1528 Sec.**	**Tol. (± %)**	**Prob. Dist.**	**Div.**	**c_i 1gm**	**c_i 10 gms**	**1gm u_i (± %)**	**10gms u_i (± %)**	**v_i**
Measurement System									
Probe Calibration	E.2.1	6.55	N	1	1.0	1.0	6.6	6.6	∞
Axial Isotropy	E.2.2	0.25	N	1	0.7	0.7	0.2	0.2	∞
Hemishperical Isotropy	E.2.2	1.3	N	1	1.0	1.0	1.3	1.3	∞
Boundary Effect	E.2.3	0.4	N	1	1.0	1.0	0.4	0.4	∞
Linearity	E.2.4	0.3	N	1	1.0	1.0	0.3	0.3	∞
System Detection Limits	E.2.5	5.1	N	1	1.0	1.0	5.1	5.1	∞
Readout Electronics	E.2.6	1.0	N	1	1.0	1.0	1.0	1.0	∞
Response Time	E.2.7	0.8	R	1.73	1.0	1.0	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.73	1.0	1.0	1.5	1.5	∞
RF Ambient Conditions	E.6.1	3.0	R	1.73	1.0	1.0	1.7	1.7	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	R	1.73	1.0	1.0	0.2	0.2	∞
Probe Positioning w/ respect to Phantom	E.6.3	2.9	R	1.73	1.0	1.0	1.7	1.7	∞
Extrapolation, Interpolation & Integration algorithms for Max. SAR Evaluation	E.5	1.0	R	1.73	1.0	1.0	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	E.4.2	6.0	N	1	1.0	1.0	6.0	6.0	287
Device Holder Uncertainty	E.4.1	3.32	R	1.73	1.0	1.0	1.9	1.9	∞
Output Power Variation - SAR drift measurement	6.6.2	5.0	R	1.73	1.0	1.0	2.9	2.9	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E.3.1	4.0	R	1.73	1.0	1.0	2.3	2.3	∞
Liquid Conductivity - deviation from target values	E.3.2	5.0	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity - measurement uncertainty	E.3.3	3.8	N	1	0.64	0.43	2.4	1.6	6
Liquid Permittivity - deviation from target values	E.3.2	5.0	R	1.73	0.60	0.49	1.7	1.4	∞
Liquid Permittivity - measurement uncertainty	E.3.3	4.5	N	1	0.60	0.49	2.7	2.2	6
Combined Standard Uncertainty (k=1)			RSS				12.4	12.0	299
Expanded Uncertainty (95% CONFIDENCE LEVEL)			k=2				24.7	24.0	

The above measurement uncertainties are according to IEEE Std. 1528-2003

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16 CONCLUSION

16.1 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Industry 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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[23] FCC SAR Test Procedures for 2G-3G Devices, Mobile Hotspot and UMPC Devices KDB Publications 941225, D01-D07

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[26] FCC SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers, FCC KDB Publication 616217 D04

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APPENDIX A: SAR TEST DATA

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DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC54

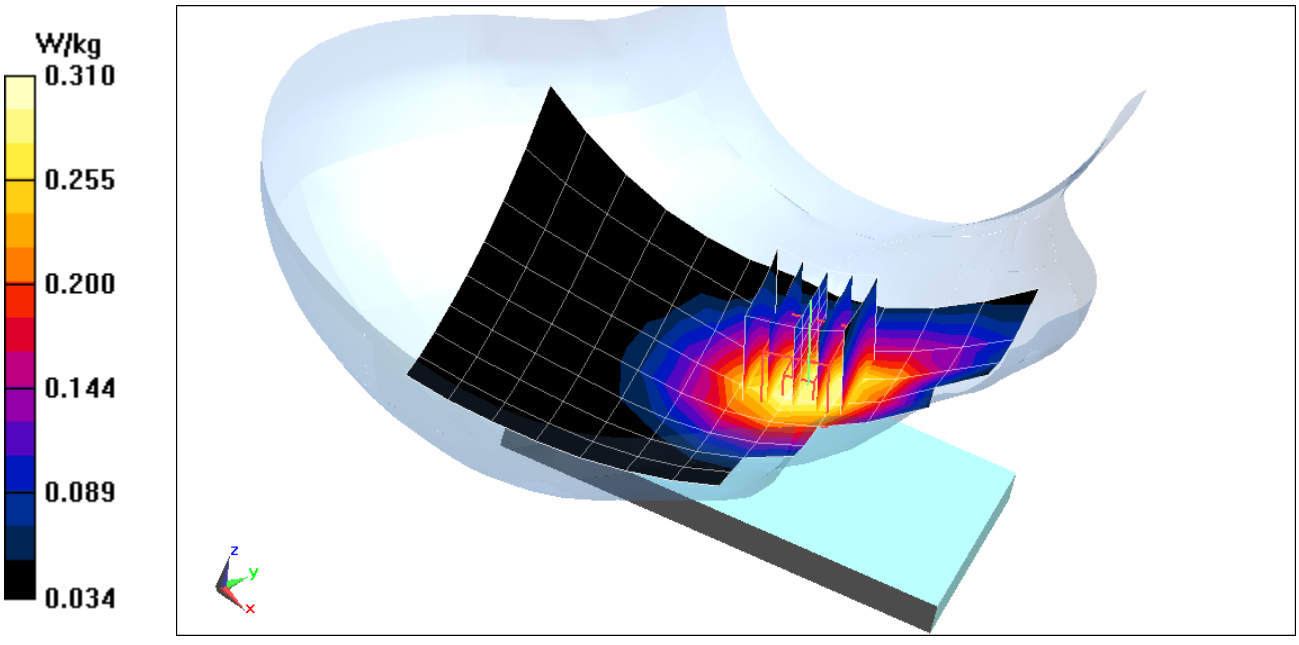
Communication System: UID 0, Cellular CDMA; Frequency: 820.1 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.882 S/m; ε_r = 40.452; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 06-17-2015; Ambient Temp: 22.7°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3263; ConvF(6.18, 6.18, 6.18); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: BC10 Cell. CDMA, Right Head, Cheek, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.305 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.352 W/kg
SAR(1 g) = 0.286 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC54

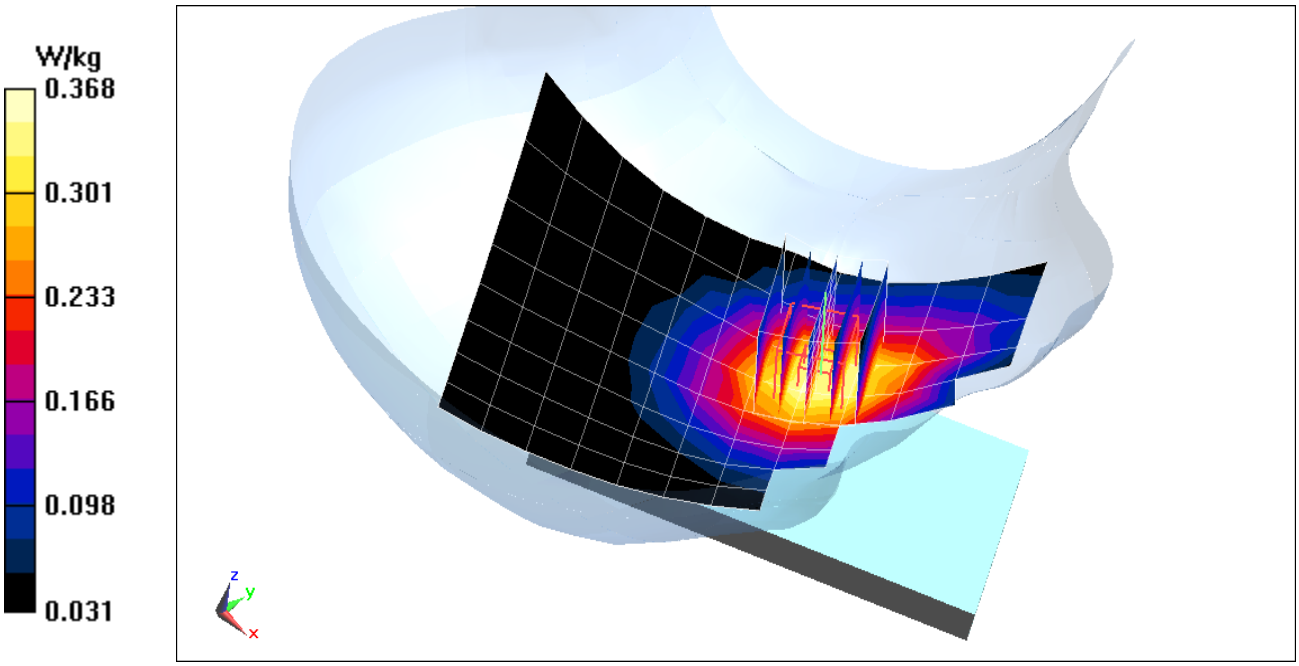
Communication System: UID 0, CDMA; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
$f = 836.52$ MHz; $\sigma = 0.896$ S/m; $\varepsilon_r = 40.208$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 06-17-2015; Ambient Temp: 22.7°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3263; ConvF(6.18, 6.18, 6.18); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: BC0 Cell. CDMA, 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 = 19.738 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.423 W/kg
SAR(1 g) = 0.339 W/kg



DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC54

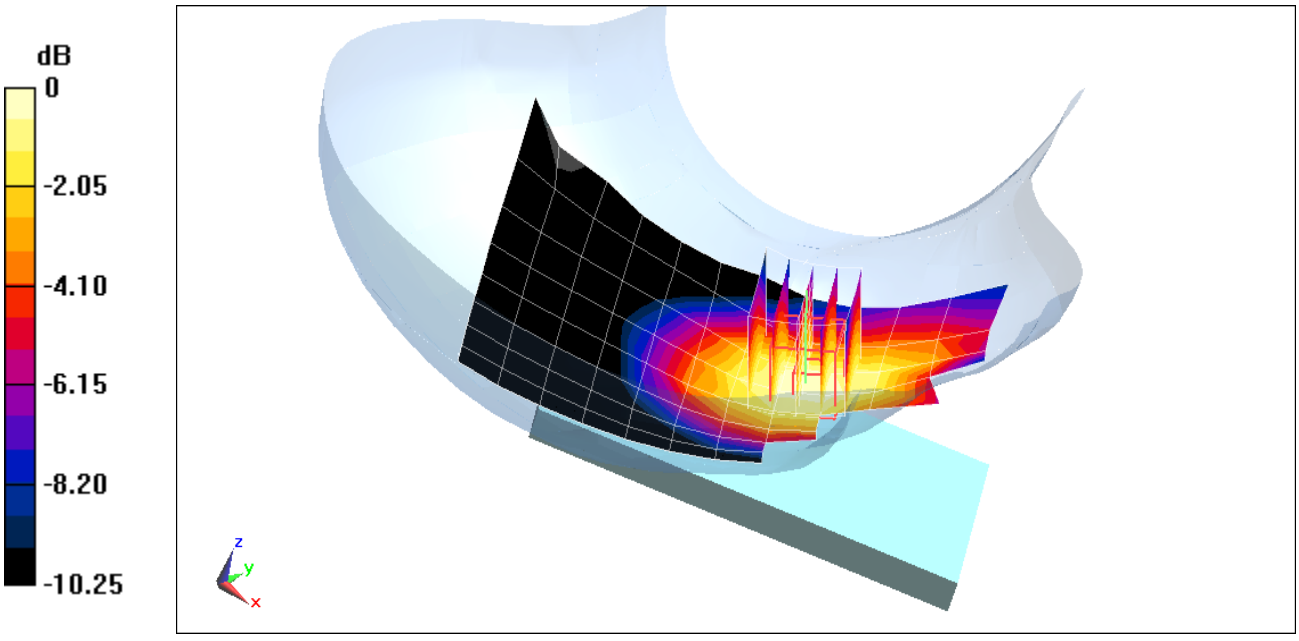
Communication System: UID 0, GSM; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.899 S/m; ε_r = 40.443; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 06-08-2015; Ambient Temp: 22.3°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3288; ConvF(6.51, 6.51, 6.51); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1797
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: GSM 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 = 13.674 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.203 W/kg
SAR(1 g) = 0.164 W/kg



0 dB = 0.177 W/kg = -7.52 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC54

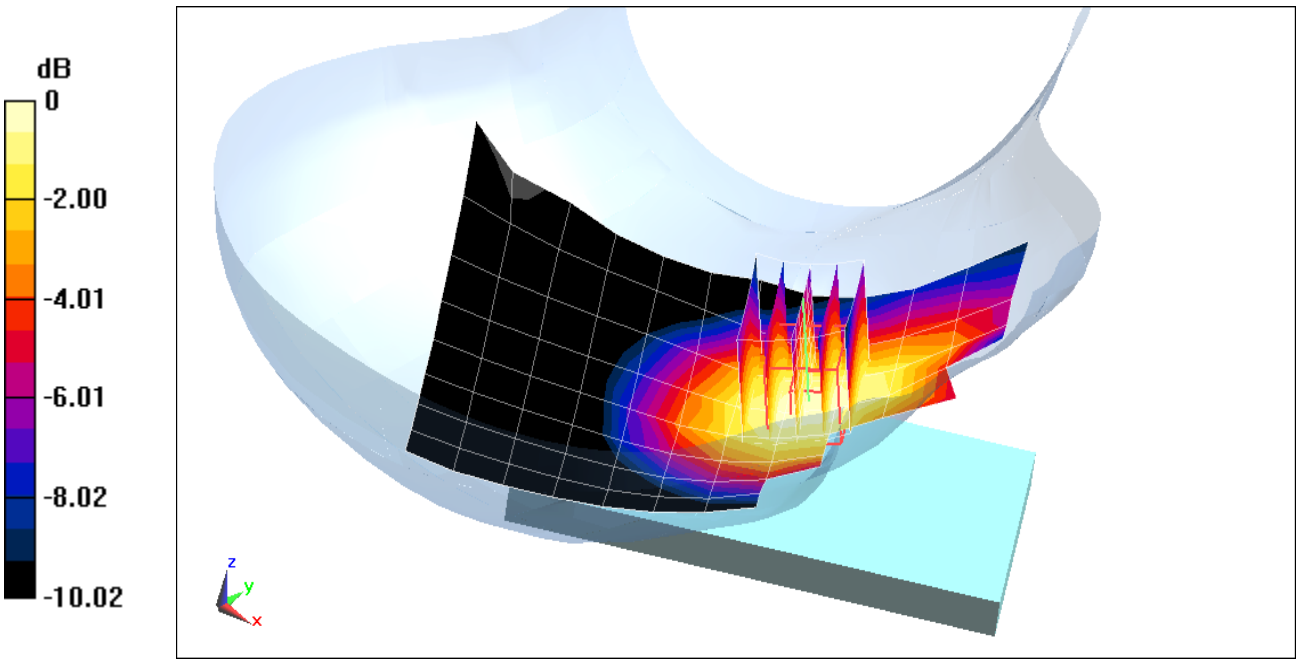
Communication System: UID 0, UMTS; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.899 S/m; ε_r = 40.443; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 06-08-2015; Ambient Temp: 22.3°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3288; ConvF(6.51, 6.51, 6.51); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1797
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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 = 14.496 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.229 W/kg
SAR(1 g) = 0.183 W/kg



0 dB = 0.199 W/kg = -7.01 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABF0D

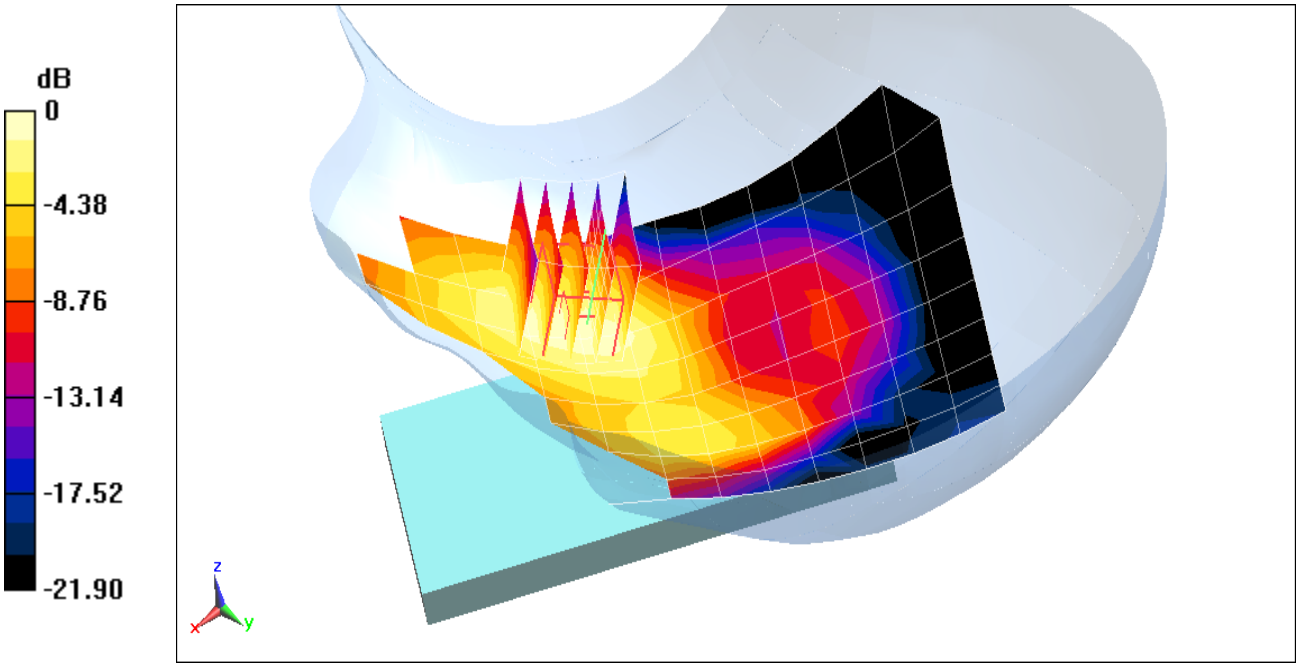
Communication System: UID 0, PCS CDMA (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.408 S/m; ε_r = 38.723; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 06-11-2015; Ambient Temp: 23.3°C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3288; ConvF(5.17, 5.17, 5.17); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1797
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: PCS CDMA, 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 = 9.784 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.201 W/kg
SAR(1 g) = 0.136 W/kg



0 dB = 0.160 W/kg = -7.96 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABF0D

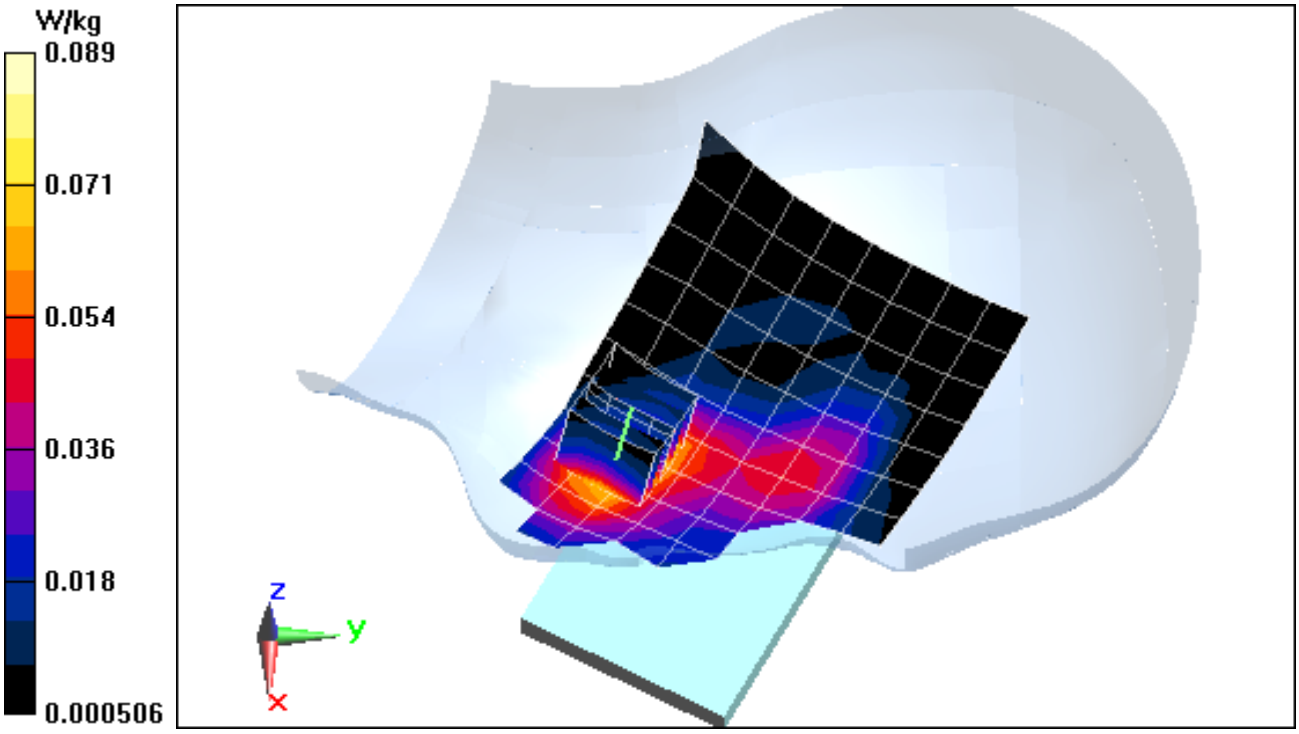
Communication System: UID 0, GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.408 S/m; ε_r = 38.723; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 06-11-2015; Ambient Temp: 23.3°C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3288; ConvF(5.17, 5.17, 5.17); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1797
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.446 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.113 W/kg
SAR(1 g) = 0.076 W/kg



DUT: A3LSMN920P; Type: Portable Handset; Serial: ABF0D

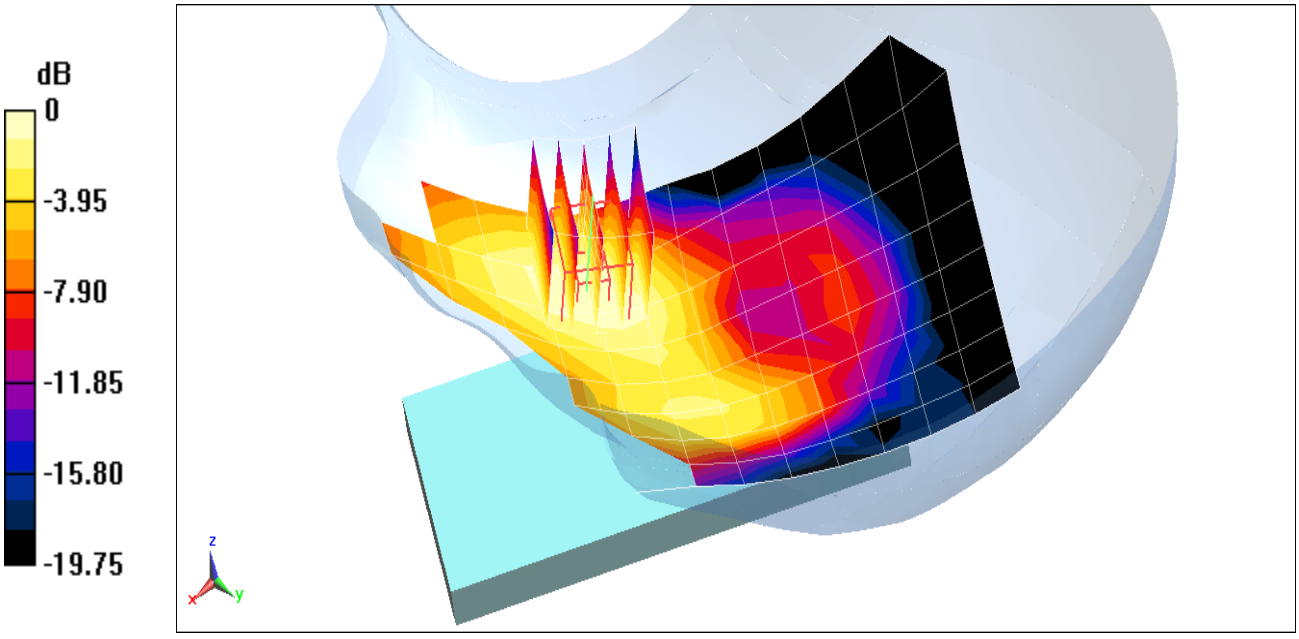
Communication System: UID 0, UMTS; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used:
f = 1880 MHz; σ = 1.408 S/m; ε_r = 38.723; ρ = 1000 kg/m^3
Phantom section: Left Section

Test Date: 06-11-2015; Ambient Temp: 23.3°C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3288; ConvF(5.17, 5.17, 5.17); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1797
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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 = 8.833 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.166 W/kg
SAR(1 g) = 0.118 W/kg



0 dB = 0.135 W/kg = -8.70 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABAFB

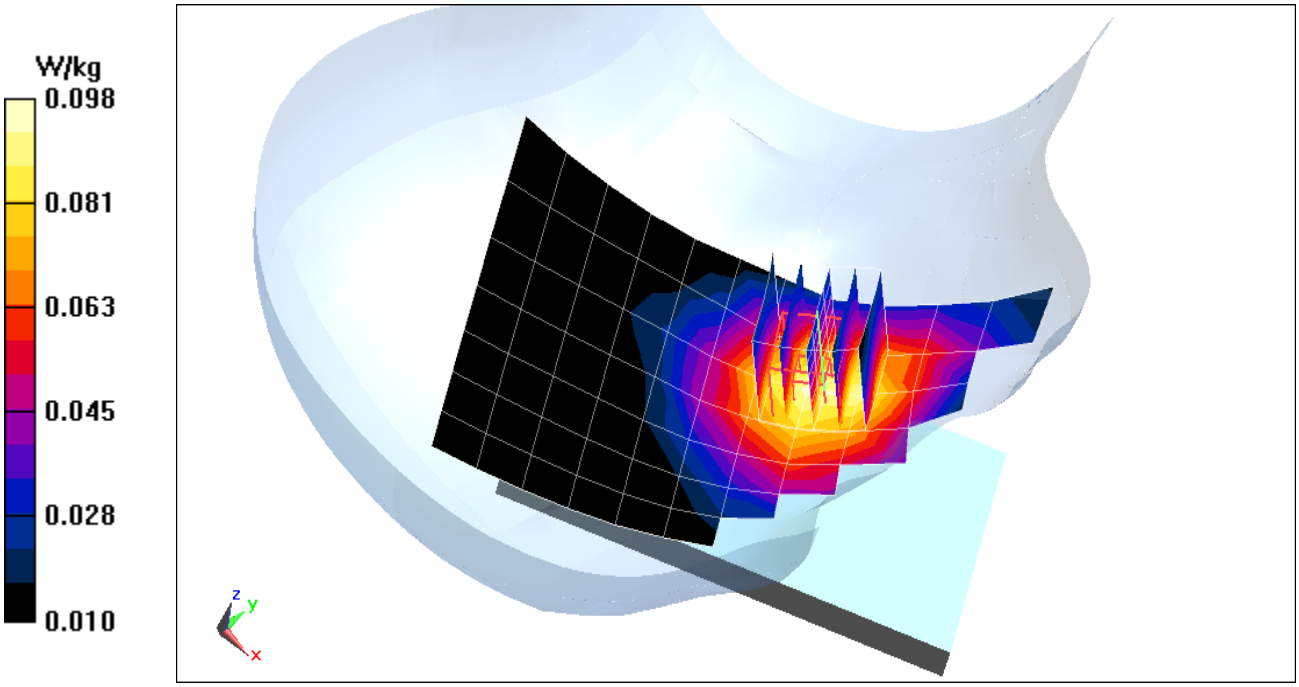
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium: 710 Head Medium parameters used (interpolated):
$f = 707.5$ MHz; $\sigma = 0.852$ S/m; $\varepsilon_r = 42.516$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 06-10-2015; Ambient Temp: 23.4°C; Tissue Temp: 22.1°C

Probe: ES3DV3 - SN3318; ConvF(6.58, 6.58, 6.58); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.127 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.109 W/kg
SAR(1 g) = 0.091 W/kg



DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC1B

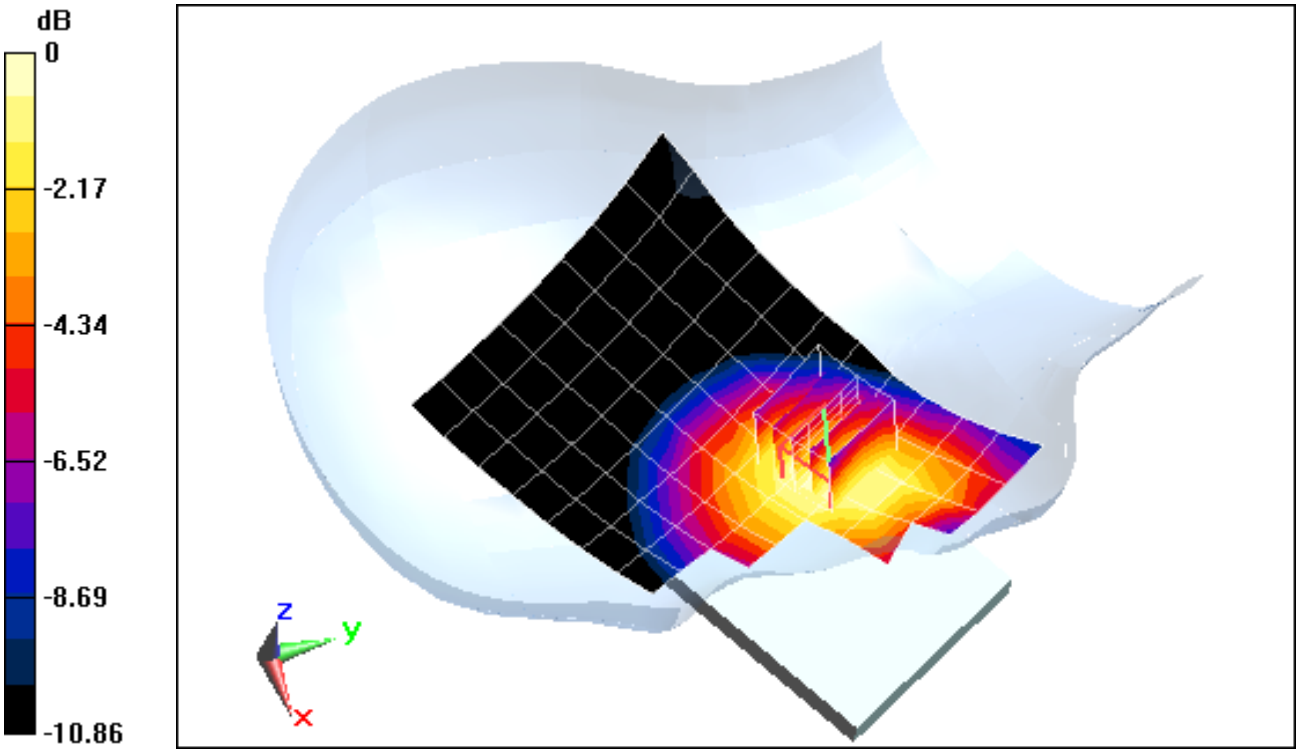
Communication System: UID 0, LTE Band 26; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium: 835 Head Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.899 S/m; ε_r = 40.444; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 06-08-2015; Ambient Temp: 22.3°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3288; ConvF(6.51, 6.51, 6.51); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1797
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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 (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.79 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.282 W/kg
SAR(1 g) = 0.214 W/kg



0 dB = 0.236 W/kg = -6.27 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABCC3

