



SAR EVALUATION REPORT

Applicant Name:

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Yeongtong-gu, Suwon-si
Gyeonggi-do 443-742, Korea

Date of Testing:

09/15/2014 – 10/07/2014

Test Site/Location:

PCTEST Lab, Columbia, MD, USA

Document Serial No.:

OY1409111869.A3L

FCC ID:

A3LSMN915P

APPLICANT:

SAMSUNG ELECTRONICS, CO. LTD.

DUT Type:

Portable Handset

Application Type:

Certification

FCC Rule Part(s):

CFR §2.1093

Model(s):

SM-N915P

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	GSM/GPRS/EDGE 850	824.20 - 848.80 MHz	0.10	0.20	0.51	
PCE	UMTS 850	826.40 - 846.60 MHz	0.12	0.21	0.44	
PCE	GSM/GPRS/EDGE 1900	1850.20 - 1909.80 MHz	< 0.1	0.21	1.09	
PCE	UMTS 1900	1852.4 - 1907.6 MHz	0.10	0.34	0.70	
PCE	CDMA/EVDO BC10 (§90S)	817.90 - 823.10 MHz	0.18	0.25	0.59	
PCE	CDMA/EVDO BC0 (§22H)	824.70 - 848.31 MHz	0.18	0.32	0.72	
PCE	PCS CDMA/EVDO	1851.25 - 1908.75 MHz	0.12	0.40	0.94	3.24
PCE	LTE Band 26	814.7 - 848.3 MHz	0.18	0.25	0.51	
PCE	LTE Band 25 (PCS)	1850.7 - 1914.3 MHz	0.18	0.37	0.75	
PCE	LTE Band 41	2498.5 - 2687.5 MHz	< 0.1	0.13	0.54	
DTS	2.4 GHz WLAN	2412 - 2462 MHz	0.22	0.11	0.11	
DTS	5.8 GHz WLAN	5745 - 5825 MHz	0.17	0.12	0.18	
NII	5.2 GHz WLAN	5180 - 5240 MHz	< 0.1	0.10		0.52
NII	5.3 GHz WLAN	5260 - 5320 MHz	< 0.1	< 0.1		0.33
NII	5.5 GHz WLAN	5500 - 5700 MHz	0.11	0.16		0.29
DSS/DTS	Bluetooth	2402 - 2480 MHz	N/A			
Simultaneous SAR per KDB 690783 D01v01r03:			0.41	0.65	1.09	3.24

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 1.9 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



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1 DEVICE UNDER TEST

1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
GSM/GPRS/EDGE 850	Voice/Data	824.20 - 848.80 MHz
UMTS 850	Voice/Data	826.40 - 846.60 MHz
GSM/GPRS/EDGE 1900	Voice/Data	1850.20 - 1909.80 MHz
UMTS 1900	Voice/Data	1852.4 - 1907.6 MHz
CDMA/EVDO BC10 (§90S)	Voice/Data	817.90 - 823.10 MHz
CDMA/EVDO BC0 (§22H)	Voice/Data	824.70 - 848.31 MHz
PCS CDMA/EVDO	Voice/Data	1851.25 - 1908.75 MHz
LTE Band 26	Data	814.7 - 848.3 MHz
LTE Band 25 (PCS)	Data	1850.7 - 1914.3 MHz
LTE Band 41	Data	2498.5 - 2687.5 MHz
2.4 GHz WLAN	Voice/Data	2412 - 2462 MHz
5.8 GHz WLAN	Voice/Data	5745 - 5825 MHz
5.2 GHz WLAN	Voice/Data	5180 - 5240 MHz
5.3 GHz WLAN	Voice/Data	5260 - 5320 MHz
5.5 GHz WLAN	Voice/Data	5500 - 5700 MHz
Bluetooth	Data	2402 - 2480 MHz
NFC	Data	13.56 MHz
ANT+	Data	2402 - 2480 MHz

1.2 Power Reduction for SAR

The device utilizes power reduction using an independent single fixed level of reduction through a static table look-up, triggered by turning on Hotspot operating in PCS CDMA/EVDO, UMTS Band 2, and LTE band 25 modes.

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1.3 Nominal and Maximum Output Power Specifications

This device operates using the following maximum and nominal output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB Publication 447498 D01v05.

1.3.1 Maximum Power

Mode / Band		Voice (dBm)	Burst Average GMSK (dBm)				Burst Average 8-PSK (dBm)			
		1 TX Slot	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots	1 TX Slots	2 TX Slots	3 TX Slots	4 TX Slots
GSM/GPRS/EDGE 850	Maximum	33.5	33.5	32.0	30.5	28.5	27.5	27.5	23.5	22.5
	Nominal	33.0	33.0	31.5	30.0	28.0	27.0	27.0	23.0	22.0
GSM/GPRS/EDGE 1900	Maximum	30.5	30.5	29.0	27.5	26.0	26.5	26.5	22.0	20.0
	Nominal	30.0	30.0	28.5	27.0	25.5	26.0	26.0	21.5	19.5

Mode / Band		Modulated Average (dBm)		
		3GPP WCDMA	3GPP HSDPA	3GPP HSUPA
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	23.0	22.5	22.5
	Nominal	22.5	22.0	22.0

Mode / Band		Modulated Average (dBm)
CDMA/EVDO BC10 (\$90S)	Maximum	24.5
	Nominal	24.0
CDMA/EVDO BC0 (\$22H)	Maximum	24.5
	Nominal	24.0
PCS CDMA/EVDO	Maximum	24.5
	Nominal	24.0

Mode / Band		Modulated Average (dBm)
LTE Band 26	Maximum	24.0
	Nominal	23.5
LTE Band 25 (PCS)	Maximum	23.5
	Nominal	23.0
LTE Band 41	Maximum	24.5
	Nominal	24.0

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Mode / Band		Modulated Average (dBm)
IEEE 802.11b (2.4 GHz) - SISO	Maximum	15.5
	Nominal	15.0
IEEE 802.11g (2.4 GHz) - SISO	Maximum	14.5
	Nominal	14.0
IEEE 802.11n (2.4 GHz) - SISO	Maximum	13.5
	Nominal	13.0
IEEE 802.11n (2.4 GHz) - MIMO	Maximum	15.5
	Nominal	15.0
IEEE 802.11a (5 GHz) - SISO	Maximum	12.5
	Nominal	12.0
IEEE 802.11n/ac 20 MHz (5 GHz) - SISO	Maximum	12.5
	Nominal	12.0
IEEE 802.11n/ac 20 MHz (5 GHz) - MIMO	Maximum	15.5
	Nominal	15.0
IEEE 802.11n/ac 40 MHz (5 GHz) - SISO	Maximum	9.5
	Nominal	9.0
IEEE 802.11n/ac 40 MHz (5 GHz) - MIMO	Maximum	12.5
	Nominal	12.0
IEEE 802.11ac 80 MHz (5 GHz) - SISO	Maximum	10.5
	Nominal	10.0
IEEE 802.11ac 80 MHz (5 GHz) - MIMO	Maximum	13.5
	Nominal	13.0
Bluetooth	Maximum	12.5
	Nominal	12.0
Bluetooth LE	Maximum	7.5
	Nominal	7.0

1.3.2 Reduced Power with Hotspot Mode Activated

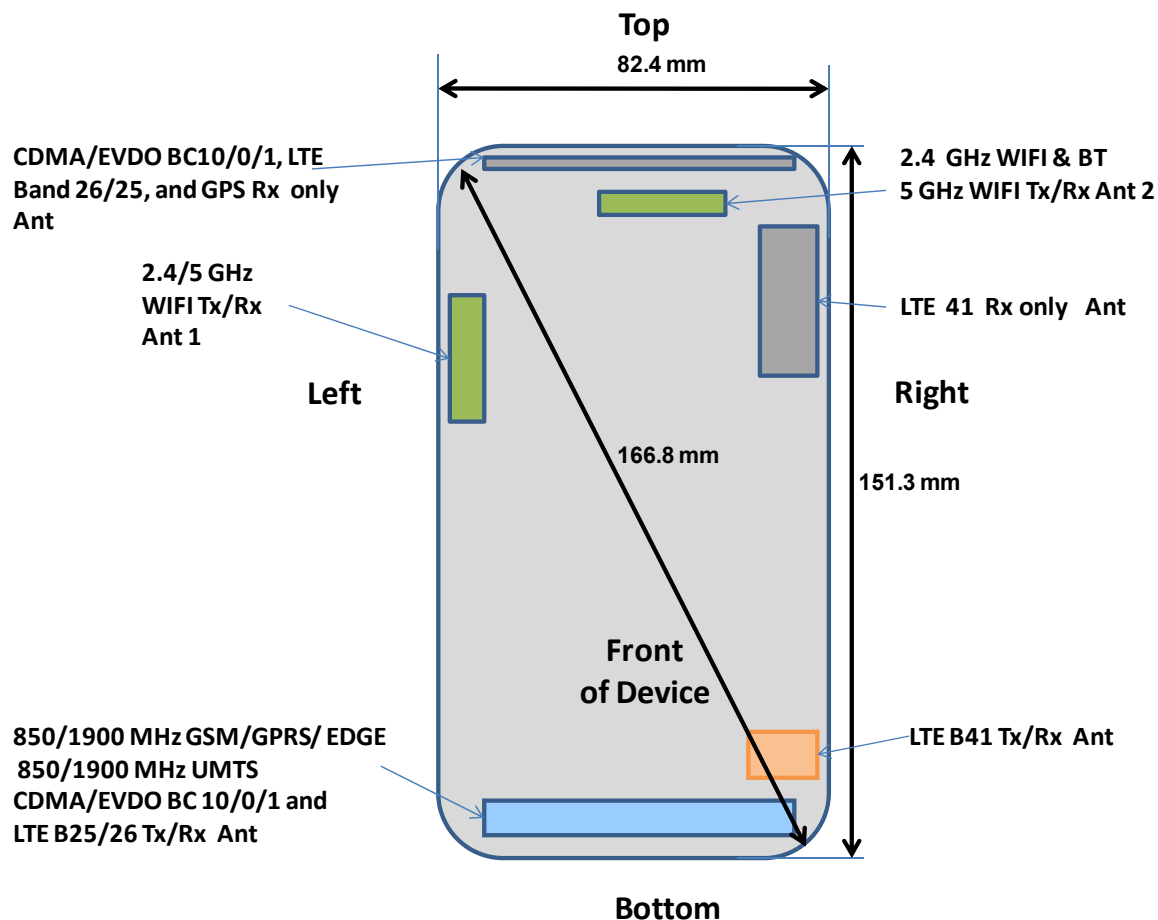
Mode / Band		Modulated Average (dBm)		
		3GPP WCDMA	3GPP HSDPA	3GPP HSUPA
UMTS Band 2 (1900 MHz)	Maximum	21.0	20.5	20.5
	Nominal	20.5	20.0	20.0

Mode / Band		Modulated Average (dBm)
PCS CDMA/EVDO	Maximum	22.5
	Nominal	22.0

Mode / Band		Modulated Average (dBm)
LTE Band 25 (PCS)	Maximum	21.5
	Nominal	21.0

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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."

Figure 1-1
DUT Antenna Locations

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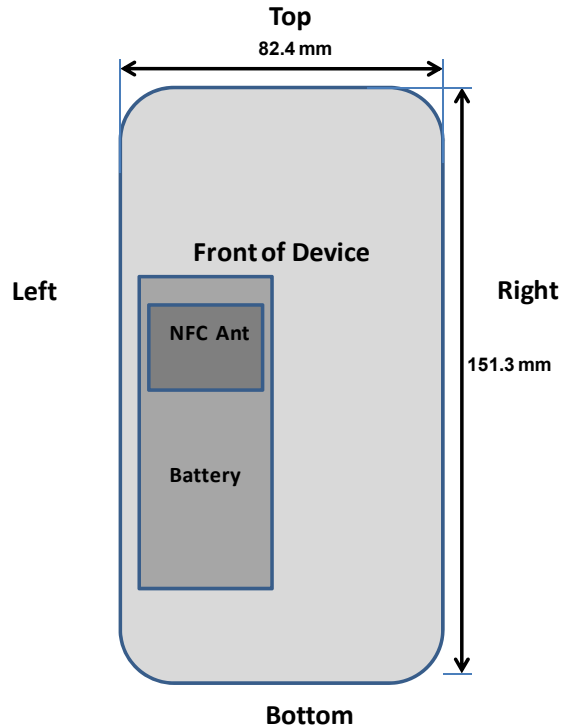
**Table 1-1
Sides for SAR Testing**

Mode	Back	Front	Top	Bottom	Right	Left
GPRS 850	Yes	Yes	No	Yes	Yes	Yes
UMTS 850	Yes	Yes	No	Yes	Yes	Yes
GPRS 1900	Yes	Yes	No	Yes	Yes	Yes
UMTS 1900	Yes	Yes	No	Yes	Yes	Yes
EVDO BC10 (\$90S)	Yes	Yes	No	Yes	Yes	Yes
EVDO BC0 (\$22H)	Yes	Yes	No	Yes	Yes	Yes
PCS EVDO	Yes	Yes	No	Yes	Yes	Yes
LTE Band 26	Yes	Yes	No	Yes	Yes	Yes
LTE Band 25 (PCS)	Yes	Yes	No	Yes	Yes	Yes
LTE Band 41	Yes	Yes	No	Yes	Yes	No
2.4 GHz WLAN - Antenna 1	Yes	Yes	Yes	No	No	Yes
2.4 GHz WLAN - Antenna 2	Yes	Yes	Yes	No	Yes	No
2.4 GHz WLAN - MIMO	Yes	Yes	Yes	No	Yes	Yes
5 GHz WLAN - Antenna 1	Yes	Yes	Yes	No	No	Yes
5 GHz WLAN - Antenna 2	Yes	Yes	Yes	No	Yes	No
5 GHz WLAN - MIMO	Yes	Yes	Yes	No	Yes	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. Therefore, 5.8 GHz WLAN refers to mobile hotspot testing sides and 5.2-5.7 GHz WLAN refers to extremity testing sides.

1.5 Near Field Communications (NFC) Antenna

This DUT has NFC operations. The NFC antenna is integrated into the specialized battery. The SAR tests were performed with the specialized battery (model: EB-BN915BBU).



**Figure 1-2
NFC Antenna Locations**

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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 1-3 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 1-3
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.

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	GSM voice + 2.4 GHz Wi-Fi	Yes	Yes	N/A	Yes	
5	GSM voice + 5 GHz Wi-Fi	Yes	Yes	N/A	Yes	
6	GSM voice + 2.4 GHz Bluetooth	N/A	Yes	N/A	Yes	
7	UMTS + 2.4 GHz Wi-Fi	Yes	Yes	Yes	Yes	
8	UMTS + 5 GHz Wi-Fi	Yes	Yes	Yes	Yes	
9	UMTS + 2.4 GHz Bluetooth	N/A	Yes	N/A	Yes	
10	LTE + 2.4 GHz Wi-Fi	Yes*	Yes*	Yes	Yes	*-Pre-installed VOIP applications are considered.
11	LTE + 5 GHz Wi-Fi	Yes*	Yes*	Yes	Yes	*-Pre-installed VOIP applications are considered.
12	LTE + 2.4 GHz Bluetooth	N/A	Yes*	N/A	Yes	*-Pre-installed VOIP applications are considered.
13	CDMA/EVDO data + 2.4 GHz Wi-Fi	Yes*	Yes*	Yes	Yes	*-Pre-installed VOIP applications are considered.
14	CDMA/EVDO data + 5 GHz Wi-Fi	Yes*	Yes*	Yes	Yes	*-Pre-installed VOIP applications are considered.
15	CDMA/EVDO data + 2.4 GHz Bluetooth	N/A	Yes*	N/A	Yes	*-Pre-installed VOIP applications are considered.
16	GPRS/EDGE + 2.4 GHz Wi-Fi	N/A	N/A	Yes	Yes	
17	GPRS/EDGE + 5 GHz Wi-Fi	N/A	N/A	Yes	Yes	
18	1x CDMA voice + CDMA/EVDO data	N/A	N/A	N/A	N/A	Not supported by HW
19	CDMA/EVDO data + LTE	N/A	N/A	N/A	N/A	Not supported by HW
20	1x CDMA voice + LTE	N/A	N/A	N/A	N/A	Not supported by HW
21	1x CDMA voice + LTE + 2.4 GHz Wi-Fi	N/A	N/A	N/A	N/A	Not supported by HW
22	1x CDMA voice + LTE + 5 GHz Wi-Fi	N/A	N/A	N/A	N/A	Not supported by HW

- 2.4 GHz WLAN, 5 GHz WLAN, and 2.4 GHz Bluetooth share the same antenna path and cannot transmit simultaneously.
- All licensed modes share the same antenna path and cannot transmit simultaneously.
- (*) = for VOIP applications possibly used by the end-user
- When the user utilizes multiple services in UMTS 3G mode it uses multi-Radio Access Bearer or multi-RAB. The power control is based on a physical control channel (Dedicated Physical Control Channel [DPCCH]) and power control will be adjusted to meet the needs of both services. Therefore, the UMTS+WLAN scenario also represents the UMTS Voice/DATA + WLAN Hotspot scenario.
- Per the manufacturer, WIFI Direct is not expected to be used in conjunction with a held-to-ear or body-worn accessory voice call. Therefore, there are no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table.
- 5 GHz Wireless Router is only supported for the 5.8 GHz Band by S/W, therefore 5.2-5.7 GHz Bands were not evaluated for wireless router conditions.
- This device supports 2x2 MIMO Tx for WLAN 802.11n/ac. Each WLAN antenna can transmit independently or together when operating with MIMO.

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1.7 Wireless Charging Cover

This DUT may be used with a standard battery cover or with an optional wireless charging battery cover. Per FCC KDB Publication 648474 D04, SAR was measured using the standard battery cover and then repeated with the wireless charging battery cover for the highest reported SAR for each wireless technology, frequency band, operating mode, and exposure condition. No additional tests with wireless charging cover were required since all reported 1g SAR values were less than 1.2 W/kg.

1.8 SAR Test Exclusions Applied

(A) WIFI/BT

Since Wireless Router operations are not allowed by the chipset firmware using 5.2-5.7 GHz WIFI, only 2.4 GHz and 5.8 GHz WIFI Hotspot SAR tests and combinations are considered for SAR with respect to Wireless Router configurations according to FCC KDB 941225 D06v01.

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

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

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; $[(18/15) * \sqrt{2.480}] = 1.9 < 3.0$. 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:

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

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; $[(18/5) * \sqrt{2.480}] = 5.7 < 7.5$. Per KDB Publication 447498 D01v05, the maximum power of the channel was rounded to the nearest mW before calculation.

This device supports 20 MHz and 40 MHz Bandwidths for IEEE 802.11n for 5 GHz WIFI only. IEEE 802.11n was not evaluated for SAR since the average output power of 20 MHz and 40 MHz bandwidths was not more than 0.25 dB higher than the average output power of IEEE 802.11a.

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) No new 5 GHz channels

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 5.2 – 5.7 GHz WLAN, extremity SAR tests were performed. Extremity SAR was not evaluated for 2.4 GHz and 5.8 GHz 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 D05v02.

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.

This device supports inter-band LTE Carrier Aggregation (CA) in the downlink only. All uplink communications are identical to Release 8 specifications. Per FCC Guidance, LTE CA SAR was not needed for testing since the data sent by uplink on uplink physical channels does not change between Rel 8 and Rel 10.

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. Extremity SAR was evaluated for EVDO1900 bottom edge at maximum power since EVDO1900 hotspot bottom edge SAR when scaled up to maximum power targets was over 1.2 W/kg. Extremity SAR was not evaluated for all other licensed technologies since wireless router 1g SAR when scaled to the maximum output power including tolerance was < 1.2 W/kg for these modes.

1.9 Guidance Applied

- IEEE 1528-2003
- FCC KDB Publication 941225 D01v02, D02v02r02, D03v01, D05v02r03, D05Av01, D06v01r01 (2G/3G/4G, Hotspot, and CDMA2000 1x Advanced)
- 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, Wireless Charging Cover)
- April 2013 TCB Workshop Notes (IEEE 802.11ac and LTE TDD)
- October 2013 TCB Workshop Notes (GPRS Testing Considerations)

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1.10 Device Serial Numbers

Several samples were used with identical hardware 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.

	Head Serial Number	Body-Worn Serial Number	Hotspot Serial Number	Extremity Serial Number
GSM/GPRS/EDGE 850	4	4	4	-
UMTS 850	4	4	4	-
GSM/GPRS/EDGE 1900	4	4	4	-
UMTS 1900	4	4	9	-
CDMA/EVDO BC10 (§90S)	5	5	5	-
CDMA/EVDO BC0 (§22H)	5	5	5	-
PCS CDMA/EVDO	6, 8	6	8	6
LTE Band 26	2	2	2	-
LTE Band 25 (PCS)	2, 7	2, 7	7	-
LTE Band 41	3	3	3	-
2.4 GHz WLAN	12	10	10	-
5 GHz WLAN	12	12	12	12

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2

LTE INFORMATION

LTE Information					
FCC ID	A3LSMN915P				
Form Factor	Portable Handset				
Frequency Range of each LTE transmission band	LTE Band 26 (814.7 - 848.3 MHz)				
	LTE Band 25 (PCS) (1850.7 - 1914.3 MHz)				
	LTE Band 41 (2498.5 - 2687.5 MHz)				
Channel Bandwidths	LTE Band 26: 1.4 MHz, 3 MHz, 5 MHz, 10 MHz				
	LTE Band 25 (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 26: 1.4 MHz	814.7 (26697)		831.5 (26865)	848.3 (27033)	
LTE Band 26: 3 MHz	815.5 (26705)		831.5 (26865)	847.5 (27025)	
LTE Band 26: 5 MHz	816.5 (26715)		831.5 (26865)	846.5 (27015)	
LTE Band 26: 10 MHz	819 (26740)		831.5 (26865)	844 (26990)	
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 41: 5 MHz	2498.5 (39675)	2545.8 (40148)	2593 (40620)	2640.3 (41093)	2687.5 (41565)
LTE Band 41: 10 MHz	2501 (39700)	2547 (40160)	2593 (40620)	2639 (41080)	2685 (41540)
LTE Band 41: 15 MHz	2503.5 (39725)	2548.3 (40173)	2593 (40620)	2637.8 (41068)	2682.5 (41515)
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	LTE B41 (PCC) + LTE B41 (SCC)				
	10MHz (B41) + 10MHz (B41)				
	10MHz (B41) + 15MHz (B41)				
	10MHz (B41) + 20MHz (B41)				
	15MHz (B41) + 10MHz (B41)				
	15MHz (B41) + 15MHz (B41)				
	15MHz (B41) + 20MHz (B41)				
	20MHz (B41) + 10MHz (B41)				
	20MHz (B41) + 15MHz (B41)				
	20MHz (B41) + 20MHz (B41)				
LTE Carrier Aggregation Additional Information	This device does not support full CA features on 3GPP Release 10. It supports a maximum of 2 carriers in the downlink with a total maximum bandwidth of 20 MHz of the spectrum. 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/m³)
- E = Total RMS electric field strength (V/m)

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

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4 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:

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.

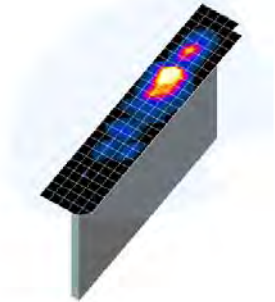


Figure 4-1
Sample SAR Area Scan

Table 4-1
Area and Zoom Scan Resolutions per FCC KDB Publication 865664 D01v01*

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

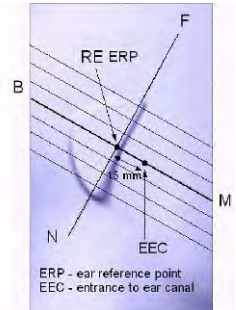


Figure 5-1
Close-Up Side view
of ERP

5.2 HANDSET REFERENCE POINTS

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



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

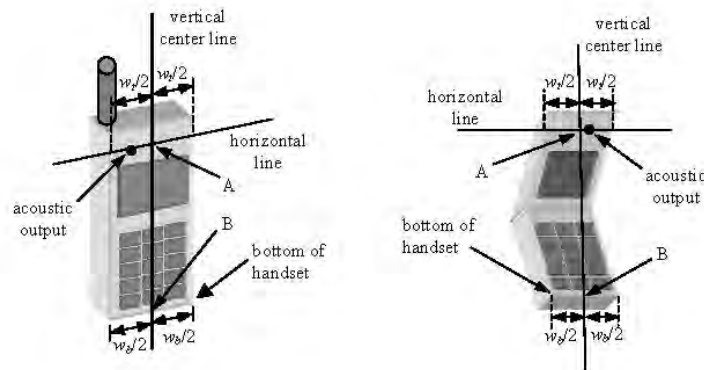


Figure 5-3
Handset Vertical Center & Horizontal Line Reference Points

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6 TEST CONFIGURATION POSITIONS FOR HANDSETS

6.1 Device Holder

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

6.2 Positioning for Cheek

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

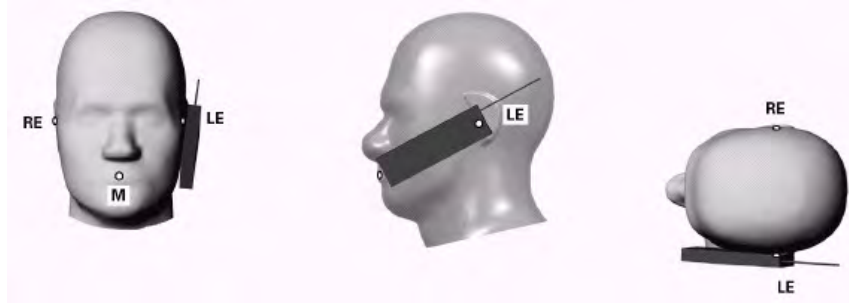


Figure 6-1 Front, Side and Top View of Cheek Position

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

6.3 Positioning for Ear / 15° Tilt

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

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

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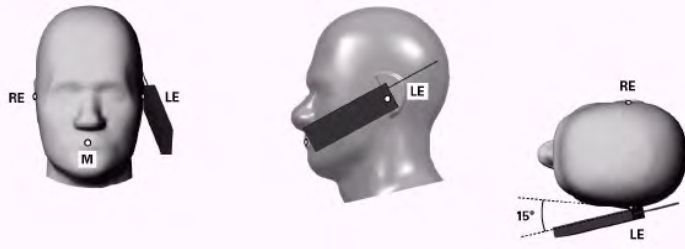


Figure 6-2 Front, Side and Top View of Ear/15° Tilt Position

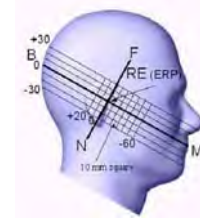


Figure 6-3 Side view w/ relevant markings

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

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

Under these circumstances, the following procedures apply, adopted from the FCC guidance on SAR handsets document FCC KDB Publication 648474 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 6-4). 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.

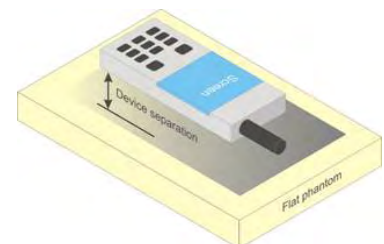


Figure 6-4 Sample Body-Worn Diagram

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

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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 44798 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 minitables 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 1-g SAR scaled up to the maximum output power including tolerance is > 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 D06 v01 where SAR test considerations for handsets ($L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v05 publication procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

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7 RF EXPOSURE LIMITS

7.1 Uncontrolled Environment

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

7.2 Controlled Environment

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

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

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

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

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8.1 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 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB Publication 941225 D01 "SAR Measurement Procedures for 3G Devices" v02, October 2007.

The device was 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 were 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 was 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 deviated by more than 5%, the SAR test and drift measurements were repeated.

8.3 SAR Measurement Conditions for CDMA2000

The following procedures were performed according to FCC KDB Publication 941225 D01 "SAR Measurement Procedures for 3G Devices" v02, October 2007.

8.3.1 Output Power Verification

See 3GPP2 C.S0011/TIA-98-E as recommended by "SAR Measurement Procedures for 3G Devices" v02, October 2007. Maximum output power is verified on the High, Middle and Low channels according to procedures in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E. SO55 tests were measured with power control bits in the "All Up" condition.

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

Table 8-1
Parameters for Max. Power for RC1

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

Table 8-2
Parameters for Max. Power for RC3

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

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

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8.3.2 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 is required for 1x advanced when 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.

8.3.3 Head SAR Measurements

SAR for head exposure configurations is measured in RC3 with the DUT configured to transmit at full rate using Loopback Service Option SO55. SAR for RC1 is not required when the maximum average output of each channel is less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel in RC1 using the exposure configuration that results in the highest SAR for that channel in RC3.

Head SAR was additionally evaluated using EVDO Rev. A to support compliance for VoIP operations. See Section 8.3.5 for EVDO Rev. A configuration parameters.

8.3.4 Body SAR Measurements

SAR for body 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. SAR for multiple code channels (FCH + SCH_n) is not required when the maximum average output of each RF channel is less than ¼ dB higher than that measured with FCH only. Otherwise, SAR is measured on the maximum output channel (FCH + SCH_n) with FCH at full rate and SCH₀ enabled at 9600 bps using the exposure configuration that results in the highest SAR for that channel with FCH only. When multiple code channels are enabled, the DUT output may shift by more than 0.5 dB and lead to higher SAR drifts and SCH dropouts. Body SAR was measured using TDSO / SO32 with power control bits in the "All Up"

Body SAR in RC1 is not required when the maximum average output of each channel is less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel in RC1; with Loopback Service Option SO55, at full rate, using the body exposure configuration that results in the highest SAR for that channel in RC3.

8.3.5 Handsets with EVDO

For handsets with Ev-Do capabilities, when the maximum average output of each channel in Rev. 0 is less than ¼ dB higher than that measured in RC3 (1x RTT), body SAR for EV-DO is not required. Otherwise, SAR for Rev. 0 is measured on the maximum output channel at 153.6 kbps using the body exposure configuration that results in the highest SAR for that channel in RC3. SAR for Rev. A is not required when the maximum average output of each channel is less than that measured in Rev. 0 or less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel for Rev. A using a Reverse Data Channel payload size of 4096 bits and a Termination Target of 16 slots defined for Subtype 2 Physical Layer configurations. A Forward Traffic Channel data rate corresponding to the 2-slot version of 307.2 kbps with the ACK Channel transmitting in all slots would be configured in the downlink for both Rev. 0 and Rev. A.

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8.3.6 Body SAR Measurements for EVDO Hotspot

Hotspot Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 per KDB Publication 941225 D01 procedures for “1x Ev-Do data Devices”. SAR for Subtype 2 Physical layer configurations is not required for Rev. A when the maximum average output of each RF channels is less than that measured in Subtype 0/1 Physical layer configurations. Otherwise, SAR is measured on the maximum output channel for Rev. A using the exposure configuration that results in the highest SAR for the RF channels 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.

SAR is not required for 1x RTT for Ev-Do devices that also support 1x RTT voice and/or data operations, when the maximum average output of each channel is less than 1/4 dB higher than that measured in Subtype 0/1 Physical Layer configurations for Rev. 0. Otherwise, CDMA “Body-SAR Measurement” procedures for “CDMA 2000 1x Handsets” were applied.

8.4 SAR Measurement Conditions for UMTS

8.4.1 Output Power Verification

Maximum output power is measured on the High, Middle and Low channels for each applicable transmission band according to the general descriptions in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all “1s”.

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 (release 5), 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.

8.4.2 Head SAR Measurements for Handsets

SAR for head exposure configurations is measured using the 12.2 kbps RMC with TPC bits configured to all “1s”. SAR in AMR configurations is not required when the maximum average output of each RF channel for 12.2 kbps AMR is less than 0.25 dB higher than that measured in 12.2 kbps RMC. Otherwise, SAR is measured on the maximum output channel in 12.2 AMR with a 3.4 kbps SRB (signaling radio bearer) using the exposure configuration that resulted in the highest SAR for that RF channel in the 12.2 kbps RMC mode.

8.4.3 Body SAR Measurements

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all “1s”.

8.4.4 SAR Measurements for Handsets with Rel 5 HSDPA

Body SAR for HSDPA is not required for handsets with HSDPA capabilities when the maximum average output power of each RF channel with HSDPA active is less than 0.25 dB higher than that measured without HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is $\leq 75\%$ of the SAR limit. Otherwise, SAR is measured for HSDPA, using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration measured in 12.2 kbps RMC without HSDPA, on the maximum output channel with the body exposure configuration that resulted in the highest SAR in 12.2 kbps RMC mode for that RF channel.

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The H-set used in FRC for HSDPA should be configured according to the UE category of a test device. The number of HS-DSCH/HSPDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the applicable H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the FRC for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 2 ms to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors of $\beta_c=9$ and $\beta_d=15$, and power offset parameters of $\Delta_{ACK}=\Delta_{NACK}=5$ and $\Delta_{CQI}=2$ is used. The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the FRC.

Sub-Test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: $\Delta_{ACK}, \Delta_{NACK}$ and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.
Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 8$ ($A_{hs} = 30/15$) with $\beta_{hs} = 30/15 * \beta_c$, and $\Delta_{CQI} = 7$ ($A_{hs} = 24/15$) with $\beta_{hs} = 24/15 * \beta_c$.
Note 3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Figure 8-1
Table C.10.1.4 of TS 234.121-1

8.4.5 SAR Measurements for Handsets with Rel 6 HSUPA

Body SAR for HSUPA is not required when the maximum average output of each RF channel with HSUPA/HSDPA active is less than 0.25 dB higher than as measured without HSUPA/HSDPA using 12.2 kbps RMC and maximum SAR for 12.2 kbps RMC is $\leq 75\%$ of the SAR limit. Otherwise SAR is measured on the maximum output channel for the body exposure configuration produced highest SAR in 12.2 kbps RMC for that RF channel, using the additional procedures under “Release 6 HSPA data devices”

Head SAR for VOIP operations under HSPA is not required when maximum average output of each RF channel with HSPA is less than 0.25 dB higher than as measured using 12.2 kbps RMC. Otherwise SAR is measured using same HSPA configuration as used for body SAR.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM ⁽²⁾ (dB)	MPR (dB)	AC ⁽⁴⁾ Index	E-TFCI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed} = 47/15$ $\beta_{ed} = 47/15$	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64	15/15 ⁽⁴⁾	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: $\Delta_{ACK}, \Delta_{NACK}$ and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.
Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.
Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$.
Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1.g.
Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

8.5 SAR Measurement Conditions for LTE

LTE modes were tested according to FCC KDB 941225 D05v02 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators

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ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 was used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

8.5.1 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.

8.5.2 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.

8.5.3 A-MPR

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

8.5.4 Required RB Size and RB Offsets for SAR Testing

According to FCC KDB 941225 D05v02r01:

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

8.5.5 TDD

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

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8.5.6 Carrier Aggregation

LTE Carrier Aggregation (CA) measurements were 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 were 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 Guidance, no SAR measurements were required.

8.6 SAR Testing with 802.11 Transmitters

Normal network operating configurations are not suitable for measuring the SAR of 802.11 a/b/g/n/ac transmitters. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01v01r02 for more details.

8.6.1 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. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

8.6.2 Frequency Channel Configurations [24]

For 2.4 GHz, the highest average RF output power channel between the low, mid and high channel at the lowest data rate was selected for SAR evaluation in 802.11b mode. 802.11g/n modes and higher data rates for 802.11b were additionally evaluated for SAR if the output power of the respective mode was 0.25 dB or higher than the powers of the SAR configurations tested in the 802.11b mode.

For 5 GHz, the highest average RF output power channel across the default test channels at the lowest data rate was selected for SAR evaluation in 802.11a. When the adjacent channels are higher in power than the default channels, these "required channels" were considered instead of the default channels for SAR testing. 802.11n modes and higher data rates for 802.11a/n were evaluated only if the respective mode was higher than 0.25 dB or more than the 802.11a mode. 802.11ac SAR was evaluated for highest 802.11a configuration in each 5 GHz band and each exposure condition. 802.11ac modes were additionally evaluated for SAR if the output power for the respective mode was more than 0.25 dB higher than powers of 802.11a modes.

If the maximum extrapolated peak SAR of the zoom scan for the highest output channel was less than 1.6 W/kg and if the 1g averaged SAR was less than 0.8 W/kg, SAR testing was not required for the other test channels in the band.

8.6.3 MIMO SAR considerations

Per KDB 248227, SAR for MIMO was measured with both transmitting simultaneously and was evaluated independently of SISO operation. For 2.4 and 5 GHz MIMO, IEEE 802.11n 20 MHz bandwidth was evaluated. Other IEEE 802.11 modes and bandwidths were not investigated for MIMO operations since the maximum allowed output power (including tolerance) was not higher for these modes.

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9 RF CONDUCTED POWERS

9.1 CDMA Conducted Powers

Table 9-1
Maximum CDMA Conducted Powers with Hotspot not active

Band	Channel	Rule Part	Frequency	SO55 [dBm]	SO55 [dBm]	SO75 [dBm]	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	RC1	RC3	RC11	FCH+SCH	FCH	(RTAP)	(RETAP)
Cellular	564	90S	820.1	24.43	24.44	24.44	24.43	24.45	24.50	24.48
Cellular	1013	22H	824.7	24.23	24.26	24.25	24.24	24.25	24.37	24.35
	384	22H	836.52	24.36	24.38	24.38	24.38	24.39	24.48	24.46
	777	22H	848.31	24.15	24.18	24.20	24.21	24.20	24.31	24.30
PCS	25	24E	1851.25	24.49	24.46	24.50	24.41	24.43	24.50	24.49
	600	24E	1880	24.50	24.50	24.50	24.47	24.49	24.50	24.49
	1175	24E	1908.75	24.34	24.28	24.20	24.20	24.22	24.39	24.38

Table 9-2
Reduced CDMA Conducted Powers with Hotspot Active

Band	Channel	Rule Part	Frequency	TDSO SO32 [dBm]	TDSO SO32 [dBm]	1x EvDO Rev. 0 [dBm]	1x EvDO Rev. A [dBm]
	F-RC		MHz	FCH+SCH	FCH	(RTAP)	(RETAP)
PCS	25	24E	1851.25	22.42	22.43	22.50	22.48
	600	24E	1880	22.31	22.32	22.46	22.44
	1175	24E	1908.75	22.49	22.49	22.50	22.49

Notes:

- RC1 is only applicable for IS-95 compatibility.
- For FCC Rule Part 90S, Per FCC KDB Publication 447498 D01v05 4.1.6, only one channel is required since the device operates within the transmission range of 817.90 – 823.10 MHz.

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Per KDB Publication 941225 D01v02:

1. Head SAR was tested with SO55 RC3. SO55 RC1 was not required since the average output power was not more than 0.25 dB than the SO55 RC3 powers.
2. Body-Worn SAR was tested with 1x RTT with TDSO / SO32 FCH Only. Ev-Do and TDSO / SO32 FCH+SCH SAR tests were not required since the average output power was not more than 0.25 dB higher than the TDSO / SO32 FCH only powers.
3. Hotspot SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0. If the average output power of Subtype 2 for Rev. A is less than the Rev. 0 power levels, then Rev. A SAR is not required. Otherwise, SAR is measured on the maximum output channel for Rev. A using the exposure configuration that results in the highest SAR for that RF channel in Rev. 0. SAR is not required for 1x RTT for Ev-Do hotspot devices when the maximum average output of each channel is less than 1/4 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.

Per KDB Publication 941225 D02v02

1. 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. See Section 8.3.2 for 1x Advanced test set up.



Figure 9-1
Power Measurement Setup

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9.2 GSM Conducted Powers

		Maximum Burst-Averaged Output Power								
Band	Channel	Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
		GSM [dBm] CS (1 Slot)	GPRS [dBm] 1 Tx Slot	GPRS [dBm] 2 Tx Slot	GPRS [dBm] 3 Tx Slot	GPRS [dBm] 4 Tx Slot	EDGE [dBm] 1 Tx Slot	EDGE [dBm] 2 Tx Slot	EDGE [dBm] 3 Tx Slot	EDGE [dBm] 4 Tx Slot
GSM 850	128	32.74	32.88	31.38	29.30	27.51	27.03	26.90	23.13	22.47
	190	32.80	32.95	30.87	29.37	27.47	27.02	26.80	23.06	22.49
	251	32.90	33.04	30.96	29.42	27.55	27.10	26.84	23.14	22.50
GSM 1900	512	30.01	30.21	28.30	26.94	25.44	26.11	25.88	21.14	19.98
	661	29.86	29.97	28.07	26.89	25.15	26.14	25.80	21.08	19.99
	810	30.03	30.14	28.58	26.97	25.55	26.01	26.14	21.22	19.92

		Calculated Maximum Frame-Averaged Output Power								
Band	Channel	Voice	GPRS/EDGE Data (GMSK)				EDGE Data (8-PSK)			
		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	23.71	23.85	25.36	25.04	24.50	18.00	20.88	18.87	19.46
	190	23.77	23.92	24.85	25.11	24.46	17.99	20.78	18.80	19.48
	251	23.87	24.01	24.94	25.16	24.54	18.07	20.82	18.88	19.49
GSM 1900	512	20.98	21.18	22.28	22.68	22.43	17.08	19.86	16.88	16.97
	661	20.83	20.94	22.05	22.63	22.14	17.11	19.78	16.82	16.98
	810	21.00	21.11	22.56	22.71	22.54	16.98	20.12	16.96	16.91
GSM 850	Frame Avg. Targets:	23.97	23.97	25.48	25.74	24.99	17.97	20.98	18.74	18.99
GSM 1900	Frame Avg. Targets:	20.97	20.97	22.48	22.74	22.49	16.97	19.98	17.24	16.49

Note:

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

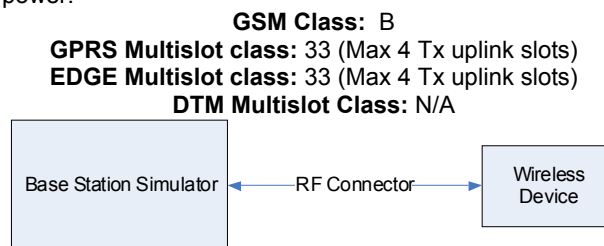


Figure 9-2
Power Measurement Setup

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9.3 UMTS Conducted Powers

Table 9-3
Maximum UMTS Conducted Powers with Hotspot not active

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	23.27	23.28	23.21	22.58	22.63	22.58	-
99		12.2 kbps AMR	23.28	23.22	23.18	22.57	22.62	22.61	-
6	HSDPA	Subtest 1	22.47	22.44	22.45	21.95	21.99	21.85	0
6		Subtest 2	22.50	22.45	22.39	21.97	21.90	21.91	0
6		Subtest 3	22.04	21.75	21.78	21.43	21.39	21.19	0.5
6		Subtest 4	21.98	21.73	21.90	21.44	21.46	21.11	0.5
6	HSUPA	Subtest 1	21.69	21.77	21.53	21.35	21.51	21.31	0
6		Subtest 2	21.09	21.28	21.03	20.98	21.12	20.80	2
6		Subtest 3	21.45	21.47	21.32	21.31	21.40	21.19	1
6		Subtest 4	21.18	21.45	21.14	21.36	21.48	21.40	2
6		Subtest 5	22.47	22.46	22.41	22.28	22.32	22.05	0

Table 9-4
Reduced UMTS Conducted Powers with Hotspot Active

3GPP Release Version	Mode	3GPP 34.121 Subtest	PCS Band [dBm]			3GPP MPR [dB]
			9262	9400	9538	
99	WCDMA	12.2 kbps RMC	20.62	20.71	20.73	-
99		12.2 kbps AMR	20.51	20.69	20.71	-
6	HSDPA	Subtest 1	19.76	20.12	19.99	0
6		Subtest 2	19.66	20.16	20.03	0
6		Subtest 3	19.28	19.57	19.20	0.5
6		Subtest 4	19.29	19.54	19.25	0.5
6	HSUPA	Subtest 1	19.80	20.07	19.98	0
6		Subtest 2	17.85	18.17	17.92	2
6		Subtest 3	19.43	19.55	19.38	1
6		Subtest 4	18.71	19.07	18.77	2
6		Subtest 5	19.93	20.20	19.94	0

UMTS SAR was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v02. 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.

This device does not support DC-HSDPA.

It is expected by the manufacturer that MPR for some HSPA subtests may be up to 1 dB more than specified by 3GPP, but also as low as 0 dB according to the chipset implementation in this model.

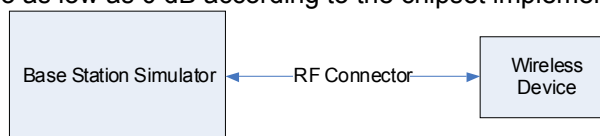


Figure 9-3
Power Measurement Setup

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9.4 LTE Conducted Powers

9.4.1 LTE Band 26

Table 9-5
LTE Band 26 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	23.02	0	0
	819	26740	10	QPSK	1	25	23.42	0	0
	819	26740	10	QPSK	1	49	23.38	0	0
	819	26740	10	QPSK	25	0	21.87	0-1	1
	819	26740	10	QPSK	25	12	22.40	0-1	1
	819	26740	10	QPSK	25	25	22.48	0-1	1
	819	26740	10	QPSK	50	0	22.30	0-1	1
	819	26740	10	16QAM	1	0	22.29	0-1	1
	819	26740	10	16QAM	1	25	22.17	0-1	1
	819	26740	10	16QAM	1	49	22.48	0-1	1
	819	26740	10	16QAM	25	0	21.24	0-2	2
	819	26740	10	16QAM	25	12	21.32	0-2	2
	819	26740	10	16QAM	25	25	21.27	0-2	2
	819	26740	10	16QAM	50	0	21.16	0-2	2
Mid	831.5	26865	10	QPSK	1	0	23.07	0	0
	831.5	26865	10	QPSK	1	25	23.17	0	0
	831.5	26865	10	QPSK	1	49	23.06	0	0
	831.5	26865	10	QPSK	25	0	22.12	0-1	1
	831.5	26865	10	QPSK	25	12	22.14	0-1	1
	831.5	26865	10	QPSK	25	25	21.94	0-1	1
	831.5	26865	10	QPSK	50	0	21.99	0-1	1
	831.5	26865	10	16QAM	1	0	22.12	0-1	1
	831.5	26865	10	16QAM	1	25	22.23	0-1	1
	831.5	26865	10	16QAM	1	49	22.40	0-1	1
	831.5	26865	10	16QAM	25	0	21.13	0-2	2
	831.5	26865	10	16QAM	25	12	21.18	0-2	2
	831.5	26865	10	16QAM	25	25	20.98	0-2	2
	831.5	26865	10	16QAM	50	0	21.03	0-2	2
High	844	26990	10	QPSK	1	0	23.41	0	0
	844	26990	10	QPSK	1	25	23.36	0	0
	844	26990	10	QPSK	1	49	23.07	0	0
	844	26990	10	QPSK	25	0	22.09	0-1	1
	844	26990	10	QPSK	25	12	22.24	0-1	1
	844	26990	10	QPSK	25	25	22.14	0-1	1
	844	26990	10	QPSK	50	0	22.06	0-1	1
	844	26990	10	16QAM	1	0	22.27	0-1	1
	844	26990	10	16QAM	1	25	22.46	0-1	1
	844	26990	10	16QAM	1	49	21.96	0-1	1
	844	26990	10	16QAM	25	0	21.16	0-2	2
	844	26990	10	16QAM	25	12	21.34	0-2	2
	844	26990	10	16QAM	25	25	21.23	0-2	2
	844	26990	10	16QAM	50	0	21.04	0-2	2

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Table 9-6
LTE Band 26 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	22.78	0	0
	816.5	26715	5	QPSK	1	12	22.88	0	0
	816.5	26715	5	QPSK	1	24	23.31	0	0
	816.5	26715	5	QPSK	12	0	21.72	0-1	1
	816.5	26715	5	QPSK	12	6	21.60	0-1	1
	816.5	26715	5	QPSK	12	13	21.50	0-1	1
	816.5	26715	5	QPSK	25	0	21.59	0-1	1
	816.5	26715	5	16-QAM	1	0	22.10	0-1	1
	816.5	26715	5	16-QAM	1	12	22.05	0-1	1
	816.5	26715	5	16-QAM	1	24	22.29	0-1	1
	816.5	26715	5	16-QAM	12	0	20.81	0-2	2
	816.5	26715	5	16-QAM	12	6	20.58	0-2	2
Mid	816.5	26715	5	16-QAM	12	13	21.15	0-2	2
	816.5	26715	5	16-QAM	25	0	21.29	0-2	2
	831.5	26865	5	QPSK	1	0	22.76	0	0
	831.5	26865	5	QPSK	1	12	22.71	0	0
	831.5	26865	5	QPSK	1	24	22.88	0	0
	831.5	26865	5	QPSK	12	0	22.15	0-1	1
	831.5	26865	5	QPSK	12	6	22.10	0-1	1
	831.5	26865	5	QPSK	12	13	21.82	0-1	1
	831.5	26865	5	QPSK	25	0	21.69	0-1	1
	831.5	26865	5	16-QAM	1	0	21.93	0-1	1
	831.5	26865	5	16-QAM	1	12	21.89	0-1	1
	831.5	26865	5	16-QAM	1	24	22.15	0-1	1
High	831.5	26865	5	16-QAM	12	0	20.64	0-2	2
	831.5	26865	5	16-QAM	12	6	20.61	0-2	2
	831.5	26865	5	16-QAM	12	13	20.50	0-2	2
	831.5	26865	5	16-QAM	25	0	20.56	0-2	2
	846.5	27015	5	QPSK	1	0	23.03	0	0
	846.5	27015	5	QPSK	1	12	23.00	0	0
	846.5	27015	5	QPSK	1	24	22.68	0	0
	846.5	27015	5	QPSK	12	0	21.78	0-1	1
	846.5	27015	5	QPSK	12	6	21.67	0-1	1
	846.5	27015	5	QPSK	12	13	21.60	0-1	1
	846.5	27015	5	QPSK	25	0	21.62	0-1	1
	846.5	27015	5	16-QAM	1	0	22.35	0-1	1
	846.5	27015	5	16-QAM	1	12	22.19	0-1	1
	846.5	27015	5	16-QAM	1	24	21.78	0-1	1
	846.5	27015	5	16-QAM	12	0	20.90	0-2	2
	846.5	27015	5	16-QAM	12	6	20.81	0-2	2
	846.5	27015	5	16-QAM	12	13	20.65	0-2	2
	846.5	27015	5	16-QAM	25	0	20.69	0-2	2

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Table 9-7
LTE Band 26 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	22.72	0	0
	815.5	26705	3	QPSK	1	7	22.75	0	0
	815.5	26705	3	QPSK	1	14	22.99	0	0
	815.5	26705	3	QPSK	8	0	22.01	0-1	1
	815.5	26705	3	QPSK	8	4	21.94	0-1	1
	815.5	26705	3	QPSK	8	7	21.87	0-1	1
	815.5	26705	3	QPSK	15	0	21.79	0-1	1
	815.5	26705	3	16-QAM	1	0	22.16	0-1	1
	815.5	26705	3	16-QAM	1	7	22.10	0-1	1
	815.5	26705	3	16-QAM	1	14	22.30	0-1	1
	815.5	26705	3	16-QAM	8	0	21.09	0-2	2
	815.5	26705	3	16-QAM	8	4	21.00	0-2	2
Mid	815.5	26705	3	16-QAM	8	7	20.93	0-2	2
	815.5	26705	3	16-QAM	15	0	21.05	0-2	2
	831.5	26865	3	QPSK	1	0	22.79	0	0
	831.5	26865	3	QPSK	1	7	22.75	0	0
	831.5	26865	3	QPSK	1	14	23.09	0	0
	831.5	26865	3	QPSK	8	0	22.04	0-1	1
	831.5	26865	3	QPSK	8	4	21.95	0-1	1
	831.5	26865	3	QPSK	8	7	21.81	0-1	1
	831.5	26865	3	QPSK	15	0	21.93	0-1	1
	831.5	26865	3	16-QAM	1	0	22.37	0-1	1
	831.5	26865	3	16-QAM	1	7	22.35	0-1	1
	831.5	26865	3	16-QAM	1	14	22.50	0-1	1
High	831.5	26865	3	16-QAM	8	0	20.82	0-2	2
	831.5	26865	3	16-QAM	8	4	20.72	0-2	2
	831.5	26865	3	16-QAM	8	7	20.57	0-2	2
	831.5	26865	3	16-QAM	15	0	20.80	0-2	2
	847.5	27025	3	QPSK	1	0	23.11	0	0
	847.5	27025	3	QPSK	1	7	23.00	0	0
	847.5	27025	3	QPSK	1	14	22.69	0	0
	847.5	27025	3	QPSK	8	0	21.51	0-1	1
	847.5	27025	3	QPSK	8	4	21.52	0-1	1
	847.5	27025	3	QPSK	8	7	21.53	0-1	1
	847.5	27025	3	QPSK	15	0	21.54	0-1	1
	847.5	27025	3	16-QAM	1	0	22.50	0-1	1
	847.5	27025	3	16-QAM	1	7	22.50	0-1	1
	847.5	27025	3	16-QAM	1	14	22.27	0-1	1
	847.5	27025	3	16-QAM	8	0	20.51	0-2	2
	847.5	27025	3	16-QAM	8	4	20.52	0-2	2
	847.5	27025	3	16-QAM	8	7	20.53	0-2	2
	847.5	27025	3	16-QAM	15	0	20.58	0-2	2

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Table 9-8
LTE Band 26 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	22.60	0	0
	814.7	26697	1.4	QPSK	1	2	22.52	0	0
	814.7	26697	1.4	QPSK	1	5	22.63	0	0
	814.7	26697	1.4	QPSK	3	0	22.56	0	0
	814.7	26697	1.4	QPSK	3	2	22.63	0	0
	814.7	26697	1.4	QPSK	3	3	22.67	0	0
	814.7	26697	1.4	QPSK	6	0	21.60	0-1	1
	814.7	26697	1.4	16-QAM	1	0	21.85	0-1	1
	814.7	26697	1.4	16-QAM	1	2	21.61	0-1	1
	814.7	26697	1.4	16-QAM	1	5	21.75	0-1	1
	814.7	26697	1.4	16-QAM	3	0	21.62	0-1	1
	814.7	26697	1.4	16-QAM	3	2	21.79	0-1	1
Mid	831.5	26865	1.4	QPSK	1	0	22.53	0	0
	831.5	26865	1.4	QPSK	1	2	22.62	0	0
	831.5	26865	1.4	QPSK	1	5	22.68	0	0
	831.5	26865	1.4	QPSK	3	0	22.61	0	0
	831.5	26865	1.4	QPSK	3	2	22.73	0	0
	831.5	26865	1.4	QPSK	3	3	22.68	0	0
	831.5	26865	1.4	QPSK	6	0	21.75	0-1	1
	831.5	26865	1.4	16-QAM	1	0	21.51	0-1	1
	831.5	26865	1.4	16-QAM	1	2	21.52	0-1	1
	831.5	26865	1.4	16-QAM	1	5	21.56	0-1	1
	831.5	26865	1.4	16-QAM	3	0	21.66	0-1	1
	831.5	26865	1.4	16-QAM	3	2	21.75	0-1	1
High	848.3	27033	1.4	QPSK	1	0	22.70	0	0
	848.3	27033	1.4	QPSK	1	2	22.70	0	0
	848.3	27033	1.4	QPSK	1	5	22.52	0	0
	848.3	27033	1.4	QPSK	3	0	22.58	0	0
	848.3	27033	1.4	QPSK	3	2	22.50	0	0
	848.3	27033	1.4	QPSK	3	3	22.52	0	0
	848.3	27033	1.4	QPSK	6	0	21.61	0-1	1
	848.3	27033	1.4	16-QAM	1	0	21.51	0-1	1
	848.3	27033	1.4	16-QAM	1	2	21.55	0-1	1
	848.3	27033	1.4	16-QAM	1	5	21.56	0-1	1
	848.3	27033	1.4	16-QAM	3	0	21.57	0-1	1
	848.3	27033	1.4	16-QAM	3	2	21.61	0-1	1
	848.3	27033	1.4	16-QAM	3	3	21.54	0-1	1
	848.3	27033	1.4	16-QAM	6	0	20.60	0-2	2

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9.4.2

LTE Band 25 (PCS)

Table 9-9
LTE Band 25 (PCS) Maximum 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	23.33	0	0
	1860	26140	20	QPSK	1	50	22.70	0	0
	1860	26140	20	QPSK	1	99	23.15	0	0
	1860	26140	20	QPSK	50	0	21.86	0-1	1
	1860	26140	20	QPSK	50	25	21.97	0-1	1
	1860	26140	20	QPSK	50	50	22.08	0-1	1
	1860	26140	20	QPSK	100	0	21.95	0-1	1
	1860	26140	20	16QAM	1	0	22.40	0-1	1
	1860	26140	20	16QAM	1	50	22.08	0-1	1
	1860	26140	20	16QAM	1	99	22.36	0-1	1
	1860	26140	20	16QAM	50	0	20.57	0-2	2
	1860	26140	20	16QAM	50	25	20.69	0-2	2
	1860	26140	20	16QAM	50	50	20.71	0-2	2
Mid	1860	26140	20	16QAM	100	0	20.70	0-2	2
	1882.5	26365	20	QPSK	1	0	23.38	0	0
	1882.5	26365	20	QPSK	1	50	22.78	0	0
	1882.5	26365	20	QPSK	1	99	23.07	0	0
	1882.5	26365	20	QPSK	50	0	21.93	0-1	1
	1882.5	26365	20	QPSK	50	25	21.77	0-1	1
	1882.5	26365	20	QPSK	50	50	21.76	0-1	1
	1882.5	26365	20	QPSK	100	0	21.73	0-1	1
	1882.5	26365	20	16QAM	1	0	22.16	0-1	1
	1882.5	26365	20	16QAM	1	50	22.02	0-1	1
	1882.5	26365	20	16QAM	1	99	22.12	0-1	1
	1882.5	26365	20	16QAM	50	0	20.91	0-2	2
	1882.5	26365	20	16QAM	50	25	20.71	0-2	2
High	1882.5	26365	20	16QAM	50	50	20.78	0-2	2
	1882.5	26365	20	16QAM	100	0	20.75	0-2	2
	1905	26590	20	QPSK	1	0	23.11	0	0
	1905	26590	20	QPSK	1	50	22.70	0	0
	1905	26590	20	QPSK	1	99	22.62	0	0
	1905	26590	20	QPSK	50	0	21.82	0-1	1
	1905	26590	20	QPSK	50	25	22.01	0-1	1
	1905	26590	20	QPSK	50	50	21.52	0-1	1
	1905	26590	20	QPSK	100	0	21.89	0-1	1
	1905	26590	20	16QAM	1	0	22.48	0-1	1
	1905	26590	20	16QAM	1	50	21.98	0-1	1
	1905	26590	20	16QAM	1	99	21.96	0-1	1
	1905	26590	20	16QAM	50	0	20.94	0-2	2
	1905	26590	20	16QAM	50	25	21.06	0-2	2
	1905	26590	20	16QAM	50	50	20.56	0-2	2
	1905	26590	20	16QAM	100	0	21.05	0-2	2

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Table 9-10
LTE Band 25 (PCS) Maximum 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	23.18	0	0
	1857.5	26115	15	QPSK	1	36	22.70	0	0
	1857.5	26115	15	QPSK	1	74	22.63	0	0
	1857.5	26115	15	QPSK	36	0	22.08	0-1	1
	1857.5	26115	15	QPSK	36	18	21.89	0-1	1
	1857.5	26115	15	QPSK	36	37	21.85	0-1	1
	1857.5	26115	15	QPSK	75	0	21.84	0-1	1
	1857.5	26115	15	16QAM	1	0	22.50	0-1	1
	1857.5	26115	15	16QAM	1	36	22.00	0-1	1
	1857.5	26115	15	16QAM	1	74	21.93	0-1	1
	1857.5	26115	15	16QAM	36	0	21.17	0-2	2
	1857.5	26115	15	16QAM	36	18	20.89	0-2	2
	1857.5	26115	15	16QAM	36	37	20.85	0-2	2
	1857.5	26115	15	16QAM	75	0	20.83	0-2	2
Mid	1882.5	26365	15	QPSK	1	0	23.14	0	0
	1882.5	26365	15	QPSK	1	36	23.50	0	0
	1882.5	26365	15	QPSK	1	74	22.83	0	0
	1882.5	26365	15	QPSK	36	0	21.83	0-1	1
	1882.5	26365	15	QPSK	36	18	21.56	0-1	1
	1882.5	26365	15	QPSK	36	37	21.54	0-1	1
	1882.5	26365	15	QPSK	75	0	21.55	0-1	1
	1882.5	26365	15	16QAM	1	0	22.48	0-1	1
	1882.5	26365	15	16QAM	1	36	21.80	0-1	1
	1882.5	26365	15	16QAM	1	74	21.65	0-1	1
	1882.5	26365	15	16QAM	36	0	21.00	0-2	2
	1882.5	26365	15	16QAM	36	18	20.86	0-2	2
	1882.5	26365	15	16QAM	36	37	20.50	0-2	2
	1882.5	26365	15	16QAM	75	0	20.50	0-2	2
High	1907.5	26615	15	QPSK	1	0	23.39	0	0
	1907.5	26615	15	QPSK	1	36	22.93	0	0
	1907.5	26615	15	QPSK	1	74	22.68	0	0
	1907.5	26615	15	QPSK	36	0	21.79	0-1	1
	1907.5	26615	15	QPSK	36	18	21.93	0-1	1
	1907.5	26615	15	QPSK	36	37	22.09	0-1	1
	1907.5	26615	15	QPSK	75	0	22.11	0-1	1
	1907.5	26615	15	16QAM	1	0	22.50	0-1	1
	1907.5	26615	15	16QAM	1	36	22.00	0-1	1
	1907.5	26615	15	16QAM	1	74	21.81	0-1	1
	1907.5	26615	15	16QAM	36	0	21.23	0-2	2
	1907.5	26615	15	16QAM	36	18	21.16	0-2	2
	1907.5	26615	15	16QAM	36	37	20.62	0-2	2
	1907.5	26615	15	16QAM	75	0	20.68	0-2	2

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Table 9-11
LTE Band 25 (PCS) Maximum 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	23.50	0	0
	1855	26090	10	QPSK	1	25	23.43	0	0
	1855	26090	10	QPSK	1	49	23.44	0	0
	1855	26090	10	QPSK	25	0	22.50	0-1	1
	1855	26090	10	QPSK	25	12	22.49	0-1	1
	1855	26090	10	QPSK	25	25	22.46	0-1	1
	1855	26090	10	QPSK	50	0	22.48	0-1	1
	1855	26090	10	16QAM	1	0	22.50	0-1	1
	1855	26090	10	16QAM	1	25	22.49	0-1	1
	1855	26090	10	16QAM	1	49	22.47	0-1	1
	1855	26090	10	16QAM	25	0	21.49	0-2	2
	1855	26090	10	16QAM	25	12	21.50	0-2	2
Mid	1882.5	26365	10	QPSK	1	0	23.50	0	0
	1882.5	26365	10	QPSK	1	25	23.34	0	0
	1882.5	26365	10	QPSK	1	49	23.50	0	0
	1882.5	26365	10	QPSK	25	0	22.49	0-1	1
	1882.5	26365	10	QPSK	25	12	22.50	0-1	1
	1882.5	26365	10	QPSK	25	25	22.49	0-1	1
	1882.5	26365	10	QPSK	50	0	22.48	0-1	1
	1882.5	26365	10	16QAM	1	0	22.50	0-1	1
	1882.5	26365	10	16QAM	1	25	22.40	0-1	1
	1882.5	26365	10	16QAM	1	49	22.48	0-1	1
	1882.5	26365	10	16QAM	25	0	21.49	0-2	2
	1882.5	26365	10	16QAM	25	12	21.50	0-2	2
High	1910	26640	10	QPSK	1	0	23.41	0	0
	1910	26640	10	QPSK	1	25	23.33	0	0
	1910	26640	10	QPSK	1	49	23.23	0	0
	1910	26640	10	QPSK	25	0	22.48	0-1	1
	1910	26640	10	QPSK	25	12	22.50	0-1	1
	1910	26640	10	QPSK	25	25	22.50	0-1	1
	1910	26640	10	QPSK	50	0	22.50	0-1	1
	1910	26640	10	16QAM	1	0	22.50	0-1	1
	1910	26640	10	16QAM	1	25	22.46	0-1	1
	1910	26640	10	16QAM	1	49	22.42	0-1	1
	1910	26640	10	16QAM	25	0	21.50	0-2	2
	1910	26640	10	16QAM	25	12	21.45	0-2	2
	1910	26640	10	16QAM	25	25	21.36	0-2	2
	1910	26640	10	16QAM	50	0	21.43	0-2	2

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Table 9-12
LTE Band 25 (PCS) Maximum 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	23.50	0	0
	1852.5	26065	5	QPSK	1	12	23.47	0	0
	1852.5	26065	5	QPSK	1	24	23.37	0	0
	1852.5	26065	5	QPSK	12	0	22.50	0-1	1
	1852.5	26065	5	QPSK	12	6	22.50	0-1	1
	1852.5	26065	5	QPSK	12	13	22.46	0-1	1
	1852.5	26065	5	QPSK	25	0	22.49	0-1	1
	1852.5	26065	5	16-QAM	1	0	22.47	0-1	1
	1852.5	26065	5	16-QAM	1	12	22.49	0-1	1
	1852.5	26065	5	16-QAM	1	24	22.50	0-1	1
	1852.5	26065	5	16-QAM	12	0	21.46	0-2	2
	1852.5	26065	5	16-QAM	12	6	21.50	0-2	2
Mid	1852.5	26065	5	16-QAM	12	13	21.49	0-2	2
	1852.5	26065	5	16-QAM	25	0	21.50	0-2	2
	1882.5	26365	5	QPSK	1	0	23.47	0	0
	1882.5	26365	5	QPSK	1	12	23.47	0	0
	1882.5	26365	5	QPSK	1	24	23.48	0	0
	1882.5	26365	5	QPSK	12	0	22.50	0-1	1
	1882.5	26365	5	QPSK	12	6	22.47	0-1	1
	1882.5	26365	5	QPSK	12	13	22.50	0-1	1
	1882.5	26365	5	QPSK	25	0	22.50	0-1	1
	1882.5	26365	5	16-QAM	1	0	22.45	0-1	1
	1882.5	26365	5	16-QAM	1	12	22.46	0-1	1
	1882.5	26365	5	16-QAM	1	24	22.49	0-1	1
High	1882.5	26365	5	16-QAM	12	0	21.49	0-2	2
	1882.5	26365	5	16-QAM	12	6	21.50	0-2	2
	1882.5	26365	5	16-QAM	12	13	21.45	0-2	2
	1882.5	26365	5	16-QAM	25	0	21.48	0-2	2
	1912.5	26665	5	QPSK	1	0	23.46	0	0
	1912.5	26665	5	QPSK	1	12	23.50	0	0
	1912.5	26665	5	QPSK	1	24	23.42	0	0
	1912.5	26665	5	QPSK	12	0	22.30	0-1	1
	1912.5	26665	5	QPSK	12	6	22.12	0-1	1
	1912.5	26665	5	QPSK	12	13	22.34	0-1	1
	1912.5	26665	5	QPSK	25	0	22.20	0-1	1
	1912.5	26665	5	16-QAM	1	0	22.50	0-1	1
	1912.5	26665	5	16-QAM	1	12	22.48	0-1	1
	1912.5	26665	5	16-QAM	1	24	22.45	0-1	1
	1912.5	26665	5	16-QAM	12	0	21.38	0-2	2
	1912.5	26665	5	16-QAM	12	6	21.42	0-2	2
	1912.5	26665	5	16-QAM	12	13	21.47	0-2	2
	1912.5	26665	5	16-QAM	25	0	21.50	0-2	2

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Table 9-13
LTE Band 25 (PCS) Maximum 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	23.50	0	0
	1851.5	26055	3	QPSK	1	7	23.49	0	0
	1851.5	26055	3	QPSK	1	14	23.44	0	0
	1851.5	26055	3	QPSK	8	0	22.50	0-1	1
	1851.5	26055	3	QPSK	8	4	22.46	0-1	1
	1851.5	26055	3	QPSK	8	7	22.50	0-1	1
	1851.5	26055	3	QPSK	15	0	22.50	0-1	1
	1851.5	26055	3	16-QAM	1	0	22.50	0-1	1
	1851.5	26055	3	16-QAM	1	7	22.46	0-1	1
	1851.5	26055	3	16-QAM	1	14	22.46	0-1	1
	1851.5	26055	3	16-QAM	8	0	21.50	0-2	2
	1851.5	26055	3	16-QAM	8	4	21.49	0-2	2
Mid	1851.5	26055	3	16-QAM	8	7	21.47	0-2	2
	1851.5	26055	3	16-QAM	15	0	21.50	0-2	2
	1882.5	26365	3	QPSK	1	0	23.44	0	0
	1882.5	26365	3	QPSK	1	7	23.41	0	0
	1882.5	26365	3	QPSK	1	14	23.48	0	0
	1882.5	26365	3	QPSK	8	0	22.33	0-1	1
	1882.5	26365	3	QPSK	8	4	22.34	0-1	1
	1882.5	26365	3	QPSK	8	7	22.32	0-1	1
	1882.5	26365	3	QPSK	15	0	22.33	0-1	1
	1882.5	26365	3	16-QAM	1	0	22.47	0-1	1
	1882.5	26365	3	16-QAM	1	7	22.50	0-1	1
	1882.5	26365	3	16-QAM	1	14	22.49	0-1	1
High	1882.5	26365	3	16-QAM	8	0	21.38	0-2	2
	1882.5	26365	3	16-QAM	8	4	21.37	0-2	2
	1882.5	26365	3	16-QAM	8	7	21.34	0-2	2
	1882.5	26365	3	16-QAM	15	0	21.48	0-2	2
	1913.5	26675	3	QPSK	1	0	23.46	0	0
	1913.5	26675	3	QPSK	1	7	23.50	0	0
	1913.5	26675	3	QPSK	1	14	23.05	0	0
	1913.5	26675	3	QPSK	8	0	21.90	0-1	1
	1913.5	26675	3	QPSK	8	4	21.94	0-1	1
	1913.5	26675	3	QPSK	8	7	22.19	0-1	1
	1913.5	26675	3	QPSK	15	0	22.04	0-1	1
	1913.5	26675	3	16-QAM	1	0	22.50	0-1	1
	1913.5	26675	3	16-QAM	1	7	22.46	0-1	1
	1913.5	26675	3	16-QAM	1	14	22.41	0-1	1
	1913.5	26675	3	16-QAM	8	0	21.50	0-2	2
	1913.5	26675	3	16-QAM	8	4	21.50	0-2	2
	1913.5	26675	3	16-QAM	8	7	21.00	0-2	2
	1913.5	26675	3	16-QAM	15	0	21.50	0-2	2

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Table 9-14
LTE Band 25 (PCS) Maximum 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	23.48	0	0
	1850.7	26047	1.4	QPSK	1	2	23.47	0	0
	1850.7	26047	1.4	QPSK	1	5	23.50	0	0
	1850.7	26047	1.4	QPSK	3	0	23.49	0	0
	1850.7	26047	1.4	QPSK	3	2	23.50	0	0
	1850.7	26047	1.4	QPSK	3	3	23.49	0	0
	1850.7	26047	1.4	QPSK	6	0	22.37	0-1	1
	1850.7	26047	1.4	16-QAM	1	0	22.50	0-1	1
	1850.7	26047	1.4	16-QAM	1	2	22.43	0-1	1
	1850.7	26047	1.4	16-QAM	1	5	22.48	0-1	1
	1850.7	26047	1.4	16-QAM	3	0	22.40	0-1	1
	1850.7	26047	1.4	16-QAM	3	2	22.48	0-1	1
Mid	1850.7	26047	1.4	16-QAM	3	3	22.49	0-1	1
	1850.7	26047	1.4	16-QAM	6	0	21.40	0-2	2
	1882.5	26365	1.4	QPSK	1	0	23.50	0	0
	1882.5	26365	1.4	QPSK	1	2	23.41	0	0
	1882.5	26365	1.4	QPSK	1	5	23.49	0	0
	1882.5	26365	1.4	QPSK	3	0	23.37	0	0
	1882.5	26365	1.4	QPSK	3	2	23.39	0	0
	1882.5	26365	1.4	QPSK	3	3	23.40	0	0
	1882.5	26365	1.4	QPSK	6	0	22.31	0-1	1
	1882.5	26365	1.4	16-QAM	1	0	22.50	0-1	1
	1882.5	26365	1.4	16-QAM	1	2	22.48	0-1	1
	1882.5	26365	1.4	16-QAM	1	5	22.40	0-1	1
High	1882.5	26365	1.4	16-QAM	3	0	22.42	0-1	1
	1882.5	26365	1.4	16-QAM	3	2	22.49	0-1	1
	1882.5	26365	1.4	16-QAM	3	3	22.46	0-1	1
	1882.5	26365	1.4	16-QAM	6	0	21.37	0-2	2
	1914.3	26683	1.4	QPSK	1	0	23.44	0	0
	1914.3	26683	1.4	QPSK	1	2	23.27	0	0
	1914.3	26683	1.4	QPSK	1	5	23.20	0	0
	1914.3	26683	1.4	QPSK	3	0	23.19	0	0
	1914.3	26683	1.4	QPSK	3	2	23.12	0	0
	1914.3	26683	1.4	QPSK	3	3	22.88	0	0
	1914.3	26683	1.4	QPSK	6	0	22.48	0-1	1
	1914.3	26683	1.4	16-QAM	1	0	22.30	0-1	1
	1914.3	26683	1.4	16-QAM	1	2	21.93	0-1	1
	1914.3	26683	1.4	16-QAM	1	5	22.26	0-1	1
	1914.3	26683	1.4	16-QAM	3	0	22.09	0-1	1
	1914.3	26683	1.4	16-QAM	3	2	22.24	0-1	1
	1914.3	26683	1.4	16-QAM	3	3	22.11	0-1	1
	1914.3	26683	1.4	16-QAM	6	0	21.14	0-2	2
	1914.3	26683	1.4	16-QAM	6	0	21.14	0-2	2

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Table 9-15
LTE Band 25 (PCS) Reduced 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	20.74	0	0
	1860	26140	20	QPSK	1	50	20.84	0	0
	1860	26140	20	QPSK	1	99	20.71	0	0
	1860	26140	20	QPSK	50	0	20.70	0-1	0
	1860	26140	20	QPSK	50	25	20.78	0-1	0
	1860	26140	20	QPSK	50	50	20.77	0-1	0
	1860	26140	20	QPSK	100	0	20.73	0-1	0
	1860	26140	20	16QAM	1	0	21.17	0-1	0
	1860	26140	20	16QAM	1	50	20.98	0-1	0
	1860	26140	20	16QAM	1	99	20.79	0-1	0
	1860	26140	20	16QAM	50	0	20.84	0-2	0
	1860	26140	20	16QAM	50	25	20.89	0-2	0
Mid	1860	26140	20	16QAM	50	50	20.86	0-2	0
	1860	26140	20	16QAM	100	0	20.77	0-2	0
	1882.5	26365	20	QPSK	1	0	20.72	0	0
	1882.5	26365	20	QPSK	1	50	21.04	0	0
	1882.5	26365	20	QPSK	1	99	20.67	0	0
	1882.5	26365	20	QPSK	50	0	20.64	0-1	0
	1882.5	26365	20	QPSK	50	25	20.80	0-1	0
	1882.5	26365	20	QPSK	50	50	20.62	0-1	0
	1882.5	26365	20	QPSK	100	0	20.73	0-1	0
	1882.5	26365	20	16QAM	1	0	20.71	0-1	0
	1882.5	26365	20	16QAM	1	50	21.06	0-1	0
	1882.5	26365	20	16QAM	1	99	21.16	0-1	0
	1882.5	26365	20	16QAM	50	0	20.52	0-2	0
	1882.5	26365	20	16QAM	50	25	20.58	0-2	0
High	1882.5	26365	20	16QAM	50	50	20.76	0-2	0
	1882.5	26365	20	16QAM	100	0	20.51	0-2	0
	1905	26590	20	QPSK	1	0	20.51	0	0
	1905	26590	20	QPSK	1	50	20.69	0	0
	1905	26590	20	QPSK	1	99	20.51	0	0
	1905	26590	20	QPSK	50	0	20.52	0-1	0
	1905	26590	20	QPSK	50	25	20.63	0-1	0
	1905	26590	20	QPSK	50	50	20.50	0-1	0
	1905	26590	20	QPSK	100	0	20.65	0-1	0
	1905	26590	20	16QAM	1	0	20.88	0-1	0
	1905	26590	20	16QAM	1	50	20.96	0-1	0
	1905	26590	20	16QAM	1	99	20.73	0-1	0
	1905	26590	20	16QAM	50	0	20.53	0-2	0
	1905	26590	20	16QAM	50	25	20.52	0-2	0
	1905	26590	20	16QAM	50	50	20.57	0-2	0
	1905	26590	20	16QAM	100	0	20.58	0-2	0

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Table 9-16
LTE Band 25 (PCS) Reduced 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	21.18	0	0
	1857.5	26115	15	QPSK	1	36	20.97	0	0
	1857.5	26115	15	QPSK	1	74	21.05	0	0
	1857.5	26115	15	QPSK	36	0	20.91	0-1	0
	1857.5	26115	15	QPSK	36	18	20.91	0-1	0
	1857.5	26115	15	QPSK	36	37	20.92	0-1	0
	1857.5	26115	15	QPSK	75	0	20.86	0-1	0
	1857.5	26115	15	16QAM	1	0	21.20	0-1	0
	1857.5	26115	15	16QAM	1	36	21.07	0-1	0
	1857.5	26115	15	16QAM	1	74	21.14	0-1	0
	1857.5	26115	15	16QAM	36	0	21.00	0-2	0
	1857.5	26115	15	16QAM	36	18	21.04	0-2	0
	1857.5	26115	15	16QAM	36	37	21.07	0-2	0
Mid	1857.5	26115	15	16QAM	75	0	20.93	0-2	0
	1882.5	26365	15	QPSK	1	0	20.96	0	0
	1882.5	26365	15	QPSK	1	36	20.85	0	0
	1882.5	26365	15	QPSK	1	74	20.80	0	0
	1882.5	26365	15	QPSK	36	0	20.89	0-1	0
	1882.5	26365	15	QPSK	36	18	21.01	0-1	0
	1882.5	26365	15	QPSK	36	37	21.15	0-1	0
	1882.5	26365	15	QPSK	75	0	20.91	0-1	0
	1882.5	26365	15	16QAM	1	0	21.05	0-1	0
	1882.5	26365	15	16QAM	1	36	21.07	0-1	0
	1882.5	26365	15	16QAM	1	74	21.09	0-1	0
	1882.5	26365	15	16QAM	36	0	20.62	0-2	0
	1882.5	26365	15	16QAM	36	18	20.65	0-2	0
	1882.5	26365	15	16QAM	36	37	20.80	0-2	0
High	1882.5	26365	15	16QAM	75	0	20.72	0-2	0
	1907.5	26615	15	QPSK	1	0	20.74	0	0
	1907.5	26615	15	QPSK	1	36	20.79	0	0
	1907.5	26615	15	QPSK	1	74	20.60	0	0
	1907.5	26615	15	QPSK	36	0	20.65	0-1	0
	1907.5	26615	15	QPSK	36	18	20.83	0-1	0
	1907.5	26615	15	QPSK	36	37	20.77	0-1	0
	1907.5	26615	15	QPSK	75	0	20.74	0-1	0
	1907.5	26615	15	16QAM	1	0	20.70	0-1	0
	1907.5	26615	15	16QAM	1	36	20.74	0-1	0
	1907.5	26615	15	16QAM	1	74	20.81	0-1	0
	1907.5	26615	15	16QAM	36	0	20.56	0-2	0
	1907.5	26615	15	16QAM	36	18	20.57	0-2	0
	1907.5	26615	15	16QAM	36	37	20.73	0-2	0
	1907.5	26615	15	16QAM	75	0	20.66	0-2	0

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Table 9-17
LTE Band 25 (PCS) Reduced 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	20.66	0	0
	1855	26090	10	QPSK	1	25	20.61	0	0
	1855	26090	10	QPSK	1	49	20.50	0	0
	1855	26090	10	QPSK	25	0	20.80	0-1	0
	1855	26090	10	QPSK	25	12	20.89	0-1	0
	1855	26090	10	QPSK	25	25	20.74	0-1	0
	1855	26090	10	QPSK	50	0	20.77	0-1	0
	1855	26090	10	16QAM	1	0	21.00	0-1	0
	1855	26090	10	16QAM	1	25	20.94	0-1	0
	1855	26090	10	16QAM	1	49	20.72	0-1	0
	1855	26090	10	16QAM	25	0	20.80	0-2	0
	1855	26090	10	16QAM	25	12	20.88	0-2	0
	1855	26090	10	16QAM	25	25	20.76	0-2	0
	1855	26090	10	16QAM	50	0	20.87	0-2	0
Mid	1882.5	26365	10	QPSK	1	0	20.52	0	0
	1882.5	26365	10	QPSK	1	25	20.82	0	0
	1882.5	26365	10	QPSK	1	49	20.50	0	0
	1882.5	26365	10	QPSK	25	0	20.62	0-1	0
	1882.5	26365	10	QPSK	25	12	20.76	0-1	0
	1882.5	26365	10	QPSK	25	25	20.77	0-1	0
	1882.5	26365	10	QPSK	50	0	20.63	0-1	0
	1882.5	26365	10	16QAM	1	0	20.51	0-1	0
	1882.5	26365	10	16QAM	1	25	20.68	0-1	0
	1882.5	26365	10	16QAM	1	49	20.82	0-1	0
	1882.5	26365	10	16QAM	25	0	20.56	0-2	0
	1882.5	26365	10	16QAM	25	12	20.52	0-2	0
	1882.5	26365	10	16QAM	25	25	20.58	0-2	0
	1882.5	26365	10	16QAM	50	0	20.60	0-2	0
High	1910	26640	10	QPSK	1	0	20.50	0	0
	1910	26640	10	QPSK	1	25	20.52	0	0
	1910	26640	10	QPSK	1	49	20.53	0	0
	1910	26640	10	QPSK	25	0	20.59	0-1	0
	1910	26640	10	QPSK	25	12	20.62	0-1	0
	1910	26640	10	QPSK	25	25	20.50	0-1	0
	1910	26640	10	QPSK	50	0	20.51	0-1	0
	1910	26640	10	16QAM	1	0	20.52	0-1	0
	1910	26640	10	16QAM	1	25	20.54	0-1	0
	1910	26640	10	16QAM	1	49	20.55	0-1	0
	1910	26640	10	16QAM	25	0	20.60	0-2	0
	1910	26640	10	16QAM	25	12	20.71	0-2	0
	1910	26640	10	16QAM	25	25	20.61	0-2	0
	1910	26640	10	16QAM	50	0	20.63	0-2	0

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Table 9-18
LTE Band 25 (PCS) Reduced 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	21.08	0	0
	1852.5	26065	5	QPSK	1	12	21.10	0	0
	1852.5	26065	5	QPSK	1	24	20.85	0	0
	1852.5	26065	5	QPSK	12	0	20.92	0-1	0
	1852.5	26065	5	QPSK	12	6	20.97	0-1	0
	1852.5	26065	5	QPSK	12	13	20.79	0-1	0
	1852.5	26065	5	QPSK	25	0	20.81	0-1	0
	1852.5	26065	5	16-QAM	1	0	21.18	0-1	0
	1852.5	26065	5	16-QAM	1	12	21.15	0-1	0
	1852.5	26065	5	16-QAM	1	24	21.27	0-1	0
	1852.5	26065	5	16-QAM	12	0	21.00	0-2	0
	1852.5	26065	5	16-QAM	12	6	21.06	0-2	0
	1852.5	26065	5	16-QAM	12	13	20.90	0-2	0
Mid	1852.5	26065	5	16-QAM	25	0	20.84	0-2	0
	1882.5	26365	5	QPSK	1	0	20.85	0	0
	1882.5	26365	5	QPSK	1	12	21.04	0	0
	1882.5	26365	5	QPSK	1	24	20.96	0	0
	1882.5	26365	5	QPSK	12	0	20.93	0-1	0
	1882.5	26365	5	QPSK	12	6	20.98	0-1	0
	1882.5	26365	5	QPSK	12	13	20.91	0-1	0
	1882.5	26365	5	QPSK	25	0	21.01	0-1	0
	1882.5	26365	5	16-QAM	1	0	20.58	0-1	0
	1882.5	26365	5	16-QAM	1	12	20.72	0-1	0
	1882.5	26365	5	16-QAM	1	24	20.75	0-1	0
	1882.5	26365	5	16-QAM	12	0	20.60	0-2	0
	1882.5	26365	5	16-QAM	12	6	20.67	0-2	0
	1882.5	26365	5	16-QAM	12	13	20.66	0-2	0
	1882.5	26365	5	16-QAM	25	0	20.64	0-2	0
High	1912.5	26665	5	QPSK	1	0	20.60	0	0
	1912.5	26665	5	QPSK	1	12	20.65	0	0
	1912.5	26665	5	QPSK	1	24	20.51	0	0
	1912.5	26665	5	QPSK	12	0	20.62	0-1	0
	1912.5	26665	5	QPSK	12	6	20.71	0-1	0
	1912.5	26665	5	QPSK	12	13	20.53	0-1	0
	1912.5	26665	5	QPSK	25	0	20.50	0-1	0
	1912.5	26665	5	16-QAM	1	0	20.72	0-1	0
	1912.5	26665	5	16-QAM	1	12	20.83	0-1	0
	1912.5	26665	5	16-QAM	1	24	20.52	0-1	0
	1912.5	26665	5	16-QAM	12	0	20.68	0-2	0
	1912.5	26665	5	16-QAM	12	6	20.77	0-2	0
	1912.5	26665	5	16-QAM	12	13	20.56	0-2	0
	1912.5	26665	5	16-QAM	25	0	20.51	0-2	0

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Table 9-19
LTE Band 25 (PCS) Reduced 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	21.20	0	0
	1851.5	26055	3	QPSK	1	7	21.15	0	0
	1851.5	26055	3	QPSK	1	14	21.08	0	0
	1851.5	26055	3	QPSK	8	0	21.23	0-1	0
	1851.5	26055	3	QPSK	8	4	21.14	0-1	0
	1851.5	26055	3	QPSK	8	7	21.11	0-1	0
	1851.5	26055	3	QPSK	15	0	21.14	0-1	0
	1851.5	26055	3	16-QAM	1	0	21.35	0-1	0
	1851.5	26055	3	16-QAM	1	7	21.29	0-1	0
	1851.5	26055	3	16-QAM	1	14	21.20	0-1	0
	1851.5	26055	3	16-QAM	8	0	21.23	0-2	0
	1851.5	26055	3	16-QAM	8	4	21.11	0-2	0
Mid	1851.5	26055	3	16-QAM	8	7	21.10	0-2	0
	1851.5	26055	3	16-QAM	15	0	21.14	0-2	0
	1882.5	26365	3	QPSK	1	0	20.91	0	0
	1882.5	26365	3	QPSK	1	7	20.98	0	0
	1882.5	26365	3	QPSK	1	14	20.85	0	0
	1882.5	26365	3	QPSK	8	0	20.80	0-1	0
	1882.5	26365	3	QPSK	8	4	20.82	0-1	0
	1882.5	26365	3	QPSK	8	7	20.76	0-1	0
	1882.5	26365	3	QPSK	15	0	20.73	0-1	0
	1882.5	26365	3	16-QAM	1	0	20.88	0-1	0
	1882.5	26365	3	16-QAM	1	7	21.03	0-1	0
	1882.5	26365	3	16-QAM	1	14	20.86	0-1	0
High	1882.5	26365	3	16-QAM	8	0	20.53	0-2	0
	1882.5	26365	3	16-QAM	8	4	20.56	0-2	0
	1882.5	26365	3	16-QAM	8	7	20.55	0-2	0
	1882.5	26365	3	16-QAM	15	0	20.67	0-2	0
	1913.5	26675	3	QPSK	1	0	20.72	0	0
	1913.5	26675	3	QPSK	1	7	20.64	0	0
	1913.5	26675	3	QPSK	1	14	20.51	0	0
	1913.5	26675	3	QPSK	8	0	20.59	0-1	0
	1913.5	26675	3	QPSK	8	4	20.52	0-1	0
	1913.5	26675	3	QPSK	8	7	20.53	0-1	0
	1913.5	26675	3	QPSK	15	0	20.50	0-1	0
	1913.5	26675	3	16-QAM	1	0	21.01	0-1	0
	1913.5	26675	3	16-QAM	1	7	20.93	0-1	0
	1913.5	26675	3	16-QAM	1	14	20.64	0-1	0
	1913.5	26675	3	16-QAM	8	0	20.60	0-2	0
	1913.5	26675	3	16-QAM	8	4	20.55	0-2	0
	1913.5	26675	3	16-QAM	8	7	20.52	0-2	0
	1913.5	26675	3	16-QAM	15	0	20.65	0-2	0

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Table 9-20
LTE Band 25 (PCS) Reduced 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	21.04	0	0
	1850.7	26047	1.4	QPSK	1	2	21.10	0	0
	1850.7	26047	1.4	QPSK	1	5	21.11	0	0
	1850.7	26047	1.4	QPSK	3	0	21.20	0	0
	1850.7	26047	1.4	QPSK	3	2	21.24	0	0
	1850.7	26047	1.4	QPSK	3	3	21.16	0	0
	1850.7	26047	1.4	QPSK	6	0	21.17	0-1	0
	1850.7	26047	1.4	16-QAM	1	0	21.32	0-1	0
	1850.7	26047	1.4	16-QAM	1	2	21.36	0-1	0
	1850.7	26047	1.4	16-QAM	1	5	21.19	0-1	0
	1850.7	26047	1.4	16-QAM	3	0	21.13	0-1	0
	1850.7	26047	1.4	16-QAM	3	2	21.12	0-1	0
	1850.7	26047	1.4	16-QAM	3	3	21.08	0-1	0
	1850.7	26047	1.4	16-QAM	6	0	21.20	0-2	0
Mid	1882.5	26365	1.4	QPSK	1	0	21.39	0	0
	1882.5	26365	1.4	QPSK	1	2	21.22	0	0
	1882.5	26365	1.4	QPSK	1	5	21.33	0	0
	1882.5	26365	1.4	QPSK	3	0	21.14	0	0
	1882.5	26365	1.4	QPSK	3	2	21.19	0	0
	1882.5	26365	1.4	QPSK	3	3	21.13	0	0
	1882.5	26365	1.4	QPSK	6	0	21.10	0-1	0
	1882.5	26365	1.4	16-QAM	1	0	21.00	0-1	0
	1882.5	26365	1.4	16-QAM	1	2	21.03	0-1	0
	1882.5	26365	1.4	16-QAM	1	5	21.01	0-1	0
	1882.5	26365	1.4	16-QAM	3	0	20.92	0-1	0
	1882.5	26365	1.4	16-QAM	3	2	21.02	0-1	0
	1882.5	26365	1.4	16-QAM	3	3	20.94	0-1	0
	1882.5	26365	1.4	16-QAM	6	0	20.87	0-2	0
High	1914.3	26683	1.4	QPSK	1	0	20.75	0	0
	1914.3	26683	1.4	QPSK	1	2	20.78	0	0
	1914.3	26683	1.4	QPSK	1	5	20.52	0	0
	1914.3	26683	1.4	QPSK	3	0	20.67	0	0
	1914.3	26683	1.4	QPSK	3	2	20.63	0	0
	1914.3	26683	1.4	QPSK	3	3	20.54	0	0
	1914.3	26683	1.4	QPSK	6	0	20.60	0-1	0
	1914.3	26683	1.4	16-QAM	1	0	20.84	0-1	0
	1914.3	26683	1.4	16-QAM	1	2	20.87	0-1	0
	1914.3	26683	1.4	16-QAM	1	5	20.69	0-1	0
	1914.3	26683	1.4	16-QAM	3	0	20.80	0-1	0
	1914.3	26683	1.4	16-QAM	3	2	20.78	0-1	0
	1914.3	26683	1.4	16-QAM	3	3	20.67	0-1	0
	1914.3	26683	1.4	16-QAM	6	0	20.61	0-2	0

9.4.3

LTE Band 41

Table 9-21
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	39750	20	QPSK	1	0	24.48	0	0
	2506	39750	20	QPSK	1	50	24.47	0	0
	2506	39750	20	QPSK	1	99	23.58	0	0
	2506	39750	20	QPSK	50	0	23.49	0-1	1
	2506	39750	20	QPSK	50	25	23.43	0-1	1
	2506	39750	20	QPSK	50	50	23.02	0-1	1
	2506	39750	20	QPSK	100	0	23.22	0-1	1
	2506	39750	20	16QAM	1	0	23.50	0-1	1
	2506	39750	20	16QAM	1	50	23.49	0-1	1
	2506	39750	20	16QAM	1	99	22.79	0-1	1
	2506	39750	20	16QAM	50	0	22.48	0-2	2
	2506	39750	20	16QAM	50	25	22.49	0-2	2
	2506	39750	20	16QAM	50	50	22.15	0-2	2
	2506	39750	20	16QAM	100	0	22.38	0-2	2
Low Mid	2549.5	40185	20	QPSK	1	0	24.04	0	0
	2549.5	40185	20	QPSK	1	50	23.96	0	0
	2549.5	40185	20	QPSK	1	99	23.51	0	0
	2549.5	40185	20	QPSK	50	0	23.06	0-1	1
	2549.5	40185	20	QPSK	50	25	22.87	0-1	1
	2549.5	40185	20	QPSK	50	50	22.55	0-1	1
	2549.5	40185	20	QPSK	100	0	22.63	0-1	1
	2549.5	40185	20	16-QAM	1	0	23.22	0-1	1
	2549.5	40185	20	16-QAM	1	50	22.95	0-1	1
	2549.5	40185	20	16-QAM	1	99	22.50	0-1	1
	2549.5	40185	20	16-QAM	50	0	21.86	0-2	2
	2549.5	40185	20	16-QAM	50	25	21.84	0-2	2
	2549.5	40185	20	16-QAM	50	50	21.60	0-2	2
	2549.5	40185	20	16-QAM	100	0	21.58	0-2	2
Mid	2593	40620	20	QPSK	1	0	23.96	0	0
	2593	40620	20	QPSK	1	50	23.94	0	0
	2593	40620	20	QPSK	1	99	23.51	0	0
	2593	40620	20	QPSK	50	0	23.08	0-1	1
	2593	40620	20	QPSK	50	25	23.01	0-1	1
	2593	40620	20	QPSK	50	50	22.72	0-1	1
	2593	40620	20	QPSK	100	0	22.88	0-1	1
	2593	40620	20	16-QAM	1	0	23.23	0-1	1
	2593	40620	20	16-QAM	1	50	23.14	0-1	1
	2593	40620	20	16-QAM	1	99	22.56	0-1	1
	2593	40620	20	16-QAM	50	0	22.06	0-2	2
	2593	40620	20	16-QAM	50	25	22.00	0-2	2
	2593	40620	20	16-QAM	50	50	21.72	0-2	2
	2593	40620	20	16-QAM	100	0	21.77	0-2	2
Mid High	2636.5	41055	20	QPSK	1	0	24.30	0	0
	2636.5	41055	20	QPSK	1	50	24.24	0	0
	2636.5	41055	20	QPSK	1	99	23.66	0	0
	2636.5	41055	20	QPSK	50	0	23.48	0-1	1
	2636.5	41055	20	QPSK	50	25	23.34	0-1	1
	2636.5	41055	20	QPSK	50	50	23.22	0-1	1
	2636.5	41055	20	QPSK	100	0	23.21	0-1	1
	2636.5	41055	20	16-QAM	1	0	23.46	0-1	1
	2636.5	41055	20	16-QAM	1	50	23.47	0-1	1
	2636.5	41055	20	16-QAM	1	99	22.85	0-1	1
	2636.5	41055	20	16-QAM	50	0	22.50	0-2	2
	2636.5	41055	20	16-QAM	50	25	22.41	0-2	2
	2636.5	41055	20	16-QAM	50	50	22.26	0-2	2
	2636.5	41055	20	16-QAM	100	0	22.18	0-2	2
High	2680	41490	20	QPSK	1	0	24.17	0	0
	2680	41490	20	QPSK	1	50	23.90	0	0
	2680	41490	20	QPSK	1	99	23.60	0	0
	2680	41490	20	QPSK	50	0	23.21	0-1	1
	2680	41490	20	QPSK	50	25	23.05	0-1	1
	2680	41490	20	QPSK	50	50	22.93	0-1	1
	2680	41490	20	QPSK	100	0	23.01	0-1	1
	2680	41490	20	16-QAM	1	0	23.41	0-1	1
	2680	41490	20	16-QAM	1	50	23.28	0-1	1
	2680	41490	20	16-QAM	1	99	23.06	0-1	1
	2680	41490	20	16-QAM	50	0	22.31	0-2	2
	2680	41490	20	16-QAM	50	25	22.29	0-2	2
	2680	41490	20	16-QAM	50	50	21.95	0-2	2
	2680	41490	20	16-QAM	100	0	22.08	0-2	2

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Table 9-22
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	2503.5	39725	15	QPSK	1	0	24.47	0	0
	2503.5	39725	15	QPSK	1	36	24.48	0	0
	2503.5	39725	15	QPSK	1	74	23.96	0	0
	2503.5	39725	15	QPSK	36	0	23.48	0-1	1
	2503.5	39725	15	QPSK	36	18	23.48	0-1	1
	2503.5	39725	15	QPSK	36	37	23.23	0-1	1
	2503.5	39725	15	QPSK	75	0	23.33	0-1	1
	2503.5	39725	15	16QAM	1	0	23.48	0-1	1
	2503.5	39725	15	16QAM	1	36	23.50	0-1	1
	2503.5	39725	15	16QAM	1	74	22.94	0-1	1
	2503.5	39725	15	16QAM	36	0	22.48	0-2	2
	2503.5	39725	15	16QAM	36	18	22.50	0-2	2
Low Mid	2503.5	39725	15	16QAM	36	37	22.21	0-2	2
	2503.5	39725	15	16QAM	75	0	22.24	0-2	2
	2548.25	40173	15	QPSK	1	0	24.18	0	0
	2548.25	40173	15	QPSK	1	36	24.09	0	0
	2548.25	40173	15	QPSK	1	74	23.51	0	0
	2548.25	40173	15	QPSK	36	0	22.99	0-1	1
	2548.25	40173	15	QPSK	36	18	22.90	0-1	1
	2548.25	40173	15	QPSK	36	37	22.67	0-1	1
	2548.25	40173	15	QPSK	75	0	22.76	0-1	1
	2548.25	40173	15	16-QAM	1	0	23.18	0-1	1
	2548.25	40173	15	16-QAM	1	36	22.91	0-1	1
	2548.25	40173	15	16-QAM	1	74	22.56	0-1	1
Mid	2548.25	40173	15	16-QAM	36	0	22.04	0-2	2
	2548.25	40173	15	16-QAM	36	18	21.92	0-2	2
	2548.25	40173	15	16-QAM	36	37	21.70	0-2	2
	2548.25	40173	15	16-QAM	75	0	21.73	0-2	2
	2593	40620	15	QPSK	1	0	24.26	0	0
	2593	40620	15	QPSK	1	36	24.12	0	0
	2593	40620	15	QPSK	1	74	23.61	0	0
	2593	40620	15	QPSK	36	0	23.12	0-1	1
	2593	40620	15	QPSK	36	18	23.10	0-1	1
	2593	40620	15	QPSK	36	37	22.91	0-1	1
	2593	40620	15	QPSK	75	0	22.98	0-1	1
	2593	40620	15	16-QAM	1	0	23.31	0-1	1
Mid-High	2593	40620	15	16-QAM	1	36	23.21	0-1	1
	2593	40620	15	16-QAM	1	74	22.84	0-1	1
	2593	40620	15	16-QAM	36	0	22.12	0-2	2
	2593	40620	15	16-QAM	36	18	22.08	0-2	2
	2593	40620	15	16-QAM	36	37	21.95	0-2	2
	2593	40620	15	16-QAM	75	0	21.93	0-2	2
	2637.75	41068	15	QPSK	1	0	24.43	0	0
	2637.75	41068	15	QPSK	1	36	24.44	0	0
	2637.75	41068	15	QPSK	1	74	24.00	0	0
	2637.75	41068	15	QPSK	36	0	23.35	0-1	1
	2637.75	41068	15	QPSK	36	18	23.40	0-1	1
	2637.75	41068	15	QPSK	36	37	23.20	0-1	1
High	2637.75	41068	15	QPSK	75	0	23.37	0-1	1
	2637.75	41068	15	16-QAM	1	0	23.46	0-1	1
	2637.75	41068	15	16-QAM	1	36	23.39	0-1	1
	2637.75	41068	15	16-QAM	1	74	22.99	0-1	1
	2637.75	41068	15	16-QAM	36	0	22.40	0-2	2
	2637.75	41068	15	16-QAM	36	18	22.42	0-2	2
	2637.75	41068	15	16-QAM	36	37	22.23	0-2	2
	2637.75	41068	15	16-QAM	75	0	22.33	0-2	2
	2682.5	41515	15	QPSK	1	0	24.47	0	0
	2682.5	41515	15	QPSK	1	36	24.29	0	0
	2682.5	41515	15	QPSK	1	74	23.95	0	0
	2682.5	41515	15	QPSK	36	0	23.27	0-1	1
	2682.5	41515	15	QPSK	36	18	23.23	0-1	1
	2682.5	41515	15	QPSK	36	37	23.09	0-1	1
	2682.5	41515	15	QPSK	75	0	23.13	0-1	1
	2682.5	41515	15	16-QAM	1	0	23.12	0-1	1
	2682.5	41515	15	16-QAM	1	36	23.23	0-1	1
	2682.5	41515	15	16-QAM	1	74	23.15	0-1	1
	2682.5	41515	15	16-QAM	36	0	22.36	0-2	2
	2682.5	41515	15	16-QAM	36	18	22.24	0-2	2
	2682.5	41515	15	16-QAM	36	37	22.22	0-2	2
	2682.5	41515	15	16-QAM	75	0	22.06	0-2	2

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Table 9-23
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	2501	39700	10	QPSK	1	0	24.47	0	0
	2501	39700	10	QPSK	1	25	24.45	0	0
	2501	39700	10	QPSK	1	49	24.30	0	0
	2501	39700	10	QPSK	25	0	23.50	0-1	1
	2501	39700	10	QPSK	25	12	23.48	0-1	1
	2501	39700	10	QPSK	25	25	23.41	0-1	1
	2501	39700	10	QPSK	50	0	23.45	0-1	1
	2501	39700	10	16QAM	1	0	23.49	0-1	1
	2501	39700	10	16QAM	1	25	23.43	0-1	1
	2501	39700	10	16QAM	1	49	23.19	0-1	1
	2501	39700	10	16QAM	25	0	22.48	0-2	2
	2501	39700	10	16QAM	25	12	22.44	0-2	2
	2501	39700	10	16QAM	25	25	22.36	0-2	2
	2501	39700	10	16QAM	50	0	22.42	0-2	2
Low Mid	2547	40160	10	QPSK	1	0	24.28	0	0
	2547	40160	10	QPSK	1	25	23.80	0	0
	2547	40160	10	QPSK	1	49	23.59	0	0
	2547	40160	10	QPSK	25	0	22.93	0-1	1
	2547	40160	10	QPSK	25	12	22.98	0-1	1
	2547	40160	10	QPSK	25	25	22.86	0-1	1
	2547	40160	10	QPSK	50	0	22.78	0-1	1
	2547	40160	10	16-QAM	1	0	23.17	0-1	1
	2547	40160	10	16-QAM	1	25	22.83	0-1	1
	2547	40160	10	16-QAM	1	49	22.67	0-1	1
	2547	40160	10	16-QAM	25	0	21.90	0-2	2
	2547	40160	10	16-QAM	25	12	21.89	0-2	2
	2547	40160	10	16-QAM	25	25	21.78	0-2	2
	2547	40160	10	16-QAM	50	0	21.78	0-2	2
Mid	2593	40620	10	QPSK	1	0	24.24	0	0
	2593	40620	10	QPSK	1	25	24.00	0	0
	2593	40620	10	QPSK	1	49	23.81	0	0
	2593	40620	10	QPSK	25	0	23.10	0-1	1
	2593	40620	10	QPSK	25	12	23.03	0-1	1
	2593	40620	10	QPSK	25	25	22.80	0-1	1
	2593	40620	10	QPSK	50	0	22.98	0-1	1
	2593	40620	10	16-QAM	1	0	23.29	0-1	1
	2593	40620	10	16-QAM	1	25	22.91	0-1	1
	2593	40620	10	16-QAM	1	49	22.88	0-1	1
	2593	40620	10	16-QAM	25	0	22.09	0-2	2
	2593	40620	10	16-QAM	25	12	22.06	0-2	2
	2593	40620	10	16-QAM	25	25	21.87	0-2	2
	2593	40620	10	16-QAM	50	0	21.98	0-2	2
Mid High	2639	41080	10	QPSK	1	0	24.45	0	0
	2639	41080	10	QPSK	1	25	24.40	0	0
	2639	41080	10	QPSK	1	49	23.98	0	0
	2639	41080	10	QPSK	25	0	23.49	0-1	1
	2639	41080	10	QPSK	25	12	23.36	0-1	1
	2639	41080	10	QPSK	25	25	23.20	0-1	1
	2639	41080	10	QPSK	50	0	23.36	0-1	1
	2639	41080	10	16-QAM	1	0	23.50	0-1	1
	2639	41080	10	16-QAM	1	25	23.48	0-1	1
	2639	41080	10	16-QAM	1	49	23.38	0-1	1
	2639	41080	10	16-QAM	25	0	22.49	0-2	2
	2639	41080	10	16-QAM	25	12	22.41	0-2	2
	2639	41080	10	16-QAM	25	25	22.30	0-2	2
	2639	41080	10	16-QAM	50	0	22.45	0-2	2
High	2685	41540	10	QPSK	1	0	24.40	0	0
	2685	41540	10	QPSK	1	25	24.10	0	0
	2685	41540	10	QPSK	1	49	24.20	0	0
	2685	41540	10	QPSK	25	0	23.16	0-1	1
	2685	41540	10	QPSK	25	12	23.12	0-1	1
	2685	41540	10	QPSK	25	25	23.04	0-1	1
	2685	41540	10	QPSK	50	0	23.05	0-1	1
	2685	41540	10	16-QAM	1	0	23.33	0-1	1
	2685	41540	10	16-QAM	1	25	22.99	0-1	1
	2685	41540	10	16-QAM	1	49	23.14	0-1	1
	2685	41540	10	16-QAM	25	0	22.11	0-2	2
	2685	41540	10	16-QAM	25	12	22.15	0-2	2
	2685	41540	10	16-QAM	25	25	22.11	0-2	2
	2685	41540	10	16-QAM	50	0	22.05	0-2	2

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Table 9-24
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	2498.5	39675	5	QPSK	1	0	24.43	0	0
	2498.5	39675	5	QPSK	1	12	24.48	0	0
	2498.5	39675	5	QPSK	1	24	24.47	0	0
	2498.5	39675	5	QPSK	12	0	23.47	0-1	1
	2498.5	39675	5	QPSK	12	6	23.46	0-1	1
	2498.5	39675	5	QPSK	12	13	23.43	0-1	1
	2498.5	39675	5	QPSK	25	0	23.48	0-1	1
	2498.5	39675	5	16-QAM	1	0	23.50	0-1	1
	2498.5	39675	5	16-QAM	1	12	23.49	0-1	1
	2498.5	39675	5	16-QAM	1	24	23.42	0-1	1
	2498.5	39675	5	16-QAM	12	0	22.49	0-2	2
	2498.5	39675	5	16-QAM	12	6	22.50	0-2	2
	2498.5	39675	5	16-QAM	12	13	22.48	0-2	2
	2498.5	39675	5	16-QAM	25	0	22.46	0-2	2
Low Mid	2545.75	40148	5	QPSK	1	0	24.22	0	0
	2545.75	40148	5	QPSK	1	12	24.14	0	0
	2545.75	40148	5	QPSK	1	24	24.22	0	0
	2545.75	40148	5	QPSK	12	0	23.00	0-1	1
	2545.75	40148	5	QPSK	12	6	22.95	0-1	1
	2545.75	40148	5	QPSK	12	13	22.90	0-1	1
	2545.75	40148	5	QPSK	25	0	22.97	0-1	1
	2545.75	40148	5	16-QAM	1	0	23.48	0-1	1
	2545.75	40148	5	16-QAM	1	12	23.46	0-1	1
	2545.75	40148	5	16-QAM	1	24	23.31	0-1	1
	2545.75	40148	5	16-QAM	12	0	21.91	0-2	2
	2545.75	40148	5	16-QAM	12	6	21.94	0-2	2
	2545.75	40148	5	16-QAM	12	13	21.84	0-2	2
	2545.75	40148	5	16-QAM	25	0	21.93	0-2	2
Mid	2593	40620	5	QPSK	1	0	24.33	0	0
	2593	40620	5	QPSK	1	12	24.40	0	0
	2593	40620	5	QPSK	1	24	24.10	0	0
	2593	40620	5	QPSK	12	0	23.08	0-1	1
	2593	40620	5	QPSK	12	6	23.06	0-1	1
	2593	40620	5	QPSK	12	13	23.03	0-1	1
	2593	40620	5	QPSK	25	0	23.05	0-1	1
	2593	40620	5	16-QAM	1	0	23.49	0-1	1
	2593	40620	5	16-QAM	1	12	23.50	0-1	1
	2593	40620	5	16-QAM	1	24	23.33	0-1	1
	2593	40620	5	16-QAM	12	0	21.98	0-2	2
	2593	40620	5	16-QAM	12	6	21.97	0-2	2
	2593	40620	5	16-QAM	12	13	22.08	0-2	2
	2593	40620	5	16-QAM	25	0	22.03	0-2	2
Mid High	2640.25	41093	5	QPSK	1	0	24.48	0	0
	2640.25	41093	5	QPSK	1	12	24.32	0	0
	2640.25	41093	5	QPSK	1	24	24.35	0	0
	2640.25	41093	5	QPSK	12	0	23.39	0-1	1
	2640.25	41093	5	QPSK	12	6	23.43	0-1	1
	2640.25	41093	5	QPSK	12	13	23.38	0-1	1
	2640.25	41093	5	QPSK	25	0	23.35	0-1	1
	2640.25	41093	5	16-QAM	1	0	23.43	0-1	1
	2640.25	41093	5	16-QAM	1	12	23.50	0-1	1
	2640.25	41093	5	16-QAM	1	24	23.37	0-1	1
	2640.25	41093	5	16-QAM	12	0	22.48	0-2	2
	2640.25	41093	5	16-QAM	12	6	22.49	0-2	2
	2640.25	41093	5	16-QAM	12	13	22.41	0-2	2
	2640.25	41093	5	16-QAM	25	0	22.31	0-2	2
High	2687.5	41565	5	QPSK	1	0	24.43	0	0
	2687.5	41565	5	QPSK	1	12	24.24	0	0
	2687.5	41565	5	QPSK	1	24	24.38	0	0
	2687.5	41565	5	QPSK	12	0	23.21	0-1	1
	2687.5	41565	5	QPSK	12	6	23.03	0-1	1
	2687.5	41565	5	QPSK	12	13	23.20	0-1	1
	2687.5	41565	5	QPSK	25	0	23.18	0-1	1
	2687.5	41565	5	16-QAM	1	0	23.43	0-1	1
	2687.5	41565	5	16-QAM	1	12	23.05	0-1	1
	2687.5	41565	5	16-QAM	1	24	23.26	0-1	1
	2687.5	41565	5	16-QAM	12	0	22.10	0-2	2
	2687.5	41565	5	16-QAM	12	6	22.07	0-2	2
	2687.5	41565	5	16-QAM	12	13	22.17	0-2	2
	2687.5	41565	5	16-QAM	25	0	22.06	0-2	2

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9.4.4 LTE Carrier Aggregation Conducted Powers

Table 9-25

LTE Carrier Aggregation Conducted Powers – Band 41 (PCC) + Band 41 (SCC) 20 MHz BW

Band 41 (PCC) + Band 41 (SCC), 20 MHz				
2506 MHz / ch.39750 + 2525.8 MHz / ch. 39948	PCC UL # RB	PCC UL RB Offset	LTE Rel 10 Tx.Power (dBm)	LTE Rel 8 Tx.Power (dBm)
	1	0	24.33	24.48

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 only supports intra-band CA with 2 carriers (B41+B41) with a maximum of 20 MHz of spectrum.
4. All control and acknowledge data is sent on uplink channels that operate identical to release 8 specifications.

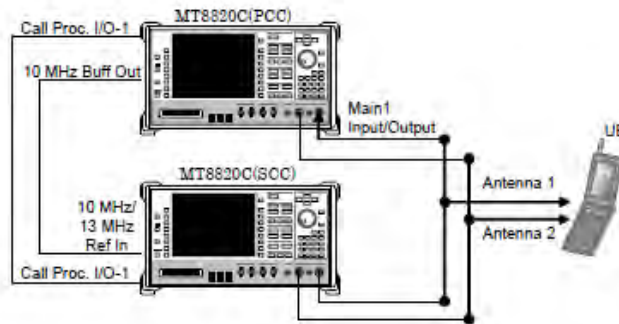


Figure 9-4
Power Measurement Setup

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9.5 WLAN Conducted Powers

Table 9-26

SISO IEEE 802.11b Average RF Power- Antenna 1

Mode	Freq [MHz]	Channel	802.11b Conducted Power [dBm]			
			Data Rate [Mbps]			
			1	2	5.5	11
802.11b	2412	1*	14.78	14.83	14.94	14.89
802.11b	2437	6*	14.54	14.83	14.80	14.81
802.11b	2462	11*	14.44	14.74	14.75	14.71

Table 9-27

SISO IEEE 802.11b Average RF Power- Antenna 2

Mode	Freq [MHz]	Channel	802.11b Conducted Power [dBm]			
			Data Rate [Mbps]			
			1	2	5.5	11
802.11b	2412	1*	14.72	14.94	14.84	14.70
802.11b	2437	6*	15.22	15.34	15.40	15.33
802.11b	2462	11*	14.74	14.79	14.90	14.79

Table 9-28

SISO IEEE 802.11g Average RF Power- Antenna 1

Mode	Freq [MHz]	Channel	802.11g Conducted Power [dBm]							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11g	2412	1	13.59	13.81	13.75	13.57	13.61	13.78	13.55	13.68
802.11g	2437	6	13.67	13.69	13.70	13.55	13.65	13.54	13.60	13.57
802.11g	2462	11	13.49	13.52	13.62	13.36	13.48	13.43	13.54	13.45

Table 9-29

SISO IEEE 802.11g Average RF Power- Antenna 2

Mode	Freq [MHz]	Channel	802.11g Conducted Power [dBm]							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11g	2412	1	14.02	13.88	13.95	13.75	13.73	13.55	13.53	13.55
802.11g	2437	6	14.36	14.47	14.39	14.41	14.40	14.41	14.22	14.23
802.11g	2462	11	13.77	13.76	13.77	13.56	13.73	13.49	13.52	13.47

Table 9-30

SISO IEEE 802.11n Average RF Power- Antenna 1

Mode	Freq [MHz]	Channel	802.11n (2.4GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
			6.5	13	19.5	26	39	52	58.5	65
802.11n	2412	1	12.53	12.66	12.54	12.70	12.76	12.67	12.87	12.84
802.11n	2437	6	12.65	12.58	12.48	12.66	12.64	12.56	12.90	12.82
802.11n	2462	11	12.50	12.67	12.53	12.55	12.74	12.58	12.69	12.65

Table 9-31

SISO IEEE 802.11n Average RF Power- Antenna 2

Mode	Freq [MHz]	Channel	802.11n (2.4GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
			6.5	13	19.5	26	39	52	58.5	65
802.11n	2412	1	12.70	12.77	12.68	12.79	12.75	12.71	12.72	12.89
802.11n	2437	6	12.50	12.47	12.23	12.41	12.59	12.57	12.77	12.59
802.11n	2462	11	12.53	12.51	12.40	12.62	12.80	12.48	12.84	12.71

Table 9-32

MIMO IEEE 802.11n Average RF Power

20 MHz BW 802.11n (2.4 GHz) Conducted Powers [dBm]			
Mode	Freq [MHz]	Channel	Data Rate [Mbps]
			13
802.11n	2412	1	14.89
802.11n	2437	6	14.85
802.11n	2462	11	14.75

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Table 9-33
SISO IEEE 802.11a Average RF Power-Antenna 1

Mode	Freq [MHz]	Channel	802.11a Conducted Power [dBm]							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11a	5180	36*	11.77	11.75	11.64	11.60	11.78	11.64	11.88	11.87
802.11a	5200	40	11.83	11.89	11.76	11.71	11.94	11.72	11.94	11.83
802.11a	5220	44	11.93	11.93	11.80	11.92	11.88	11.81	12.09	12.07
802.11a	5240	48*	11.88	11.84	11.80	11.78	11.90	11.77	12.00	12.01
802.11a	5260	52*	12.06	12.18	11.98	12.10	12.13	11.72	12.11	12.29
802.11a	5280	56	12.09	12.18	12.14	12.15	12.20	11.77	11.96	12.25
802.11a	5300	60	12.20	12.12	11.93	12.15	12.27	12.07	12.30	12.32
802.11a	5320	64*	12.10	12.29	12.23	12.03	12.29	11.89	12.24	12.19
802.11a	5500	100	12.45	12.46	12.31	11.58	11.76	11.62	11.71	11.59
802.11a	5520	104*	12.33	12.41	12.31	11.42	11.51	11.43	11.47	11.57
802.11a	5540	108	12.24	12.40	12.29	11.37	11.55	11.34	11.52	11.40
802.11a	5560	112	12.21	12.22	12.14	11.21	11.61	11.38	11.42	11.44
802.11a	5580	116*	12.18	12.17	12.05	11.25	11.58	11.30	11.29	11.33
802.11a	5600	120	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5620	124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5640	128	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5660	132	11.99	11.94	11.82	11.13	11.23	11.10	11.35	11.14
802.11a	5680	136*	11.98	11.89	11.92	11.16	11.20	11.15	11.11	11.22
802.11a	5700	140	11.78	11.80	11.66	10.95	11.17	10.93	11.08	11.08
802.11a	5745	149*	11.58	11.45	11.53	11.62	11.57	11.58	11.77	11.64
802.11a	5765	153	11.63	11.62	11.56	11.70	11.49	11.64	11.85	11.65
802.11a	5785	157*	11.41	10.85	11.28	11.43	11.40	11.40	11.51	11.42
802.11a	5805	161	11.40	11.12	11.29	11.47	11.30	11.31	11.64	11.38
802.11a	5825	165*	11.42	10.58	11.29	11.49	11.37	11.47	11.66	11.37

Per FCC KDB Publication 443999 and RSS-210 A9.2(3), transmission on channels which overlap the 5600-5650 MHz is prohibited as a client. This device does not transmit any beacons or initiate any transmissions in 5.3 and 5.5 GHz Band.