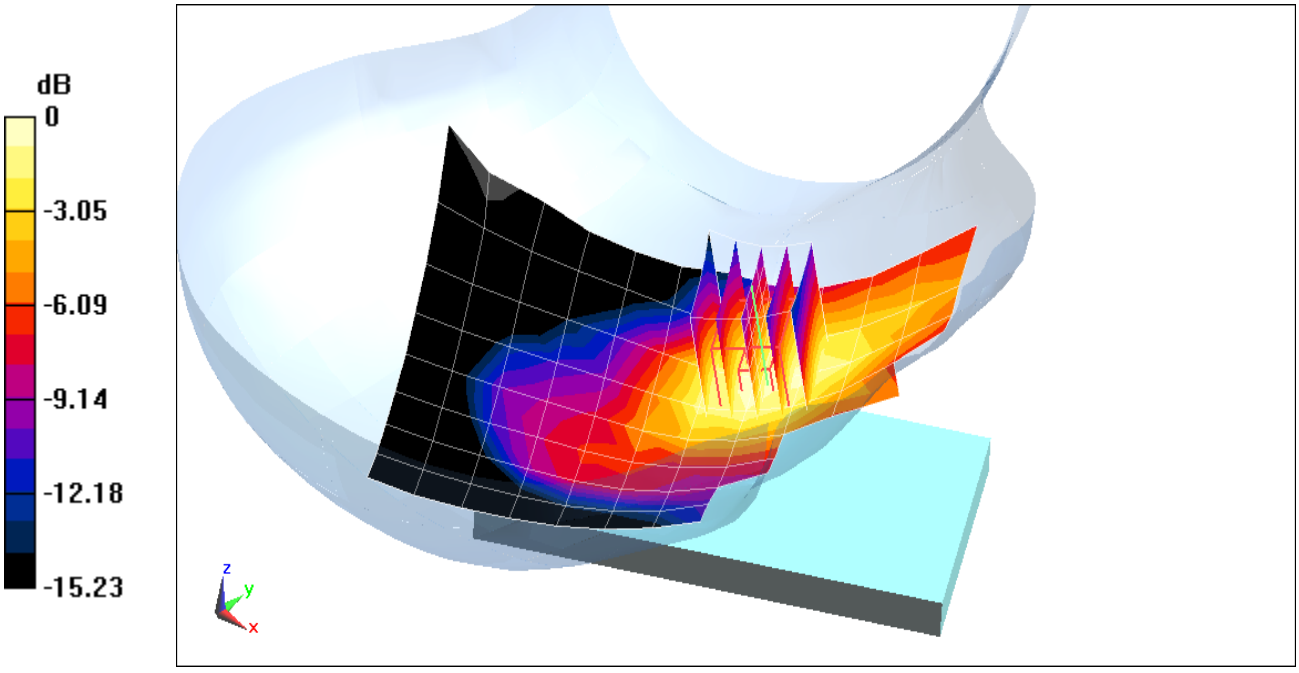
Communication System: UID 0, LTE RF Band 4; Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used (interpolated):
f = 1732.5 MHz; σ = 1.333 S/m; ε_r = 39.168; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 06-12-2015; Ambient Temp: 22.7°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3288; ConvF(5.38, 5.38, 5.38); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1797
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 4 (AWS), Right Head, Cheek, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.261 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.245 W/kg
SAR(1 g) = 0.169 W/kg



0 dB = 0.192 W/kg = -7.17 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABCC3

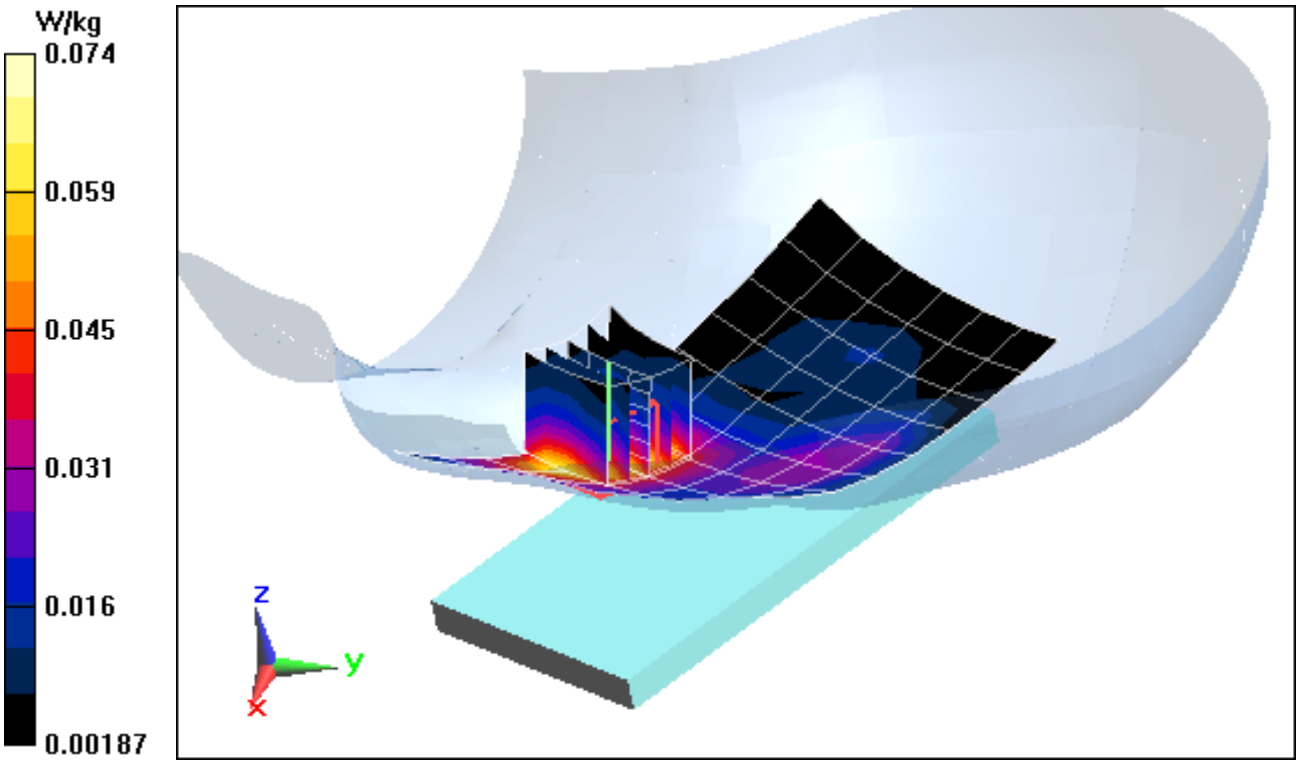
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1860 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
$f = 1860$ MHz; $\sigma = 1.386$ S/m; $\varepsilon_r = 38.791$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 06-11-2015; Ambient Temp: 23.3°C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3288; ConvF(5.17, 5.17, 5.17); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1797
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 25 (PCS), Left Head, Cheek, Low.ch,
20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.699 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.165 W/kg
SAR(1 g) = 0.116 W/kg



DUT: A3LSMN920P; Type: Portable Handset; Serial: ABB41

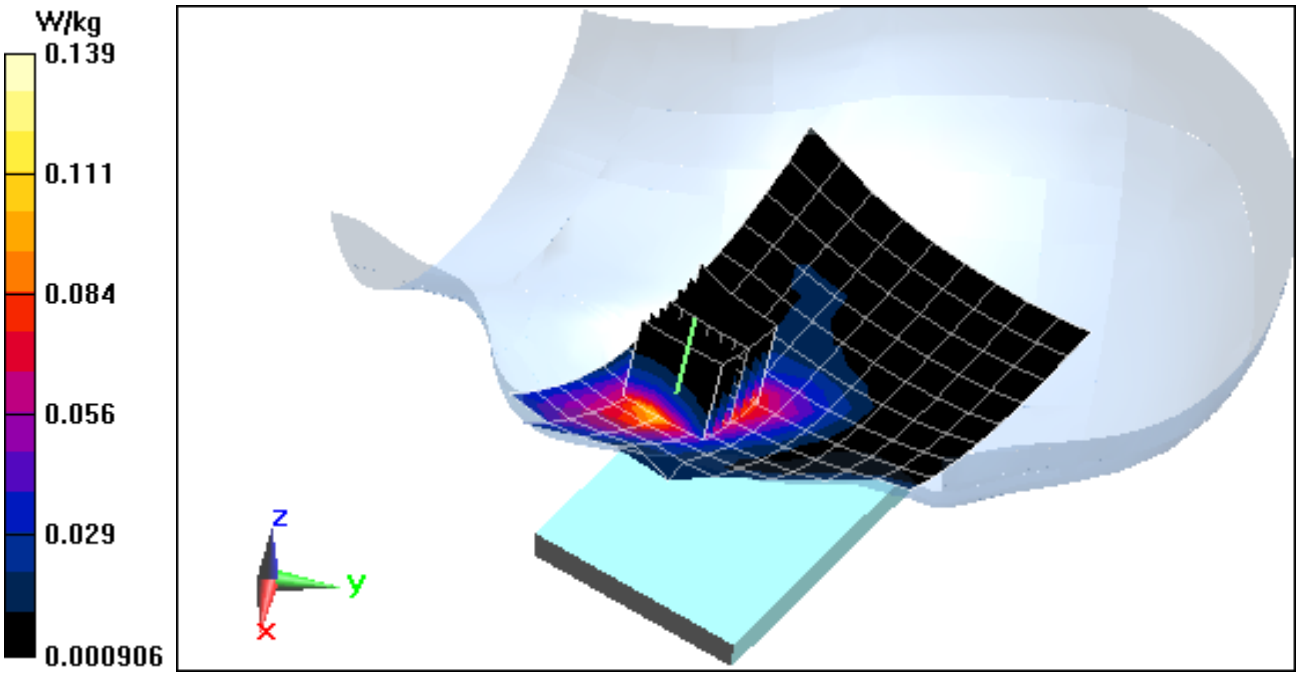
Communication System: UID 0, LTE Band 41; Frequency: 2593 MHz;Duty Cycle: 1:1.58
Medium: 2400 Head Medium parameters used (interpolated):
$f = 2593$ MHz; $\sigma = 2.032$ S/m; $\varepsilon_r = 37.971$; $\rho = 1000$ kg/m^3
Phantom section: Left Section

Test Date: 06-11-2015; Ambient Temp: 20.9°C; Tissue Temp: 21.4°C

Probe: ES3DV3 - SN3318; ConvF(4.34, 4.34, 4.34); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.575 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.218 W/kg
SAR(1 g) = 0.112 W/kg



DUT: A3LSMN920P; Type: Portable Handset; Serial: ABAEB

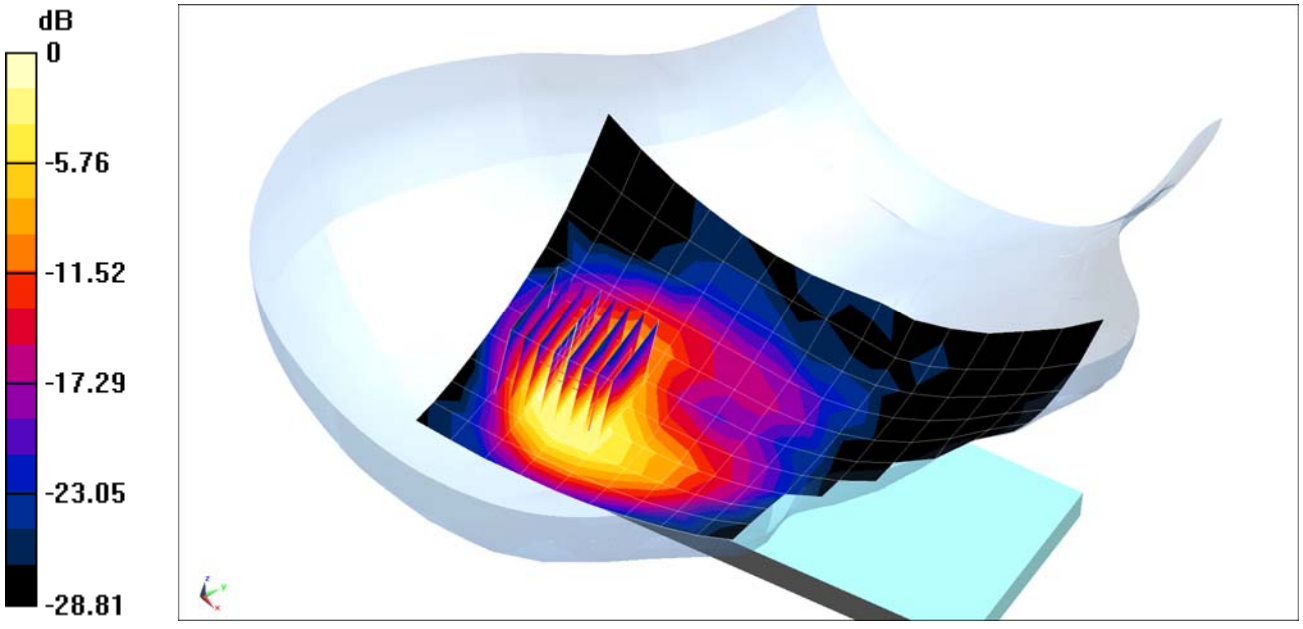
Communication System: UID 0, IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2400 Head Medium parameters used (interpolated):
$f = 2437$ MHz; $\sigma = 1.809$ S/m; $\varepsilon_r = 38.932$; $\rho = 1000$ kg/m^3
Phantom section: Right Section

Test Date: 06-17-2015; Ambient Temp: 23.0°C; Tissue Temp: 22.2°C

Probe: ES3DV3 - SN3332; ConvF(4.49, 4.49, 4.49); Calibrated: 9/18/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 9/17/2014
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11b, 22 MHz Bandwidth, Right Head, Cheek
Ch 6, 1 Mbps, Antenna 2

Area Scan (11x18x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.817 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.548 W/kg
SAR(1 g) = 0.219 W/kg



0 dB = 0.297 W/kg = -5.27 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABAEB

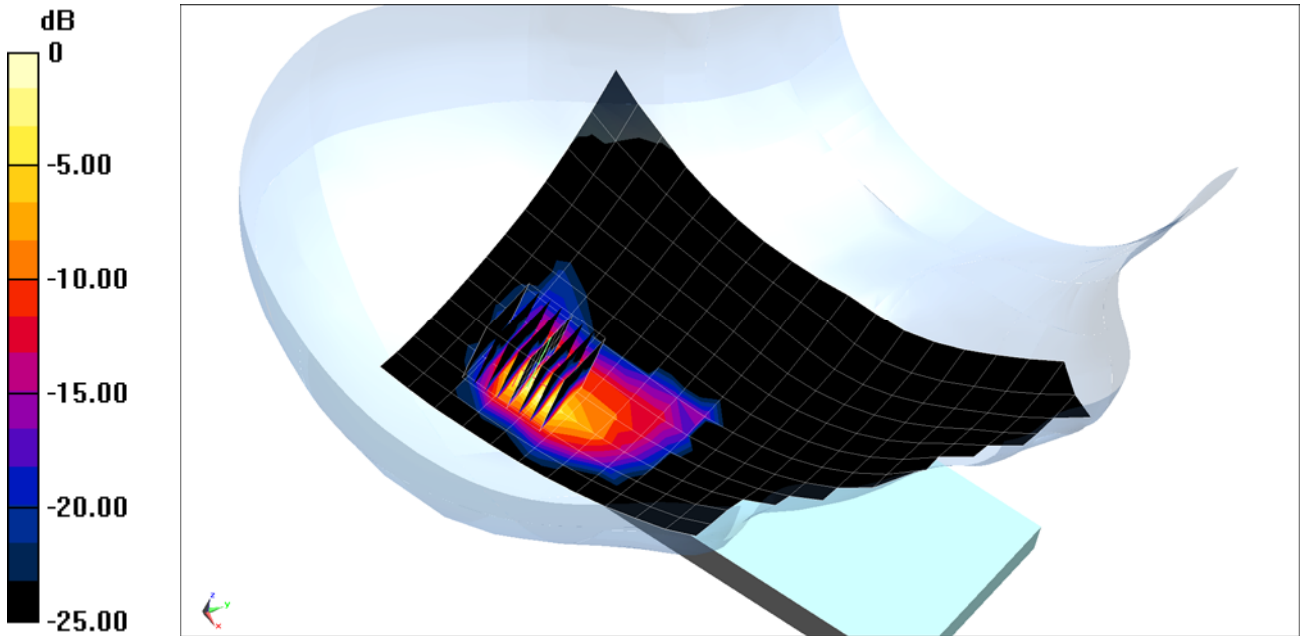
Communication System: UID 0, IEEE 802.11a; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: 5.3 Head Medium parameters used:
f = 5500 MHz; σ = 4.95 S/m; ε_r = 34.051; ρ = 1000 kg/m^3
Phantom section: Right Section

Test Date: 06-15-2015; Ambient Temp: 22.5°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7357; ConvF(4.7, 4.7, 4.7); Calibrated: 4/23/2015;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 3/13/2015
Phantom: SAM v5.0 front; Type: QD000P40CD; Serial: TP-1646
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (13x9x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio =1.4
Reference Value = 12.968 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.49 W/kg
SAR(1 g) = 0.657 W/kg



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

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC54

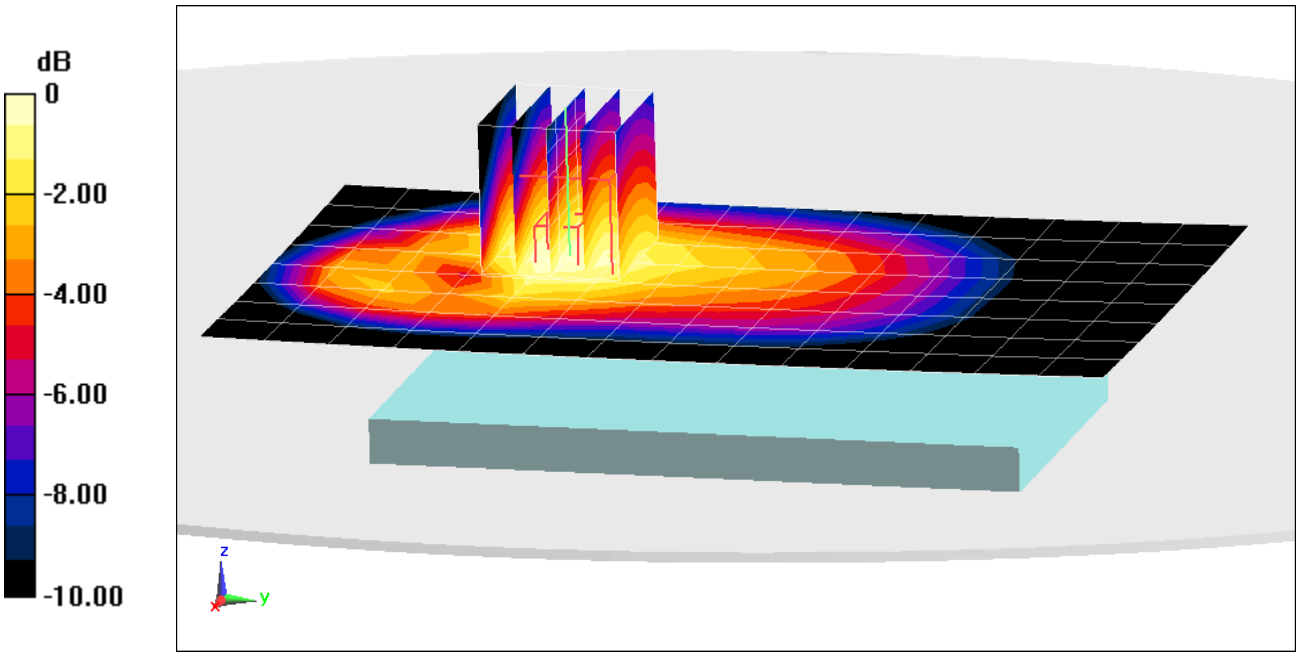
Communication System: UID 0, CDMA; Frequency: 820.1 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.981 S/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 15 mm

Test Date: 06-17-2015; Ambient Temp: 21.5°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3319; ConvF(6.07, 6.07, 6.07); Calibrated: 3/19/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/13/2015
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1226
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.301 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.748 W/kg
SAR(1 g) = 0.577 W/kg



0 dB = 0.643 W/kg = -1.92 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC1B

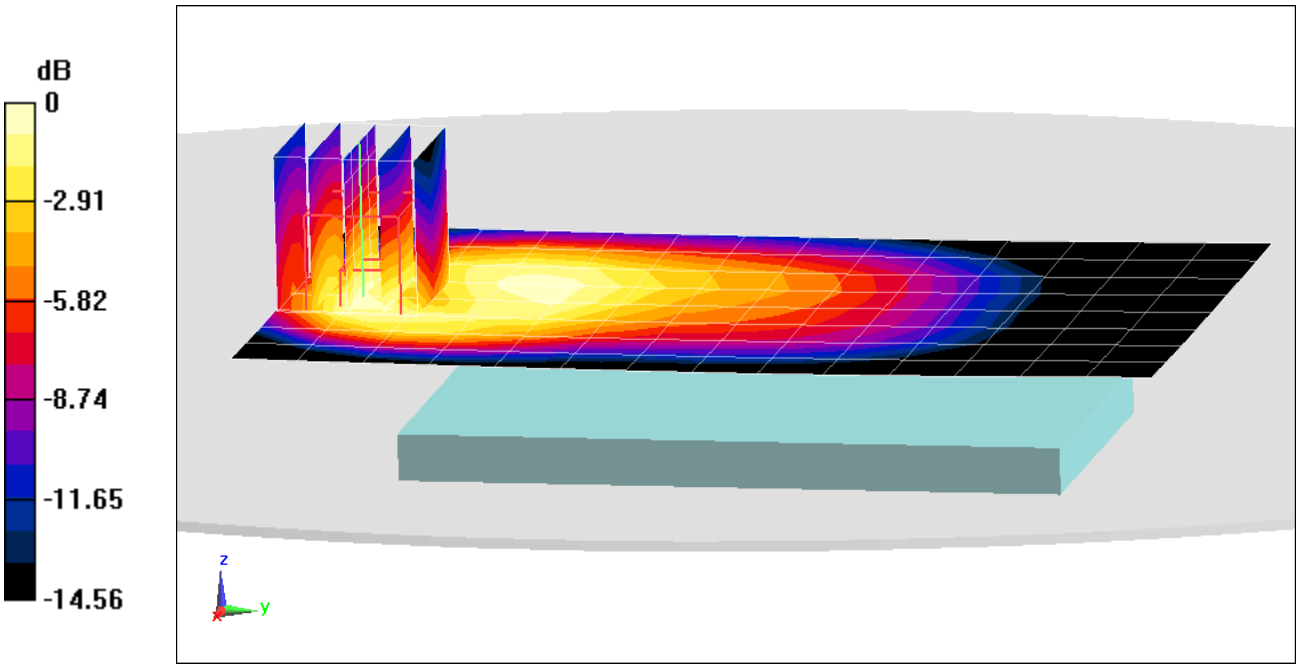
Communication System: UID 0, CDMA; Frequency: 820.1 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.986 S/m; ε_r = 54.09; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 10 mm

Test Date: 06-13-2015; Ambient Temp: 23.2°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3318; ConvF(6.23, 6.23, 6.23); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:2027
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.219 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.638 W/kg



0 dB = 0.758 W/kg = -1.20 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC54

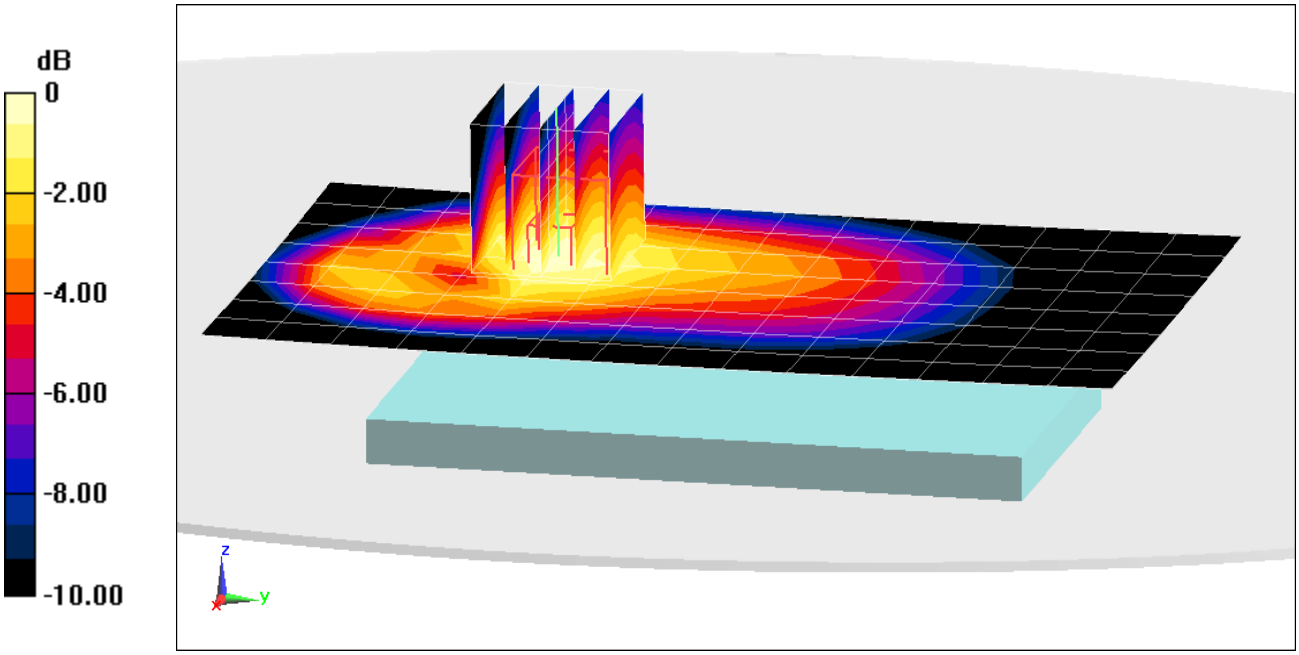
Communication System: UID 0, CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 1.001 S/m; ε_r = 52.91; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Space: 15 mm

Test Date: 06-17-2015; Ambient Temp: 21.5°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3319; ConvF(6.07, 6.07, 6.07); Calibrated: 3/19/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/13/2015
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1226
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: BC0 Cell. CDMA, Body SAR, Back Side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.404 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.836 W/kg
SAR(1 g) = 0.637 W/kg



0 dB = 0.715 W/kg = -1.46 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC1B

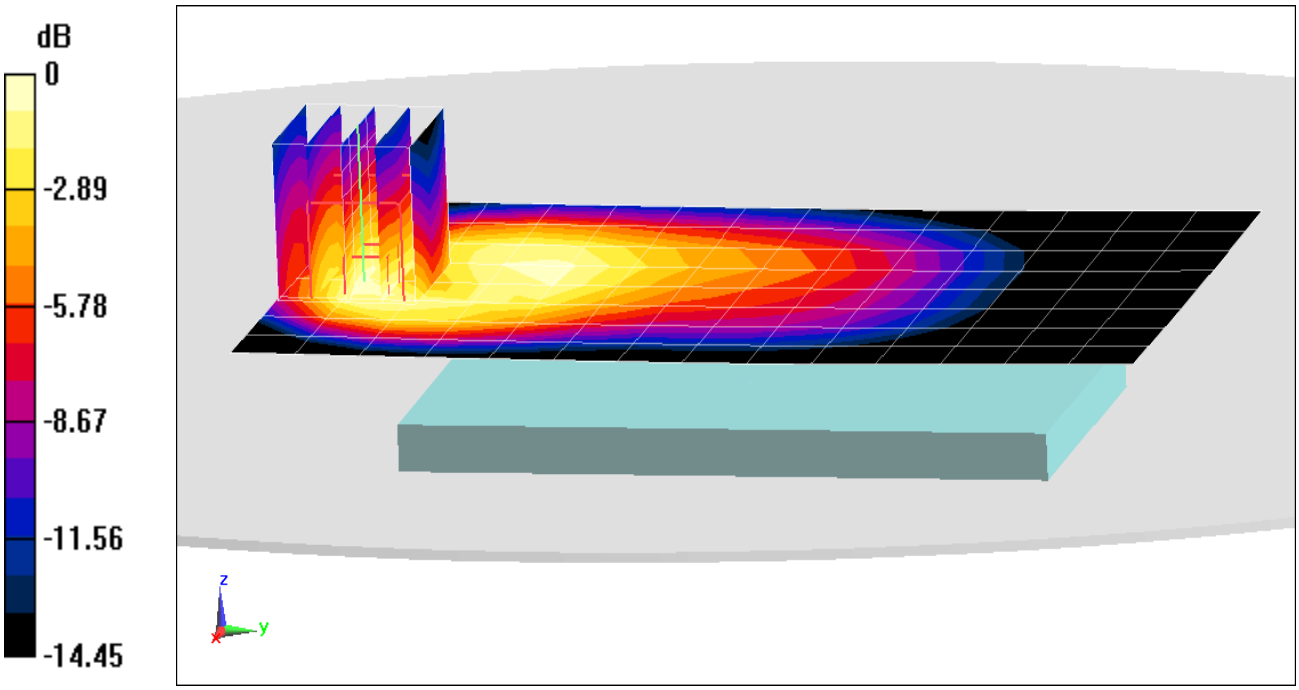
Communication System: UID 0, CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 1.002 S/m; ε_r = 53.898; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 10 mm

Test Date: 06-13-2015; Ambient Temp: 23.2°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3318; ConvF(6.23, 6.23, 6.23); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:2027
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: BC0, Cell. EVDO, Body SAR, Back side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.514 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.586 W/kg



0 dB = 0.689 W/kg = -1.62 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC54

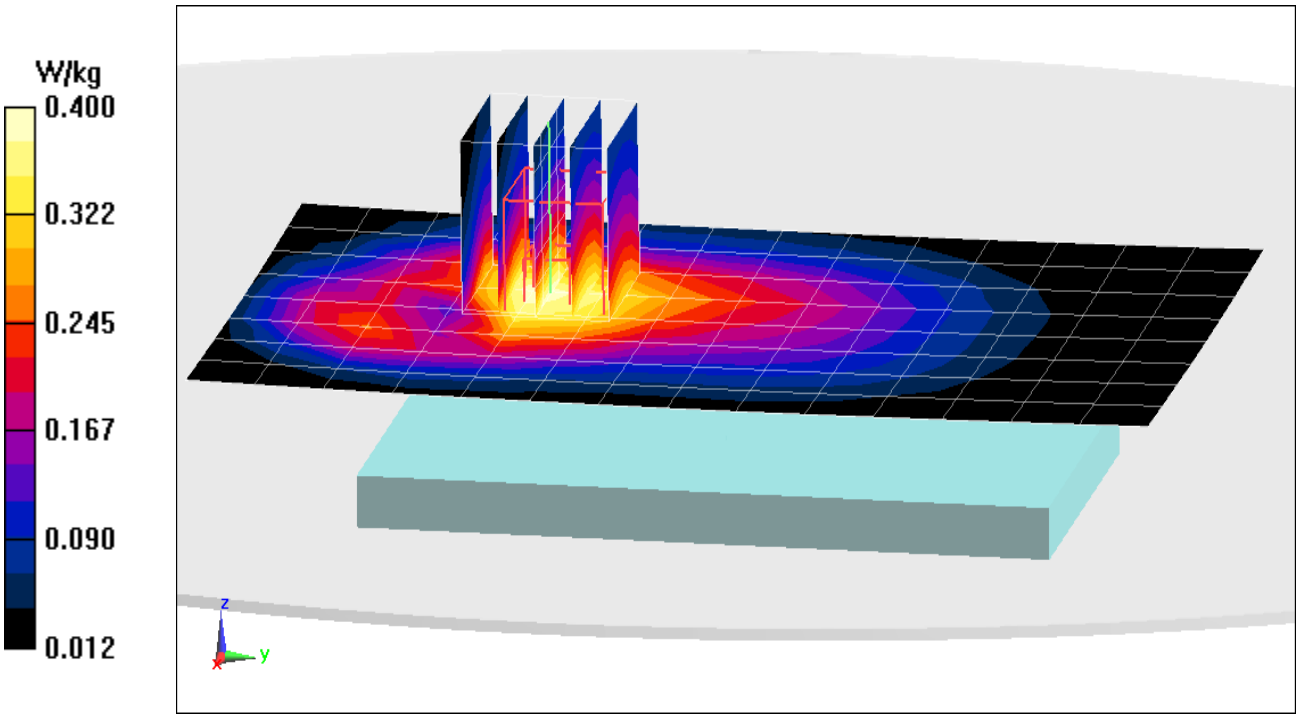
Communication System: UID 0, GSM (0); Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.983 S/m; ε_r = 54.047; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 15 mm

Test Date: 06-10-2015; Ambient Temp: 23.3°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3288; ConvF(6.32, 6.32, 6.32); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1229
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.760 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.472 W/kg
SAR(1 g) = 0.358 W/kg



DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC54

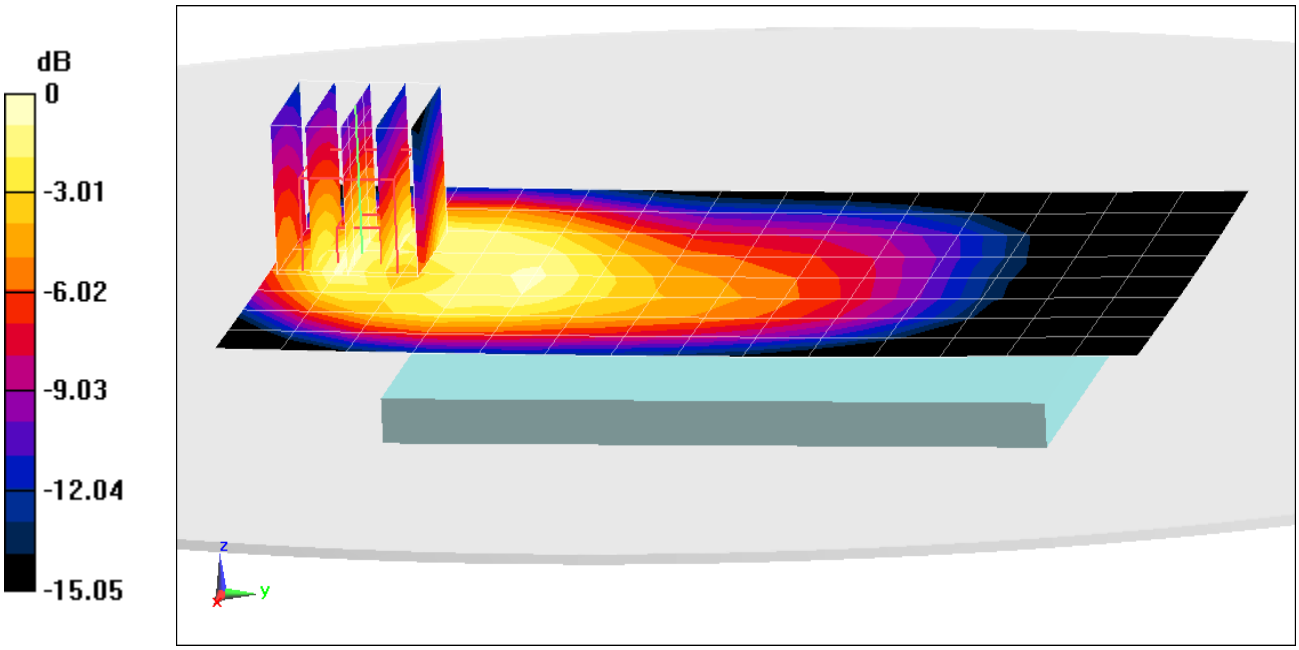
Communication System: UID 0, GSM GPRS; 2 Tx slots (0); Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium: 835 Body Medium parameters used (interpolated):
$f = 836.6$ MHz; $\sigma = 0.983$ S/m; $\varepsilon_r = 54.047$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 10 mm

Test Date: 06-10-2015; Ambient Temp: 23.3°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3288; ConvF(6.32, 6.32, 6.32); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1229
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: GPRS 850, Body SAR, Front side, Mid.ch, 2 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 = 23.494 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.886 W/kg
SAR(1 g) = 0.536 W/kg



0 dB = 0.640 W/kg = -1.94 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC54

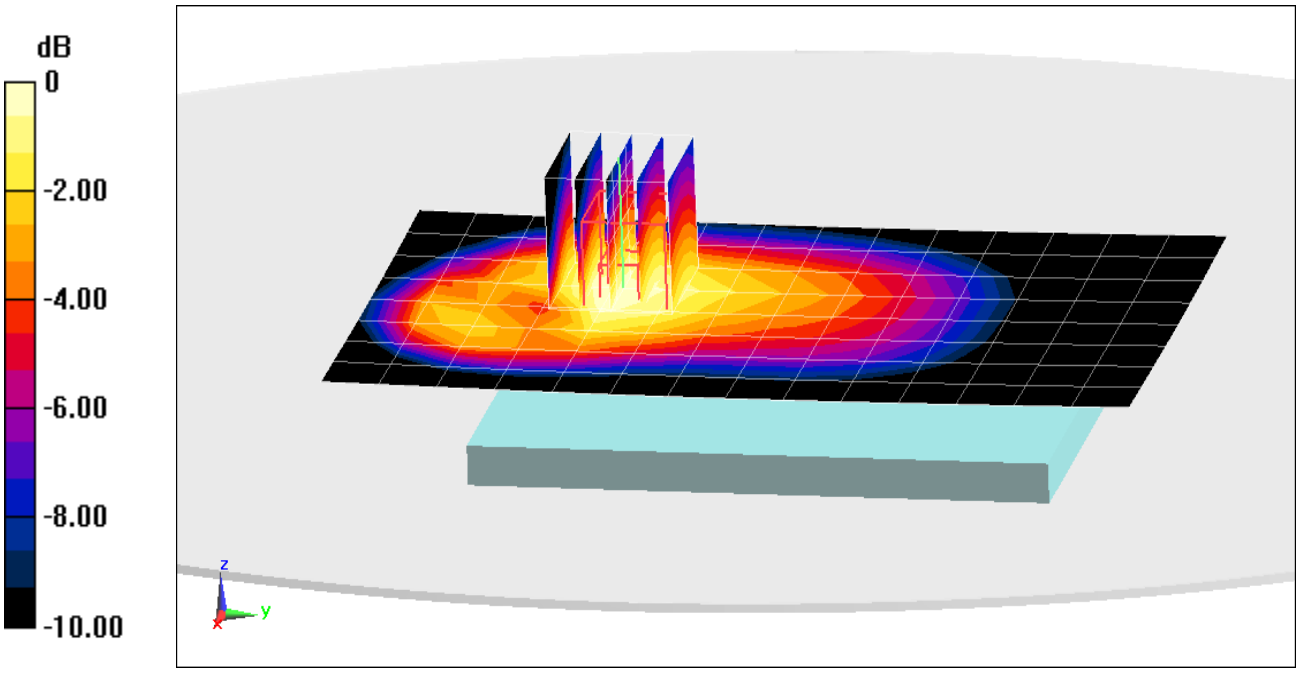
Communication System: UID 0, UMTS; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.983 S/m; ε_r = 54.047; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 15 mm

Test Date: 06-10-2015; Ambient Temp: 23.3°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3288; ConvF(6.32, 6.32, 6.32); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1229
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.816 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.473 W/kg
SAR(1 g) = 0.353 W/kg



0 dB = 0.397 W/kg = -4.01 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC54

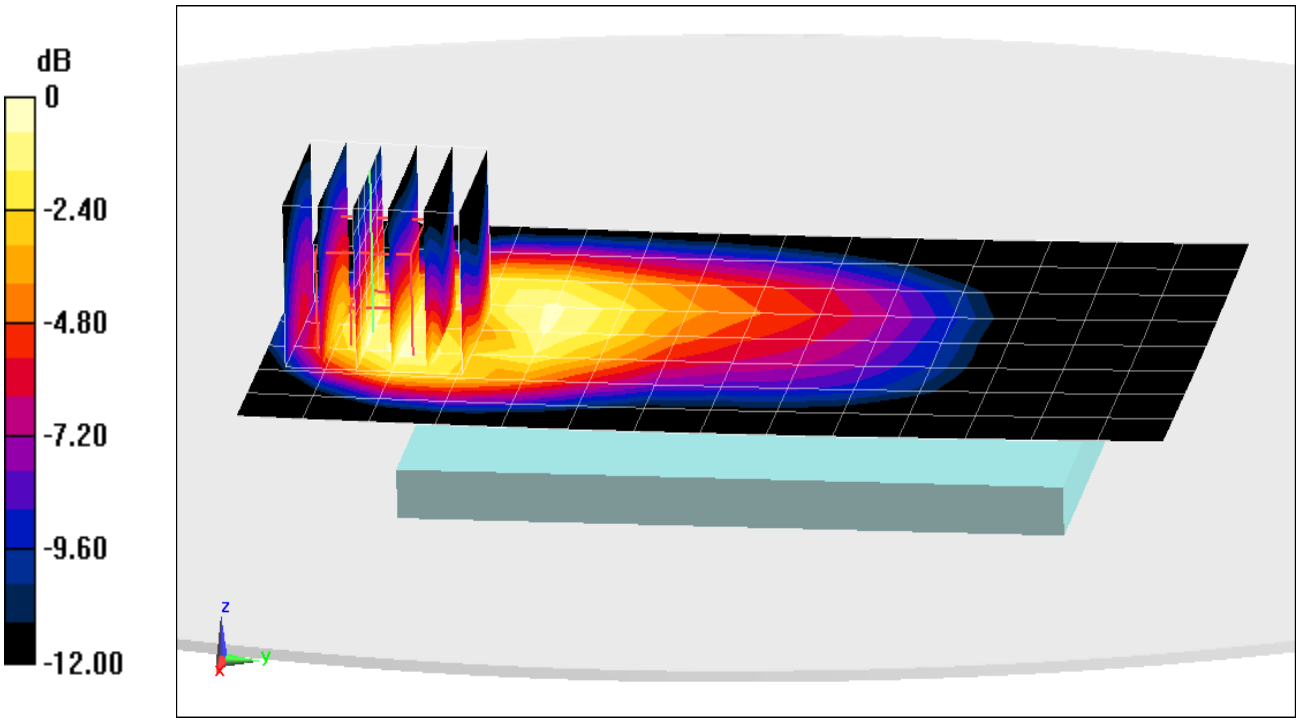
Communication System: UID 0, UMTS; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.6 MHz; σ = 0.983 S/m; ε_r = 54.047; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 10 mm

Test Date: 06-10-2015; Ambient Temp: 23.3°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3288; ConvF(6.32, 6.32, 6.32); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1229
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.816 V/m; Power Drift =-0.15 dB
Peak SAR (extrapolated) = 0.918 W/kg
SAR(1 g) = 0.533 W/kg



0 dB = 0.637 W/kg = -1.96 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABF0D

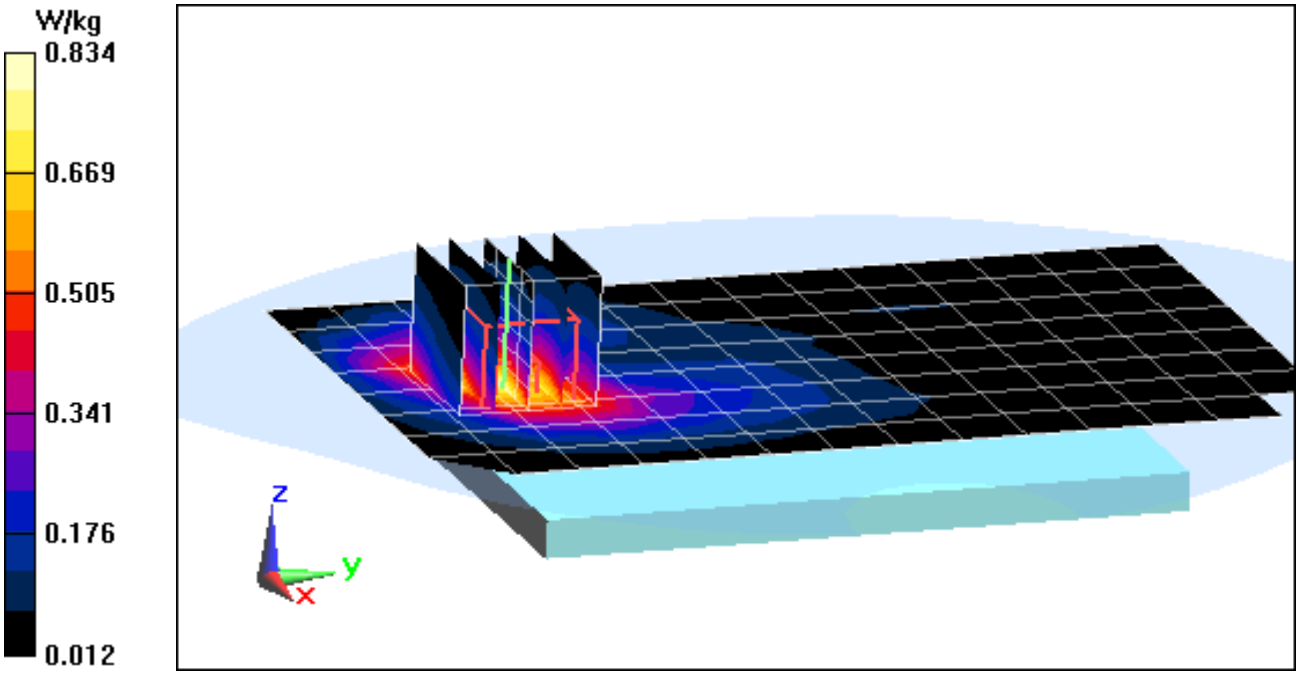
Communication System: UID 0, CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.535 S/m; ε_r = 51.709; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 15 mm

Test Date: 06-08-2015; Ambient Temp: 21.0°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3263; ConvF(4.66, 4.66, 4.66); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.20 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.705 W/kg



DUT: A3LSMN920P; Type: Portable Handset; Serial: ABB3E

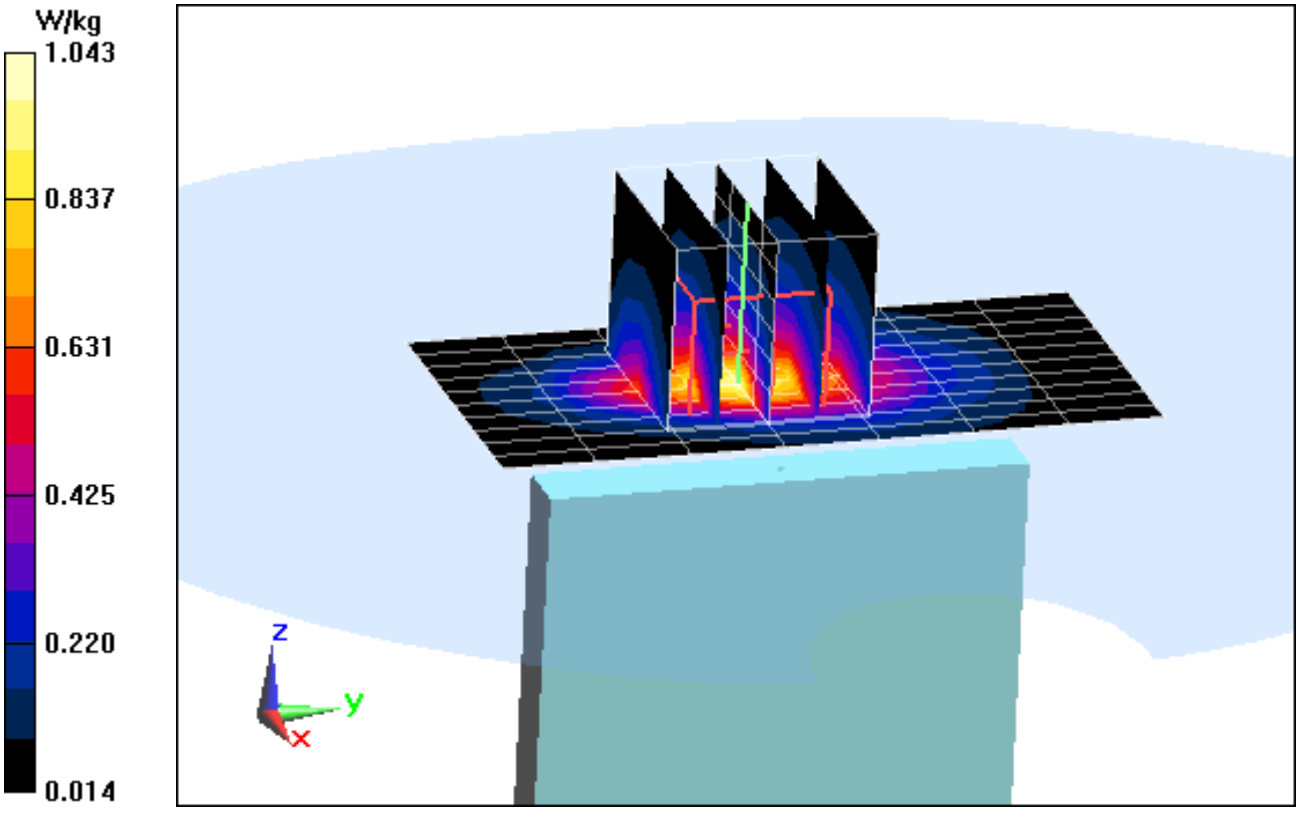
Communication System: UID 0, CDMA; Frequency: 1851.25 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1851.25 MHz; σ = 1.502 S/m; ε_r = 51.789; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 10 mm

Test Date: 06-08-2015; Ambient Temp: 21.0°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3263; ConvF(4.66, 4.66, 4.66); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (11x8x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.62 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 1.40 W/kg
SAR(1 g) = 0.837 W/kg



DUT: A3LSMN920P; Type: Portable Handset; Serial: ABF0D

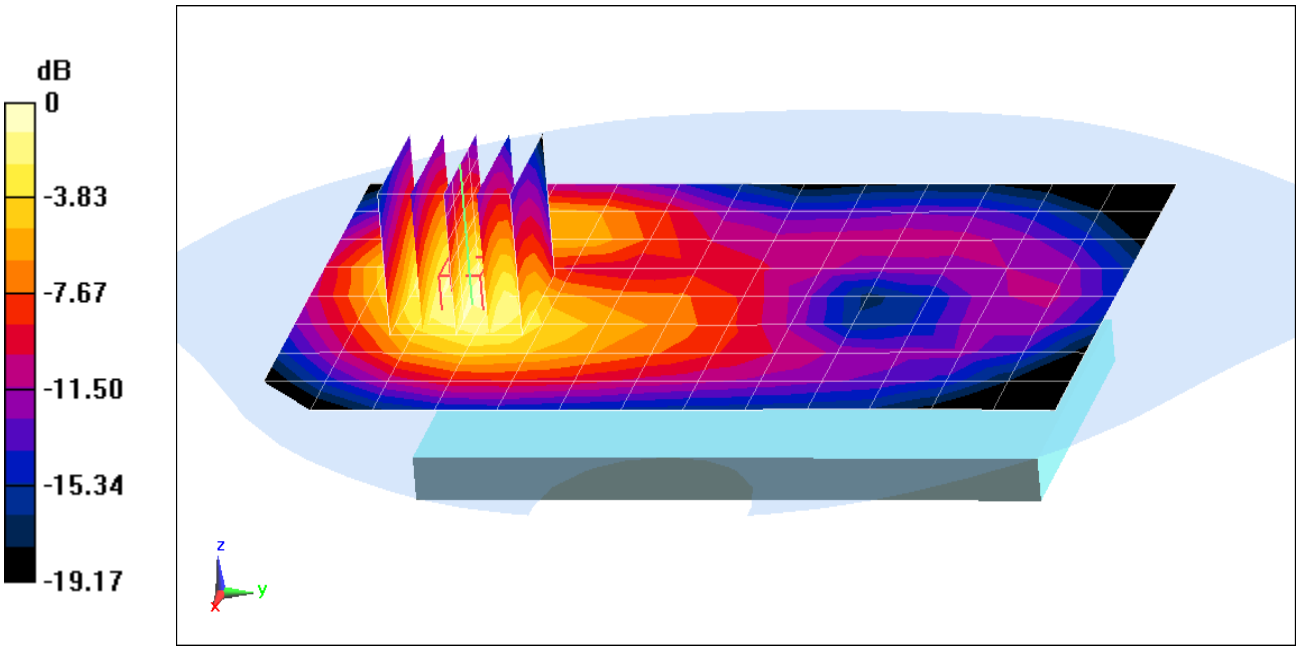
Communication System: UID 0, GSM; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.535 S/m; ε_r = 51.709; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Space: 15 mm

Test Date: 06-08-2015; Ambient Temp: 21.0°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3263; ConvF(4.66, 4.66, 4.66); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.006 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.570 W/kg
SAR(1 g) = 0.364 W/kg



0 dB = 0.439 W/kg = -3.58 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABF0D

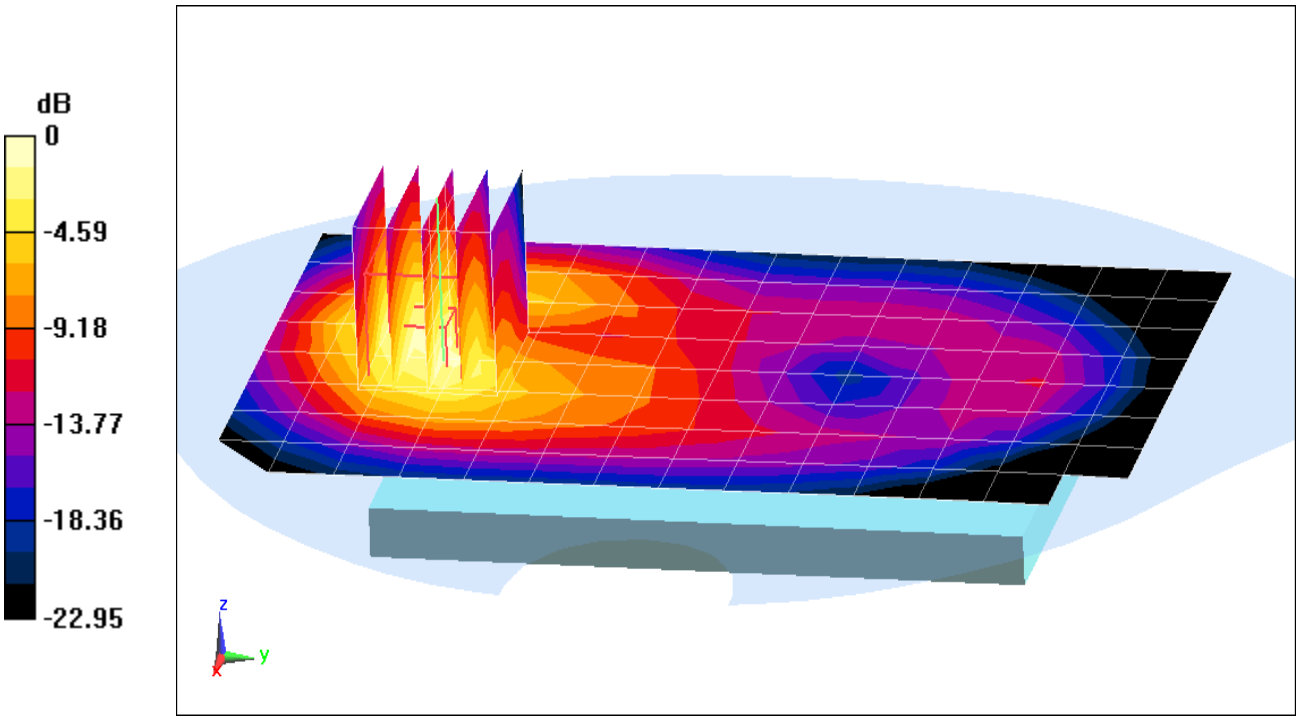
Communication System: UID 0, GSM GPRS; 2 Tx slots; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.509 S/m; ε_r = 52.184; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 10 mm

Test Date: 06-15-2015; Ambient Temp: 21.1°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3263; ConvF(4.66, 4.66, 4.66); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: GPRS 1900, Body SAR, Back side, Mid.ch, 2 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 = 25.792 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 1.74 W/kg
SAR(1 g) = 1.07 W/kg



0 dB = 1.26 W/kg = 1.00 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABF0D

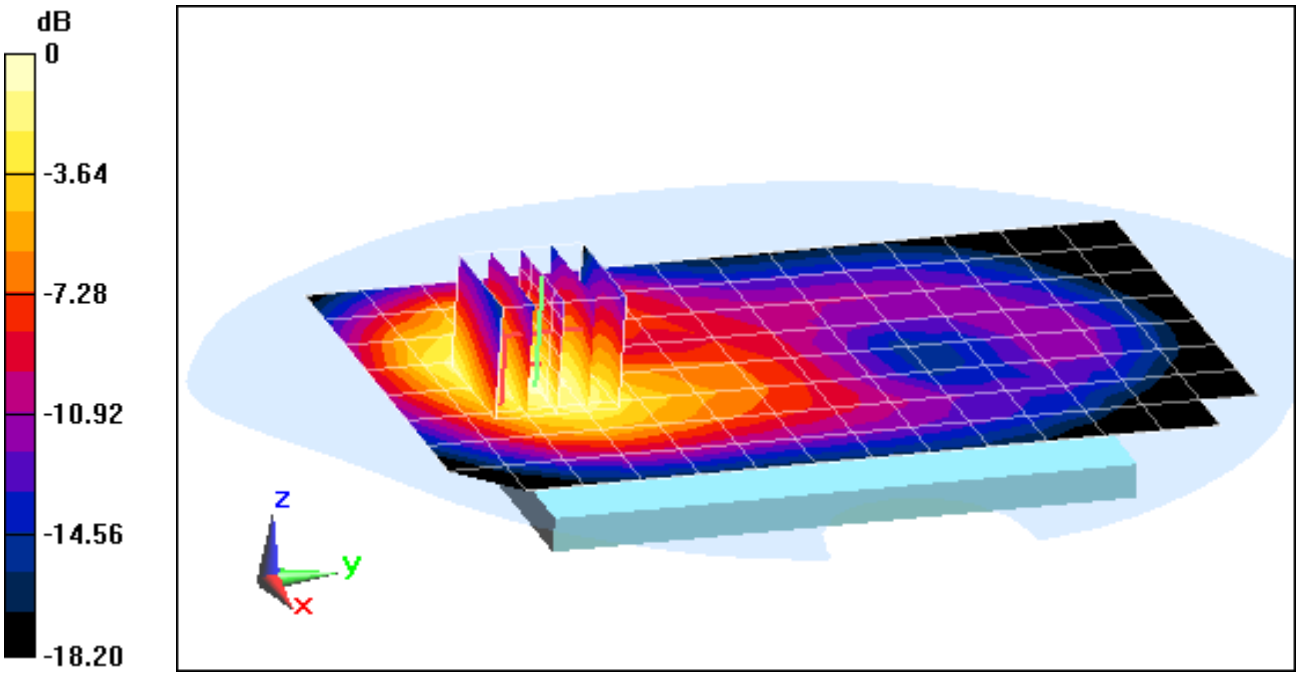
Communication System: UID 0, UMTS; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.535 S/m; ε_r = 51.709; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 15 mm

Test Date: 06-08-2015; Ambient Temp: 21.0°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3263; ConvF(4.66, 4.66, 4.66); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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 = 21.13 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.723 W/kg



0 dB = 0.849 W/kg = -0.71 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABB3E

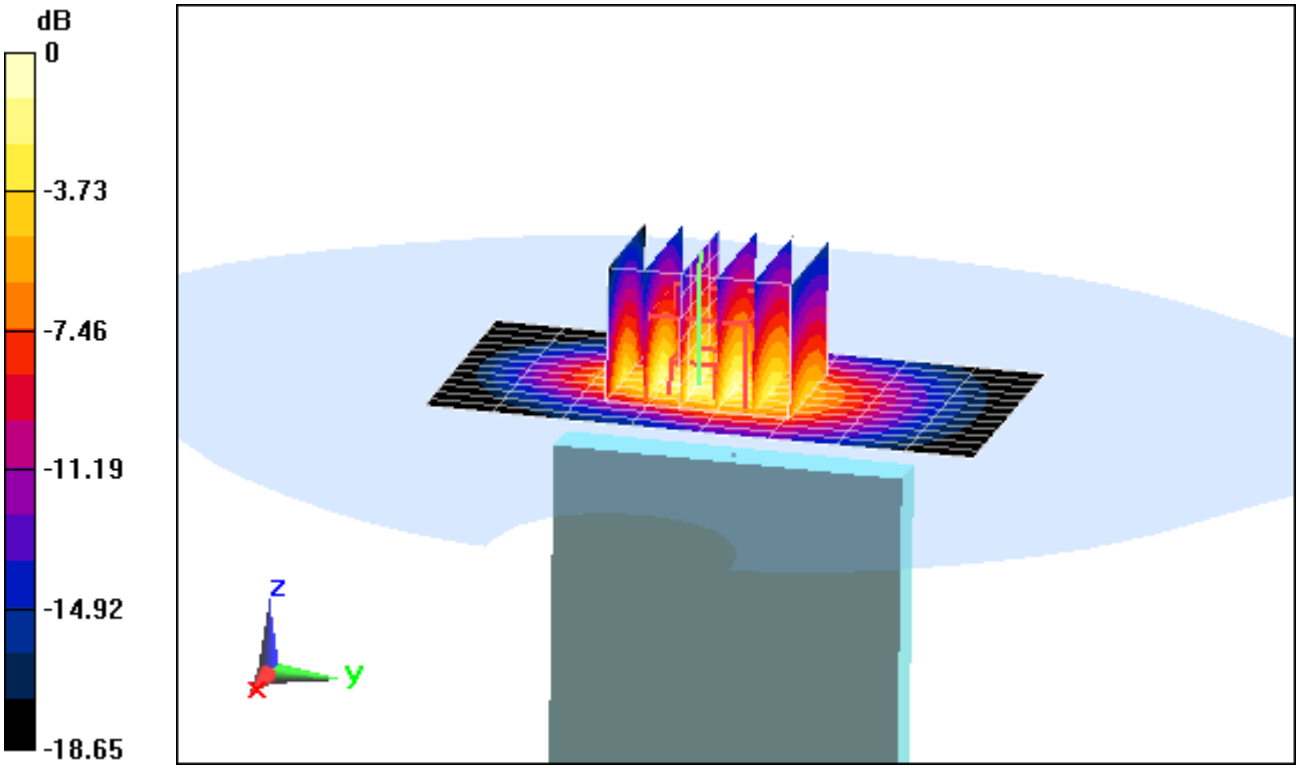
Communication System: UID 0, UMTS, Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1852.4 MHz; σ = 1.504 S/m; ε_r = 51.786; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 10 mm

Test Date: 06-08-2015; Ambient Temp: 21.0°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3263; ConvF(4.66, 4.66, 4.66); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (13x9x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.29 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.53 W/kg
SAR(1 g) = 0.916 W/kg