(*) – indicates default channels per KDB Publication 248227 D01v01r02. When the adjacent channels are higher in power then the default channels, these “required channels” are considered for SAR testing instead of the default channels.

Table 9-34
SISO IEEE 802.11a Average RF Power-Antenna 2

Mode	Freq [MHz]	Channel	802.11a Conducted Power [dBm]							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11a	5180	36*	12.20	11.98	11.78	11.70	11.65	11.72	11.73	11.65
802.11a	5200	40	12.13	11.95	11.76	11.69	11.62	11.61	11.71	11.60
802.11a	5220	44	12.08	11.87	11.69	11.53	11.56	11.65	11.62	11.53
802.11a	5240	48*	12.34	12.14	11.93	11.87	11.79	11.87	11.89	11.81
802.11a	5260	52*	12.15	12.10	12.08	12.07	11.99	10.99	11.84	11.97
802.11a	5280	56	12.02	11.99	11.88	11.93	11.88	10.91	11.68	11.78
802.11a	5300	60	11.97	11.95	11.98	11.82	11.79	10.89	11.74	11.82
802.11a	5320	64*	11.99	11.87	11.84	11.90	11.86	10.84	11.62	11.76
802.11a	5500	100	11.90	11.89	10.90	11.87	12.05	11.82	11.90	11.88
802.11a	5520	104*	11.98	11.93	10.99	11.98	12.08	11.83	11.98	12.01
802.11a	5540	108	11.87	11.87	10.84	11.79	12.01	11.78	11.87	11.88
802.11a	5560	112	11.90	11.86	10.95	11.88	12.01	11.83	11.98	11.91
802.11a	5580	116*	11.85	11.81	10.85	11.81	12.00	11.73	11.82	11.88
802.11a	5600	120	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5620	124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5640	128	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11a	5660	132	11.88	11.93	10.84	11.88	11.97	11.84	11.84	11.84
802.11a	5680	136*	11.94	11.84	10.86	11.88	12.07	11.83	11.96	11.94
802.11a	5700	140	11.17	11.11	11.21	11.19	11.29	11.09	11.11	11.14
802.11a	5745	149*	11.83	12.07	11.95	11.65	11.91	12.48	11.76	12.14
802.11a	5765	153	11.85	12.16	12.01	11.70	11.87	11.65	11.78	12.20
802.11a	5785	157*	12.45	12.01	11.91	12.23	12.00	11.65	12.37	11.82
802.11a	5805	161	11.52	11.82	11.63	11.37	11.65	12.16	11.53	11.81
802.11a	5825	165*	11.59	11.84	11.70	11.39	11.71	12.23	11.59	11.85

Per FCC KDB Publication 443999 and RSS-210 A9.2(3), transmission on channels which overlap the 5600-5650 MHz is prohibited as a client. This device does not transmit any beacons or initiate any transmissions in 5.3 and 5.5 GHz Band.

(*) – indicates default channels per KDB Publication 248227 D01v01r02. When the adjacent channels are higher in power then the default channels, these “required channels” are considered for SAR testing instead of the default channels.

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Table 9-35
SISO IEEE 802.11n Average RF Power – 20 MHz Bandwidth- Antenna 1

Mode	Freq [MHz]	Channel	20MHz BW 802.11n (5GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
			6.5	13	19.5	26	39	52	58.5	65
802.11n	5180	36	11.41	11.62	11.49	11.73	11.91	11.61	11.86	11.72
802.11n	5200	40	11.22	11.42	11.23	11.51	11.79	11.47	11.70	11.52
802.11n	5220	44	11.37	11.63	11.54	11.70	11.92	11.59	11.82	11.60
802.11n	5240	48	11.28	11.40	11.31	11.65	11.76	11.44	11.74	11.60
802.11n	5260	52	12.13	12.04	11.95	12.03	12.18	11.82	12.10	12.22
802.11n	5280	56	12.09	11.95	11.92	12.03	12.07	11.83	12.10	12.18
802.11n	5300	60	12.18	12.12	12.06	12.06	12.24	11.89	12.20	12.27
802.11n	5320	64	12.08	11.99	11.95	12.06	12.19	11.83	12.08	12.22
802.11n	5500	100	12.38	12.38	12.21	12.27	12.47	12.37	12.46	12.33
802.11n	5520	104	12.27	12.22	12.16	12.21	12.43	12.24	12.35	12.41
802.11n	5540	108	12.34	12.35	12.18	12.23	12.44	12.33	12.46	12.49
802.11n	5560	112	12.24	12.23	12.15	12.18	12.34	12.19	12.34	12.31
802.11n	5580	116	12.07	12.08	11.86	11.96	12.16	12.02	12.15	12.19
802.11n	5600	120	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5620	124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5640	128	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5660	132	11.80	11.82	11.62	11.60	11.92	11.77	11.94	11.93
802.11n	5680	136	11.84	11.90	11.74	11.70	11.96	11.87	11.82	11.99
802.11n	5700	140	11.84	11.85	11.68	11.77	11.92	11.79	11.92	11.96
802.11n	5745	149	11.48	11.34	11.15	11.34	11.40	11.24	11.49	11.23
802.11n	5765	153	11.40	11.33	11.15	11.28	11.30	11.17	11.40	11.16
802.11n	5785	157	11.36	11.29	11.03	11.18	11.30	11.12	11.35	11.17
802.11n	5805	161	11.35	11.19	11.06	11.20	11.31	11.18	11.30	11.04
802.11n	5825	165	11.41	11.25	11.12	11.26	11.37	11.21	11.46	11.14

Table 9-36
SISO IEEE 802.11n Average RF Power – 20 MHz Bandwidth- Antenna 2

Mode	Freq [MHz]	Channel	20MHz BW 802.11n (5GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
			6.5	13	19.5	26	39	52	58.5	65
802.11n	5180	36	11.71	11.83	11.63	11.98	12.11	11.75	11.97	11.96
802.11n	5200	40	11.73	11.86	11.66	11.99	12.14	11.73	11.95	12.00
802.11n	5220	44	11.83	11.98	11.71	12.07	12.15	11.84	12.04	12.08
802.11n	5240	48	11.74	11.85	11.67	11.94	12.08	11.81	11.93	11.97
802.11n	5260	52	11.21	11.67	11.41	11.40	11.55	11.30	11.63	11.45
802.11n	5280	56	11.43	11.89	11.62	11.64	11.80	11.57	11.78	11.61
802.11n	5300	60	11.38	11.84	11.55	11.54	11.72	11.52	11.84	11.62
802.11n	5320	64	11.36	11.82	11.47	11.55	11.76	11.49	11.86	11.58
802.11n	5500	100	11.48	11.65	11.33	11.49	11.75	11.31	11.70	11.63
802.11n	5520	104	11.45	11.59	11.23	11.49	11.78	11.22	11.64	11.65
802.11n	5540	108	11.51	11.65	11.30	11.52	11.77	11.34	11.74	11.63
802.11n	5560	112	11.53	11.75	11.37	11.53	11.78	11.40	11.74	11.77
802.11n	5580	116	11.50	11.72	11.42	11.59	11.70	11.34	11.70	11.63
802.11n	5600	120	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5620	124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5640	128	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5660	132	11.21	11.34	11.06	11.20	11.47	11.10	11.48	11.35
802.11n	5680	136	11.25	11.45	11.10	11.20	11.58	11.11	11.40	11.33
802.11n	5700	140	11.19	11.30	11.02	11.26	11.50	10.94	11.49	11.35
802.11n	5745	149	11.84	11.70	11.68	11.85	12.00	11.77	11.89	11.82
802.11n	5765	153	11.66	11.49	11.53	11.64	11.77	11.57	11.71	11.60
802.11n	5785	157	11.70	11.51	11.55	11.73	11.95	11.62	11.77	11.70
802.11n	5805	161	11.58	11.43	11.41	11.60	11.72	11.53	11.60	11.56
802.11n	5825	165	11.77	11.61	11.68	11.86	11.88	11.74	11.76	11.70

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Table 9-37
MIMO IEEE 802.11n Average RF Power – 20 MHz Bandwidth

20 MHz BW 802.11n (5 GHz) Conducted Powers [dBm]			
Mode	Freq [MHz]	Channel	Data Rate [Mbps]
			13
802.11n	5180	36	14.57
802.11n	5200	40	14.49
802.11n	5220	44	14.62
802.11n	5240	48	15.20
802.11n	5260	52	14.70
802.11n	5280	56	14.79
802.11n	5300	60	14.81
802.11n	5320	64	14.74
802.11n	5500	100	14.96
802.11n	5520	104	14.89
802.11n	5540	108	14.95
802.11n	5560	112	14.91
802.11n	5580	116	14.81
802.11n	5600	120	N/A
802.11n	5620	124	N/A
802.11n	5640	128	N/A
802.11n	5660	132	14.52
802.11n	5680	136	14.56
802.11n	5700	140	14.54
802.11n	5745	149	14.67
802.11n	5765	153	14.54
802.11n	5785	157	14.54
802.11n	5805	161	14.48
802.11n	5825	165	14.60

Table 9-38
SISO IEEE 802.11n Average RF Power – 40 MHz Bandwidth- Antenna 1

Mode	Freq [MHz]	Channel	40MHz BW 802.11n (5GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
			13.5	27	40.5	54	81	108	121.5	135
802.11n	5190	38	8.92	8.91	8.85	9.11	9.09	8.90	8.88	8.80
802.11n	5230	46	8.63	8.61	8.59	8.81	8.87	8.60	8.61	8.49
802.11n	5270	54	9.36	9.15	9.45	9.31	9.32	9.13	9.42	9.40
802.11n	5310	62	9.29	9.01	9.37	9.22	9.03	9.08	9.37	9.47
802.11n	5510	102	8.72	9.35	9.46	9.19	9.15	8.84	8.91	9.17
802.11n	5550	110	9.35	8.95	9.44	9.29	9.36	9.42	9.32	9.24
802.11n	5590	118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5630	126	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5670	134	8.99	9.09	9.04	9.39	9.38	9.08	9.03	8.90
802.11n	5755	151	8.62	8.77	8.71	9.07	9.10	8.79	8.89	9.01
802.11n	5795	159	8.33	8.41	8.38	8.78	8.86	8.58	8.60	8.71

Table 9-39
SISO IEEE 802.11n Average RF Power – 40 MHz Bandwidth- Antenna 2

Mode	Freq [MHz]	Channel	40MHz BW 802.11n (5GHz) Conducted Power [dBm]							
			Data Rate [Mbps]							
			13.5	27	40.5	54	81	108	121.5	135
802.11n	5190	38	8.62	9.30	9.24	8.81	9.04	8.83	8.90	9.13
802.11n	5230	46	8.93	8.87	8.57	9.17	9.36	9.20	9.16	9.44
802.11n	5270	54	9.09	8.71	8.27	8.49	8.55	8.53	8.16	8.27
802.11n	5310	62	9.05	8.83	8.59	9.30	8.17	8.33	8.37	8.55
802.11n	5510	102	8.81	8.51	8.83	8.43	8.73	8.71	8.45	8.56
802.11n	5550	110	8.47	8.15	8.43	8.07	8.40	8.34	8.13	8.23
802.11n	5590	118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5630	126	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
802.11n	5670	134	8.41	8.15	8.43	8.00	8.31	8.31	8.06	8.14
802.11n	5755	151	9.07	8.72	8.84	8.96	9.11	9.20	8.73	9.01
802.11n	5795	159	9.13	8.76	8.80	9.10	9.23	9.26	8.71	9.01

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Table 9-40
MIMO IEEE 802.11n Average RF Power – 40 MHz Bandwidth

40 MHz BW 802.11n (5 GHz) Conducted Powers [dBm]			
Mode	Freq [MHz]	Channel	Data Rate [Mbps]
			27
802.11n	5190	38	11.79
802.11n	5230	46	11.79
802.11n	5270	54	12.24
802.11n	5310	62	12.18
802.11n	5510	102	11.78
802.11n	5550	110	11.94
802.11n	5590	118	N/A
802.11n	5630	126	N/A
802.11n	5670	134	11.72
802.11n	5755	151	11.86
802.11n	5795	159	11.76

Table 9-41
SISO IEEE 802.11ac Average RF Power – 80 MHz Bandwidth- Antenna 1

Mode	Freq [MHz]	Channel	80MHz BW 802.11ac (5GHz) Conducted Power [dBm]									
			Data Rate [Mbps]									
			29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	390
802.11ac	5210	42	9.88	9.77	10.10	9.78	10.11	10.01	9.81	9.77	9.25	9.78
802.11ac	5290	58	10.06	9.80	10.26	10.04	10.13	10.14	9.87	10.01	9.61	9.63
802.11ac	5530	106	10.29	10.27	10.00	9.84	10.10	10.30	10.49	10.42	9.75	9.44
802.11ac	5775	155	9.55	9.55	9.22	9.69	9.78	9.75	9.77	9.60	9.60	9.78

Table 9-42
SISO IEEE 802.11ac Average RF Power – 80 MHz Bandwidth- Antenna 2

Mode	Freq [MHz]	Channel	80MHz BW 802.11ac (5GHz) Conducted Power [dBm]									
			Data Rate [Mbps]									
			29.3	58.5	87.8	117	175.5	234	263.3	292.5	351	390
802.11ac	5210	42	9.81	9.18	9.53	9.60	9.47	9.25	9.60	9.47	9.79	10.04
802.11ac	5290	58	9.58	9.25	9.72	9.14	9.42	9.27	9.57	9.38	9.81	9.38
802.11ac	5530	106	9.66	9.69	9.80	8.97	9.42	9.35	9.41	9.32	9.89	9.44
802.11ac	5775	155	9.74	9.81	9.71	9.29	9.42	9.20	9.52	9.70	9.72	9.66

Table 9-43
MIMO IEEE 802.11ac Average RF Power – 80 MHz Bandwidth

80 MHz BW 802.11ac (5 GHz) Conducted Powers [dBm]			
Mode	Freq [MHz]	Channel	Data Rate [Mbps]
			58.5
802.11ac	5210	42	12.86
802.11ac	5290	58	12.84
802.11ac	5530	106	13.00
802.11ac	5775	155	12.66

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Justification for reduced test configurations for WIFI channels per KDB Publication 248227 D01v01r02 and October 2012/April 2013 FCC/TCB Meeting Notes:

- For 2.4 GHz SISO operations, highest average RF output power channel for the lowest data rate for IEEE 802.11b were selected for SAR evaluation. Other IEEE 802.11 SISO modes (including 802.11g/n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11b mode.
- For 5 GHz SISO operations, highest average RF output power channel for the lowest data rate for IEEE 802.11a were selected for SAR evaluation. Other IEEE 802.11 SISO modes (including 802.11n 20 MHz and 40 MHz) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11a mode.
- Full SAR tests for all SISO IEEE 802.11ac configurations were not required because the average output power was not more than 0.25 dB higher than IEEE 802.11a mode. IEEE 802.11ac in SISO mode was evaluated for the highest IEEE 802.11a position in each 5 GHz band and exposure condition.
- For MIMO 2.4 GHz and 5 GHz operations, the highest average RF output power channel for the lowest data rate for IEEE 802.11n (20 MHz bandwidth) was selected for SAR evaluation. Other IEEE 802.11 modes and bandwidths were not investigated for MIMO operations since the maximum allowed output power (including tolerance) was not higher for these modes.
- The individual spectra for each 2x2 MIMO WIFI Antenna were summed mathematically in linear power units for the MIMO output power measurements.
- When the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is <1.6 W/kg and the reported 1g averaged SAR is <0.8 W/kg, SAR testing on other channels is not required. Otherwise, the other default (or corresponding required) test channels were additionally tested using the lowest data rate.
- The bolded data rate and channel above were tested for SAR.

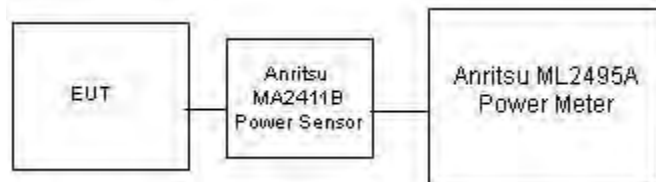


Figure 9-5
Power Measurement Setup for Bandwidths < 50 MHz

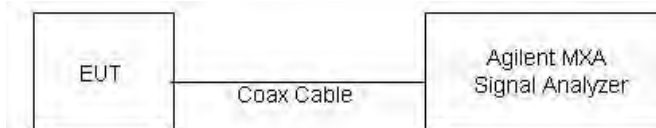


Figure 9-6
Power Measurement Setup for Bandwidths > 50 MHz

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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
09/17/2014	835H	22.1	820	0.898	42.442	0.899	41.578	-0.11%	2.08%
			835	0.912	42.248	0.900	41.500	1.33%	1.80%
			850	0.927	42.065	0.916	41.500	1.20%	1.36%
09/22/2014	835H	21.9	820	0.882	41.507	0.899	41.578	-1.89%	-0.17%
			835	0.897	41.332	0.900	41.500	-0.33%	-0.40%
			850	0.910	41.134	0.916	41.500	-0.66%	-0.88%
10/07/2014	835H	20.7	800	0.891	41.676	0.897	41.682	-0.67%	-0.01%
			820	0.912	41.429	0.899	41.578	1.45%	-0.36%
			835	0.925	41.242	0.900	41.500	2.78%	-0.62%
09/22/2014	1900H	22.0	850	0.940	41.058	0.916	41.500	2.62%	-1.07%
			1850	1.377	39.967	1.400	40.000	-1.64%	-0.08%
			1880	1.411	39.846	1.400	40.000	0.79%	-0.39%
10/06/2014	1900H	22.4	1910	1.441	39.730	1.400	40.000	2.93%	-0.68%
			1850	1.395	39.578	1.400	40.000	-0.36%	-1.05%
			1880	1.426	39.457	1.400	40.000	1.86%	-1.36%
09/15/2014	2450H	23.4	1910	1.457	39.331	1.400	40.000	4.07%	-1.67%
			2401	1.756	39.846	1.756	39.287	0.00%	1.42%
			2450	1.815	39.696	1.800	39.200	0.83%	1.27%
			2499	1.866	39.504	1.853	39.138	0.70%	0.94%
			2500	1.866	39.495	1.855	39.136	0.59%	0.92%
09/23/2014	5200H - 5800H	23.2	2550	1.929	39.298	1.909	39.073	1.05%	0.58%
			2600	1.985	39.142	1.964	39.009	1.07%	0.34%
			5200	4.598	35.645	4.655	35.986	-1.22%	-0.95%
			5220	4.628	35.604	4.676	35.963	-1.03%	-1.00%
			5240	4.670	35.573	4.696	35.940	-0.55%	-1.02%
			5260	4.695	35.570	4.717	35.917	-0.47%	-0.97%
			5280	4.705	35.585	4.737	35.894	-0.68%	-0.86%
			5300	4.705	35.541	4.758	35.871	-1.11%	-0.92%
			5500	4.923	35.256	4.963	35.643	-0.81%	-1.09%
			5520	4.949	35.224	4.983	35.620	-0.68%	-1.11%
			5540	4.959	35.232	5.004	35.597	-0.90%	-1.03%
			5745	5.164	34.918	5.214	35.363	-0.96%	-1.26%
			5765	5.204	34.906	5.234	35.340	-0.57%	-1.23%
			5785	5.206	34.934	5.255	35.317	-0.93%	-1.08%
			5800	5.205	34.849	5.270	35.300	-1.23%	-1.28%

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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
09/19/2014	835B	22.5	820	1.002	53.460	0.969	55.258	3.41%	-3.25%
			835	1.017	53.324	0.970	55.200	4.85%	-3.40%
			850	1.031	53.140	0.988	55.154	4.35%	-3.65%
10/07/2014	835B	21.1	800	0.921	54.770	0.967	55.336	-4.76%	-1.02%
			820	0.943	54.592	0.969	55.258	-2.68%	-1.21%
			835	0.957	54.454	0.970	55.200	-1.34%	-1.35%
09/15/2014	1900B	21.7	850	0.971	54.322	0.988	55.154	-1.72%	-1.51%
			1850	1.498	51.386	1.520	53.300	-1.45%	-3.59%
			1880	1.533	51.280	1.520	53.300	0.86%	-3.79%
09/18/2014	1900B	23.3	1910	1.569	51.155	1.520	53.300	3.22%	-4.02%
			1850	1.500	51.882	1.520	53.300	-1.32%	-2.66%
			1880	1.537	51.766	1.520	53.300	1.12%	-2.88%
10/06/2014	1900B	21.8	1910	1.568	51.650	1.520	53.300	3.16%	-3.10%
			1850	1.516	51.021	1.520	53.300	-0.26%	-4.28%
			1880	1.549	50.915	1.520	53.300	1.91%	-4.47%
09/15/2014	2450B	22.4	1910	1.585	50.800	1.520	53.300	4.28%	-4.69%
			2401	1.974	51.281	1.903	52.765	3.73%	-2.81%
			2450	2.046	51.116	1.950	52.700	4.92%	-3.01%
			2499	2.111	50.911	2.019	52.638	4.56%	-3.28%
			2500	2.112	50.912	2.021	52.636	4.50%	-3.28%
			2550	2.190	50.698	2.092	52.573	4.68%	-3.57%
09/29/2014	2450B	22.3	2600	2.262	50.511	2.163	52.509	4.58%	-3.81%
			2401	1.978	51.898	1.903	52.765	3.94%	-1.64%
			2450	2.047	51.715	1.950	52.700	4.97%	-1.87%
09/26/2014	5200B-5800B	23.3	2499	2.115	51.537	2.019	52.638	4.75%	-2.09%
			5200	5.226	47.488	5.299	49.014	-1.38%	-3.11%
			5220	5.254	47.407	5.323	48.987	-1.30%	-3.23%
			5240	5.304	47.368	5.346	48.960	-0.79%	-3.25%
			5260	5.325	47.378	5.369	48.933	-0.82%	-3.18%
			5280	5.351	47.329	5.393	48.906	-0.78%	-3.22%
			5300	5.374	47.291	5.416	48.879	-0.78%	-3.25%
			5500	5.674	46.750	5.650	48.607	0.42%	-3.82%
			5520	5.699	46.718	5.673	48.580	0.46%	-3.83%
			5540	5.715	46.687	5.696	48.553	0.33%	-3.84%
			5745	6.051	46.204	5.936	48.275	1.94%	-4.29%
			5765	6.077	46.188	5.959	48.248	1.98%	-4.27%
			5785	6.092	46.140	5.982	48.220	1.84%	-4.31%
			5800	6.106	46.098	6.000	48.200	1.77%	-4.36%
			5825	6.137	45.988	6.029	48.166	1.79%	-4.52%

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

Table 10-3
System Verification Results – 1g SAR

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} (%)
C	835	HEAD	09/17/2014	24.2	22.1	0.100	4d132	3213	0.984	9.270	9.840	6.15%
C	835	HEAD	09/22/2014	24.3	22.1	0.100	4d132	3213	0.987	9.270	9.870	6.47%
B	835	HEAD	10/07/2014	21.8	20.7	0.100	4d132	3318	0.982	9.270	9.820	5.93%
B	1900	HEAD	09/22/2014	24.3	22.0	0.100	5d148	3318	4.240	40.700	42.400	4.18%
G	1900	HEAD	10/06/2014	22.7	22.4	0.100	5d141	3258	4.260	40.100	42.600	6.23%
G	2450	HEAD	09/15/2014	24.4	23.6	0.100	797	3258	5.360	51.800	53.600	3.47%
E	5200	HEAD	09/23/2014	24.6	23.6	0.100	1057	3914	7.620	78.000	76.200	-2.31%
E	5300	HEAD	09/23/2014	24.6	23.7	0.100	1057	3914	8.070	83.000	80.700	-2.77%
E	5500	HEAD	09/23/2014	24.6	23.7	0.100	1057	3914	8.010	84.300	80.100	-4.98%
E	5800	HEAD	09/23/2014	24.5	23.7	0.100	1057	3914	7.380	79.300	73.800	-6.94%
H	835	BODY	09/19/2014	23.8	22.5	0.100	4d119	3319	0.919	9.340	9.190	-1.61%
C	835	BODY	10/07/2014	22.3	21.1	0.100	4d132	3213	1.020	9.580	10.200	6.47%
J	1900	BODY	09/15/2014	22.0	21.7	0.100	5d141	3022	4.250	40.600	42.500	4.68%
J	1900	BODY	09/18/2014	24.5	23.4	0.100	5d141	3022	4.360	40.600	43.600	7.39%
H	1900	BODY	10/06/2014	23.9	22.5	0.100	5d141	3319	4.090	40.600	40.900	0.74%
G	2450	BODY	09/15/2014	20.8	22.4	0.100	797	3258	5.290	49.400	52.900	7.09%
G	2450	BODY	09/29/2014	24.1	22.3	0.100	797	3258	5.090	49.400	50.900	3.04%
I	5200	BODY	09/26/2014	23.8	23.3	0.100	1057	3589	7.870	75.300	78.700	4.52%
I	5300	BODY	09/26/2014	23.8	23.3	0.100	1057	3589	8.400	77.400	84.000	8.53%
I	5500	BODY	09/26/2014	23.8	23.3	0.100	1057	3589	8.000	79.100	80.000	1.14%
I	5800	BODY	09/26/2014	23.8	23.3	0.100	1057	3589	7.120	74.300	71.200	-4.17%

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Table 10-4
System Verification Results – 10g SAR

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}	Deviation _{10g} (%)
J	1900	BODY	09/18/2014	24.5	23.4	0.100	5d141	3022	2.320	21.600	23.200	7.41%
I	5200	BODY	09/26/2014	23.8	23.3	0.100	1057	3589	2.220	21.000	22.200	5.71%
I	5300	BODY	09/26/2014	23.8	23.3	0.100	1057	3589	2.360	21.500	23.600	9.77%
I	5500	BODY	09/26/2014	23.8	23.3	0.100	1057	3589	2.240	22.000	22.400	1.82%

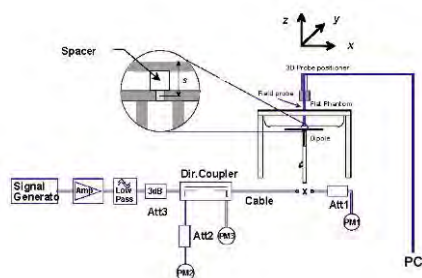


Figure 10-1
System Verification Setup Diagram



Figure 10-2
System Verification Setup Photo

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11 SAR DATA SUMMARY

11.1 Standalone Head SAR Data

**Table 11-1
GSM 850 Head SAR**

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Cover Type	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	32.80	-0.06	Right	Cheek	Standard	4	1:8.3	0.085	1.175	0.100	A1
836.60	190	GSM 850	GSM	33.5	32.80	0.08	Right	Cheek	Wireless Charging	4	1:8.3	0.082	1.175	0.096	
836.60	190	GSM 850	GSM	33.5	32.80	0.07	Right	Tilt	Standard	4	1:8.3	0.042	1.175	0.049	
836.60	190	GSM 850	GSM	33.5	32.80	-0.04	Left	Cheek	Standard	4	1:8.3	0.077	1.175	0.090	
836.60	190	GSM 850	GSM	33.5	32.80	0.08	Left	Tilt	Standard	4	1:8.3	0.038	1.175	0.045	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram							

**Table 11-2
UMTS 850 Head SAR**

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Cover Type	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	23.28	-0.03	Right	Cheek	Standard	4	1:1	0.109	1.052	0.115	
836.60	4183	UMTS 850	RMC	23.5	23.28	0.02	Right	Cheek	Wireless Charging	4	1:1	0.117	1.052	0.123	A2
836.60	4183	UMTS 850	RMC	23.5	23.28	0.09	Right	Tilt	Standard	4	1:1	0.053	1.052	0.056	
836.60	4183	UMTS 850	RMC	23.5	23.28	0.04	Left	Cheek	Standard	4	1:1	0.092	1.052	0.097	
836.60	4183	UMTS 850	RMC	23.5	23.28	0.06	Left	Tilt	Standard	4	1:1	0.048	1.052	0.050	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Head 1.6 W/kg (mW/g) averaged over 1 gram								

**Table 11-3
GSM 1900 Head SAR**

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Cover Type	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	29.86	0.06	Right	Cheek	Standard	4	1:8.3	0.053	1.159	0.061	
1880.00	661	GSM 1900	GSM	30.5	29.86	-0.04	Right	Tilt	Standard	4	1:8.3	0.032	1.159	0.037	
1880.00	661	GSM 1900	GSM	30.5	29.86	0.20	Left	Cheek	Standard	4	1:8.3	0.079	1.159	0.092	A3
1880.00	661	GSM 1900	GSM	30.5	29.86	0.20	Left	Cheek	Wireless Charging	4	1:8.3	0.041	1.159	0.048	
1880.00	661	GSM 1900	GSM	30.5	29.86	-0.04	Left	Tilt	Standard	4	1:8.3	0.033	1.159	0.038	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram							

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Table 11-4
UMTS 1900 Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Cover Type	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	23.0	22.63	0.11	Right	Cheek	Standard	4	1:1	0.094	1.089	0.102	A4
1880.00	9400	UMTS 1900	RMC	23.0	22.63	-0.02	Right	Cheek	Wireless Charging	4	1:1	0.078	1.089	0.085	
1880.00	9400	UMTS 1900	RMC	23.0	22.63	0.14	Right	Tilt	Standard	4	1:1	0.047	1.089	0.051	
1880.00	9400	UMTS 1900	RMC	23.0	22.63	0.03	Left	Cheek	Standard	4	1:1	0.085	1.089	0.093	
1880.00	9400	UMTS 1900	RMC	23.0	22.63	0.02	Left	Tilt	Standard	4	1:1	0.053	1.089	0.058	
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
CDMA BC10 (§90S) Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Cover Type	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	24.5	24.44	0.00	Right	Cheek	Standard	5	1:1	0.169	1.014	0.171	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	24.5	24.44	0.04	Right	Cheek	Wireless Charging	5	1:1	0.137	1.014	0.139	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	24.5	24.44	-0.01	Right	Tilt	Standard	5	1:1	0.090	1.014	0.091	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	24.5	24.44	0.20	Left	Cheek	Standard	5	1:1	0.139	1.014	0.141	
820.10	564	CDMA BC10 (§90S)	RC3 / SO55	24.5	24.44	0.08	Left	Tilt	Standard	5	1:1	0.093	1.014	0.094	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	24.5	24.48	0.12	Right	Cheek	Standard	5	1:1	0.176	1.005	0.177	A5
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	24.5	24.48	0.01	Right	Cheek	Wireless Charging	5	1:1	0.149	1.005	0.150	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	24.5	24.48	0.00	Right	Tilt	Standard	5	1:1	0.096	1.005	0.096	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	24.5	24.48	0.07	Left	Cheek	Standard	5	1:1	0.151	1.005	0.152	
820.10	564	CDMA BC10 (§90S)	EVDO Rev. A	24.5	24.48	-0.02	Left	Tilt	Standard	5	1:1	0.102	1.005	0.103	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram							

Table 11-6
CDMA BC0 (§22H) Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Cover Type	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	24.5	24.38	-0.05	Right	Cheek	Standard	5	1:1	0.175	1.028	0.180	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	24.5	24.38	0.00	Right	Cheek	Wireless Charging	5	1:1	0.178	1.028	0.183	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	24.5	24.38	0.03	Right	Tilt	Standard	5	1:1	0.089	1.028	0.091	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	24.5	24.38	0.02	Left	Cheek	Standard	5	1:1	0.156	1.028	0.160	
836.52	384	CDMA BC0 (§22H)	RC3 / SO55	24.5	24.38	0.00	Left	Tilt	Standard	5	1:1	0.085	1.028	0.087	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	24.5	24.46	0.08	Right	Cheek	Standard	5	1:1	0.182	1.009	0.184	A6
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	24.5	24.46	-0.01	Right	Cheek	Wireless Charging	5	1:1	0.180	1.009	0.182	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	24.5	24.46	0.05	Right	Tilt	Standard	5	1:1	0.095	1.009	0.096	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	24.5	24.46	0.07	Left	Cheek	Standard	5	1:1	0.160	1.009	0.161	
836.52	384	CDMA BC0 (§22H)	EVDO Rev. A	24.5	24.46	0.01	Left	Tilt	Standard	5	1:1	0.091	1.009	0.092	
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 11-7
PCS CDMA Head SAR

MEASUREMENT RESULTS															
FREQUENCY		Mode/Band	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Cover Type	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	24.5	24.50	-0.07	Right	Cheek	Standard	6	1:1	0.086	1.000	0.086	
1880.00	600	PCS CDMA	RC3 / SO55	24.5	24.50	0.14	Right	Tilt	Standard	6	1:1	0.053	1.000	0.053	
1880.00	600	PCS CDMA	RC3 / SO55	24.5	24.50	0.06	Left	Cheek	Standard	6	1:1	0.113	1.000	0.113	
1880.00	600	PCS CDMA	RC3 / SO55	24.5	24.50	0.20	Left	Cheek	Wireless Charging	6	1:1	0.098	1.000	0.098	
1880.00	600	PCS CDMA	RC3 / SO55	24.5	24.50	-0.03	Left	Tilt	Standard	6	1:1	0.065	1.000	0.065	
1880.00	600	PCS CDMA	EVDO Rev. A	24.5	24.49	0.02	Right	Cheek	Standard	6	1:1	0.104	1.002	0.104	
1880.00	600	PCS CDMA	EVDO Rev. A	24.5	24.49	-0.14	Right	Tilt	Standard	6	1:1	0.052	1.002	0.052	
1880.00	600	PCS CDMA	EVDO Rev. A	24.5	24.49	0.16	Left	Cheek	Standard	6	1:1	0.116	1.002	0.116	A7
1880.00	600	PCS CDMA	EVDO Rev. A	24.5	24.49	0.07	Left	Cheek	Wireless Charging	6	1:1	0.096	1.002	0.096	
1880.00	600	PCS CDMA	EVDO Rev. A	24.5	24.49	0.05	Left	Tilt	Standard	6	1:1	0.068	1.002	0.068	
1880.00	600	PCS CDMA	EVDO Rev. A	22.5	22.44	0.08	Right	Cheek	Standard	8	1:1	0.074	1.014	0.075	
1880.00	600	PCS CDMA	EVDO Rev. A	22.5	22.44	0.04	Right	Tilt	Standard	8	1:1	0.036	1.014	0.037	
1880.00	600	PCS CDMA	EVDO Rev. A	22.5	22.44	0.09	Left	Cheek	Standard	8	1:1	0.068	1.014	0.069	
1880.00	600	PCS CDMA	EVDO Rev. A	22.5	22.44	0.13	Left	Tilt	Standard	8	1:1	0.041	1.014	0.042	
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 26 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY			Mode	Bandwidth [MHz]	Cover Type	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.	Low															(W/kg)		(W/kg)	
819.00	26740	Low	LTE Band 26	10	Standard	24.0	23.42	0.05	0	Right	Cheek	QPSK	1	25	2	1:1	0.146	1.143	0.167	
819.00	26740	Low	LTE Band 26	10	Wireless Charging	24.0	23.42	0.03	0	Right	Cheek	QPSK	1	25	2	1:1	0.155	1.143	0.177	A8
819.00	26740	Low	LTE Band 26	10	Standard	23.0	22.48	0.05	1	Right	Cheek	QPSK	25	25	2	1:1	0.116	1.127	0.131	
819.00	26740	Low	LTE Band 26	10	Standard	24.0	23.42	0.01	0	Right	Tilt	QPSK	1	25	2	1:1	0.076	1.143	0.087	
819.00	26740	Low	LTE Band 26	10	Standard	23.0	22.48	0.03	1	Right	Tilt	QPSK	25	25	2	1:1	0.057	1.127	0.064	
819.00	26740	Low	LTE Band 26	10	Standard	24.0	23.42	0.05	0	Left	Cheek	QPSK	1	25	2	1:1	0.106	1.143	0.121	
819.00	26740	Low	LTE Band 26	10	Standard	23.0	22.48	0.09	1	Left	Cheek	QPSK	25	25	2	1:1	0.081	1.127	0.091	
819.00	26740	Low	LTE Band 26	10	Standard	24.0	23.42	-0.12	0	Left	Tilt	QPSK	1	25	2	1:1	0.087	1.143	0.099	
819.00	26740	Low	LTE Band 26	10	Standard	23.0	22.48	-0.16	1	Left	Tilt	QPSK	25	25	2	1:1	0.055	1.127	0.062	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT												Head								
Spatial Peak												1.6 W/kg (mW/g)								
Uncontrolled Exposure/General Population												averaged over 1 gram								

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Table 11-9
LTE Band 25 (PCS) Head SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Cover Type	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)		
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	23.5	23.38	-0.08	0	Right	Cheek	QPSK	1	0	2	1:1	0.171	1.028	0.176	A9
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Wireless Charging	23.5	23.38	-0.13	0	Right	Cheek	QPSK	1	0	2	1:1	0.126	1.028	0.130	
1860.00	26140	Low	LTE Band 25 (PCS)	20	Standard	22.5	22.08	-0.02	1	Right	Cheek	QPSK	50	50	2	1:1	0.072	1.102	0.079	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	23.5	23.38	-0.03	0	Right	Tilt	QPSK	1	0	2	1:1	0.059	1.028	0.061	
1860.00	26140	Low	LTE Band 25 (PCS)	20	Standard	22.5	22.08	0.07	1	Right	Tilt	QPSK	50	50	2	1:1	0.033	1.102	0.036	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	23.5	23.38	0.14	0	Left	Cheek	QPSK	1	0	2	1:1	0.156	1.028	0.160	
1860.00	26140	Low	LTE Band 25 (PCS)	20	Standard	22.5	22.08	0.05	1	Left	Cheek	QPSK	50	50	2	1:1	0.066	1.102	0.073	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	23.5	23.38	0.20	0	Left	Tilt	QPSK	1	0	2	1:1	0.081	1.028	0.083	
1860.00	26140	Low	LTE Band 25 (PCS)	20	Standard	22.5	22.08	-0.05	1	Left	Tilt	QPSK	50	50	2	1:1	0.038	1.102	0.042	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	21.04	-0.12	0	Right	Cheek	QPSK	1	50	7	1:1	0.095	1.112	0.106	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	20.80	0.06	0	Right	Cheek	QPSK	50	25	7	1:1	0.096	1.175	0.113	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	21.04	0.19	0	Right	Tilt	QPSK	1	50	7	1:1	0.037	1.112	0.041	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	20.80	0.07	0	Right	Tilt	QPSK	50	25	7	1:1	0.032	1.175	0.038	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	21.04	0.15	0	Left	Cheek	QPSK	1	50	7	1:1	0.060	1.112	0.067	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	20.80	0.06	0	Left	Cheek	QPSK	50	25	7	1:1	0.063	1.175	0.074	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	21.04	0.20	0	Left	Tilt	QPSK	1	50	7	1:1	0.027	1.112	0.030	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	20.80	-0.20	0	Left	Tilt	QPSK	50	25	7	1:1	0.029	1.175	0.034	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak										Head 1.6 W/kg (mW/g) averaged over 1 gram										
Uncontrolled Exposure/General Population																				

Table 11-10
LTE Band 41 Head SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Cover Type	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)		
2506.00	39750	Low	LTE Band 41	20	Standard	24.5	24.48	0.04	0	Right	Cheek	QPSK	1	0	3	1:1.58	0.019	1.005	0.019	
2506.00	39750	Low	LTE Band 41	20	Standard	23.5	23.49	0.05	1	Right	Cheek	QPSK	50	0	3	1:1.58	0.013	1.002	0.013	
2506.00	39750	Low	LTE Band 41	20	Standard	24.5	24.48	0.05	0	Right	Tilt	QPSK	1	0	3	1:1.58	0.011	1.005	0.011	
2506.00	39750	Low	LTE Band 41	20	Standard	23.5	23.49	0.06	1	Right	Tilt	QPSK	50	0	3	1:1.58	0.008	1.002	0.008	
2506.00	39750	Low	LTE Band 41	20	Standard	24.5	24.48	-0.08	0	Left	Cheek	QPSK	1	0	3	1:1.58	0.019	1.005	0.019	
2506.00	39750	Low	LTE Band 41	20	Wireless Charging	24.5	24.48	0.03	0	Left	Cheek	QPSK	1	0	3	1:1.58	0.019	1.005	0.019	A10
2506.00	39750	Low	LTE Band 41	20	Standard	23.5	23.49	0.09	1	Left	Cheek	QPSK	50	0	3	1:1.58	0.013	1.002	0.013	
2506.00	39750	Low	LTE Band 41	20	Standard	24.5	24.48	0.03	0	Left	Tilt	QPSK	1	0	3	1:1.58	0.014	1.005	0.014	
2506.00	39750	Low	LTE Band 41	20	Standard	23.5	23.49	0.06	1	Left	Tilt	QPSK	50	0	3	1:1.58	0.010	1.002	0.010	
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
DTS Head SAR**

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Cover Type	Device Serial Number	Data Rate (Mbps)	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.													(W/kg)			
2412	1	IEEE 802.11b	DSSS	15.5	14.78	0.04	Right	Cheek	1	Standard	12	1	1:1	0.050	1.180	0.059	
2412	1	IEEE 802.11b	DSSS	15.5	14.78	0.03	Right	Tilt	1	Standard	12	1	1:1	0.031	1.180	0.037	
2412	1	IEEE 802.11b	DSSS	15.5	14.78	0.05	Left	Cheek	1	Standard	12	1	1:1	0.023	1.180	0.027	
2412	1	IEEE 802.11b	DSSS	15.5	14.78	0.04	Left	Tilt	1	Standard	12	1	1:1	0.021	1.180	0.025	
2437	6	IEEE 802.11b	DSSS	15.5	15.22	-0.13	Right	Cheek	2	Standard	12	1	1:1	0.146	1.067	0.156	
2437	6	IEEE 802.11b	DSSS	15.5	15.22	0.02	Right	Cheek	2	Wireless Charging	12	1	1:1	0.207	1.067	0.221	A11
2437	6	IEEE 802.11b	DSSS	15.5	15.22	0.13	Right	Tilt	2	Standard	12	1	1:1	0.125	1.067	0.133	
2437	6	IEEE 802.11b	DSSS	15.5	15.22	0.02	Left	Cheek	2	Standard	12	1	1:1	0.098	1.067	0.105	
2437	6	IEEE 802.11b	DSSS	15.5	15.22	0.20	Left	Tilt	2	Standard	12	1	1:1	0.084	1.067	0.090	
2412	1	IEEE 802.11n	OFDM	15.5	14.89	0.09	Right	Cheek	MIMO	Standard	12	13	1:1	0.133	1.151	0.153	
2412	1	IEEE 802.11n	OFDM	15.5	14.89	0.02	Right	Cheek	MIMO	Wireless Charging	12	13	1:1	0.100	1.151	0.115	
2412	1	IEEE 802.11n	OFDM	15.5	14.89	0.02	Right	Tilt	MIMO	Standard	12	13	1:1	0.101	1.151	0.116	
2412	1	IEEE 802.11n	OFDM	15.5	14.89	0.03	Left	Cheek	MIMO	Standard	12	13	1:1	0.054	1.151	0.062	
2412	1	IEEE 802.11n	OFDM	15.5	14.89	0.03	Left	Tilt	MIMO	Standard	12	13	1:1	0.050	1.151	0.058	
5765	153	IEEE 802.11a	OFDM	12.5	11.63	0.17	Right	Cheek	1	Standard	12	6	1:1	0.035	1.222	0.043	
5775	155	IEEE 802.11ac	OFDM	10.5	9.55	0.02	Right	Cheek	1	Standard	12	29.3	1:1	0.015	1.245	0.019	
5765	153	IEEE 802.11a	OFDM	12.5	11.63	0.02	Right	Tilt	1	Standard	12	6	1:1	0.008	1.222	0.010	
5765	153	IEEE 802.11a	OFDM	12.5	11.63	-0.13	Left	Cheek	1	Standard	12	6	1:1	0.008	1.222	0.010	
5765	153	IEEE 802.11a	OFDM	12.5	11.63	0.00	Left	Tilt	1	Standard	12	6	1:1	0.000	1.222	0.000	
5785	157	IEEE 802.11a	OFDM	12.5	12.45	0.05	Right	Cheek	2	Standard	12	6	1:1	0.106	1.012	0.107	
5785	157	IEEE 802.11a	OFDM	12.5	12.45	0.03	Right	Tilt	2	Standard	12	6	1:1	0.057	1.012	0.058	
5785	157	IEEE 802.11a	OFDM	12.5	12.45	0.03	Left	Cheek	2	Standard	12	6	1:1	0.169	1.012	0.171	
5785	157	IEEE 802.11a	OFDM	12.5	12.45	0.02	Left	Cheek	2	Wireless Charging	12	6	1:1	0.131	1.012	0.133	
5775	155	IEEE 802.11ac	OFDM	10.5	9.74	0.04	Left	Cheek	2	Standard	12	29.3	1:1	0.095	1.191	0.113	
5785	157	IEEE 802.11a	OFDM	12.5	12.45	-0.02	Left	Tilt	2	Standard	12	6	1:1	0.088	1.012	0.089	
5745	149	IEEE 802.11n	OFDM	15.5	14.67	0.04	Right	Cheek	MIMO	Standard	12	13	1:1	0.156	1.211	0.189	
5745	149	IEEE 802.11n	OFDM	15.5	14.67	0.07	Right	Tilt	MIMO	Standard	12	13	1:1	0.168	1.211	0.203	
5745	149	IEEE 802.11n	OFDM	15.5	14.67	-0.06	Left	Cheek	MIMO	Standard	12	13	1:1	0.113	1.211	0.137	
5745	149	IEEE 802.11n	OFDM	15.5	14.67	0.08	Left	Tilt	MIMO	Standard	12	13	1:1	0.195	1.211	0.236	
5745	149	IEEE 802.11n	OFDM	15.5	14.67	0.04	Left	Tilt	MIMO	Wireless Charging	12	13	1:1	0.224	1.211	0.271	A12
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population								Head 1.6 W/kg (mW/g) averaged over 1 gram									

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**Table 11-12
NII Head SAR**

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Side	Test Position	Antenna Config.	Cover Type	Device Serial Number	Data Rate (Mbps)	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.													(W/kg)		(W/kg)	
5220	44	IEEE 802.11a	OFDM	12.5	11.93	0.10	Right	Cheek	1	Standard	12	6	1:1	0.007	1.140	0.008	
5210	42	IEEE 802.11ac	OFDM	10.5	9.88	-0.09	Right	Cheek	1	Standard	12	29.3	1:1	0.001	1.153	0.001	
5220	44	IEEE 802.11a	OFDM	12.5	11.93	-0.09	Right	Tilt	1	Standard	12	6	1:1	0.000	1.140	0.000	
5220	44	IEEE 802.11a	OFDM	12.5	11.93	0.00	Left	Cheek	1	Standard	12	6	1:1	0.000	1.140	0.000	
5220	44	IEEE 802.11a	OFDM	12.5	11.93	0.00	Left	Tilt	1	Standard	12	6	1:1	0.000	1.140	0.000	
5300	60	IEEE 802.11a	OFDM	12.5	12.20	0.08	Right	Cheek	1	Standard	12	6	1:1	0.017	1.072	0.018	
5290	58	IEEE 802.11ac	OFDM	10.5	10.06	0.04	Right	Cheek	1	Standard	12	29.3	1:1	0.007	1.107	0.008	
5300	60	IEEE 802.11a	OFDM	12.5	12.20	0.00	Right	Tilt	1	Standard	12	6	1:1	0.000	1.072	0.000	
5300	60	IEEE 802.11a	OFDM	12.5	12.20	0.00	Left	Cheek	1	Standard	12	6	1:1	0.000	1.072	0.000	
5300	60	IEEE 802.11a	OFDM	12.5	12.20	0.00	Left	Tilt	1	Standard	12	6	1:1	0.000	1.072	0.000	
5500	100	IEEE 802.11a	OFDM	12.5	12.45	0.02	Right	Cheek	1	Standard	12	6	1:1	0.100	1.012	0.101	
5530	106	IEEE 802.11ac	OFDM	10.5	10.29	0.06	Right	Cheek	1	Standard	12	29.3	1:1	0.041	1.050	0.043	
5500	100	IEEE 802.11a	OFDM	12.5	12.45	0.20	Right	Tilt	1	Standard	12	6	1:1	0.019	1.012	0.019	
5500	100	IEEE 802.11a	OFDM	12.5	12.45	0.02	Left	Cheek	1	Standard	12	6	1:1	0.015	1.012	0.015	
5500	100	IEEE 802.11a	OFDM	12.5	12.45	0.00	Left	Tilt	1	Standard	12	6	1:1	0.000	1.012	0.000	
5240	48	IEEE 802.11a	OFDM	12.5	12.34	0.02	Right	Cheek	2	Standard	12	6	1:1	0.084	1.038	0.087	
5210	42	IEEE 802.11ac	OFDM	10.5	9.81	0.09	Right	Cheek	2	Standard	12	29.3	1:1	0.034	1.172	0.040	
5240	48	IEEE 802.11a	OFDM	12.5	12.34	0.05	Right	Tilt	2	Standard	12	6	1:1	0.045	1.038	0.047	
5240	48	IEEE 802.11a	OFDM	12.5	12.34	0.05	Left	Cheek	2	Standard	12	6	1:1	0.074	1.038	0.077	
5240	48	IEEE 802.11a	OFDM	12.5	12.34	0.13	Left	Tilt	2	Standard	12	6	1:1	0.057	1.038	0.059	
5260	52	IEEE 802.11a	OFDM	12.5	12.15	0.10	Right	Cheek	2	Standard	12	6	1:1	0.076	1.084	0.082	
5290	58	IEEE 802.11ac	OFDM	10.5	9.58	0.10	Right	Cheek	2	Standard	12	29.3	1:1	0.041	1.236	0.051	
5260	52	IEEE 802.11a	OFDM	12.5	12.15	0.03	Right	Tilt	2	Standard	12	6	1:1	0.045	1.084	0.049	
5260	52	IEEE 802.11a	OFDM	12.5	12.15	0.20	Left	Cheek	2	Standard	12	6	1:1	0.069	1.084	0.075	
5260	52	IEEE 802.11a	OFDM	12.5	12.15	0.05	Left	Tilt	2	Standard	12	6	1:1	0.058	1.084	0.063	
5520	104	IEEE 802.11a	OFDM	12.5	11.98	0.12	Right	Cheek	2	Standard	12	6	1:1	0.098	1.127	0.110	
5530	106	IEEE 802.11ac	OFDM	10.5	9.66	0.04	Right	Cheek	2	Standard	12	29.3	1:1	0.050	1.213	0.061	
5520	104	IEEE 802.11a	OFDM	12.5	11.98	-0.10	Right	Tilt	2	Standard	12	6	1:1	0.042	1.127	0.047	
5520	104	IEEE 802.11a	OFDM	12.5	11.98	0.18	Left	Cheek	2	Standard	12	6	1:1	0.097	1.127	0.109	
5520	104	IEEE 802.11a	OFDM	12.5	11.98	0.06	Left	Tilt	2	Standard	12	6	1:1	0.067	1.127	0.076	
5240	48	IEEE 802.11n	OFDM	15.5	15.20	0.04	Right	Cheek	MIMO	Standard	12	13	1:1	0.110	1.072	0.118	
5240	48	IEEE 802.11n	OFDM	15.5	15.20	0.04	Right	Tilt	MIMO	Standard	12	13	1:1	0.111	1.072	0.119	
5240	48	IEEE 802.11n	OFDM	15.5	15.20	0.04	Left	Cheek	MIMO	Standard	12	13	1:1	0.121	1.072	0.130	
5240	48	IEEE 802.11n	OFDM	15.5	15.20	0.08	Left	Tilt	MIMO	Standard	12	13	1:1	0.105	1.072	0.113	
5300	60	IEEE 802.11n	OFDM	15.5	14.81	0.04	Right	Cheek	MIMO	Standard	12	13	1:1	0.120	1.172	0.141	
5300	60	IEEE 802.11n	OFDM	15.5	14.81	0.08	Right	Tilt	MIMO	Standard	12	13	1:1	0.113	1.172	0.132	
5300	60	IEEE 802.11n	OFDM	15.5	14.81	0.20	Left	Cheek	MIMO	Standard	12	13	1:1	0.119	1.172	0.139	
5300	60	IEEE 802.11n	OFDM	15.5	14.81	0.19	Left	Tilt	MIMO	Standard	12	13	1:1	0.108	1.172	0.127	
5500	100	IEEE 802.11n	OFDM	15.5	14.96	0.04	Right	Cheek	MIMO	Standard	12	13	1:1	0.168	1.132	0.190	A13
5500	100	IEEE 802.11n	OFDM	15.5	14.96	0.04	Right	Tilt	MIMO	Standard	12	13	1:1	0.155	1.132	0.175	
5500	100	IEEE 802.11n	OFDM	15.5	14.96	0.13	Left	Cheek	MIMO	Standard	12	13	1:1	0.122	1.132	0.138	
5500	100	IEEE 802.11n	OFDM	15.5	14.96	0.03	Left	Tilt	MIMO	Standard	12	13	1:1	0.156	1.132	0.177	
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 11-13
GSM/UMTS/CDMA Body-Worn SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maxim um Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Cover Type	Device Serial Number	# of Time Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.												(W/kg)		(W/kg)	
836.60	190	GSM 850	GSM	33.5	32.80	0.04	15 mm	Standard	4	1	1:8.3	back	0.170	1.175	0.200	A14
836.60	190	GSM 850	GSM	33.5	32.80	0.04	15 mm	Wireless Charging	4	1	1:8.3	back	0.136	1.175	0.160	
836.60	4183	UMTS 850	RMC	23.5	23.28	0.04	15 mm	Standard	4	N/A	1:1	back	0.196	1.052	0.206	A16
836.60	4183	UMTS 850	RMC	23.5	23.28	0.07	15 mm	Wireless Charging	4	N/A	1:1	back	0.171	1.052	0.180	
1880.00	661	GSM 1900	GSM	30.5	29.86	0.08	15 mm	Standard	4	1	1:8.3	back	0.185	1.159	0.214	A18
1880.00	661	GSM 1900	GSM	30.5	29.86	-0.07	15 mm	Wireless Charging	4	1	1:8.3	back	0.157	1.159	0.182	
1880.00	9400	UMTS 1900	RMC	23.0	22.63	0.00	15 mm	Standard	4	N/A	1:1	back	0.313	1.089	0.341	A20
1880.00	9400	UMTS 1900	RMC	23.0	22.63	0.04	15 mm	Wireless Charging	4	N/A	1:1	back	0.220	1.089	0.240	
820.10	564	CDMABC10 (\$90S)	TDSO / SO32	24.5	24.45	-0.02	15 mm	Standard	5	N/A	1:1	back	0.249	1.012	0.252	A22
820.10	564	CDMABC10 (\$90S)	TDSO / SO32	24.5	24.45	-0.01	15 mm	Wireless Charging	5	N/A	1:1	back	0.226	1.012	0.229	
836.52	384	CDMABC0 (\$22H)	TDSO / SO32	24.5	24.39	-0.01	15 mm	Standard	5	N/A	1:1	back	0.310	1.026	0.318	A24
836.52	384	CDMABC0 (\$22H)	TDSO / SO32	24.5	24.39	0.00	15 mm	Wireless Charging	5	N/A	1:1	back	0.281	1.026	0.288	
1880.00	600	PCS CDMA	TDSO / SO32	24.5	24.49	0.05	15 mm	Standard	6	N/A	1:1	back	0.397	1.002	0.398	A26
1880.00	600	PCS CDMA	TDSO / SO32	24.5	24.49	0.01	15 mm	Wireless Charging	6	N/A	1:1	back	0.244	1.002	0.244	
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 11-14
LTE Body-Worn SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Cover Type	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)			
819.00	26740	Low	LTE Band 26	10	Standard	24.0	23.42	-0.04	0	2	QPSK	1	25	15 mm	back	1:1	0.215	1.143	0.246	A28
819.00	26740	Low	LTE Band 26	10	Wireless Charging	24.0	23.42	0.11	0	2	QPSK	1	25	15 mm	back	1:1	0.190	1.143	0.217	
819.00	26740	Low	LTE Band 26	10	Standard	23.0	22.48	0.02	1	2	QPSK	25	25	15 mm	back	1:1	0.168	1.127	0.189	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	23.5	23.38	-0.12	0	2	QPSK	1	0	15 mm	back	1:1	0.358	1.028	0.368	A30
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Wireless Charging	23.5	23.38	-0.05	0	2	QPSK	1	0	15 mm	back	1:1	0.349	1.028	0.359	
1860.00	26140	Low	LTE Band 25 (PCS)	20	Standard	22.5	22.08	-0.05	1	2	QPSK	50	50	15 mm	back	1:1	0.179	1.102	0.197	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	21.04	0.00	0	7	QPSK	1	50	15 mm	back	1:1	0.182	1.112	0.202	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	20.80	0.00	0	7	QPSK	50	25	15 mm	back	1:1	0.181	1.175	0.213	
2506.00	39750	Low	LTE Band 41	20	Standard	24.5	24.48	0.04	0	3	QPSK	1	0	15 mm	back	1:1.58	0.130	1.005	0.131	A32
2506.00	39750	Low	LTE Band 41	20	Wireless Charging	24.5	24.48	0.00	0	3	QPSK	1	0	15 mm	back	1:1.58	0.110	1.005	0.111	
2506.00	39750	Low	LTE Band 41	20	Standard	23.5	23.49	0.14	1	3	QPSK	50	0	15 mm	back	1:1.58	0.101	1.002	0.101	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak										Body 1.6 W/kg (mW/g) averaged over 1 gram										
Uncontrolled Exposure/General Population																				

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Table 11-15
DTS Body-Worn SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Cover Type	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.													(W/kg)		(W/kg)	
2412	1	IEEE 802.11b	DSSS	15.5	14.78	0.15	10 mm	1	Standard	10	1	back	1:1	0.096	1.180	0.113	A34
2412	1	IEEE 802.11b	DSSS	15.5	14.78	-0.06	10 mm	1	Wireless Charging	10	1	back	1:1	0.054	1.180	0.064	
2437	6	IEEE 802.11b	DSSS	15.5	15.22	0.01	10 mm	2	Standard	10	1	back	1:1	0.039	1.067	0.042	
2412	1	IEEE 802.11n	OFDM	15.5	14.89	0.02	10 mm	MIMO	Standard	10	13	back	1:1	0.042	1.151	0.048	
2412	1	IEEE 802.11n	OFDM	15.5	14.89	0.03	10 mm	MIMO	Wireless Charging	10	13	back	1:1	0.023	1.151	0.026	
5765	153	IEEE 802.11a	OFDM	12.5	11.63	0.06	10 mm	1	Standard	12	6	back	1:1	0.100	1.222	0.122	
5775	155	IEEE 802.11ac	OFDM	10.5	9.55	0.16	10 mm	1	Standard	12	29.3	back	1:1	0.043	1.245	0.054	
5785	157	IEEE 802.11a	OFDM	12.5	12.45	0.07	10 mm	2	Standard	12	6	back	1:1	0.099	1.012	0.100	
5775	155	IEEE 802.11ac	OFDM	10.5	9.74	0.00	10 mm	2	Standard	12	29.3	back	1:1	0.058	1.191	0.069	
5745	149	IEEE 802.11n	OFDM	15.5	14.67	0.09	10 mm	MIMO	Standard	12	13	back	1:1	0.193	1.211	0.234	A35
5745	149	IEEE 802.11n	OFDM	15.5	14.67	0.08	10 mm	MIMO	Wireless Charging	12	13	back	1:1	0.129	1.211	0.156	
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
NII Body-Worn SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Cover Type	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	SAR (1g)	Scaling Factor	Scaled SAR (1g)	Plot #
MHz	Ch.													(W/kg)		(W/kg)	
5220	44	IEEE 802.11a	OFDM	12.5	11.93	0.06	10 mm	1	Standard	12	6	back	1:1	0.062	1.140	0.071	
5210	42	IEEE 802.11ac	OFDM	10.5	9.88	0.04	10 mm	1	Standard	12	29.3	back	1:1	0.049	1.153	0.056	
5300	60	IEEE 802.11a	OFDM	12.5	12.20	0.06	10 mm	1	Standard	12	6	back	1:1	0.085	1.072	0.091	
5290	58	IEEE 802.11ac	OFDM	10.5	10.06	0.02	10 mm	1	Standard	12	29.3	back	1:1	0.039	1.107	0.043	
5500	100	IEEE 802.11a	OFDM	12.5	12.45	0.02	10 mm	1	Standard	12	6	back	1:1	0.162	1.012	0.164	A36
5500	100	IEEE 802.11a	OFDM	12.5	12.45	0.13	10 mm	1	Wireless Charging	12	6	back	1:1	0.085	1.012	0.086	
5530	106	IEEE 802.11ac	OFDM	10.5	10.29	0.06	10 mm	1	Standard	12	29.3	back	1:1	0.062	1.050	0.065	
5240	48	IEEE 802.11a	OFDM	12.5	12.34	0.03	10 mm	2	Standard	12	6	back	1:1	0.093	1.038	0.097	
5210	42	IEEE 802.11ac	OFDM	10.5	9.81	-0.04	10 mm	2	Standard	12	29.3	back	1:1	0.051	1.172	0.060	
5260	52	IEEE 802.11a	OFDM	12.5	12.15	0.02	10 mm	2	Standard	12	6	back	1:1	0.067	1.084	0.073	
5290	58	IEEE 802.11ac	OFDM	10.5	9.58	-0.08	10 mm	2	Standard	12	29.3	back	1:1	0.034	1.236	0.042	
5520	104	IEEE 802.11a	OFDM	12.5	11.98	-0.06	10 mm	2	Standard	12	6	back	1:1	0.111	1.127	0.125	
5530	106	IEEE 802.11ac	OFDM	10.5	9.66	-0.20	10 mm	2	Standard	12	29.3	back	1:1	0.039	1.213	0.047	
5240	48	IEEE 802.11n	OFDM	15.5	15.20	0.03	10 mm	MIMO	Standard	12	13	back	1:1	0.112	1.072	0.120	
5300	60	IEEE 802.11n	OFDM	15.5	14.81	0.04	10 mm	MIMO	Standard	12	13	back	1:1	0.089	1.172	0.104	
5500	100	IEEE 802.11n	OFDM	15.5	14.96	0.06	10 mm	MIMO	Standard	12	13	back	1:1	0.146	1.132	0.165	
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 11-17
GPRS/UMTS/CDMA Hotspot SAR Data

MEASUREMENT RESULTS																
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Cover Type	Device Serial Number	# of GPRS Slots	Duty Cycle	Side	SAR (1g)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.												(W/kg)			
836.60	190	GSM 850	GPRS	30.5	29.37	-0.17	10 mm	Standard	4	3	1:2.76	back	0.345	1.297	0.447	
836.60	190	GSM 850	GPRS	30.5	29.37	-0.17	10 mm	Standard	4	3	1:2.76	front	0.392	1.297	0.508	A15
836.60	190	GSM 850	GPRS	30.5	29.37	-0.09	10 mm	Wireless Charging	4	3	1:2.76	front	0.366	1.297	0.475	
836.60	190	GSM 850	GPRS	30.5	29.37	-0.02	10 mm	Standard	4	3	1:2.76	bottom	0.373	1.297	0.484	
836.60	190	GSM 850	GPRS	30.5	29.37	-0.09	10 mm	Standard	4	3	1:2.76	right	0.207	1.297	0.268	
836.60	190	GSM 850	GPRS	30.5	29.37	0.10	10 mm	Standard	4	3	1:2.76	left	0.046	1.297	0.060	
836.60	4183	UMTS 850	RMC	23.5	23.28	0.01	10 mm	Standard	4	N/A	1:1	back	0.352	1.052	0.370	
836.60	4183	UMTS 850	RMC	23.5	23.28	-0.01	10 mm	Standard	4	N/A	1:1	front	0.416	1.052	0.438	A17
836.60	4183	UMTS 850	RMC	23.5	23.28	-0.02	10 mm	Wireless Charging	4	N/A	1:1	front	0.390	1.052	0.410	
836.60	4183	UMTS 850	RMC	23.5	23.28	0.00	10 mm	Standard	4	N/A	1:1	bottom	0.343	1.052	0.361	
836.60	4183	UMTS 850	RMC	23.5	23.28	0.03	10 mm	Standard	4	N/A	1:1	right	0.154	1.052	0.162	
836.60	4183	UMTS 850	RMC	23.5	23.28	0.03	10 mm	Standard	4	N/A	1:1	left	0.066	1.052	0.069	
1880.00	661	GSM 1900	GPRS	27.5	26.89	-0.02	10 mm	Standard	4	3	1:2.76	back	0.476	1.151	0.548	
1880.00	661	GSM 1900	GPRS	27.5	26.89	0.07	10 mm	Standard	4	3	1:2.76	front	0.626	1.151	0.721	
1850.20	512	GSM 1900	GPRS	27.5	26.94	0.09	10 mm	Standard	4	3	1:2.76	bottom	0.874	1.138	0.995	
1880.00	661	GSM 1900	GPRS	27.5	26.89	-0.08	10 mm	Standard	4	3	1:2.76	bottom	0.950	1.151	1.093	A19
1909.80	810	GSM 1900	GPRS	27.5	26.97	0.02	10 mm	Standard	4	3	1:2.76	bottom	0.915	1.130	1.034	
1880.00	661	GSM 1900	GPRS	27.5	26.89	-0.01	10 mm	Wireless Charging	4	3	1:2.76	bottom	0.934	1.151	1.075	
1880.00	661	GSM 1900	GPRS	27.5	26.89	0.20	10 mm	Standard	4	3	1:2.76	right	0.087	1.151	0.100	
1880.00	661	GSM 1900	GPRS	27.5	26.89	0.05	10 mm	Standard	4	3	1:2.76	left	0.133	1.151	0.153	
1880.00	661	GSM 1900	GPRS	27.5	26.89	-0.01	10 mm	Standard	4	3	1:2.76	bottom	0.944	1.151	1.087	
1880.00	9400	UMTS 1900	RMC	21.0	20.71	0.03	10 mm	Standard	9	N/A	1:1	back	0.319	1.069	0.341	
1880.00	9400	UMTS 1900	RMC	21.0	20.71	-0.01	10 mm	Standard	9	N/A	1:1	front	0.424	1.069	0.453	
1880.00	9400	UMTS 1900	RMC	21.0	20.71	0.01	10 mm	Standard	9	N/A	1:1	bottom	0.650	1.069	0.695	A21
1880.00	9400	UMTS 1900	RMC	21.0	20.71	0.00	10 mm	Wireless Charging	9	N/A	1:1	bottom	0.499	1.069	0.533	
1880.00	9400	UMTS 1900	RMC	21.0	20.71	-0.01	10 mm	Standard	9	N/A	1:1	right	0.067	1.069	0.072	
1880.00	9400	UMTS 1900	RMC	21.0	20.71	0.01	10 mm	Standard	9	N/A	1:1	left	0.087	1.069	0.093	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	24.5	24.50	-0.02	10 mm	Standard	5	N/A	1:1	back	0.458	1.000	0.458	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	24.5	24.50	-0.02	10 mm	Standard	5	N/A	1:1	front	0.587	1.000	0.587	A23
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	24.5	24.50	0.03	10 mm	Wireless Charging	5	N/A	1:1	front	0.488	1.000	0.488	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	24.5	24.50	0.01	10 mm	Standard	5	N/A	1:1	bottom	0.454	1.000	0.454	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	24.5	24.50	-0.01	10 mm	Standard	5	N/A	1:1	right	0.247	1.000	0.247	
820.10	564	CDMA BC10 (\$90S)	EVDO Rev. 0	24.5	24.50	0.01	10 mm	Standard	5	N/A	1:1	left	0.111	1.000	0.111	
836.52	384	CDMA BC0 (\$22H)	EVDO Rev. 0	24.5	24.48	0.00	10 mm	Standard	5	N/A	1:1	back	0.565	1.005	0.568	
836.52	384	CDMA BC0 (\$22H)	EVDO Rev. 0	24.5	24.48	-0.02	10 mm	Standard	5	N/A	1:1	front	0.711	1.005	0.715	A25
836.52	384	CDMA BC0 (\$22H)	EVDO Rev. 0	24.5	24.48	0.02	10 mm	Wireless Charging	5	N/A	1:1	front	0.620	1.005	0.623	
836.52	384	CDMA BC0 (\$22H)	EVDO Rev. 0	24.5	24.48	0.01	10 mm	Standard	5	N/A	1:1	bottom	0.508	1.005	0.511	
836.52	384	CDMA BC0 (\$22H)	EVDO Rev. 0	24.5	24.48	-0.03	10 mm	Standard	5	N/A	1:1	right	0.281	1.005	0.282	
836.52	384	CDMA BC0 (\$22H)	EVDO Rev. 0	24.5	24.48	0.01	10 mm	Standard	5	N/A	1:1	left	0.085	1.005	0.085	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.46	-0.07	10 mm	Standard	8	N/A	1:1	back	0.480	1.009	0.484	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.46	-0.06	10 mm	Standard	8	N/A	1:1	front	0.717	1.009	0.723	
1851.25	25	PCS CDMA	EVDO Rev. 0	22.5	22.50	0.05	10 mm	Standard	8	N/A	1:1	bottom	0.891	1.000	0.891	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.46	0.02	10 mm	Standard	8	N/A	1:1	bottom	0.935	1.009	0.943	A27
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.46	0.02	10 mm	Wireless Charging	8	N/A	1:1	bottom	0.634	1.009	0.640	
1908.75	1175	PCS CDMA	EVDO Rev. 0	22.5	22.50	0.11	10 mm	Standard	8	N/A	1:1	bottom	0.860	1.000	0.860	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.46	0.09	10 mm	Standard	8	N/A	1:1	right	0.090	1.009	0.091	
1880.00	600	PCS CDMA	EVDO Rev. 0	22.5	22.46	0.01	10 mm	Standard	8	N/A	1:1	left	0.145	1.009	0.146	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram									

Note: Variability is highlighted in blue.

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Table 11-18
LTE Band 26 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Cover Type	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)		
819.00	26740	Low	LTE Band 26	10	Standard	24.0	23.42	-0.09	0	2	QPSK	1	25	10 mm	back	1:1	0.350	1.143	0.400	A29
819.00	26740	Low	LTE Band 26	10	Standard	23.0	22.48	0.03	1	2	QPSK	25	25	10 mm	back	1:1	0.276	1.127	0.311	
819.00	26740	Low	LTE Band 26	10	Standard	24.0	23.42	0.04	0	2	QPSK	1	25	10 mm	front	1:1	0.443	1.143	0.506	
819.00	26740	Low	LTE Band 26	10	Wireless Charging	24.0	23.42	-0.02	0	2	QPSK	1	25	10 mm	front	1:1	0.413	1.143	0.472	
819.00	26740	Low	LTE Band 26	10	Standard	23.0	22.48	0.02	1	2	QPSK	25	25	10 mm	front	1:1	0.361	1.127	0.407	
819.00	26740	Low	LTE Band 26	10	Standard	24.0	23.42	0.00	0	2	QPSK	1	25	10 mm	bottom	1:1	0.358	1.143	0.409	
819.00	26740	Low	LTE Band 26	10	Standard	23.0	22.48	-0.04	1	2	QPSK	25	25	10 mm	bottom	1:1	0.276	1.127	0.311	
819.00	26740	Low	LTE Band 26	10	Standard	24.0	23.42	-0.08	0	2	QPSK	1	25	10 mm	right	1:1	0.221	1.143	0.253	
819.00	26740	Low	LTE Band 26	10	Standard	23.0	22.48	0.01	1	2	QPSK	25	25	10 mm	right	1:1	0.170	1.127	0.192	
819.00	26740	Low	LTE Band 26	10	Standard	24.0	23.42	-0.08	0	2	QPSK	1	25	10 mm	left	1:1	0.106	1.143	0.121	
819.00	26740	Low	LTE Band 26	10	Standard	23.0	22.48	0.05	1	2	QPSK	25	25	10 mm	left	1:1	0.073	1.127	0.082	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT											Body									
Spatial Peak											1.6 W/kg (mW/g)									
Uncontrolled Exposure/General Population											averaged over 1 gram									

Table 11-19
LTE Band 25 (PCS) Hotspot SAR

MEASUREMENT RESULTS																					
FREQUENCY		Mode	Bandwidth [MHz]	Cover Type	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	Standard	21.5	21.04	-0.02	0	7	QPSK	1	50	10 mm	back	1:1	0.361	1.112	0.401		
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	20.80	-0.02	0	7	QPSK	50	25	10 mm	back	1:1	0.363	1.175	0.427		
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	21.04	-0.01	0	7	QPSK	1	50	10 mm	front	1:1	0.545	1.112	0.606		
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	20.80	0.00	0	7	QPSK	50	25	10 mm	front	1:1	0.551	1.175	0.647		
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	21.04	-0.06	0	7	QPSK	1	50	10 mm	bottom	1:1	0.673	1.112	0.748	A31	
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Wireless Charging	21.5	21.04	0.00	0	7	QPSK	1	50	10 mm	bottom	1:1	0.653	1.112	0.726		
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	20.80	-0.04	0	7	QPSK	50	25	10 mm	bottom	1:1	0.593	1.175	0.697		
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	21.04	-0.09	0	7	QPSK	1	50	10 mm	right	1:1	0.127	1.112	0.141		
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	20.80	-0.06	0	7	QPSK	50	25	10 mm	right	1:1	0.092	1.175	0.108		
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	21.04	-0.04	0	7	QPSK	1	50	10 mm	left	1:1	0.075	1.112	0.083		
1882.50	26365	Mid	LTE Band 25 (PCS)	20	Standard	21.5	20.80	0.04	0	7	QPSK	50	25	10 mm	left	1:1	0.074	1.175	0.087		
ANSI / IEEE C95.1 1992 - SAFETY LIMIT										Body											
Spatial Peak										1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population										averaged over 1 gram											

Table 11-20
LTE Band 41 Hotspot SAR

MEASUREMENT RESULTS																				
FREQUENCY		Mode	Bandwidth [MHz]	Cover Type	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) (W/kg)	Plot #
MHz	Ch.															(W/kg)	(W/kg)			
2506.00	39750	Low	LTE Band 41	20	Standard	24.5	24.48	-0.13	0	3	QPSK	1	0	10 mm	back	1:1.58	0.273	1.005	0.274	
2506.00	39750	Low	LTE Band 41	20	Standard	23.5	23.49	0.00	1	3	QPSK	50	0	10 mm	back	1:1.58	0.209	1.002	0.209	
2506.00	39750	Low	LTE Band 41	20	Standard	24.5	24.48	-0.07	0	3	QPSK	1	0	10 mm	front	1:1.58	0.363	1.005	0.365	
2506.00	39750	Low	LTE Band 41	20	Standard	23.5	23.49	0.00	1	3	QPSK	50	0	10 mm	front	1:1.58	0.277	1.002	0.278	
2506.00	39750	Low	LTE Band 41	20	Standard	24.5	24.48	0.06	0	3	QPSK	1	0	10 mm	bottom	1:1.58	0.532	1.005	0.535	A33
2506.00	39750	Low	LTE Band 41	20	Wireless Charging	24.5	24.48	0.01	0	3	QPSK	1	0	10 mm	bottom	1:1.58	0.465	1.005	0.467	
2506.00	39750	Low	LTE Band 41	20	Standard	23.5	23.49	0.00	1	3	QPSK	50	0	10 mm	bottom	1:1.58	0.402	1.002	0.403	
2506.00	39750	Low	LTE Band 41	20	Standard	24.5	24.48	0.08	0	3	QPSK	1	0	10 mm	right	1:1.58	0.063	1.005	0.063	
2506.00	39750	Low	LTE Band 41	20	Standard	23.5	23.49	0.14	1	3	QPSK	50	0	10 mm	right	1:1.58	0.048	1.002	0.048	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT									Body											
Spatial Peak									1.6 W/kg (mW/g)											
Uncontrolled Exposure/General Population									averaged over 1 gram											

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**Table 11-21
WLAN Hotspot SAR**

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Cover Type	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	SAR (1g) (W/kg)	Scaling Factor	Scaled SAR (1g) (W/kg)	Plot #
MHz	Ch.																
2412	1	IEEE 802.11b	DSSS	15.5	14.78	0.15	10 mm	1	Standard	10	1	back	1:1	0.096	1.180	0.113	A34
2412	1	IEEE 802.11b	DSSS	15.5	14.78	-0.06	10 mm	1	Wireless Charging	10	1	back	1:1	0.054	1.180	0.064	
2412	1	IEEE 802.11b	DSSS	15.5	14.78	0.07	10 mm	1	Standard	10	1	front	1:1	0.011	1.180	0.013	
2412	1	IEEE 802.11b	DSSS	15.5	14.78	0.02	10 mm	1	Standard	10	1	top	1:1	0.011	1.180	0.013	
2412	1	IEEE 802.11b	DSSS	15.5	14.78	0.14	10 mm	1	Standard	10	1	left	1:1	0.033	1.180	0.039	
2437	6	IEEE 802.11b	DSSS	15.5	15.22	0.01	10 mm	2	Standard	10	1	back	1:1	0.039	1.067	0.042	
2437	6	IEEE 802.11b	DSSS	15.5	15.22	0.06	10 mm	2	Standard	10	1	front	1:1	0.009	1.067	0.010	
2437	6	IEEE 802.11b	DSSS	15.5	15.22	0.05	10 mm	2	Standard	10	1	top	1:1	0.011	1.067	0.012	
2437	6	IEEE 802.11b	DSSS	15.5	15.22	0.07	10 mm	2	Standard	10	1	right	1:1	0.004	1.067	0.004	
2412	1	IEEE 802.11n	OFDM	15.5	14.89	0.02	10 mm	MIMO	Standard	10	13	back	1:1	0.042	1.151	0.048	
2412	1	IEEE 802.11n	OFDM	15.5	14.89	0.03	10 mm	MIMO	Wireless Charging	10	13	back	1:1	0.023	1.151	0.026	
2412	1	IEEE 802.11n	OFDM	15.5	14.89	0.06	10 mm	MIMO	Standard	10	13	front	1:1	0.007	1.151	0.008	
2412	1	IEEE 802.11n	OFDM	15.5	14.89	0.06	10 mm	MIMO	Standard	10	13	top	1:1	0.009	1.151	0.010	
2412	1	IEEE 802.11n	OFDM	15.5	14.89	0.07	10 mm	MIMO	Standard	10	13	right	1:1	0.000	1.151	0.000	
2412	1	IEEE 802.11n	OFDM	15.5	14.89	0.18	10 mm	MIMO	Standard	10	13	left	1:1	0.017	1.151	0.020	
5765	153	IEEE 802.11a	OFDM	12.5	11.63	0.06	10 mm	1	Standard	12	6	back	1:1	0.100	1.222	0.122	
5765	153	IEEE 802.11a	OFDM	12.5	11.63	-0.11	10 mm	1	Wireless Charging	12	6	back	1:1	0.143	1.222	0.175	
5775	155	IEEE 802.11ac	OFDM	10.5	9.55	0.16	10 mm	1	Standard	12	29.3	back	1:1	0.043	1.245	0.054	
5765	153	IEEE 802.11a	OFDM	12.5	11.63	-0.10	10 mm	1	Standard	12	6	front	1:1	0.023	1.222	0.028	
5765	153	IEEE 802.11a	OFDM	12.5	11.63	0.07	10 mm	1	Standard	12	6	top	1:1	0.013	1.222	0.016	
5765	153	IEEE 802.11a	OFDM	12.5	11.63	0.09	10 mm	1	Standard	12	6	left	1:1	0.042	1.222	0.051	
5785	157	IEEE 802.11a	OFDM	12.5	12.45	0.03	10 mm	2	Standard	12	6	back	1:1	0.099	1.012	0.100	
5775	155	IEEE 802.11ac	OFDM	10.5	9.74	0.05	10 mm	2	Standard	12	29.3	back	1:1	0.058	1.191	0.069	
5785	157	IEEE 802.11a	OFDM	12.5	12.45	0.10	10 mm	2	Standard	12	6	front	1:1	0.013	1.012	0.013	
5785	157	IEEE 802.11a	OFDM	12.5	12.45	0.20	10 mm	2	Standard	12	6	top	1:1	0.021	1.012	0.021	
5785	157	IEEE 802.11a	OFDM	12.5	12.45	0.04	10 mm	2	Standard	12	6	right	1:1	0.018	1.012	0.018	
5745	149	IEEE 802.11n	OFDM	15.5	14.67	0.09	10 mm	MIMO	Standard	12	13	back	1:1	0.193	1.211	0.234	A35
5745	149	IEEE 802.11n	OFDM	15.5	14.67	0.08	10 mm	MIMO	Wireless Charging	12	13	back	1:1	0.129	1.211	0.156	
5745	149	IEEE 802.11n	OFDM	15.5	14.67	0.19	10 mm	MIMO	Standard	12	13	front	1:1	0.020	1.211	0.024	
5745	149	IEEE 802.11n	OFDM	15.5	14.67	0.08	10 mm	MIMO	Standard	12	13	top	1:1	0.035	1.211	0.042	
5745	149	IEEE 802.11n	OFDM	15.5	14.67	0.04	10 mm	MIMO	Standard	12	13	right	1:1	0.030	1.211	0.036	
5745	149	IEEE 802.11n	OFDM	15.5	14.67	0.05	10 mm	MIMO	Standard	12	13	left	1:1	0.031	1.211	0.038	
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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11.4 Standalone Hand SAR Data

Table 11-22
CDMA Hand SAR Data

MEASUREMENT RESULTS															
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Cover Type	Device Serial Number	Duty Cycle	Side	SAR (10g)	Scaling Factor	Scaled SAR (10g)	Plot #
MHz	Ch.											(W/kg)		(W/kg)	
1851.25	25	PCS CDMA	EVDO Rev. 0	24.5	24.50	-0.14	0 mm	Standard	6	1:1	bottom	2.960	1.000	2.960	
1880.00	600	PCS CDMA	EVDO Rev. 0	24.5	24.50	-0.06	0 mm	Standard	6	1:1	bottom	2.530	1.000	2.530	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.5	24.39	-0.15	0 mm	Standard	6	1:1	bottom	3.160	1.026	3.242	A37
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.5	24.39	-0.02	0 mm	Wireless Charging	6	1:1	bottom	2.260	1.026	2.319	
1908.75	1175	PCS CDMA	EVDO Rev. 0	24.5	24.39	0.00	0 mm	Standard	6	1:1	bottom	2.790	1.026	2.863	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT							Hand								
Spatial Peak							4.0 W/kg (mW/g)								
Uncontrolled Exposure/General Population							averaged over 10 grams								

Note: Variability is highlighted in blue.

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Table 11-23
WLAN Hand SAR

MEASUREMENT RESULTS																	
FREQUENCY		Mode	Service	Maximum Allowed Power [dBm]	Conducted Power [dBm]	Power Drift [dB]	Spacing	Antenna Config.	Cover Type	Device Serial Number	Data Rate (Mbps)	Side	Duty Cycle	SAR (10g)	Scaling Factor	Scaled SAR (10g) (W/kg)	Plot #
MHz	Ch.													(W/kg)		(W/kg)	
5220	44	IEEE 802.11a	OFDM	12.5	11.93	0.02	0 mm	1	Standard	12	6	back	1:1	0.342	1.140	0.390	A38
5220	44	IEEE 802.11a	OFDM	12.5	11.93	-0.07	0 mm	1	Wireless Charging	12	6	back	1:1	0.453	1.140	0.516	
5210	42	IEEE 802.11ac	OFDM	10.5	9.88	0.01	0 mm	1	Standard	12	29.3	back	1:1	0.108	1.153	0.125	
5220	44	IEEE 802.11a	OFDM	12.5	11.93	-0.20	0 mm	1	Standard	12	6	front	1:1	0.012	1.140	0.014	
5220	44	IEEE 802.11a	OFDM	12.5	11.93	-0.04	0 mm	1	Standard	12	6	top	1:1	0.000	1.140	0.000	
5220	44	IEEE 802.11a	OFDM	12.5	11.93	0.09	0 mm	1	Standard	12	6	left	1:1	0.001	1.140	0.001	
5300	60	IEEE 802.11a	OFDM	12.5	12.20	0.02	0 mm	1	Standard	12	6	back	1:1	0.309	1.072	0.331	
5290	58	IEEE 802.11ac	OFDM	10.5	10.06	0.09	0 mm	1	Standard	12	29.3	back	1:1	0.110	1.107	0.122	
5300	60	IEEE 802.11a	OFDM	12.5	12.20	0.04	0 mm	1	Standard	12	6	front	1:1	0.015	1.072	0.016	
5300	60	IEEE 802.11a	OFDM	12.5	12.20	0.10	0 mm	1	Standard	12	6	top	1:1	0.000	1.072	0.000	
5300	60	IEEE 802.11a	OFDM	12.5	12.20	0.03	0 mm	1	Standard	12	6	left	1:1	0.001	1.072	0.001	
5500	100	IEEE 802.11a	OFDM	12.5	12.45	0.05	0 mm	1	Standard	12	6	back	1:1	0.267	1.012	0.270	
5530	106	IEEE 802.11ac	OFDM	10.5	10.29	0.20	0 mm	1	Standard	12	29.3	back	1:1	0.186	1.050	0.195	
5500	100	IEEE 802.11a	OFDM	12.5	12.45	0.08	0 mm	1	Standard	12	6	front	1:1	0.030	1.012	0.030	
5500	100	IEEE 802.11a	OFDM	12.5	12.45	0.17	0 mm	1	Standard	12	6	top	1:1	0.001	1.012	0.001	
5500	100	IEEE 802.11a	OFDM	12.5	12.45	0.08	0 mm	1	Standard	12	6	left	1:1	0.001	1.012	0.001	
5240	48	IEEE 802.11a	OFDM	12.5	12.34	-0.04	0 mm	2	Standard	12	6	back	1:1	0.243	1.038	0.252	
5210	42	IEEE 802.11ac	OFDM	10.5	9.81	0.20	0 mm	2	Standard	12	29.3	back	1:1	0.151	1.172	0.177	
5240	48	IEEE 802.11a	OFDM	12.5	12.34	0.06	0 mm	2	Standard	12	6	front	1:1	0.084	1.038	0.087	
5240	48	IEEE 802.11a	OFDM	12.5	12.34	0.03	0 mm	2	Standard	12	6	top	1:1	0.067	1.038	0.070	
5240	48	IEEE 802.11a	OFDM	12.5	12.34	0.07	0 mm	2	Standard	12	6	right	1:1	0.023	1.038	0.024	
5260	52	IEEE 802.11a	OFDM	12.5	12.15	-0.03	0 mm	2	Standard	12	6	back	1:1	0.184	1.084	0.199	
5290	58	IEEE 802.11ac	OFDM	10.5	9.58	0.10	0 mm	2	Standard	12	29.3	back	1:1	0.115	1.236	0.142	
5260	52	IEEE 802.11a	OFDM	12.5	12.15	0.03	0 mm	2	Standard	12	6	front	1:1	0.075	1.084	0.081	
5260	52	IEEE 802.11a	OFDM	12.5	12.15	-0.06	0 mm	2	Standard	12	6	top	1:1	0.060	1.084	0.065	
5260	52	IEEE 802.11a	OFDM	12.5	12.15	0.20	0 mm	2	Standard	12	6	right	1:1	0.015	1.084	0.016	
5520	104	IEEE 802.11a	OFDM	12.5	11.98	-0.03	0 mm	2	Standard	12	6	back	1:1	0.253	1.127	0.285	
5530	106	IEEE 802.11ac	OFDM	10.5	9.66	0.20	0 mm	2	Standard	12	29.3	back	1:1	0.133	1.213	0.161	
5520	104	IEEE 802.11a	OFDM	12.5	11.98	0.20	0 mm	2	Standard	12	6	front	1:1	0.074	1.127	0.083	
5520	104	IEEE 802.11a	OFDM	12.5	11.98	-0.20	0 mm	2	Standard	12	6	top	1:1	0.073	1.127	0.082	
5520	104	IEEE 802.11a	OFDM	12.5	11.98	0.03	0 mm	2	Standard	12	6	right	1:1	0.024	1.127	0.027	
5240	48	IEEE 802.11n	OFDM	15.5	15.20	0.06	0 mm	MIMO	Standard	12	13	back	1:1	0.332	1.072	0.356	
5240	48	IEEE 802.11n	OFDM	15.5	15.20	0.06	0 mm	MIMO	Wireless Charging	12	13	back	1:1	0.262	1.072	0.281	
5240	48	IEEE 802.11n	OFDM	15.5	15.20	-0.04	0 mm	MIMO	Standard	12	13	front	1:1	0.084	1.072	0.090	
5240	48	IEEE 802.11n	OFDM	15.5	15.20	0.12	0 mm	MIMO	Standard	12	13	top	1:1	0.003	1.072	0.003	
5240	48	IEEE 802.11n	OFDM	15.5	15.20	0.20	0 mm	MIMO	Standard	12	13	right	1:1	0.002	1.072	0.002	
5240	48	IEEE 802.11n	OFDM	15.5	15.20	0.04	0 mm	MIMO	Standard	12	13	left	1:1	0.007	1.072	0.008	
5300	60	IEEE 802.11n	OFDM	15.5	14.81	0.05	0 mm	MIMO	Standard	12	13	back	1:1	0.276	1.172	0.323	
5300	60	IEEE 802.11n	OFDM	15.5	14.81	0.03	0 mm	MIMO	Standard	12	13	front	1:1	0.087	1.172	0.102	
5300	60	IEEE 802.11n	OFDM	15.5	14.81	0.09	0 mm	MIMO	Standard	12	13	top	1:1	0.003	1.172	0.004	
5300	60	IEEE 802.11n	OFDM	15.5	14.81	0.03	0 mm	MIMO	Standard	12	13	right	1:1	0.021	1.172	0.025	
5300	60	IEEE 802.11n	OFDM	15.5	14.81	0.13	0 mm	MIMO	Standard	12	13	left	1:1	0.009	1.172	0.011	
5500	100	IEEE 802.11n	OFDM	15.5	14.96	0.05	0 mm	MIMO	Standard	12	13	back	1:1	0.299	1.132	0.338	
5500	100	IEEE 802.11n	OFDM	15.5	14.96	0.14	0 mm	MIMO	Standard	12	13	front	1:1	0.102	1.132	0.115	
5500	100	IEEE 802.11n	OFDM	15.5	14.96	0.20	0 mm	MIMO	Standard	12	13	top	1:1	0.004	1.132	0.005	
5500	100	IEEE 802.11n	OFDM	15.5	14.96	0.05	0 mm	MIMO	Standard	12	13	right	1:1	0.030	1.132	0.034	
5500	100	IEEE 802.11n	OFDM	15.5	14.96	0.09	0 mm	MIMO	Standard	12	13	left	1:1	0.011	1.132	0.012	
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Hand 4.0 W/kg (mW/g) averaged over 10 grams										

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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. A test separation distance of 10 mm was used for 2.4/5 GHz WLAN as it is more conservative.
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 1 gram SAR results for a frequency band were greater than 0.8 W/kg or when the measured 10 gram SAR results for a frequency band were greater than 2.0 W/kg. Repeated SAR measurements are highlighted in the tables above for clarity. Please see Section 13 for variability analysis.
9. During SAR Testing for the Wireless Router conditions per FCC KDB Publication 941225 D06v01, 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. Per FCC KDB Publication 648474 D04, SAR was measured using the standard battery cover and then repeated with the wireless charging battery cover for the configuration with the highest reported SAR for each wireless technology, frequency band, operating mode, and exposure condition. Since reported 1g SAR did not exceed 1.2 W/kg, additional testing with the wireless charging battery cover was not required.
12. This device utilizes power reduction for PCS CDMA/EVDO, UMTS Band 2 and LTE Band 25 under some portable hotspot conditions for SAR compliance. Therefore, these wireless router configurations were tested at reduced output power levels.

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 D03v01 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 then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel was used.

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CDMA Notes:

1. Head SAR for CDMA2000 mode was tested under RC3/SO55 per FCC KDB Publication 941225 D01v02.
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 since the average output power was not more than 0.25 dB higher than the TDSO / SO32 FCH only powers, per FCC KDB Publication 941225 D01v02.
3. CDMA Wireless Router SAR is measured using Subtype 0/1 Physical Layer configurations for Rev. 0 according to KDB 941225 D01 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 1/4 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 and ≤ 2 W/kg for 10 g then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel was used.
6. This device applies power reduction for PCS CDMA/EVDO modes when Hotspot is ON. Therefore PCS CDMA/EVDO modes were evaluated at hotspot reduced power levels. There is no power reduction applied to Cellular BC10 and BC0 CDMA/EVDO modes.

UMTS Notes:

1. UMTS mode in was tested under RMC 12.2 kbps with HSPA Inactive per KDB Publication 941225 D01v02. 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.
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 then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel was used.
3. This device applies power reduction for UMTS band 2 modes when Hotspot is ON. Therefore UMTS band 2 modes were evaluated at hotspot reduced power levels. There is no power reduction applied to UMTS B5.

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Considerations for LTE Devices in FCC KDB Publication 941225 D05v02r01. The general test procedures used for testing can be found in Section 8.5.4.
2. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.
3. A-MPR was disabled for all SAR tests by setting NS=01 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).
4. Per FCC KDB Publication 447498 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.

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5. 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.
6. Per FCC Guidance, LTE CA SAR was not needed for testing since the data sent by uplink on the uplink physical channels does not change between Rel. 8 and Rel. 10.

WLAN Notes:

1. Justification for reduced test configurations for WIFI channels per KDB Publication 248227 D01v01r02 and October 2012 FCC/TCB Meeting Notes for 2.4 GHz WIFI SISO operations: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11b. Other SISO IEEE 802.11 modes (including 802.11g/n) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11b mode.
2. Justification for reduced test configurations for WIFI channels per KDB Publication 248227 D01v01r02 and October 2012 FCC/TCB Meeting Notes for SISO 5 GHz WIFI operations: Highest average RF output power channel for the lowest data rate was selected for SAR evaluation in 802.11a. Other IEEE SISO 802.11 modes (including 802.11n 20 MHz and 40 MHz bandwidths) were not investigated since the average output powers over all channels and data rates were not more than 0.25 dB higher than the tested channel in the lowest data rate of IEEE 802.11a mode.
3. Per April 2013 TCB Workshop notes, full SISO SAR tests for all IEEE 802.11ac configurations were not required because the average output power was not more than 0.25 dB higher than IEEE 802.11a mode. IEEE 802.11ac SISO was evaluated for the highest IEEE 802.11a position in each 5 GHz band and exposure condition.
4. When Hotspot is enabled, 5.2-5.7 GHz bands are disabled. Therefore no 5.2 – 5.7 GHz WIFI Wireless Router SAR Data was required.
5. Per KDB 248227, SAR for MIMO was measured with both transmitting simultaneously and was evaluated in dependently of SISO operation. For 2.4 GHz MIMO, IEEE 802.11n was evaluated. For 5 GHz MIMO, IEEE 802.11n 20 MHz bandwidth was evaluated.
6. WIFI transmission was verified using an uncalibrated spectrum analyzer.
7. When the maximum extrapolated peak SAR of the zoom scan for the maximum output channel is <1.6 W/kg and the reported 1g averaged SAR is <0.8 W/kg, SAR testing on other default channels was required. Testing on other default channels was not required for 10 g Extremity SAR, since the reported 10g averaged SAR is <2.0 W/kg.
8. WLAN Body-Worn tests were performed at distance of 10 mm to represent a more conservative test configuration.

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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 or 10g SAR for all the simultaneous transmitting antennas in a specific physical test configuration is ≤ 1.6 W/kg or ≤ 4.0 W/kg respectively. When standalone SAR is not required to be measured, per FCC KDB 447498 D01v05 4.3.2.2), the following equation must be used to estimate the standalone 1g or 10g SAR for simultaneous transmission assessment involving that transmitter.

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

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

Table 12-1
Estimated SAR

Mode	Frequency	Maximum Allowed Power	Separation Distance (Body)	Estimated SAR (Body)
	[MHz]	[dBm]	[mm]	[W/kg]
Bluetooth	2480	12.50	15	0.252

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.

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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)

Simult Tx	Configuration	GSM 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.100	0.059	0.159	Head SAR	Right Cheek	0.123	0.059	0.182
	Right Tilt	0.049	0.037	0.086		Right Tilt	0.056	0.037	0.093
	Left Cheek	0.090	0.027	0.117		Left Cheek	0.097	0.027	0.124
	Left Tilt	0.045	0.025	0.070		Left Tilt	0.050	0.025	0.075
Simult Tx	Configuration	GSM 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.061	0.059	0.120	Head SAR	Right Cheek	0.102	0.059	0.161
	Right Tilt	0.037	0.037	0.074		Right Tilt	0.051	0.037	0.088
	Left Cheek	0.092	0.027	0.119		Left Cheek	0.093	0.027	0.120
	Left Tilt	0.038	0.025	0.063		Left Tilt	0.058	0.025	0.083
Simult Tx	Configuration	CDMA BC10 (\$90S) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC10 (\$90S) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.171	0.059	0.230	Head SAR	Right Cheek	0.177	0.059	0.236
	Right Tilt	0.091	0.037	0.128		Right Tilt	0.096	0.037	0.133
	Left Cheek	0.141	0.027	0.168		Left Cheek	0.152	0.027	0.179
	Left Tilt	0.094	0.025	0.119		Left Tilt	0.103	0.025	0.128
Simult Tx	Configuration	CDMA BC0 (\$22H) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC0 (\$22H) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.183	0.059	0.242	Head SAR	Right Cheek	0.184	0.059	0.243
	Right Tilt	0.091	0.037	0.128		Right Tilt	0.096	0.037	0.133
	Left Cheek	0.160	0.027	0.187		Left Cheek	0.161	0.027	0.188
	Left Tilt	0.087	0.025	0.112		Left Tilt	0.092	0.025	0.117
Simult Tx	Configuration	PCS CDMA SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.086	0.059	0.145	Head SAR	Right Cheek	0.075	0.059	0.134
	Right Tilt	0.053	0.037	0.090		Right Tilt	0.037	0.037	0.074
	Left Cheek	0.113	0.027	0.140		Left Cheek	0.069	0.027	0.096
	Left Tilt	0.065	0.025	0.090		Left Tilt	0.042	0.025	0.067
Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.177	0.059	0.236	Head SAR	Right Cheek	0.113	0.059	0.172
	Right Tilt	0.087	0.037	0.124		Right Tilt	0.041	0.037	0.078
	Left Cheek	0.121	0.027	0.148		Left Cheek	0.074	0.027	0.101
	Left Tilt	0.099	0.025	0.124		Left Tilt	0.034	0.025	0.059
Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)					
Head SAR	Right Cheek	0.019	0.059	0.078					
	Right Tilt	0.011	0.037	0.048					
	Left Cheek	0.019	0.027	0.046					
	Left Tilt	0.014	0.025	0.039					

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

Simult Tx	Configuration	GSM 850 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.100	0.221	0.321	Head SAR	Right Cheek	0.123	0.221	0.344
	Right Tilt	0.049	0.133	0.182		Right Tilt	0.056	0.133	0.189
	Left Cheek	0.090	0.105	0.195		Left Cheek	0.097	0.105	0.202
	Left Tilt	0.045	0.090	0.135		Left Tilt	0.050	0.090	0.140
Simult Tx	Configuration	GSM 1900 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.061	0.221	0.282	Head SAR	Right Cheek	0.102	0.221	0.323
	Right Tilt	0.037	0.133	0.170		Right Tilt	0.051	0.133	0.184
	Left Cheek	0.092	0.105	0.197		Left Cheek	0.093	0.105	0.198
	Left Tilt	0.038	0.090	0.128		Left Tilt	0.058	0.090	0.148
Simult Tx	Configuration	CDMA BC10 (\$90S) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC10 (\$90S) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.171	0.221	0.392	Head SAR	Right Cheek	0.177	0.221	0.398
	Right Tilt	0.091	0.133	0.224		Right Tilt	0.096	0.133	0.229
	Left Cheek	0.141	0.105	0.246		Left Cheek	0.152	0.105	0.257
	Left Tilt	0.094	0.090	0.184		Left Tilt	0.103	0.090	0.193
Simult Tx	Configuration	CDMA BC0 (\$22H) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC0 (\$22H) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.183	0.221	0.404	Head SAR	Right Cheek	0.184	0.221	0.405
	Right Tilt	0.091	0.133	0.224		Right Tilt	0.096	0.133	0.229
	Left Cheek	0.160	0.105	0.265		Left Cheek	0.161	0.105	0.266
	Left Tilt	0.087	0.090	0.177		Left Tilt	0.092	0.090	0.182
Simult Tx	Configuration	PCS CDMA SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.086	0.221	0.307	Head SAR	Right Cheek	0.075	0.221	0.296
	Right Tilt	0.053	0.133	0.186		Right Tilt	0.037	0.133	0.170
	Left Cheek	0.113	0.105	0.218		Left Cheek	0.069	0.105	0.174
	Left Tilt	0.065	0.090	0.155		Left Tilt	0.042	0.090	0.132
Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.177	0.221	0.398	Head SAR	Right Cheek	0.113	0.221	0.334
	Right Tilt	0.087	0.133	0.220		Right Tilt	0.041	0.133	0.174
	Left Cheek	0.121	0.105	0.226		Left Cheek	0.074	0.105	0.179
	Left Tilt	0.099	0.090	0.189		Left Tilt	0.034	0.090	0.124
		Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			
		Head SAR	Right Cheek	0.019	0.221	0.240			
			Right Tilt	0.011	0.133	0.144			
			Left Cheek	0.019	0.105	0.124			
			Left Tilt	0.014	0.090	0.104			

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

Simult Tx	Configuration	GSM 850 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.100	0.153	0.253	Head SAR	Right Cheek	0.123	0.153	0.276
	Right Tilt	0.049	0.116	0.165		Right Tilt	0.056	0.116	0.172
	Left Cheek	0.090	0.062	0.152		Left Cheek	0.097	0.062	0.159
	Left Tilt	0.045	0.058	0.103		Left Tilt	0.050	0.058	0.108
Simult Tx	Configuration	GSM 1900 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.061	0.153	0.214	Head SAR	Right Cheek	0.102	0.153	0.255
	Right Tilt	0.037	0.116	0.153		Right Tilt	0.051	0.116	0.167
	Left Cheek	0.092	0.062	0.154		Left Cheek	0.093	0.062	0.155
	Left Tilt	0.038	0.058	0.096		Left Tilt	0.058	0.058	0.116
Simult Tx	Configuration	CDMA BC10 (\$90S) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC10 (\$90S) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.171	0.153	0.324	Head SAR	Right Cheek	0.177	0.153	0.330
	Right Tilt	0.091	0.116	0.207		Right Tilt	0.096	0.116	0.212
	Left Cheek	0.141	0.062	0.203		Left Cheek	0.152	0.062	0.214
	Left Tilt	0.094	0.058	0.152		Left Tilt	0.103	0.058	0.161
Simult Tx	Configuration	CDMA BC0 (\$22H) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC0 (\$22H) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.183	0.153	0.336	Head SAR	Right Cheek	0.184	0.153	0.337
	Right Tilt	0.091	0.116	0.207		Right Tilt	0.096	0.116	0.212
	Left Cheek	0.160	0.062	0.222		Left Cheek	0.161	0.062	0.223
	Left Tilt	0.087	0.058	0.145		Left Tilt	0.092	0.058	0.150
Simult Tx	Configuration	PCS CDMA SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.086	0.153	0.239	Head SAR	Right Cheek	0.075	0.153	0.228
	Right Tilt	0.053	0.116	0.169		Right Tilt	0.037	0.116	0.153
	Left Cheek	0.113	0.062	0.175		Left Cheek	0.069	0.062	0.131
	Left Tilt	0.065	0.058	0.123		Left Tilt	0.042	0.058	0.100
Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.177	0.153	0.330	Head SAR	Right Cheek	0.113	0.153	0.266
	Right Tilt	0.087	0.116	0.203		Right Tilt	0.041	0.116	0.157
	Left Cheek	0.121	0.062	0.183		Left Cheek	0.074	0.062	0.136
	Left Tilt	0.099	0.058	0.157		Left Tilt	0.034	0.058	0.092
		Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)			
		Head SAR	Right Cheek	0.019	0.153	0.172			
			Right Tilt	0.011	0.116	0.127			
			Left Cheek	0.019	0.062	0.081			
			Left Tilt	0.014	0.058	0.072			

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

Simult Tx	Configuration	GSM 850 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.100	0.101	0.201	Head SAR	Right Cheek	0.123	0.101	0.224
	Right Tilt	0.049	0.019	0.068		Right Tilt	0.056	0.019	0.075
	Left Cheek	0.090	0.015	0.105		Left Cheek	0.097	0.015	0.112
	Left Tilt	0.045	0.000	0.045		Left Tilt	0.050	0.000	0.050
Simult Tx	Configuration	GSM 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.061	0.101	0.162	Head SAR	Right Cheek	0.102	0.101	0.203
	Right Tilt	0.037	0.019	0.056		Right Tilt	0.051	0.019	0.070
	Left Cheek	0.092	0.015	0.107		Left Cheek	0.093	0.015	0.108
	Left Tilt	0.038	0.000	0.038		Left Tilt	0.058	0.000	0.058
Simult Tx	Configuration	CDMA BC10 (\$90S) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC10 (\$90S) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.171	0.101	0.272	Head SAR	Right Cheek	0.177	0.101	0.278
	Right Tilt	0.091	0.019	0.110		Right Tilt	0.096	0.019	0.115
	Left Cheek	0.141	0.015	0.156		Left Cheek	0.152	0.015	0.167
	Left Tilt	0.094	0.000	0.094		Left Tilt	0.103	0.000	0.103
Simult Tx	Configuration	CDMA BC0 (\$22H) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC0 (\$22H) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.183	0.101	0.284	Head SAR	Right Cheek	0.184	0.101	0.285
	Right Tilt	0.091	0.019	0.110		Right Tilt	0.096	0.019	0.115
	Left Cheek	0.160	0.015	0.175		Left Cheek	0.161	0.015	0.176
	Left Tilt	0.087	0.000	0.087		Left Tilt	0.092	0.000	0.092
Simult Tx	Configuration	PCS CDMA SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.086	0.101	0.187	Head SAR	Right Cheek	0.075	0.101	0.176
	Right Tilt	0.053	0.019	0.072		Right Tilt	0.037	0.019	0.056
	Left Cheek	0.113	0.015	0.128		Left Cheek	0.069	0.015	0.084
	Left Tilt	0.065	0.000	0.065		Left Tilt	0.042	0.000	0.042
Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.177	0.101	0.278	Head SAR	Right Cheek	0.113	0.101	0.214
	Right Tilt	0.087	0.019	0.106		Right Tilt	0.041	0.019	0.060
	Left Cheek	0.121	0.015	0.136		Left Cheek	0.074	0.015	0.089
	Left Tilt	0.099	0.000	0.099		Left Tilt	0.034	0.000	0.034
		Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)			
		Head SAR	Right Cheek	0.019	0.101	0.120			
			Right Tilt	0.011	0.019	0.030			
			Left Cheek	0.019	0.015	0.034			
			Left Tilt	0.014	0.000	0.014			

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

Simult Tx	Configuration	GSM 850 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.100	0.110	0.210	Head SAR	Right Cheek	0.123	0.110	0.233
	Right Tilt	0.049	0.058	0.107		Right Tilt	0.056	0.058	0.114
	Left Cheek	0.090	0.171	0.261		Left Cheek	0.097	0.171	0.268
	Left Tilt	0.045	0.089	0.134		Left Tilt	0.050	0.089	0.139
Simult Tx	Configuration	GSM 1900 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.061	0.110	0.171	Head SAR	Right Cheek	0.102	0.110	0.212
	Right Tilt	0.037	0.058	0.095		Right Tilt	0.051	0.058	0.109
	Left Cheek	0.092	0.171	0.263		Left Cheek	0.093	0.171	0.264
	Left Tilt	0.038	0.089	0.127		Left Tilt	0.058	0.089	0.147
Simult Tx	Configuration	CDMA BC10 (\$90S) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC10 (\$90S) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.171	0.110	0.281	Head SAR	Right Cheek	0.177	0.110	0.287
	Right Tilt	0.091	0.058	0.149		Right Tilt	0.096	0.058	0.154
	Left Cheek	0.141	0.171	0.312		Left Cheek	0.152	0.171	0.323
	Left Tilt	0.094	0.089	0.183		Left Tilt	0.103	0.089	0.192
Simult Tx	Configuration	CDMA BC0 (\$22H) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC0 (\$22H) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.183	0.110	0.293	Head SAR	Right Cheek	0.184	0.110	0.294
	Right Tilt	0.091	0.058	0.149		Right Tilt	0.096	0.058	0.154
	Left Cheek	0.160	0.171	0.331		Left Cheek	0.161	0.171	0.332
	Left Tilt	0.087	0.089	0.176		Left Tilt	0.092	0.089	0.181
Simult Tx	Configuration	PCS CDMA SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.086	0.110	0.196	Head SAR	Right Cheek	0.075	0.110	0.185
	Right Tilt	0.053	0.058	0.111		Right Tilt	0.037	0.058	0.095
	Left Cheek	0.113	0.171	0.284		Left Cheek	0.069	0.171	0.240
	Left Tilt	0.065	0.089	0.154		Left Tilt	0.042	0.089	0.131
Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.177	0.110	0.287	Head SAR	Right Cheek	0.113	0.110	0.223
	Right Tilt	0.087	0.058	0.145		Right Tilt	0.041	0.058	0.099
	Left Cheek	0.121	0.171	0.292		Left Cheek	0.074	0.171	0.245
	Left Tilt	0.099	0.089	0.188		Left Tilt	0.034	0.089	0.123
		Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)			
		Head SAR	Right Cheek	0.019	0.110	0.129			
			Right Tilt	0.011	0.058	0.069			
			Left Cheek	0.019	0.171	0.190			
			Left Tilt	0.014	0.089	0.103			

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

Simult Tx	Configuration	GSM 850 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.100	0.190	0.290	Head SAR	Right Cheek	0.123	0.190	0.313
	Right Tilt	0.049	0.203	0.252		Right Tilt	0.056	0.203	0.259
	Left Cheek	0.090	0.139	0.229		Left Cheek	0.097	0.139	0.236
	Left Tilt	0.045	0.271	0.316		Left Tilt	0.050	0.271	0.321
Simult Tx	Configuration	GSM 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.061	0.190	0.251	Head SAR	Right Cheek	0.102	0.190	0.292
	Right Tilt	0.037	0.203	0.240		Right Tilt	0.051	0.203	0.254
	Left Cheek	0.092	0.139	0.231		Left Cheek	0.093	0.139	0.232
	Left Tilt	0.038	0.271	0.309		Left Tilt	0.058	0.271	0.329
Simult Tx	Configuration	CDMA BC10 (\$90S) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC10 (\$90S) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.171	0.190	0.361	Head SAR	Right Cheek	0.177	0.190	0.367
	Right Tilt	0.091	0.203	0.294		Right Tilt	0.096	0.203	0.299
	Left Cheek	0.141	0.139	0.280		Left Cheek	0.152	0.139	0.291
	Left Tilt	0.094	0.271	0.365		Left Tilt	0.103	0.271	0.374
Simult Tx	Configuration	CDMA BC0 (\$22H) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC0 (\$22H) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.183	0.190	0.373	Head SAR	Right Cheek	0.184	0.190	0.374
	Right Tilt	0.091	0.203	0.294		Right Tilt	0.096	0.203	0.299
	Left Cheek	0.160	0.139	0.299		Left Cheek	0.161	0.139	0.300
	Left Tilt	0.087	0.271	0.358		Left Tilt	0.092	0.271	0.363
Simult Tx	Configuration	PCS CDMA SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.086	0.190	0.276	Head SAR	Right Cheek	0.075	0.190	0.265
	Right Tilt	0.053	0.203	0.256		Right Tilt	0.037	0.203	0.240
	Left Cheek	0.113	0.139	0.252		Left Cheek	0.069	0.139	0.208
	Left Tilt	0.065	0.271	0.336		Left Tilt	0.042	0.271	0.313
Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Head SAR	Right Cheek	0.177	0.190	0.367	Head SAR	Right Cheek	0.113	0.190	0.303
	Right Tilt	0.087	0.203	0.290		Right Tilt	0.041	0.203	0.244
	Left Cheek	0.121	0.139	0.260		Left Cheek	0.074	0.139	0.213
	Left Tilt	0.099	0.271	0.370		Left Tilt	0.034	0.271	0.305
	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)					
Head SAR	Right Cheek	0.019	0.190	0.209					
	Right Tilt	0.011	0.203	0.214					
	Left Cheek	0.019	0.139	0.158					
	Left Tilt	0.014	0.271	0.285					

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

Note: For SAR summations for body-worn back side at 15 mm, 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.

Table 12-8
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 (Body-Worn at 1.5 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Back Side	GSM 850	0.200	< 0.113	< 0.313
Back Side	UMTS 850	0.206	< 0.113	< 0.319
Back Side	GSM 1900	0.214	< 0.113	< 0.327
Back Side	UMTS 1900	0.341	< 0.113	< 0.454
Back Side	CDMA BC10 (§90S)	0.252	< 0.113	< 0.365
Back Side	CDMA BC0 (§22H)	0.318	< 0.113	< 0.431
Back Side	PCS CDMA	0.398	< 0.113	< 0.511
Back Side	LTE Band 26	0.246	< 0.113	< 0.359
Back Side	LTE Band 25 (PCS)	0.213	< 0.113	< 0.326
Back Side	LTE Band 41	0.131	< 0.113	< 0.244

Table 12-9
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 2 (Body-Worn at 1.5 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Back Side	GSM 850	0.200	< 0.042	< 0.242
Back Side	UMTS 850	0.206	< 0.042	< 0.248
Back Side	GSM 1900	0.214	< 0.042	< 0.256
Back Side	UMTS 1900	0.341	< 0.042	< 0.383
Back Side	CDMA BC10 (§90S)	0.252	< 0.042	< 0.294
Back Side	CDMA BC0 (§22H)	0.318	< 0.042	< 0.36
Back Side	PCS CDMA	0.398	< 0.042	< 0.440
Back Side	LTE Band 26	0.246	< 0.042	< 0.288
Back Side	LTE Band 25 (PCS)	0.213	< 0.042	< 0.255
Back Side	LTE Band 41	0.131	< 0.042	< 0.173

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

Configuration	Mode	2G/3G/4G SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Back Side	GSM 850	0.200	< 0.048	< 0.248
Back Side	UMTS 850	0.206	< 0.048	< 0.254
Back Side	GSM 1900	0.214	< 0.048	< 0.262
Back Side	UMTS 1900	0.341	< 0.048	< 0.389
Back Side	CDMA BC10 (§90S)	0.252	< 0.048	< 0.300
Back Side	CDMA BC0 (§22H)	0.318	< 0.048	< 0.366
Back Side	PCS CDMA	0.398	< 0.048	< 0.446
Back Side	LTE Band 26	0.246	< 0.048	< 0.294
Back Side	LTE Band 25 (PCS)	0.213	< 0.048	< 0.261
Back Side	LTE Band 41	0.131	< 0.048	< 0.179

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Table 12-11
Simultaneous Transmission Scenario with 5 GHz WLAN Ant 1 (Body-Worn at 1.5 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Back Side	GSM 850	0.200	< 0.164	< 0.364
Back Side	UMTS 850	0.206	< 0.164	< 0.370
Back Side	GSM 1900	0.214	< 0.164	< 0.378
Back Side	UMTS 1900	0.341	< 0.164	< 0.505
Back Side	CDMA BC10 (§90S)	0.252	< 0.164	< 0.416
Back Side	CDMA BC0 (§22H)	0.318	< 0.164	< 0.482
Back Side	PCS CDMA	0.398	< 0.164	< 0.562
Back Side	LTE Band 26	0.246	< 0.164	< 0.410
Back Side	LTE Band 25 (PCS)	0.213	< 0.164	< 0.377
Back Side	LTE Band 41	0.131	< 0.164	< 0.295

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

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

Configuration	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Back Side	GSM 850	0.200	< 0.125	< 0.325
Back Side	UMTS 850	0.206	< 0.125	< 0.331
Back Side	GSM 1900	0.214	< 0.125	< 0.339
Back Side	UMTS 1900	0.341	< 0.125	< 0.466
Back Side	CDMA BC10 (§90S)	0.252	< 0.125	< 0.377
Back Side	CDMA BC0 (§22H)	0.318	< 0.125	< 0.443
Back Side	PCS CDMA	0.398	< 0.125	< 0.523
Back Side	LTE Band 26	0.246	< 0.125	< 0.371
Back Side	LTE Band 25 (PCS)	0.213	< 0.125	< 0.338
Back Side	LTE Band 41	0.131	< 0.125	< 0.256

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

Table 12-13
Simultaneous Transmission Scenario with 5 GHz WLAN MIMO (Body-Worn at 1.5 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Back Side	GSM 850	0.200	< 0.234	< 0.434
Back Side	UMTS 850	0.206	< 0.234	< 0.440
Back Side	GSM 1900	0.214	< 0.234	< 0.448
Back Side	UMTS 1900	0.341	< 0.234	< 0.575
Back Side	CDMA BC10 (§90S)	0.252	< 0.234	< 0.486
Back Side	CDMA BC0 (§22H)	0.318	< 0.234	< 0.552
Back Side	PCS CDMA	0.398	< 0.234	< 0.632
Back Side	LTE Band 26	0.246	< 0.234	< 0.480
Back Side	LTE Band 25 (PCS)	0.213	< 0.234	< 0.447
Back Side	LTE Band 41	0.131	< 0.234	< 0.365

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 12-14
Simultaneous Transmission Scenario with Bluetooth (Body-Worn at 1.5 cm)

Configuration	Mode	2G/3G/4G SAR (W/kg)	Bluetooth SAR (W/kg)	Σ SAR (W/kg)
Back Side	GSM 850	0.200	0.252	0.452
Back Side	UMTS 850	0.206	0.252	0.458
Back Side	GSM 1900	0.214	0.252	0.466
Back Side	UMTS 1900	0.341	0.252	0.593
Back Side	CDMA BC10 (§90S)	0.252	0.252	0.504
Back Side	CDMA BC0 (§22H)	0.318	0.252	0.570
Back Side	PCS CDMA	0.398	0.252	0.650
Back Side	LTE Band 26	0.246	0.252	0.498
Back Side	LTE Band 25 (PCS)	0.368	0.252	0.620
Back Side	LTE Band 41	0.131	0.252	0.383

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.