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

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABAFB

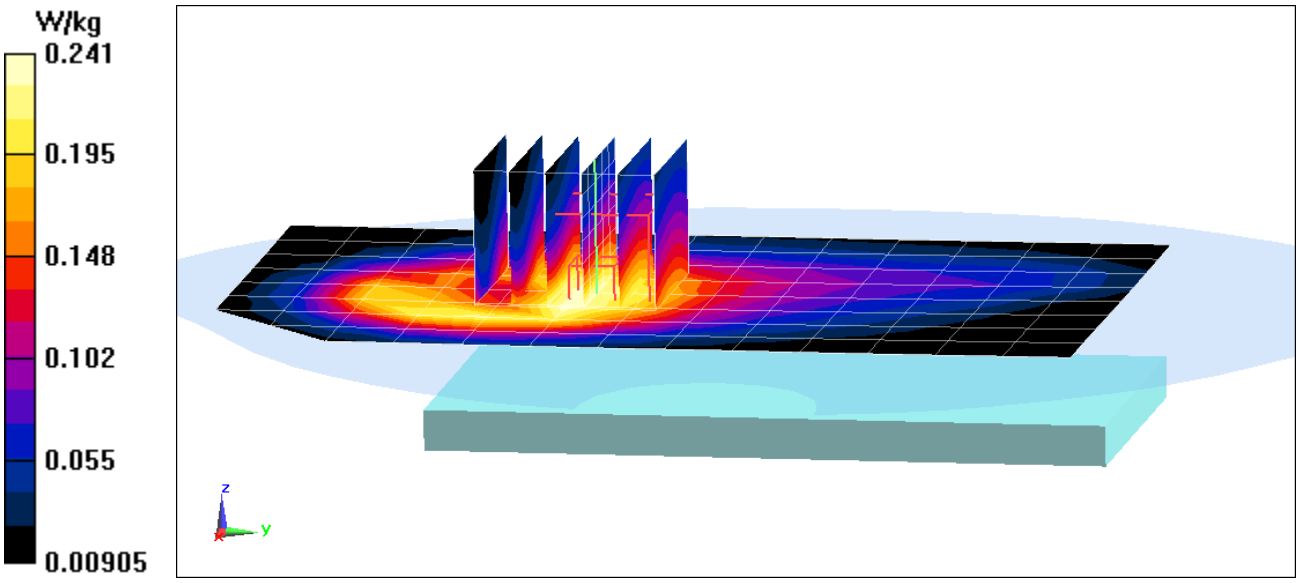
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.929 S/m; ε_r = 55.61; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 15 mm

Test Date: 06-10-2015; Ambient Temp: 24.2°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3263; ConvF(6.07, 6.07, 6.07); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

Area Scan (9x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.687 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.302 W/kg
SAR(1 g) = 0.215 W/kg



DUT: A3LSMN920P; Type: Portable Handset; Serial: ABAFB

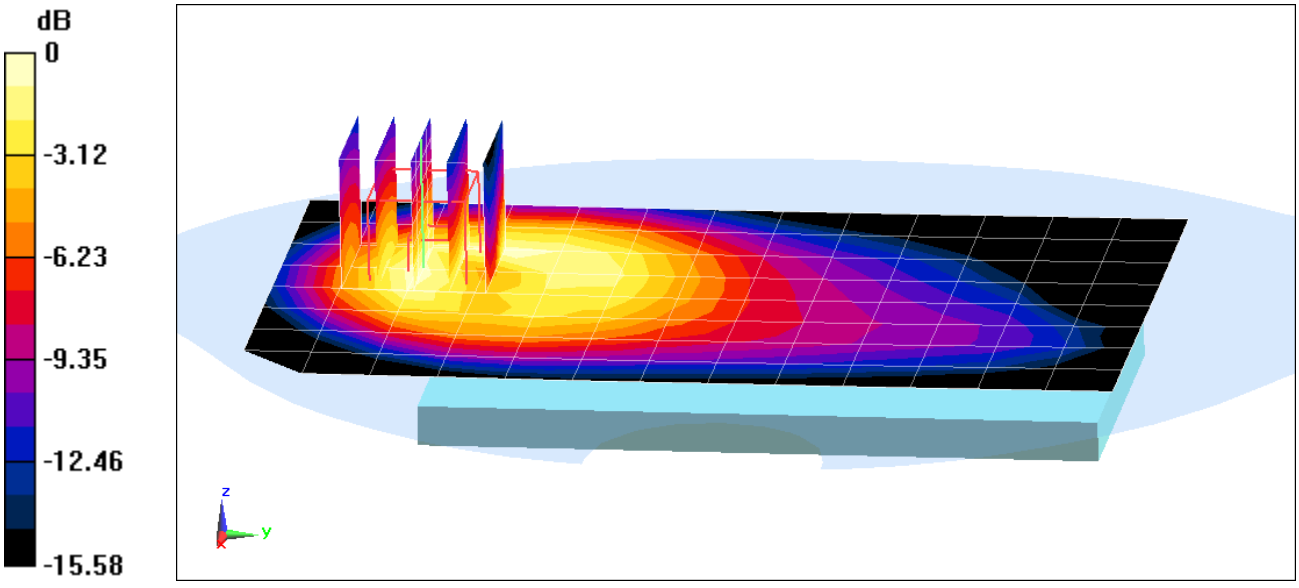
Communication System: UID 0, LTE Band 12; Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 707.5 MHz; σ = 0.929 S/m; ε_r = 55.61; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 10 mm

Test Date: 06-10-2015; Ambient Temp: 24.2°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3263; ConvF(6.07, 6.07, 6.07); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 12, Body SAR, Front side, 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 = 23.880 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.848 W/kg
SAR(1 g) = 0.483 W/kg



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

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC1B

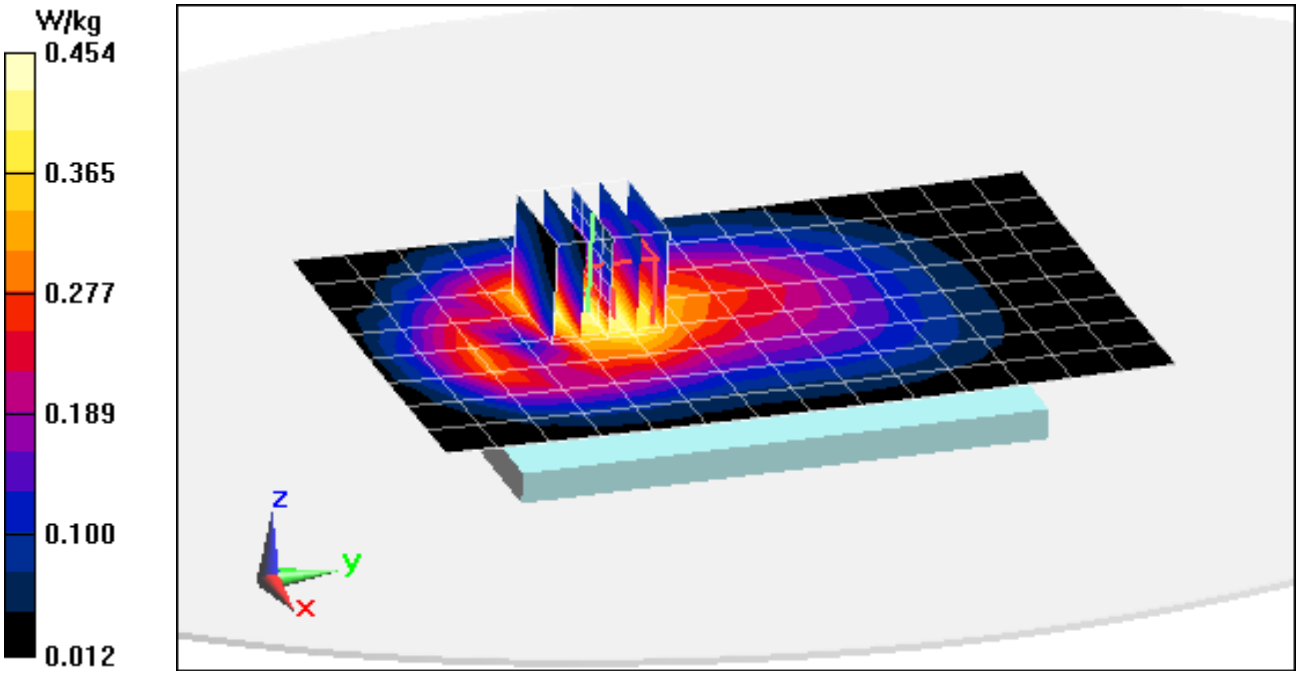
Communication System: UID 0, LTE Band 26; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.983 S/m; ε_r = 54.048; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 15 mm

Test Date: 06-10-2015; Ambient Temp: 23.3°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3288; ConvF(6.32, 6.32, 6.32); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1229
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 26 (Cell.), Body SAR, Back Side, Mid.ch,
15 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.05 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.533 W/kg
SAR(1 g) = 0.404 W/kg



DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC1B

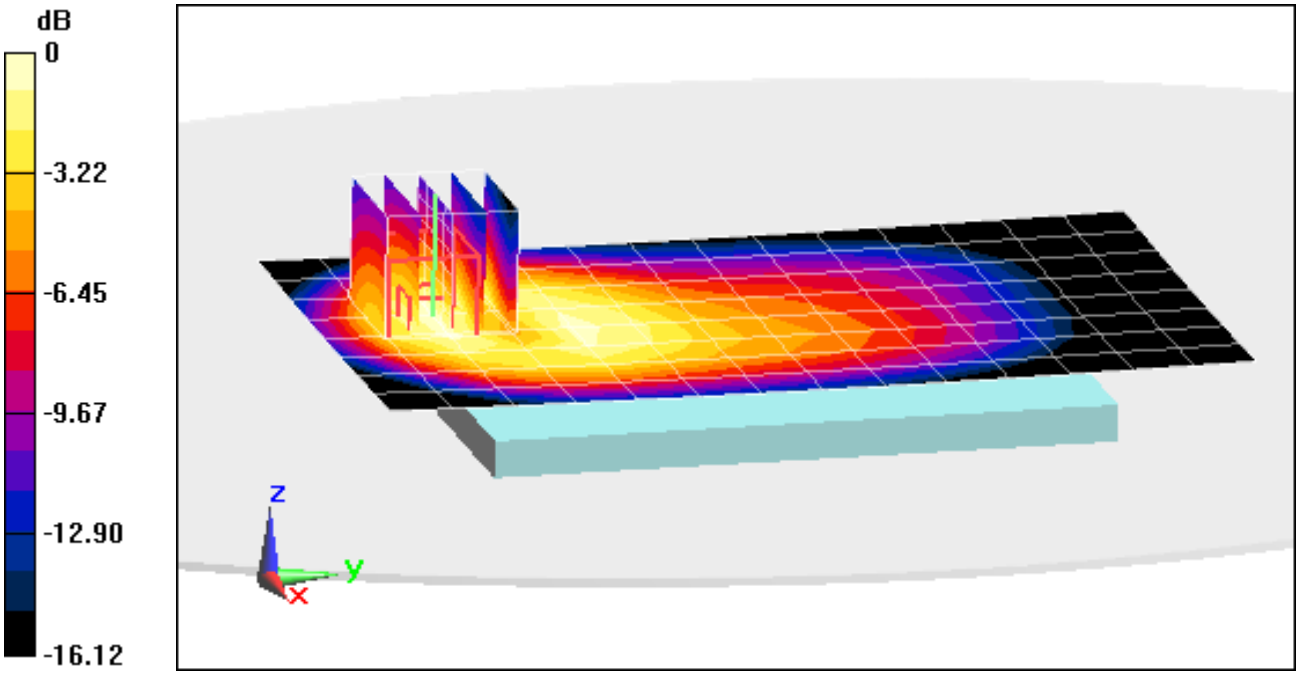
Communication System: UID 0, LTE Band 26; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.5 MHz; σ = 0.983 S/m; ε_r = 54.048; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 10 mm

Test Date: 06-10-2015; Ambient Temp: 23.3°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3288; ConvF(6.32, 6.32, 6.32); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1229
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 26 (Cell.), Body SAR, Front Side,
Mid.ch, 15 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.31 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.949 W/kg
SAR(1 g) = 0.566 W/kg



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

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABCC3

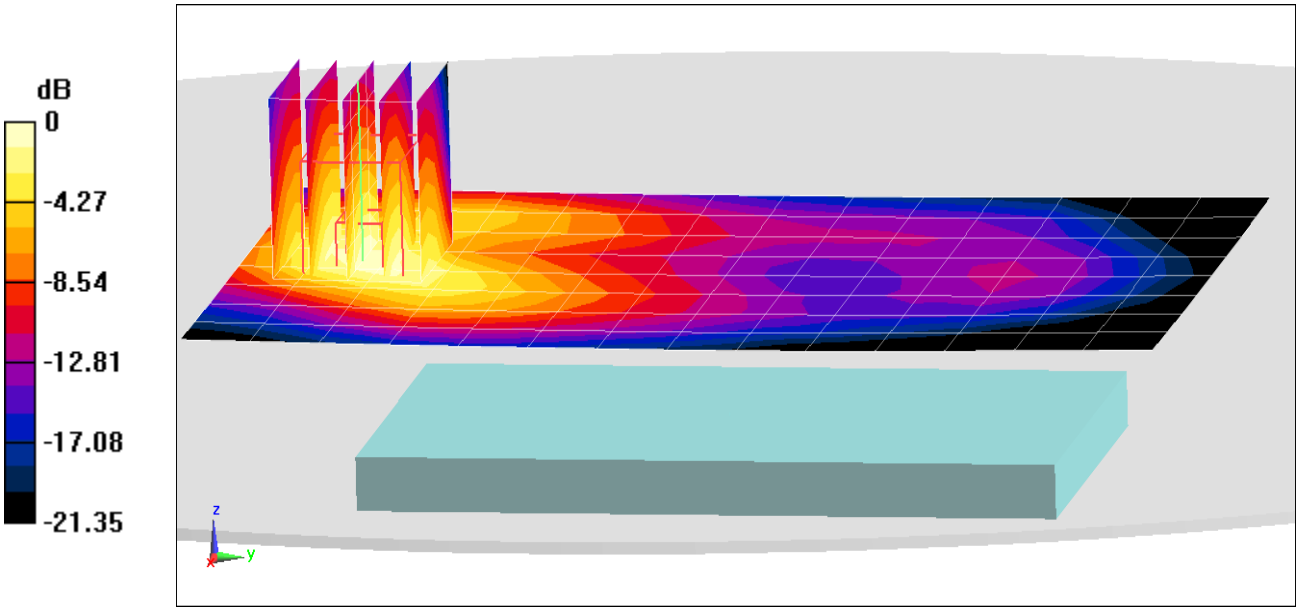
Communication System: UID 0, LTE Band 4 (AWS); Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
$f = 1732.5$ MHz; $\sigma = 1.464$ S/m; $\varepsilon_r = 52.661$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 15 mm

Test Date: 06-08-2015; Ambient Temp: 20.2°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3318; ConvF(4.95, 4.95, 4.95); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:2027
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 4 (AWS), 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 = 19.634 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 0.908 W/kg
SAR(1 g) = 0.564 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABFAC

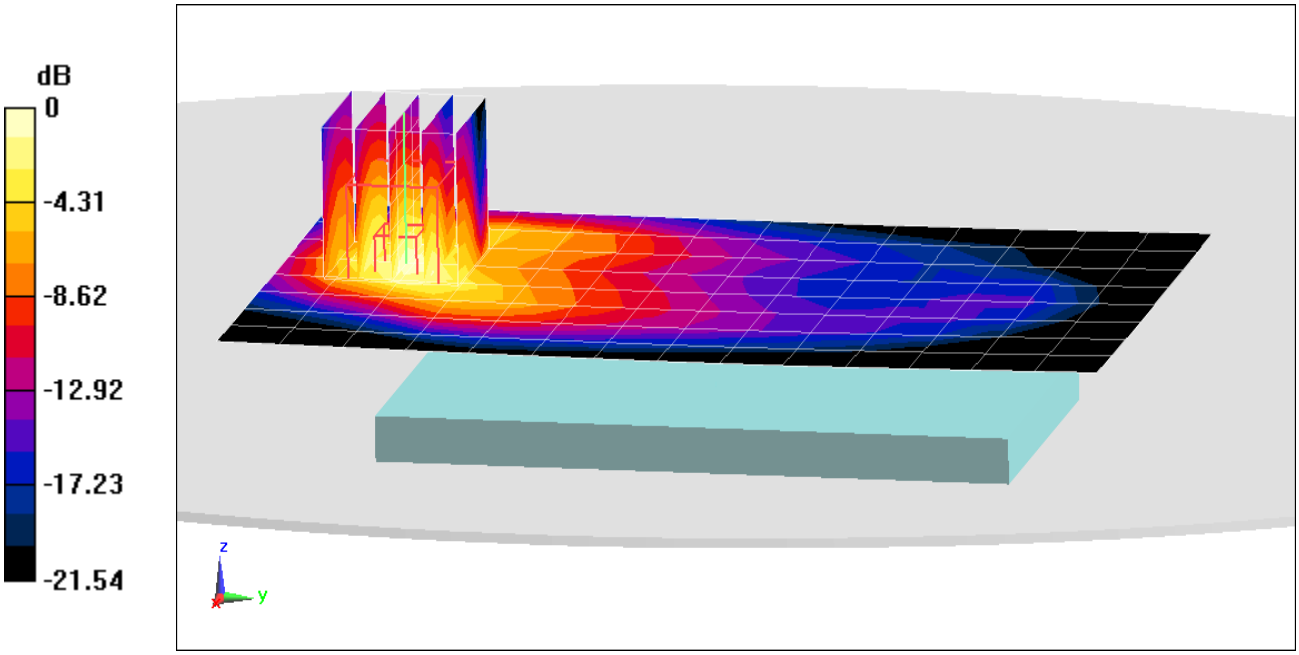
Communication System: UID 0, LTE Band 4 (AWS); Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
$f = 1732.5$ MHz; $\sigma = 1.464$ S/m; $\varepsilon_r = 52.661$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 10 mm

Test Date: 06-08-2015; Ambient Temp: 20.2°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3318; ConvF(4.95, 4.95, 4.95); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:2027
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 4 (AWS), 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 = 22.920 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.24 W/kg
SAR(1 g) = 0.715 W/kg



0 dB = 0.887 W/kg = -0.52 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABCC3

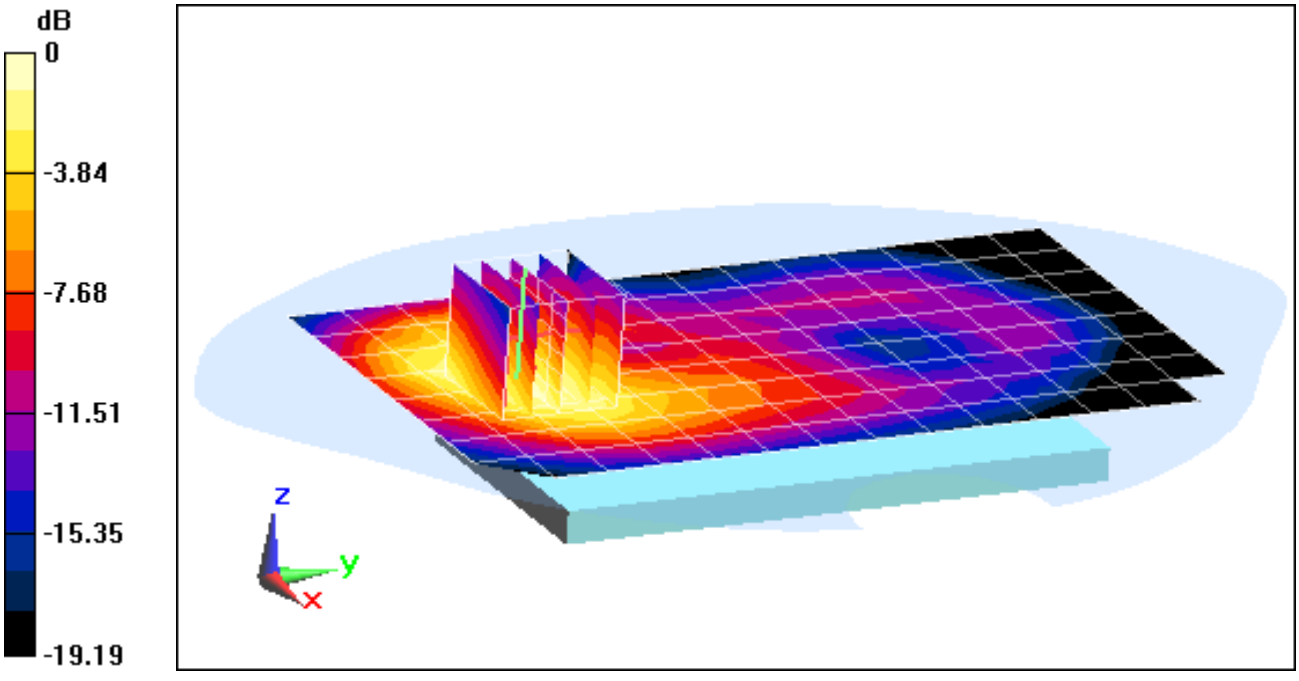
Communication System: UID 0, LTE Band 25 (PCS) ; Frequency: 1860 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
$f = 1860$ MHz; $\sigma = 1.485$ S/m; $\varepsilon_r = 52.071$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 15 mm

Test Date: 06-10-2015; Ambient Temp: 23.7°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3263; ConvF(4.66, 4.66, 4.66); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 25 (PCS), Body SAR, Back side, Low Ch.
20 MHz Bandwidth, QPSK, 1 RB, 99 RB Offset

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.83 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.812 W/kg
SAR(1 g) = 0.520 W/kg



0 dB = 0.612 W/kg = -2.13 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABFAC

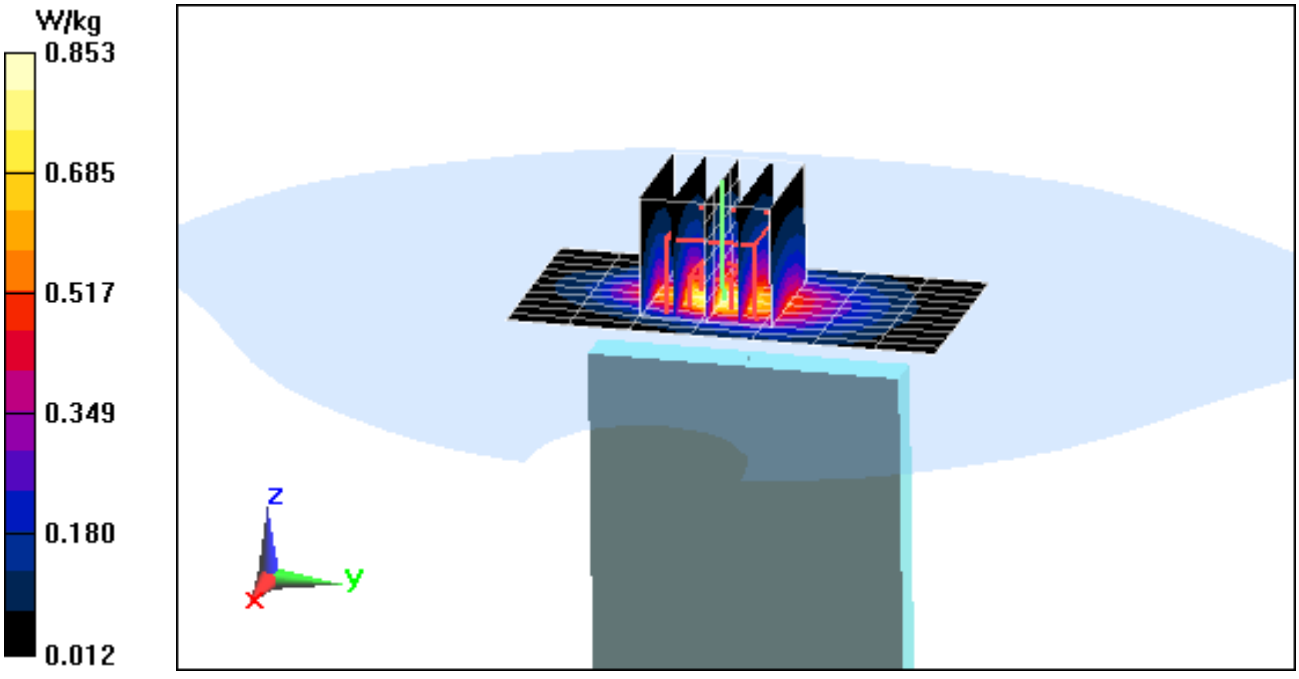
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1882.5 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
$f = 1882.5$ MHz; $\sigma = 1.511$ S/m; $\varepsilon_r = 51.971$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 10 mm

Test Date: 06-10-2015; Ambient Temp: 23.7°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3263; ConvF(4.66, 4.66, 4.66); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

Area Scan (11x8x1): Measurement grid: dx=5mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.31 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.692 W/kg



DUT: A3LSMN920P; Type: Portable Handset; Serial: ABB41

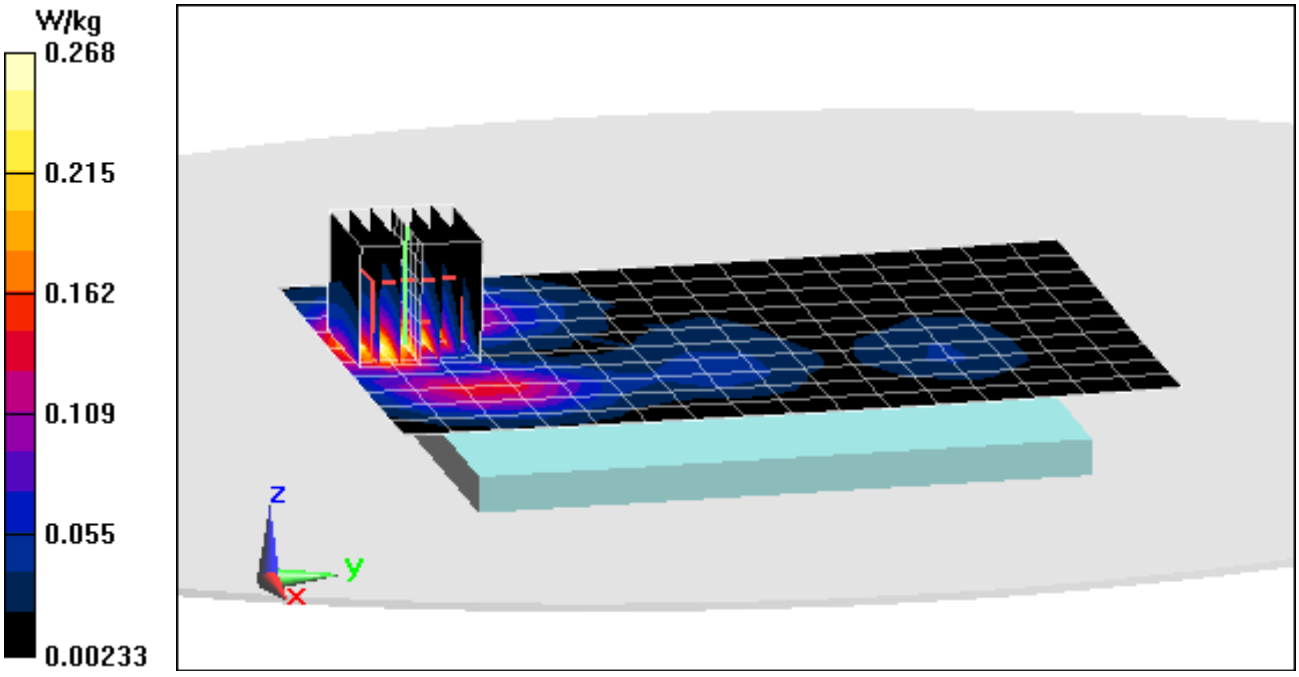
Communication System: UID 0, LTE Band 41; Frequency: 2593 MHz;Duty Cycle: 1:1.58
Medium: 2450 Body Medium parameters used (interpolated):
$f = 2593$ MHz; $\sigma = 2.229$ S/m; $\varepsilon_r = 50.626$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 15 mm

Test Date: 06-16-2015; Ambient Temp: 21.9°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3318; ConvF(4.17, 4.17, 4.17); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:2027
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 41, Body SAR, Back side, Mid.ch,
20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.978 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.434 W/kg
SAR(1 g) = 0.212 W/kg



DUT: A3LSMN920P; Type: Portable Handset; Serial: ABB41

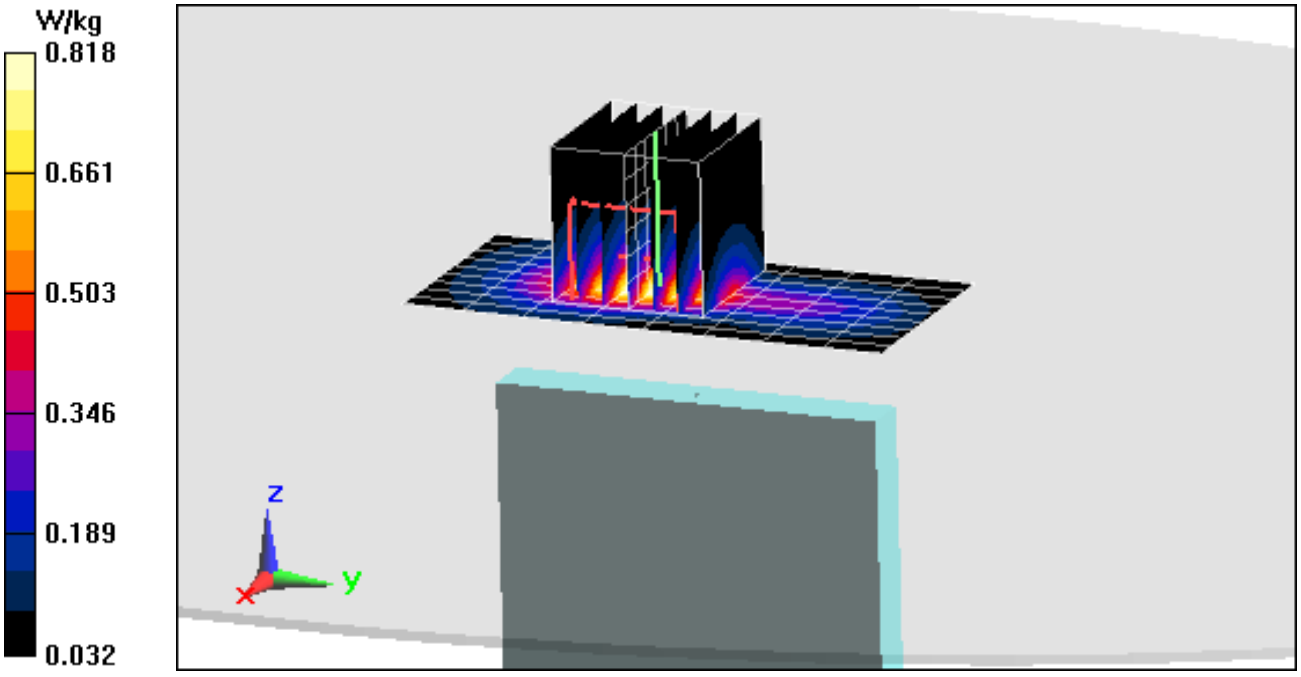
Communication System: UID 0, LTE Band 41; Frequency: 2549.5 MHz,Duty Cycle: 1:1.58
Medium: 2450 Body Medium parameters used:
f = 2549.50 MHz; σ = 2.168 S/m; ε_r = 50.797; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 10 mm