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12.5 Hotspot SAR Simultaneous Transmission Analysis

Per FCC KDB Publication 941225 D06v01, the devices edges with antennas more than 2.5 cm from edge are not required to be evaluated for SAR (“-”).

Table 12-15
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 1 (Hotspot at 1.0 cm)

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.447	0.113	0.560	Body SAR	Back	0.370	0.113	0.483
	Front	0.508	0.013	0.521		Front	0.438	0.013	0.451
	Top	-	0.013	0.013		Top	-	0.013	0.013
	Bottom	0.484	-	0.484		Bottom	0.361	-	0.361
	Right	0.268	-	0.268		Right	0.162	-	0.162
	Left	0.060	0.039	0.099		Left	0.069	0.039	0.108
Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.548	0.113	0.661	Body SAR	Back	0.341	0.113	0.454
	Front	0.721	0.013	0.734		Front	0.453	0.013	0.466
	Top	-	0.013	0.013		Top	-	0.013	0.013
	Bottom	1.093	-	1.093		Bottom	0.695	-	0.695
	Right	0.100	-	0.100		Right	0.072	-	0.072
	Left	0.153	0.039	0.192		Left	0.093	0.039	0.132
Simult Tx	Configuration	EVDO BC10 (\$90S) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC0 (\$22H) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.458	0.113	0.571	Body SAR	Back	0.568	0.113	0.681
	Front	0.587	0.013	0.600		Front	0.715	0.013	0.728
	Top	-	0.013	0.013		Top	-	0.013	0.013
	Bottom	0.454	-	0.454		Bottom	0.511	-	0.511
	Right	0.247	-	0.247		Right	0.282	-	0.282
	Left	0.111	0.039	0.150		Left	0.085	0.039	0.124
Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.484	0.113	0.597	Body SAR	Back	0.400	0.113	0.513
	Front	0.723	0.013	0.736		Front	0.506	0.013	0.519
	Top	-	0.013	0.013		Top	-	0.013	0.013
	Bottom	0.943	-	0.943		Bottom	0.409	-	0.409
	Right	0.091	-	0.091		Right	0.253	-	0.253
	Left	0.146	0.039	0.185		Left	0.121	0.039	0.160
Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.427	0.113	0.540	Body SAR	Back	0.274	0.113	0.387
	Front	0.647	0.013	0.660		Front	0.365	0.013	0.378
	Top	-	0.013	0.013		Top	-	0.013	0.013
	Bottom	0.748	-	0.748		Bottom	0.535	-	0.535
	Right	0.141	-	0.141		Right	0.063	-	0.063
	Left	0.087	0.039	0.126		Left	-	0.039	0.039

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Table 12-16
Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant 2 (Hotspot at 1.0 cm)

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.447	0.042	0.489	Body SAR	Back	0.370	0.042	0.412
	Front	0.508	0.010	0.518		Front	0.438	0.010	0.448
	Top	-	0.012	0.012		Top	-	0.012	0.012
	Bottom	0.484	-	0.484		Bottom	0.361	-	0.361
	Right	0.268	0.004	0.272		Right	0.162	0.004	0.166
	Left	0.060	-	0.060		Left	0.069	-	0.069
Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.548	0.042	0.590	Body SAR	Back	0.341	0.042	0.383
	Front	0.721	0.010	0.731		Front	0.453	0.010	0.463
	Top	-	0.012	0.012		Top	-	0.012	0.012
	Bottom	1.093	-	1.093		Bottom	0.695	-	0.695
	Right	0.100	0.004	0.104		Right	0.072	0.004	0.076
	Left	0.153	-	0.153		Left	0.093	-	0.093
Simult Tx	Configuration	EVDO BC10 (\$90S) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC0 (\$22H) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.458	0.042	0.500	Body SAR	Back	0.568	0.042	0.610
	Front	0.587	0.010	0.597		Front	0.715	0.010	0.725
	Top	-	0.012	0.012		Top	-	0.012	0.012
	Bottom	0.454	-	0.454		Bottom	0.511	-	0.511
	Right	0.247	0.004	0.251		Right	0.282	0.004	0.286
	Left	0.111	-	0.111		Left	0.085	-	0.085
Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.484	0.042	0.526	Body SAR	Back	0.400	0.042	0.442
	Front	0.723	0.010	0.733		Front	0.506	0.010	0.516
	Top	-	0.012	0.012		Top	-	0.012	0.012
	Bottom	0.943	-	0.943		Bottom	0.409	-	0.409
	Right	0.091	0.004	0.095		Right	0.253	0.004	0.257
	Left	0.146	-	0.146		Left	0.121	-	0.121
Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.427	0.042	0.469	Body SAR	Back	0.274	0.042	0.316
	Front	0.647	0.010	0.657		Front	0.365	0.010	0.375
	Top	-	0.012	0.012		Top	-	0.012	0.012
	Bottom	0.748	-	0.748		Bottom	0.535	-	0.535
	Right	0.141	0.004	0.145		Right	0.063	0.004	0.067
	Left	0.087	-	0.087		Left	-	-	0.000

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Table 12-17
Simultaneous Transmission Scenario with 2.4 GHz WLAN MIMO (Hotspot at 1.0 cm)

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.447	0.048	0.495	Body SAR	Back	0.370	0.048	0.418
	Front	0.508	0.008	0.516		Front	0.438	0.008	0.446
	Top	-	0.010	0.010		Top	-	0.010	0.010
	Bottom	0.484	-	0.484		Bottom	0.361	-	0.361
	Right	0.268	0.000	0.268		Right	0.162	0.000	0.162
	Left	0.060	0.020	0.080		Left	0.069	0.020	0.089
Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.548	0.048	0.596	Body SAR	Back	0.341	0.048	0.389
	Front	0.721	0.008	0.729		Front	0.453	0.008	0.461
	Top	-	0.010	0.010		Top	-	0.010	0.010
	Bottom	1.093	-	1.093		Bottom	0.695	-	0.695
	Right	0.100	0.000	0.100		Right	0.072	0.000	0.072
	Left	0.153	0.020	0.173		Left	0.093	0.020	0.113
Simult Tx	Configuration	EVDO BC10 (\$90S) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC0 (\$22H) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.458	0.048	0.506	Body SAR	Back	0.568	0.048	0.616
	Front	0.587	0.008	0.595		Front	0.715	0.008	0.723
	Top	-	0.010	0.010		Top	-	0.010	0.010
	Bottom	0.454	-	0.454		Bottom	0.511	-	0.511
	Right	0.247	0.000	0.247		Right	0.282	0.000	0.282
	Left	0.111	0.020	0.131		Left	0.085	0.020	0.105
Simult Tx	Configuration	PCS EVDO SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.484	0.048	0.532	Body SAR	Back	0.400	0.048	0.448
	Front	0.723	0.008	0.731		Front	0.506	0.008	0.514
	Top	-	0.010	0.010		Top	-	0.010	0.010
	Bottom	0.943	-	0.943		Bottom	0.409	-	0.409
	Right	0.091	0.000	0.091		Right	0.253	0.000	0.253
	Left	0.146	0.020	0.166		Left	0.121	0.020	0.141
Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.427	0.048	0.475	Body SAR	Back	0.274	0.048	0.322
	Front	0.647	0.008	0.655		Front	0.365	0.008	0.373
	Top	-	0.010	0.010		Top	-	0.010	0.010
	Bottom	0.748	-	0.748		Bottom	0.535	-	0.535
	Right	0.141	0.000	0.141		Right	0.063	0.000	0.063
	Left	0.087	0.020	0.107		Left	-	0.020	0.020

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

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.447	0.175	0.622	Body SAR	Back	0.370	0.175	0.545
	Front	0.508	0.028	0.536		Front	0.438	0.028	0.466
	Top	-	0.016	0.016		Top	-	0.016	0.016
	Bottom	0.484	-	0.484		Bottom	0.361	-	0.361
	Right	0.268	-	0.268		Right	0.162	-	0.162
	Left	0.060	0.051	0.111		Left	0.069	0.051	0.120
Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.548	0.175	0.723	Body SAR	Back	0.341	0.175	0.516
	Front	0.721	0.028	0.749		Front	0.453	0.028	0.481
	Top	-	0.016	0.016		Top	-	0.016	0.016
	Bottom	1.093	-	1.093		Bottom	0.695	-	0.695
	Right	0.100	-	0.100		Right	0.072	-	0.072
	Left	0.153	0.051	0.204		Left	0.093	0.051	0.144
Simult Tx	Configuration	EVDO BC10 (\$90S) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC0 (\$22H) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.458	0.175	0.633	Body SAR	Back	0.568	0.175	0.743
	Front	0.587	0.028	0.615		Front	0.715	0.028	0.743
	Top	-	0.016	0.016		Top	-	0.016	0.016
	Bottom	0.454	-	0.454		Bottom	0.511	-	0.511
	Right	0.247	-	0.247		Right	0.282	-	0.282
	Left	0.111	0.051	0.162		Left	0.085	0.051	0.136
Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.484	0.175	0.659	Body SAR	Back	0.400	0.175	0.575
	Front	0.723	0.028	0.751		Front	0.506	0.028	0.534
	Top	-	0.016	0.016		Top	-	0.016	0.016
	Bottom	0.943	-	0.943		Bottom	0.409	-	0.409
	Right	0.091	-	0.091		Right	0.253	-	0.253
	Left	0.146	0.051	0.197		Left	0.121	0.051	0.172
Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN Ant 1 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.427	0.175	0.602	Body SAR	Back	0.274	0.175	0.449
	Front	0.647	0.028	0.675		Front	0.365	0.028	0.393
	Top	-	0.016	0.016		Top	-	0.016	0.016
	Bottom	0.748	-	0.748		Bottom	0.535	-	0.535
	Right	0.141	-	0.141		Right	0.063	-	0.063
	Left	0.087	0.051	0.138		Left	-	0.051	0.051

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

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.447	0.100	0.547	Body SAR	Back	0.370	0.100	0.470
	Front	0.508	0.013	0.521		Front	0.438	0.013	0.451
	Top	-	0.021	0.021		Top	-	0.021	0.021
	Bottom	0.484	-	0.484		Bottom	0.361	-	0.361
	Right	0.268	0.018	0.286		Right	0.162	0.018	0.180
	Left	0.060	-	0.060		Left	0.069	-	0.069
Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.548	0.100	0.648	Body SAR	Back	0.341	0.100	0.441
	Front	0.721	0.013	0.734		Front	0.453	0.013	0.466
	Top	-	0.021	0.021		Top	-	0.021	0.021
	Bottom	1.093	-	1.093		Bottom	0.695	-	0.695
	Right	0.100	0.018	0.118		Right	0.072	0.018	0.090
	Left	0.153	-	0.153		Left	0.093	-	0.093
Simult Tx	Configuration	EVDO BC10 (\$90S) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC0 (\$22H) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.458	0.100	0.558	Body SAR	Back	0.568	0.100	0.668
	Front	0.587	0.013	0.600		Front	0.715	0.013	0.728
	Top	-	0.021	0.021		Top	-	0.021	0.021
	Bottom	0.454	-	0.454		Bottom	0.511	-	0.511
	Right	0.247	0.018	0.265		Right	0.282	0.018	0.300
	Left	0.111	-	0.111		Left	0.085	-	0.085
Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.484	0.100	0.584	Body SAR	Back	0.400	0.100	0.500
	Front	0.723	0.013	0.736		Front	0.506	0.013	0.519
	Top	-	0.021	0.021		Top	-	0.021	0.021
	Bottom	0.943	-	0.943		Bottom	0.409	-	0.409
	Right	0.091	0.018	0.109		Right	0.253	0.018	0.271
	Left	0.146	-	0.146		Left	0.121	-	0.121
Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN Ant 2 SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.427	0.100	0.527	Body SAR	Back	0.274	0.100	0.374
	Front	0.647	0.013	0.660		Front	0.365	0.013	0.378
	Top	-	0.021	0.021		Top	-	0.021	0.021
	Bottom	0.748	-	0.748		Bottom	0.535	-	0.535
	Right	0.141	0.018	0.159		Right	0.063	0.018	0.081
	Left	0.087	-	0.087		Left	-	-	0.000

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

Simult Tx	Configuration	GPRS 850 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 850 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.447	0.234	0.681	Body SAR	Back	0.370	0.234	0.604
	Front	0.508	0.024	0.532		Front	0.438	0.024	0.462
	Top	-	0.042	0.042		Top	-	0.042	0.042
	Bottom	0.484	-	0.484		Bottom	0.361	-	0.361
	Right	0.268	0.036	0.304		Right	0.162	0.036	0.198
	Left	0.060	0.038	0.098		Left	0.069	0.038	0.107
Simult Tx	Configuration	GPRS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	UMTS 1900 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.548	0.234	0.782	Body SAR	Back	0.341	0.234	0.575
	Front	0.721	0.024	0.745		Front	0.453	0.024	0.477
	Top	-	0.042	0.042		Top	-	0.042	0.042
	Bottom	1.093	-	1.093		Bottom	0.695	-	0.695
	Right	0.100	0.036	0.136		Right	0.072	0.036	0.108
	Left	0.153	0.038	0.191		Left	0.093	0.038	0.131
Simult Tx	Configuration	EVDO BC10 (§90S) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	EVDO BC0 (§22H) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.458	0.234	0.692	Body SAR	Back	0.568	0.234	0.802
	Front	0.587	0.024	0.611		Front	0.715	0.024	0.739
	Top	-	0.042	0.042		Top	-	0.042	0.042
	Bottom	0.454	-	0.454		Bottom	0.511	-	0.511
	Right	0.247	0.036	0.283		Right	0.282	0.036	0.318
	Left	0.111	0.038	0.149		Left	0.085	0.038	0.123
Simult Tx	Configuration	PCS EVDO SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 26 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.484	0.234	0.718	Body SAR	Back	0.400	0.234	0.634
	Front	0.723	0.024	0.747		Front	0.506	0.024	0.530
	Top	-	0.042	0.042		Top	-	0.042	0.042
	Bottom	0.943	-	0.943		Bottom	0.409	-	0.409
	Right	0.091	0.036	0.127		Right	0.253	0.036	0.289
	Left	0.146	0.038	0.184		Left	0.121	0.038	0.159
Simult Tx	Configuration	LTE Band 25 (PCS) SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)	Simult Tx	Configuration	LTE Band 41 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	Σ SAR (W/kg)
Body SAR	Back	0.427	0.234	0.661	Body SAR	Back	0.274	0.234	0.508
	Front	0.647	0.024	0.671		Front	0.365	0.024	0.389
	Top	-	0.042	0.042		Top	-	0.042	0.042
	Bottom	0.748	-	0.748		Bottom	0.535	-	0.535
	Right	0.141	0.036	0.177		Right	0.063	0.036	0.099
	Left	0.087	0.038	0.125		Left	-	0.038	0.038

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12.6 Extremity SAR Simultaneous Transmission Analysis

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

Table 12-21
Simultaneous Transmission Scenario with 2.4 GHz Bluetooth (Extremity at 0.0 cm)

Configuration	Mode	2G/3G SAR (W/kg)	2.4 GHz Bluetooth SAR (W/kg)	Σ SAR (W/kg)
Bottom Edge	PCS CDMA	3.242	-	3.242

Note: Per FCC KDB Publication 941225 D06v01, Bluetooth SAR is not required to be evaluated for Bottom Edge SAR ("-") since the antenna is greater than 2.5 cm from the edge.

Table 12-22
Simultaneous Transmission Scenario with 2.4 GHz WLAN (Extremity at 0.0 cm)

Configuration	Mode	2G/3G SAR (W/kg)	2.4 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Bottom Edge	PCS CDMA	3.242	-	3.242

Note: Per FCC KDB Publication 941225 D06v01, 2.4 GHz WLAN SAR is not required to be evaluated for Bottom Edge SAR ("-") since the antenna is greater than 2.5 cm from the edge.

Table 12-23
Simultaneous Transmission Scenario with 5 GHz WLAN (Extremity at 0.0 cm)

Configuration	Mode	2G/3G SAR (W/kg)	5 GHz WLAN SAR (W/kg)	Σ SAR (W/kg)
Bottom Edge	PCS CDMA	3.242	-	3.242

Note: Per FCC KDB Publication 941225 D06v01, 5 GHz WLAN SAR is not required to be evaluated for Bottom Edge SAR ("-") since the antenna is greater than 2.5 cm from the edge.

For configurations and operating modes not required for extremity exposure conditions per FCC KDB 648474, no further analysis was required to determine that possible simultaneous scenarios would not exceed the SAR limit.

12.7 Simultaneous Transmission Conclusion

The above numerical summed SAR results for all the worst-case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 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.

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

- 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
- 2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg ($\sim 10\%$ 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

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	3	bottom	10 mm	0.950	0.944	1.01	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Body 1.6 W/kg (mW/g) averaged over 1 gram							

Table 13-2
Hand SAR Measurement Variability Results

BODY 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)	
1900	1908.75	1175	PCS CDMA	EVDO Rev. 0	bottom	0 mm	3.160	2.790	1.13	N/A	N/A	N/A	N/A
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population							Hand 4.0 W/kg (mW/g) averaged over 10 grams						

13.2 Measurement Uncertainty

The measured SAR was < 1.5 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
Agilent	8594A	(9kHz-2.9GHz) Spectrum Analyzer	N/A	N/A	N/A	3051A00187
Agilent	8648D	(9kHz-4GHz) Signal Generator	4/15/2014	Annual	4/15/2015	3629U00687
Agilent	8753ES	S-Parameter Network Analyzer	5/22/2014	Annual	5/22/2015	US39170118
Agilent	E4407B	ESA Spectrum Analyzer	4/16/2014	Annual	4/16/2015	US39210313
Agilent	E4438C	ESG Vector Signal Generator	4/15/2014	Annual	4/15/2015	MY45091346
Agilent	E5515C	Wireless Communications Test Set	3/18/2014	Annual	3/18/2015	GB46110872
Agilent	E5515C	Wireless Communications Test Set	11/5/2013	Biennial	11/5/2015	GB46310798
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/15/2014	Annual	4/15/2015	MY45470194
Agilent	N5182A	MXG Vector Signal Generator	4/15/2014	Annual	4/15/2015	MY47420651
Agilent	N9020A	MXA Signal Analyzer	10/29/2013	Annual	10/29/2014	US46470561
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433976
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433977
Amplifier Research	1551G6	Amplifier	CBT	N/A	CBT	433978
Anritsu	MA24106A	USB Power Sensor	5/14/2014	Annual	5/14/2015	1231535
Anritsu	MA24106A	USB Power Sensor	5/14/2014	Annual	5/14/2015	1231538
Anritsu	MA2411B	Pulse Power Sensor	11/14/2013	Annual	11/14/2014	1126066
Anritsu	MA2411B	Pulse Power Sensor	2/3/2014	Annual	2/3/2015	1339018
Anritsu	MA2481A	Power Sensor	10/30/2013	Annual	10/30/2014	3681
Anritsu	MA2481A	Power Sensor	10/30/2013	Annual	10/30/2014	5605
Anritsu	ML2469A	Power Meter	3/14/2014	Annual	3/14/2015	1306009
Anritsu	ML2495A	Power Meter	10/31/2013	Annual	10/31/2014	1039008
Control Company	61220-416	Long-Stem Thermometer	4/29/2014	Biennial	4/29/2016	111331323
Fisher Scientific	15-077-960	Digital Thermometer	11/6/2012	Biennial	11/6/2014	122640025
Fisher Scientific	S407993	Long Stem Thermometer	11/4/2013	Biennial	11/4/2015	130671826
Fisher Scientific	S97611	Thermometer	4/12/2013	Biennial	4/12/2015	130219303
Gigatronics	80701A	(0.05-18GHz) Power Sensor	10/30/2013	Annual	10/30/2014	1833460
Gigatronics	8651A	Universal Power Meter	10/30/2013	Annual	10/30/2014	8650319
MCL	BW-N6W5+	6dB Attenuator	CBT	N/A	CBT	1139
MiniCircuits	SLP-2400+	Low Pass Filter	CBT	N/A	CBT	R897950903
MiniCircuits	VLF-6000+	Low Pass Filter	CBT	N/A	CBT	N/A
Mini-Circuits	BW-N20W5	Power Attenuator	CBT	N/A	CBT	1226
Mini-Circuits	BW-N20W5+	DC to 18 GHz Precision Fixed 20 dB Attenuator	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-1200+	Low Pass Filter DC to 1000 MHz	CBT	N/A	CBT	N/A
Mini-Circuits	NLP-2950+	Low Pass Filter DC to 2700 MHz	CBT	N/A	CBT	N/A
Mitutoyo	CD-6°CSX	Digital Caliper	5/8/2014	Biennial	5/8/2016	13264162
Narda	4014C-6	4 - 8 GHz SMA 6 dB Directional Coupler	CBT	N/A	CBT	N/A
Narda	4772-3	Attenuator (3dB)	CBT	N/A	CBT	9406
Narda	BW-S3W2	Attenuator (3dB)	CBT	N/A	CBT	120
NI	4474	Data Acquisition Card	CBT	N/A	CBT	N/A
Pasternack	PE2208-6	Bidirectional Coupler	CBT	N/A	CBT	N/A
Pasternack	PE2209-10	Bidirectional Coupler	CBT	N/A	CBT	N/A
Rohde & Schwarz	CMW500	Radio Communication Tester	7/22/2014	Annual	7/22/2015	116743
Rohde & Schwarz	CMW500	Radio Communication Tester	2/20/2014	Annual	2/20/2015	128633
Seekonk	NC-100	Torque Wrench	3/18/2014	Biennial	3/18/2016	22313
Seekonk	NC-100	Torque Wrench 5/16", 8" lbs	3/18/2014	Biennial	3/18/2016	N/A
Seekonk	NC-100	Torque Wrench	3/18/2014	Biennial	3/18/2016	N/A
SPEAG	D1900V2	1900 MHz SAR Dipole	4/9/2014	Annual	4/9/2015	5d141
SPEAG	D1900V2	1900 MHz SAR Dipole	2/27/2014	Annual	2/27/2015	5d148
SPEAG	D2450V2	2450 MHz SAR Dipole	1/21/2014	Annual	1/21/2015	797
SPEAG	D5GHzV2	5 GHz SAR Dipole	1/27/2014	Annual	1/27/2015	1057
SPEAG	D835V2	835 MHz SAR Dipole	4/7/2014	Annual	4/7/2015	4d119
SPEAG	D835V2	835 MHz SAR Dipole	7/10/2014	Annual	7/10/2015	4d132
SPEAG	DAE4	Dasy Data Acquisition Electronics	2/26/2014	Annual	2/26/2015	665
SPEAG	DAE4	Dasy Data Acquisition Electronics	1/22/2014	Annual	1/22/2015	1272
SPEAG	DAE4	Dasy Data Acquisition Electronics	8/12/2014	Annual	8/12/2015	1322
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/19/2013	Annual	11/19/2014	1333
SPEAG	DAE4	Dasy Data Acquisition Electronics	3/17/2014	Annual	3/17/2015	1334
SPEAG	DAE4	Dasy Data Acquisition Electronics	4/11/2014	Annual	4/11/2015	1368
SPEAG	DAE4	Dasy Data Acquisition Electronics	11/18/2013	Annual	11/18/2014	1407
SPEAG	DAK-3.5	Dielectric Assessment Kit	5/6/2014	Annual	5/6/2015	1070
SPEAG	DAK-3.5	Dielectric Assessment Kit	11/13/2013	Annual	11/13/2014	1091
SPEAG	ES3DV2	SAR Probe	8/19/2014	Annual	8/19/2015	3022
SPEAG	ES3DV3	SAR Probe	4/11/2014	Annual	4/11/2015	3213
SPEAG	ES3DV3	SAR Probe	2/25/2014	Annual	2/25/2015	3258
SPEAG	ES3DV3	SAR Probe	3/19/2014	Annual	3/19/2015	3318
SPEAG	ES3DV3	SAR Probe	4/17/2014	Annual	4/17/2015	3319
SPEAG	EX3DV4	SAR Probe	1/29/2014	Annual	1/29/2015	3589
SPEAG	EX3DV4	SAR Probe	10/23/2013	Annual	10/23/2014	3914
Tektronix	RSA6114A	Real Time Spectrum Analyzer	4/16/2014	Annual	4/16/2015	8010177
VWR	36934-158	Wall-Mounted Thermometer	8/8/2013	Biennial	8/8/2015	130477877

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

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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
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 i/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 E 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	E.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
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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APPENDIX A: SAR TEST DATA

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type: Portable Handset; Serial:4

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

Medium: 835 Head Medium parameters used (interpolated):

$f = 836.6 \text{ MHz}$; $\sigma = 0.898 \text{ S/m}$; $\epsilon_r = 41.311$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 09-22-2014; Ambient Temp:24.3°C;Tissue Temp:22.1°C

Probe:ES3DV3- SN3213; ConvF(6.37, 6.37, 6.37); Calibrated: 4/11/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1407; Calibrated:11/18/2013

Phantom: Sub TWIN SAM; Type:QDOOOP40CC; Serial:TP-1357

Measurement SW:DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

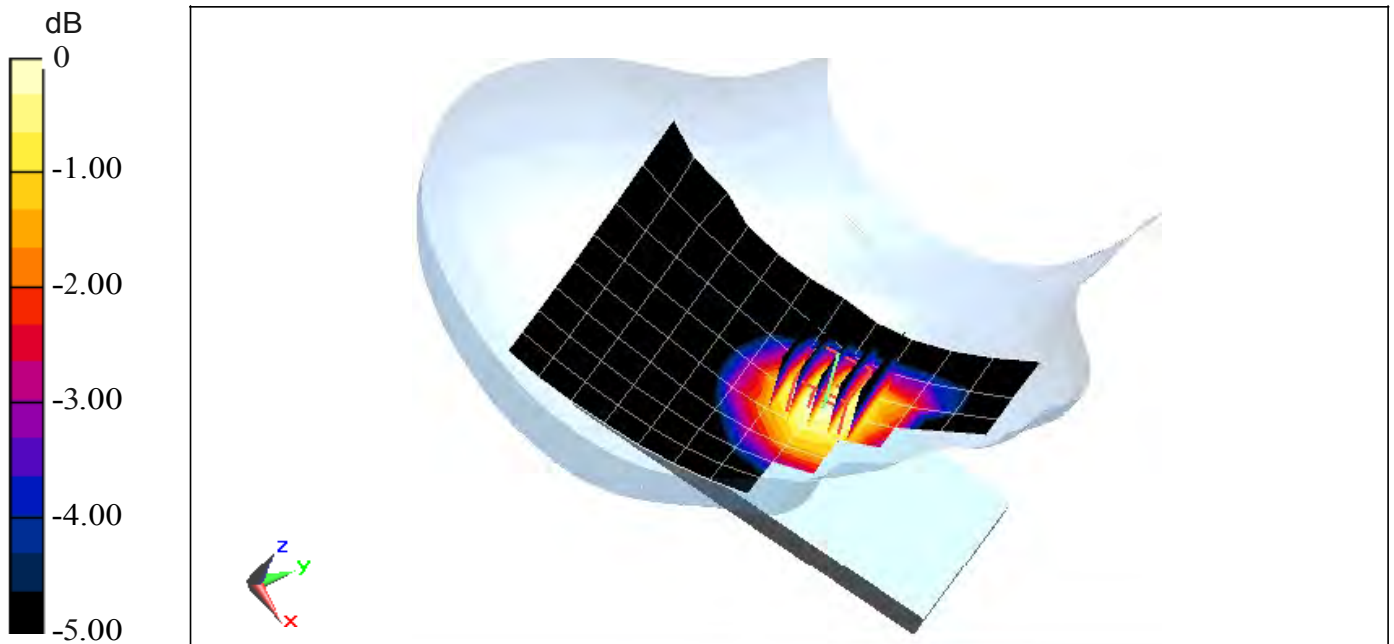
Area Scan (9x15x1):Measurement grid:dx=15mm, dy=15mm

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

Reference Value= 10.22 V/m; Power Drift= -0.06 dB

Peak SAR (extrapolated)= 0.103 W/kg

SAR(1 g)= 0.085 W/kg



0 dB= 0.0917 W/kg = -10.38 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:4

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

Medium:835 Head Medium parameters used (interpolated):

$f = 836.6 \text{ MHz}$; $\sigma = 0.898 \text{ S/m}$; $\epsilon_r = 41.311$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 09-22-2014; Ambient Temp:24.3°C;Tissue Temp:22.1°C

Probe:ES3DV3- SN3213; ConvF(6.37, 6.37, 6.37); Calibrated: 4/11/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1407; Calibrated:11/18/2013

Phantom: Sub TWIN SAM; Type:QDOOOP40CC; Serial:TP-1357

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: UMTS 850, Right Head, Cheek, Mid.ch, Wireless Charging Cover

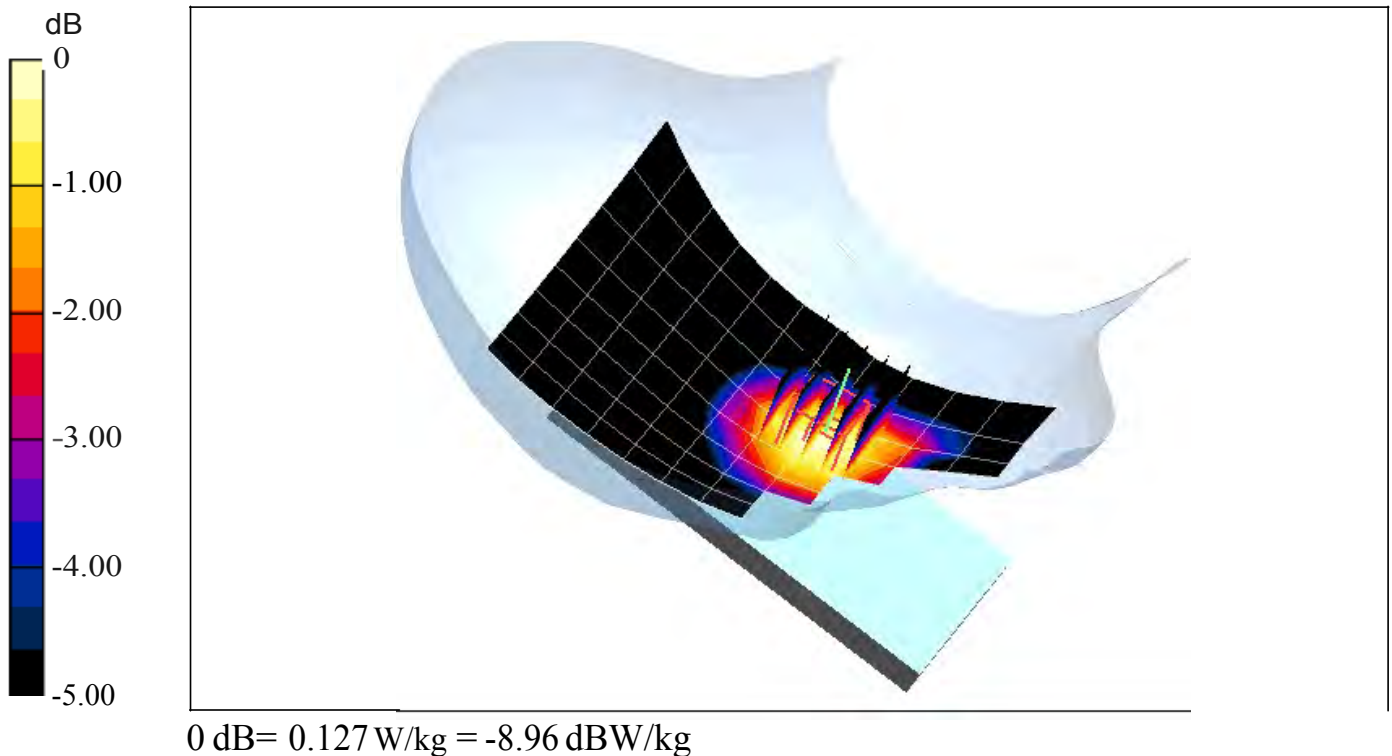
Area Scan (9x15x1):Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value= 11.95 V/m; Power Drift= 0.02 dB

Peak SAR (extrapolated)= 0.145 W/kg

SAR(1 g)=0.117 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset; Serial:4

Communication System:UID 0, GSM1900; Frequency:1880 MHz;Duty Cycle:1:8.3

Medium:1900 Head Medium parameters used:

$f = 1880$ MHz; $\sigma = 1.411$ S/m; $\epsilon_r = 39.846$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Test Date: 09-22-2014; Ambient Temp:24.3°C;Tissue Temp:22.0°C

Probe:ES3DV3- SN3318; ConvF(5.33, 5.33, 5.33); Calibrated: 3/19/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1272;Calibrated:6/19/2014

Phantom:Main Twin Sam; Type:QDOOOP40CC; Serial:TP:1375

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

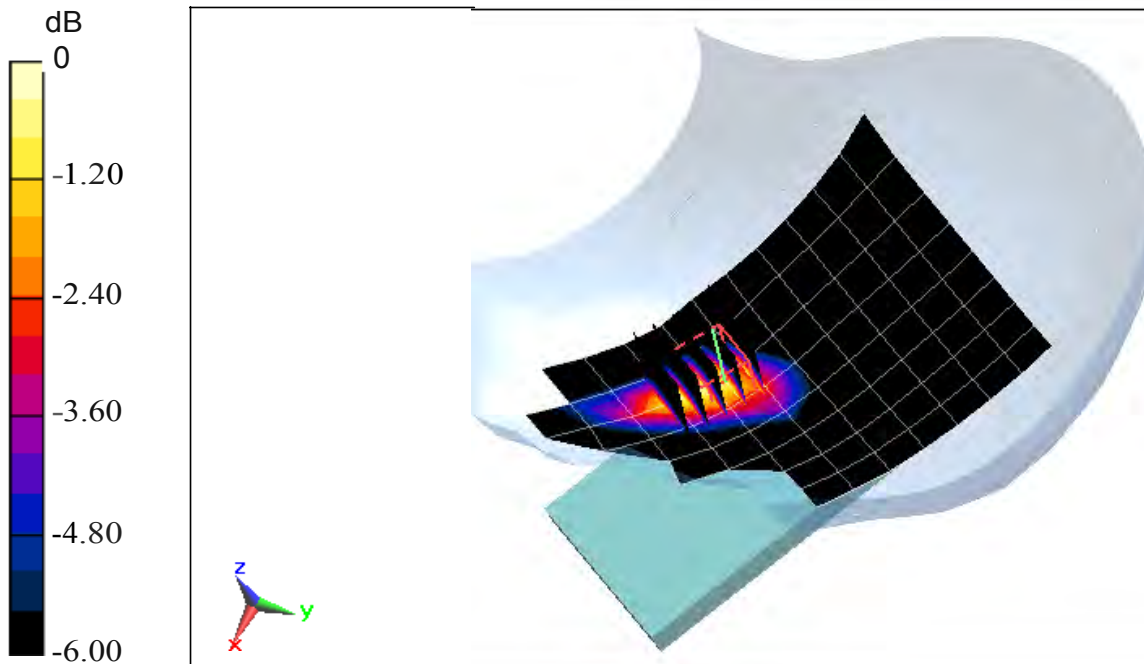
Area Scan (9x15x1): Measurement grid:dx=15mm, dy=15mm

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

Reference Value= 7.710 V/m; Power Drift= 0.20 dB

Peak SAR (extrapolated)= 0.124 W/kg

SAR(1 g)= 0.079 W/kg



0dB= 0.0930 W/kg= -10.32 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type: Portable Handset; Serial:4

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

Medium:1900 Head Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.411 \text{ S/m}$; $\epsilon_r = 39.846$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 09-22-2014; Ambient Temp:24.3°C;Tissue Temp:22.0°C

Probe:ES3DV3- SN3318; ConvF(5.33, 5.33, 5.33); Calibrated: 3/19/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1272;Calibrated:6/19/2014

Phantom:Main Twin Sam; Type:QDOOOP40CC; Serial:TP:1375

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: UMTS1900, Right Head, Cheek, Mid.ch, Standard Cover

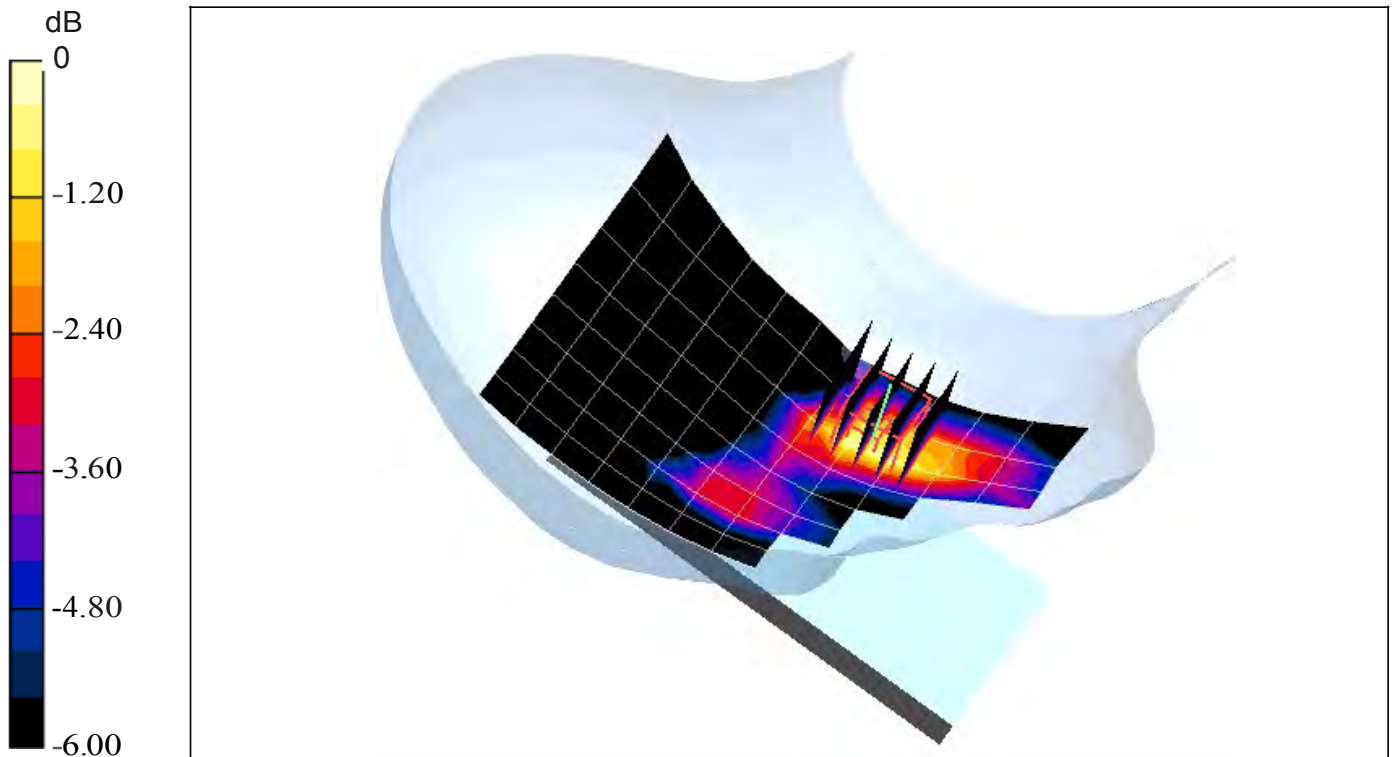
Area Scan (9x15x1): Measurement grid:dx=15mm, dy=15mm.

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

Reference Value= 8.196 V/m; Power Drift= 0.11 dB

Peak SAR (extrapolated)= 0.138 W/kg

SAR(1 g)= 0.094 W/kg



0dB=0.109W/kg=-9.63 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:5

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

Medium:835 Head Medium parameters used (interpolated):

$f = 820.1 \text{ MHz}$; $\sigma = 0.898 \text{ S/m}$; $\epsilon_r = 42.441$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 09-17-2014; Ambient Temp:24.2°C;Tissue Temp:22.1°C

Probe:ES3DV3- SN3213; ConvF(6.37, 6.37, 6.37); Calibrated: 4/11/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1407; Calibrated:11/18/2013

Phantom: Sub TWIN SAM; Type:QDOOOP40CC; Serial:TP-1357

MeasurementSW:DASY52, Version52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: BC10 Cell. EVDO Rev.A, Right Head, Cheek, Mid.ch, Standard Cover

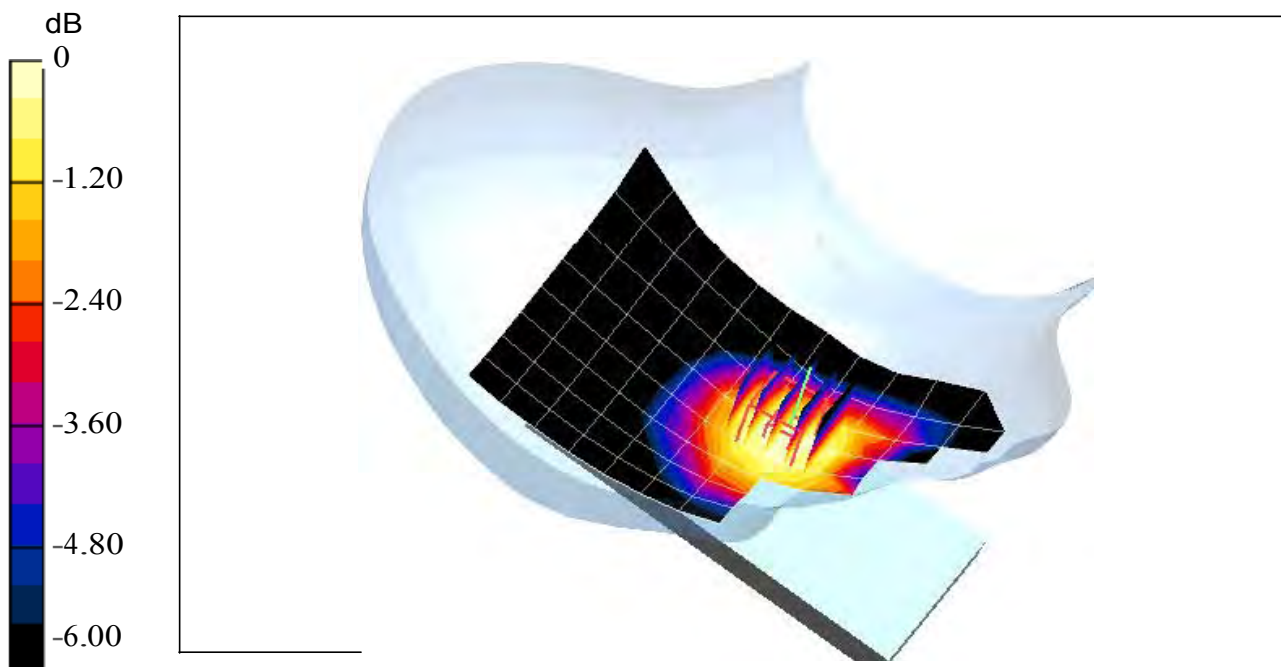
Area Scan (9x14x1):Measurement grid:dx=15mm, dy=15mm

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

Reference Value= 15.16 V/m; Power Drift= 0.12 dB

Peak SAR (extrapolated)= 0.214 W/kg

SAR(1 g)=0.176W/kg



0dB= 0.189 W/kg= -7.24 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:5

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

Medium:835 Head Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 0.914 \text{ S/m}$; $\epsilon_r = 42.229$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 09-17-2014; Ambient Temp:24.2°C;Tissue Temp:22.1°C

Probe:ES3DV3- SN3213; ConvF(6.37, 6.37, 6.37); Calibrated: 4/11/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1407; Calibrated:11/18/2013

Phantom: Sub TWIN SAM; Type:QDOOOP40CC; Serial:TP-1357

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode:BC0 Cell. EVDO Rev.A, Right Head, Cheek, Mid.ch, Standard Cover

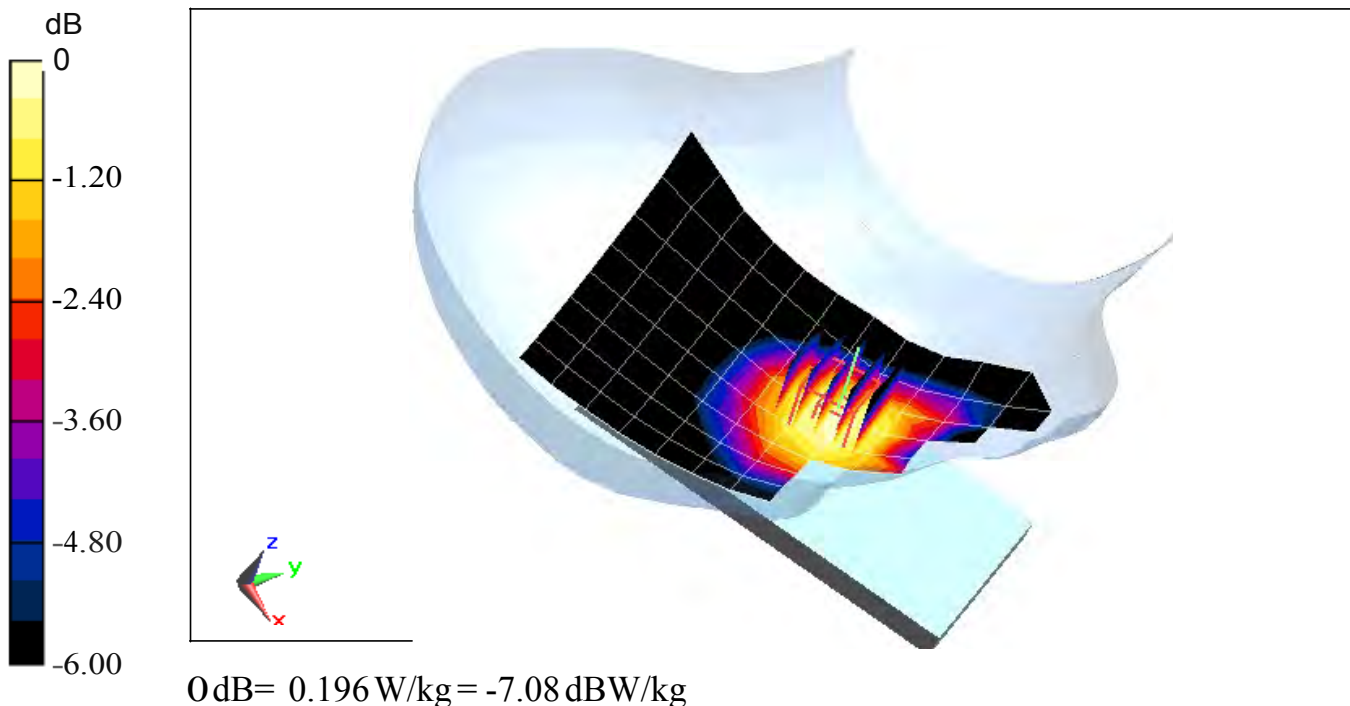
Area Scan (9x14x1): Measurement grid:dx=15mm, dy=15mm.

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

Reference Value= 15.16 V/m; Power Drift= 0.08 dB

Peak SAR (extrapolated)= 0.222 W/kg

SAR(1 g)= 0.182 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type: Portable Handset;Serial:6

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

Medium:1900 Head Medium parameters used:

$f = 1880$ MHz; $\sigma = 1.411$ S/m; $\epsilon_r = 39.846$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Test Date: 09-22-2014; Ambient Temp:24.3°C;Tissue Temp:22.0°C

Probe:ES3DV3- SN3318; ConvF(5.33, 5.33, 5.33); Calibrated: 3/19/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1272;Calibrated:6/19/2014

Phantom:Main Twin Sam; Type:QDOOOP40CC; Serial:TP-1375

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

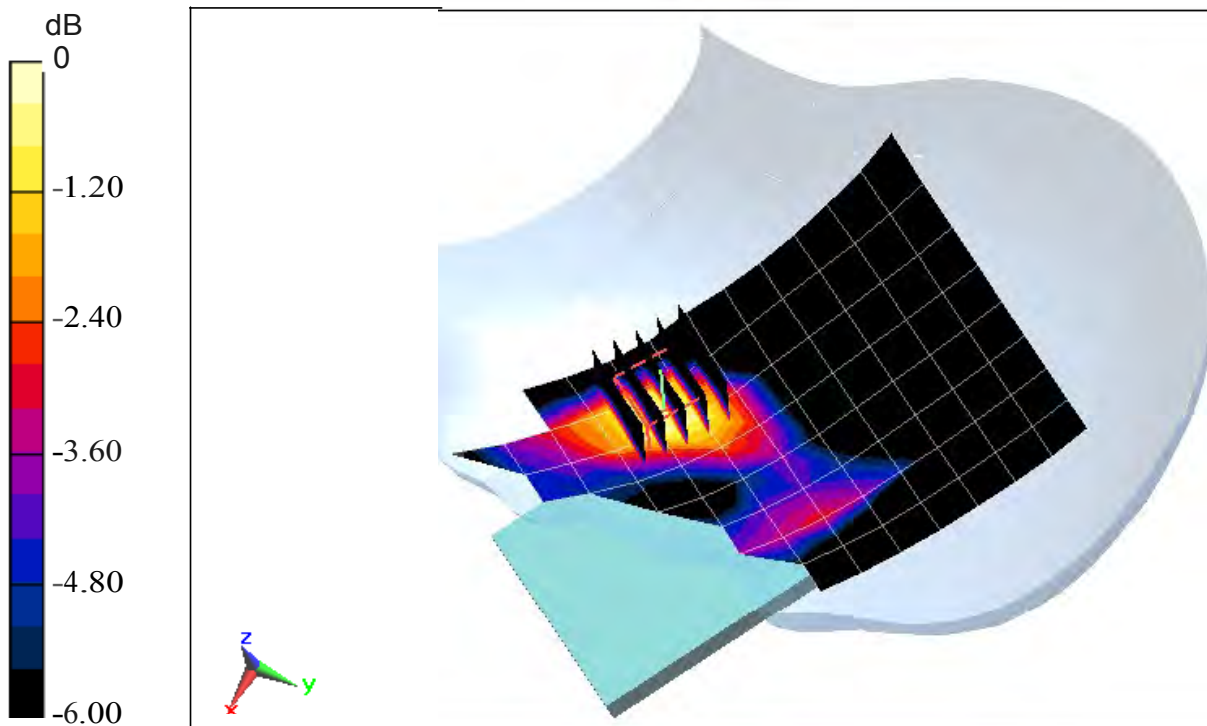
Area Scan (9x15x1): Measurement grid:dx=15mm, dy=15mm.

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

Reference Value= 8.147 V/m; Power Drift= 0.16 dB

Peak SAR (extrapolated)= 0.173 W/kg

SAR(1 g)=0.116W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915P; Type: Portable Handset; Serial: 2

Communication System: UID 0, LTE Band 26 (0); Frequency: 819 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used (interpolated):

$f = 819 \text{ MHz}$; $\sigma = 0.911 \text{ S/m}$; $\epsilon_r = 41.441$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 10-07-2014; Ambient Temp: 21.8°C; Tissue Temp: 20.7°C

Probe: ES3DV3 - SN3318; ConvF(6.18, 6.18, 6.18); Calibrated: 3/19/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 6/19/2014

Phantom: Sub Twin Sam v5.0; Type: QD000P40CD; Serial: TP:1626

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Mode: LTE Band 26 (Cell.), Right Head, Cheek, Low.ch, 10 MHz Bandwidth,
QPSK, 1 RB, 25 RB Offset, Wireless Charging Cover**

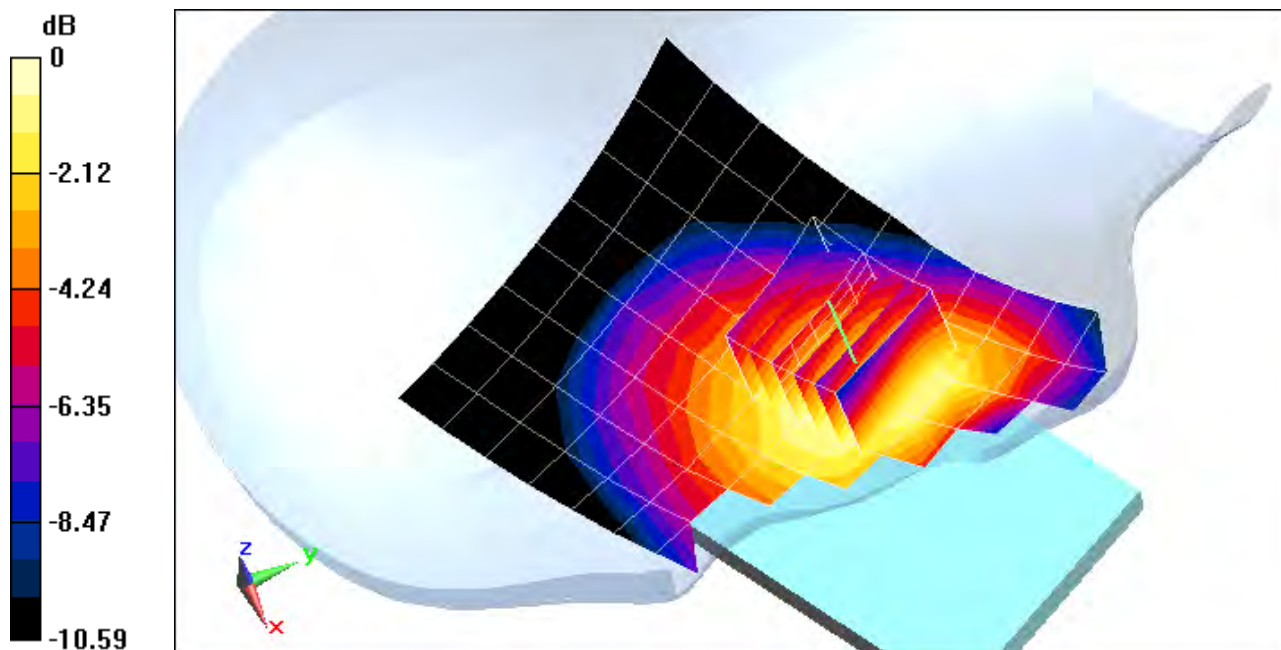
Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 14.140 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.195 W/kg

SAR(1 g) = 0.155 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915P; Type: Portable Handset; Serial: 2

Communication System: UID 0, LTE Band 25 (PCS) (0); Frequency: 1882.5 MHz; Duty Cycle: 1:1

Medium: 1900 Head Medium parameters used (interpolated):

$f = 1882.5 \text{ MHz}$; $\sigma = 1.429 \text{ S/m}$; $\epsilon_r = 39.447$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 10-06-2014; Ambient Temp: 22.7°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3258; ConvF(5.04, 5.04, 5.04); Calibrated: 2/25/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/26/2014

Phantom: SAM Front; Type: SAM; Serial: 1686

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

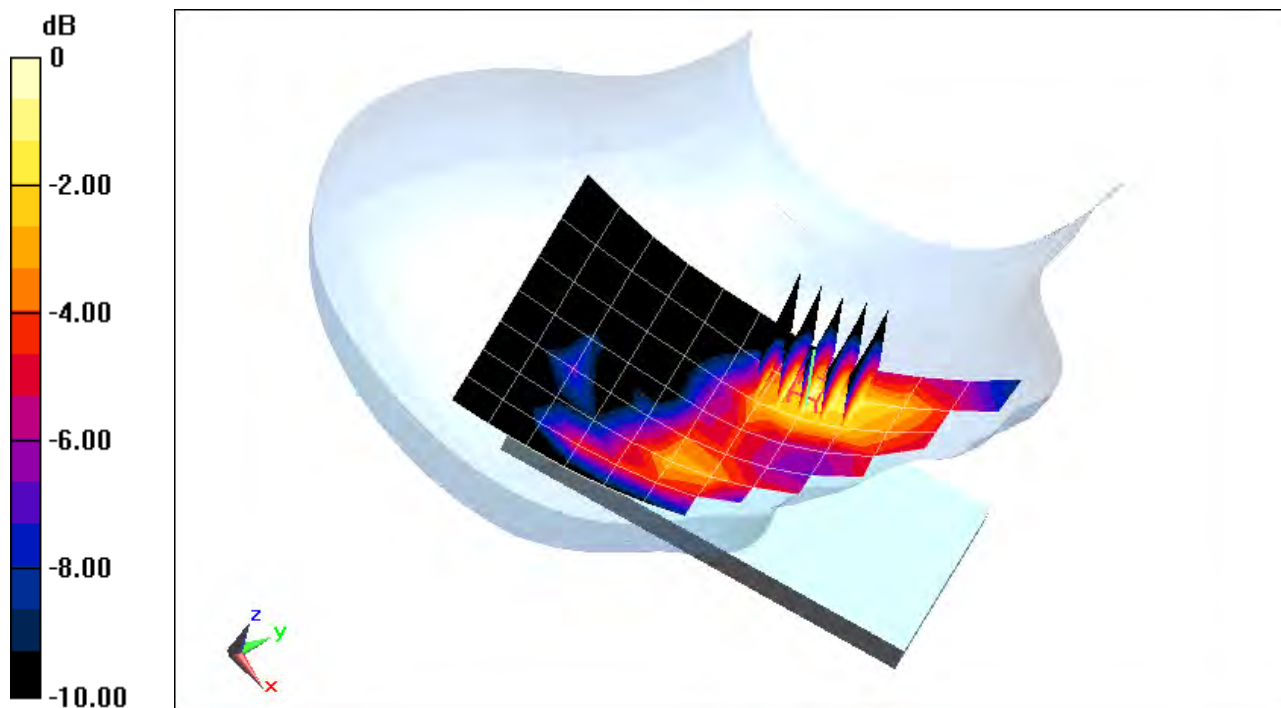
Area Scan (8x13x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 11.79 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.259 W/kg

SAR(1 g) = 0.171 W/kg



0 dB = 0.194 W/kg = -7.12 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:3

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

Medium:2450 Head Medium parameters used (interpolated):

$f = 2506$ MHz; $\sigma = 1.874$ S/m.; $\epsilon_r = 39.471$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Test Date: 09-15-2014; Ambient Temp:24.4°C;Tissue Temp:23.6°C

Probe:ES3DV3- SN3258; ConvF(4.52,4.52,4.52); Calibrated: 2/25/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn665; Calibrated:2/26/2014

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, Low.ch,
QPSK, 20 MHz Bandwidth, 1RB, 0 RB Offset, Wireless Charging Cover**

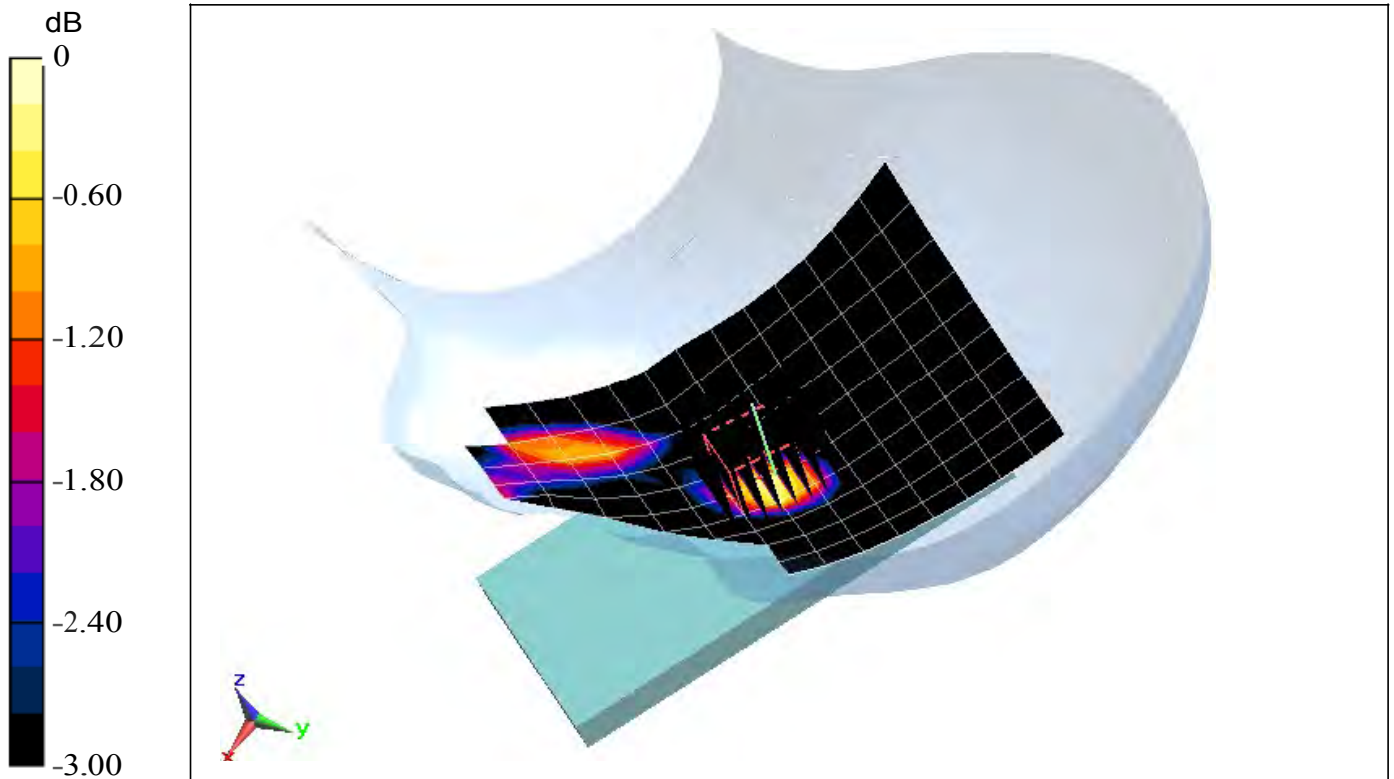
Area Scan (11x7x1): Measurement grid: dx=12mm, dy=12mm

Zoom Scan (8x8x7)/Cube 0: Measurement grid:dx=5mm, dy=5mm, dz=5mm

Reference Value= 3.749 V/m; Power Drift= 0.03 dB

Peak SAR (extrapolated)= 0.0350 W/kg

SAR(1 g) = 0.019 W/kg



0dB= 0.0228 W/kg= -16.42 d.BW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type: Portable Handset;Serial:12

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

Medium:2450 Head Medium parameters used (interpolated):

$f = 2437 \text{ MHz}$; $\sigma = 1.799 \text{ S/m}$; $\epsilon_r = 39.736$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section

Test Date: 09-15-2014; Ambient Temp: 24.4°C; Tissue Temp:23.6°C

Probe:ES3DV3- SN3258; ConvF(4.52, 4.52,4.52); Calibrated: 2/25/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn665; Calibrated:2/26/2014

Phantom: SAM Front; Type:SAM; Serial:1686

MeasurementSW:DASY52, Version52.8 (8);SEMCAD X Version 14.6.10 (7331)

**Mode: IEEE 802.11b, Right Head, Cheek, Ch 6, 1 Mbps,
Antenna 2, Wireless Charging Cover**

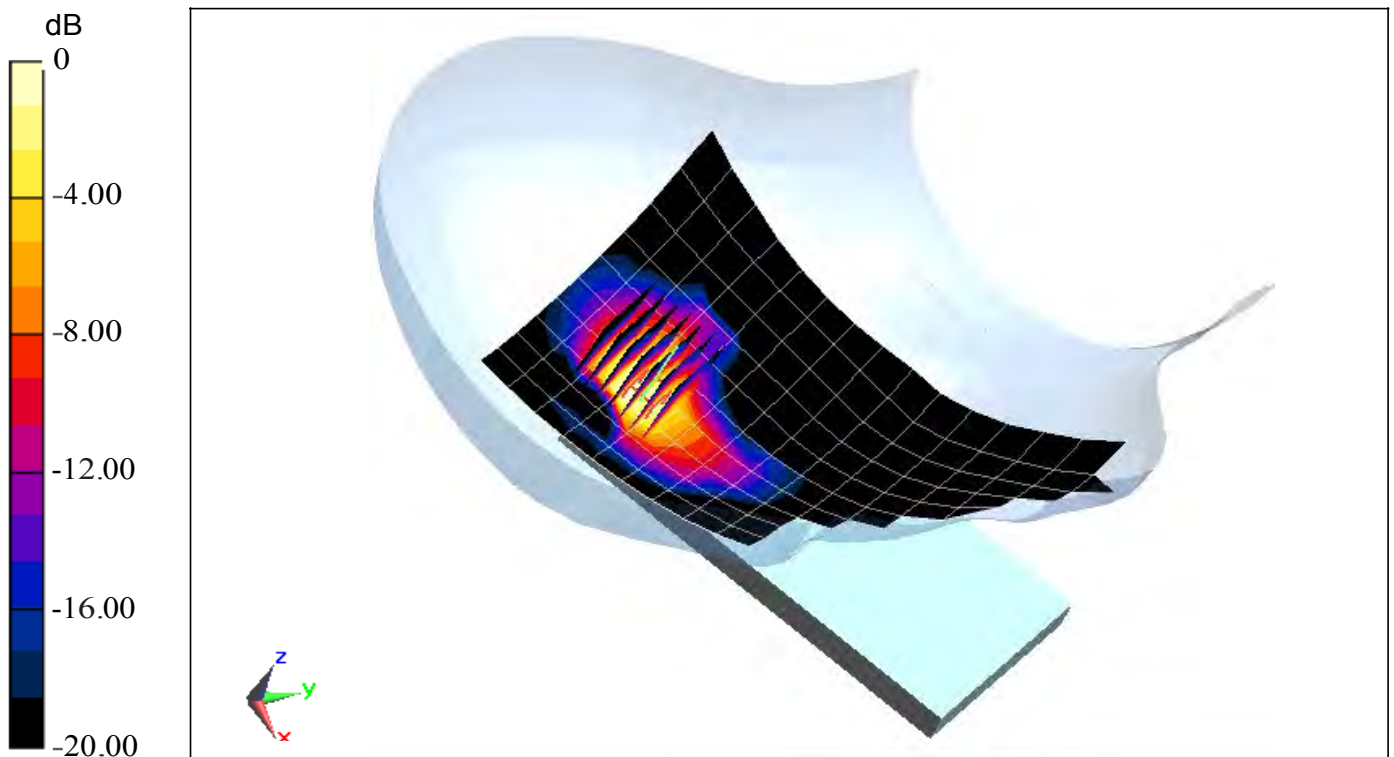
Area Scan (11x18x1): Measurement grid:dx=12mm, dy=12mm

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

Reference Value= 10.92 V/m; Power Drift= 0.02 dB

Peak SAR (extrapolated) = 0.540 W/kg

SAR(1 g)= 0.207 W/kg



0 dB= 0.285 W/kg = -5.45 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:12

Communication System:UID 0, IEEE 802.11n (0); Frequency: 5745 MHz;Duty Cycle:1:1

Medium: 5 GHz Head Medium parameters used:

$f = 5745 \text{ MHz}$; $\sigma = 5.164 \text{ S/m}$; $\epsilon_r = 34.918$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section

Test Date:09-23-2014; Ambient Temp:24.5°C;Tissue Temp:23.7°C

Probe:EX3DV4- SN3914;ConvF(4.52,4.52, 4.52);Calibrated:10/23/2013;

Sensor-Surface:1.4mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1333; Calibrated:11/19/2013

Phantom:SAM V5.0 Right;Type:QDOOOP40CD; Serial:1647

Measurement SW:DASYS2, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

**Mode: IEEE 802.11n, 5.8 GHz, Left Head, Tilt, Ch. 149, 13 Mbps,
MIMO, Wireless Charging Cover**

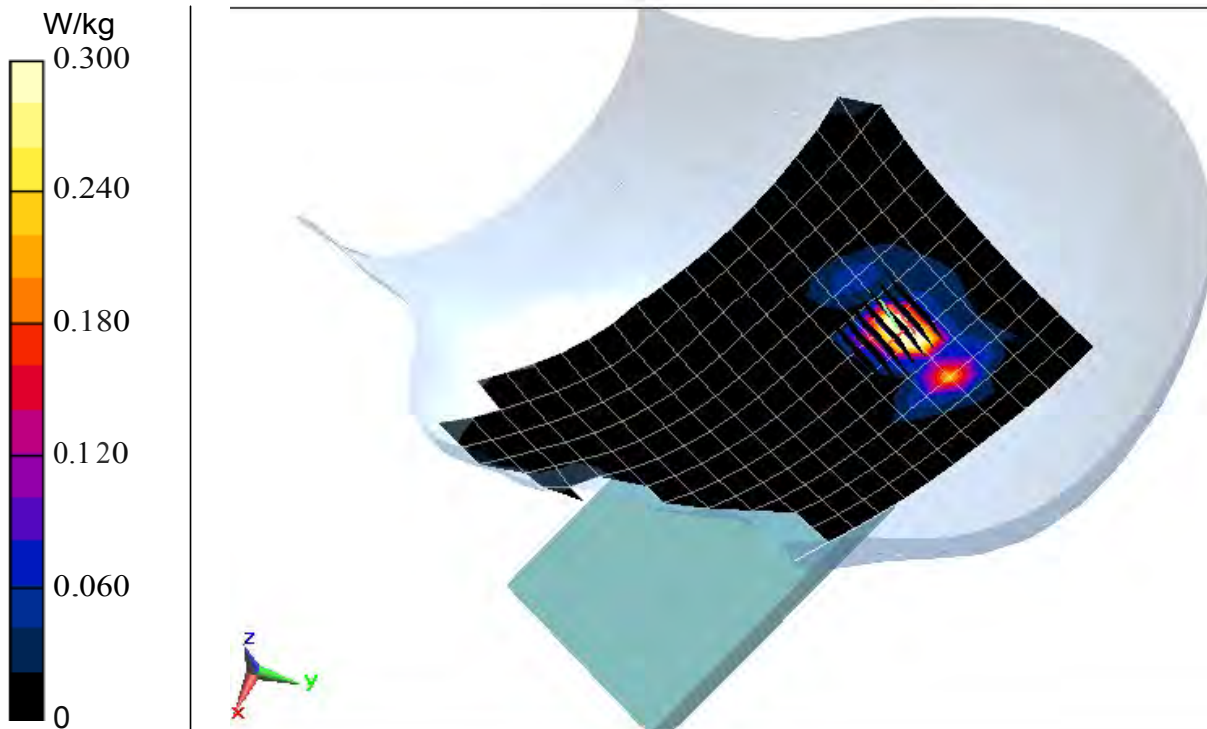
Area Scan (13x22x1):Measurement grid:dx=10mm, dy=10mm

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

Reference Value= 7.450 V/m; Power Drift= 0.04 dB

Peak SAR (extrapolated) =3.28W/kg

SAR(1 g) = 0.224 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:12

Communication System:UID 0, IEEE 802.11n (0); Frequency: 5500 MHz;Duty Cycle:1:1

Medium: 5 GHz Head Medium parameters used:

$f = 5500$ MHz; $\sigma = 4.923$ S/m.; $\epsilon_r = 35.256$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Test Date: 09-23-2014; Ambient Temp:24.6°C;Tissue Temp:23.7°C

Probe:EX3DV4- SN3914;ConvF(4.55,4.55, 4.55);Calibrated:10/23/2013;

Sensor-Surface:1.4mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1333; Calibrated:11/19/2013

Phantom:SAM V5.0 Right;Type:QDOOOP40CD; Serial:1647

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

**Mode: IEEE 802.11n, 5.5-5.7 GHz, Right Head, Cheek, Ch 100, 13 Mbps,
MIMO, Standard Cover**

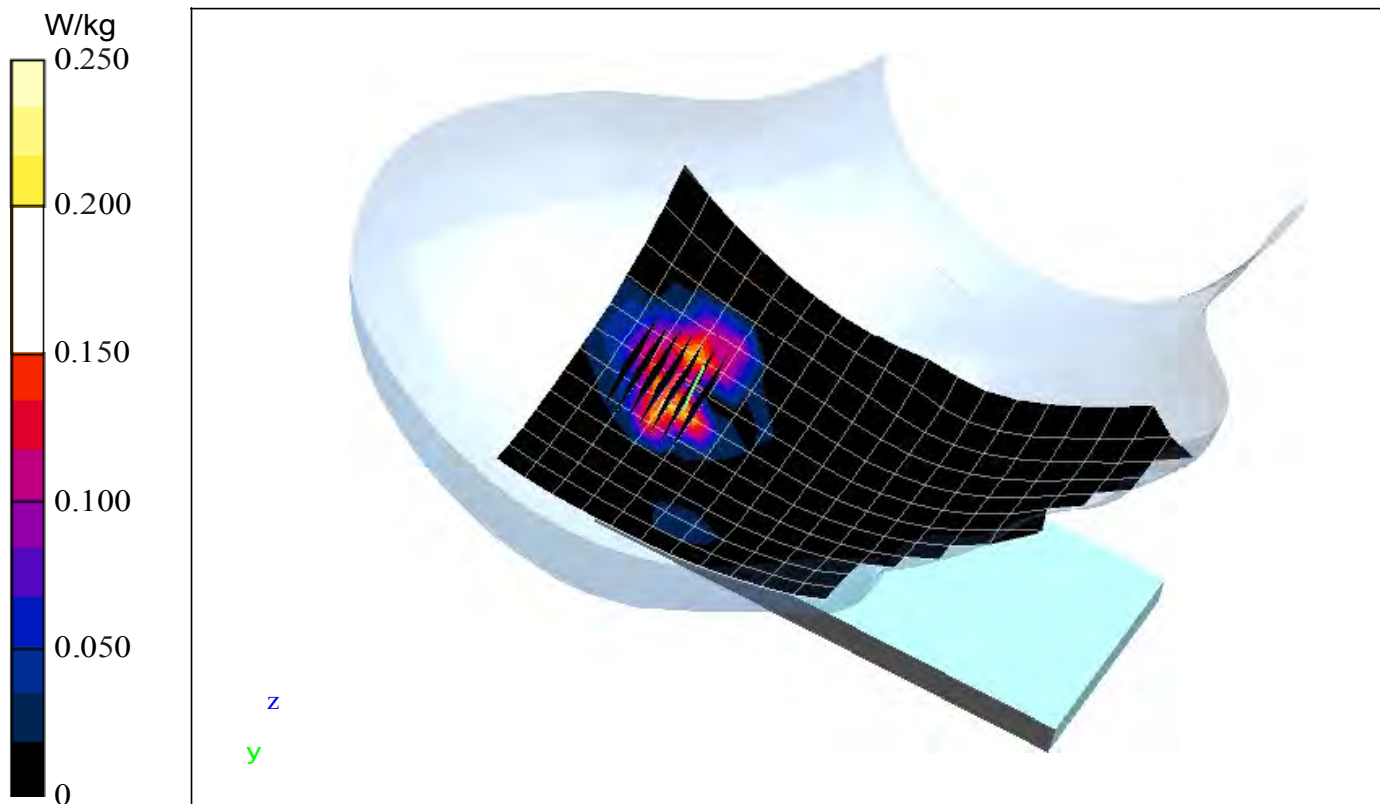
Area Scan (13x22x1): Measurement grid:dx=10mm, dy=10mm

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

Reference Value= 5.200 V/m; Power Drift= 0.04 dB

Peak SAR (extrapolated)= 0.842 W/kg

SAR(1 g) = 0.168 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset; Serial:4

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

Medium:835 Body Medium parameters used (interpolated):

$f=836.6\text{MHz}$; $\sigma = 1.018\text{ S/m}$; $\epsilon_r = 53.304$; $\rho = 1000\text{ kg/m}^3$

Phantom section:Flat Section; Space: 1.5 cm

Test Date:09-19-2014; Ambient Temp: 23.8°C;Tissue Temp:22.5°C

Probe:ES3DV3- SN3319;ConvF(6.18, 6.18, 6.18); Calibrated: 4/17/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electonics:DAE4 Sn1368;Calibrated:4/11/2014

Phantom:ELI left; Type:QDOVA002AA; Serial:TP:1202

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

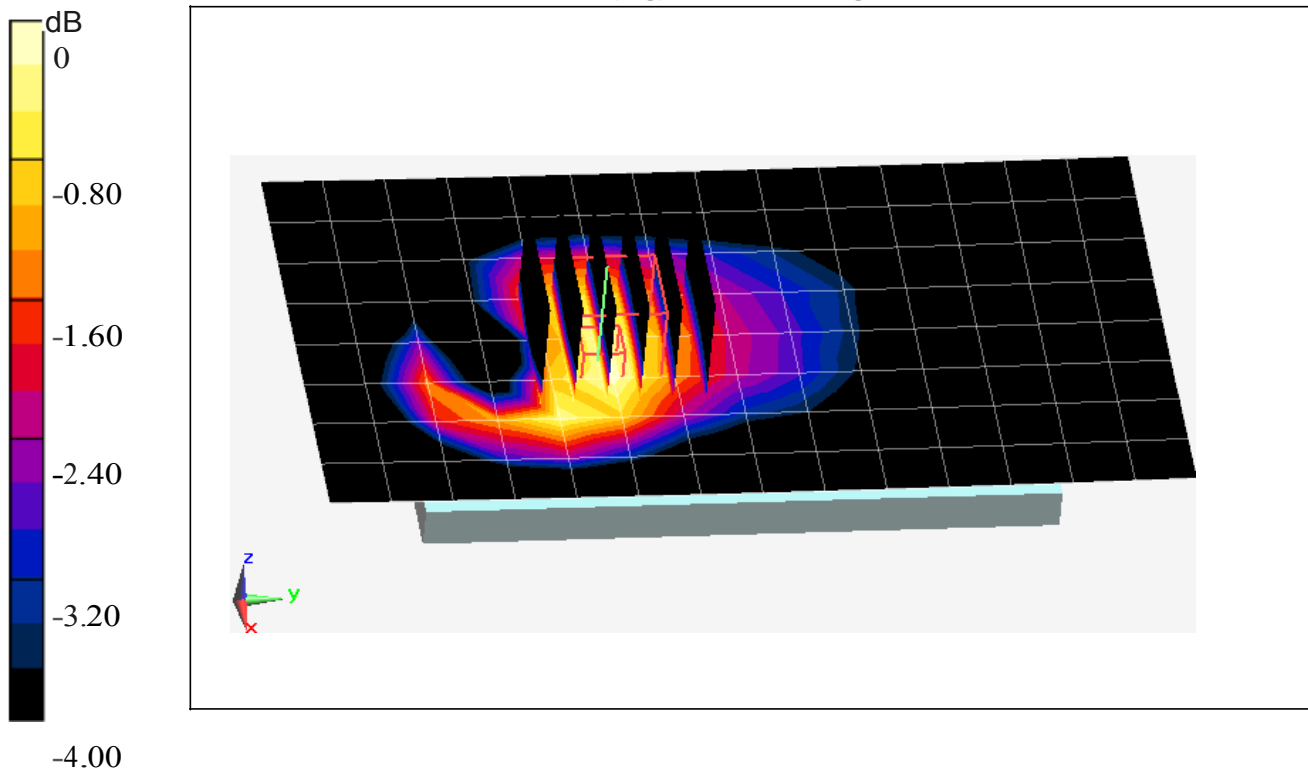
Area Scan (9x15x1): Measurement grid:dx=15mm, dy=15mm

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

Reference Value= 13.42 V/m; Power Drift= 0.04 dB

Peak SAR (extrapolated) = 0.238 W/kg

SAR (1 g) = 0.170 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type: Portable Handset;Serial:4

Communication System: UID 0, GSM GPRS;3 Tx slots (0); Frequency: 836.6 MHz; Duty Cycle:1:2.76

Medium: 835 Body Medium parameters used (interpolated):

$f = 836.6\text{MHz}$; $\sigma = 1.018\text{ S/m}$; $\epsilon_r = 53.304$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-19-2014; Ambient Temp:23.8°C;Tissue Temp:22.5°C

Probe:ES3DV3- SN3319; ConvF(6.18, 6.18, 6.18}; Calibrated: 4/17/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1368;Calibrated:4/11/2014

Phantom: ELI left; Type:QDOVA002AA.; Serial:TP:1202

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

**Mode: GPRS 850, Body SAR, Front side, Mid.ch, 3 Tx Slots,
Standard Cover**

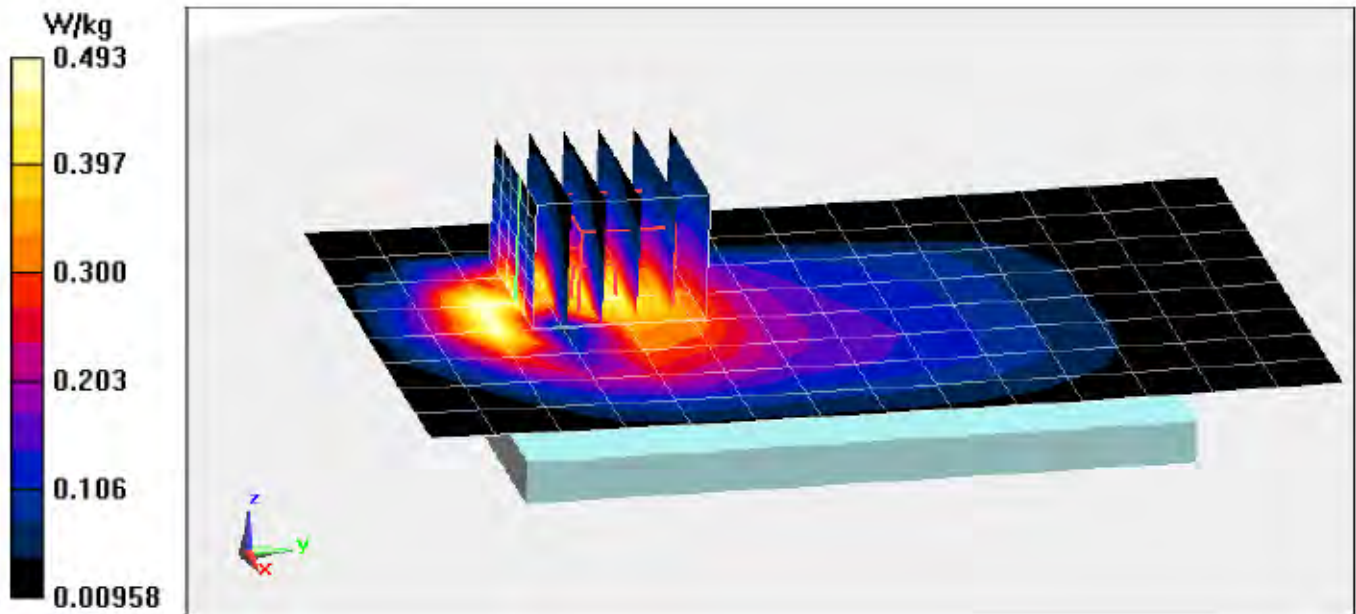
Area Scan (9x15x1): Measurement grid: dx=15mm, dy=15mm

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

Reference Value= 20.81 V/m; Power Drift= -0.17 dB

Peak SAR (extrapolated) = 0.697 W/kg

SAR(1 g)= 0.392 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:4

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

Medium: 835 Body Medium parameters used (interpolated):

$f = 836.6\text{MHz}$; $\sigma = 1.018\text{ S/m}$; $\epsilon_r = 53.304$; $\rho = 1000\text{ kg/m}^3$

Phantom section: Flat Section; Space:1.5 cm

Test Date: 09-19-2014; Ambient Temp:23.8°C;Tissue Temp:22.5°C

Probe:ES3DV3-SN3319; ConvF(6.18, 6.18, 6.18); Calibrated: 4/17/2014

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1368;Calibrated:4/11/2014

Phantom:ELI left; Type:QDOVA002AA; Serial:TP:1202

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

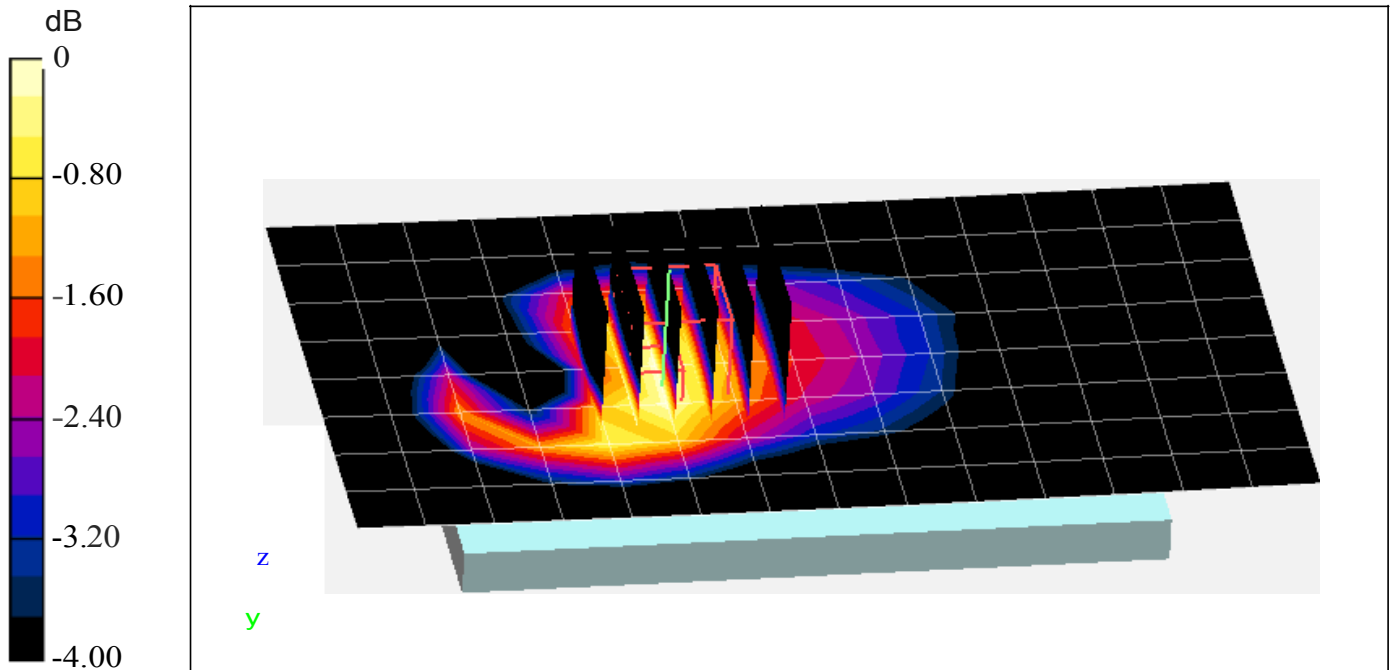
Area Scan (9x15x1): Measurement grid:dx=15mm, dy=15mm

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

Reference Value= 14.43 V/m; Power Drift= 0.04 dB

Peak SAR (extrapolated)= 0.272 W/kg

SAR(1 g)=0.196W/kg



0dB=0.219 W/kg = -6.60 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type: Portable Handset;Serial:4

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

Medium:835 Body Medium parameters used (interpolated):

$f= 836.6\text{MHz}$; $\sigma = 1.018 \text{ S/m}$; $\epsilon_r = 53.304$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-19-2014; Ambient Temp:23.8°C;Tissue Temp:22.5°C

Probe:ES3DV3-SN3319; ConvF(6.18, 6.18, 6.18); Calibrated: 4/17/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1368;Calibrated:4/11/2014

Phantom: ELI left; Type:QDOVA002AA; Serial:TP:1202

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

**Mode: UMTS 850, Body SAR, Front side, Mid.ch,
Standard Cover**

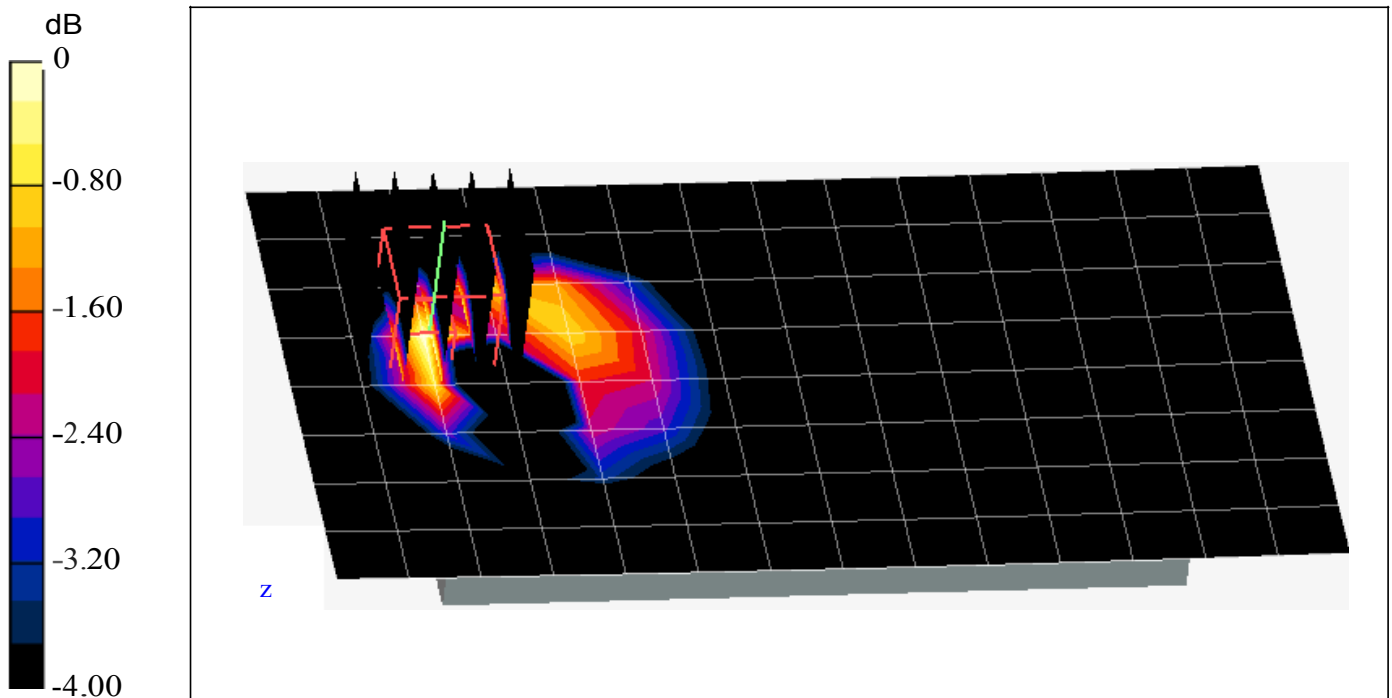
Area Scan (9x15x1):Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (Sx5x7)/Cube 0:Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value= 21.52 V/m; Power Drift= -0.01 dB

Peak SAR (extrapolated) = 0.696 W/kg

SAR(1 g)= 0.416 W/kg



0 dB=0.507 W/kg = -2.95 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type: Portable Handset; Serial: 4

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

Medium:1900 Body Medium parameters used:

$f = 1880$ MHz; $\sigma = 1.537$ S/m.; $\epsilon_r = 51.766$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09-18-2014; Ambient Temp:24.5°C;Tissue Temp:23.4°C

Probe:ES3DV2- SN3022; ConvF(4.49, 4.49,4.49); Calibrated: 8/19/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1322;Calibrated:8/12/2014

Phantom: ELI v5.0; Type: QDOVAOOI BB; Serial:1226

Measurement SW:DASYS2, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

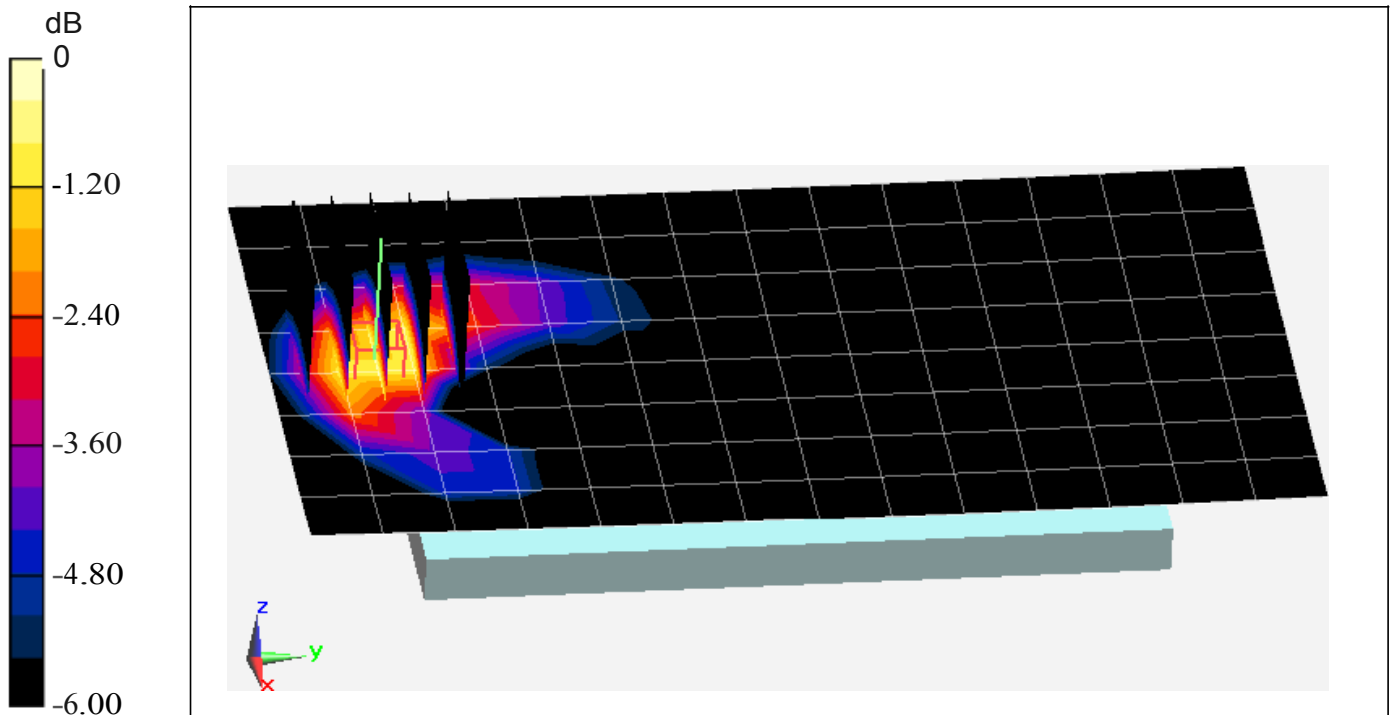
Area Scan (9x15x1):Measurement grid:dx=15mm., dy=15mm.

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

Reference Value= 10.62 V/m; Power Drift= 0.08 dB

Peak SAR (extrapolated) = 0.281 W/kg

SAR (1 g) = 0.185 W/kg



0dB= 0.219 W/kg = -6.60 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:4

Communication System: UID 0, GSM GPRS;3 Tx slots (0);Frequency:1880 MHz; Duty Cycle:1:2.76

Medium:1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.537 \text{ S/m.}$; $\epsilon_r = 51.766$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-18-2014; Ambient Temp:24.5°C;Tissue Temp:23.4°C

Probe:ES3DV2- SN3022; ConvF(4.49, 4.49,4.49); Calibrated: 8/19/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1322;Calibrated:8/12/2014

Phantom:ELI v5.0; Type:QDOVAOOIBB; Serial:1226

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

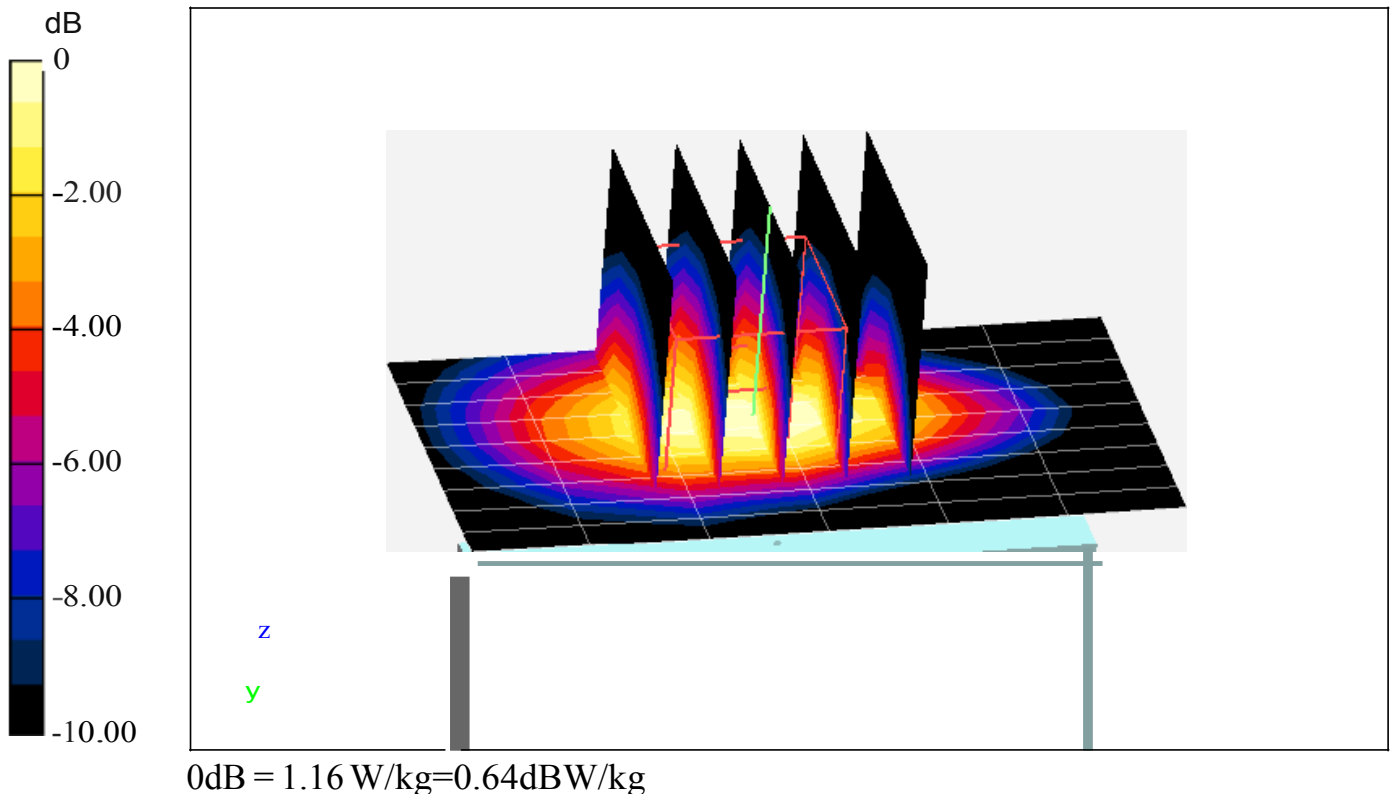
Area Scan (10x7x1):Measurement grid:dx=5mm, dy=15mm

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

Reference Value= 26.26 V/m; Power Drift= -0.08 dB

Peak SAR (extrapolated) = 1.51 W/kg

SAR(1 g)= 0.950 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:4

Communication System:UID 0, UMTS; Frequency: 1880 MHz;Duty Cycle:1:1
Medium:1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.533 \text{ S/m}$; $\epsilon_r = 51.28$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09-15-2014; Ambient Temp:22.0°C;Tissue Temp:21.7°C

Probe:ES3DV2- SN3022; ConvF(4.49, 4.49,4.49); Calibrated: 8/19/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1322;Calibrated:8/12/2014

Phantom:ELI v5.0; Type:QDOVAOOIBB; Serial:1226

Measurement SW:DASYS2, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

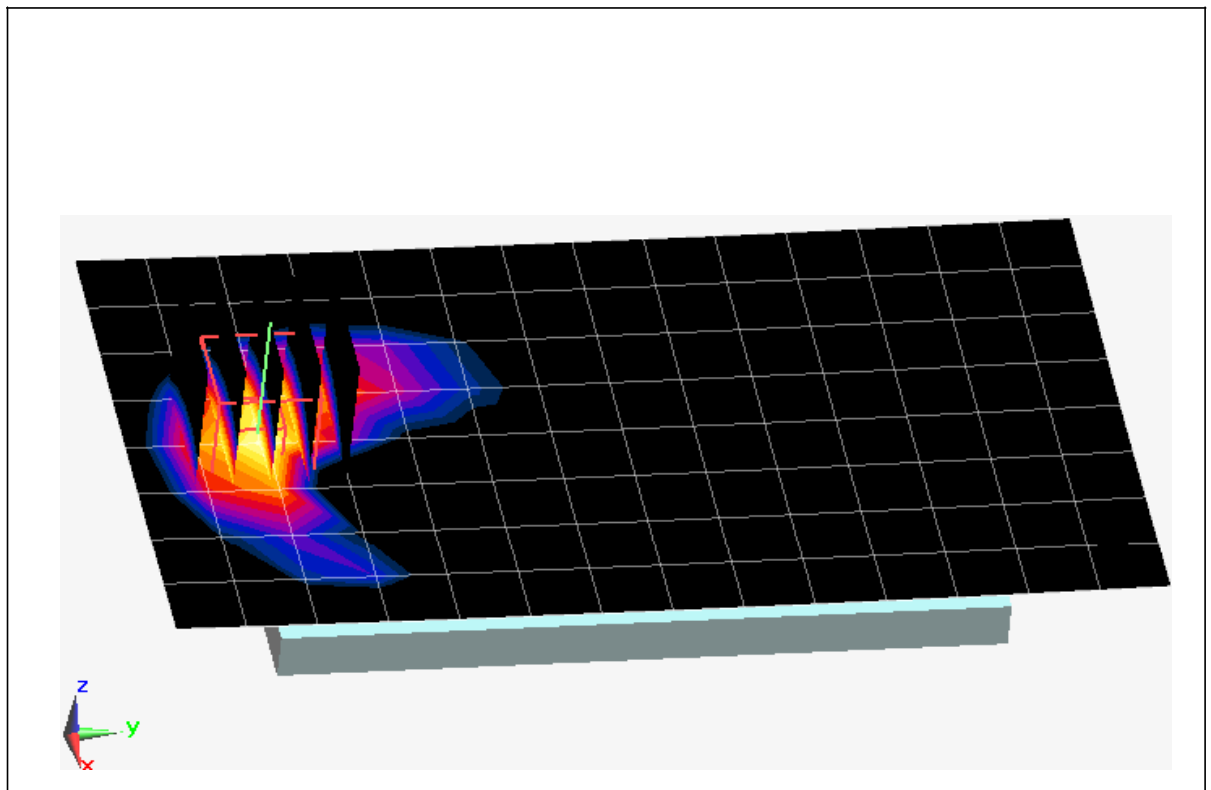
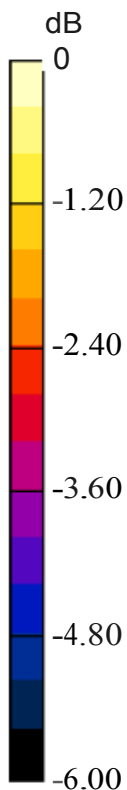
Area Scan (9x15x1):Measurement grid:dx=15mm, dy=15mm.

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

Reference Value= 15.17 V/m; Power Drift= 0.00 dB

Peak SAR (extrapolated) = 0.476 W/kg

SAR (1 g)= 0.313 W/kg



0dB= 0.370 W/kg = -4.32 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type: Portable Handset; Serial:9

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

Medium:1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.533 \text{ S/m}$; $\epsilon_r = 51.28$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-15-2014; Ambient Temp:22.0°C;Tissue Temp:21.7°C

Probe:ES3DV2- SN3022; ConvF(4.49, 4.49,4.49); Calibrated: 8/19/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1322;Calibrated:8/12/2014

Phantom: ELI v5.0; Type: QDOVAOOLBB; Serial:1226

MeasurementSW:DASY52, Version.52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

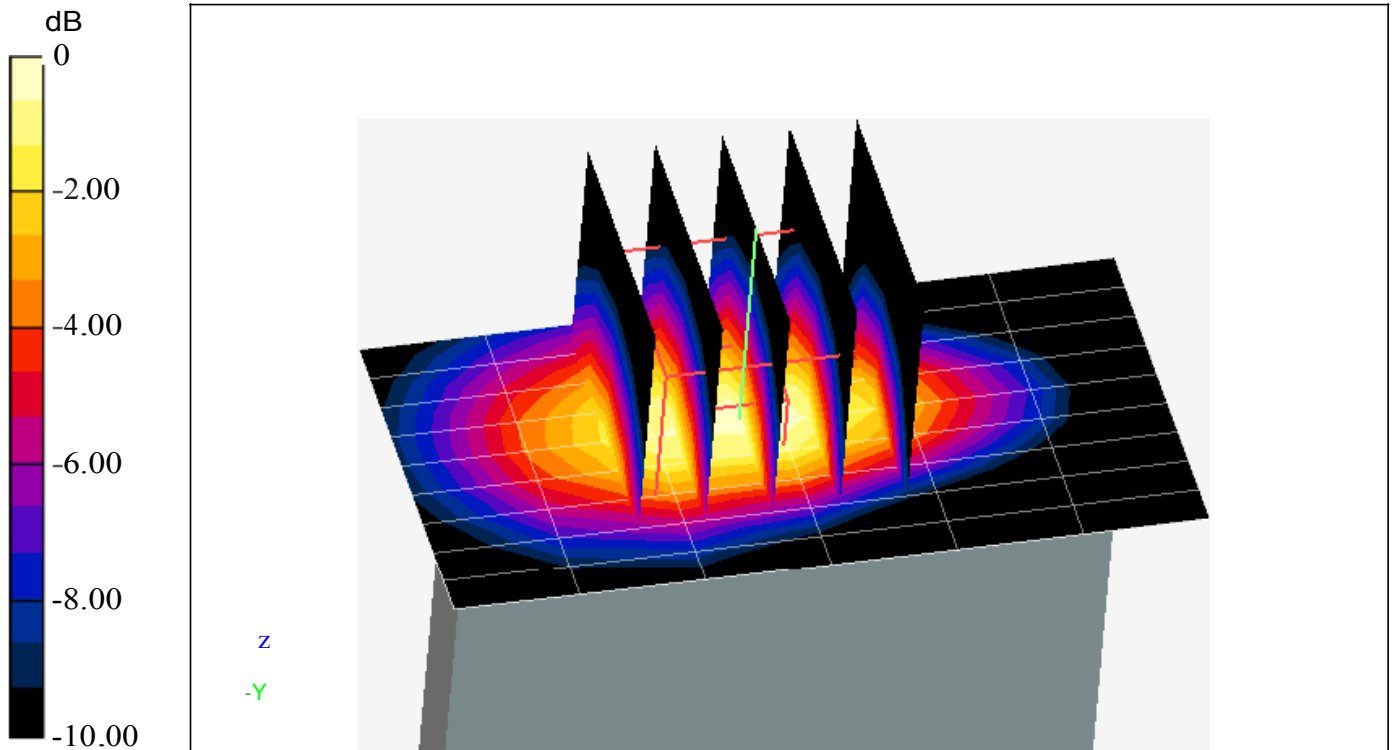
Area Scan (10x7x1):Measurement grid: dx=5mm. dy=15mm

Zoom Scan (8x8x7)/Cube 0:Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value= 21.87 V/m; Power Drift= 0.01dB

Peak SAR (extrapolated)= 1.04 W/kg

SAR(1 g)= 0.650 W/kg



0dB= 0.800 W/kg= -0.97 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:5

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

Medium:835 Body Medium parameters used (interpolated):

$f = 820.1 \text{ MHz}$; $\sigma = 1.002 \text{ S/m}$; $\epsilon_r = 53.459$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09-19-2014; Ambient Temp:23.8°C;Tissue Temp:22.5°C

Probe:ES3DV3- SN3319; ConvF(6.18, 6.18, 6.18); Calibrated: 4/17/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1368;Calibrated:4/11/2014

Phantom:ELI left; Type:QDOVA002AA; Serial:TP:1202

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

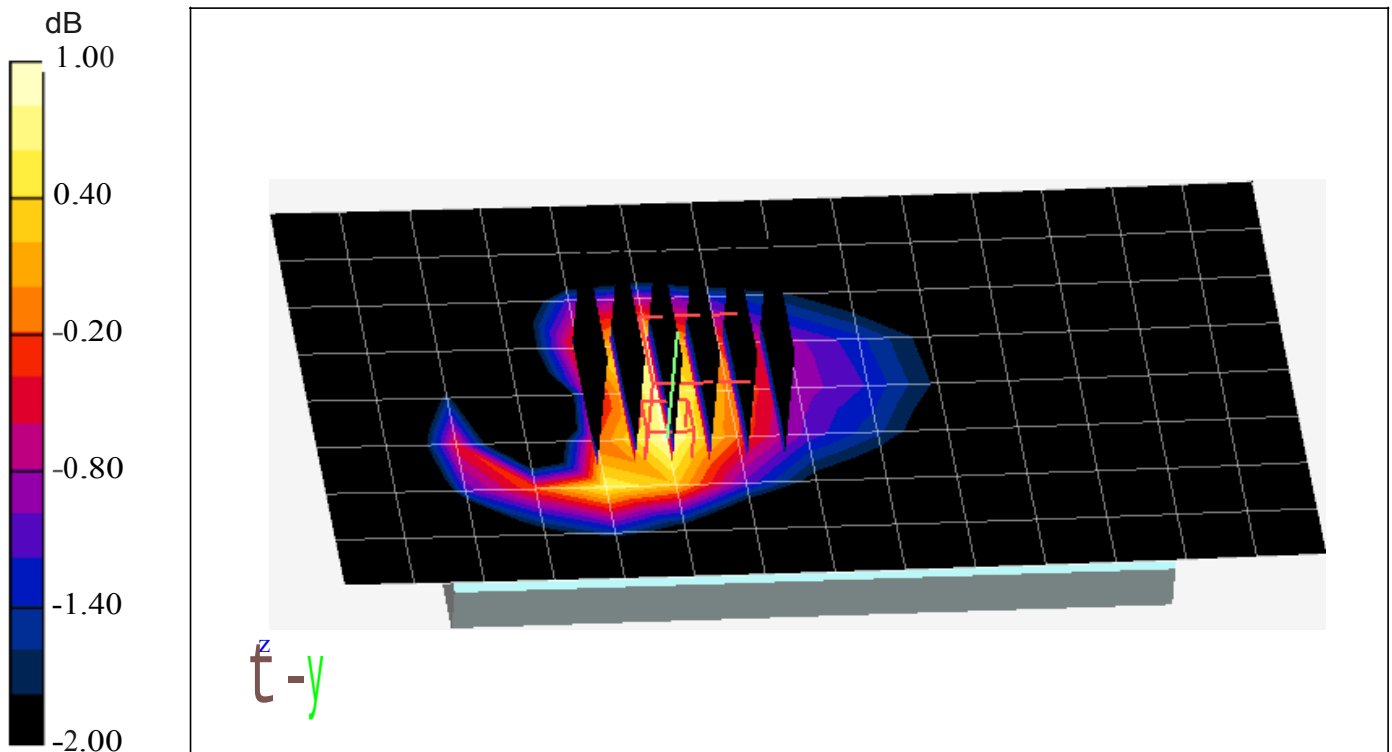
Area Scan (9x15x1):Measurement grid:dx=15mm, dy=15mm

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

Reference Value= 16.23 V/m; Power Drift= -0.02 dB

Peak SAR (extrapolated)= 0.341 W/kg

SAR(1 g)=0.249 W/kg



0dB= 0.279 W/kg= -5.54 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:5

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

Medium: 835 Body Medium parameters used (interpolated):

$f = 820.1 \text{ MHz}$; $\sigma = 1.002 \text{ S/m}$; $\epsilon_r = 53.459$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-19-2014; Ambient Temp:23.8°C;Tissue Temp:22.5°C

Probe:ES3DV3- SN3319; ConvF(6.18, 6.18, 6.18); Calibrated: 4/17/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1368;Calibrated:4/11/2014

Phantom:ELI left; Type:QDOVA002AA; Serial:TP:1202

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: BC10 Cell. EVDO Rev.0, Body SAR, Front side, Mid.ch, Standard Cover

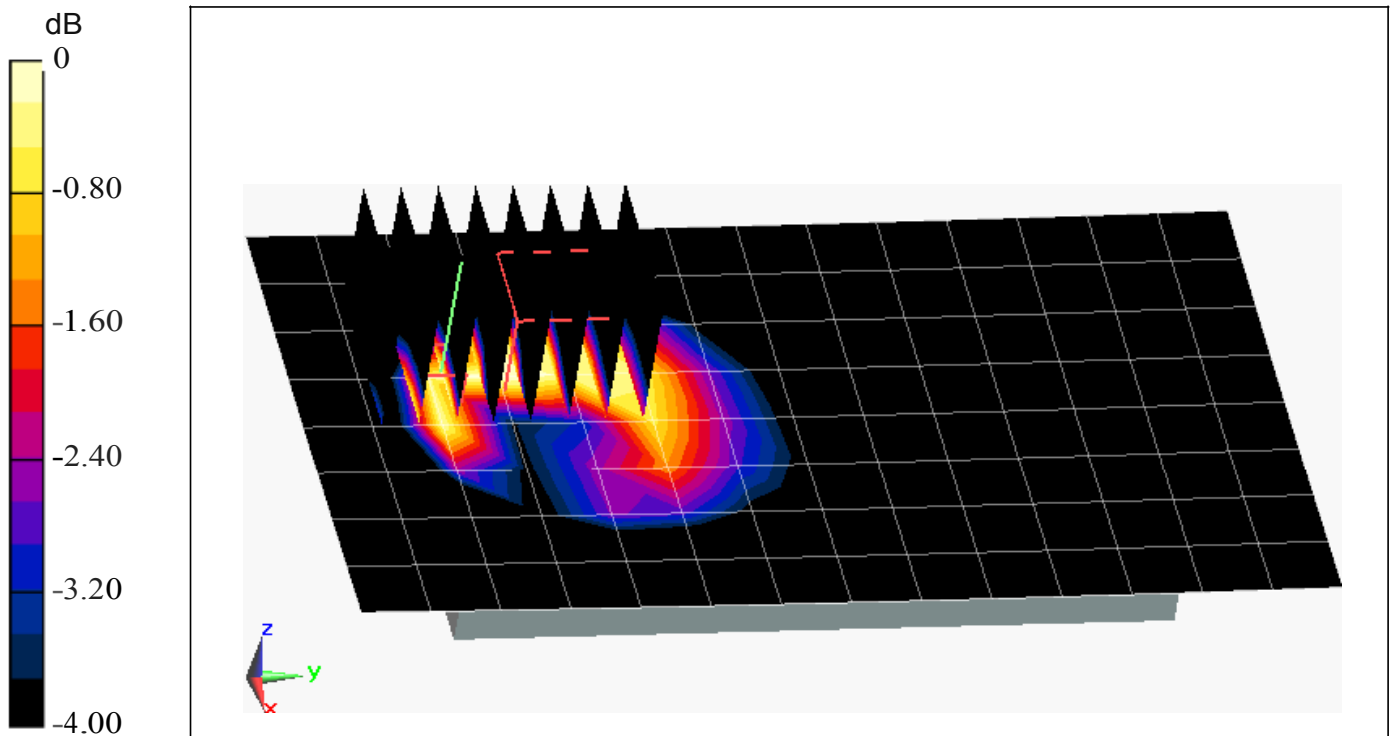
Area Scan (9x15:1):Measurement grid:dx=15mm, dy=15mm

Zoom Scan (6x8x7)/Cube 0: Measurement grid:dx=8mm, dy=8mm, dz=5mm

Reference Value= 25.53 V/m; Power Drift= -0.02 dB

Peak SAR (extrapolated)= 1.02 W/kg

SAR(1 g)= 0.587 W/kg



0dB= 0.708 W/kg = -1.50 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:5

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

Medium:835 Body Medium parameters used (interpolated):