Test Date: 06-16-2015; Ambient Temp: 21.9°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3318; ConvF(4.17, 4.17, 4.17); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:2027
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 41, Body SAR, Bottom Edge, Low-Mid.ch, 20 MHz Bandwidth, QPSK, 1 RB, 0 RB Offset

Area Scan (10x9x1): Measurement grid: dx=5mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.70 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.44 W/kg
SAR(1 g) = 0.679 W/kg



DUT: A3LSMN920P; Type: Portable Handset; Serial: ABAEB

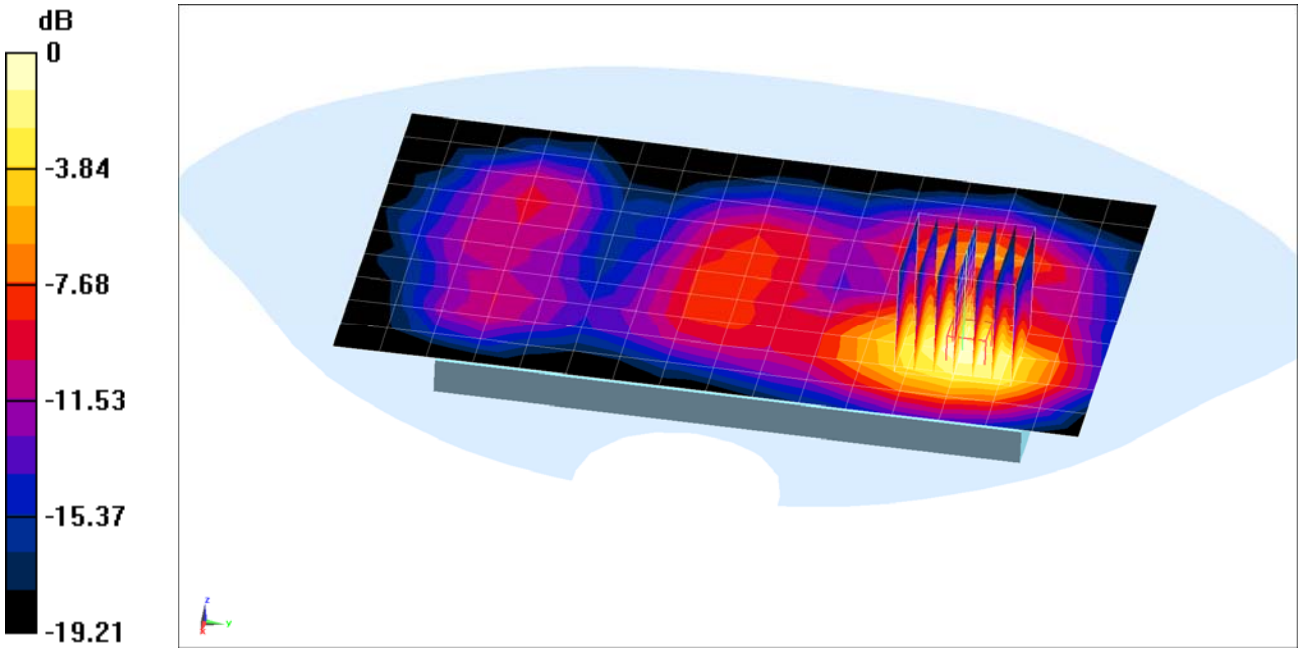
Communication System: UID 0, IEEE 802.11b; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used (interpolated):
$f = 2437$ MHz; $\sigma = 2.014$ S/m; $\varepsilon_r = 51.429$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 10 mm

Test Date: 06-09-2015; Ambient Temp: 21.5°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3318; ConvF(4.37, 4.37, 4.37); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11b, 22 MHz Bandwidth, Body SAR
Ch 6, 1 Mbps, Back Side, Antenna 2

Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.092 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.232 W/kg
SAR(1 g) = 0.114 W/kg



0 dB = 0.146 W/kg = -8.36 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABAEB

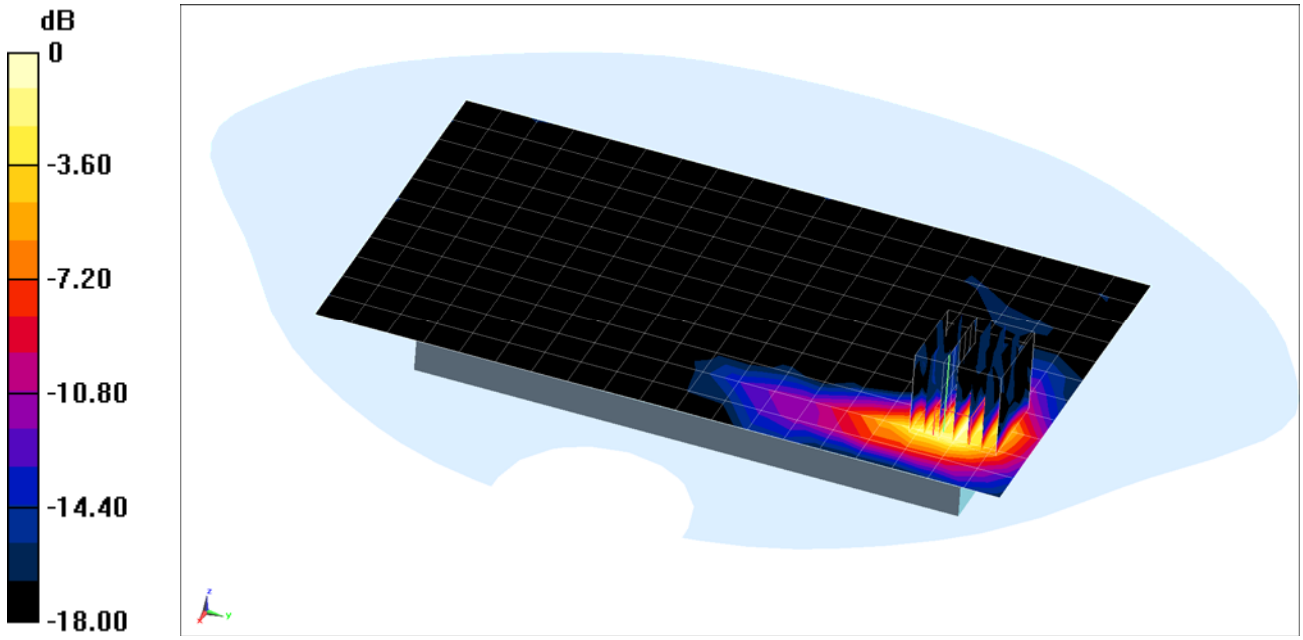
Communication System: UID 0, IEEE 802.11a; Frequency: 5745 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5745 MHz; σ = 6.061 S/m; ε_r = 46.998; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 10 mm

Test Date: 06-08-2015; Ambient Temp: 22.4°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN3589; ConvF(3.79, 3.79, 3.79); Calibrated: 1/22/2015;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 9/17/2014
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11a, U-NII 3, 20 MHz Bandwidth, Body SAR
Ch 149, 6 Mbps, Back Side, Antenna 1

Area Scan (12x20x1): 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 = 6.097 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.256 W/kg



0 dB = 0.674 W/kg = -1.71 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC54

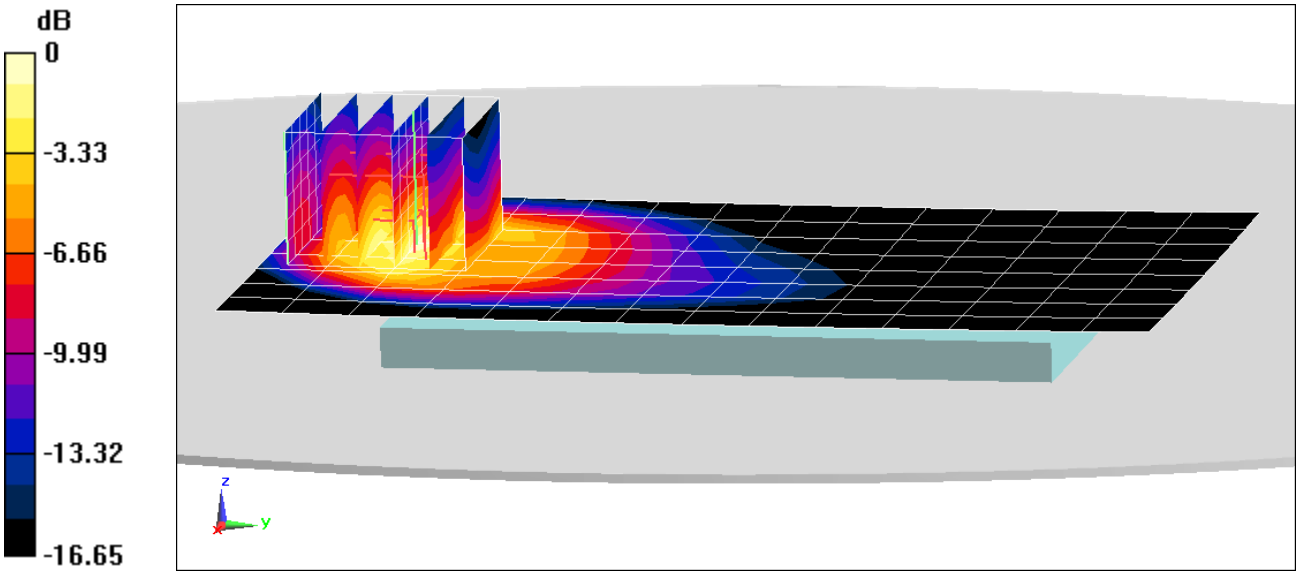
Communication System: UID 0, CDMA (0); Frequency: 820.1 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 820.1 MHz; σ = 0.981 S/m; ε_r = 53.1; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 2 mm

Test Date: 06-17-2015; Ambient Temp: 21.5°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3319; ConvF(6.07, 6.07, 6.07); Calibrated: 3/19/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/13/2015
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1226
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: BC10 Cell. EVDO, Extremity SAR, Front Side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.469 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 5.92 W/kg
SAR(10 g) = 1.49 W/kg



0 dB = 3.68 W/kg = 5.66 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABC54

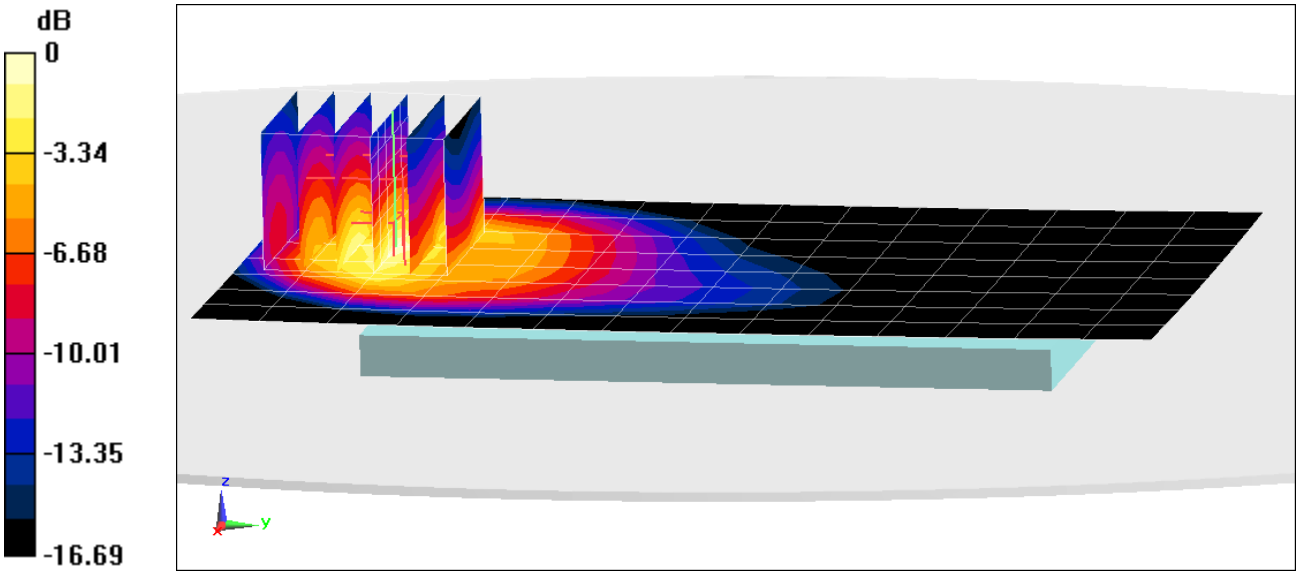
Communication System: UID 0, CDMA; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium: 835 Body Medium parameters used (interpolated):
f = 836.52 MHz; σ = 1.001 S/m; ε_r = 52.91; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 2 mm

Test Date: 06-17-2015; Ambient Temp: 21.5°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3319; ConvF(6.07, 6.07, 6.07); Calibrated: 3/19/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/13/2015
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1226
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: BC0 Cell. EVDO, Extremity SAR, Front Side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.469 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 6.09 W/kg
SAR(10 g) = 1.54 W/kg



0 dB = 3.81 W/kg = 5.81 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABF0D

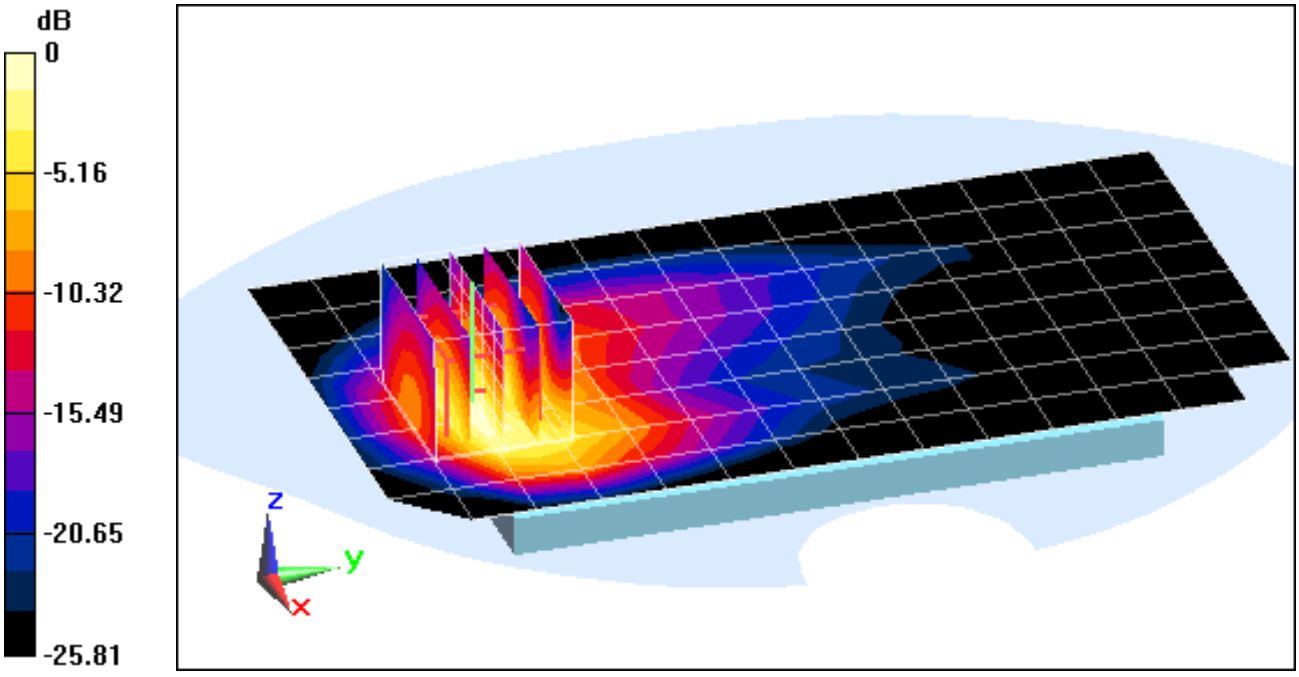
Communication System: UID 0, CDMA; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used:
f = 1880 MHz; σ = 1.509 S/m; ε_r = 52.184; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 2 mm

Test Date: 06-15-2015; Ambient Temp: 21.1°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3263; ConvF(4.66, 4.66, 4.66); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: PCS EVDO, Extremity SAR, Front side, Mid.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.45 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 7.52 W/kg
SAR(10 g) = 1.73 W/kg



0 dB = 5.08 W/kg = 7.06 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABF0D

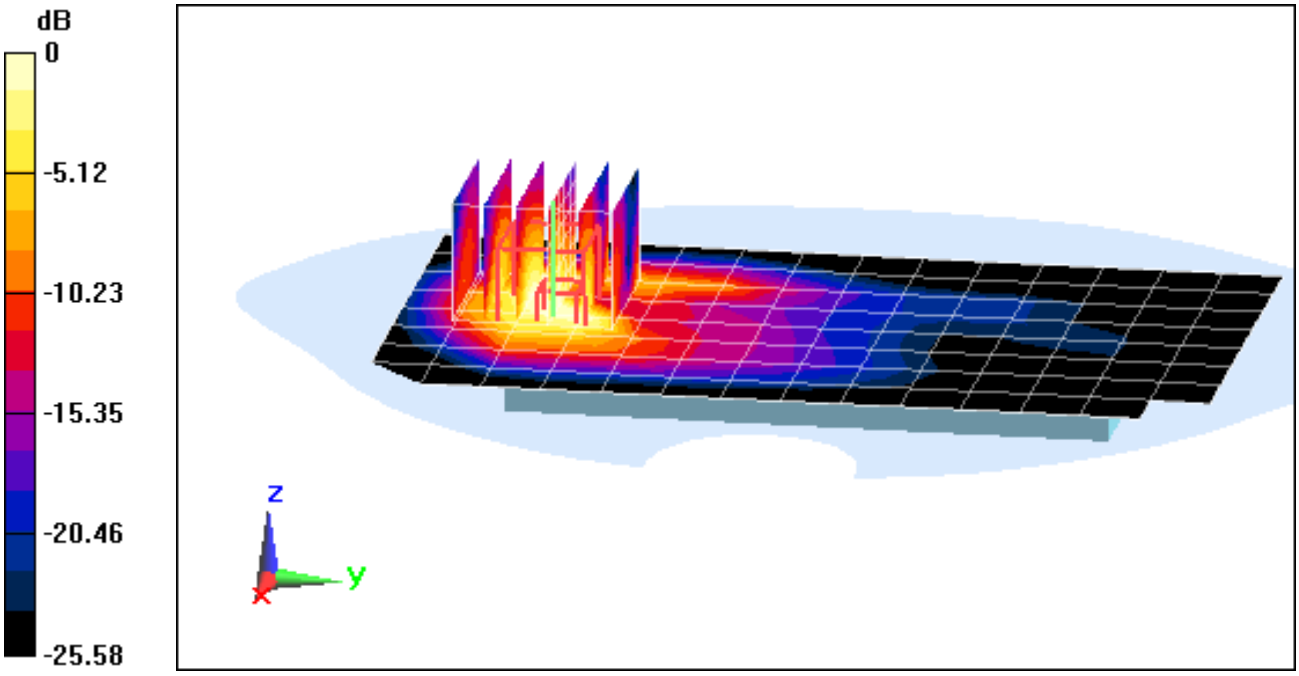
Communication System: UID 0, UMTS; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1852.4 MHz; σ = 1.507 S/m; ε_r = 52.533; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 3 mm

Test Date: 06-13-2015; Ambient Temp: 21.3°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3263; ConvF(4.66, 4.66, 4.66); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: UMTS 1900, Extremity SAR, Back side, Low.ch

Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 65.18 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 9.01 W/kg
SAR(10 g) = 2.23 W/kg



0 dB = 5.47 W/kg = 7.38 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABCC3

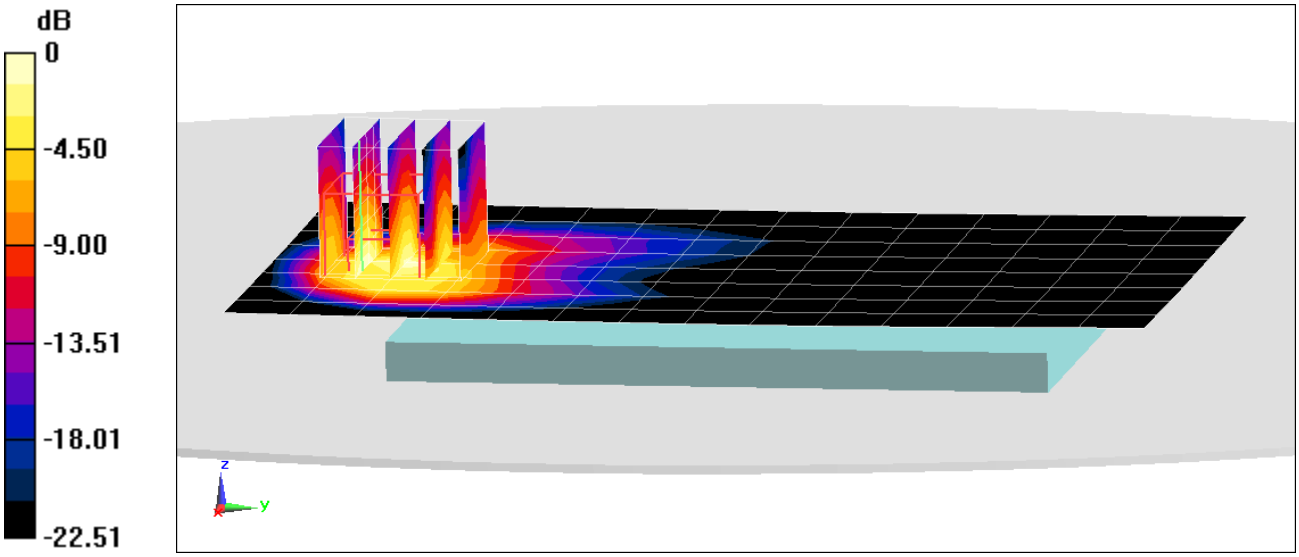
Communication System: UID 0, LTE Band 4 (AWS); Frequency: 1732.5 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used (interpolated):
$f = 1732.5$ MHz; $\sigma = 1.445$ S/m; $\varepsilon_r = 52.119$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 2 mm

Test Date: 06-12-2015; Ambient Temp: 22.0°C; Tissue Temp: 22.6°C

Probe: ES3DV3 - SN3318; ConvF(4.95, 4.95, 4.95); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:2027
Measurement SW: DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 4 (AWS), Extremity SAR,
Front 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 = 67.174 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 11.6 W/kg
SAR(10 g) = 2.75 W/kg



0 dB = 7.54 W/kg = 8.77 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABCC3

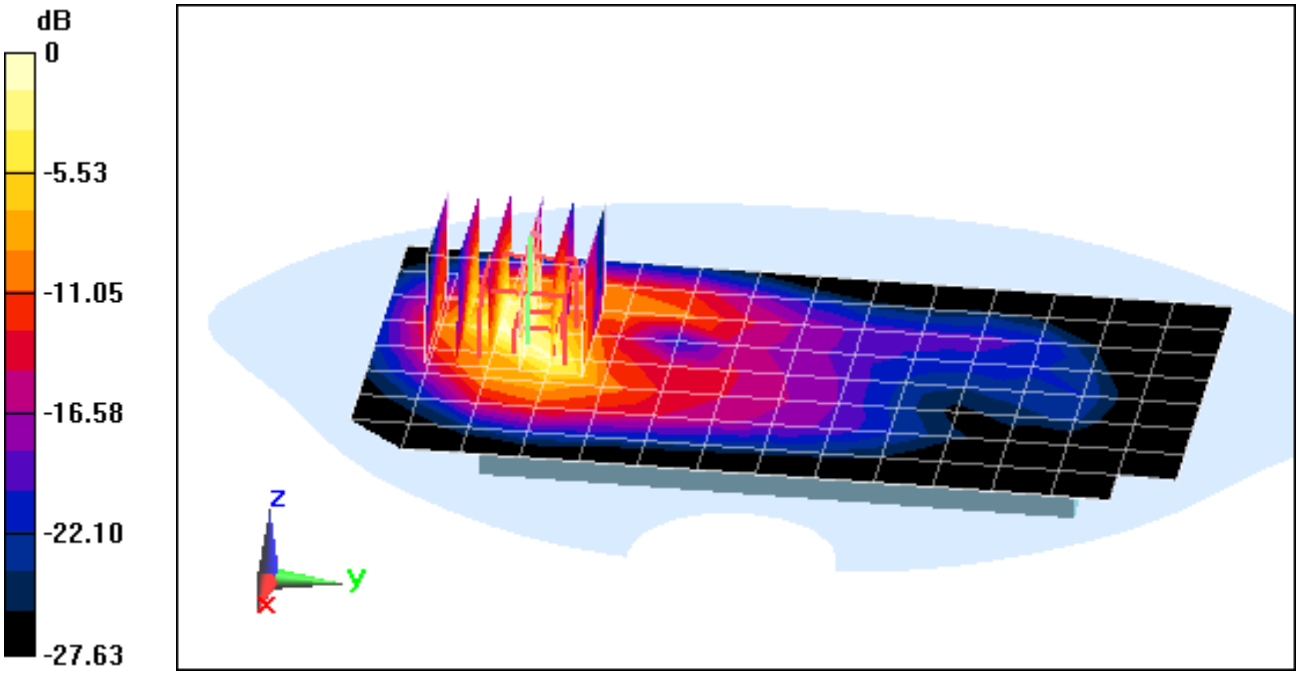
Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1882.5 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
$f = 1882.5$ MHz; $\sigma = 1.512$ S/m; $\varepsilon_r = 52.175$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 3 mm

Test Date: 06-15-2015; Ambient Temp: 21.1°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3263; ConvF(4.66, 4.66, 4.66); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 25 (PCS), Extremity SAR, Back Side,
20 MHz Bandwidth, Mid. Ch, 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 = 55.82 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 10.4 W/kg
SAR(10 g) = 2.31 W/kg



0 dB = 6.50 W/kg = 8.13 dBW/kg

DUT: A3LSMN920P; Type: Portable Handset; Serial: ABAEB

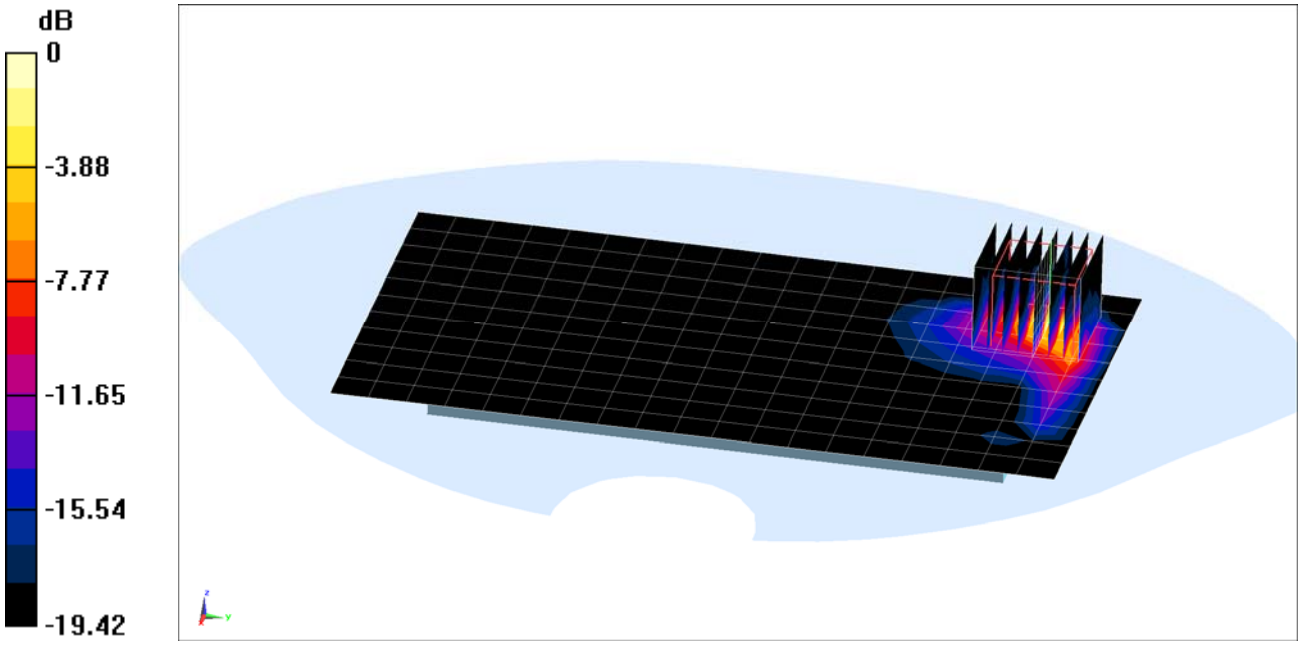
Communication System: UID 0, IEEE 802.11a; Frequency: 5720 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5720 MHz; σ = 6.03 S/m; ε_r = 47.063; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 0 mm

Test Date: 06-08-2015; Ambient Temp: 22.7°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN3589; ConvF(3.79, 3.79, 3.79); Calibrated: 1/22/2015;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 9/17/2014
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: IEEE 802.11a, U-NII 2C, 20 MHz Bandwidth, Extremity SAR
Ch 144, 6 Mbps, Front Side, Antenna 1

Area Scan (12x20x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio =1.4
Reference Value = 15.308 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 32.4 W/kg
SAR(10 g) = 1.15 W/kg



0 dB = 16.6 W/kg = 12.20 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

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PCTEST ENGINEERING LABORATORY, INC.