$f = 836.52 \text{ MHz}$; $\sigma = 1.018 \text{ S/m}$; $\epsilon_r = 53.305$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09-19-2014; Ambient Temp:23.8°C;Tissue Temp:22.5°C

Probe:ES3DV3- SN3319; ConvF(6.18, 6.18, 6.18); Calibrated: 4/17/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1368;Calibrated:4/11/2014

Phantom:ELI left; Type:QDOVA002AA; Serial:TP:1202

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

**Mode: BC0 Cell. CDMA, Body SAR, Back side, Mid.ch,
Standard Cover**

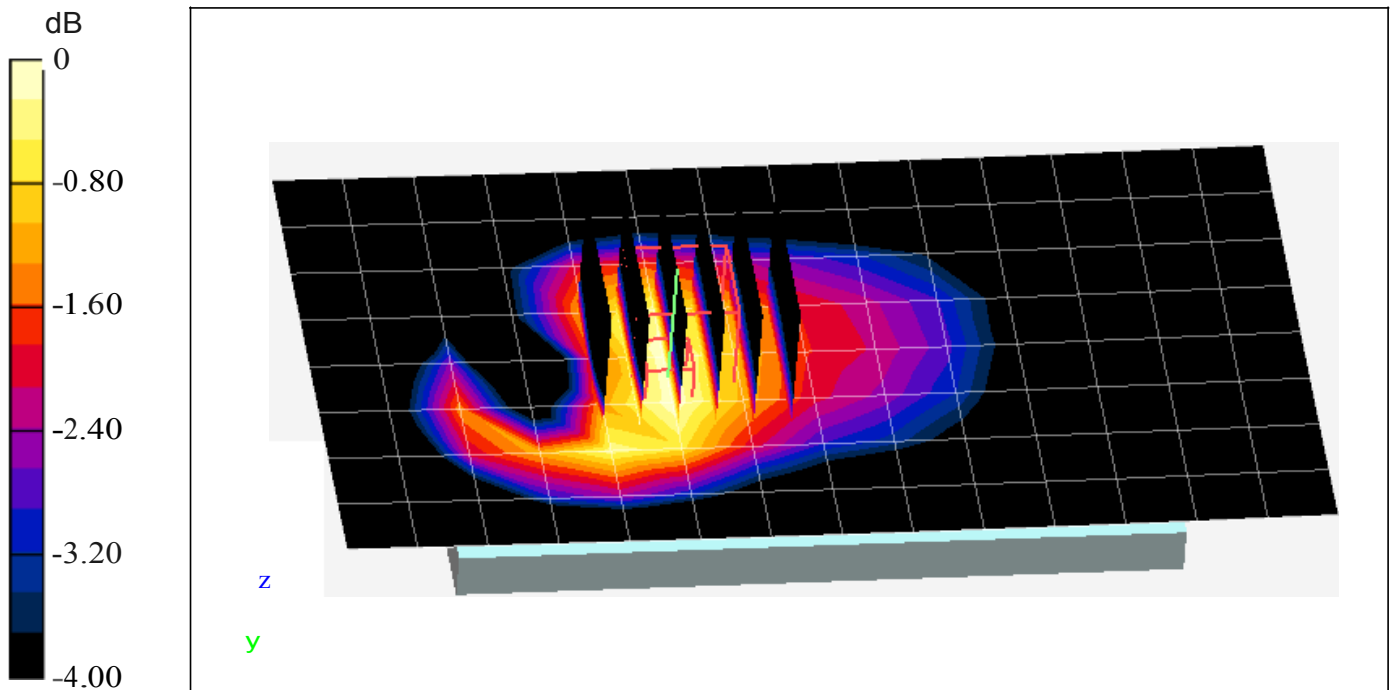
Area Scan (9x15x1):Measurement grid:dx=15mm, dy=15mm

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

Reference Value= 18.21 V/m; Power Drift= -0.01 dB

Peak SAR (extrapolated)= 0.430 W/kg

SAR(1 g)=0.310W/kg



0dB= 0.348 W/kg = -4.58 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:5

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

Medium:835 Body Medium parameters used (interpolated):

$f = 836.52$ MHz; $\sigma = 1.018$ S/m; $\epsilon_r = 53.305$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space:1.0 cm

Test Date: 09-19-2014; Ambient Temp:23.8°C;Tissue Temp:22.5°C

Probe:ES3DV3- SN3319; ConvF(6.18, 6.18, 6.18); Calibrated: 4/17/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1368;Calibrated:4/11/2014

Phantom:ELI left; Type:QDOVA002AA; Serial:TP:1202

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: BC0 Cell. EVDO Rev.0, Body SAR, Front side, Mid.ch, Standard Cover

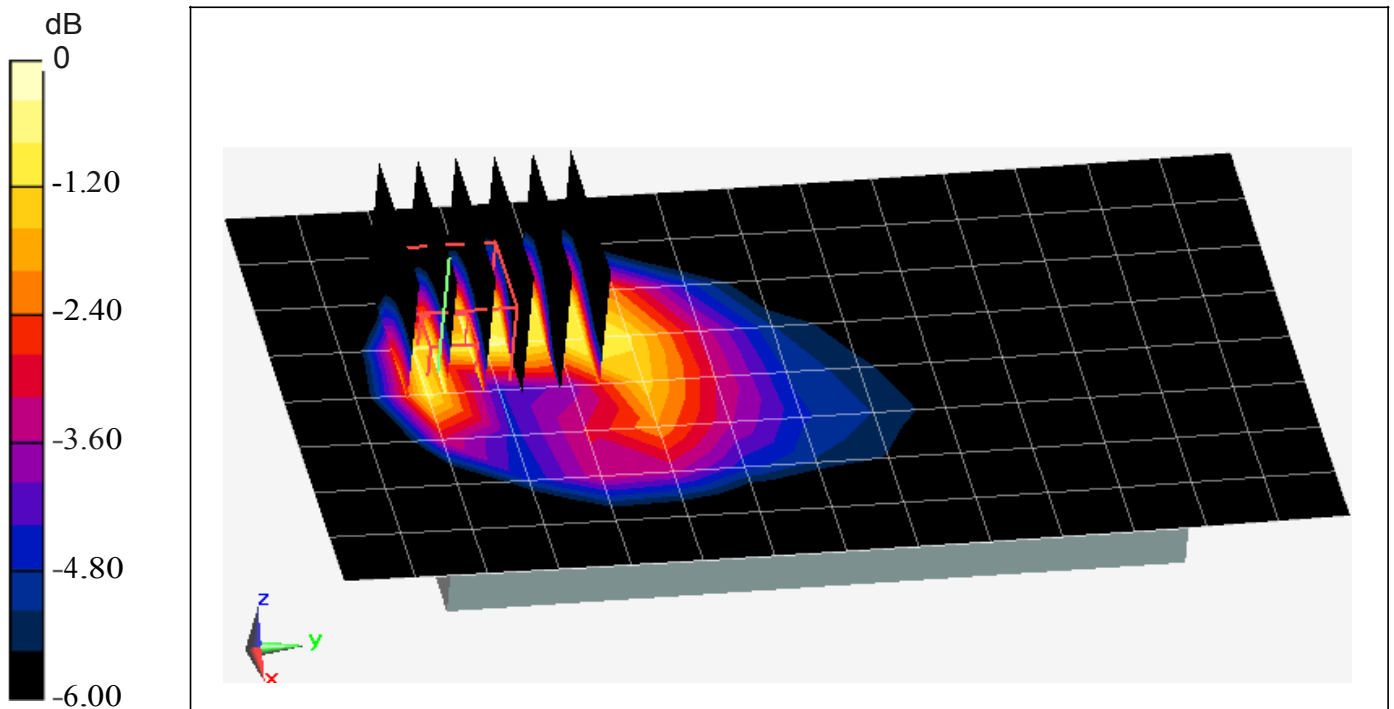
Area Scan (9x15x1):Measurement grid:dx=15mm, dy=15mm

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

Reference Value= 26.43 V/m; Power Drift= -0.02 dB

Peak SAR (extrapolated)= 1.20 W/kg

SAR(1 g)= 0.711W/kg



0dB= 0.826 W/kg = -0.83 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type: Portable Handset; Serial:6

Communication System: UID 0, CDMA; Frequency:1880 MHz; Duty Cycle:1:1
Medium:1900 Body Medium parameters used:

$f = 1880 \text{ MHz}$; $\sigma = 1.537 \text{ S/m.}$; $\epsilon_r = 51.766$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space:1.5 cm

Test Date: 09-18-2014; Ambient Temp:24.5°C;Tissue Temp:23.4°C

Probe:ES3DV2- SN3022; ConvF(4.49, 4.49,4.49); Calibrated: 8/19/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1322;Calibrated:8/12/2014

Phantom:ELI v5.0; Type:QDOVAOOIBB; Serial:1226

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

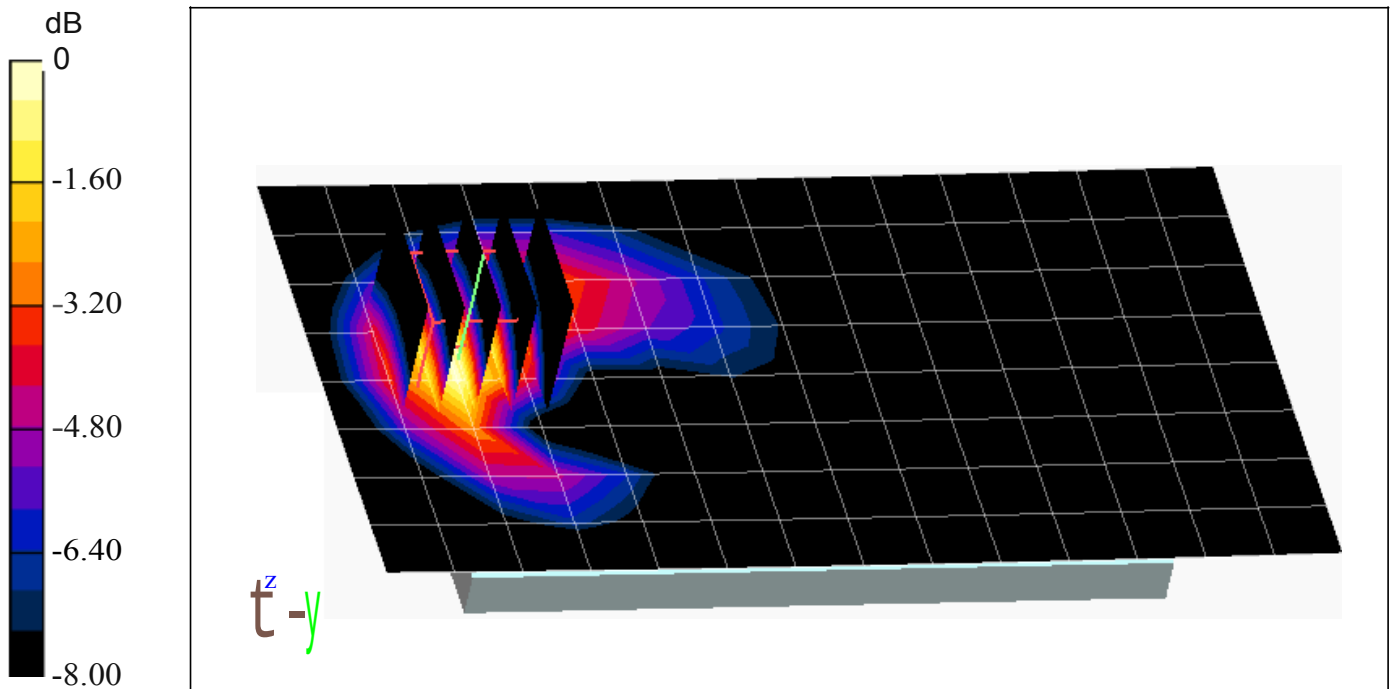
Area Scan (9x15:d):Measurement grid:dx=15mm, dy=15mm

Zoom Scan (Sx5x7)/Cube 0: Measurement grid:dx=8mm, dy=8mm., dz=5mm

Reference Value= 16.65 V/m; Power Drift= 0.05 dB

Peak SAR (extrapolated)= 0.610 W/kg

SAR(1 g)= 0.397 W/kg



0dB= 0.476 W/kg= -3.22 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:8

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

Medium:1900 Body Medium parameters used:

$f = 1880$ MHz; $\sigma = 1.537$ S/m.; $\epsilon_r = 51.766$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-18-2014; Ambient Temp:24.5°C;Tissue Temp:23.4°C

Probe:ES3DV2- SN3022; ConvF(4.49, 4.49,4.49); Calibrated: 8/19/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1322;Calibrated:8/12/2014

Phantom:ELI v5.0; Type:QDOVAOOIBB; Serial:1226

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

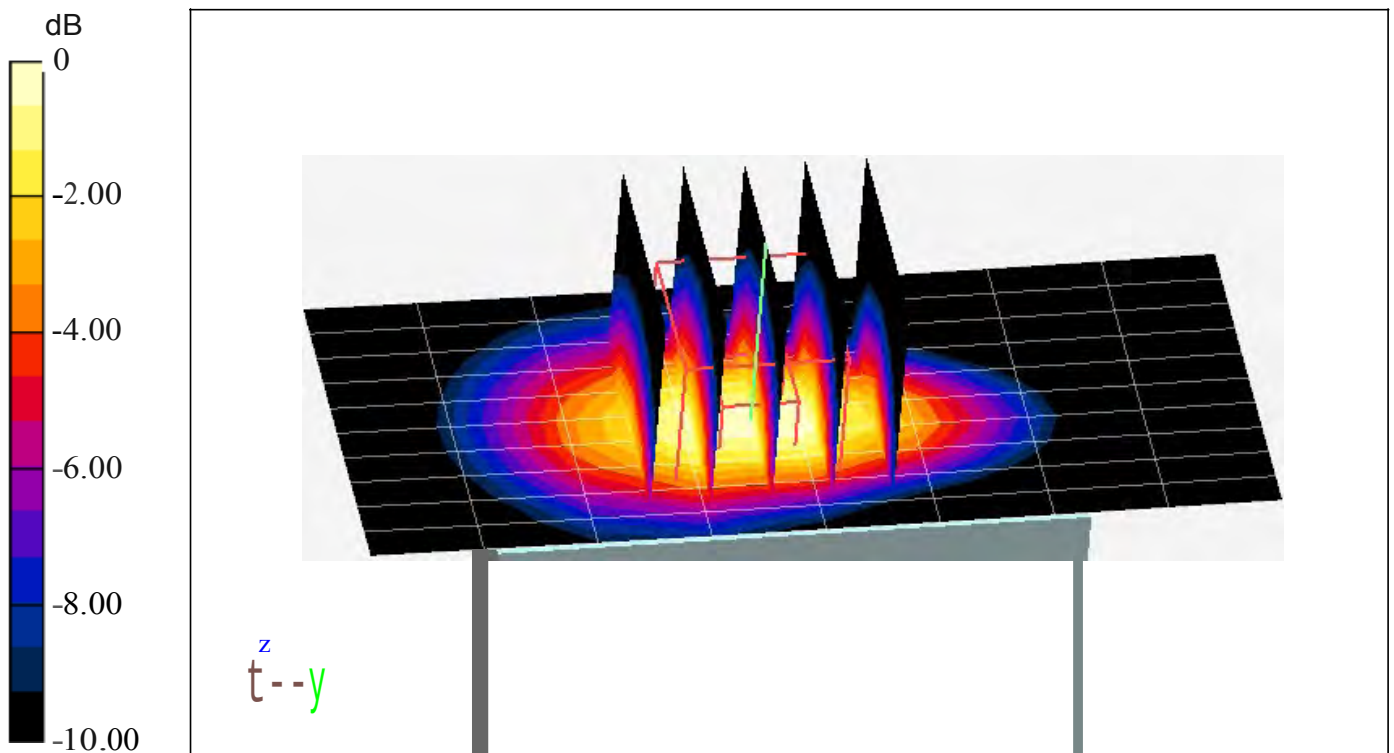
Area Scan (11x9x1): Measurement grid:dx=5mm, dy=15mm

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

Reference Value= 25.66 V/m; Power Drift= 0.02 dB

Peak SAR (extrapolated)= 1.47 W/kg

SAR(1 g)= 0.935 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915P; Type: Portable Handset; Serial: 2

Communication System: UID 0, LTE Band 26 (0); Frequency: 819 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used (interpolated):

$f = 819 \text{ MHz}$; $\sigma = 0.942 \text{ S/m}$; $\epsilon_r = 54.601$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 10-07-2014; Ambient Temp: 22.3°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3213; ConvF(6.18, 6.18, 6.18); Calibrated: 4/11/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1407; Calibrated: 11/18/2013

Phantom: Main TWIN SAM; Type: QD000P40CC; Serial: TP-1406

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Mode: LTE Band 26, Body SAR, Back side, Low.ch,
10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset; Standard Cover**

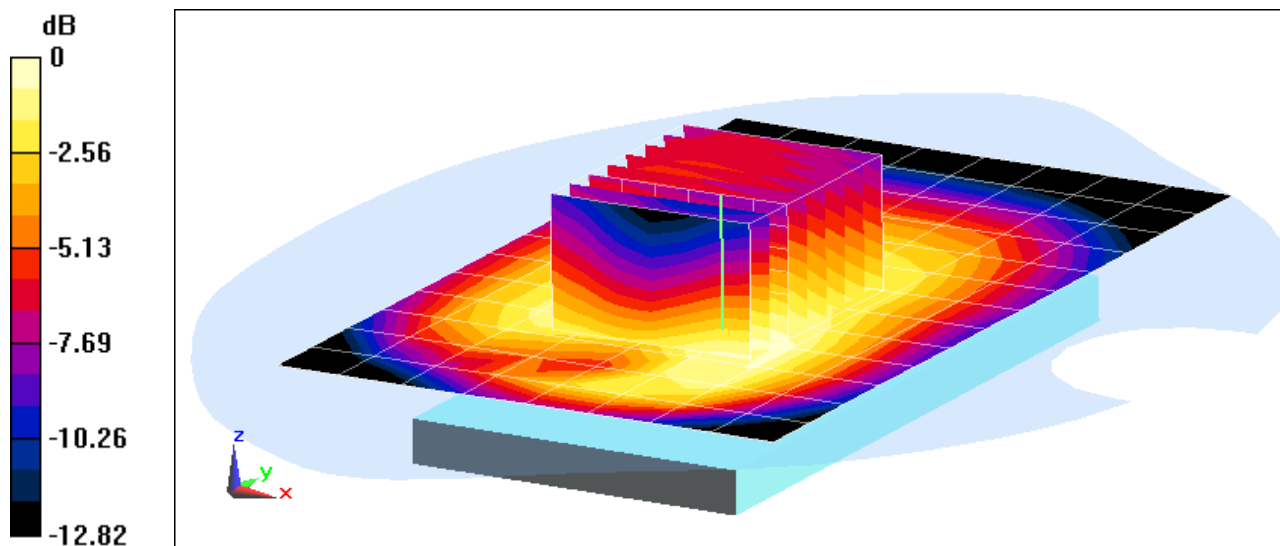
Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Zoom Scan (7x8x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.755 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.291 W/kg

SAR(1 g) = 0.215 W/kg



0 dB = 0.238 W/kg = -6.23 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915P; Type: Portable Handset; Serial: 2

Communication System: UID 0, LTE Band 26 (0); Frequency: 819 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used (interpolated):

$f = 819 \text{ MHz}$; $\sigma = 0.942 \text{ S/m}$; $\epsilon_r = 54.601$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-07-2014; Ambient Temp: 22.3°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3213; ConvF(6.18, 6.18, 6.18); Calibrated: 4/11/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1407; Calibrated: 11/18/2013

Phantom: Main TWIN SAM; Type: QD000P40CC; Serial: TP-1406

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 26, Body SAR, Front side, Low.ch
10 MHz Bandwidth, QPSK, 1 RB, 25 RB Offset, Standard Cover

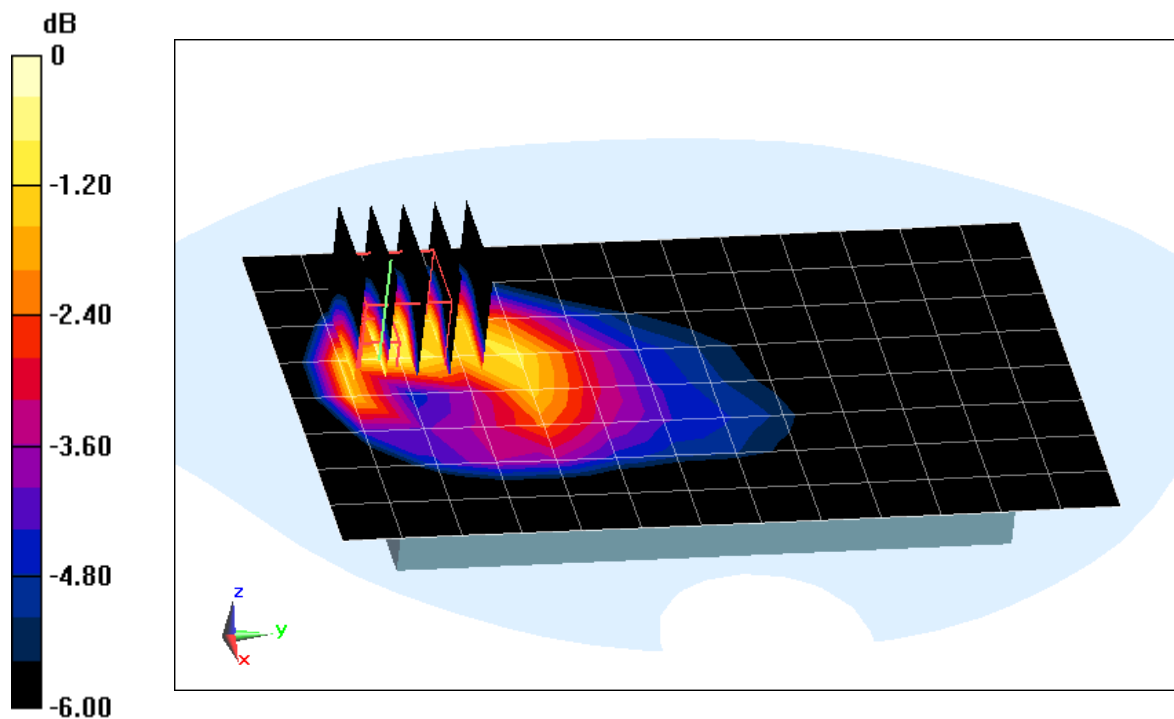
Area Scan (9x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 22.20 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.745 W/kg

SAR(1 g) = 0.443 W/kg



0 dB = 0.539 W/kg = -2.68 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915P; Type: Portable Handset; Serial: 2

Communication System: UID 0, LTE Band 25 (PCS); Frequency: 1882.5 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1882.5 \text{ MHz}$; $\sigma = 1.552 \text{ S/m}$; $\epsilon_r = 50.905$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 10-06-2014; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3319; ConvF(4.67, 4.67, 4.67); Calibrated: 4/17/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1368; Calibrated: 4/11/2014

Phantom: ELI left; Type: QDOVA002AA; Serial: TP:1202

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

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

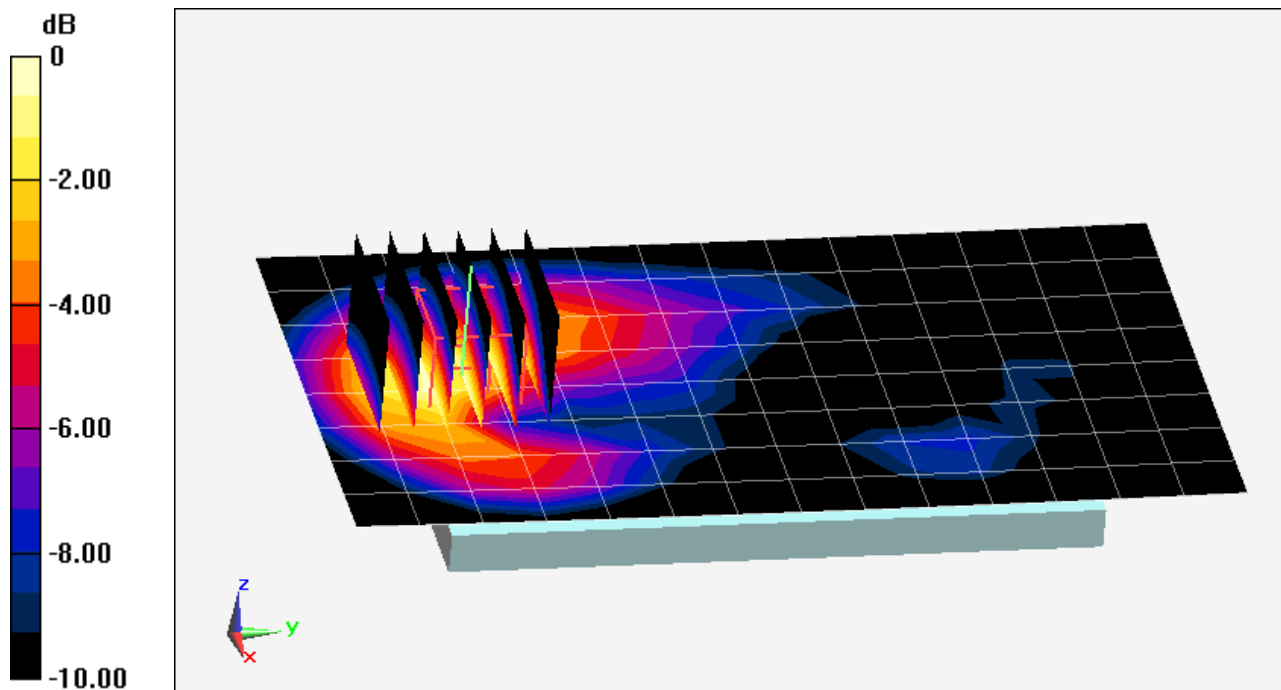
Area Scan (9x15x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Reference Value = 15.03 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.560 W/kg

SAR(1 g) = 0.358 W/kg



0 dB = 0.426 W/kg = -3.71 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915P; Type: Portable Handset; Serial: 7

Communication System: UID 0, LTE Band 25 (PCS) (0); Frequency: 1882.5 MHz; Duty Cycle: 1:1

Medium: 1900 Body Medium parameters used (interpolated):

$f = 1882.5$ MHz; $\sigma = 1.552$ S/m; $\epsilon_r = 50.905$; $\rho = 1000$ kg/m³

Phantom section: Flat Section, Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3319; ConvF(4.67, 4.67, 4.67); Calibrated: 4/17/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1368; Calibrated: 4/11/2014

Phantom: ELI left; Type: QDOVA002AA; Serial: TP:1202

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, 50 RB Offset, Standard Cover**

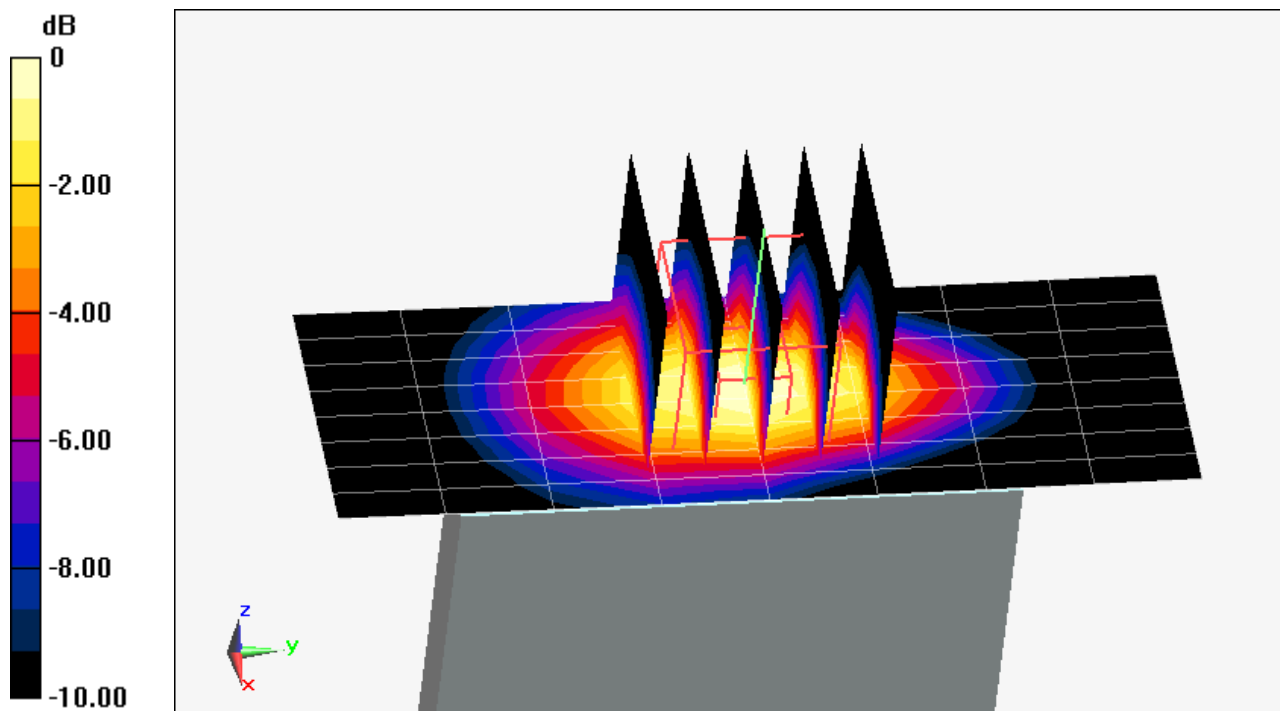
Area Scan (9x9x1): Measurement grid: dx=5mm, dy=15mm

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

Reference Value = 22.60 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.673 W/kg



0 dB = 0.824 W/kg = -0.84 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:3

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

Medium:2450 Body Medium parameters used (interpolated):

$f = 2506 \text{ MHz}$; $\sigma = 2.121 \text{ S/m.}$; $\epsilon_r = 50.886$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date:09-15-2014; Ambient Temp:20.8°C;Tissue Temp:22.4°C

Probe:ES3DV3- SN3258; ConvF(4.14, 4.14, 4.14); Calibrated: 2/25/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn66S; Calibrated:2/26/2014

Phantom:ELI v5.0; Type:QDOVA002AA.; Serial:TP-1158

MeasurementSW:DASY52, Version52.8 (8);SEMCAD X Version 14.6.10 (7331)

Mode: LTE Band 41, Body SAR, Back side, Low.ch

20 MHz Bandwidth, QPSK, 1RB, 0 RB Offset, Standard Cover

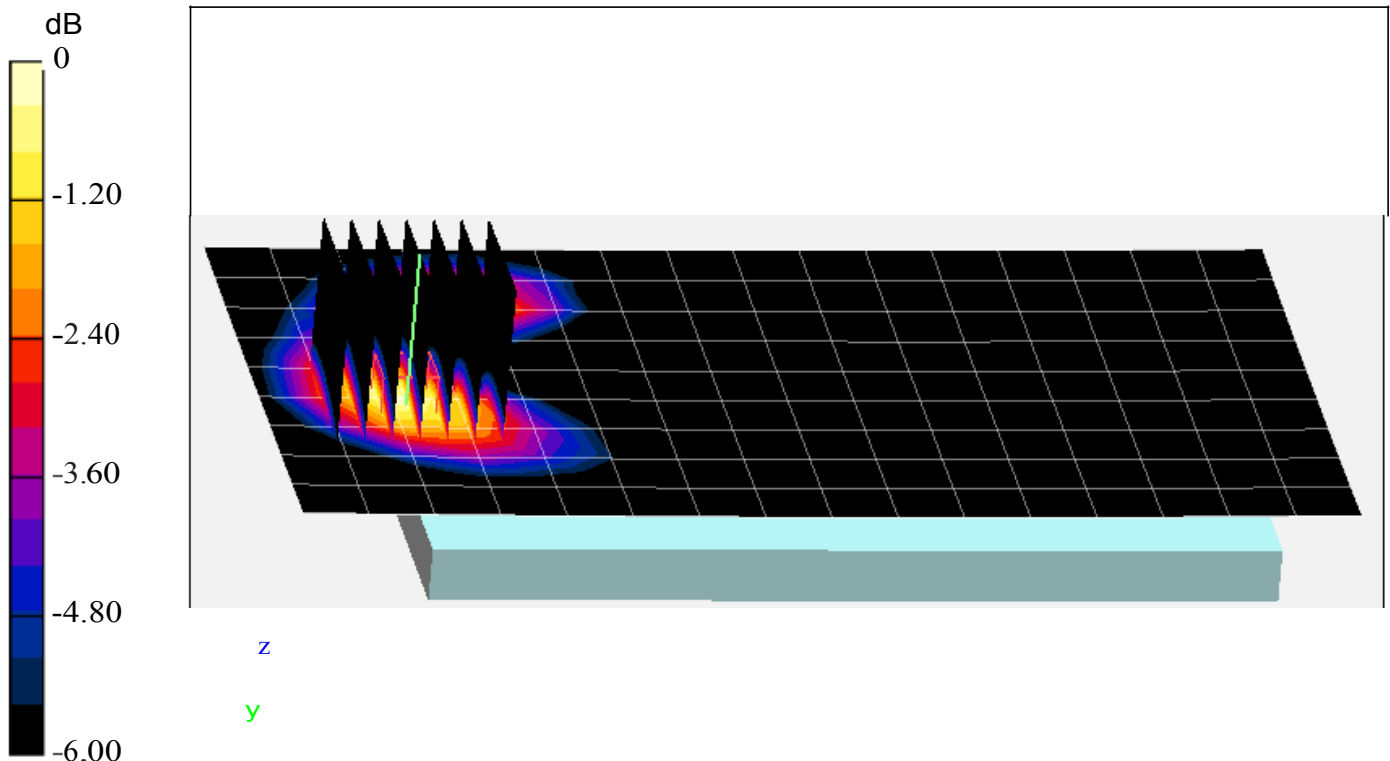
Area Scan (10x17x1):Measurement grid:dx=12mm, dy=12mm

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

Reference Value= 8.259 V/m; Power Drift= 0.04 dB

Peak SAR (extrapolated) = 0.251 W/kg

SAR(1 g)= 0.130 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:3

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

Medium:2450 Body Medium parameters used (interpolated):

$f = 2506$ MHz; $\sigma = 2.121$ S/m.; $\epsilon_r = 50.886$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-15-2014; Ambient Temp:20.8°C;Tissue Temp:22.4°C

Probe:ES3DV3- SN3258; ConvF(4.14, 4.14, 4.14); Calibrated: 2/25/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn665; Calibrated:2/26/2014

Phantom:ELI v5.0; Type:QDOVA002AA.; Serial:TP-1158

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

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

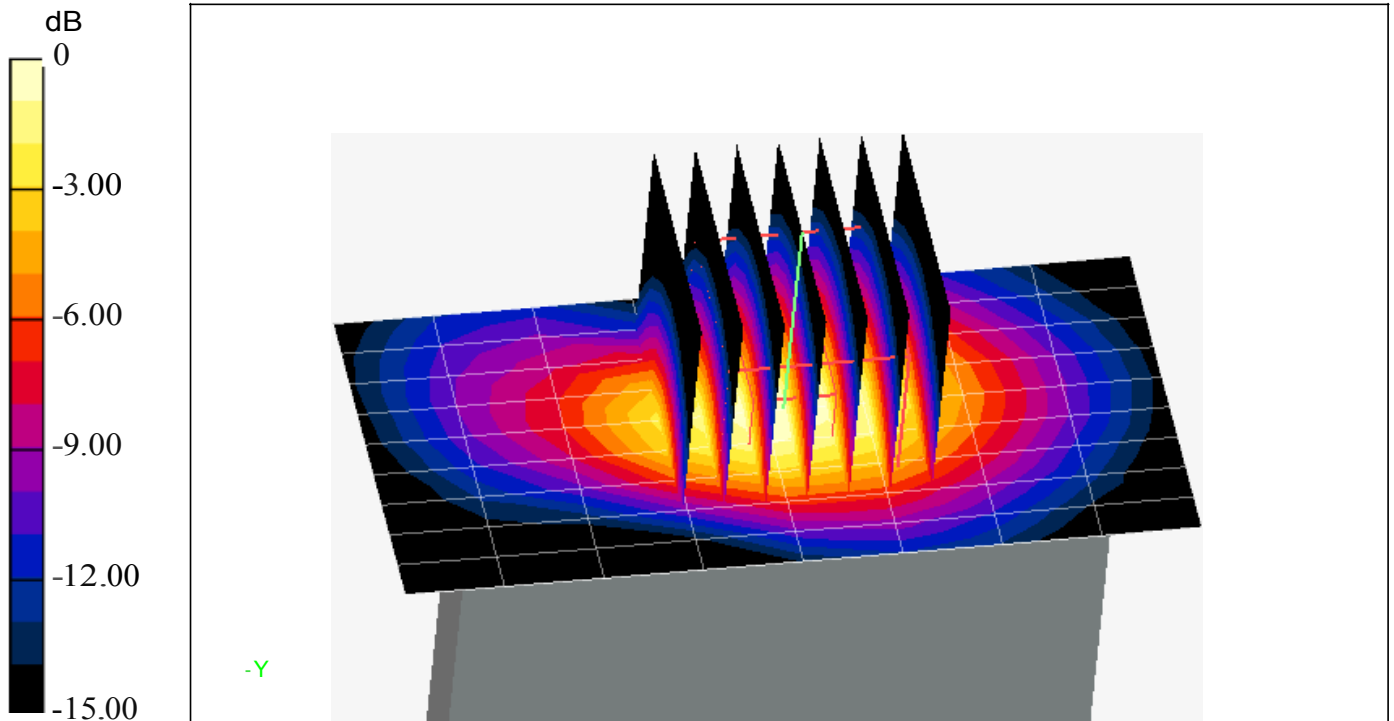
Area Scan (10x9xl):Measurement grid:dx=5mm, dy=12mm

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

Reference Value= 17.13 V/m; Power Drift= 0.06 dB

Peak SAR (extrapolated)= 1.12 W/kg

SAR(1 g) = 0.532 W/kg



0 dB=0.705 W/kg = -1.52 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: A3LSMN915P; Type: Portable Handset; Serial: 10

Communication System: UID 0, IEEE 802.11b; Frequency: 2412 MHz; Duty Cycle: 1:1

Medium: 2450 Body, Medium parameters used (interpolated):

$f = 2412 \text{ MHz}$; $\sigma = 1.993 \text{ S/m}$; $\epsilon_r = 51.857$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-29-2014; Ambient Temp: 24.1°C; Tissue Temp: 22.3°C

Probe: ES3DV3 - SN3258; ConvF(4.14, 4.14, 4.14); Calibrated: 2/25/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/26/2014

Phantom: ELI v5.0; Type: QDOVA002AA; Serial: TP-1158

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

**Mode: IEEE 802.11b, Body SAR, Ch 1, 1 Mbps, Back Side,
Antenna 1, Standard Cover**

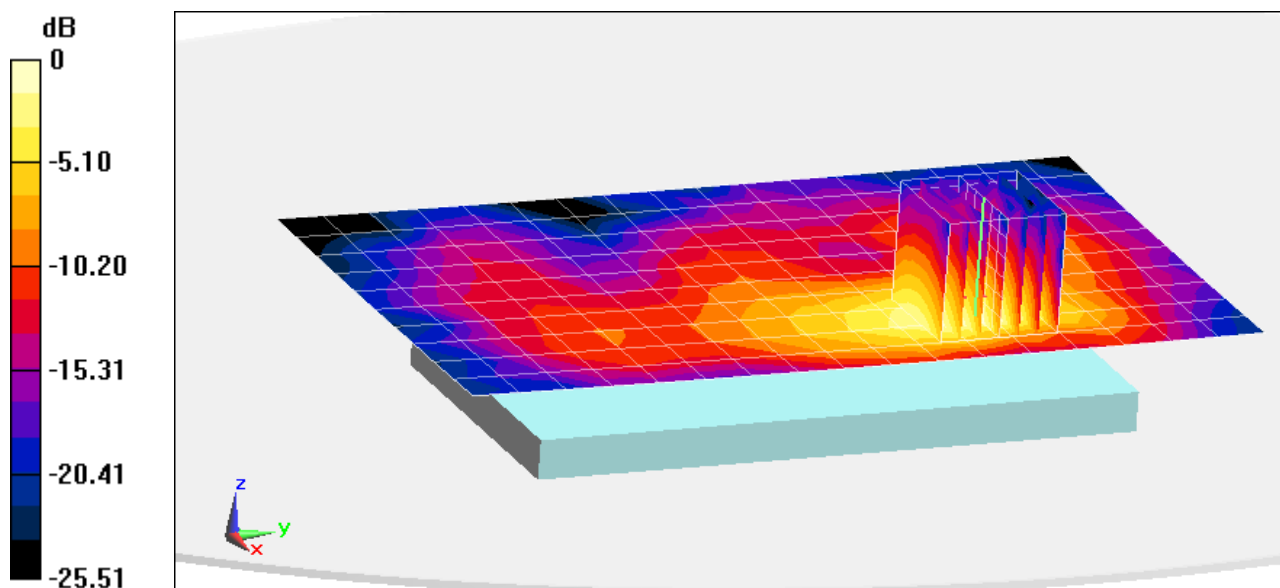
Area Scan (11x18x1): Measurement grid: $dx=12\text{mm}$, $dy=12\text{mm}$

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

Reference Value = 7.128 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.202 W/kg

SAR(1 g) = 0.096 W/kg



0 dB = 0.132 W/kg = -8.79 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset; Serial:12

Communication System:UID 0, IEEE 802.11n (0); Frequency: 5745 MHz;Duty Cycle:1:1

Medium:5 GHz Body Medium parameters used:

$f = 5745 \text{ MHz}$; $\sigma = 6.051 \text{ S/m.}$; $\epsilon_r = 46.204$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space:1.0 cm

Test Date: 09-26-2014; Ambient Temp:23.8°C;Tissue Temp:23.3°C

Probe:EX3DV4- SN3589; ConvF(3.97, 3.97, 3.97);Calibrated:1/29/2014;

Sensor-Surface:1.4mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1334;Calibrated:3/17/2014

Phantom:SAM Right; Type:SAM; Serial:1757

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

**Mode: IEEE 802.11n, 5.8 GHz, Body SAR, Ch 149, 13 Mbps, Back Side,
MIMO, Standard Cover**

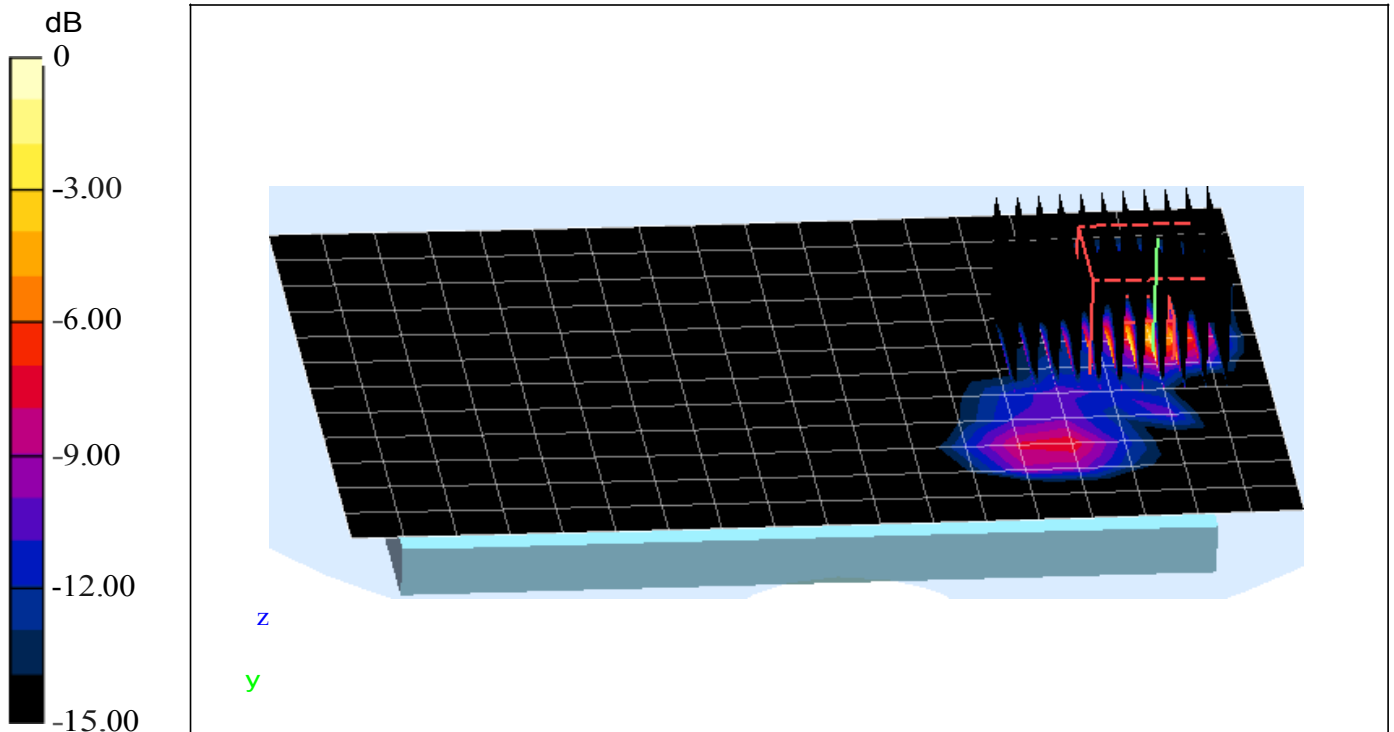
Area Scan (13x19x1): Measurement grid:dx=10mm, dy=10mm

Zoom Scan (10x7x7)/Cube 0: Measurement grid:dx=4mm.dy=4mm, dz=1.4mm;Graded Ratio=1.4

Reference Value= 0 V/m; Power Drift= 0.09 dB

Peak SAR (extrapolated)= 1.04 W/kg

SAR(1 g)= 0.193 W/kg



0dB= 0.518 W/kg= -2.86 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset; Serial:12

Communication System: UID 0, IEEE 802.11a (0); Frequency: 5500 MHz; Duty Cycle:1:1

Medium:5 GHz Body Medium parameters used:

$f = 5500 \text{ MHz}$; $\sigma = 5.674 \text{ S/m}$; $\epsilon_r = 46.75$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-26-2014; Ambient Temp:23.8°C;Tissue Temp:23.3°C

Probe:EX3DV4- SN3589; ConvF(3.76, 3.76, 3.76);Calibrated:1/29/2014;

Sensor-Surface:1.4mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1334;Calibrated:3/17/2014

Phantom:SAM Right; Type: SAM; Serial:1757

Measurement SW:DASY52, Version 52.8 (8);SEMCAD X Version 14.6.10 (7331)

**Mode: IEEE 802.11a, 5.5 - 5.7 GHz, Body SAR, Ch 100, 6 Mbps, Back Side,
Antenna 1, Standard Cover**

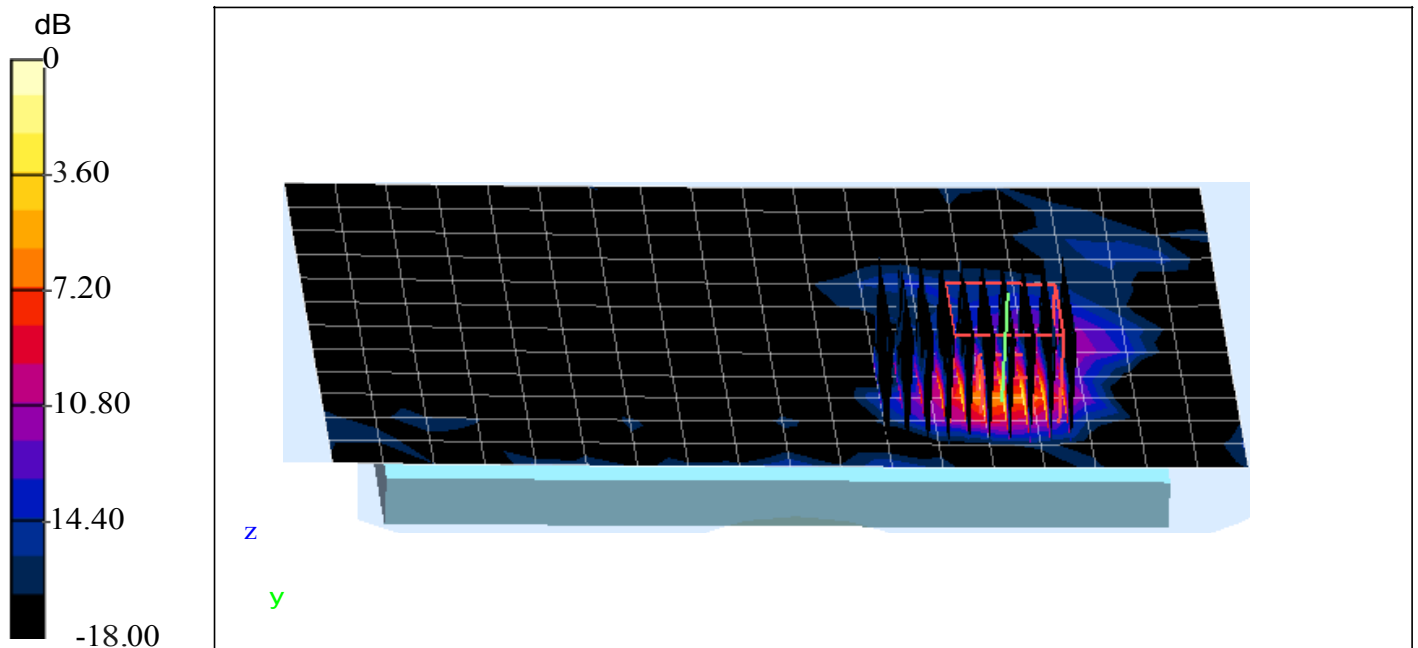
Area Scan (13x19xl): Measurement grid:dx=10mm, dy=10mm

Zoom Scan (10x10x7)/Cube 0:Measurement grid:dx=4mm,dy=4m.m, dz=1.4mm;Graded Ratio=1.4

Reference Value= 5.010 V/m; Power Drift= 0.02 dB

Peak SAR (extrapolated)= 1.51 W/kg

SAR(1 g)= 0.162 W/kg



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

PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P; Type:Portable Handset;Serial:6

Communication System:UID 0,CDMA, Frequency:1908.75 MHz;Duty Cycle:1:1

Medium:1900 Body Medium parameters used:

$f = 1908.75 \text{ MHz}$; $\sigma = 1.567 \text{ S/m}$; $\epsilon_r = 51.655$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-18-2014; Ambient Temp:24.5°C;Tissue Temp:23.4°C

Probe:ES3DV2- SN3022; ConvF(4.49, 4.49,4.49); Calibrated: 8/19/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1322;Calibrated:8/12/2014

Phantom:ELI v5.0; Type:QDOVAOOIBB; Serial:1226

MeasurementSW:DASY52, Version52.8 (8);SEMCAD X Version 14.6.10 (7331)

**Mode: PCS EVDO Rev.0, Hand SAR, Bottom Edge, High.ch,
Standard Cover**

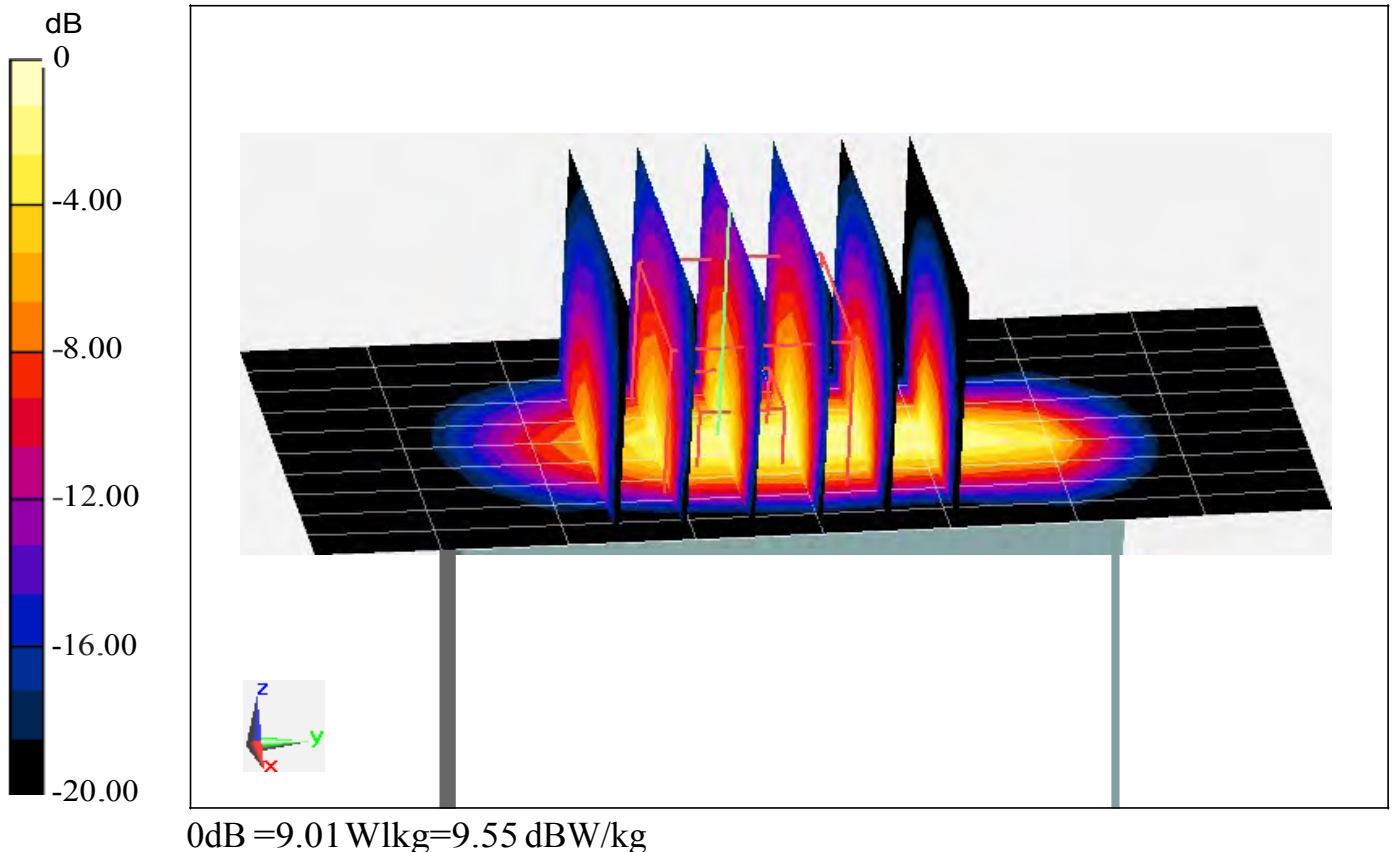
Area Scan (11x9x1):Measurement grid:dx=5mm, dy=15mm

Zoom Scan (6x7x7)/Cube 0:Measurement grid:dx=8mm, dy=8mm, dz=5mm

Reference Value= 69.02 V/m; Power Drift= -0.15 dB

Peak SAR (extrapolated)= 14.9 W/kg

SAR(10 g) =3.16 W/kg



PCTEST ENGINEERING LABORATORY, INC.

DUT:A3LSMN915P;Type:Portable Handset;Serial:12

Communication System: UID 0, IEEE 802.11a; Frequency:5220 MHz; Duty Cycle:1:1

Medium:5 GHz Body Medium parameters used:

$f = 5220 \text{ MHz}$; $\sigma = 5.254 \text{ S/m.}$; $\epsilon_r = 47.407$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 0.0 cm

Test Date: 09-26-2014; Ambient Temp:23.8°C;Tissue Temp:23.3°C

Probe:EX3DV4- SN3589; ConvF(4.19, 4.19, 4.19);Calibrated:1/29/2014;

Sensor-Surface:1.4mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1334;Calibrated:3/17/2014

Phantom:SAM Right; Type: SAM; Serial:1757

MeasurementSW:DASY52, Version52.8 (8);SEMCAD X Version 14.6.10 (7331)

**Mode: IEEE 802.11a, 5.2 GHz, Hand SAR, Ch 44, 6 Mbps, Back Side,
Antenna 1, Wireless Charging Cover**

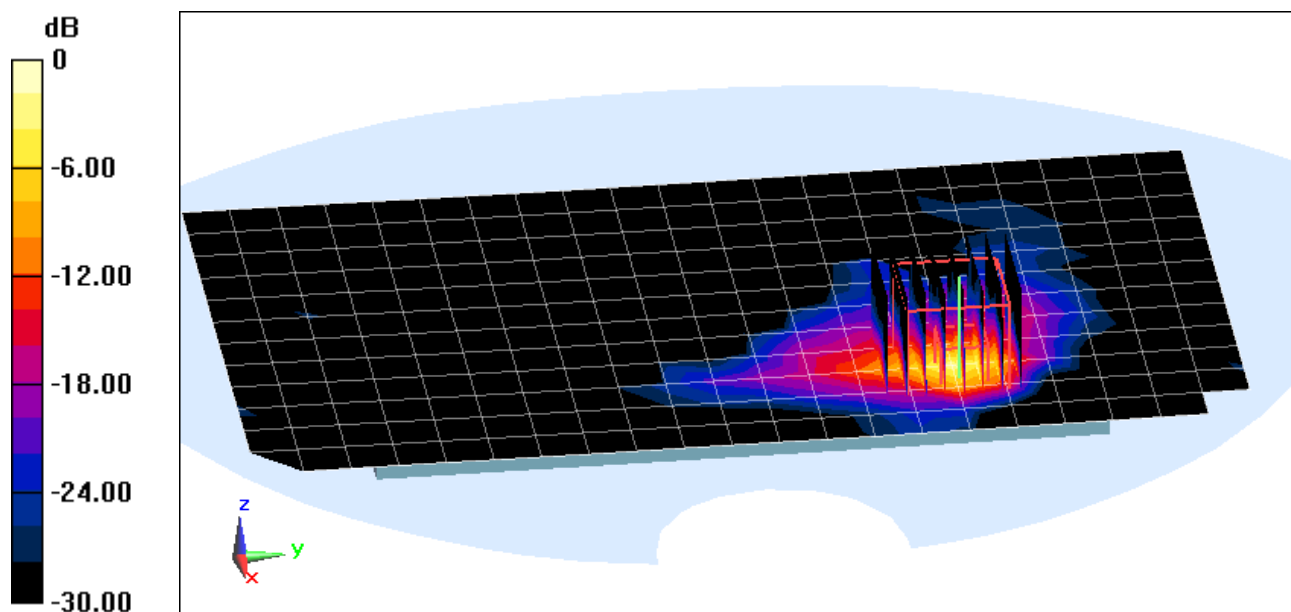
Area Scan (13x22x1):Measurement grid:dx=10mm., dy=10mm.