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

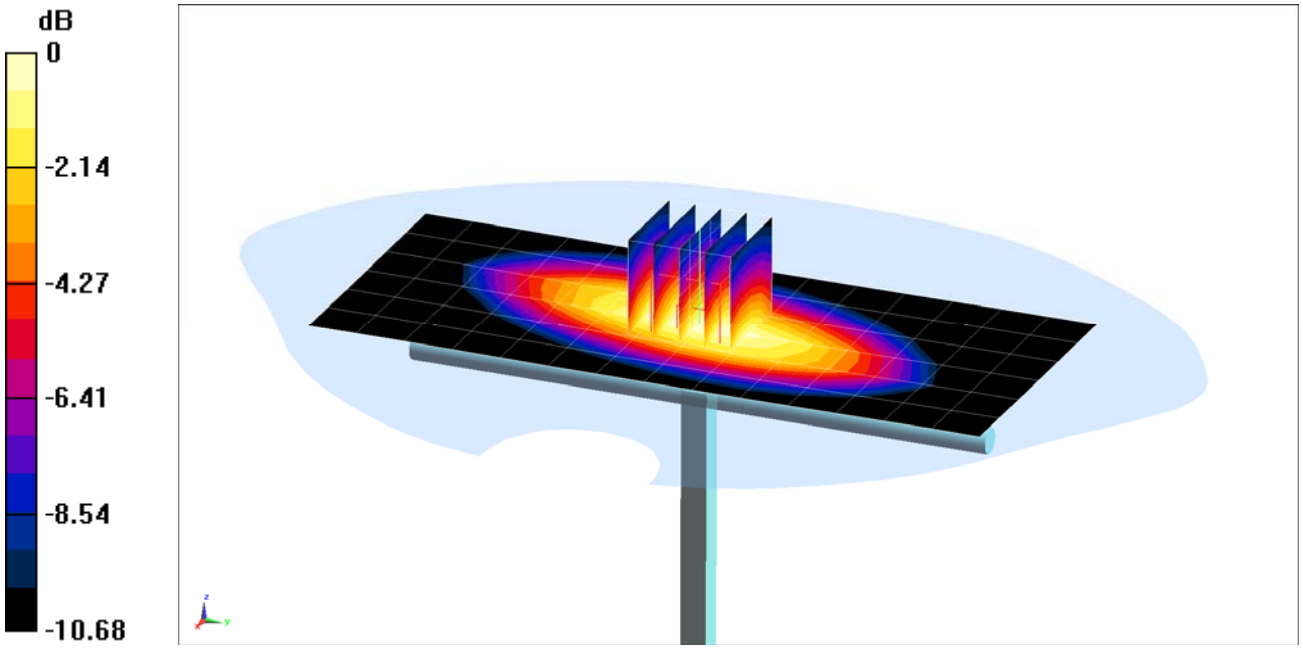
Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium: 750 Head Medium parameters used (interpolated):
f = 750 MHz; σ = 0.893 S/m; ε_r = 42.028; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 06-10-2015; Ambient Temp: 23.4°C; Tissue Temp: 22.1°C

Probe: ES3DV3 - SN3318; ConvF(6.58, 6.58, 6.58); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

750 MHz System Verification

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 23.0 dBm (200 mW)
Peak SAR (extrapolated) = 2.51 W/kg
SAR(1 g) = 1.66 W/kg
Deviation = 2.60%



0 dB = 1.96 W/kg = 2.92 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d133

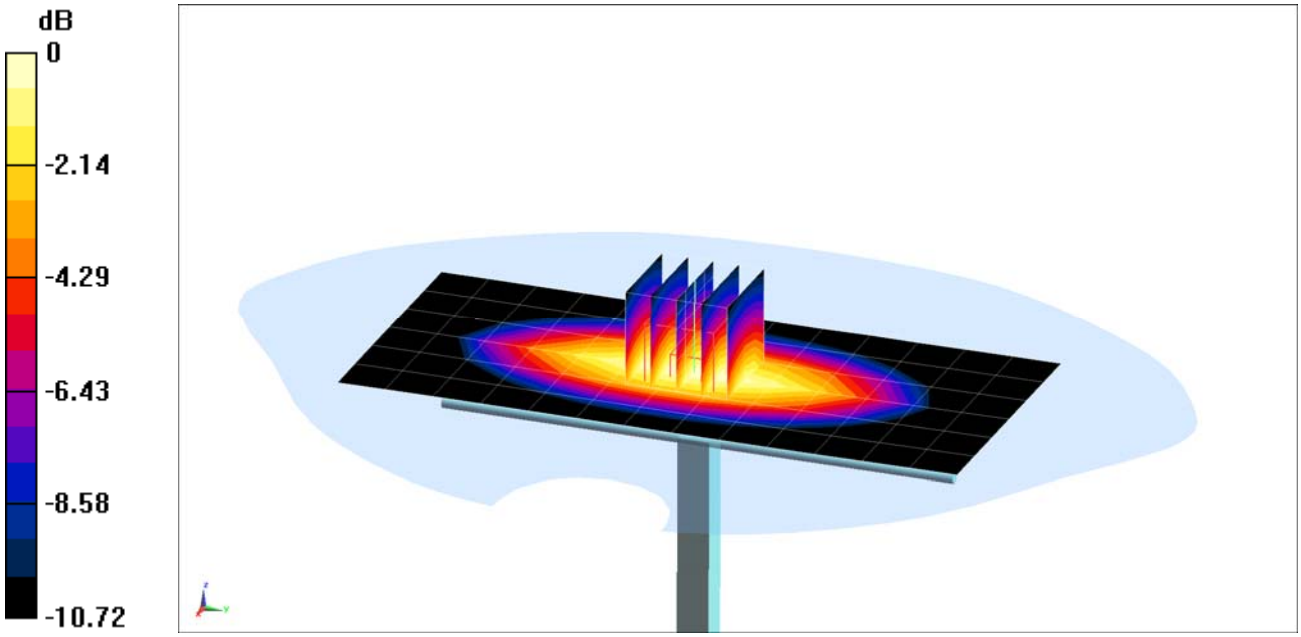
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.898 S/m; ε_r = 40.464; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 06-08-2015; Ambient Temp: 22.3°C; Tissue Temp: 21.5°C

Probe: ES3DV3 - SN3288; ConvF(6.51, 6.51, 6.51); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1797
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

835 MHz System Verification

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 23.0 dBm (200 mW)
Peak SAR (extrapolated) = 2.93 W/kg
SAR(1 g) = 1.94 W/kg
Deviation = 5.43%



0 dB = 2.28 W/kg = 3.58 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d132

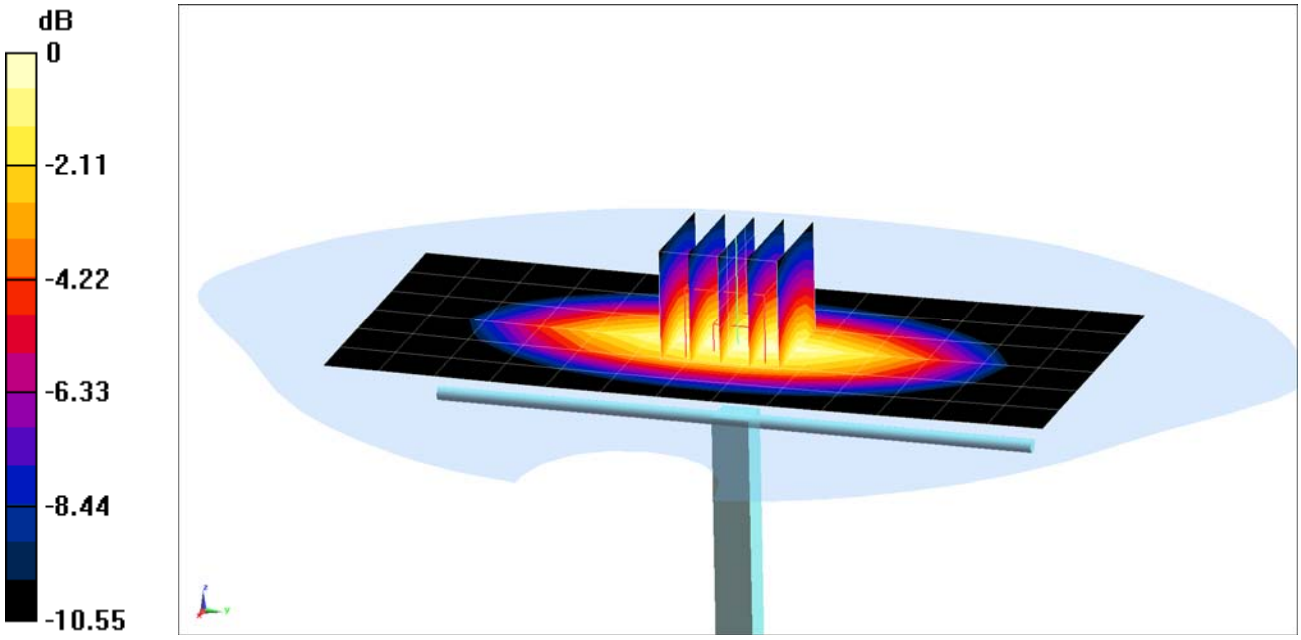
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Head Medium parameters used:
f = 835 MHz; σ = 0.894 S/m; ε_r = 40.228; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 06-17-2015; Ambient Temp: 22.7°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3263; ConvF(6.18, 6.18, 6.18); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

835 MHz System Verification

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 23.0 dBm (200 mW)
Peak SAR (extrapolated) = 2.84 W/kg
SAR(1 g) = 1.89 W/kg
Deviation = 2.16%



0 dB = 2.22 W/kg = 3.46 dBW/kg

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1051

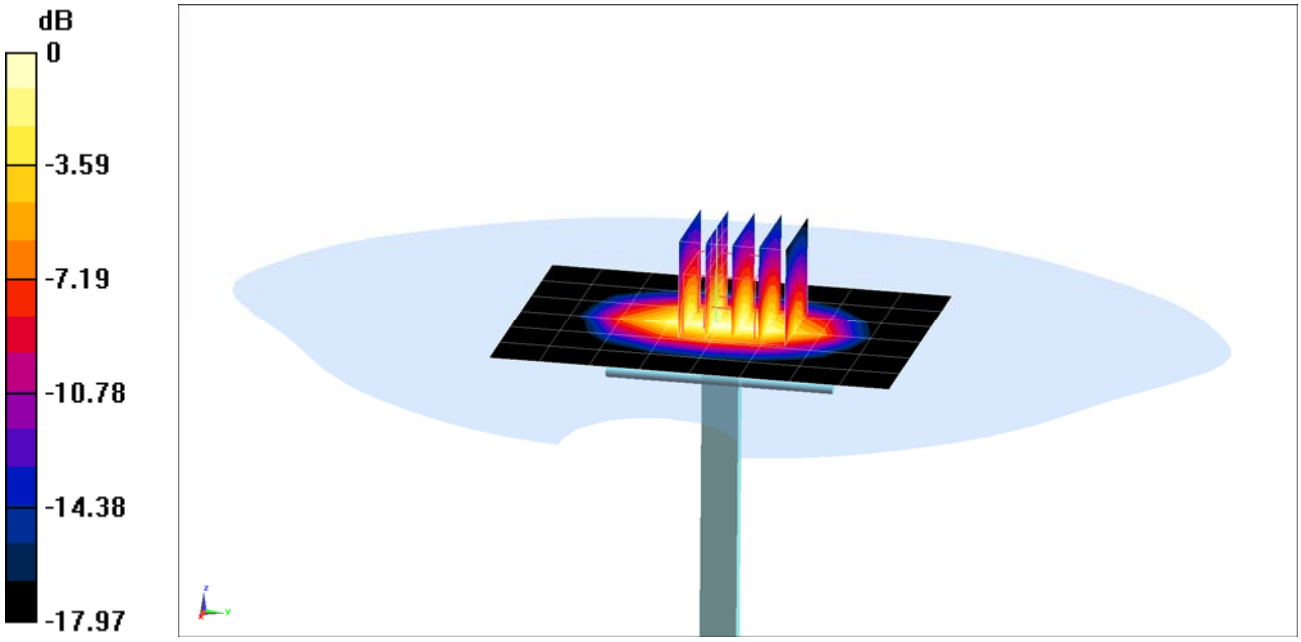
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Head Medium parameters used:
f = 1750 MHz; σ = 1.35 S/m; ε_r = 39.087; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-12-2015; Ambient Temp: 22.7°C; Tissue Temp: 22.9°C

Probe: ES3DV3 - SN3288; ConvF(5.38, 5.38, 5.38); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: SAM with CRP v4.0; Type: QD000P40CD; Serial: TP:1797
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1750 MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 6.77 W/kg
SAR(1 g) = 3.77 W/kg
Deviation = 4.14%



0 dB = 4.71 W/kg = 6.73 dBW/kg

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d141

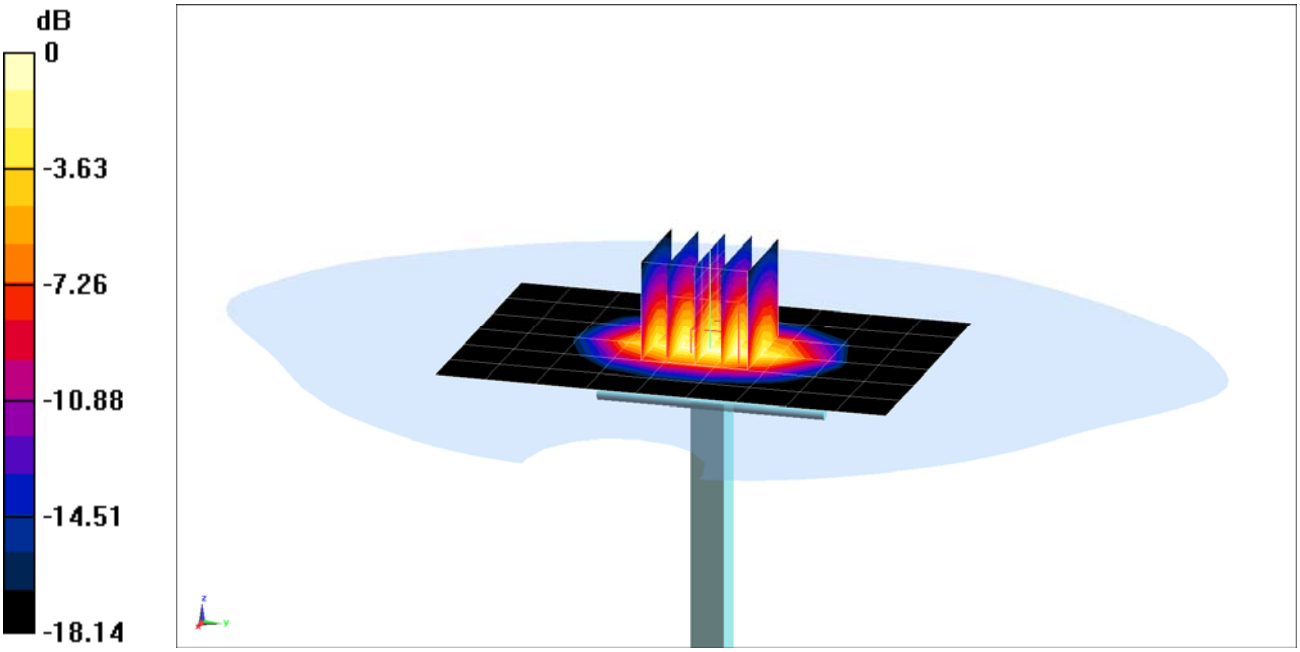
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Head Medium parameters used (interpolated):
$f = 1900$ MHz; $\sigma = 1.431$ S/m; $\varepsilon_r = 38.646$; $\rho = 1000$ kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-11-2015; Ambient Temp: 23.3°C; Tissue Temp: 23.4°C

Probe: ES3DV3 - SN3288; ConvF(5.17, 5.17, 5.17); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: SAM with CRP; Type: QD00P40CD; Serial: 1797
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1900 MHz System Verification

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 7.78 W/kg
SAR(1 g) = 4.24 W/kg
Deviation = 6.27%



0 dB = 5.53 W/kg = 7.43 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 719

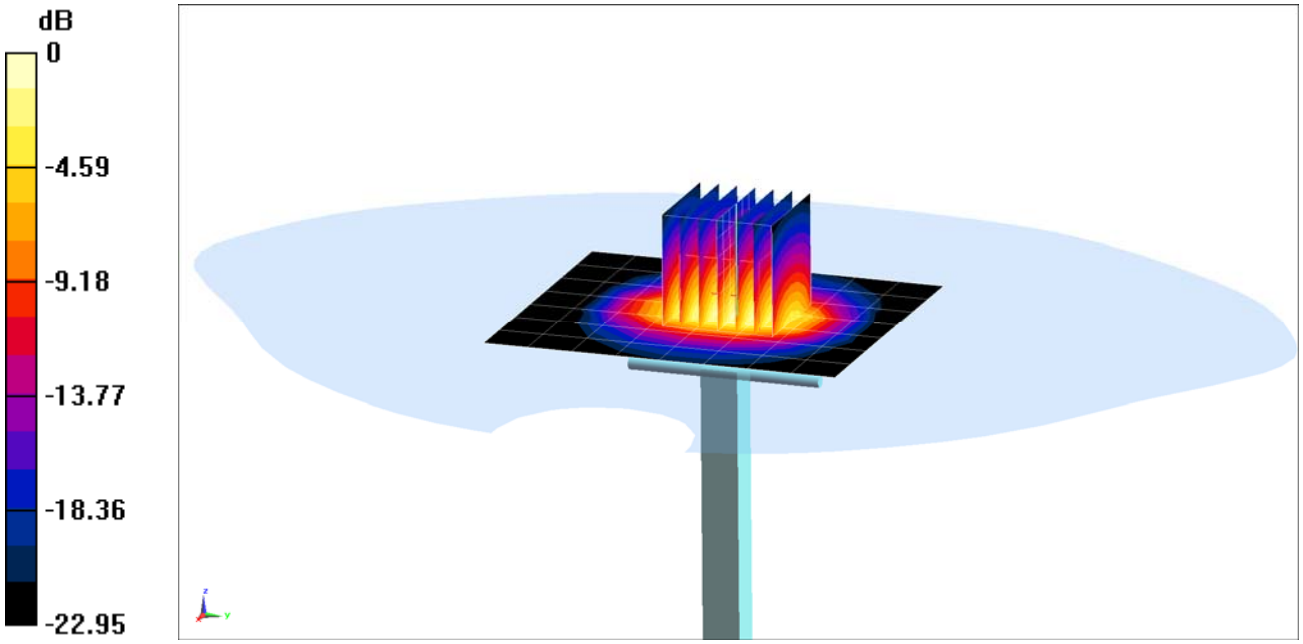
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2400 Head Medium parameters used:
f = 2450 MHz; σ = 1.825 S/m; ε_r = 38.879; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-17-2015; Ambient Temp: 23.0°C; Tissue Temp: 22.2°C

Probe: ES3DV3 - SN3332; ConvF(4.49, 4.49, 4.49); Calibrated: 9/18/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 9/17/2014
Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

2450 MHz System Verification

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 11.0 W/kg
SAR(1 g) = 5.17 W/kg
Deviation = -0.77%



0 dB = 6.86 W/kg = 8.36 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

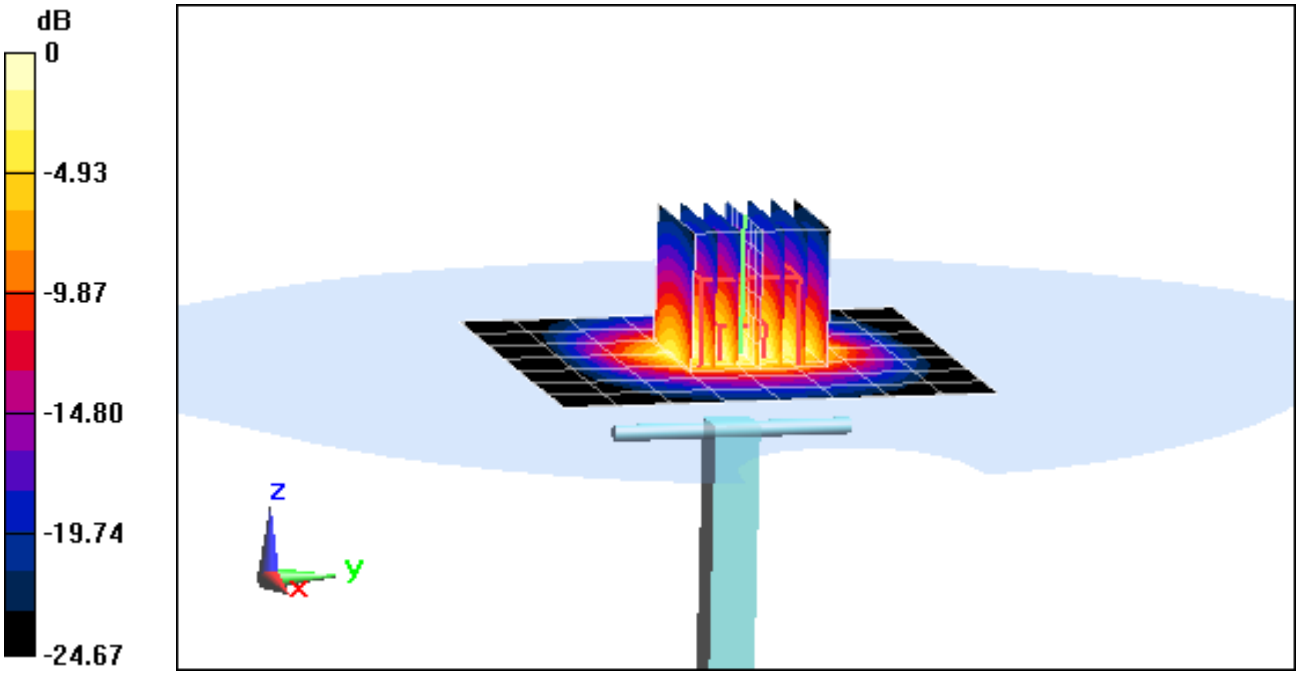
Communication System: UID 0, CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: 2600 Head Medium parameters used:
f = 2600 MHz; σ = 2.04 S/m; ε_r = 37.941; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-11-2015; Ambient Temp: 20.9°C; Tissue Temp: 21.4°C

Probe: ES3DV3 - SN3318; ConvF(4.34, 4.34, 4.34); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

2600 MHz System Verification

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Input Power= 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 13.7 W/kg
SAR(1 g) = 6.09 W/kg
Deviation= 5.91%



0 dB = 8.20 W/kg = 9.14 dBW/kg

DUT: Dipole 5300 MHz; Type: D5GHzV2; Serial: 1057

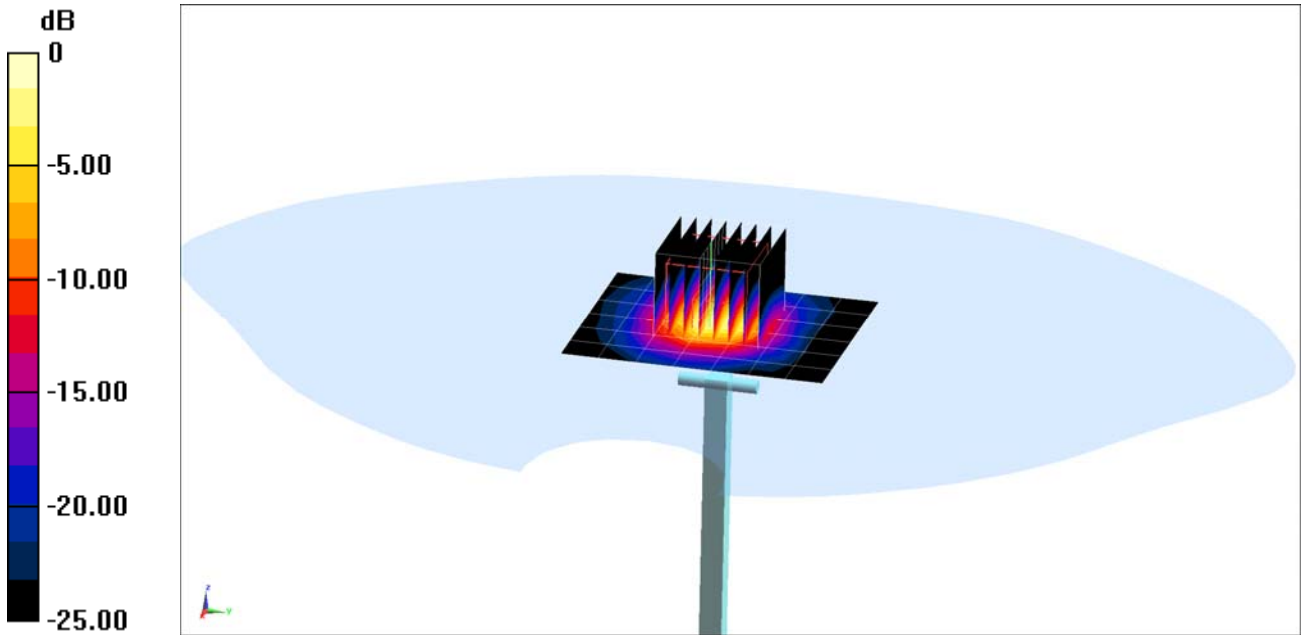
Communication System: UID 0, CW; Frequency: 5300 MHz; Duty Cycle: 1:1
Medium: 5.3 Medium parameters used:
f = 5300 MHz; σ = 4.72 S/m; ε_r = 34.391; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-15-2015; Ambient Temp: 23.1°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7357; ConvF(4.93, 4.93, 4.93); Calibrated: 4/23/2015;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 3/13/2015
Phantom: SAM v5.0 front; Type: QD000P40CD; Serial: TP-1646
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5300 MHz System Verification

Area Scan (7x8x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio =1.4
Input Power = 17.0 dBm (50 mW)
Peak SAR (extrapolated) = 18.1 W/kg
SAR(1 g) = 4.44 W/kg
Deviation = 4.84%



0 dB = 10.6 W/kg = 10.25 dBW/kg

DUT: Dipole 5500 MHz; Type: D5GHzV2; Serial: 1057

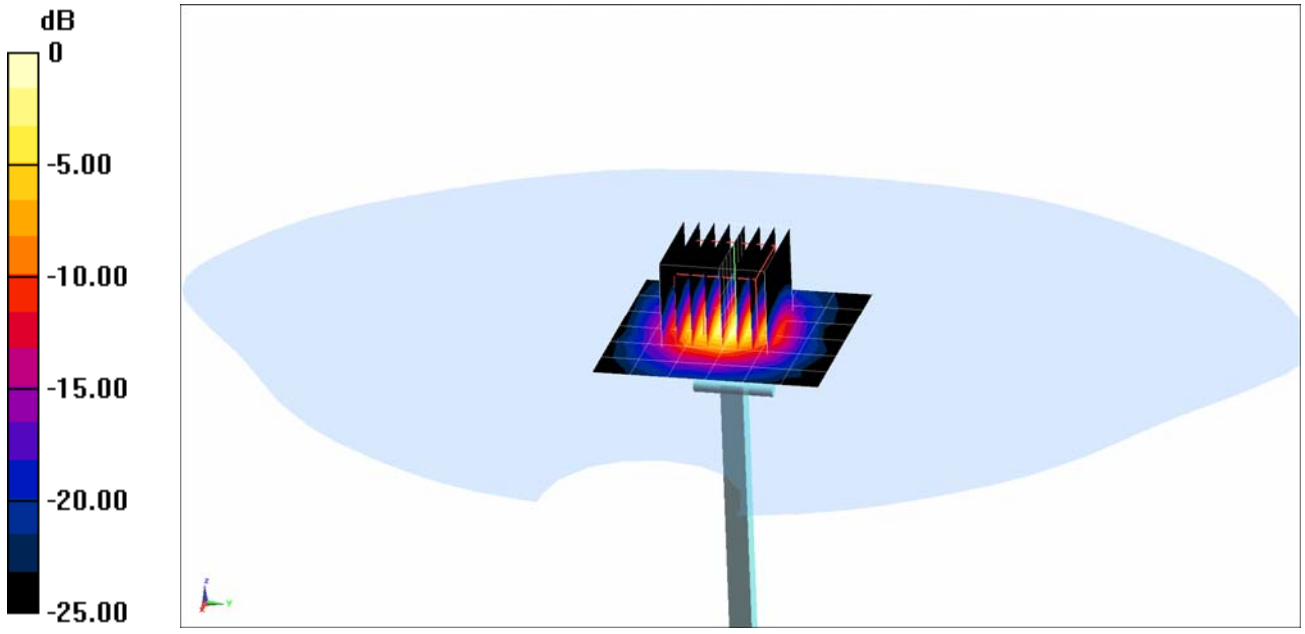
Communication System: UID 0, CW; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: 5.5 Medium parameters used:
f = 5500 MHz; σ = 4.95 S/m; ε_r = 34.051; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-15-2015; Ambient Temp: 22.5°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7357; ConvF(4.7, 4.7, 4.7); Calibrated: 4/23/2015;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 3/13/2015
Phantom: SAM v5.0 front; Type: QD000P40CD; Serial: TP-1646
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5500 MHz System Verification

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
Input Power = 17.0 dBm (50 mW)
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 4.28 W/kg
Deviation = 1.54%



0 dB = 10.0 W/kg = 10.00 dBW/kg

DUT: Dipole 5600 MHz; Type: D5GHzV2; Serial: 1057

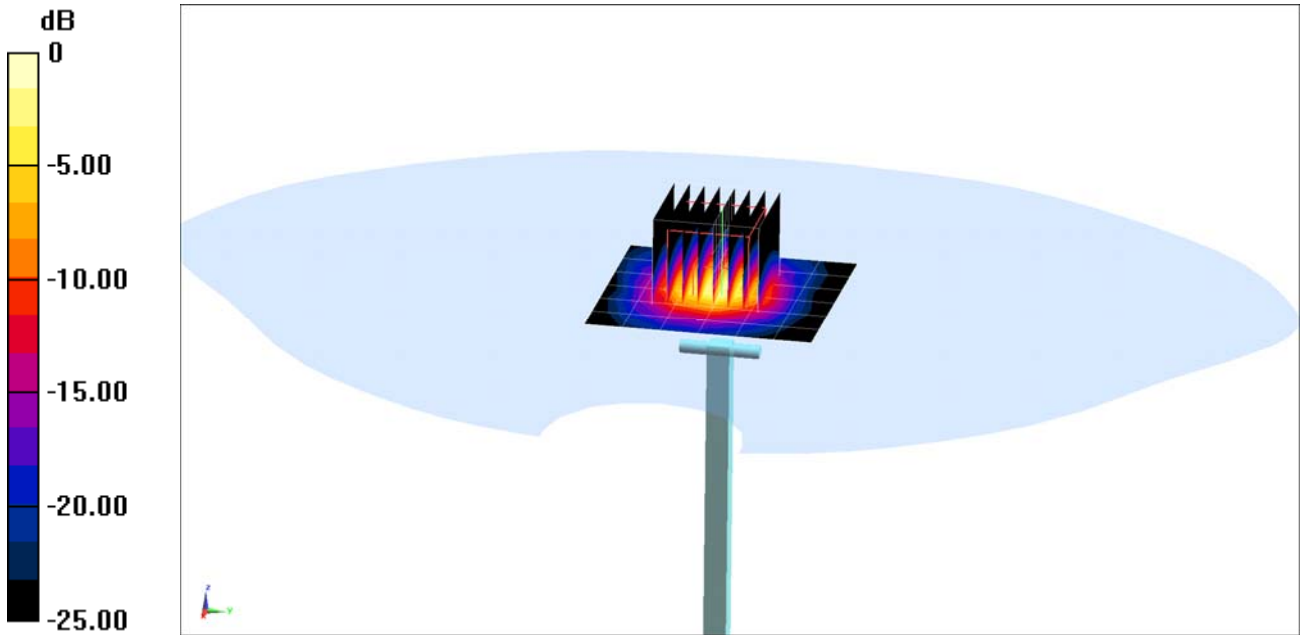
Communication System: UID 0, CW; Frequency: 5600 MHz; Duty Cycle: 1:1
Medium: 5.6 Medium parameters used:
f = 5600 MHz; σ = 5.037 S/m; ε_r = 33.874; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-15-2015; Ambient Temp: 22.5°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7357; ConvF(4.38, 4.38, 4.38); Calibrated: 4/23/2015;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 3/13/2015
Phantom: SAM v5.0 front; Type: QD000P40CD; Serial: TP-1646
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5600 MHz System Verification

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
Input Power = 17.0 dBm (50 mW)
Peak SAR (extrapolated) = 19.0 W/kg
SAR(1 g) = 4.5 W/kg
Deviation = 7.40%



0 dB = 10.6 W/kg = 10.25 dBW/kg

DUT: Dipole 5800 MHz; Type: D5GHzV2; Serial: 1057

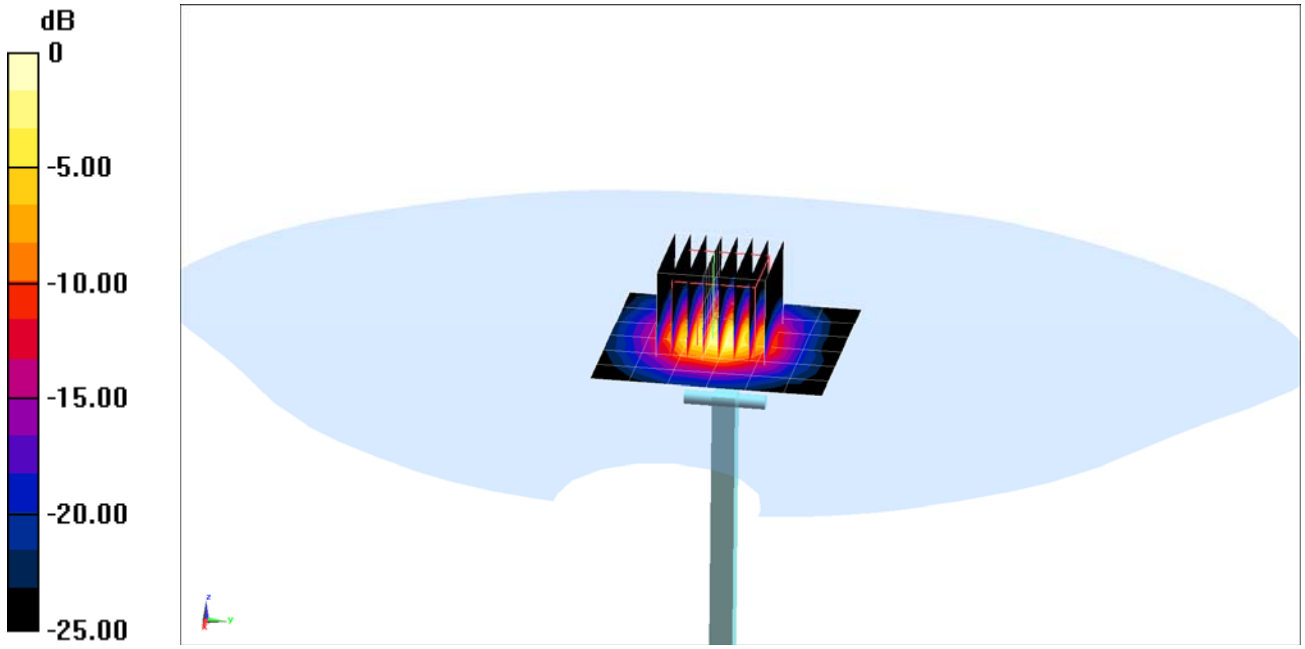
Communication System: UID 0, CW; Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: 5.8 Medium parameters used:
f = 5800 MHz; σ = 5.268 S/m; ε_r = 33.587; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-15-2015; Ambient Temp: 22.7°C; Tissue Temp: 21.6°C

Probe: EX3DV4 - SN7357; ConvF(4.41, 4.41, 4.41); Calibrated: 4/23/2015;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1334; Calibrated: 3/13/2015
Phantom: SAM v5.0 front; Type: QD000P40CD; Serial: TP-1646
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5800 MHz System Verification

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
Input Power = 17.0 dBm (50 mW)
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 4.2 W/kg
Deviation= 3.58%



0 dB = 10.3 W/kg = 10.13 dBW/kg

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

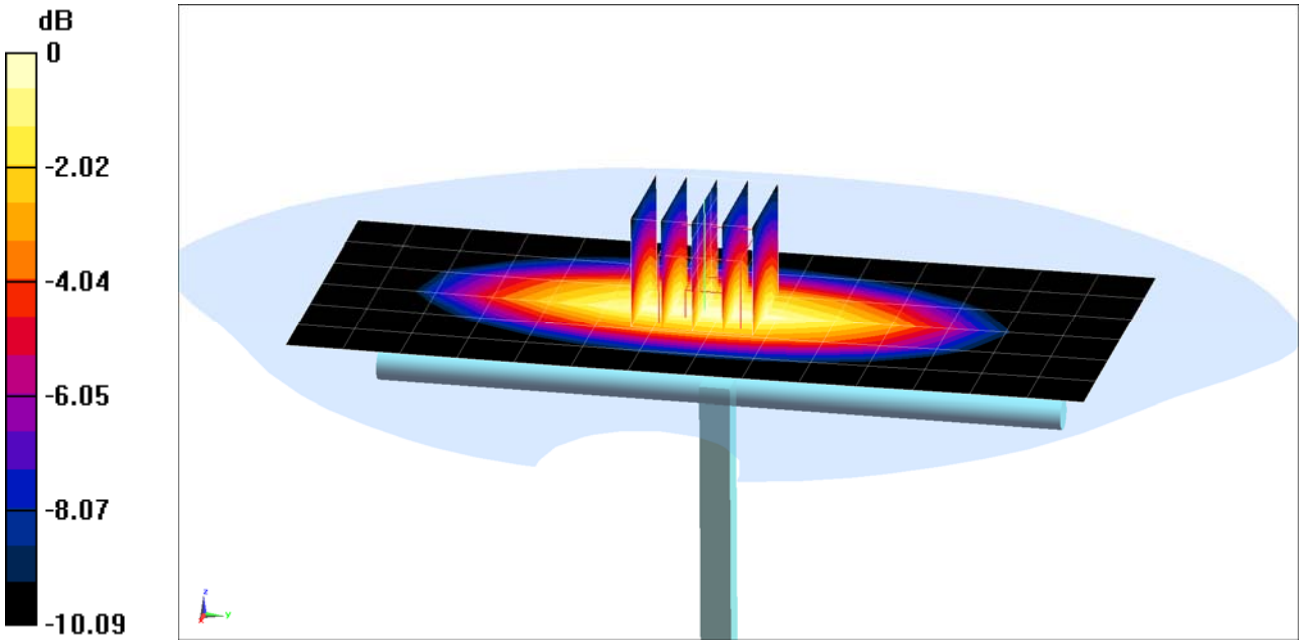
Communication System: UID 0, CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium: 750 Body Medium parameters used (interpolated):
f = 750 MHz; σ = 0.969 S/m; ε_r = 55.216; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 06-10-2015; Ambient Temp: 24.2°C; Tissue Temp: 22.7°C

Probe: ES3DV3 - SN3263; ConvF(6.07, 6.07, 6.07); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP v5.0 (Right); Type: QD000P40CD; Serial: TP:1759
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

750 MHz System Verification

Area Scan (7x15x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power= 23.0 dBm (200 mW)
Peak SAR (extrapolated) = 2.62 W/kg
SAR(1 g) = 1.81 W/kg
Deviation= 6.10%



0 dB = 2.02 W/kg = 3.05 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d133

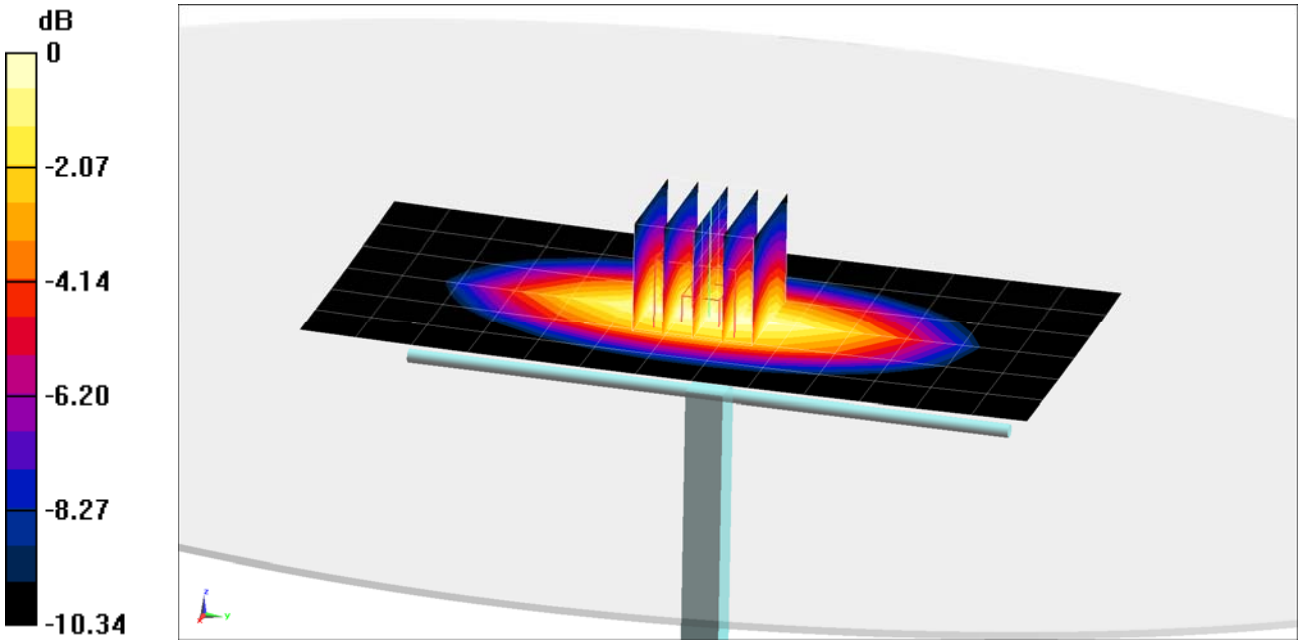
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.982 S/m; ε_r = 54.062; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 06-10-2015; Ambient Temp: 23.3°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3288; ConvF(6.32, 6.32, 6.32); Calibrated: 9/24/2014;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1364; Calibrated: 9/18/2014
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: 1229
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

835 MHz System Verification

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 23.0 dBm (200 mW)
Peak SAR (extrapolated) = 2.99 W/kg
SAR(1 g) = 2.03 W/kg
Deviation= 8.56%



0 dB = 2.37 W/kg = 3.75 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d133

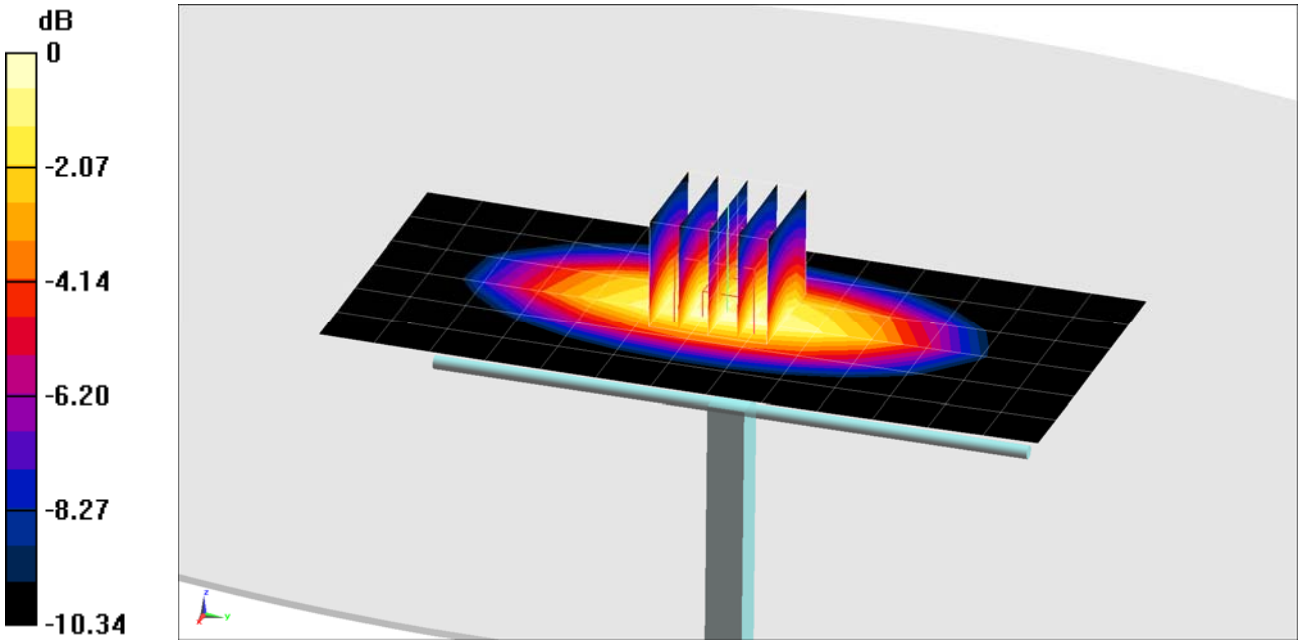
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 1 S/m; ε_r = 53.915; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 06-13-2015; Ambient Temp: 23.2°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3318; ConvF(6.23, 6.23, 6.23); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:2027
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

835 MHz System Verification

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 23.0 dBm (200 mW)
Peak SAR (extrapolated) = 2.95 W/kg
SAR(1 g) = 1.99 W/kg
Deviation = 6.42%



0 dB = 2.42 W/kg = 3.84 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835 MHz; Type: D835V2; Serial: 4d132

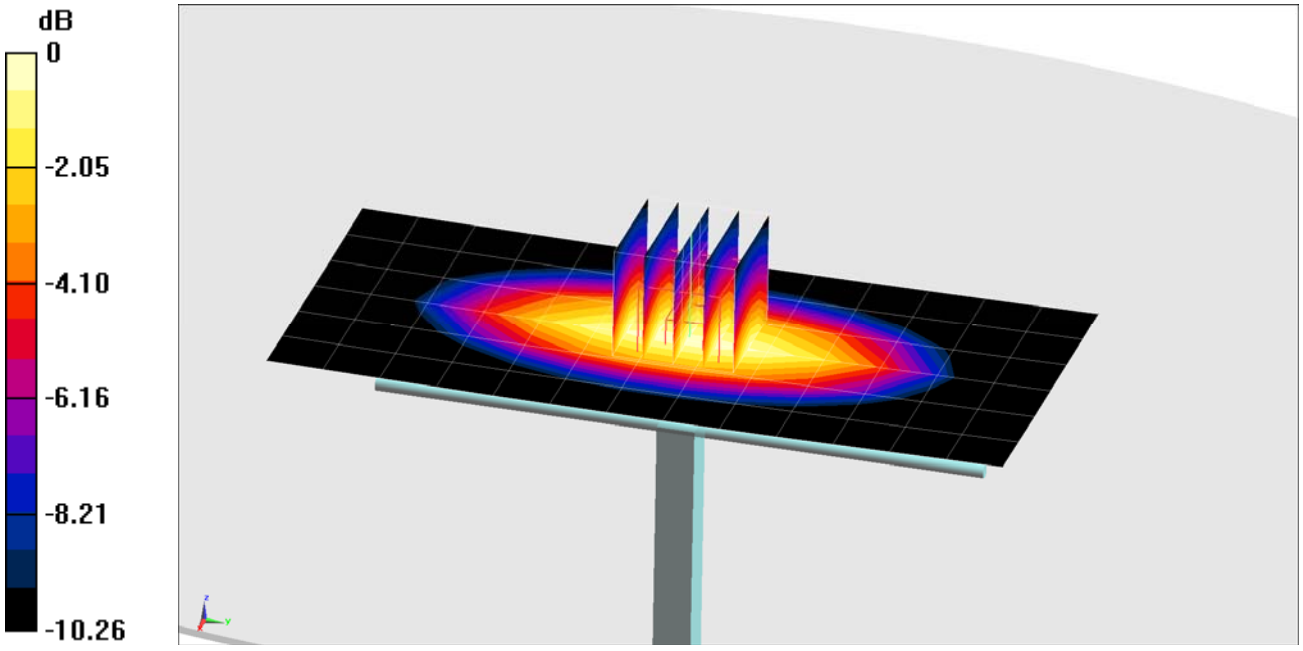
Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: 835 Body Medium parameters used:
f = 835 MHz; σ = 0.999 S/m; ε_r = 52.923; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.5 cm

Test Date: 06-17-2015; Ambient Temp: 21.5°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3319; ConvF(6.07, 6.07, 6.07); Calibrated: 3/19/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1368; Calibrated: 3/13/2015
Phantom: ELI v5.0; Type: QDOVA001BB; Serial: TP:1226
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

835 MHz System Verification

Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 23.0 dBm (200 mW)
Peak SAR (extrapolated) = 2.66 W/kg
SAR(1 g) = 1.84 W/kg; (10 g)= 1.22 W/kg
Deviation(1 g) = 0.66%; (10 g)= 2.01%



0 dB = 2.30 W/kg = 3.62 dBW/kg

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1051

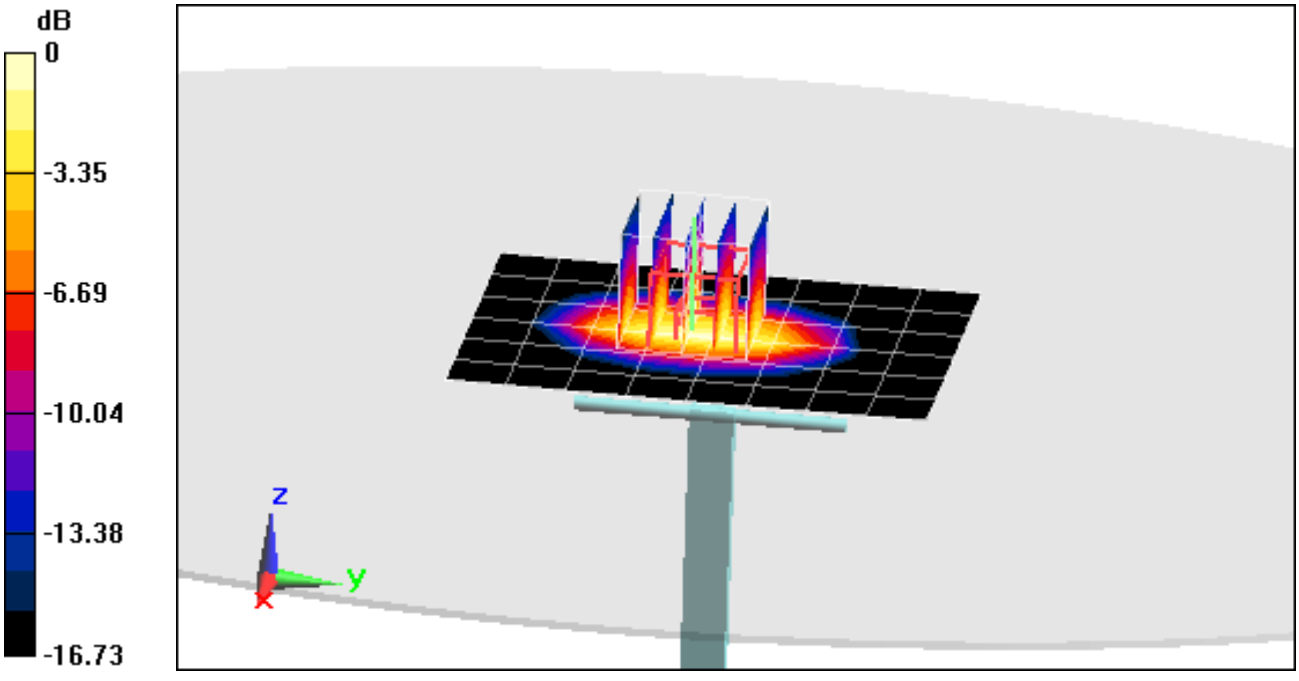
Communication System: UID 0, CW; Frequency: 1750 MHz;Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.484 S/m; ε_r = 52.598; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-08-2015; Ambient Temp: 20.2°C; Tissue Temp: 21.8°C

Probe: ES3DV3 - SN3318; ConvF(4.95, 4.95, 4.95); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:2027
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1750 MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power= 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 6.49 W/kg
SAR(1 g) = 3.71 W/kg
Deviation= 0.00%



0 dB = 4.64 W/kg = 6.67 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 1750 MHz; Type: D1750V2; Serial: 1051

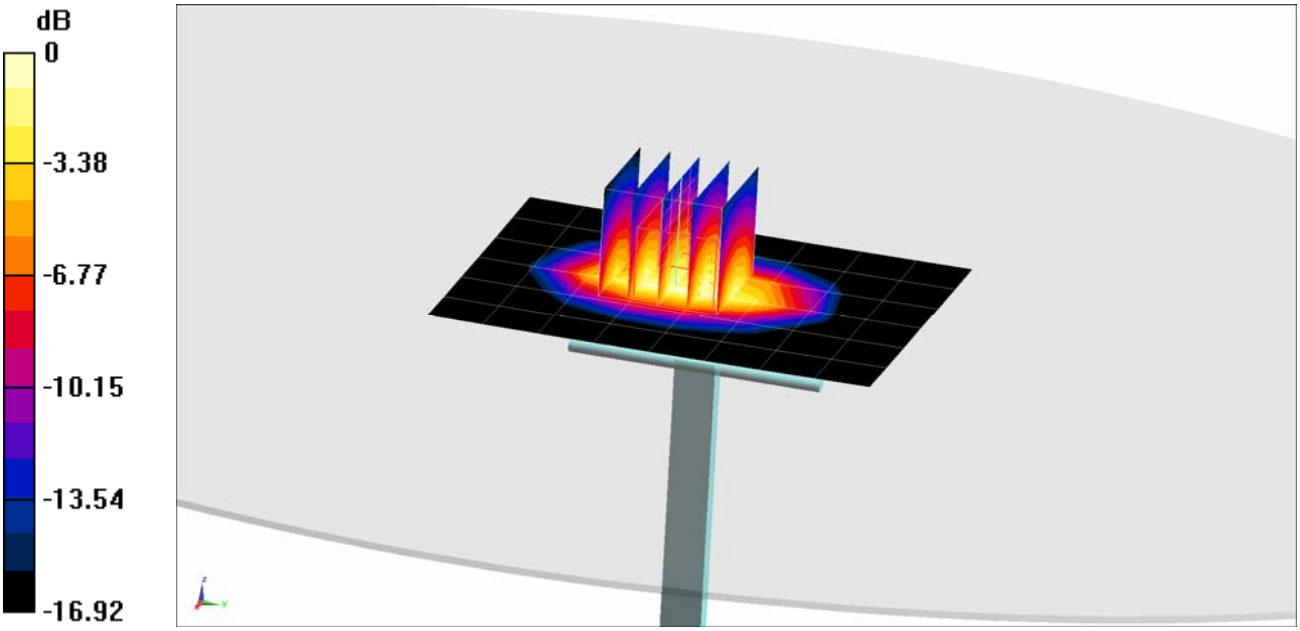
Communication System: UID 0, CW; Frequency: 1750 MHz; Duty Cycle: 1:1
Medium: 1750 Body Medium parameters used:
f = 1750 MHz; σ = 1.463 S/m; ε_r = 52.037; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-12-2015; Ambient Temp: 22.0°C; Tissue Temp: 22.6°C

Probe: ES3DV3 - SN3318; ConvF(4.95, 4.95, 4.95); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:2027
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1750 MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 6.59 W/kg
SAR(10 g) = 2 W/kg
Deviation = 0.00%



0 dB = 4.68 W/kg = 6.70 dBW/kg

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d149

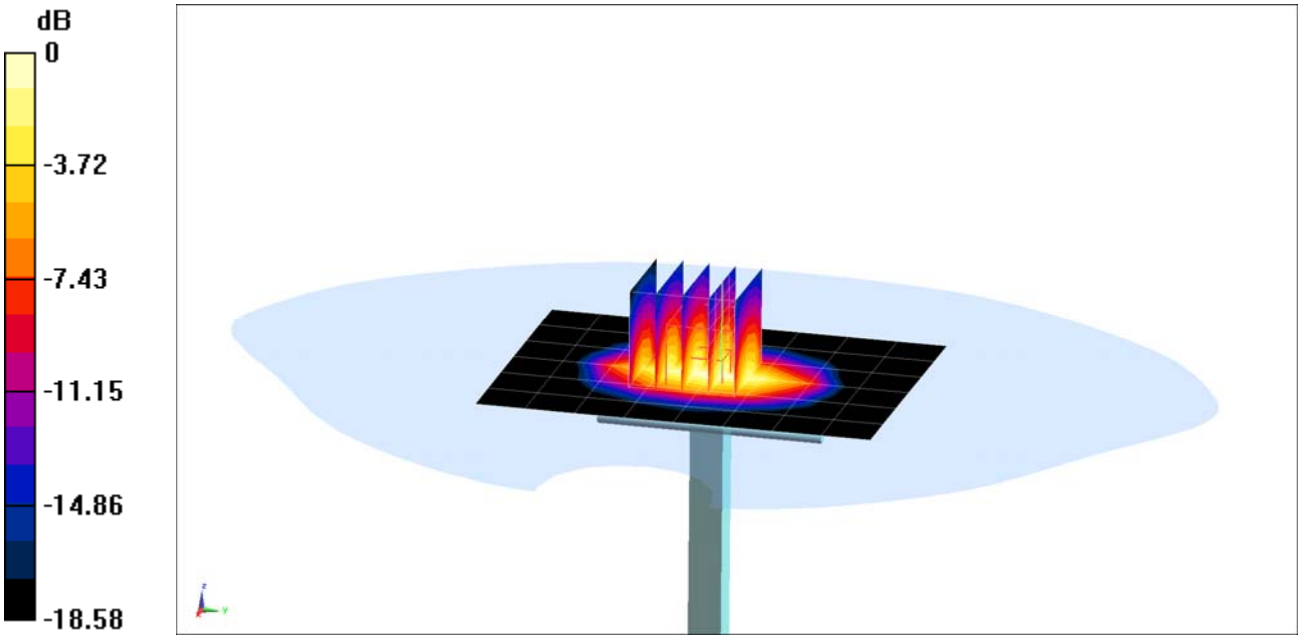
Communication System: UID 0, CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.559 S/m; ε_r = 51.641; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-08-2015; Ambient Temp: 21.0°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3263; ConvF(4.66, 4.66, 4.66); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1900 MHz System Verification

Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 7.45 W/kg
SAR(1 g) = 4.19 W/kg
Deviation(1 g) = 3.71%



0 dB = 5.23 W/kg = 7.19 dBW/kg

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d141

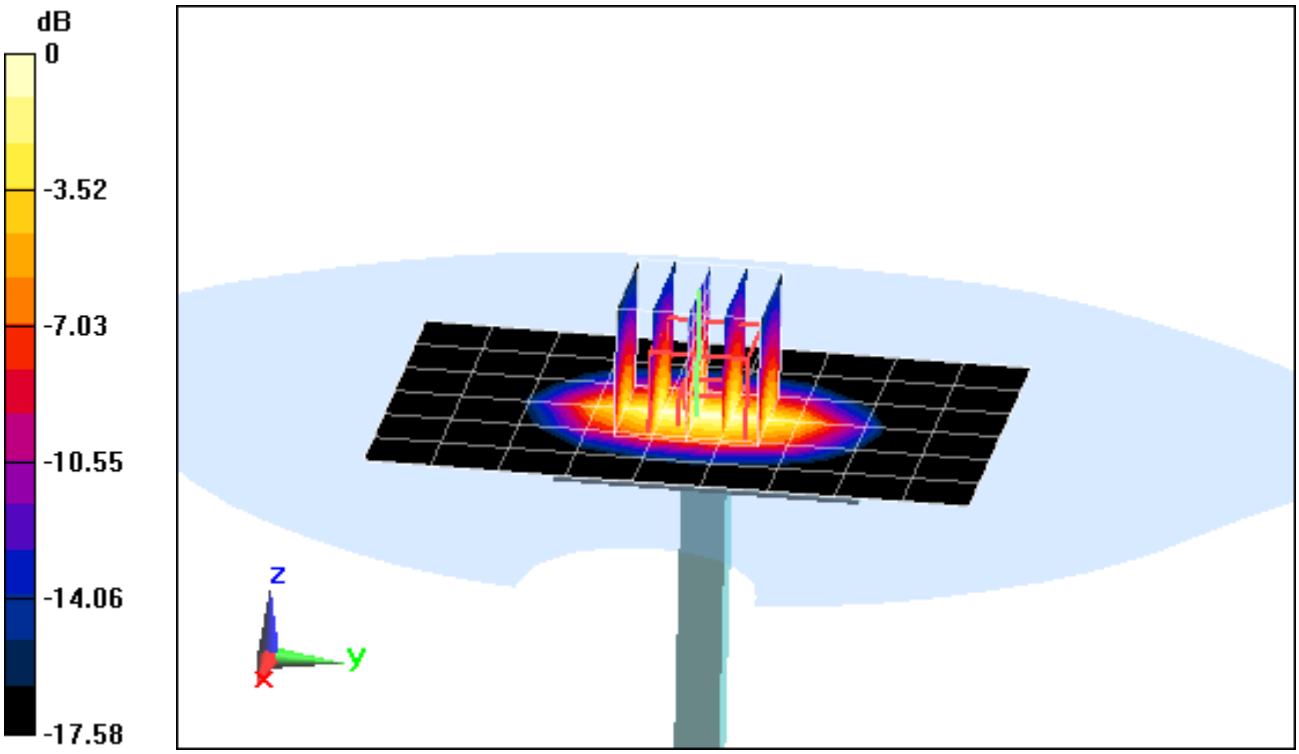
Communication System: UID 0, CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.534 S/m; ε_r = 51.907; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-10-2015; Ambient Temp: 23.7°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3263; ConvF(4.66, 4.66, 4.66); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1900 MHz System Verification

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power= 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 7.48 W/kg
SAR(1 g) = 4.27 W/kg
Deviation = 6.75%



0 dB = 5.39 W/kg = 7.32 dBW/kg

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: 5d141

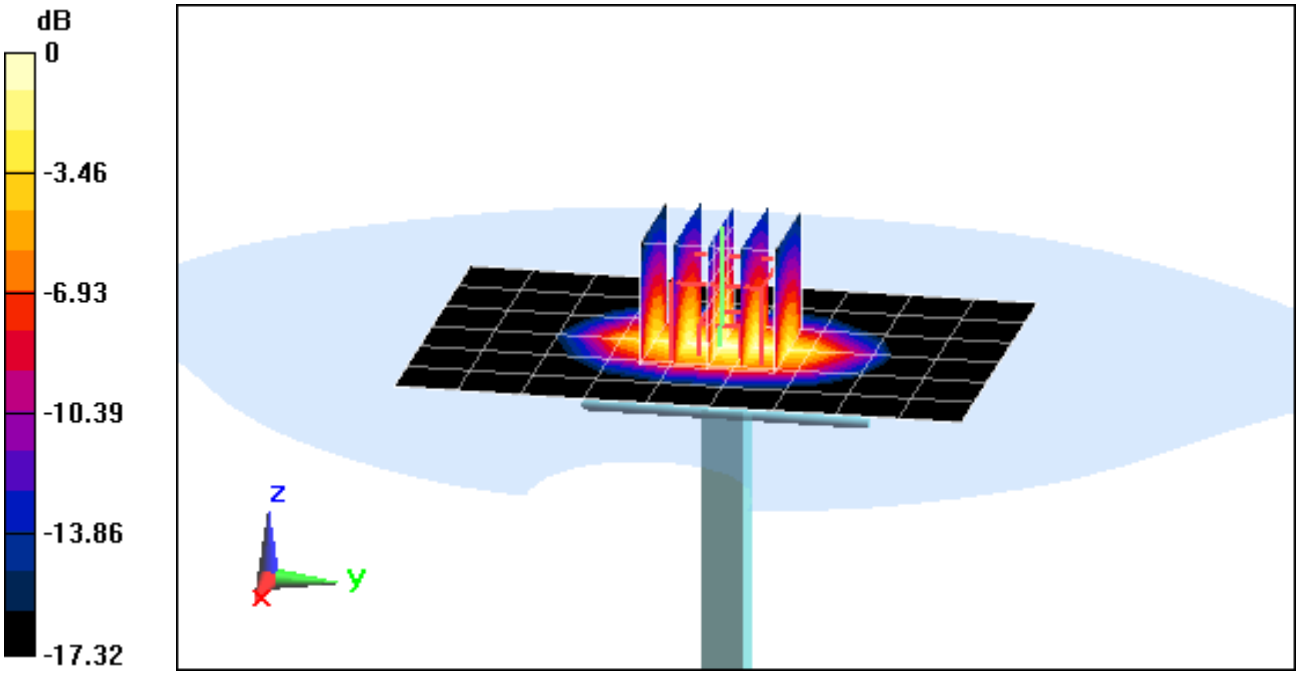
Communication System: UID 0, CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium: 1900 Body Medium parameters used (interpolated):
f = 1900 MHz; σ = 1.563 S/m; ε_r = 52.38; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-13-2015; Ambient Temp: 21.3°C; Tissue Temp: 21.3°C