Zoom Scan (8x8x7)/Cube 0:Measurement grid:dx=4mm, dy=4mm., dz=1.4mm;Graded Ratio=1.4

Reference Value= 22.14 V/m; Power Drift= -0.07 dB

Peak SAR (extrapolated)= 13.3 W/kg

SAR(10 g)=0.453 W/kg



0 dB = 6.02 W/kg = 7.80 dBW/kg

APPENDIX B: SYSTEM VERIFICATION

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole835 MHz; Type:D835V2; Serial:4d132

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.897 \text{ S/m}$; $\epsilon_r = 41.332$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 09-22-2014; Ambient Temp: 24.3°C; Tissue Temp: 22.1°C

Probe: ES3DV3-SN3213; ConvF(6.37, 6.37, 6.37); Calibrated: 4/11/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1407; Calibrated: 11/18/2013

Phantom: Sub TWIN SAM; Type: QDOOP40CC; Serial: TP-1357

MeasurementSW: 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

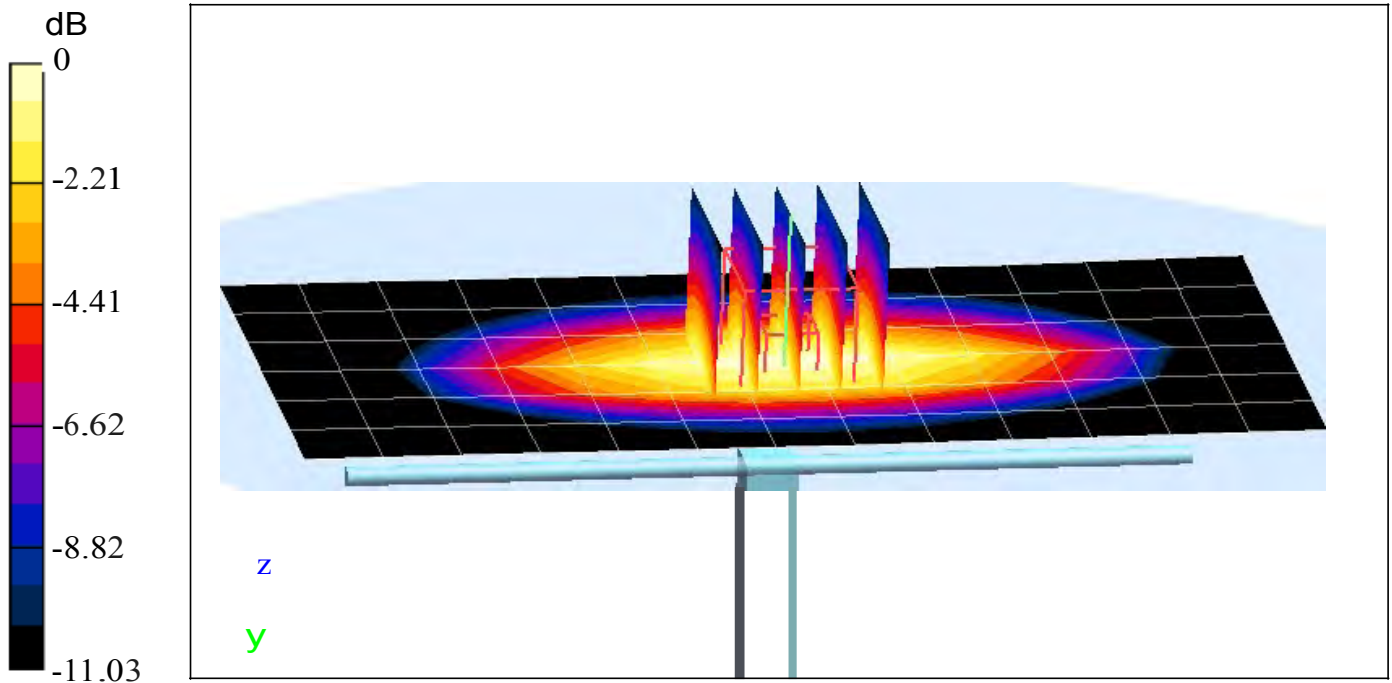
Zoom Scan (5x5x7)/Cube0: Measurement grid: dx=8mm, dy=8mm., dz=5mm

Input Power= 20.0 dBm (100mW)

Peak SAR (extrapolated)= 1.48 W/kg

SAR(1 g)= 0.987 W/kg

Deviation= 6.47%



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

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Head Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.925 \text{ S/m}$; $\epsilon_r = 41.242$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 10-07-2014; Ambient Temp: 21.8°C; Tissue Temp: 20.7°C

Probe: ES3DV3 - SN3318; ConvF(6.18, 6.18, 6.18); Calibrated: 3/19/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1272; Calibrated: 6/19/2014

Phantom: Sub Twin Sam v5.0; Type: QD000P40CD; Serial: TP:1626

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

835 MHz System Verification

Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

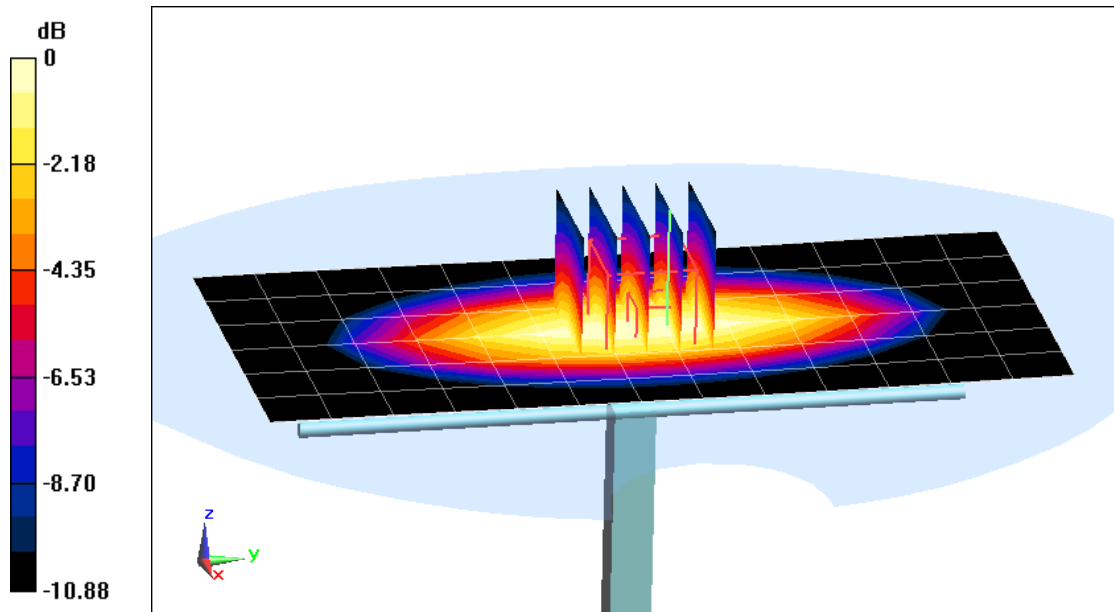
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20 dBm (100 mW)

Peak SAR (extrapolated) = 1.48 W/kg

SAR(1 g) = 0.982 W/kg

Deviation = 5.93 %



0 dB = 1.15 W/kg = 0.61 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:Dipole 1900 MHz;Type:D1900V1;Serial:5d148

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.; $\epsilon_r = 39.769$; $\rho = 1000$ kg/m³

Phantom section: Flat Section; Space:1.0 cm

Test Date:09-22-2014; Ambient Temp:24.3°C; Tissue Temp:22.0°C

Probe: ES3DV3-SN3318; ConvF(5.33,5.33,5.33); Calibrated: 3/19/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1272; Calibrated:6/19/2014

Phantom: Main Twin Sam; Type:QDOOOP40CC; Serial:TP:1375

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.

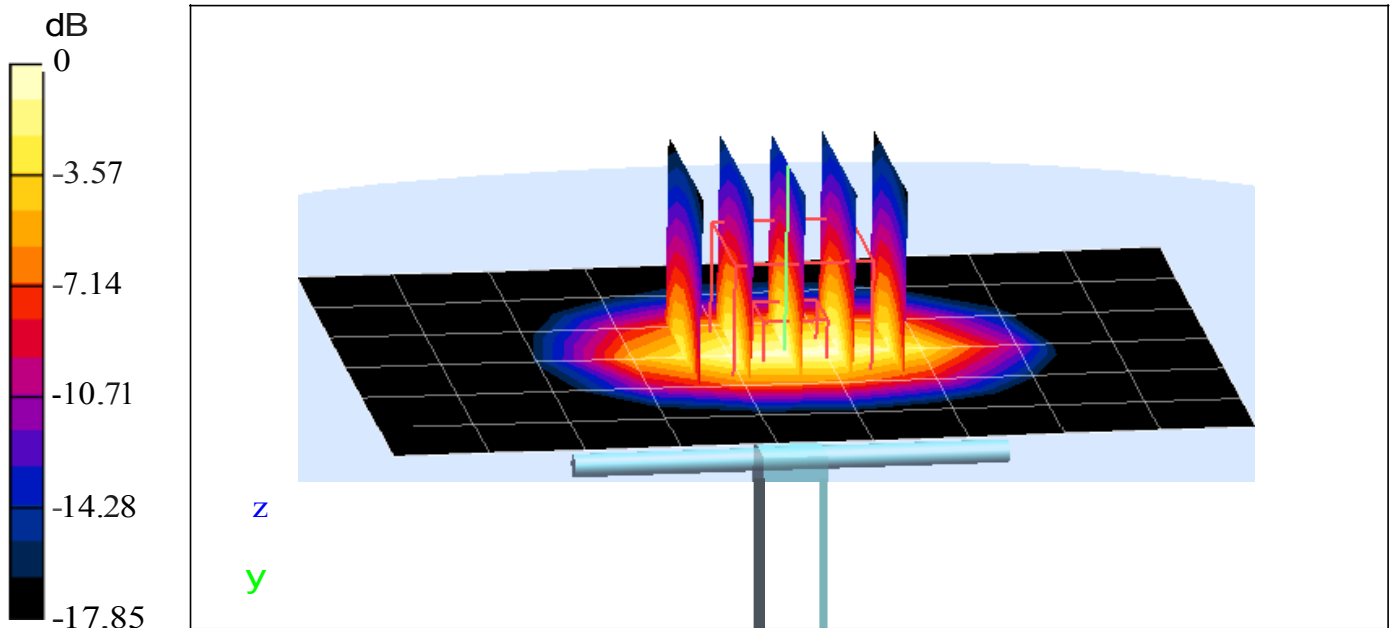
Zoom Scan (5x5x7)/Cube 0:Measurement grid:dx=8mm, dy=8mm, dz=5mm.

Input Power= 20.0 dBm (100 mW)

Peak SAR (extrapolated)=8.02 W/kg

SAR(1 g)=4.24 W/kg

Deviation= 4.18%



0dB=4.76 W/kg = 6.78 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW (0); Frequency: 1900 MHz; Duty Cycle: 1:1

Medium: 1900 Head Medium parameters used (interpolated):

$f = 1900 \text{ MHz}$; $\sigma = 1.447 \text{ S/m}$; $\epsilon_r = 39.373$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 22.7°C; Tissue Temp: 22.4°C

Probe: ES3DV3 - SN3258; ConvF(5.04, 5.04, 5.04); Calibrated: 2/25/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/26/2014

Phantom: SAM Front; Type: SAM; Serial: 1686

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1900 MHz System Validation

Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

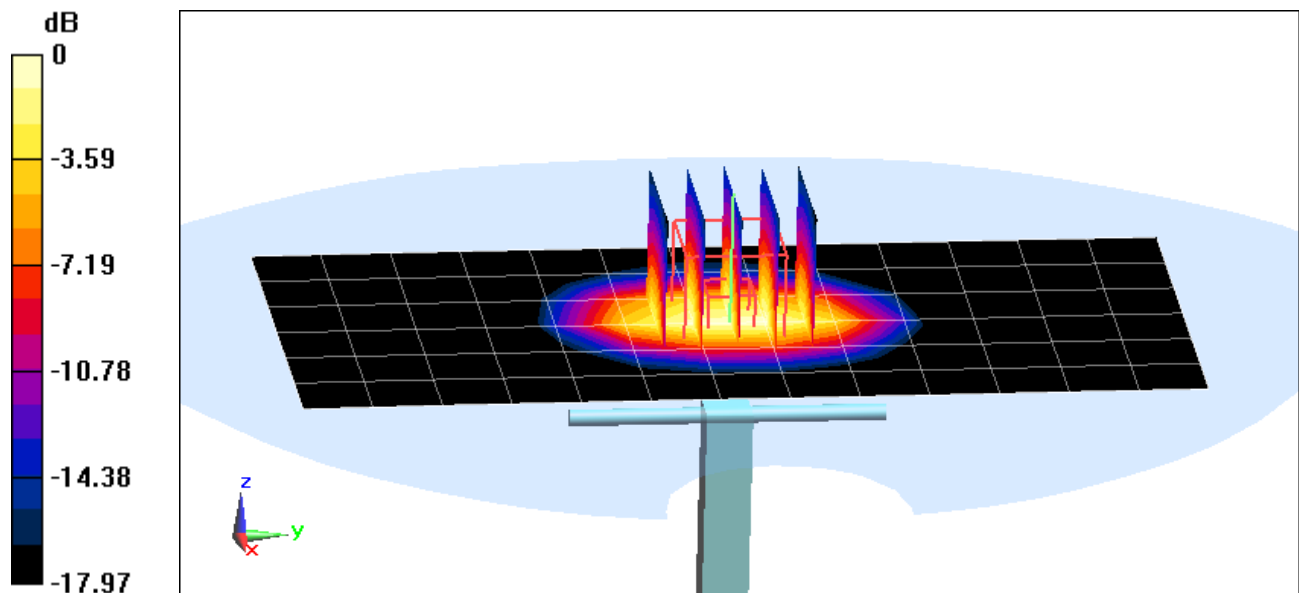
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20 dBm (100 mW)

Peak SAR (extrapolated) = 7.79 W/kg

SAR(1 g) = 4.26 W/kg

Deviation = 6.23 %



0 dB = 5.15 W/kg = 7.12 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: 2450 Head, Medium parameters used:

$f = 2450 \text{ MHz}$; $\sigma = 1.815 \text{ S/m}$; $\epsilon_r = 39.696$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-15-2014; Ambient Temp: 24.4°C; Tissue Temp: 23.6°C

Probe: ES3DV3 - SN3258; ConvF(4.52, 4.52, 4.52); Calibrated: 2/25/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn665; Calibrated: 2/26/2014

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: $dx=12\text{mm}$, $dy=12\text{mm}$

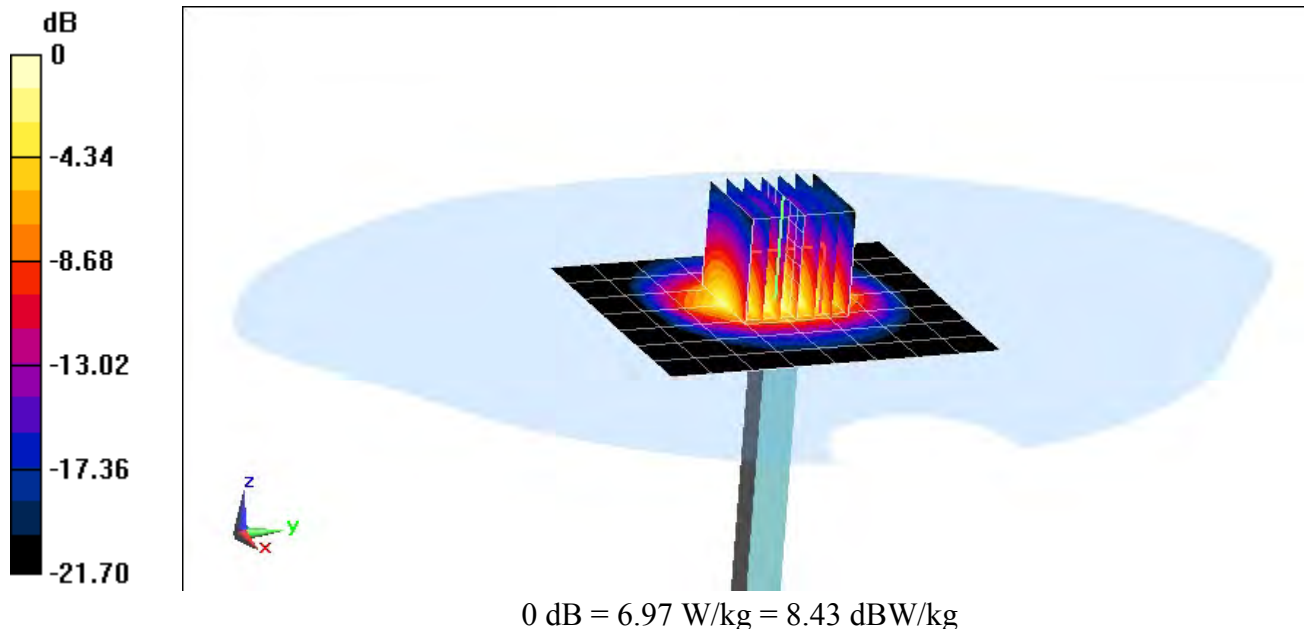
Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 10.9 W/kg

SAR(1 g) = 5.36 W/kg

Deviation(1 g) = 3.47%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5200 MHz; Type: D5GHzV2; Serial: 1057

Communication System: UID 0, CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: 5 GHz Head, Medium parameters used:

$f = 5200 \text{ MHz}$; $\sigma = 4.598 \text{ S/m}$; $\epsilon_r = 35.645$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-23-2014; Ambient Temp: 24.6°C; Tissue Temp: 23.6°C

Probe: EX3DV4 - SN3914; ConvF(4.99, 4.99, 4.99); Calibrated: 10/23/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1333; Calibrated: 11/19/2013

Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5200 MHz System Verification

Area Scan (7x7x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

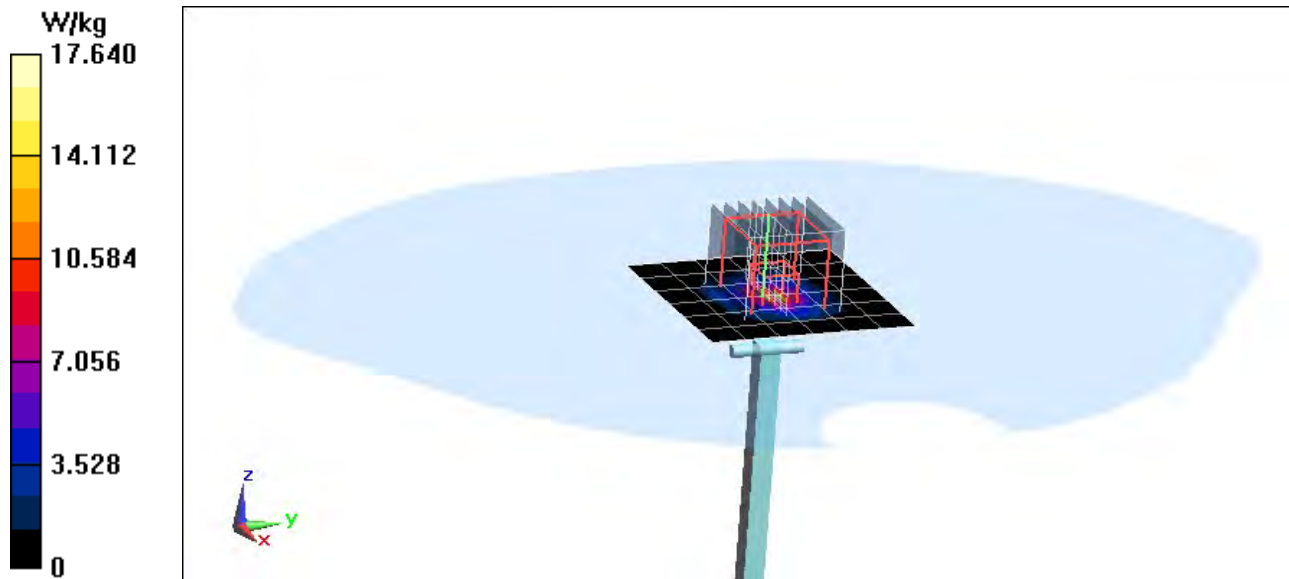
Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 32.2 W/kg

SAR(1 g) = 7.62 W/kg

Deviation(1 g) = -2.31%



PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 5300 MHz; Duty Cycle: 1:1

Medium: 5 GHz Head, Medium parameters used:

$f = 5300 \text{ MHz}$; $\sigma = 4.705 \text{ S/m}$; $\epsilon_r = 35.541$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-23-2014; Ambient Temp: 24.6°C; Tissue Temp: 23.7°C

Probe: EX3DV4 - SN3914; ConvF(4.82, 4.82, 4.82); Calibrated: 10/23/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1333; Calibrated: 11/19/2013

Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5300 MHz System Verification

Area Scan (7x8x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

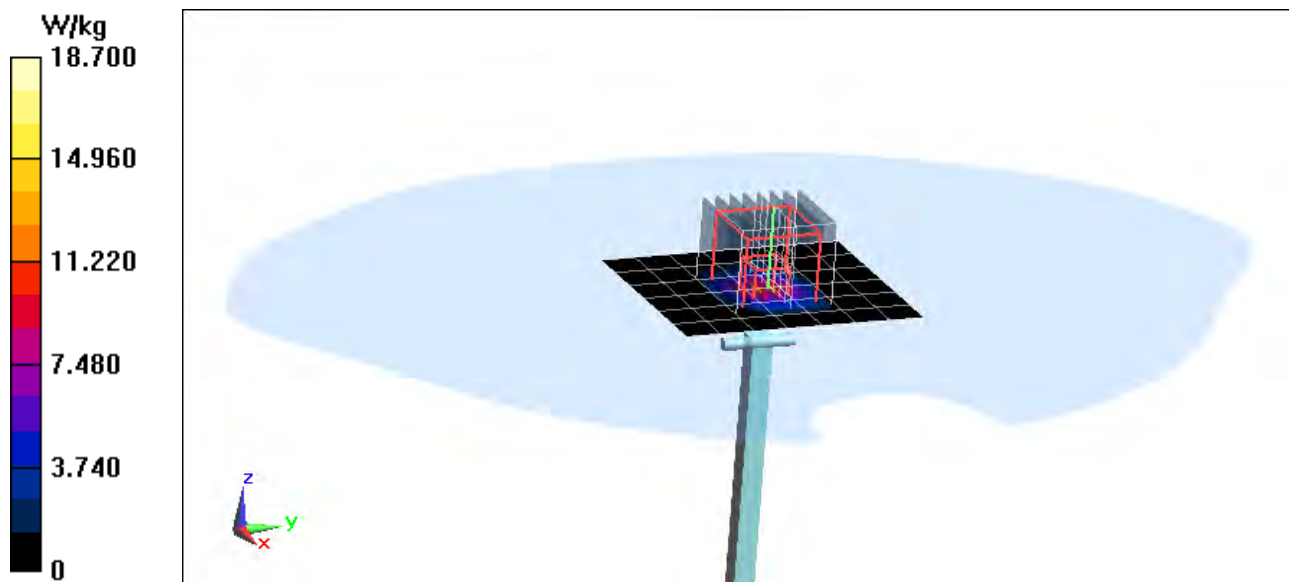
Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 35.0 W/kg

SAR(1 g) = 8.07 W/kg

Deviation(1 g) = -2.77%



PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 5500 MHz; Duty Cycle: 1:1

Medium: 5 GHz Head, Medium parameters used:

$f = 5500 \text{ MHz}$; $\sigma = 4.923 \text{ S/m}$; $\epsilon_r = 35.256$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-23-2014; Ambient Temp: 24.6°C; Tissue Temp: 23.7°C

Probe: EX3DV4 - SN3914; ConvF(4.55, 4.55, 4.55); Calibrated: 10/23/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1333; Calibrated: 11/19/2013

Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5500 MHz System Verification

Area Scan (7x7x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

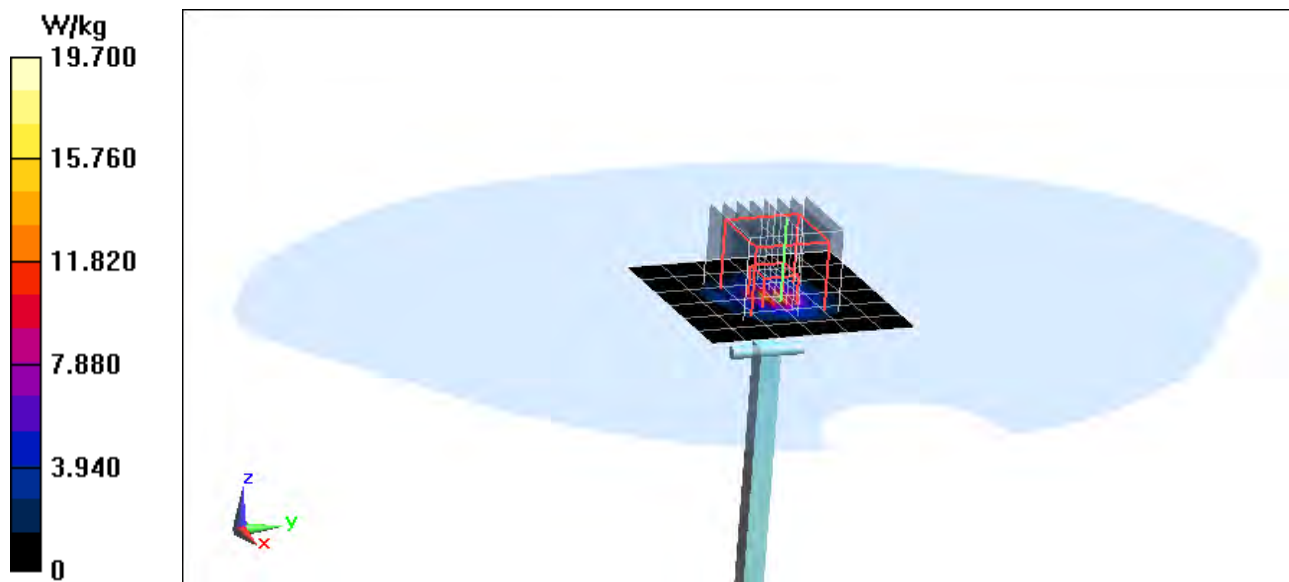
Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 35.4 W/kg

SAR(1 g) = 8.01 W/kg

Deviation(1 g) = -4.98%



PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Medium: 5 GHz Head, Medium parameters used:

$f = 5800 \text{ MHz}$; $\sigma = 5.205 \text{ S/m}$; $\epsilon_r = 34.849$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-23-2014; Ambient Temp: 24.5°C; Tissue Temp: 23.7°C

Probe: EX3DV4 - SN3914; ConvF(4.52, 4.52, 4.52); Calibrated: 10/23/2013;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1333; Calibrated: 11/19/2013

Phantom: SAM V5.0 Right; Type: QD000P40CD; Serial: 1647

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5800 MHz System Verification

Area Scan (7x7x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

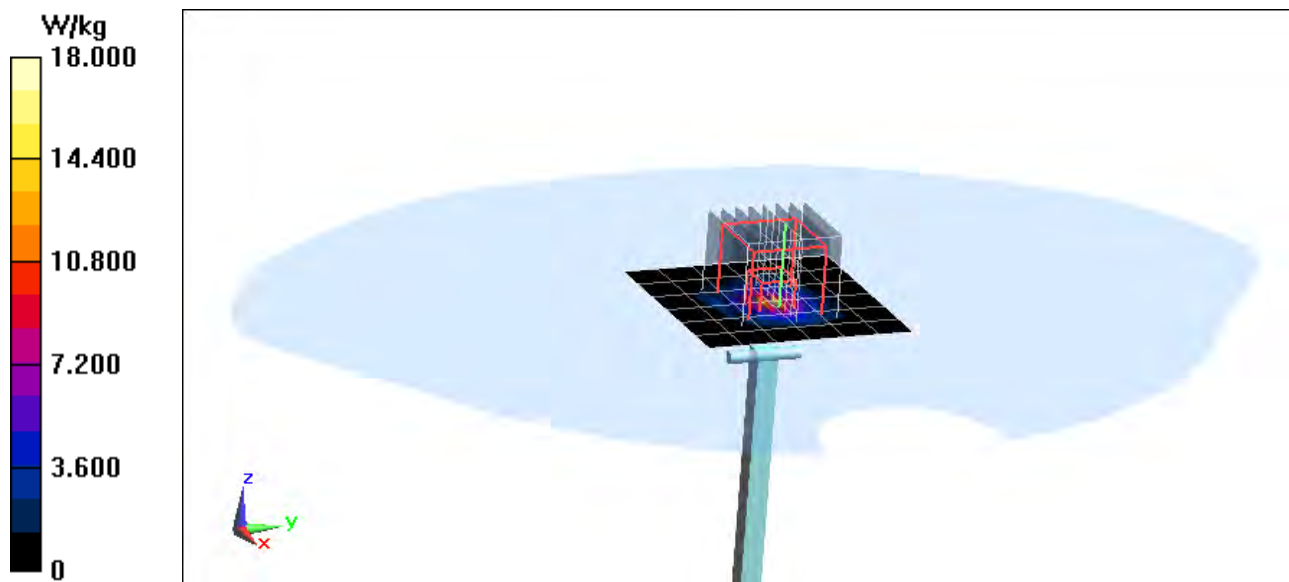
Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 35.1 W/kg

SAR(1 g) = 7.38 W/kg

Deviation(1 g) = -6.94%



PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 835MHz; Type:D83SV2; Serial:4d119

Communication System:UID 0, CW; Frequency:835 MHz;Duty Cycle:1:1

Medium:835 Body Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 1.017 \text{ S/m}$; $\epsilon_r = 53.324$; $\rho = 1000 \text{ kg/m}^3$

Phantom section:Flat Section; Space:1.5 cm

Test Date:09-19-2014; Ambient Temp:23.8°C; Tissue Temp:22.5°C

Probe:ES3DV3-SN3319; ConvF(6.18, 6.18, 6.18); Calibrated: 4/17/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1368; Calibrated:4/11/2014

Phantom:ELI left; Type:QDOVA002AA; Serial:TP:1202

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.

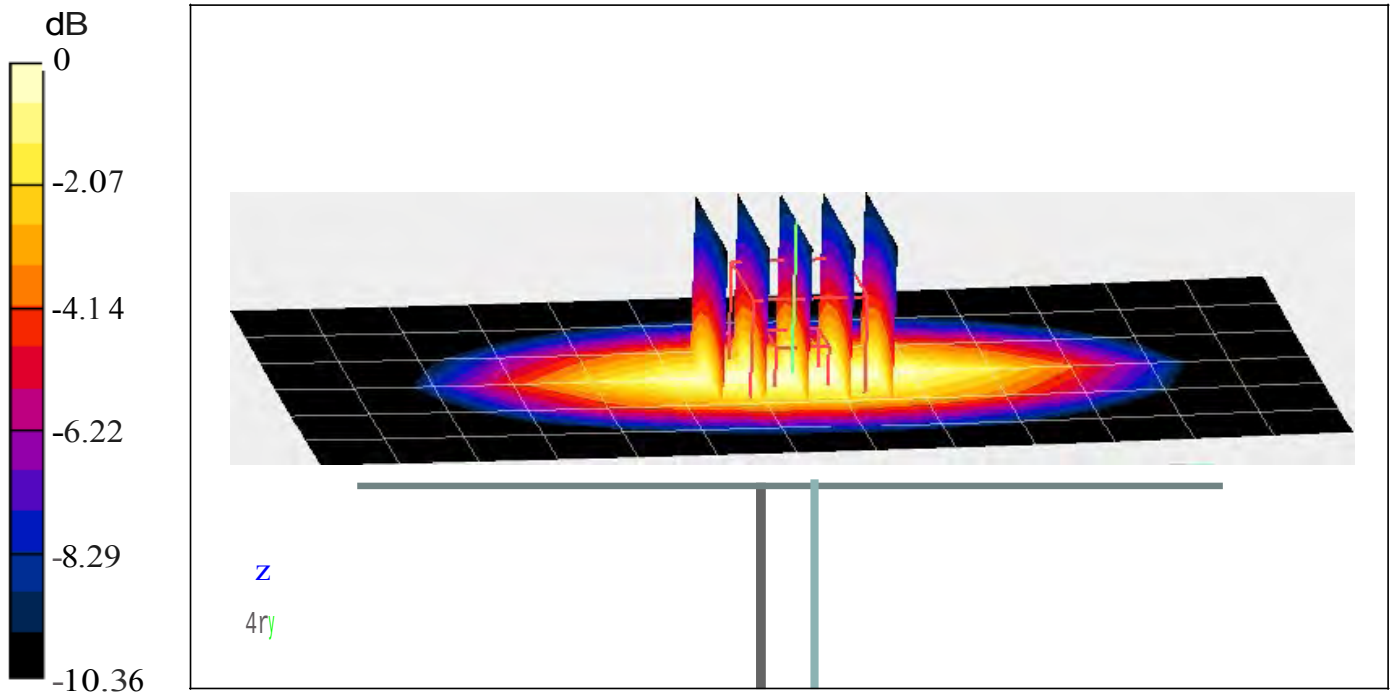
Zoom Scan (5x5x7)/Cube O:Measurement grid:dx=8mm, dy=8mm., dz=5mm.

Input Power= 20.0 dBm (100 mW)

Peak SAR (extrapolated)= 1.34 W/kg

SAR(1 g)=0.919 W/kg

Deviation=-1.61%



0 dB= 1.07 W/kg = 0.29 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: 835 Body Medium parameters used:

$f = 835 \text{ MHz}$; $\sigma = 0.957 \text{ S/m}$; $\epsilon_r = 54.454$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.5 cm

Test Date: 10-07-2014; Ambient Temp: 22.3°C; Tissue Temp: 21.1°C

Probe: ES3DV3 - SN3213; ConvF(6.18, 6.18, 6.18); Calibrated: 4/11/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1407; Calibrated: 11/18/2013

Phantom: Main TWIN SAM; Type: QD000P40CC; Serial: TP-1406

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

835 MHz System Verification

Area Scan (7x14x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

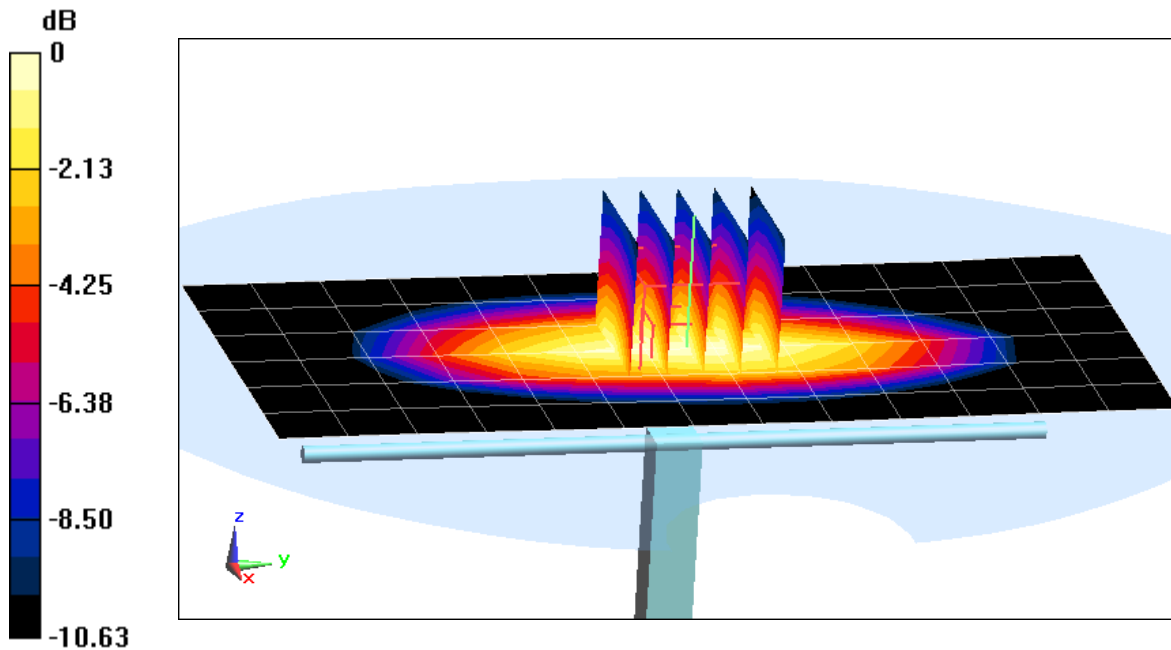
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20 dBm (100 mW)

Peak SAR (extrapolated) = 1.50 W/kg

SAR(1 g) = 1.02 W/kg

Deviation = 6.47 %



0 dB = 1.18 W/kg = 0.72 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:Dipole1900 MHz;Type:D1900VI;Serial:5d141

Communication System:UID 0,CW;Frequency: 1900 MHz;Duty Cycle: 1:1

Medium:1900 Body Medium parameters used (interpolated):

$f = 1900$ MHz; $\sigma = 1.558$ S/m.; $\epsilon_r = 51.689$; $\rho = 1000$ kg/m³

Phantom section:Flat Section; Space:1.0 cm

Test Date:09-18-2014; Ambient Temp:24.5°C; Tissue Temp:23.4°C

Probe: ES3DV2-SN3022; ConvF(4.49,4.49,4.49); Calibrated: 8/19/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn1322; Calibrated:8/12/2014

Phantom:ELI v5.0; Type:QDOVA00IBB; Serial:1226

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.

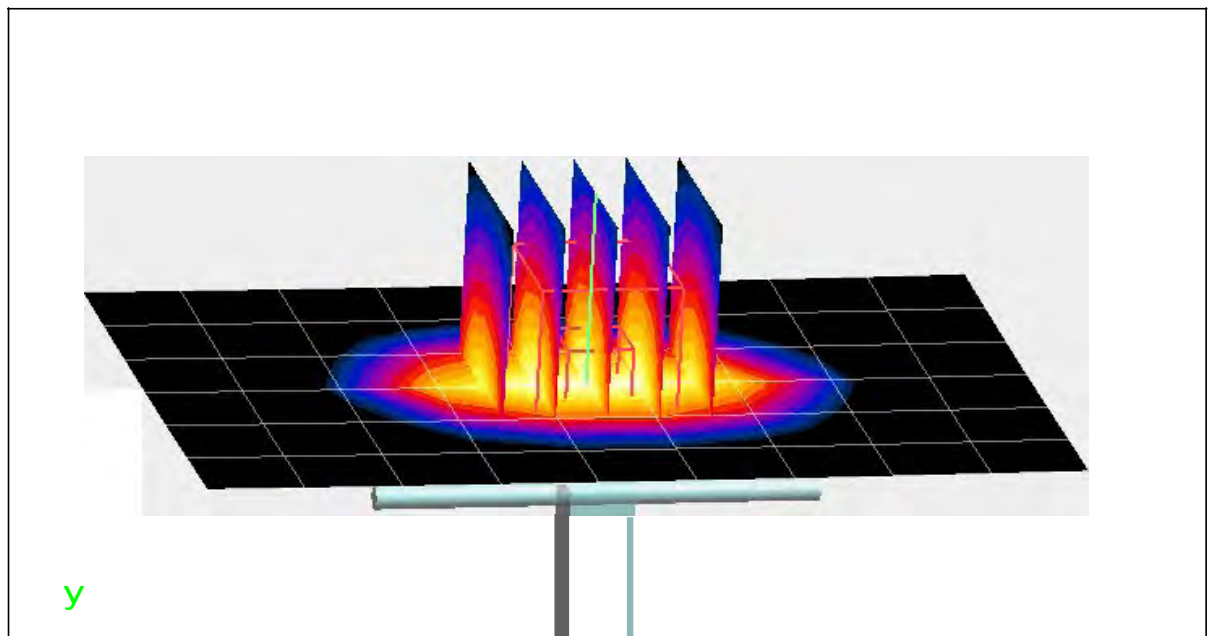
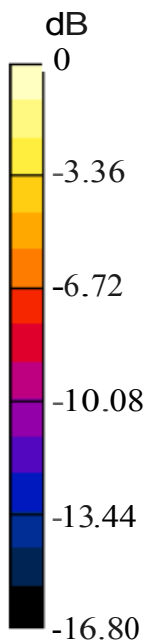
Zoom Scan (5x5x7)/Cube 0:Measurement grid:dx=8mm,dy=8mm,dz=5mm.

Input Power= 20.0 dBm (100 mW)

Peak SAR (extrapolated)=7.46 W/kg

SAR(1g)=4.36 W/kg; SAR(10 g) = 2.32 W/kg

Deviation(1 g) = 7.39%; Deviation(10 g) = 7.41%



0dB=5.48 W/kg = 7.39 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

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):

$f = 1900 \text{ MHz}$; $\sigma = 1.573 \text{ S/m}$; $\epsilon_r = 50.838$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 10-06-2014; Ambient Temp: 23.9°C; Tissue Temp: 22.5°C

Probe: ES3DV3 - SN3319; ConvF(4.67, 4.67, 4.67); Calibrated: 4/17/2014;

Sensor-Surface: 3mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1368; Calibrated: 4/11/2014

Phantom: ELI left; Type: QDOVA002AA; Serial: TP:1202

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

1900 MHz System Verification

Area Scan (7x10x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

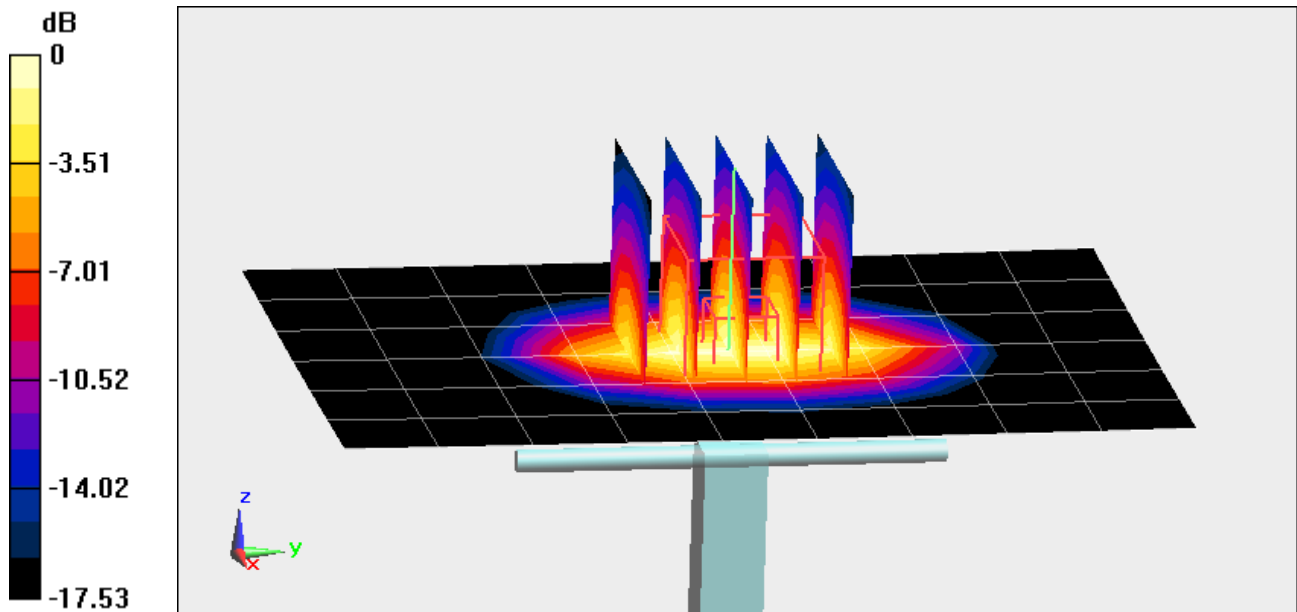
Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Input Power = 20 dBm (100 mW)

Peak SAR (extrapolated) = 7.21 W/kg

SAR(1 g) = 4.09 W/kg

Deviation = 0.74 %



0 dB = 5.14 W/kg = 7.11 dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT:Dipole 2450 MHz;Type:D2450Vl;Serial:797

Communication System:UID 0,CW;Frequency:2450 MHz;Duty Cycle: 1:1

Medium: 2450 Body Medium parameters used:

$f=2450$ MHz; $\sigma = 2.046$ S/m.; $\epsilon_r = 51.116$; $\rho = 1000$ kg/m³

Phantom section:Flat Section; Space:1.0 cm

Test Date:09-15-2014; Ambient Temp:20.8°C; Tissue Temp:22.4°C

Probe: ES3DV3-SN3258; ConvF(4.14,4.14,4.14); Calibrated: 2/25/2014;

Sensor-Surface:3mm (Mechanical Surface Detection)

Electronics:DAE4 Sn665; Calibrated:2/26/2014

Phantom:ELI v5.0;Type:QDOVA002AA.; Serial:TP-1158

Measurement SW:DASYS2, Version 52.8(8);SEMCAD X Version 14.6.10(7331)

2450 MHz System Verification

Area Scan(8:x9x1):Measurement grid:dx=12mm,dy=12mm

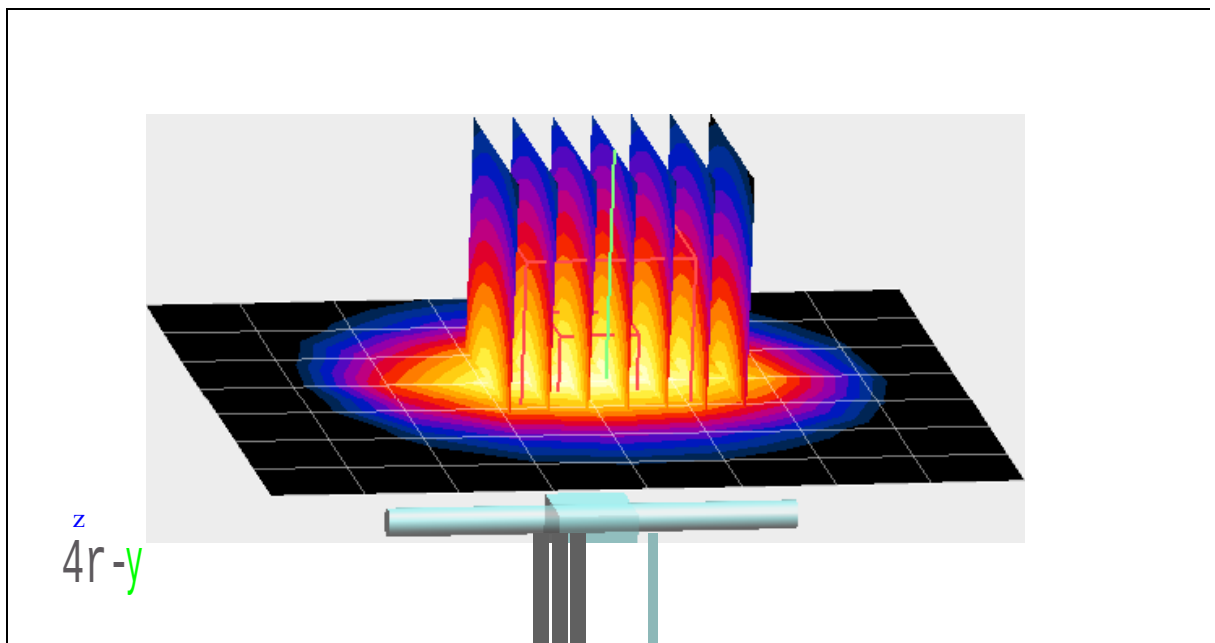
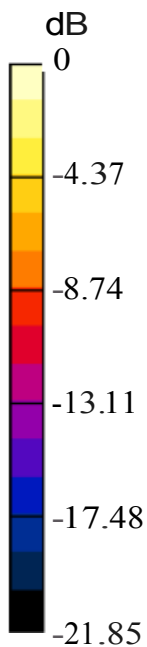
Zoom Scan (7x7x7)/Cube 0:Measurement grid:dx=5mm,dy=5mm.,dz=5mm.

Input Power= 20.0 dBm (100 mW)

Peak SAR (extrapolated)= 11.0 W/kg

SAR(1 g)=5.29 W/kg

Deviation= 7.09%



0dB =6.92 W/kg= 8.40dBW/kg

PCTEST ENGINEERING LABORATORY, INC.

DUT: Dipole 5200 MHz; Type: D5GHzV2; Serial: 1057

Communication System: UID 0, CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Medium: 5 GHz Body, Medium parameters used:
 $f = 5200 \text{ MHz}$; $\sigma = 5.226 \text{ S/m}$; $\epsilon_r = 47.488$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-26-2014; Ambient Temp: 23.8°C; Tissue Temp: 23.3°C

Probe: EX3DV4 - SN3589; ConvF(4.19, 4.19, 4.19); Calibrated: 1/29/2014;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 3/17/2014

Phantom: SAM Right; Type: SAM; Serial: 1757

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5200 MHz System Verification

Area Scan (7x8x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

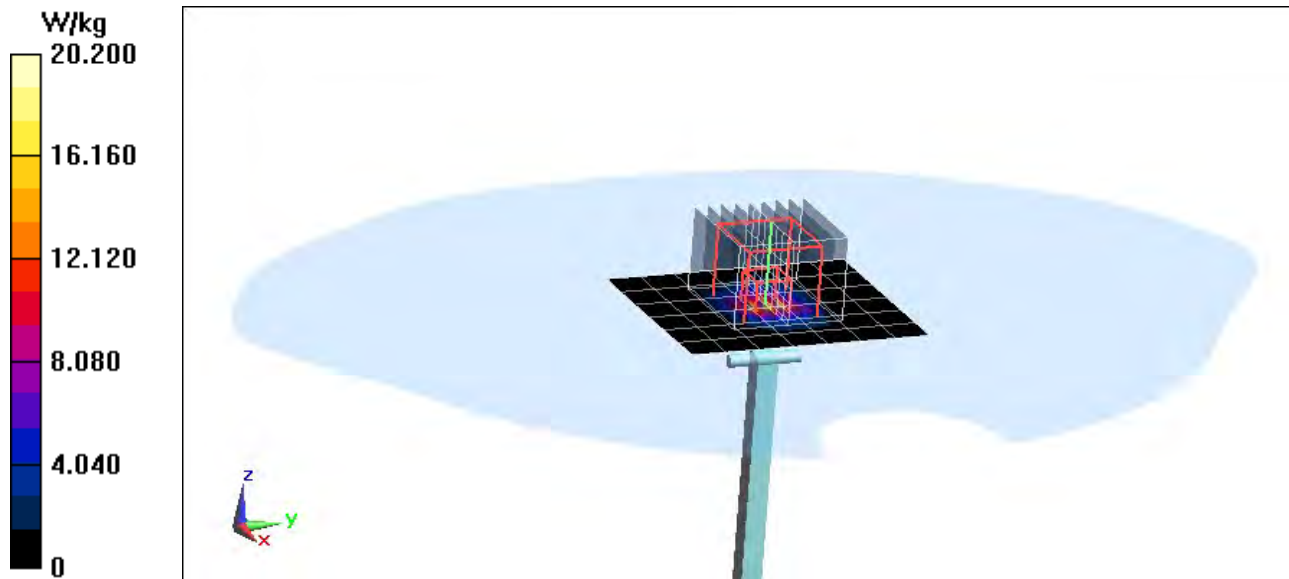
Zoom Scan (9x9x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 32.8 W/kg

SAR(1 g) = 7.87 W/kg; SAR(10 g) = 2.22 W/kg

Deviation(1 g) = 4.52%; Deviation(10 g) = 5.71%



PCTEST ENGINEERING LABORATORY, INC.

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:

$f = 5300 \text{ MHz}$; $\sigma = 5.374 \text{ S/m}$; $\epsilon_r = 47.291$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-26-2014; Ambient Temp: 23.8°C; Tissue Temp: 23.3°C

Probe: EX3DV4 - SN3589; ConvF(3.98, 3.98, 3.98); Calibrated: 1/29/2014;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 3/17/2014

Phantom: SAM Right; Type: SAM; Serial: 1757

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5300 MHz System Verification

Area Scan (7x8x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

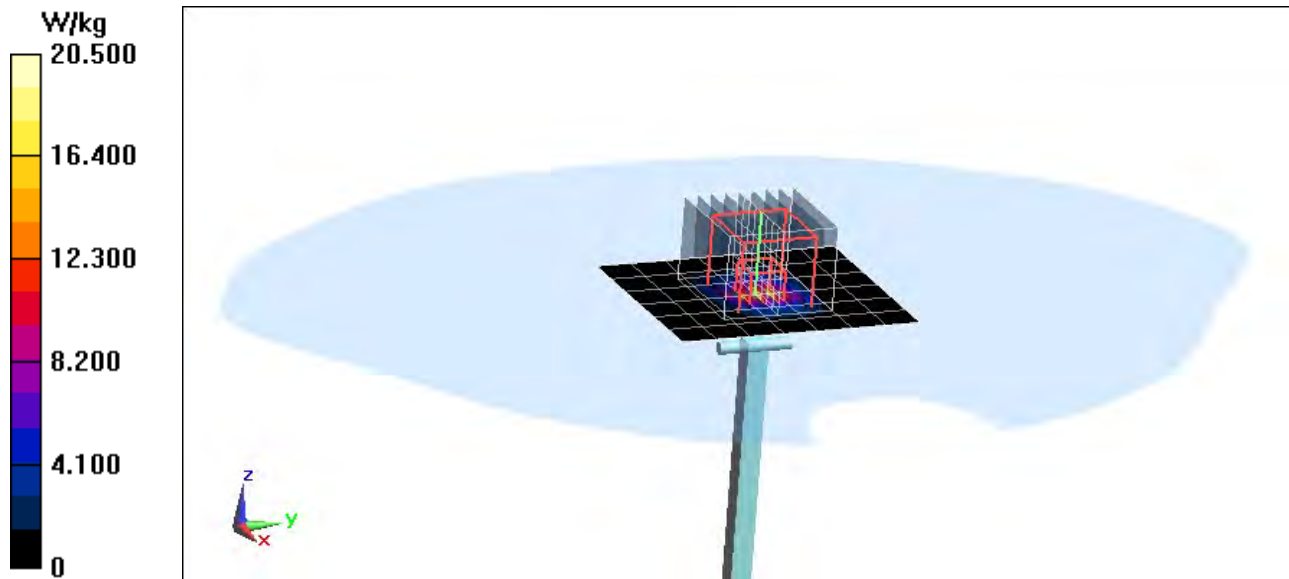
Zoom Scan (9x9x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 36.5 W/kg

SAR(1 g) = 8.4 W/kg; SAR(10 g) = 2.36 W/kg

Deviation(1 g) = 8.53%; Deviation(10 g) = 9.77%



PCTEST ENGINEERING LABORATORY, INC.

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:

$f = 5500 \text{ MHz}$; $\sigma = 5.674 \text{ S/m}$; $\epsilon_r = 46.750$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-26-2014; Ambient Temp: 23.8°C; Tissue Temp: 23.3°C

Probe: EX3DV4 - SN3589; ConvF(3.76, 3.76, 3.76); Calibrated: 1/29/2014;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 3/17/2014

Phantom: SAM Right; Type: SAM; Serial: 1757

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5500 MHz System Verification

Area Scan (7x8x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

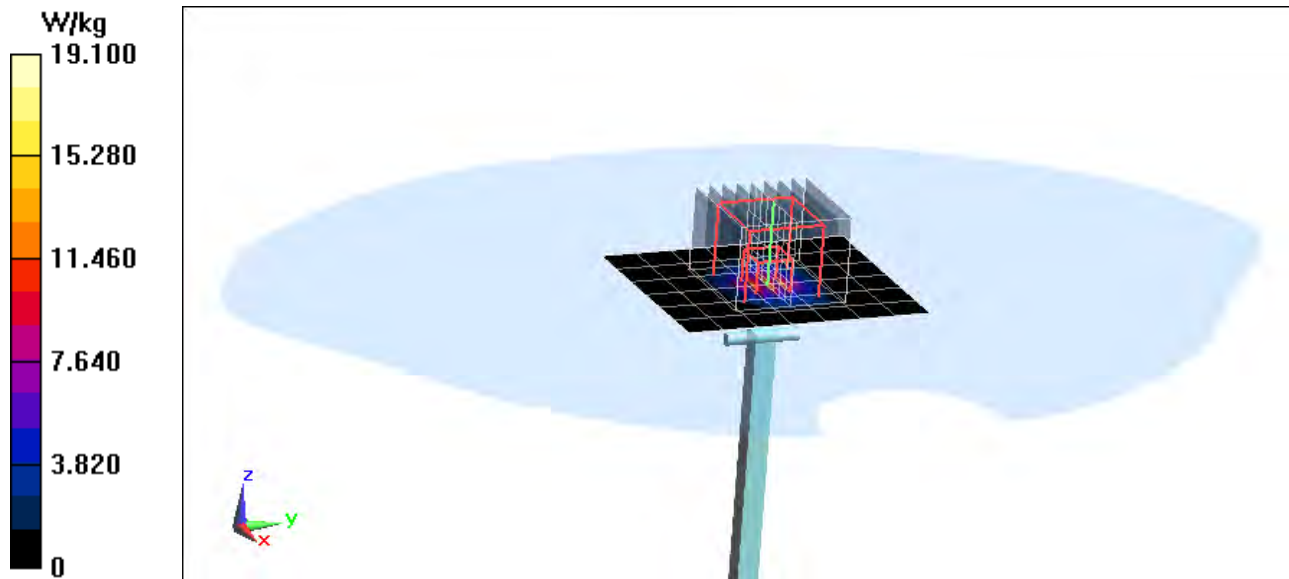
Zoom Scan (9x9x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 35.5 W/kg

SAR(1 g) = 8.00 W/kg; SAR(10 g) = 2.24 W/kg

Deviation(1 g) = 1.14%; Deviation(10 g) = 1.82%



PCTEST ENGINEERING LABORATORY, INC.

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:

$f = 5800 \text{ MHz}$; $\sigma = 6.106 \text{ S/m}$; $\epsilon_r = 46.098$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section; Space: 1.0 cm

Test Date: 09-26-2014; Ambient Temp: 23.8°C; Tissue Temp: 23.3°C

Probe: EX3DV4 - SN3589; ConvF(3.97, 3.97, 3.97); Calibrated: 1/29/2014;

Sensor-Surface: 1.4mm (Mechanical Surface Detection)

Electronics: DAE4 Sn1334; Calibrated: 3/17/2014

Phantom: SAM Right; Type: SAM; Serial: 1757

Measurement SW: DASY52, Version 52.8 (8); SEMCAD X Version 14.6.10 (7331)

5800 MHz System Verification

Area Scan (7x8x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Zoom Scan (8x8x7)/Cube 0: Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=1.4\text{mm}$; Graded Ratio: 1.4

Input Power = 20.0 dBm (100 mW)

Peak SAR (extrapolated) = 34.6 W/kg

SAR(1 g) = 7.12 W/kg

Deviation(1 g) = -4.17%