Probe: ES3DV3 - SN3263; ConvF(4.66, 4.66, 4.66); Calibrated: 5/20/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1408; Calibrated: 10/23/2014
Phantom: SAM with CRP (Left); Type: SAM; Serial: 1715
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1900 MHz System Verification

Area Scan (7x10x1): Measurement grid: dx=15mm, dy=15mm
Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Input Power= 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 7.38 W/kg
SAR(10 g) = 2.21 W/kg
Deviation = 4.25 %



0 dB = 5.33 W/kg = 7.27 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: 719

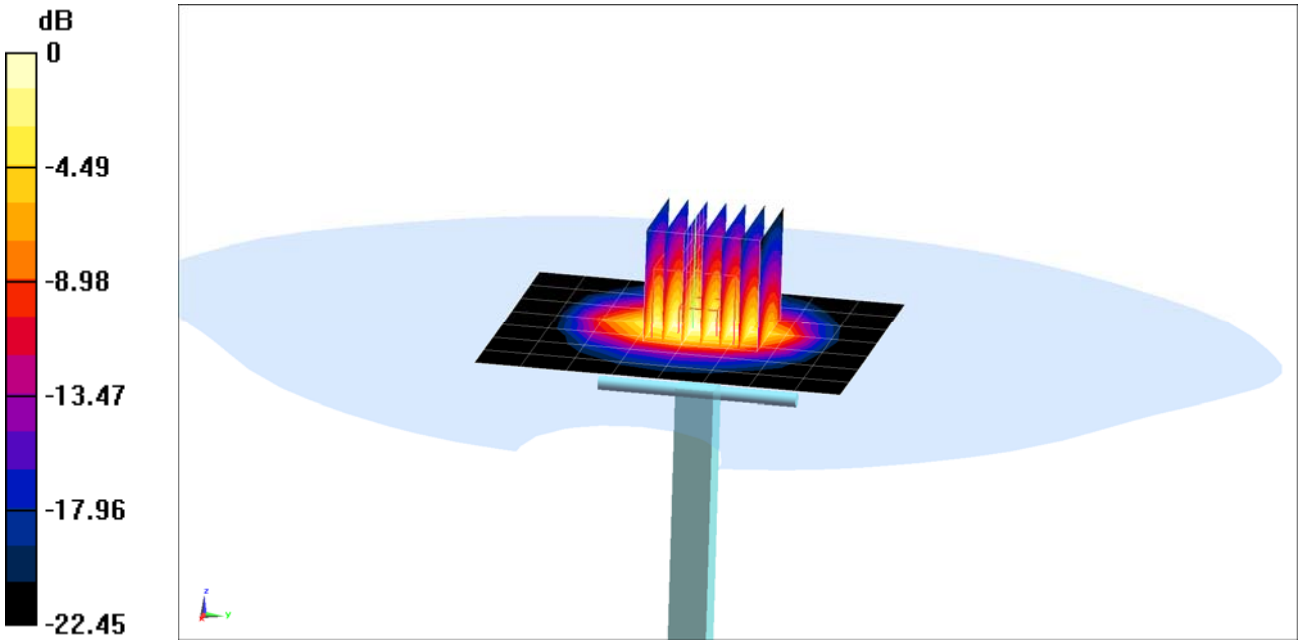
Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: 2450 Body Medium parameters used:
f = 2450 MHz; σ = 2.032 S/m; ε_r = 51.385; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-09-2015; Ambient Temp: 21.5°C; Tissue Temp: 21.9°C

Probe: ES3DV3 - SN3318; ConvF(4.37, 4.37, 4.37); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: SAM Front; Type: SAM; Serial: 1686
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

2450 MHz System Verification

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Input Power = 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 11.2 W/kg
SAR(1 g) = 5.37 W/kg
Deviation = 3.67%



0 dB = 7.09 W/kg = 8.51 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

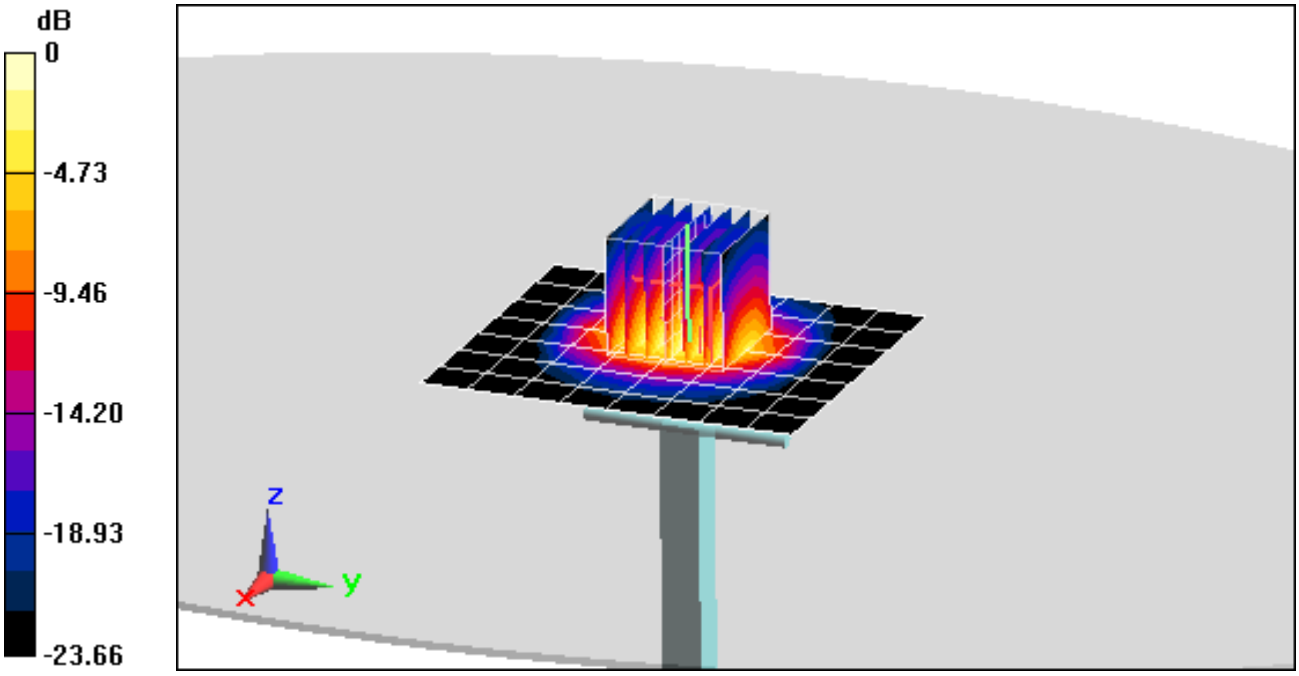
Communication System: UID 0, CW; Frequency: 2600 MHz;Duty Cycle: 1:1
Medium: 2600 Body Medium parameters used:
f = 2600 MHz; σ = 2.239 S/m; ε_r = 50.598; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-16-2015; Ambient Temp: 21.9°C; Tissue Temp: 22.0°C

Probe: ES3DV3 - SN3318; ConvF(4.17, 4.17, 4.17); Calibrated: 1/23/2015;
Sensor-Surface: 3mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1272; Calibrated: 1/14/2015
Phantom: ELI v6.0; Type: QDOVA003AA; Serial: TP:2027
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

2600 MHz System Verification

Area Scan (8x9x1): Measurement grid: dx=12mm, dy=12mm
Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Input Power= 20.0 dBm (100 mW)
Peak SAR (extrapolated) = 12.4 W/kg
SAR(1 g) = 5.51 W/kg
Deviation= -3.16%



0 dB = 7.25 W/kg = 8.60 dBW/kg

DUT: Dipole 5300 MHz; Type: D5GHzV2; Serial: 1057

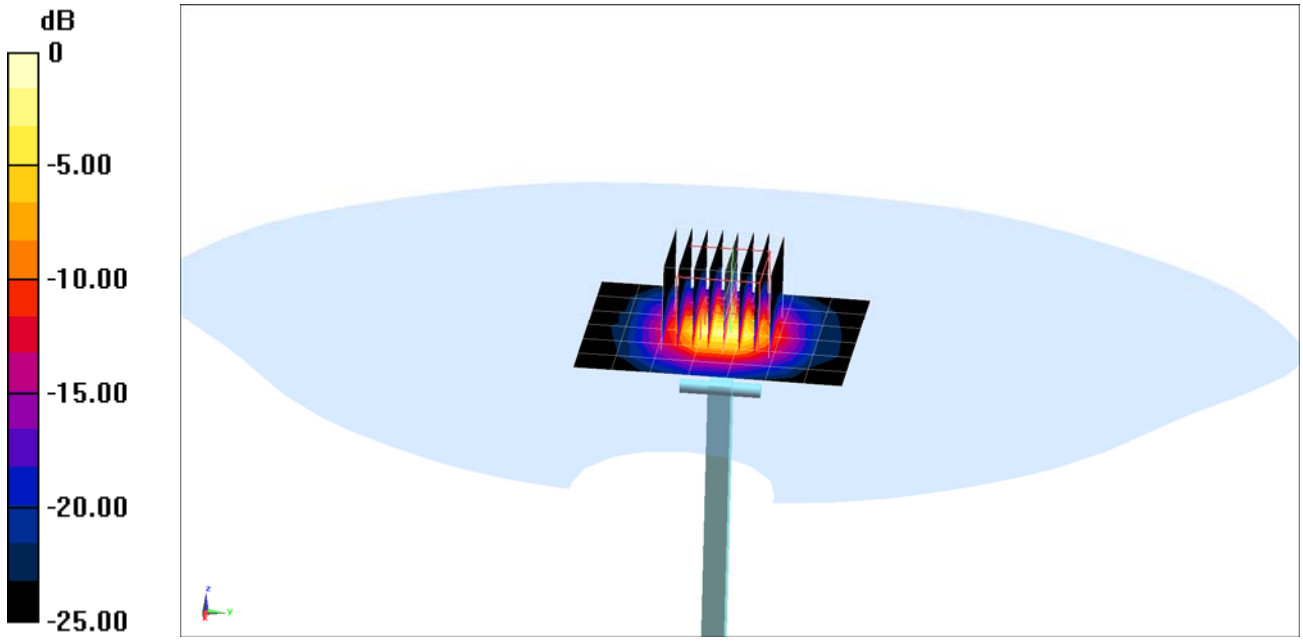
Communication System: UID 0, CW; Frequency: 5300 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5300 MHz; σ = 5.456 S/m; ε_r = 47.753; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-08-2015; Ambient Temp: 22.6°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN3589; ConvF(3.79, 3.79, 3.79); Calibrated: 1/22/2015;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 9/17/2014
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5300 MHz System Verification

Area Scan (7x8x1): Measurement grid: dx=10mm, dy=10mm
Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio =1.4
Input Power = 17.0 dBm (50 mW)
Peak SAR (extrapolated) = 16.3 W/kg
SAR(1 g) = 3.89 W/kg; SAR(10 g) = 1.09 W/kg
Deviation(1 g) = 4.85%; Deviation(10 g) = 4.31%



0 dB = 9.37 W/kg = 9.72 dBW/kg

DUT: Dipole 5500 MHz; Type: D5GHzV2; Serial: 1057

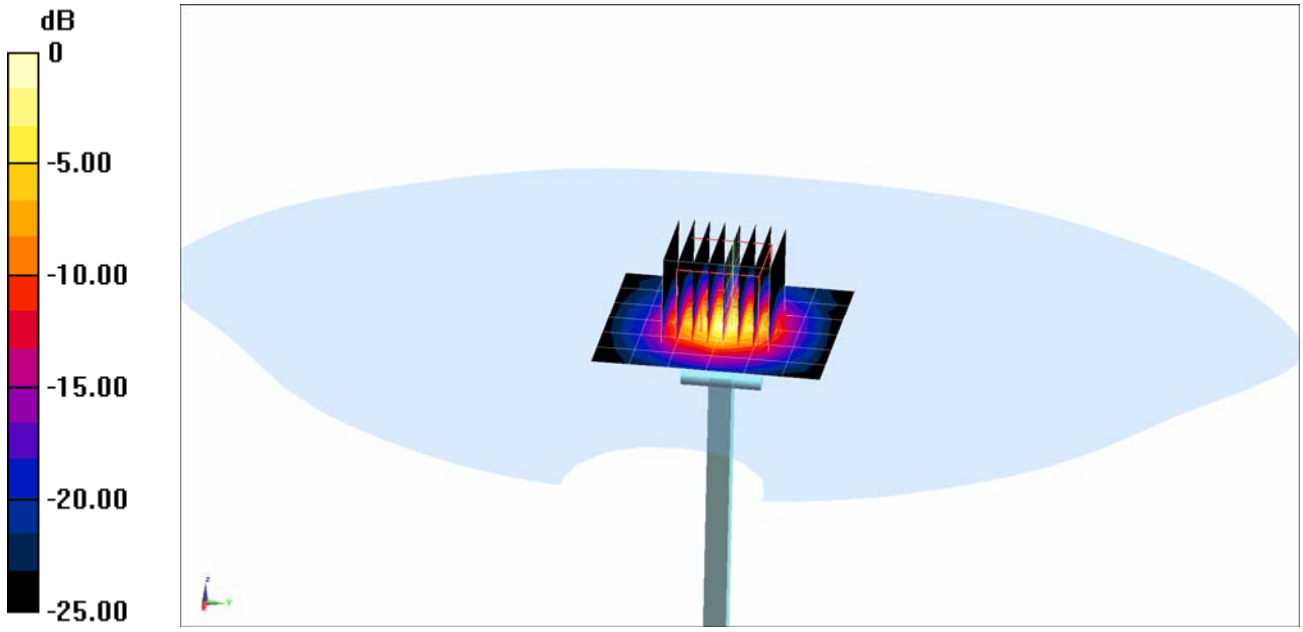
Communication System: UID 0, CW; Frequency: 5500 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5500 MHz; σ = 5.718 S/m; ε_r = 47.478; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-08-2015; Ambient Temp: 22.6°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN3589; ConvF(3.65, 3.65, 3.65); Calibrated: 1/22/2015;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 9/17/2014
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5500 MHz System Verification

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
Input Power = 17.0 dBm (50 mW)
Peak SAR (extrapolated) = 16.5 W/kg
SAR(1 g) = 3.76 W/kg; SAR(10 g) = 1.05 W/kg
Deviation(1 g) = -5.05%; Deviation(10 g) = -4.55%



0 dB = 9.00 W/kg = 9.54 dBW/kg

DUT: Dipole 5800 MHz; Type: D5GHzV2; Serial: 1057

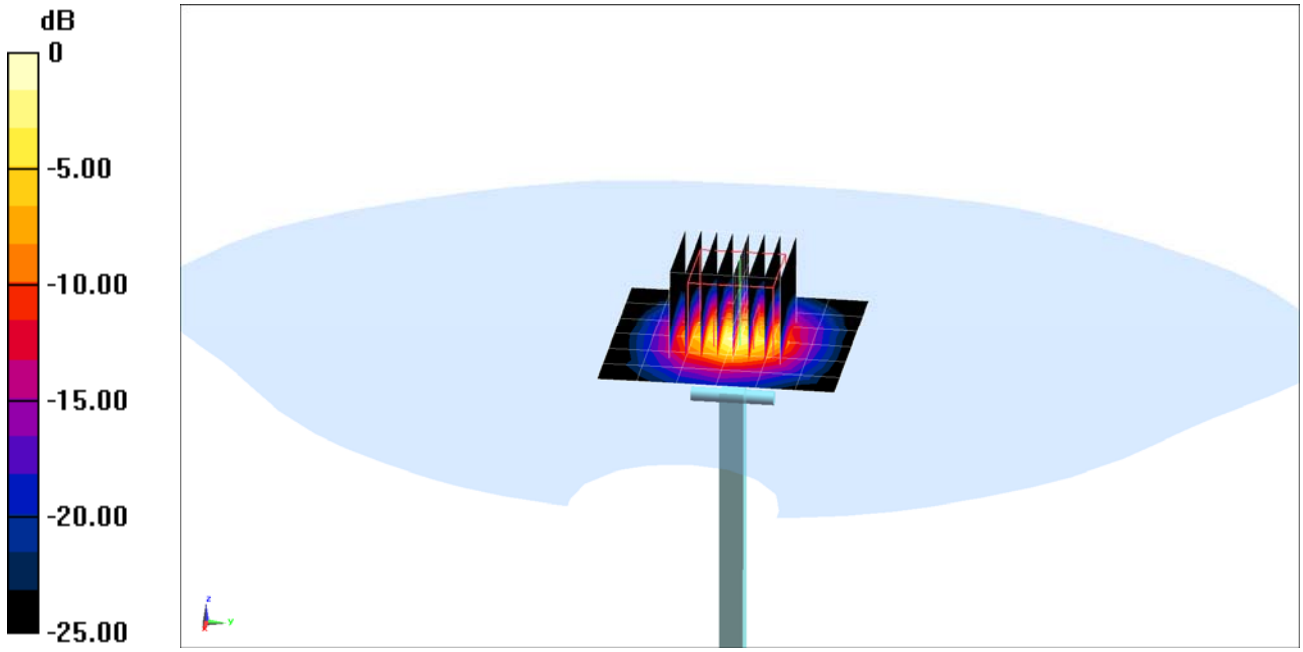
Communication System: UID 0, CW; Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: 5 GHz Body Medium parameters used:
f = 5800 MHz; σ = 6.145 S/m; ε_r = 46.937; ρ = 1000 kg/m^3
Phantom section: Flat Section; Space: 1.0 cm

Test Date: 06-08-2015; Ambient Temp: 22.4°C; Tissue Temp: 21.3°C

Probe: EX3DV4 - SN3589; ConvF(3.79, 3.79, 3.79); Calibrated: 1/22/2015;
Sensor-Surface: 1.4mm (Mechanical Surface Detection)
Electronics: DAE4 Sn1323; Calibrated: 9/17/2014
Phantom: SAM 5.0 front; Type: QD000P40CD; Serial: TP:-1648
Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5800 MHz System Verification

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
Input Power = 17.0 dBm (50 mW)
Peak SAR (extrapolated) = 16.1 W/kg
SAR(1 g) = 3.45 W/kg; (10 g)= 0.97 W/kg
Deviation (1 g)= -8.12%; (10 g)= -6.21%



0 dB = 8.51 W/kg = 9.30 dBW/kg

APPENDIX C: PROBE CALIBRATION

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Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

Client **PC Test**

Certificate No: D750V3-1003_Jan15

CALIBRATION CERTIFICATE

Object	D750V3 - SN: 1003
Calibration procedure(s)	QA CAL-05.v9 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	January 16, 2015

CC 2/3/15

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	US37292783	07-Oct-14 (No. 217-02020)	Oct-15
Power sensor HP 8481A	MY41092317	07-Oct-14 (No. 217-02021)	Oct-15
Reference 20 dB Attenuator	SN: 5058 (20k)	03-Apr-14 (No. 217-01918)	Apr-15
Type-N mismatch combination	SN: 5047.2 / 06327	03-Apr-14 (No. 217-01921)	Apr-15
Reference Probe ES3DV3	SN: 3205	30-Dec-14 (No. ES3-3205_Dec14)	Dec-15
DAE4	SN: 601	18-Aug-14 (No. DAE4-601_Aug14)	Aug-15

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-13)	In house check: Oct-16
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-14)	In house check: Oct-15

	Name	Function	Signature
Calibrated by:	Michael Weber	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: January 19, 2015

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.8
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.7 ± 6 %	0.91 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.06 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**8.09 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.35 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**5.32 W/kg ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	56.0 ± 6 %	0.99 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.16 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**8.46 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.42 W/kg
SAR for nominal Body TSL parameters	normalized to 1W	**5.58 W/kg ± 16.5 % (k=2)**

Appendix (Additional assessments outside the scope of SCS0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.7 Ω - 1.4 jΩ
Return Loss	- 28.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.3 Ω - 3.8 jΩ
Return Loss	- 27.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.043 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	January 21, 2009

DASY5 Validation Report for Head TSL

Date: 16.01.2015

Test Laboratory: SPEAG, Zurich, Switzerland

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

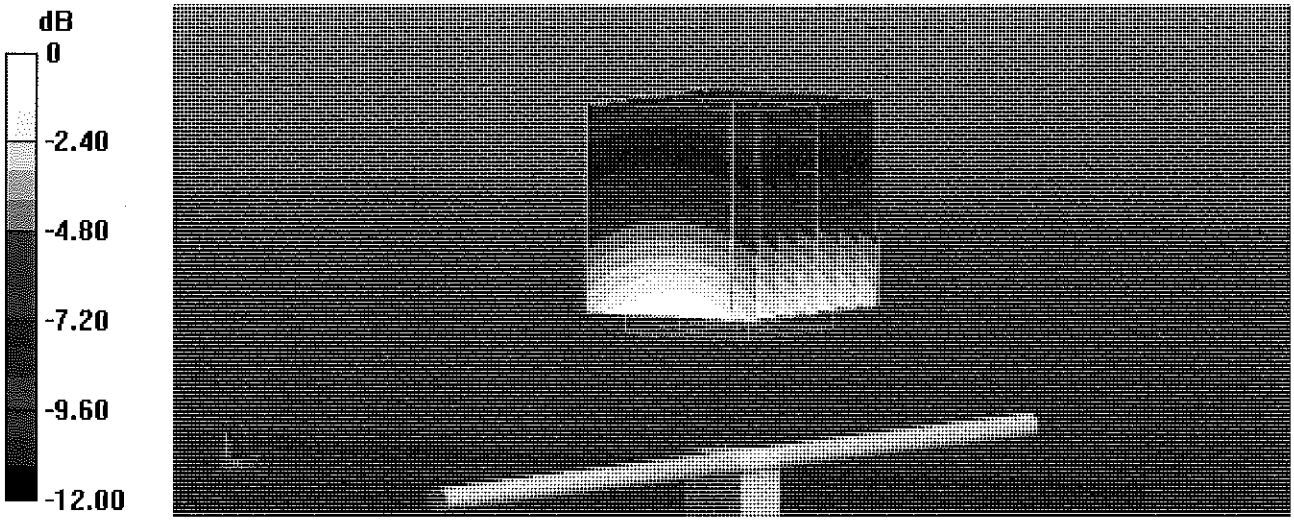
Communication System: UID 0 - CW; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.91 S/m; ε_r = 41.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.44, 6.44, 6.44); Calibrated: 30.12.2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

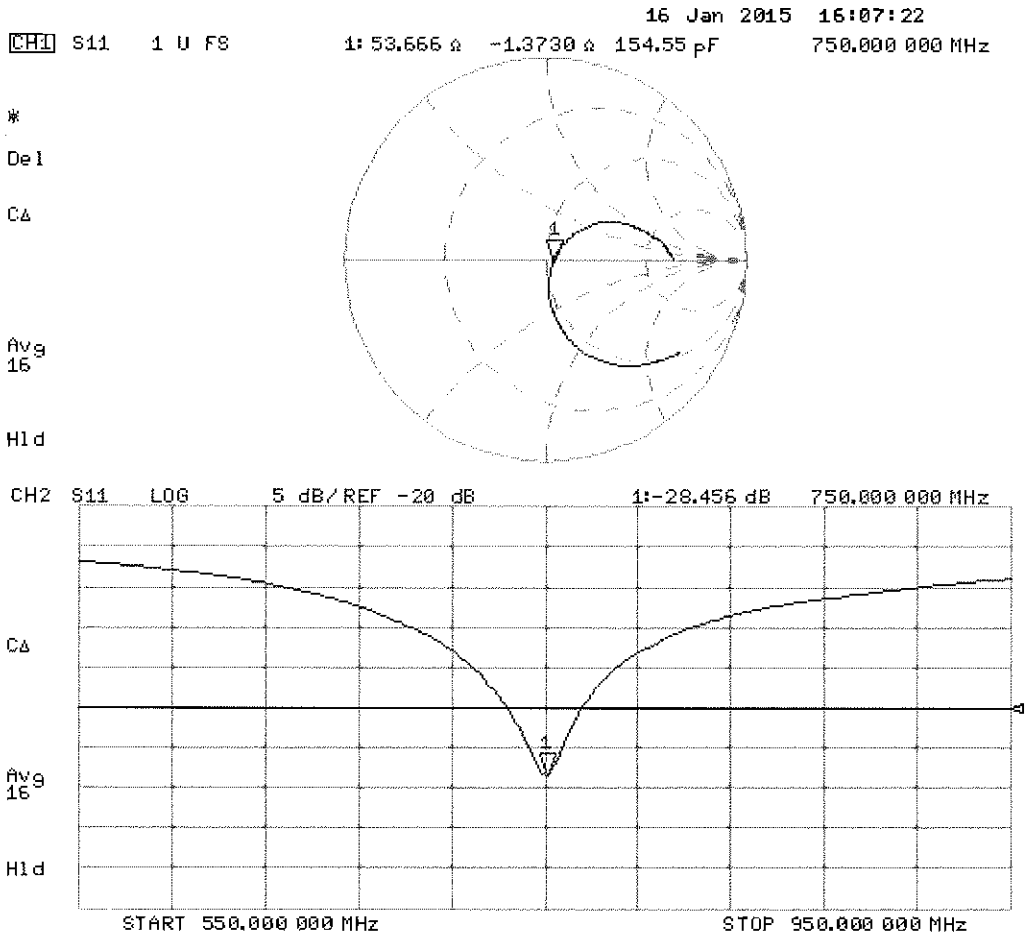
Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.08 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 3.05 W/kg
SAR(1 g) = 2.06 W/kg; SAR(10 g) = 1.35 W/kg
Maximum value of SAR (measured) = 2.41 W/kg



0 dB = 2.41 W/kg = 3.82 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 16.01.2015

Test Laboratory: SPEAG, Zurich, Switzerland

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

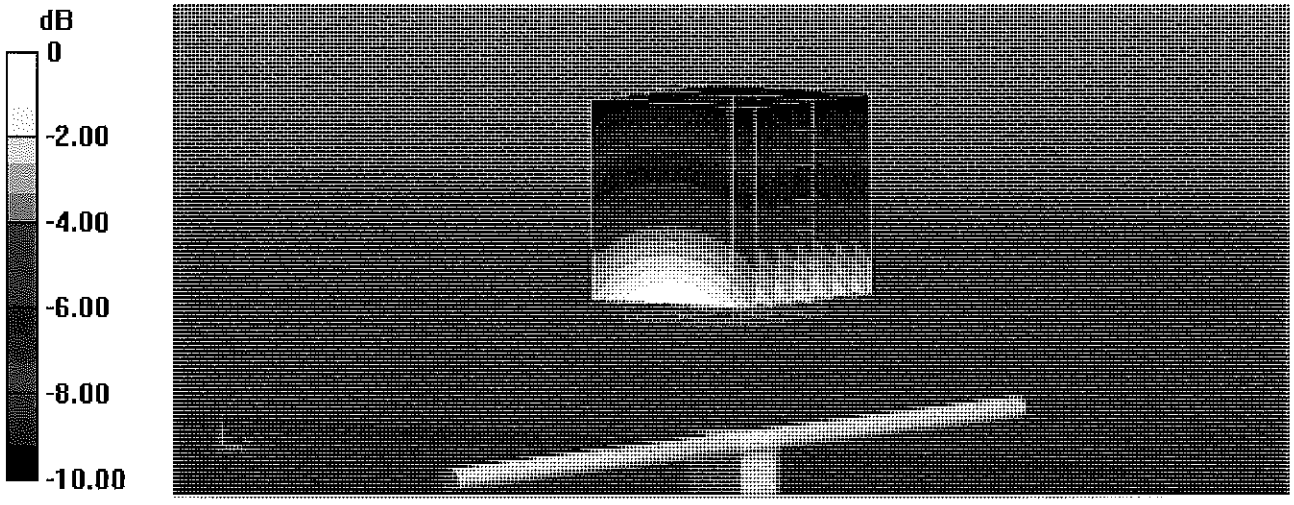
Communication System: UID 0 - CW; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.99 S/m; ε_r = 56; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

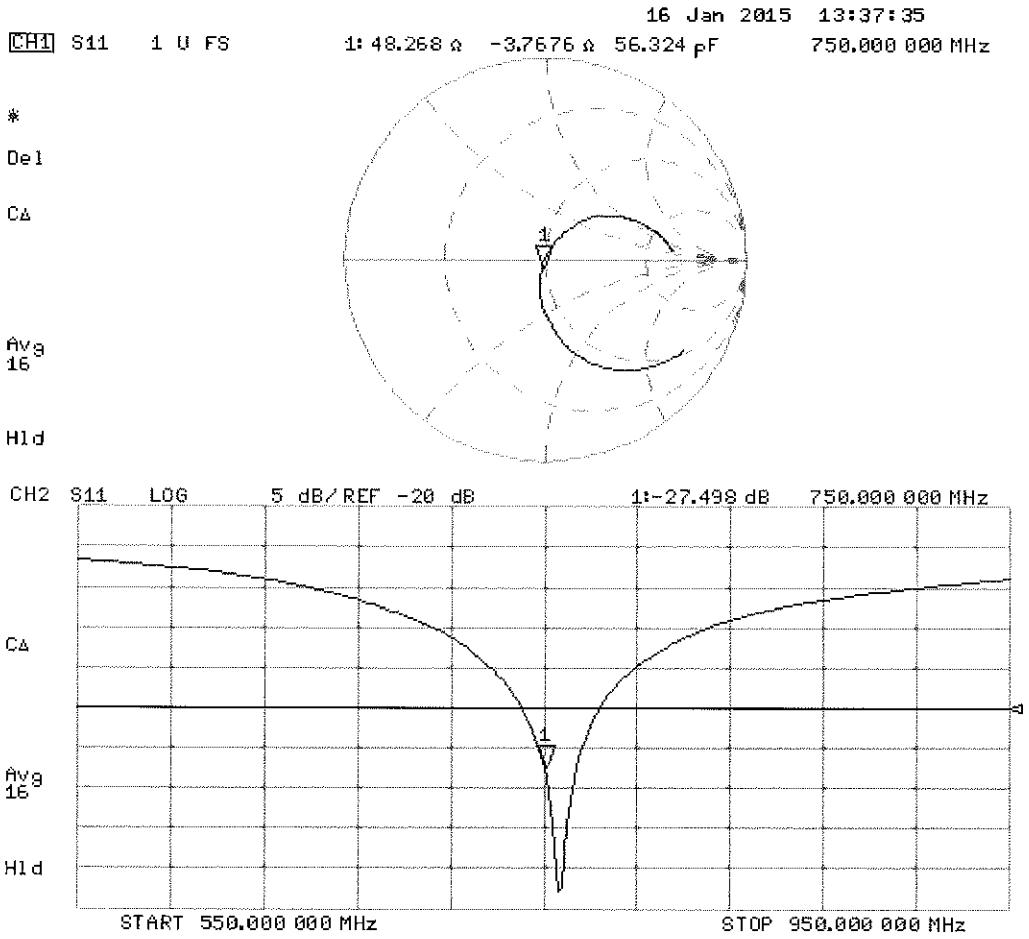
DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.21, 6.21, 6.21); Calibrated: 30.12.2014;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 18.08.2014
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.8(1222); SEMCAD X 14.6.10(7331)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.21 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 3.16 W/kg
SAR(1 g) = 2.16 W/kg; SAR(10 g) = 1.42 W/kg
Maximum value of SAR (measured) = 2.52 W/kg



0 dB = 2.52 W/kg = 4.01 dBW/kg

Impedance Measurement Plot for Body TSL